

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

In the Matter of:)
)
MARINE FISHERIES ADVISORY)
COMMITTEE MEETING)
)

Elm I & II Meeting Room
Sheraton Silver Spring Hotel
8777 Georgia Avenue
Silver Spring, Maryland

Tuesday,
October 13, 2015

The parties met, pursuant to the notice, at
8:44 a.m.

PARTICIPANTS:

MAFAC MEMBERS:

- MR. KEITH RIZZARDI, Chairman
- MS. JULIE MORRIS, Vice Chair
- MR. EDWARD P. AMES
- MS. TERRI LEI BEIDEMAN
- MS. JULIE BONNEY
- MR. DICK M. BRAME
- MS. HEATHER BRANDON
- MR. COLUMBUS H. BROWN, SR.
- MR. PAUL CLAMPITT
- MR. PHILLIP DYSKOW
- MR. KEN FRANKE
- MS. LIZ HAMILTON
- MS. MICAH MCCARTY
- MR. MIKE OKONIEWSKI
- MR. ROBERT RHEAULT
- MR. VA'AMUA HENRY SESEPASARA
- MR. PETER SHELLEY

PARTICIPANTS: (Cont'd)

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MR. DAVID DONALDSON
MR. RANDY FISHER
MS. EILEEN SOBECK

NOAA STAFF & CONTRACTORS:

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MS. SUSAN BUNSICK
MS. LISA COLBURN
MR. PAUL DOREMUS
MR. RUSSELL DUNN
DR. NICOLA GARBER
MR. ROGER GRIFFIS
MR. CLIFFORD HUTT
MS. HEIDI LOVETT
MS. SABRINA LOWELL
MS. JENNIFER LUKENS
DR. RICHARD MERRICK
MS. PAT MONTANIO
MS. WENDY MORRISON
MR. SAM RAUCH
MR. MICHAEL RUBINO

MS. DONNA WIETING

OTHER PARTICIPANTS:

MS. PAT CAMPFIELD

MR. RICHARD B. ROBINS

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(8:44 a.m.)

CHAIRMAN RIZZARDI: Good morning, everyone,
and welcome to MAFAC's meeting on coastal resilience.

And as I look back and reflect, you know, it dawned
on me how far we've come as a committee. We're
talking about a topic today that, in years past, would
have been taboo and would have caused all sorts of
difficult discussion, but now, it's going to be a
central part of what our committee is working on.

The second topic we'll talk about is species
recovery, and one of the items on there is species in
the spotlight. It's a focus on how NOAA is
identifying species that are eligible and
recovery-ready. And it struck me how that was a MAFAC
idea from five or six years ago, too, where we were
talking about why aren't we focusing on the successes,
why aren't we talking about the species that we can
help most effectively.

And then, there's a draft document, and if
you haven't had a chance to look at it, I encourage
you to do so. Julie and the team that worked on it
did an outstanding job. One of my favorite things in
that document was page 5. It has a little table, and
it shows all seven participants on the task force as

1 having ownership of an interview and authorship of the
2 document, and it shows what this committee can do when
3 all of us contribute and all of us commit our time to
4 producing a document, and it ends up coming up with
5 some really good insights. I'm looking forward to
6 seeing how we take it from the draft that our
7 committee has right now to a final product.

8 At the end of the day today, we'll be
9 hearing from Roger Griffis, and talking to him about
10 the climate science strategy. Of course, we now have
11 the task force that's advising us on these issues.
12 And, you know, as I looked over the agenda for today,
13 I was feeling pretty proud. I am just excited about
14 how far this committee has come, and how much we're
15 working on, and how much we're getting the support of
16 the NOAA staff, and that's reflected by the two people
17 sitting on either side of me, with Eileen and Holly
18 both here in the room.

19 So, I'm going to turn the meeting over now
20 to Eileen, and let her talk with us for a little bit,
21 and then we're going to be hearing from Holly.

22 MS. SOBECK: Thank you, Keith. Good
23 morning, everybody. I'm going to save my sort of
24 lengthier remarks on the state of fish, NOAA fisheries
25 talk, tomorrow, because I want to make sure that Holly

1 has a chance to address you guys at length. And I
2 will touch on some of the things that Keith just
3 mentioned, because I think he is absolutely right,
4 that this is actually one of the most productive
5 advisory committees that I've been associated with,
6 and I have been with the federal government for more
7 than three decades.

8 And you guys really are the input on the
9 issues of the day, and helping us anticipate the
10 issues of tomorrow, so that we're well-positioned to
11 make progress.

12 And that is actually what we're supposed to
13 be using these kinds of advisory committees for, so I
14 do applaud your efforts and the leadership that Keith
15 has been providing to the group. And so, I'm sad,
16 Keith, that this is your last meeting. I have full
17 confidence that the committee is going to be able to
18 carry on under its new leadership, but you've done
19 more than your share.

20 Everybody on this committee, I know that
21 everybody has day jobs, and it's easy, when you have a
22 day job, to really not give 100 percent to volunteer
23 efforts, but I don't think that's been the case, and I
24 really want to thank you all for your efforts because
25 participating in these kinds of multi-day meetings,

1 and the multiple phone calls and efforts, on your own
2 time, to come up with the kinds of reports that you
3 all produce is not easy.

4 And, as Keith said, you guys have been a
5 very productive committee in the last few years,
6 coming up with your own reports and recommendations,
7 and we have used those and relied on them. I hope you
8 noticed as we've moved through, for instance, the IUU
9 fishing effort, we've referred many times and relied
10 on many of the facts and recommendations that were in
11 your IUU fishing report. So, more on that later.

12 So, I do hope everybody can join us at the
13 end of the day -- are we doing it here, Jennifer -- in
14 the bar, here, to have a little -- to raise a glass to
15 say farewell to our departing members, and I'll say a
16 little bit more about them there, but thank you, Paul
17 Clampitt, and Tony Chatwin, and Kim Franke, and, of
18 course, Keith, your chair.

19 So, please join me in thanking them, in case
20 you can't be here this evening.

21 (Applause.)

22 MS. SOBECK: When is everything going to
23 start downstairs?

24 MS. LUKENS: About -- right after the
25 meeting ends, about 5:15, 5:30.

1 MS. SOBECK: Okay. So -- and I invite NOAA
2 staffers, if you are here, to join them, and join us,
3 and to give a special farewell.

4 So without any further ado, I want to
5 introduce Holly Bamford. She is our Acting Assistant
6 Secretary for Conservation and Management, the same
7 position previously held by Eric Schwaab and Mark
8 Schaefer. I think both of them came and talked to you
9 in the past.

10 Holly was, prior to acting in this position,
11 she was the Assistant Administrator for the National
12 Ocean Service, so she has roots in NOAA that go well
13 beyond her existing role, but what I think is exciting
14 about this presentation and our entire morning is that
15 we're really setting the stage, and we really tried to
16 order the presentations and get everything -- all the
17 coastal -- all the -- most of the presentations
18 relating to coastal resiliency here in the first part
19 of the day, so that you kind of have the background of
20 what we're really talking about, because coastal
21 resiliency can be a pretty broad topic.

22 And that's why I'm really happy that Holly
23 is here this morning, to help describe to you what
24 coastal resiliency means, in terms of NOAA and its
25 strategic plan.

1 And then, we'll be talking about how it then
2 steps down to fisheries, because coastal resiliency
3 can mean many things to many people, but to our
4 administrator, Kathy Sullivan, it has a pretty -- it
5 has a broad, and yet specific, definition, and Holly
6 has really been instrumental in helping form that, and
7 flesh it out and push that agenda forward, so we're
8 really privileged to have Holly come spend the next 45
9 minutes or an hour in talking to us about that, about
10 that strategic objective. And we will then proceed
11 from there. Thank you, Holly.

12 MS. BAMFORD: Wonderful.

13 MS. LUKENS: Holly, would you want to go
14 around, so you know who's at the table and have
15 everybody do a round of introductions, so she knows
16 her audience.

17 MS. BAMFORD: That would be great. Let's go
18 ahead and do that.

19 MS. LUKENS: We'll start down at the end.
20 Mike, would you like to start?

21 MR. OKONIEWSKI: Just introduction? Okay.
22 Mike Okoniewski, Pacific Seafood. I am in charge of
23 our Alaska operations, and also government affairs.

24 MR. CLAMPITT: Hi. I'm Paul Clampitt. I'm
25 a commercial fisherman. I own the fishing vessel

1 *Augustine*, and I fish halibut and black cod in the
2 North Pacific.

3 MR. AMES: I'm Ted Ames. I am a founding
4 member of Penobscot East Resource Center, a small
5 nonprofit, retired fisherman, I guess, and researcher.

6 MR. RHEAULT: I'm Bob Rheault. I run the
7 East Coast Shellfish Growers Association.

8 MR. SHELLEY: Peter Shelley, Conservation
9 Law Foundation.

10 MS. MORRIS: Julie Morris, New College of
11 Florida.

12 MS. BRANDON: Heather Brandon, World
13 Wildlife Fund.

14 MS. BEIDEMAN: I'm Terri Beideman. My
15 company is Vast Array, but my clients are primarily
16 commercial in nature, commercial fishermen,
17 firefighters, welders, and other fishermen, and we do
18 some research also.

19 MS. BONNEY: Julie Bonney, Alaska Groundfish
20 Data Bank, Kodiak Alaska, commercial fishing, and
21 groundfish trawl fisheries.

22 (Pause.)

23 (Laughter.)

24 (Asides.)

25 MS. LUKENS: Why don't we go through.

1 MR. DOREMUS: Yeah. I'm Paul Doremus. I'm
2 a deputy for operations, NOAA Fisheries.

3 CHAIRMAN RIZZARDI: Keith, professor at St.
4 Thomas University.

5 MS. BAMFORD: Good morning. Holly Bamford.

6 MR. DOREMUS: And everyone, of course, knows
7 you, right?

8 MS. LUKENS: No, no, not everybody does.
9 I'm Jennifer Lukens. I'm the director of the office
10 of policy for NOAA Fisheries.

11 MR. MERRICK: And I'm Richard Merrick. I'm
12 a key science advisor for NOAA Fisheries.

13 MS. HAMILTON: Good morning. I'm Liz
14 Hamilton, and I run Northwest Sport Fishing Industry
15 Association, and we are a trade group, primarily in
16 Oregon and Washington, but I work for business outside
17 of there, because there is so much money made on
18 salmon on the Northwest.

19 MR. BROWN: I'm Columbus Brown. I'm retired
20 from the U.S. Fish and Wildlife Service.

21 MR. DONALDSON: I'm Dave Donaldson. I'm the
22 fisheries director for the Coastal Conservation
23 Association, working with the Gulf and South Atlantic.

24 MR. DYSKOW: I'm Phil Dyskow. I'm the
25 retired president of Yamaha Motor Corporation, and I

1 rep -- I represent the various recreational fishing
2 organizations.

3 MR. FRANKE: Ken Franke, president of the
4 Sport Fishing Association of California. We represent
5 all the commercial charter companies.

6 MR. DONALDSON: Dave Donaldson, executive
7 director of the Gulf States Marine Fisheries
8 Commission.

9 MR. FISHER: I'm Randy Fisher, executive
10 director of Pacific States Marine Fisheries Commission.

11 MR. BEAL: Bob Beal, director of the
12 Atlantic States Marine Fisheries Commission.

13 MR. SESEPASARA: I'm Henry Seseapasara, from
14 American Samoa, territory south of the equator. And
15 I'm a special advisor to the governor of the American
16 Samoa government.

17 MS. LOVETT: Heidi Lovett, office of policy.

18 MS. BAMFORD: Great. Thank you very much,
19 everybody. Very nice to meet you, and I'm really
20 happy to be here today, as Keith and Eileen said.

21 NOAA has a number of FACs, federal advisory
22 councils, and this particular FAC has been
23 instrumental in a lot of our strategic direction for
24 managing fisheries, so we do -- I also want to thank
25 you for your services.

1 You know, a lot of our federal advisory
2 councils have gotten tactical over the years, and Dr.
3 Cathy Sullivan, when she came in, really driving them
4 towards more of a strategic direction. And I'm also
5 really excited about your agenda today because this
6 really is a strategic direction. NOAA, Department of
7 Commerce, the Administration, very much in tune with
8 resilience.

9 And I'll talk a little bit about that in the
10 presentation, of how we got here, and what are some of
11 the most big stressors that we're looking at, some
12 thing that, you know, that are changing in the
13 environment that we need to be prepared for, and how
14 we're managing our fisheries.

15 And so, so, we'll talk about those
16 stressors. We'll talk about what is the
17 Administration, what is the Department of Commerce,
18 and then, ultimately, what NOAA is doing to address
19 that. I'll probably lay on a couple of examples of
20 some projects. It's not a, it's not a holistic view,
21 but it's a couple of projects I want to highlight on
22 what we're doing.

23 What we're doing to build resilience for
24 NOAA, as well as for managing fish and various other
25 species, and then, maybe just lay out a couple of

1 questions to the panel here today to consider
2 throughout your day in preparations as you think about
3 resilience, as you think about managing fisheries
4 sustainably, and what are some actions and strategic
5 direction that we'll take to do that.

6 I think you're probably very, very familiar
7 with the ocean -- or the fisheries side, and the
8 fishery service of NOAA. I think, today, you're going
9 to hear from other folks. I think you'll probably
10 hear from Sea Grant, a number of other people,
11 particularly programs that are working across the
12 agency. There is a lot of capability and capacity
13 within NOAA that NOAA Fisheries can tap into. There
14 is the research side. There is the weather service,
15 with observation forecasting. You look at trout and
16 the effects on salmon.

17 So, think about that when you're
18 deliberating today, and you have people presenting.
19 Ask questions about the interconnections across the
20 agency, so we can really, from a fisheries management
21 perspective, and a NOAA Fisheries perspective, tap
22 into those resources for our science centers, and then
23 the other centers that exist within NOAA, to make sure
24 that we're managing those carefully and building on
25 those capabilities.

1 As we know, resources are tremendously out
2 there, and we see the budget processes. We're on
3 continuing resolutions, but we have to continue to do
4 our job. And so any way we can find leveraging and
5 partnerships, not only within NOAA, but across the
6 other agencies, is another advantage.

7 So, as you deliberate on resilience, I'll
8 talk a little bit about where the Administration is,
9 and how other agencies play into that. But,
10 obviously, we want to build our capabilities to
11 strengthen resilience for communities, for our
12 fisheries management, and for the economy.

13 So, what I'll talk about today is, again,
14 I'll review a little bit of what the Administration is
15 doing, hit where NOAA is at, give you some examples,
16 and then get in some dialogue. So, I think I'm
17 driving this point, hopefully.

18 Okay. So, I thought I would just start with
19 some of the big ocean and coastal variables in risk
20 Really, the big part of resiliency is assessing your
21 risk. And to do that, you need to understand and
22 observe what those variables are, so you can assess
23 risk. Managing fisheries sustainably is one cog in
24 the railroad of all the other variables out there that
25 are creating risk, and creating vulnerabilities. Two

1 of the biggest we see that we feel moving forward is,
2 obviously, environmental change, climate change, and
3 loss of habitat.

4 So, when you look at some of these variables
5 around here, we call them the ocean and coastal
6 challenges and threats. As it relates to climate,
7 we're looking a sea level rise. We're looking at
8 ocean acidification. We're looking at drought. So,
9 so, it's a lot of water management, too much water in
10 some places, not enough in other places, how that's
11 affecting habitat, how that's affecting various
12 marine, and even land, species. And so, so, how do we
13 address those variables, and how do we estimate those
14 risks.

15 Habitat loss is another big one. We've been
16 working within the administration looking at habitat
17 and its ecosystem services, not only for fisheries
18 habitat, but for detecting storm surge, and trying to
19 promote natural systems and green infrastructure,
20 versus gray and concrete, using natural systems as we
21 rebuild the coast, because it has a tremendous
22 ecosystem services to communities, and we're trying to
23 measure that and understand that better, so it becomes
24 a real viable option as we look at coastal development
25 and redevelopment, by putting in some more natural

1 systems.

2 We have multi-use oceans in the top picture.

3 I mean, clearly, as we look at extraction and we look
4 at other energy sources, we look at -- and we look at
5 the Maersk. Maersk has triple-E ships. They're three
6 football fields long. They're humongous. They're
7 coming into our ports. They're going to the Suez
8 Canal. They can't even fit through the Panama Canal,
9 with the new expansion.

10 So, really, we're going to be looking at
11 port, they're going to be looking to dredge. They're
12 going to be looking at enhancing their infrastructure.

13 And so, you're going to have more ships. You're
14 going to have more activity on the ocean, and so, how
15 do we manage all of that collectively.

16 So, this is -- from our perspective, we look
17 at these, these variables. We look at these risks,
18 and we try to evaluate them and ensure that we're
19 building resiliency around that, knowing that these
20 things are going to occur.

21 One of the biggest things you can hear in a
22 lot of the agencies, from the NSF to the academies, is
23 looking at this nexus between energy, food, and water
24 security. And NOAA plays an instrumental part within
25 this nexus. Really, when you look at water security,

1 and, particularly food security -- food security, we
2 have sustainable fisheries. And ,actually, we're
3 doing quite well. Since 2000, we have 37 stocks that
4 have been rebuilt. The problem is, even though they
5 have been rebuilt, they're not necessarily growing at
6 the rate that we're seeing population growth.

7 Right now, we have a world population of
8 about 7 billion. In 25 years, that's going to
9 increase to 9 billion. When you look at the total
10 seafood production, and the protein that people get
11 from seafood, we're going to look at about 27 million
12 tons of production needed to meet the demands on the
13 population.

14 So, so, we're going to be looking towards
15 aquaculture. So, when you look at sustainability and
16 food security, we have sustainable fisheries and
17 wildstock, but also aquaculture is going to probably
18 be playing a significant role, as we move forward. So
19 think about that, how we're going to meet the demands
20 for protein from seafood, when you have increased
21 populations, at the same time, we're trying to sustain
22 wildstock. How do we look at aquaculture?

23 The United States imports about 90 percent
24 of the seafood we eat. Half of that is aquaculture.
25 So, thinking about that as we move forward, in terms

1 of seafood security.

2 And then the water security is connected to
3 that. I put that there, and because, from a water
4 perspective, NOAA does have requirements missions
5 through the other parts of the agency, particularly
6 through the Weather Service, and the Ocean Service,
7 managing water. But this has a significant resiliency
8 impact on managing fish.

9 And I'm sure you all know that when you look
10 at salmon, you look at others, how we're managing
11 fish. And this includes everything, from
12 precipitation to groundwater, managing our fresh and
13 saltwater systems. So, looking at water security is
14 another angle that we look at when we think about
15 resiliency.

16 So, how do we line up? The
17 Administration -- well, first of all, resiliency is a
18 priority for this Administration. They've done the
19 same analysis. They brought in experts. They've
20 looked across these various variabilities and risks,
21 and they started to analyze what are some of the
22 issues we need to deal with. From Administration
23 perspective, the President put out his climate action
24 plan. That mainly focuses on mitigation, resilience,
25 and preparedness.

1 NOAA falls mainly within -- not as much in
2 the mitigation, but mainly in the resiliency, and the
3 preparedness space of it. And so, there is a number
4 of different components. I won't get into all of them
5 here. But it looks a lot at natural resources, as I
6 mentioned earlier, the use of various ecosystem
7 services to make communities more resilient, to make
8 seafood security more resilient, and the economy more
9 resilient.

10 When you drill down the Department of
11 Commerce -- actually, Secretary Penny Pritzker has
12 been a phenomenal Secretary for the Department of
13 Commerce. She has really elevated within the Cabinet
14 the position of Commerce, and she has also embraced
15 the connection between environment and business.

16 A lot of times, when you talk to businesses,
17 they think you have to be at odds with the
18 environment. What she has done is really looked at,
19 from a data and information perspective, providing
20 businesses information to make better decisions. And
21 so, from a Department of Commerce perspective, she has
22 developed a strategic plan, which actually has goals
23 in there for strengthening resiliency to regions and
24 localities and communities by providing information,
25 and she also has a goal in there for sustaining great

1 resources, habitat, ecosystems through improved
2 management and partnerships.

3 So, Eileen has been feeding into that,
4 through the work from her organization, same with the
5 Ocean Service, the Weather Service, and others. So
6 there is a direct connection, and it helps us line up
7 as we look at how we're managing our resources in the
8 areas that we're focused on, allows us to line up with
9 the department, as well as with the Administration.
10 And this is good when we're moving forward with
11 priorities, as well as budget proposals. Ensuring
12 that you're in line with the Administration actually
13 helps move it through that OMB process.

14 So from a NOAA perspective, Dr. Sullivan,
15 when she came in, she developed -- we don't call it a
16 strategic plan. We call it more of a priorities
17 document. Within our priorities document, there is
18 four, and there is one that focuses on observation.
19 There is one focused on involving the Weather Service.

20 The first one is making communities more resilient.
21 And that is really to where a majority of the work,
22 from the fisheries management perspective, falls, is
23 within the first one.

24 And the way we are defining resiliency is
25 really the ability for communities and ecosystems to

1 recover from a challenge. There is a lot of different
2 definitions out there for resiliency. The way we look
3 at it is what -- examining the risk and variabilities
4 and vulnerabilities. From that, how can you put
5 activities in place, how can you put policies in place
6 that actually make a community and/or ecosystem
7 rebound quicker, better, faster, from those
8 challenges, and those risks.

9 A lot of people say you bounce back from an
10 event. We like to use the term bouncing forward.
11 Moving forward is a more proactive and more positive
12 way of looking at resiliency.

13 The other part of resilience, how we look at
14 it, is not just from an ecosystem-based management
15 approach, but we look at it from the three dimensions
16 of economic, societal, ecological. And that's because
17 when people are making decisions on the ground,
18 they're not only looking at the ecological benefits.
19 Clearly, they're looking at it from an economic and a
20 social perspective, as well.

21 So, when you're providing information,
22 you're making decisions on resilience. And truly to
23 integrate resiliency into decisions, you have to look
24 at all three, because that's how people are ultimately
25 making their decisions.

1 From an economic perspective, we look at it
2 as the economics to building resiliency, but also not
3 building resiliency. There is a cost associated with
4 that. And a lot of people, when you start looking at
5 putting resiliency practices in place -- and I'll go
6 back to the example of natural infrastructure -- a lot
7 can argue -- say, well, it will be more expensive.
8 It's harder to implement.

9 But not moving in that direction, you're
10 going to have substantially more costs if an event
11 occurs, and you have to then respond to that event,
12 and rebuild from that event. So we tried to look at
13 not only the cost to be more resilient, but the cost
14 of not being more resilient.

15 The society connection is really reducing
16 the vulnerability to society. I mean, that's looking
17 at the vulnerabilities to communities, coastal
18 communities, all communities, and then trying to
19 assess those vulnerabilities, and reduce them.

20 And then, finally, an ecological perspective
21 is maintaining ecological ecosystem services. That's
22 healthy habitats, that's healthy ecosystems, and
23 integrating that into all three.

24 So that's how we're addressing resiliency.
25 We're looking at it from a three dimension, and we're

1 trying to tackle that by looking at the variables I
2 showed earlier, and moving out on an actions that
3 address those variabilities to enhance resiliency.

4 We're doing this in three areas. And when
5 you look at NOAA's mission and mandates, you know, we
6 focus on coastal resources. We have the coastal zone
7 management program. We have the coastal services. We
8 provide a number of coastal observations, nautical
9 charts, and a number of things there.

10 We have water resources and water -- we are
11 an agency that provides forecasts and predictions
12 related to water, and water resources, and, obviously,
13 of ocean resources and responsibilities, fisheries
14 management, resource management, protected resources,
15 and so forth, and healthy habitats. So, when we look
16 at these three, we're focusing and targeting our
17 resiliency on coastal, water, ocean resources.

18 What I'm going to do next is basically drive
19 into the ocean resource, because that's really where I
20 think this panel should be focused and should be
21 thinking about. When we -- again, when we talk about
22 ocean resources, we're looking at providing resiliency
23 and sustainability to marine species, marine
24 resources, and the habitats that they depend on.

25 We'll also connect this, obviously, to

1 environmental change, as one of the biggest
2 variabilities we see within ocean resource. As I
3 mentioned earlier, climate change, ocean
4 acidification. We're seeing sea level rise. We're
5 seeing a lot of changes, so looking at ocean
6 resources. How do we tackle those variabilities, and
7 what actions can we put in place.

8 So, what I'll do is I'll go through a couple
9 of examples of what NOAA has been doing to try to
10 enhance our resiliency, within an ocean perspective.
11 The first one I'll talk about is the ocean
12 acidification. This is an example out in Oregon and
13 Washington.

14 As probably many of you know, the
15 seafood -- the shellfish industry is over \$100 million
16 business in Oregon and Washington out on the West
17 Coast. But about a decade ago, they were extremely at
18 risk to ocean acidification. Many of the hatcheries
19 on the West Coast were very susceptible to pH changes
20 in the water, and many of the hatcheries were having
21 trouble staying afloat.

22 During that time, they reached out to
23 partners within the region, particularly ocean
24 observing systems from academics and NOAA partners,
25 and, basically, looking for ways to gather information

1 to make better decisions, management decisions, in
2 managing their hatcheries.

3 What we did is we actually installed a
4 real-time warning system on the coast of Oregon and
5 Washington, so allowing the hatchery to basically have
6 an early warning detection, as the pH changed. This
7 allowed them to understand when they can harvest. It
8 allowed them to understand when they needed to buffer
9 their systems, to challenge -- to, basically, combat
10 the issue of ocean acidification.

11 We did this in a number of places along the
12 West Coast, and we've actually heard from a number of
13 the owners, saying that without this system, you know,
14 their business would have been severely at risk. So,
15 so, this is an area where you're looking at using
16 ocean observations and data to provide real-time
17 warning systems to hatcheries that can actually then
18 make better management decisions, which makes them
19 more resilient in the long run.

20 Another example is the -- which, Eileen, you
21 mentioned earlier, which is IUU fishing, the illegal
22 unreported and unregulated fishing and seafood fraud.

23 NOAA, particularly in the United States, has taken a
24 leadership role in IUU fishing. Last year, at our
25 oceans conference, the President announced that we

1 were going to develop a task force. NOAA co-chaired
2 that task force with Department of State. Dr. Kathy
3 Sullivan sat on that, and they moved forward this past
4 year.

5 Over the past year, they made tremendous
6 stride, in terms of developing the strategy and the
7 implementation plan, what we're going to do to combat
8 IUU fishing.

9 A couple of things came out of that, and we
10 actually just announced them at our oceans conference
11 in Chile last week. I was there, myself, and it was
12 actually a great opportunity to talk to other
13 countries about IUU fishing. And it was interesting,
14 many of them, when we were having the dialogue, you
15 know, people think it's, you know, high seas, and
16 people out there, you know, kind of like pirate
17 fishing.

18 They said, actually, it's more close to
19 shore where they're having a much more difficult
20 problem with unregulated and illegal fishing, and so,
21 really looking at it holistically, cross borders,
22 close to shore, as well on the high seas.

23 So what NOAA and the United States has done
24 is a number of things. One, we've recently
25 established an integrated seafood traceability

1 program. And this is really tracking seafood from
2 harvest to production, across the entire U.S. We have
3 a strategy that we're developing. We're going to
4 start to look at the most at-risk species that are
5 mislabeled or being illegally caught.

6 I don't think we've put out that list yet,
7 right? I think it's still not done.

8 MS. SOBECK: It's out in draft.

9 MS. BAMFORD: Oh, in draft.

10 MS. SOBECK: It will be final by the end of
11 the month.

12 MS. BAMFORD: That's right. So the final at
13 the end of the month. So, putting the seafood
14 traceability program in place. We also have launched
15 the Sea Scout, which is a new global initiative that
16 will unite governments, and other stakeholders
17 worldwide, to look at illegal unreported and
18 unregulated fishing, by focusing on the global assets
19 and partnerships, and really prosecuting IUU fishing
20 organizations to reduce the incentive for illegal
21 fishing.

22 So that's driving across -- across the
23 globe, getting partners from other countries to look
24 at that. It's called Sea Scout.

25 The other thing is Navy and NOAA are working

1 to train enforcement agents in various countries to
2 help reduce and increase enforcement for IUU fishing,
3 to reduce the likelihood of it. And then, finally,
4 from a research perspective, we're actually using
5 VIIRS, which is visible infrared imagery to try to
6 track vessels at night, to catch illegal fishing as
7 well.

8 So, we're developing some research tools to
9 take a look at that. It's still in the early phase.
10 It's really gathering information from satellite
11 imagery to help us better understand some fishing at
12 night. So, we hope to complete that in the next year,
13 year and a half.

14 And the last example I want to talk about
15 was assessing risk and resilience for fishing
16 communities. And this is -- this is, I think, a
17 really interesting new tool that NOAA Fisheries has
18 developed. It's really a community social indicator
19 mapping tool. So, it's looking at the social
20 well-being of a community. And the interesting thing
21 here is we've seen a number of indicators for, sort
22 of, well-being of communities, but not at the local
23 scale.

24 What this has done is looking at a number of
25 different indicators, not only from commercial and

1 recreational fishing, but it's looking at indicators
2 of jobs, of the demographics of a community, of the
3 housing market, and it's looking at a number of
4 different variables, the economic as well as the
5 societal and environmental, the habitat type, to bring
6 those indicators together, so you can have a better
7 understanding of a fishing community's vulnerabilities
8 to various stresses.

9 This is available online. It also can track
10 change, and you can also pick different variables
11 between the social, the economic, and the
12 environmental variables. So, this is a really -- I
13 think a fascinating and a good tool, because it
14 actually targets fishing communities, and it helps
15 management -- it helps managers make management
16 decisions within those areas.

17 It's something that looks at a lot of those
18 variabilities, and sometimes all of these don't take
19 into account when you're looking at either commercial
20 or recreational fishing. It goes beyond just the
21 community, all the way up, as I said, to housing
22 markets in a region, to really look at the risks
23 associated with the community and how that might play
24 into the fishing aspect.

25 So, this is a tool that I think is very

1 effective. It's in a number of communities, with more
2 proposed. It is being used by fisheries resource
3 management, as well as coastal managers, so looking at
4 vulnerabilities and risk.

5 So, really, change is here. We say this
6 because we're trying to adapt these variabilities.
7 Some we could put policies in place. We can put
8 regulations in place to reduce those risks. Others,
9 it's difficult to control the risks, so we have to put
10 actions in place and tools in place that help us
11 better understand and make better decisions as we move
12 forward.

13 I think, from the perspective of the
14 committee here, is to think about how we could move on
15 some other actions. What are some of the biggest
16 variables you see, that maybe I didn't capture here?
17 What should we be thinking about as we try to do
18 sustainable fisheries management into the future, and
19 actions and areas we should be targeting.

20 So, that's all I have, in terms of
21 presentation, but would like to open it up for
22 comments, questions, or a dialogue.

23 CHAIRMAN RIZZARDI: Um, alright.

24 MS. LOVETT: The reporters would like for
25 people to just note their name first as -- note your

1 name, and then speak towards the microphone. Thank
2 you.

3 CHAIRMAN RIZZARDI: Thank you, Holly. Thank
4 you, Heidi, for the feedback. Thank you, Holly, for
5 the presentation. And to members, name first, and
6 then any comments or questions. David.

7 MR. DONALDSON: David Donaldson. You
8 mentioned the traceability program, and you may be
9 aware that the commission, the Gulf Commission, using
10 BP money from the BP spill, implemented a traceability
11 program. Do you have any details about exactly what
12 that is going to be, and -- or is it just, you guys
13 are going to implement a traceability program, and
14 then -- I just was wondering if you have any
15 additional information about that.

16 MS. SOBECK: So, we'll be publishing draft
17 regs by, about, the end of the month. And the thing
18 about traceability is what it -- if you go look at the
19 recommendations with the IUU task force, we're talking
20 about traceability from capture to entry into U.S.
21 commerce. So, that's either importation or landing
22 for domestic fisheries.

23 So, we'll be coming out with a draft scheme,
24 here at the end of the month, and it will be out for
25 public comment, and we'll look forward to a more

1 robust discussion, at that point.

2 MR. DONALDSON: Thank you.

3 MS. SOBECK: I have a question, Holly. It's
4 Eileen. Have you had conversations on the Hill, and
5 are you finding that this is a thing that's resonating
6 with folks on the Hill? Because I -- I guess
7 I'm -- what is interesting is I think it really
8 resonates, as kind of where all of our interests, our
9 agency interests, all come together. And I know that
10 when we had small amounts of money for coastal
11 resiliency programs, we've had just way more demand
12 than we've been able to fund. We've had really great
13 projects. And yet, there doesn't seem like -- I don't
14 know.

15 I mean, my perception is there is not a huge
16 appetite, yet, on developing this.

17 MS. BAMFORD: Right. You know, it depends.
18 I think when you start -- it's interesting, because I
19 think resiliency, unfortunately, got tagged with,
20 either another word for climate change, or another
21 word for ocean policy, and the divisive you have on
22 the Hill right now, anything that's associated with
23 some of these Administration priorities tend to get
24 tagged.

25 But, I mean, when you look at these

1 variables, they're here. And when I go down to
2 Norfolk, and they're dealing -- and, you know, you
3 can't mention the word climate down there. But when
4 their streets are flooding, they listen. They're
5 like, we have a problem. And so, you don't get into,
6 you know, how that problem got there. You just get
7 into the fact that you have an extreme vulnerability,
8 with high risk to the three dimensions we talked
9 about: ecological, the societal, and your economic
10 perspective.

11 And so, then we start to get into the
12 conversation of how do we address that risk. What
13 information do you need, what management, what
14 policies in place? And so, so, that's when you start
15 to get a lot of support. If you go in it talking
16 about resilience, and you kind of don't define
17 particular vulnerabilities or issues, that's a lot
18 harder conversation.

19 But, what we're seeing in a number of
20 places, that there is extensive problems related to
21 these variabilities, and being more resilient will
22 help you combat those.

23 I mean, the hatcheries is a good one, too.
24 I mean, once people started feeling the impacts of
25 ocean acidification, it wasn't just this term of ocean

1 -- I don't understand what -- you know, how does that
2 affect me? Well, all of a sudden, it's affecting real
3 people with real jobs. And coming in with an early-
4 warning detection system and seeing how providing
5 information to make better decisions to sustain their
6 business, then you get believers.

7 So, unfortunately, trying to do the
8 preventive nature is tough, until somebody is actually
9 impacted. And so it's a lot easier when you have
10 victims than it is when you're trying to prevent
11 something before it happens because people don't have
12 the change tangibly to understand it.

13 MR. CLAMPITT: Paul Clampitt. So I'm
14 leaving MAFAC, and I just recently joined the Marine
15 Resource Committee. There are 16 of them in
16 Washington state. They're all based on counties. And
17 we're all doing -- trying to do the same thing,
18 restore wetlands and eelgrass beds.

19 And, recently, there are some grants that
20 came available. I tried to, you know, get some
21 information from Heidi. But, you know, the grant was
22 so narrowly focused, it was like one of the -- one of
23 the things that we couldn't use was renourishment.
24 They weren't going to allow any renourishment
25 activities in the grant. And if you're going to

1 restore an eel bed --

2 MS. BAMFORD: Right.

3 MR. CLAMPITT: -- you kind of need to
4 renourish the beach, remove the bulkheads and
5 renourish the beach. So, I guess my comment would be,
6 you know, we're trying to, you know, engage these
7 grants, but we find them so narrowly focused that, you
8 know, we're not in the running, most immediately. So,
9 I guess I would ask that they be liberalized a little
10 bit. I guess we need to write our congressman to get
11 more money.

12 MS. BAMFORD: David, no, you've hit a good
13 point. I'll mention two things. One is a lot of our
14 authorities haven't caught up to today's problems. I
15 mean, when I'm dealing with the Army Corps, the Army
16 Corps, particularly in the Gulf, want to utilize sand,
17 sediment. But when you look at WRTA, they can't do
18 certain things, because they are authorized -- they're
19 not to.

20 So, it's not that we're unreasonable in a
21 sense, it's the fact they were held to our
22 authorities. And when you look at those, they don't
23 necessarily match to the risks that we have today.
24 So, that's one.

25 So, I think we need to deal with sometimes

1 changing those types of authorities. It takes, like,
2 you know, an act of God, half the time, to get the
3 authority. And, you know, so we have authorities that
4 when they come up for reauthorization, that's another
5 thing. That's another tool we have in our toolbox to
6 think about. How do we make these things more useful
7 to real-life situations that you're talking about.
8 What do we need to have?

9 And I think the second one is, is as we
10 develop a lot of these grant programs, they go through
11 a series of evolutions, from where the Administration
12 or the agency thinks the best way to utilize more
13 resources, and then it goes through various layers all
14 the way up through, and then it hits Congress, and it
15 probably has, by the end of it, 25 authors on the
16 value and use of those resources. And sometimes, just
17 depending on who wrote it, it can be conflicting, or
18 doesn't make sense, at the end of the day.

19 So, we have to manage that. But what I can
20 say is when we get these grants -- and I'll mention
21 the ones that Eileen talked about. NOAA had about \$10
22 million worth of grants, last year, to do this type of
23 work. We had over \$150 million of requests. So, the
24 need is there. The breadth of the need is there. We
25 need to continue to turn that around.

1 And what our strategy is for the Hill is
2 basically looking at where all those came in, and go
3 to a particular coastal congressman or woman, and say,
4 listen, you might not like resilience or climate, what
5 have you, but there is \$25 million of requests from
6 your constituents, your district, that actually need
7 help, federal assistance to do the right thing.

8 So, we're trying to use that as a tactic in
9 this, to hope to continue to grow these types of
10 programs, because there is really a need out there.

11 MR. CLAMPITT: Yeah, that's good. Thank
12 you.

13 MS. SOBECK: You know, I know that we've
14 talked about, in conversations at the NOAA level,
15 ocean and coastal as being kind of two categories, and
16 then -- and yet, I guess I think that -- and you were
17 sort of -- you were sort of indicating that for
18 fisheries, you know, it's the -- it's the ocean
19 resilience we're kind of looking at.

20 But I actually think that, in some ways,
21 we're focused more -- we're also focused on coastal
22 areas, because I think there is more opportunity for
23 kind of overlapping interests, you know, it's like
24 union interest and ecological interest overlap, and
25 it's easier to put your finger on what you can do.

1 I mean, I think we all saw this in Deepwater
2 Horizon. You know, you have a lot of -- people have a
3 lot of ideas about what to do, in terms of wetland
4 restoration, or coastal restoration. When you talk
5 about open water, it's a little bit harder.

6 And so, you know, even though I respect
7 those three categories, I think that we -- a lot of
8 the things that we talk about and are interested in,
9 when we are in that coastal area -- and I know that
10 one thing that we were thinking about is where --
11 where there is an overlap between what community and
12 economic interests are, and our ecological resource
13 and interests are.

14 And it's something that we've been talking a
15 lot about with fishery management councils, where
16 there might be issues, and interests, and habitat, and
17 types of projects that would come out, resilience that
18 are maybe outside the scope of what a fishery
19 management council could do, but they could
20 explain -- they could -- the council can help us
21 figure out areas that are of interest, or stressors
22 that are of interest, that we would then want to bring
23 to that -- the area of coastal resilience, and try to
24 address in some way, shape, or form.

25 And so, I don't want us to get too hung up

1 on the categories.

2 MS. BAMFORD: Yeah. That's -- the -- we're
3 going through the exercise of how to focus, because we
4 do so much. How do you develop a priorities document
5 that has some focus to it? And the way we were
6 slicing and dicing those three categories was almost
7 like six different ways, and we finally just settled
8 on ocean, coastal, and water.

9 And so, I would -- I would agree with Eileen
10 that they pretty much intersect. We probably could
11 have sliced and diced that a number of other different
12 ways. But I think you're right. I think you even
13 extend into the water side. I think all three areas
14 is something to consider. I focus on the ocean,
15 because I want to give examples. And, actually, some
16 of -- most of the examples were coastal examples.
17 There wasn't really a distinction between them.

18 But, in terms of trying to get it on paper,
19 how do you divide it? But, you know, when you look at
20 our responsibilities, there are some clear -- NOAA has
21 some clear responsibilities, when you think of ocean.

22 When you get coastal, it gets messy.

23 And I think that's the other part to
24 consider id not always does NOAA have the direct lead.

25 It's usually a state, or it's another partner,

1 another agency. So how would it -- how is it that we
2 play within that spectrum?

3 I think you'll hear later from Pat Montanio
4 on some of the coastal work that we're doing. She's
5 leading a group called NCAT, which is a NOAA habitat
6 conservation team, and it's made up of members from
7 across the agency. She cochairs it with an NOS senior
8 executive, and they bring capabilities to deal with
9 habitat conservation from a coastal and ocean
10 perspective.

11 So, you're right. I don't think there is a
12 divide there, but it's the challenge of when you get
13 closer to coasts, how do we much more work with our
14 partners to address some of those risks and manage
15 fisheries.

16 MS. SOBECK: And I do think that that's one
17 of the -- that the challenges in a -- you know, in a
18 time of relative resource -- relatively constrained
19 resources, how do you -- it's a big coast, right? How
20 do you do -- it's the old, can you do everything
21 everywhere. How do you figure out which -- you know,
22 it's not just one grant program. We've got a
23 multitude of grant programs that are all -- all have
24 slightly different areas of focus, but, you know,
25 maybe there is some way to kind of cluster those.

1 I think that's something that we -- I mean,
2 I think it would be worth the committee thinking about
3 how do you -- you can't do everything. You can't do
4 everything for everyone, everywhere. Where do you
5 focus? What do you focus on? How do you take, you
6 know, the long list of grant programs, everything
7 from, you know, sampling the bottom sea glass, to
8 coastal resilience, to community restoration, to
9 species in the spotlight, some of which are coastal
10 species? You know, it's -- how do you -- how do you
11 capitalize on BP money that's going to the Gulf? How
12 do you capitalize on Superstorm Sandy restoration
13 funds?

14 You know, I mean, it's -- I think we need
15 to -- it's hard to be -- you have to be strategic
16 about where we have resources. We want to help
17 everyone, but do we -- will we be spread too thin? A
18 lot of the kinds of issues that we're talking about,
19 promoting resilience, you can't just throw, you know,
20 \$50,000 here, half a million dollars there, and get
21 very far. A lot of these -- a lot of these projects
22 can -- you know, are pretty resource-intensive.

23 We need to think about whether we're
24 throwing resources in the right place, or is it some
25 place that's going to be inundated in ten years

1 anyway. So, I think that there are a lot of -- a lot
2 of questions about the strategic use of resources as
3 well I think we struggle with, I know I struggle with.

4 MR. SHELLEY: I thought the vulnerabilities
5 project is really interesting, in fact. I was very
6 pleasantly surprised how -- how fine a cut you could
7 make between different factors in communities, fishing
8 versus non-fishing, different kinds of
9 vulnerabilities. And it struck me kind of the
10 equivalent of a weather forecast, you know, at a
11 social and economic level, but red light that almost.

12 And I wonder if your ground truths, your
13 findings on particular communities, with their own
14 awareness of those vulnerabilities. Have you made any
15 effort to --

16 MS. SOBECK: That's a good question.

17 MS. BAMFORD: So, I do know -- and in terms
18 of developing these tools, they are -- they are
19 bottom-up. You know, one thing we try to get away
20 from is build, and they will come. That's like the
21 worst -- you know, you want the end user at the table.

22 So, we've done a much better job of understanding,
23 from a resource management decision user level, and
24 what is it that helps.

25 So, in terms of the utility of the tool to

1 the users, it's very high. And it's being utilized to
2 make those decisions. A lot of the data that's going
3 to those variabilities are coming from Census and are
4 coming from other agencies. So, the tool itself is
5 extremely well done. It has great information. And
6 it is providing a number of different variables that
7 are helping managers make decisions.

8 So, I would say the answer to that is
9 probably yes. I haven't talked, specifically, within
10 the communities in terms of the ground-truthing. But
11 my understanding is it has been extremely effective to
12 looking at the -- because a lot of times you're not
13 thinking about that. And you're right. It is like a
14 weather forecast. I think that's the benefit of NOAA,
15 when you have these cross-agencies starting to
16 integrate together, and how to develop some of these
17 tools.

18 You're taking the expertise from other parts
19 of the agency, to help develop tools from a fisheries
20 management perspective. What is successful from a
21 weather forecast? And how do communities behave to
22 that type of -- another part of it is how do users
23 behave to that information.

24 I mean, you look at weather forecast, you
25 know, they use color. But if you ever notice, color

1 is not universal. There are different colors when you
2 look at hurricane versus a tornado. Sometimes red is
3 bad, and other times, purple is bad. So, we're
4 working on that. There is not always -- so, so -- but
5 it's funny, because people reach differently to
6 different colors. They go, I see red, I think that's
7 really bad. Purple, I don't know, is that bad?

8 But, you know, that's -- it's -- so it's the
9 same thing here, is engaging the user and the social
10 science aspect of information and how they're making
11 decisions is part of the development of these tools.

12 MR. SHELLEY: Do you -- I guess I'll follow
13 up. And maybe it goes to something Eileen was saying.

14 Do you see your agency using this tool to shape how
15 you're allocating resources between regions and --

16 MS. SOBECK: Yep.

17 MR. SHELLEY: Is this more than just
18 informational, I guess, is my question.

19 MR. DOREMUS: I think that's all in the
20 long-term on-site, not at this moment. Are we doing
21 that? But I think that's a logical location of this
22 type of work. It is truly strategic. This is the
23 nature of the work we do. It's long-term in nature.
24 And I do think that that's among the sense of
25 questions that we need to take up, as we look at how

1 collection of ecological problems, and see it from a
2 fishery point of view. It's probably going to play
3 out over time.

4 MS. SOBECK: But I do think this notion of
5 ecological forecasting being akin to what we do in the
6 Weather Service is something that we're struggling
7 with. You know, we'd like to be able to that. We'd
8 like to be able to, and I know we've had a lot of
9 discussions with Richard and his team about how is
10 climate change affecting fishing -- fisher -- fish
11 populations and fishing patterns, and trying to get
12 some information that would allow communities to make
13 longer-term decisions about whether they should
14 invest, or reinvest in infrastructure, and where we
15 should do that.

16 I don't -- I'm not sure that we're confident
17 enough, yet, in our ability to do that. But I think,
18 you know, that would be -- that would be a goal. I
19 think that there are a lot of ideas out there on the
20 table. There are some tools that people are working
21 on. It's not -- it's not cheap to work on those tools
22 and models and test them out.

23 So, I think that we're -- you know,
24 that's -- I think there is a lot of -- I think there
25 is a lot of potential there, and whether there is the

1 space and resources to pursue those, I think we're
2 still kind of up in the air.

3 CHAIRMAN RIZZARDI: Okay, Heidi, what were
4 you going to say?

5 MS. LOVETT: Just so everybody knows -- this
6 is Heidi. We have a presentation by Dr. Lisa Colburn
7 on this very topic, in a short while. And she is one
8 of the people who has been working directly on those
9 vulnerability studies, so I bet she'll be able to
10 answer some of those questions. Thank you.

11 MR. SESEPASARA: Yeah. One of the problems
12 we are experiencing in the Pacific Islands is coral
13 bleaching. And I mentioned the fact on our bottom
14 fish fisheries. I wonder if -- are there any
15 projects, or any data, in regards to that problem in
16 the Pacific Islands.

17 MS. BAMFORD: Specifically -- we have
18 a -- as you know, we have a Pacific Islands science
19 center based in Honolulu, and we do have an extensive
20 coral program in both NOAA Fisheries and NOS. So,
21 we're interested and concerned in coral change that
22 right now, whether we can do much about it and
23 documenting it.

24 But we recognize it as being a problem, I
25 think, and the importance of coral. I think where

1 resiliency comes in, in coral -- and this is -- this
2 is, of course, the case in the national park in
3 Bonaire was studying healthy resilient coral
4 populations and trying to figure out what -- where
5 they are and what mechanisms they used, so that we
6 have a sense of how -- how and -- how during -- you
7 know, how corals are going to bounce back after these
8 stressful bleaching events.

9 MS. HAMILTON: Liz Hamilton. I loved when
10 you mentioned the Greater Green and water security.
11 When you talk about both of those things, those are
12 big in the West, because climate change -- I'll use
13 that word, that phrase. We expect a lot less snow and
14 a lot more rainfall. So, we've got these battles, as
15 you know, between water for agriculture and cities,
16 and then water that our natural resources need. And
17 so, when I think about that, and when we talk about
18 it, we're meeting with the Corps of Engineers.

19 And so, I wondered -- you know, you
20 said -- you mentioned WRDA, but there is also the
21 Corps of Engineers, and it's sort of like this in the
22 West, between NOAA and the Corps.

23 How are you working on that on the national
24 level, to integrate those two activities and changing
25 how we -- you know, how we manage water? And again, I

1 had that same conversation with the Corps about the
2 Greater Green, you know.

3 MS. BAMFORD: Yeah.

4 MS. HAMILTON: When you connect flood
5 plains, we're doing more than protecting lands. It's
6 protecting resources, so --

7 MS. BAMFORD: So the Greater Green, WRDA and
8 the Corps -- again, when you look at their benefits
9 and cost analysis, it doesn't take into account
10 appreciation. So, green infrastructure never scores
11 well. It puts into the cost of development, and then
12 it -- it favors, basically, those things that
13 depreciate over time, because when you put in green
14 infrastructure, it -- anyways, the cost/benefit
15 analysis doesn't favor green, so that's something that
16 they've identified through studies that actually is a
17 problem in their calculations.

18 But again, their calculations are set where
19 that's how they based their projects. But we're
20 working with them on how to -- how to incorporate that
21 into their processes.

22 In terms of water management, obviously we
23 are working very closely as an -- in forestry. You
24 have a number of different players, and it's an
25 extremely complicated machine, honestly. And so, we

1 are working closely. I mean, we are trying to not
2 only manage from a fisheries perspective, you know,
3 make decisions based on how water is being managed,
4 and how that protects the resources, but also we're
5 trying to provide better forecasts on rain
6 predictions, and so.

7 Because the Corps wants to know how to
8 manage water, you know, when to release, when not to
9 release. If you're dealing now instead of with snow,
10 and you can have a more slower control water inflow
11 versus precipitation, then how do you manage all of
12 that?

13 So, so, we're trying to, from across NOAA,
14 provide better forecast predictions, and understanding
15 the environment to manage the water, at the same time
16 making management decisions on how water impacts their
17 resource.

18 All I can -- and you know this. It's
19 extremely complicated, but we are identifying those
20 areas of intersection, those areas that need attention
21 to do better decisions, and try to get there.

22 MS. HAMILTON: If I may, do you see any
23 progress with the Corps in this approach, the Green to
24 Gray?

25 MS. BAMFORD: I mean -- oh, in Green to

1 Gray? Yeah, absolutely.

2 MS. HAMILTON: Great.

3 MS. BAMFORD: Actually, we do. There are
4 some resources. I now that NMFS is working in
5 partnership with the Corps to look at projects around
6 the country to see -- you know, really, it's the size.
7 When you're dealing with engineers, they're right
8 angle. They -- I can build a sea wall, and it's 17
9 feet, and --

10 MS. HAMILTON: Yeah.

11 MS. BAMFORD: -- it's going to prevent this
12 surge, and I can pump the -- I mean, they get that.
13 When you start throwing in some wetlands and -- you
14 know, and I'm a chemist. Believe me, I'm more on --
15 you know, the more, you know, angled side. But you
16 start throwing in, you know, organisms and, you know,
17 grass -- that --

18 MS. HAMILTON: Ecosystem --

19 MS. BAMFORD: I don't know what that does.

20 MS. HAMILTON: -- services.

21 MS. BAMFORD: Yeah, you know. If you're a
22 community, and I see a big wall, I feel a little bit
23 better than some sea grass, right? But that's not
24 necessarily the case in all situations, right? You
25 know, you have flooding, and things like that.

1 Actually, the sea grass and retention is better than a
2 wall, where it deviates and starts to -- we start to
3 lose the sediment.

4 So anyways, it's providing confidence in the
5 research to go in that direction, at the same time
6 changing their calculations on return on investment in
7 terms of getting those projects more implemented.

8 MS. HAMILTON: And flood risk.

9 MS. BAMFORD: And flood risk, yeah. So
10 we're making some progress, baby steps. But
11 we're -- and Sandy actually really helped in some of
12 those resources. They were able to do -- they wanted
13 to do a comprehensive study, a look at this, and
14 they've done it in the Northeast, the Corps has, to
15 look at how they can maybe do projects more
16 strategically and more resilient focused.

17 Other questions?

18 (No response.)

19 MS. BAMFORD: Well, I thank you guys very,
20 very much. You know, I look forward to hearing the
21 dialogue today, and the outcome. Obviously, the
22 recommendations that come out of our advisory
23 councils, we take those to heart, and we put them into
24 practice, so we can better manage and, you know,
25 basically meet our authority, meet our mandates, and

1 do it in the most strategic and effective way.

2 So, again, I thank you for your service, and
3 I thank you for having me here today.

4 CHAIRMAN RIZZARDI: Thanks, Holly. Really
5 appreciate that.

6 (Applause.)

7 CHAIRMAN RIZZARDI: I think Holly has helped
8 launch what is going to be a very important discussion
9 over the course of the day. I've been spending a lot
10 of time lately working on climate issues, resilience
11 issues, and the related ethical implications as a law
12 professor. And I wanted to personalize this for
13 everybody for a few minutes, and I want to give a
14 quick presentation to help you understand the climate
15 context of resilience and try to lay a foundation for
16 where I think our discussion, as a committee, is going
17 to go.

18 Just personal context here. I live in South
19 Florida now, so I worry about this stuff a lot. But I
20 grew up on Long Island, and they're worried about this
21 stuff a lot, too. You know, Hurricane Sandy hit New
22 Jersey and New York.

23 And, you know, I grew up going out fishing
24 with my Uncle Gary. He taught me my love for travel.
25 I'm sharing that same thing with my kids. And I spent

1 a portion of this summer in China. I took my son. I
2 was a professor at a law school for -- as a visiting
3 professor in China for a little bit, and got to see
4 the climate context in a very different perspective.

5 I was breathing that Chinese air and
6 realizing that that's going into my sky. You know,
7 that air that they emit into the atmosphere is our
8 atmosphere, too. And it really got me thinking about
9 this issue, and I'm getting more and more passionate
10 about it. And I wanted to show you what climate
11 change means in Florida, and what resiliency means in
12 Florida.

13 This is a video of the king tide in Miami
14 Beach. This is what happens, as a result of melting
15 glaciers and climate change, coupled with the cycle of
16 the moon and the high tides. And what has been
17 happening over the years is these king tides in Miami
18 are getting higher. This is data that came from the
19 University of Miami, showing just in a 15, 20-year
20 period the increased in the height of the king tide.
21 And we've experienced a four-inch rise in sea levels
22 during that period.

23 So, what we're experiencing in South Florida
24 is perhaps very different from your personal context.
25 And to take this even a step further, the map of

1 Florida is not pretty when you start taking climate
2 change and sea-level rise into account. All of those
3 red areas -- and in this map, red is bad, to go back
4 to --

5 (Laughter.)

6 CHAIRMAN RIZZARDI: All right. In this map,
7 the red areas are generally five feet or lower above
8 sea level, so all of those areas are tremendously
9 exposed to even modest-case scenarios of sea-level
10 rise over time. And the image on the right of the
11 gentleman floating in his driveway is what happens
12 when the tides rise, and the drainage system in
13 Florida starts to work in reverse. Instead of
14 carrying water out to the ocean, the ocean water
15 starts coming inland.

16 The gentleman --

17 (Laughter.)

18 CHAIRMAN RIZZARDI: Harold Wanless is a
19 scientist down at the University of Miami. He's
20 rather controversial for showing these images. He
21 presented these to the South Florida Water Management
22 District. This is just a piece of data, his GIS map.

23 The white areas represent some of the
24 urbanized areas of South Florida and the Miami area.
25 And this is 1995 data that he used for the GIS

1 purposes. And then, what he did is he projected what
2 could happen with the impacts of sea-level rise, over
3 time, in Florida. And just to help you understand,
4 this is two feet of sea-level rise.

5 And I'll go back. Notice in here is
6 Biscayne Bay. And we should be thinking as fishery
7 managers about Biscayne Bay and what is going to
8 happen to Biscayne Bay because it's really important
9 as a nursery, right? We need to be thinking about how
10 do we adapt and what resilience means for an estuary.
11 I mean, how do you relocate an estuary? I don't know
12 the answer to that question.

13 But this is Biscayne Bay at risk, two feet
14 of sea-level rise, four feet of sea-level rise, five
15 feet of sea-level rise. Miami Beach largely
16 disappears. South Beach is in tremendous jeopardy.
17 This is my home, and this is our home, right? This is
18 the Blue Marble. It's one of the most famous pictures
19 of earth, because it's one of the only pictures, the
20 only picture, we have of the earth fully lit when the
21 1972 Apollo mission was out there. And they took this
22 photograph.

23 And, you know, this is the context for all
24 of us. We are managing the blue planet, and we are
25 managing our oceans. But we are also managing our

1 skies. And this picture, I love, because it helps
2 illustrate how thin our atmosphere is. You know, we
3 think about the sky as this vast, endless space, and
4 it's not.

5 We are using our atmosphere as an open sewer
6 right now. We are discharging into the atmosphere all
7 the time, and all those emissions are changing the
8 planet. And this is not controversial science. This
9 is basic, elementary science. We are talking about
10 sunlight that is hitting our planet that is causing
11 the energy to accumulate in our atmosphere. We're
12 talking about the emission of greenhouse gases into
13 the atmosphere.

14 And, look, I get it. It's not a MAFAC job
15 to regulate greenhouse gases, and I'm not going to try
16 to suggest that that's part of the conversation that
17 we need to have, right? I'm just pointing out the
18 context. This is the context.

19 This is water vapor and greenhouse gases
20 going into our atmosphere. They're coming from all
21 sorts of place. We've got forest fires. We've got
22 coal. We've got agriculture. We've got industry.
23 And all these activities, collectively, are changing
24 our planet, but they're changing our fisheries. And
25 that's what we need to be worried about here.

1 The local carbon emissions from fossil fuels
2 have been steadily on the rise. I got ahead of myself
3 there. Sorry about that. This graphic that I'm going
4 to show you is going to really start getting you
5 thinking about what is ahead and what we need to be
6 doing with resiliency, because to me, one of the key
7 issues in dealing with our projections over time is
8 can we project how ocean conditions are going to
9 change? Can we project where fish are going to move?
10 Can we understand any of these issues adequately? And
11 one of our really big issues is the change in the
12 ocean temperatures.

13 Temperatures are changing globally. This is
14 a standard bell curve, showing you how temperatures
15 were from 1951 to 1980. Bright white area is the
16 baseline. That's the norm. Blue areas are cooler
17 than average. Red areas are warmer than average.
18 And, of course, in any normal circumstance, the bell
19 curve, sometimes it's hotter, sometimes it's colder.
20 You can have that kind of variability.

21 Well, what is really significant is this is
22 '51 to '80. And then you go 1981 to 1991, and
23 temperatures start shifting. We starting more warmer
24 than average compared to the historic baseline. Then
25 you go 1991 to 2001. Temperatures shift even more.

1 Then you go 2001 to 2011, and temperatures
2 have shifted again. This is not projections. This is
3 actual data. This is the actual change in the bell
4 curve that we are experiencing on a decadal time
5 frame. Temperatures are getting warmer, and there is
6 no doubt.

7 What it also means is extreme temperatures
8 are now occurring in 10 percent of our planet, whereas
9 they used to occur in .1 percent of our planet.
10 That's a really significant change. So, if you look
11 at that data ,and you chart it out on a
12 decade-by-decade approach, you can see, compared to
13 what the average is, the last three decades have all
14 exceeded the average.

15 In fact -- and this one was really telling
16 to me -- we are now in the 38 consecutive year above
17 the 20th century average temperature. And this is
18 more than just a trend. This is our new reality.
19 That's a really significant point, when you think
20 about ocean heat context. And what we are
21 experiencing is a dramatic rise in ocean heat from
22 1960, all the way through the present day, and the
23 chart depicts it very clearly.

24 And, again, for us as fishery managers, what
25 that means is we have to worry about what it means for

1 the water cycle. We have to think about how the water
2 cycle and the ocean is changing.

3 This is a map of sea surface temperature and
4 variability and showing that in, at least as of the
5 date of Hurricane Sandy, October 29th, 2012, many
6 areas of the ocean were as much as nine degrees warmer
7 than the norm, right? So what happens when you get
8 that kind of anomaly is you get bizarre events. You
9 get a hurricane that hits New York.

10 We also have problems with changing
11 atmosphere in the winter season. We get much bigger
12 storms dropping massive amounts of snow. We get
13 snowmageddon in D.C., and we get incredible snowstorms
14 in Boston. And that's because we've got more water
15 vapor in the atmosphere, because we have changed the
16 water cycle. When you raise the temperature, you get
17 more evaporation, and you get more precipitation. It
18 comes down in harder bursts, and then that water is
19 flowing more quickly, and you're having massive flood
20 events, as a result, to the sea.

21 All right. So, we've altered the hydrologic
22 cycle. But, again, as fishery managers, that's really
23 important to us, because what we're talking about are
24 our dams and our rivers. We're talking about how
25 quickly water flows to the sea. We're talking about

1 how much storage we have to hold back. We're talking
2 about our salmon runs, and our fishery runs.

3 All right. Here is Folsom Lake, in
4 California, in 2011, and here it is in 2014. All
5 right, dramatic changes in our reservoir. And 2013,
6 at the time, was California's driest year on record,
7 until today.

8 All right. Now we're dealing with
9 California's driest year on record, where California
10 has got 99 percent of the state in drought, 47 percent
11 in extreme drought. We are fundamentally changing our
12 climate, and that has serious implications for us,
13 when we're managing our oceans, when we're managing
14 our fisheries.

15 Alaska has got problems, too. We've got
16 major fisheries that we have to worry about up there.

17 Here is the data showing, again, temperature
18 anomalies occurring in Alaska. And this is in May of
19 last year. What was really amazing to think about is
20 Eagle, Alaska, way up north in Alaska, was hotter in
21 May, and reached a temperature hotter in May, than any
22 temperature seen in Texas.

23 We are changing our planet. We're changing
24 our snow belt. We're changing our rivers. We're
25 changing our systems. And, again, what that means is

1 changes in our seafood, changes in our seafood supply.

2 And we're starting to see changes in the food price
3 index that are occurring. And you can correlate some
4 of this to global climate change, in the context that
5 we're talking about here.

6 When you think about what is happening to
7 our food prices, you have to think about climate. And
8 you can even think about Syria. Some of the tension
9 we're dealing with in Syria is because they've had
10 massive areas of their nation turned into desert.
11 They've lost 60 percent of their cattle, right? So,
12 you have a nation -- oh, sorry, make that 80 percent
13 of their cattle, all right?

14 So, you have a nation that's in crisis, and
15 can you attribute some of that to the climate context?

16 Perhaps, right? You certainly can't ignore it. You
17 have to think about what is happening to carbon and
18 all of its impacts. And as you add it all up, what
19 you realize is, for us, we have to worry about
20 drought. We have to worry about storms. We have to
21 worry about coral. We have to worry about species
22 extinction and our glaciers and the scarcity of water
23 supply, and we have a lot of issues that we need to
24 talk about, as a committee, in the near future.

25 Now, I could talk to you for a long time

1 about some of the solutions. I can talk to you about
2 wind. I can talk to you about solar energy and the
3 fact that there is more solar energy available every
4 day than we could possibly imagine. It can solve many
5 of our global problems if we could grab onto solar.

6 I can talk to you about how we need to
7 throttle back coal plants, and we are. We are making
8 an impact on coal, but -- and then lastly, I can talk
9 to you about carbon policies and how many nations are
10 starting to deal with carbon and regulate carbon and
11 tackle that problems that come with carbon, right?

12 But I also recognize there is limits to what
13 this committee can do, right? We are here to deal
14 with the oceans. We are here to deal with the big,
15 blue marble, and solve our problems in the ocean. But
16 one of the things that gets me so frustrated is the --
17 I'm not a scientist, right, so when it comes to the
18 policy context. All right.

19 We use science every day. We use science in
20 weather forecasts. We use science in hurricane
21 forecasting. We use these models, and all of these
22 models have uncertainty. And yet, we're making policy
23 decisions based on those models every day.

24 Right. When we talk about climate science,
25 yeah, there is uncertainty in there. That's fine.

1 That's all part of the dialogue. But what I can't
2 stand hearing is, I'm not a scientist, so therefore,
3 I'm going to ignore the science. That's not an
4 acceptable answer, right? And that's not the answer
5 that this committee should be looking to.

6 I think we, as a committee, have to deal
7 with the hard realities of risk management. And to go
8 back to Holly's point, you know, this is about how we
9 deal with the risks ahead. How do we deal with the
10 projections? And this is the Great Barrier Reef.
11 This is 2014. It was a big hurricane or a big typhoon
12 that came through. It was very warm seas. There was
13 a nearby dredging project, and, as a result of the
14 composition of those factors, a big portion of the
15 Great Barrier Reef had massive bleaching and die-off,
16 right?

17 This is our continent, and this is our
18 challenge. Home in Florida, I have had to read the
19 news reports about a lead environmental agency that
20 has absolutely silenced its staff from even using the
21 phrase climate change. They're not even allowed to
22 utter those words. I don't understand that.

23 I do understand disagreement. We are going
24 to disagree as a committee, right? We are going to
25 talk about things like data and the adequacy of it.

1 We're going to talk about the assumptions that we're
2 making. We're going to talk about the model of what
3 we're using. We're going to have hard dialogue about
4 policy responses and what should we do, or what
5 shouldn't we do. How much more research should we do?

6 Should we be conservative here, or should we be
7 progressive here? You know, do we need to do
8 something now, or can it wait a little while?

9 All of those are valid bases for
10 disagreement. And I want to point out that, that
11 disagreement is very healthy. And while, in the past,
12 we have tried very hard to achieve consensus, there
13 may be times, now, as we work in the years ahead,
14 where we're not going to be able to achieve a true
15 consensus. And MAFAC, as we start dealing with more
16 and more difficult issues, might have to get used to a
17 new reality of majority reports and minority reports.

18 That may be in our future, and that's okay. That
19 should be part of the exercise and the dialogue that
20 takes place in this room.

21 Disagreement is understandable. We are
22 talking about risks, impacts, responses, costs, all of
23 that. I draw the line in denial. Denial is
24 unethical. I have now published two papers reviewing
25 the professional codes of ethics, the duty to confront

1 the denier, talking about lawyers, and their duties
2 under their professional codes. And now, I've written
3 a second one, rising seas and receding ethics about
4 engineers, planners, realtors, architects. Everybody
5 has a duty of disclosure of material facts. Everybody
6 has duties not to misrepresent, right?

7 We can talk and debate what to do. We can
8 talk and debate the policies. But to just outright
9 ignore the issue is not acceptable. We have to tackle
10 this problem. So how will we tackle this problem?

11 In a little bit, Dr. Morrison will be
12 presenting to us some of the context here of managing
13 fisheries in a changing climate. And we can be
14 reactive, or we can be proactive. And when we're
15 being proactive, we have to decide as to what. Are we
16 going to be proactive in responding to species needs,
17 ecosystem needs, business needs? And what, exactly,
18 are we going to recommend?

19 This is all part of the dialogue that I am
20 encouraging this committee to start to undertake. And
21 we have an important role to play in this dialogue on
22 resilience. We are here. We have expertise. We have
23 backgrounds in these issues, and we can help NOAA
24 assess the facts, and the risk projections. And we
25 have committees, at the subcommittees as a FACA

1 committee, that match up very nicely with the needs of
2 that evaluation.

3 We need to talk about fishery economics. We
4 need to talk about commercial and recreational stocks.

5 We need to talk about aquaculture. We need to talk
6 about protected resources. All of these are the
7 issues that match up with the presentation that we had
8 from Holly today.

9 When we were talking about climate, when we
10 were talking about resilience, these are all the
11 factors that we need to be assessing. And in the end,
12 we will be making recommendations. And we have lots
13 of tools through which to make those recommendations.

14 We have two task forces that can help us with this
15 with a lot of expertise. We have now developed a
16 tradition of creating white papers, and that would be
17 another part of what we can do. And we should be
18 making recommendations on planning, and strategies,
19 and funding, and setting priorities.

20 And if you look through the documents that
21 was given to us that talks -- the habitat plan. One
22 aspect of the habitat plan has very specific
23 priorities, and says, here are the five places that
24 we're going to prioritize. Here is what where we're
25 going to prioritize investment. And then, the piece

1 of that habitat plan that talks about resilience,
2 there is an opportunity to enhance that document.
3 There is an opportunity to be more specific. There is
4 an opportunity for our committee to weigh in.

5 A couple of meetings ago, Roger Griffis put
6 up this slide. And this was one that was very
7 meaningful to me. The top row is 2000 conditions in
8 the Gulf of Mexico. The middle row is projected
9 conditions in 2050, and the bottom row is projected
10 conditions in 2090. And again, for Holly's point, red
11 is good, right?

12 MS. BAMFORD: Red is good?

13 CHAIRMAN RIZZARDI: Sometimes red is bad.
14 Sometimes red is good. See, red on this map is good.

15 Red represents the area where tuna larvae are in the
16 most favorable conditions for breeding. And, in every
17 May, we have had a tradition of having the Gulf be in
18 boom times, in the best conditions possible for tuna
19 larvae. And then, as you see time shifting on, what
20 you see is we lose the red.

21 The projection is that the Gulf will decline
22 in its favorable conditions for tuna, and that's a
23 real problem for us as fishery managers. That's a
24 problem for people who are dependent upon tuna. That
25 is a problem for poor countries in the Caribbean.

1 In fact, the Pope would characterize all of
2 this as an ethical issue, as a moral issues. You
3 know, he told us in Vatican City that the greatest
4 effects of the change in climate are going to be felt
5 by the poorest. So, it's why I've been writing about
6 this issue as an ethical issue, and as a moral issue,
7 and I hope this committee can take that charge
8 seriously. I'm looking forward to a really healthy
9 dialogue about this. I know it's going to be
10 challenging, and that's good, as far as I'm concerned.

11 And I'd like to thank the Climate Reality
12 Project for allowing the slides that we've used today.

13 Thanks.

14 MS. LUKENS: This is Jennifer Lukens.
15 We're -- and I want to just talk a little bit about
16 teeing up into the charge. I know, with Holly's
17 schedule, ideally, we would have like to have started
18 off with -- the charge was that we sent out to all,
19 and why we're here today. But Holly -- it was nice to
20 have her kick off from the Administration on -- so,
21 Eileen is going to talk for a few moments, and then, I
22 will close out, before we get into our first set of
23 speakers.

24 MS. SOBECK: I don't -- I don't need to
25 belabor that points that Holly and Keith made. And

1 I'm sure -- you know, this is a -- you guys are all
2 experts, and I think that you've -- I think that these
3 themes, at least some parts of them, resonate with
4 everybody on this -- on this panel.

5 And so, I don't want to belabor the -- I
6 don't want to belabor the obvious, but I think the
7 message that has come through loud and clear is that
8 we can't manage fishery resources sustainably, without
9 taking these additional stressors into account,
10 whether we call them coastal -- the factors that lead
11 to stressors on coastal resiliency, or climate change,
12 or what have you.

13 But the challenge is identifying these
14 stressors, figuring out how they do impact the
15 resources that we're interested in, recognizing what
16 needs to be done, taking into the -- taking into
17 account the reality of -- the budget reality, that our
18 budgets are likely to be flat. So, we are -- the
19 choices we are making are choices -- flat is the new
20 up, and if we're lucky, our budgets will remain
21 stable, even as some of our fixed costs increase.

22 So, any recommendations, and changes, and
23 new undertakings that we make are going to be at the
24 expense, likely, of existing programs. So, we're
25 really talking about priorities and tradeoffs here.

1 So, the basic question that we, as an
2 agency, have to answer, and that we're looking to you
3 all for guidance for, is how do we better connect our
4 resource management and habitat conservation programs
5 to support the social and economic resilient needs of
6 our fisheries community.

7 That's what the general task of fisheries
8 management is, generally speaking, but, specifically,
9 I think that we really need to have a more thorough
10 assessment of the needs and challenges and
11 opportunities across our offices and programs to
12 advance and improve coastal resiliency, as we've
13 discussed it here.

14 So, what we're seeking for you, again, how
15 do we best meet the needs of fishing communities with
16 respect to creating resources, habitat, and
17 socioeconomic resilience. There are a number of
18 questions, and these were posed to you in the topic
19 paper that was circulated, but we're looking forward
20 to having any additions or suggestions.

21 So, we're going to have a few additional
22 computations this morning to, kind of, again, sort of,
23 help get the juices flowing, helping stimulate
24 discussion. So, we're going to have some
25 presentations from fisheries staff, and we also have

1 representatives from the Sea Grant, Atlantic States
2 Fisheries Commission, and the Mid-Atlantic Fishery
3 Management Council, to share some of their thoughts
4 and insights and experiences.

5 So, again, as you hear these presentations,
6 please let us know how you think it relates to impacts
7 and issues that you are witnessing in your communities
8 and by your constituents. What are you hearing? Are
9 we putting forward the right menu of concerns and
10 issues, or we have missed something, or are
11 over-emphasizing something? Our overall goal is to
12 ensure that the services, tools, and products that
13 we're providing, actually support coastal resiliency,
14 and that they're filling the needs of our partners and
15 communities we serve.

16 So, we're looking for the identification of
17 problems, tools, and solutions that we're trying to
18 provide, and the solutions, are they at least
19 addressing the problems and solutions that your
20 communities need.

21 So, no preconceptions here. We're really
22 looking for help. We're looking forward to a good
23 discussion. And, Jennifer, are you going to put
24 forward the chart on different details?

25 MS. LUKENS: Yeah. I just want to talk a

1 little bit about how we set up our agenda for today.
2 You're going to hear several speakers on what we're
3 currently doing, a few things -- but in -- NOAA
4 Fisheries throughout different parts of our
5 organization to external folks, to NOAA's partners
6 that we work with, so, getting in touch with all of
7 those different pieces.

8 I just wanted to highlight a few things that
9 we aren't having presentations on today, that there
10 are, as -- I think Eileen said earlier, there is
11 pieces that we do focus on resilience throughout the
12 organization, and have been for quite some time, but
13 maybe not using that term, specifically. I just
14 wanted to highlight that in our FY16 -- in our FY15
15 and 16 priorities and guidance document, really,
16 our -- one of our priorities is ensuring the
17 productivity and sustainability of fisheries and
18 fishing communities. I think that speaks to
19 resiliency, there.

20 Also, all of our regional offices and
21 science centers are going through the exercise of
22 developing strategic plans. Two that have come out
23 recently is the greater Atlantic and the West Coast
24 region and their strategic plans. They have
25 specifically highlighted fishing community resilience

1 as a topic that they want to focus on, and take action
2 on.

3 The two of those regions are actually
4 working together to talk with each other, to kind of
5 define what the fishing community resilience means to
6 them, and how to help and execute a strategic plan.
7 And I think the work of this group can only help to
8 further what their goals are.

9 And one of the things to mention is our
10 Saltonstall-Kennedy grants program that we have. That
11 is one of those grant programs that we talked about,
12 that does focus on economic benefits, optimizing
13 economic benefits for fishing communities. And for
14 this particular year, will -- the priorities that are
15 focusing on our aquaculture, fisheries data
16 collection, techniques for reducing by-catch, and
17 other adverse impacts, but also adapting to climate
18 change, and other long-term ecosystem change. So,
19 those are the areas that they're focusing on.

20 And then, no less than 10 percent of those
21 funds for that grant program will be awarded to
22 applications that develop and support community-based
23 bridge plans that enhance community resilience. So,
24 there are places where this is woven into and
25 integrated, but how are we looking at that. As Holly

1 said, it was an absolutely huge, wide open topic, how
2 do we get down and in focus.

3 We also work with our partners at NFWF on a
4 fisheries innovation fund, which is designed to foster
5 innovation for the fishing industry, in order to
6 sustain fishermen's livelihoods, while rebuilding
7 issued stocks. So, that's another place where we're
8 focusing on that.

9 We also have the greater part of NOAA
10 looking at the NOAA climate resilience toolkit that we
11 have, and it's really a great resource insight. And
12 Roger Griffis is sitting over in the corner, and can
13 probably talk to you more about that.

14 But it's a web site that really highlights
15 real-world case studies of climate risk, and the tools
16 that they can use to plan and respond. And right now,
17 they're developing a module that's focused,
18 specifically, on those tools and pilots, and what
19 we've learned from them, for marine ecosystems and
20 fisheries. There is a variety of different levels
21 that's in the works right now, as you go on, and we do
22 have that climate science strategy that the task force
23 has commented on and helped shape and develop.

24 And we realize that, you know, there is a
25 lot of different issues that we're working on, and

1 there is a nexus between all of the different things
2 that we're working on.

3 Additionally, fisheries is currently
4 planning a workshop with some of our partners, in
5 early 2016, in OAR, the Office of Oceanic and
6 Atmospheric Research, sorry, the acronyms, to really
7 look at a lot of different pilot projects that have
8 been carried out by social scientists and economists
9 on this topic, and, really, the goal of that workshop
10 this Winter is to identify key information and tool
11 needs to help fishing communities in sectors
12 understand risk, and increase resilience to climate
13 change.

14 So, there is a lot of work ongoing that
15 you're not getting presented to you today. There is
16 just a few little snippets that I wanted to tee up for
17 you, though. And there is -- I look forward to really
18 getting some more in-depth of the wide variety of
19 folks we have presenting today.

20 So, I just wanted to also call to your
21 attention in your materials, it's just to refresh what
22 we're going over is the -- what we pulled together,
23 that one and a half pager, with the background on
24 coastal resilience, and that charge to MAFAC that
25 Eileen outlined, and seven different questions that we

1 wanted to tee up. And then, the bullets beyond it and
2 underneath it are really related to the background
3 that we were trying to present to you here at today's
4 meeting.

5 So with that, I'll turn it over to Keith to
6 try to get us started.

7 CHAIRMAN RIZZARDI: Yeah. Just a quick
8 thing for all the members. We do have information, if
9 you're not yet connected up, for Internet, so we'll
10 share that, circulate that. I want to point out that
11 Jennifer, and Heidi, and the staff did a fantastic job
12 putting together advance materials.

13 And if you go to our web page, for MAFAC,
14 and you click on the agenda, you will find the
15 annotated agenda item that explain who all the
16 speakers are coming out of the rest of this morning,
17 what their specific topics are, and then that's on the
18 annotated agenda link.

19 And then, there is underneath that the
20 discussion paper with a charge to MAFAC. So if you
21 haven't looked at it already, we're taking a 15-minute
22 break, right now, so here is your chance, all right?
23 Click on the one piece, the agenda, ramp up real
24 quick, and we have a series of presentations coming on
25 resilience, and that will lay the foundation for our

1 discussion, all right? See everybody in 15 minutes.

2 (Whereupon, a brief recess was taken.)

3 CHAIRMAN RIZZARDI: Okay. Presentations now
4 scheduled to learn more about coastal resiliency, and
5 try to lay a foundation for the upcoming dialogue.
6 The first presentation is Dr. Wendy Morrison. She's
7 an ecologist with NOAA's Office of Sustainable
8 Fisheries, right here in Silver Spring, works a lot on
9 the climate change issues. She's a former Sea Grant
10 fellow, graduate of Georgia Tech, and wanted me to
11 tell you that she's a gardener, photographer, and a
12 mom, as well.

13 (Laughter.)

14 MS. MORRISON: Sure. Is this on? Everybody
15 can hear me? Okay. So --

16 MS. LOVETT: The microphones are for the
17 recorder.

18 MS. MORRISON: Oh.

19 MS. LOVETT: So, just talk loud, so people
20 can hear you.

21 MS. MORRISON: Okay.

22 MS. LOVETT: And make sure --

23 MS. MORRISON: Great. So, you get to hear
24 me two times in a row on the next two presentations.
25 So, I'm going to talk a little bit, first, about a

1 literature review that I've done, looking at the
2 management options for management of fisheries in a
3 changing climate.

4 MS. LOVETT: We're ready.

5 MS. MORRISON: Okay.

6 MS. LOVETT: Okay, sorry.

7 MS. MORRISON: Thank you. And then, second,
8 I'm going to talk about a methodology we created to
9 just do a quick shot across all the species in a
10 region, to determine which species are more
11 vulnerable.

12 MS. BONNEY: Can you use the mike? I can't
13 barely hear you.

14 MS. MORRISON: Okay. Can I, or should I
15 just speak up?

16 MS. LOVETT: Just speak up.

17 MS. MORRISON: Okay. I'll try to speak up.
18 Is that better?

19 MS. BONNEY: Yes. Thank you

20 MS. MORRISON: Okay. So, the second
21 presentation that I'm going to give is -- we created a
22 methodology that looks across multiple fish stocks,
23 and basically says, just using expert opinion, what
24 are the fish stocks we expect to be more or less
25 vulnerable on a first-cut basis. I have to admit, my

1 first presentation is going to go a little long, and
2 the second presentation is going to go a little short,
3 so don't get too stressed out at the timing.

4 All right. So, the need. Keith did a
5 really good coverage of a lot of this. I'm not going
6 to go much into the need. We know that climate is
7 changing. We know that we're seeing the effects on
8 the fish stocks and on the fisheries.

9 The expected changes that we expect to see
10 are changes in the stock productivity, so the
11 abundance of fish species, the -- also, changes in the
12 distribution of the fish stocks, changing in their
13 interactions, so which fish species you catch
14 together, interactions with protected resources, and
15 then, also, changes in the habitats.

16 Quickly, the question that I had is we know
17 the fish stocks are being impacted. We know from the
18 science side of things -- Roger is going to talk a
19 little bit later about the national climate science
20 strategy. So, NIMFS is getting their head wrapped
21 around what this means for the science, what science
22 needs, where we're heading in that direction. But the
23 other question is what does that mean for management.

24 So, I thought a good first step would be to
25 go to the literature. What does the literature say

1 about management options for managing fisheries in a
2 changing climate? And that's what I'm going to
3 present to you here. And this is the first time I've
4 presented it, so, you're the first group to hear it.

5 I have to give a quick disclaimer. This is
6 a literature review. This does not necessarily
7 represent the views of NIMFS. And, in fact, a couple
8 of the ideas presented here may not be in the
9 authority index. So, there is my disclaimer slide.

10 A quick outline of what I'm going to cover
11 today. The response of management can be divided into
12 two main groups. The response can be reactive. The
13 fish stocks change in abundance. We say, oh, look at
14 that, now how do we need to change our management.
15 The fish stocks change their distribution. We notice
16 that shift, and we adjust our management, in response.

17 The management can also be proactive, where
18 we say, okay, are there things we can do ahead of time
19 to increase the resilience of the system, increase the
20 resilience of stocks, and manage more proactively. On
21 the proactive side -- in this review, I'm going to
22 divide it into three different sections. So, is there
23 proactive management we can do that increases the
24 resilience of the individual stocks and species?

25 There is different management options we can

1 do, if we want to increase the resilience of the
2 ecosystem, or even increase the resilience of the
3 fishing businesses, and the communities that rely on
4 them.

5 And then, I'm going to end the talk with a
6 list of underlying practices that could improve the
7 management. And these are ideas that I heard across
8 the literature as I reviewing it, mentioned multiple
9 times in multiple places, and so, it's just important
10 to keep these ideas in mind.

11 So, my plan is to walk through on this
12 presentation. I'll present ideas under reactive
13 management, and the different sections of proactive
14 management. I'll list the ideas that are covered in
15 the literature review, and then, I'll give one of the
16 examples, I'll highlight and walk through. So, you'll
17 see one of the examples highlighted, and that's the
18 one I'm going to walk through in a little bit more
19 detail.

20 So, the first approach, as I mentioned, is
21 this reactive management. You see the changes occur,
22 and you adapt your management after those changes have
23 occurred. The ideas that I found in the literature on
24 this are basically adjusting the reference points, as
25 the changes in productivity occur. And the example so

1 far at NIMFS is the yellowtail flounder in the
2 Northeast. We saw a decrease in the productivity of
3 that species, so we adjusted its reference points in
4 response.

5 You can -- as the species distributions
6 change, you need to adjust your allocations. And
7 later on, Patrick Campfield from Atlantic States
8 Commission is going to be discussing, hopefully, a
9 little bit about how they're dealing with that issue.

10 You can adjust your fishing practices, or
11 your fishing gears, as the composition of the species
12 you catch change. So, as your composition of target
13 and bycatch species change, are their changes you can
14 make? And this is the one I'll go into a little more
15 details on.

16 And then, I think the most important one on
17 this list is we need to create flexible and nimble
18 management systems, so when we see these changes, we
19 can respond quickly, and we can respond without huge
20 delay in adjusting our management as it occurs. And
21 that's also the hardest one.

22 So here, is an example I'll walk through.
23 And I'm glad there is two of you guys on the panel
24 from Alaska, so if you want to talk to me later and
25 clarify, I read this in the literature, but I'd love

1 to hear your take on this example, this story.

2 So this is from Abbott, et al., 2015, a new
3 paper that came out. The fishery is the Bering Sea,
4 Aleutian Islands, non-pollock groundfish fishery. And
5 what this is, is an example of how the fisherman were
6 able to change the behavior to adjust the mix of
7 target and bycatch species. And so, as I said, this
8 is a little bit of a longer story.

9 Up until 2007, this was an open-access
10 fishery, where the fishermen had a limited catch of
11 their target stock, and of their bycatch stock.
12 Halibut is a bycatch, and a limiting species in this
13 fishery. When the fishermen catch the halibut, the
14 fishery gets shut down. And so, the graph shows you
15 the catch per unit effort of the halibut in the
16 different years.

17 In 2008, a catch share program was
18 implemented, and fishermen got the choice of joining
19 the catch share program, or not. So boats can stay in
20 the common pool that are not in the catch share
21 fishery, or join into the catch share program. The
22 boats in the common pool are given a total of a catch,
23 and, again, the fisheries shut down when they reach
24 the limit of their target, or of their bycatch
25 species.

1 The boats in the catch share program are
2 actually cooperatives, where a cooperative is given a
3 total allowable catch of their target and their
4 bycatch species. And when they catch those, that
5 specific cooperative is shut down, but not that entire
6 fishery.

7 So, the point of this is over here. The
8 bycatch of halibut decrease significantly in the boats
9 that were in the catch share program, and were given
10 the freedom to make some of these choices about how
11 they fish.

12 So, the choices that they made that adjusted
13 their bycatch of halibut, the examples are they
14 changed the locations where they fished, moved more to
15 the -- I think southeast. They also changed their
16 behavior. If they had a haul that they brought up
17 that had a large bycatch of the halibut -- another
18 limiting species is cod -- they were more likely to
19 pull up their nets and motor off to a different spot,
20 than the fishermen in the common pool. And then, the
21 fishermen also switched fishing from night fishing,
22 where there was a higher bycatch, to more day fishing.

23 So, I put this example out there, just to
24 give an example of how, if you give the freedom to
25 make these changes, there are changes that fishermen

1 can make to adjust this interaction of the target
2 species and the bycatch species, which I think is
3 going to be important as the species move around, and
4 you have these interactions of the target and a
5 bycatch.

6 Now, I've worked at NMFS for about five
7 years, and so, I know that catch shares is an issue
8 that makes a lot of people uneasy. So, I'm not using
9 this as a promotion of catch shares. I just want to
10 clarify that NMFS feels that catch shares are not
11 appropriate in all fisheries, and we are not pushing
12 them because there has been a little bit of a
13 misunderstanding about that, so --

14 MS. BONNEY: So, can I just add to that?

15 MS. MORRISON: Yes.

16 MS. BONNEY: I think the two key components
17 that that particular sector has is it's a catch an
18 process fishery. In other words, they catch and
19 process at sea, so when you're talking about coastal
20 communities, the ability to move and migrate with the
21 stock, they've got that tool, because they're catching
22 and processing it in the sea, and it's not cast to a
23 shore side.

24 MS. MORRISON: Okay.

25 MS. BONNEY: The other is it's a

1 multi-species fishery, which means that they get a
2 large component of the target catches, so they can
3 balance if they get arrowtooth, and flathead, and rock
4 sole, and yellowfin. So, as the abundance changes,
5 they have a lot more flexibility to fix the targets,
6 to deal with the bycatch, but also their economics,
7 so -- and that particular fishery has a lot of ability
8 to adapt based on the processing side and the species
9 composition.

10 MS. MORRISON: Thank you. That was good
11 information. Okay. So, moving away from the reactive
12 management into the proactive management -- so this is
13 when you're managing before the changes occur to
14 increase the resilience. And we're going to start
15 with how -- actions you can do to increase the
16 resilience of the stocks and the species themselves.

17 The first one is increase -- incorporate
18 environmental parameters into the stock assessments
19 and into the control rules. And the example for that
20 is the Pacific sardine. There's a fishery on the West
21 Coast where the sardine is very dependent. Its
22 recruitment is dependent on the temperature of the
23 water. And so, there is actually a control rule,
24 where the amount of fish you're able to take out is
25 dependent on the temperature. And so, we can start

1 doing more movement towards that.

2 Management for uncertainty, scenario
3 planning. This is something that's mentioned a lot in
4 the national climate science strategy. And the idea
5 is to look into the future, and say, what are the
6 possible future -- plausible future scenarios. So not
7 just one. We think climate change is going to do a 10
8 percent increase. What does this mean for management?

9 But it could be what if there is a 10
10 percent increase in temperature, what if there is a 20
11 percent, what if there is a change in the currents,
12 when you look across multiple plausible scenarios, and
13 then say, okay, given our management options, what
14 management is going to be most successful across all
15 of those different options?

16 So, we aren't just trying to predict exactly
17 what the future is going to be, but give an estimate
18 of what are the possible futures, and which management
19 action may be best, across all those futures. And so,
20 it's a different way of looking at things, rather than
21 just trying to predict exactly what is going to
22 happen, and make your management decisions based on
23 that.

24 The next one is protect age structure of old
25 females. Basically, scientists like to say big, old,

1 fat females, or BOFFs. And so, we've heard about this
2 for years, protecting these big, old, fat females is a
3 good idea. They have a larger body cavity. They can
4 hold bigger eggs. They can hold healthier eggs, more
5 eggs. But in terms of climate change, this also is
6 important.

7 If you've got two or three years of bad
8 recruitment, of bad conditions, and you only have a
9 very limited age structure of your fish population,
10 they're going to be more impacted by that changing
11 climate, than if you have a large, healthy
12 distribution of your age populations. They're better
13 able to withstand those changes in climate.

14 So, it is important, we already know, to
15 have some big, old, fat females. But also, in terms
16 of climate change, increasing the age structure helps
17 able to weather those years of bad years. Decreasing
18 existing stressors has already been mentioned, and so,
19 anything we can do to remove lionfish in the
20 Southeast, remove some of those other stressors on the
21 ecosystem is helpful.

22 There has been mention in the literature of
23 enhancing, or translocating, stocks, so, basically,
24 doing -- as a salmon, when your -- my brain just died.
25 Anyway, rearing your fish in shore, and then putting

1 them out in a habitat, and then, also, moving them. I
2 just missed a word, but that's okay. And then the
3 last one I'm going to talk about is managing to
4 promote adaptive capacity. I'm going to go in a
5 little more detail on that.

6 So, first of all, I want to clarify what I
7 mean by adaptive capacity. Adaptive capacity is the
8 ability of the fish stock to adjust to the changes as
9 they occur. And the three main things that they can
10 do adjust is to move. So if the conditions change,
11 they can move to where the new conditions are. They
12 can adjust with plastic, so I did research, at one
13 point, on American eel.

14 So, I love American eel. They're a
15 fascinating creature. They're spawned in the Sargasso
16 Sea, and they're spread out from the Caribbean, up to
17 Canada. And they basically have a plastic response,
18 so they are able to survive and thrive in all
19 different habitats.

20 So that's an example, that the species are
21 more plastic in their response, or they have the
22 ability to evolve genetically. So, as these changes
23 occur, can the species evolve as they need to. And to
24 be able to evolve, they need high genetic diversity.

25 So, here is an example from Janet Nye in

1 2009. She just did a study of what species have moved
2 where, so I picked one out as a good example. This is
3 red hake. And you can see red is high abundance.
4 We're going to talk a lot about colors today. Red is
5 the high abundance, and I guess -- which is good. But
6 you can see in the '68 to '80s where the fish are
7 located, and how they really moved to the North by
8 1995 to 2008.

9 But the question I had is what does this
10 mean for the genetic diversity of the populations?
11 So, a separate study by Pauls et al., 2013, he is not
12 dealing with fish. this study is looking across
13 terrestrial insects, all different animals, but has
14 said, as distributions change, what does that mean for
15 the genetic diversity of the species. They found at
16 the rear edge, where the species was, there is often
17 the highest genetic diversity of the species, because
18 this is where the historical alleles are.

19 So, you've got a lot of ability to adapt in
20 this area. At the leading edge, conversely, is often
21 a lower genetic diversity. But the species in that
22 edge contain the best combination of genetics to
23 succeed in the new conditions, as the climate changes.
24 And so, the ideas are being thrown around as, maybe
25 when we're managing the species, we need to keep this

1 information in mind, to protect the edge species.

2 Yes, Keith.

3 CHAIRMAN RIZZARDI: So could you translate
4 that, the next layer? In terms of management, are you
5 saying that at the leading edge, in the rear edge,
6 maybe put restrictions on fishing in those locations?

7 MS. MORRISON: That's what the literature is
8 starting to suggest.

9 CHAIRMAN RIZZARDI: I just wanted to be
10 clear --

11 MS. MORRISON: Yes.

12 CHAIRMAN RIZZARDI: -- and make sure that's
13 what we're talking about.

14 MS. MORRISON: Yes. So, moving on, the next
15 thing we can do is we can manage to increase the
16 resilience in not just the species, but of the
17 ecosystem itself, as a whole. And these are the ideas
18 I was able to find in the literature. Design the
19 appropriate marine reserves -- and that's the one I'm
20 going to dive into a little bit deeper. Modify gears
21 to increase habitat health, recover and enhance
22 degraded habitats. And I'm just hoping Pat Montanio
23 is going to cover that a little later. Protect key
24 functional groups.

25 And the -- many of the fishery councils are

1 now starting to pay attention to this. They are
2 paying right now -- looking into forage fish, are
3 there different protections and different management
4 needed for forage fish, because they are a key
5 functional group. And there are other functional
6 groups that we can look at. And then, increase the
7 use of ecosystem-based fisheries management. And
8 National Marine Fisheries Service just released an EBF
9 in policy that is out for review, right now.

10 For the example I'm going to dive into a
11 little bit, is designing appropriate marine reserves.
12 In the literature, I was able to find three different
13 suggestions on how we can modify the design in marine
14 reserves to make the ecosystems more resilient. You
15 can locate reserves in the area where you are trying
16 to protect now, but also try to predict where you
17 expect that habitat to move, where you expect those
18 species to move, and then define the reserves to
19 encompass the current, and the future, locations.

20 You can also just go back, and every five
21 years, or so, periodically reexamine your reserves and
22 say, okay, what were the goals of this protected area.
23 Are we meeting them? If not, how can we adjust? What
24 do we need to adjust to make sure we are still meeting
25 these? And then, one of the newer ideas is to create

1 the reserves to be dynamic from the start.

2 And, unfortunately, the best example I have
3 is from Australia. There is a fishery there
4 with -- there is a bycatch of tuna that they want to
5 limit the bycatch on tuna, so they have adjusted --
6 created a no-take area that is adjusted weekly, based
7 on the temperature requirements of the tuna.

8 So, they go out, and they look at the tuna,
9 and they say, okay, this -- this week the closed area
10 is here. And then, they adjust that, and the
11 fishermen, they have a device where they send them, I
12 think on their phone, so the fishermen know where the
13 closed area is, and they are able to adjust that
14 specifically in response to the environment.

15 Okay. And then, the final discussion I want
16 to talk on resiliency is are there management actions
17 we can do to increase the resiliency of the fishing
18 businesses in the communities. So, remember, we're
19 talking about fish that are changing in abundance,
20 fish that are changing in distribution, the changes in
21 interactions. And so, what does this mean for the
22 fishing businesses and communities?

23 So, the number one thing that is mentioned
24 is we need to expand the flexibility in fishing
25 permitting. Currently, fishermen -- I'm sure many of

1 you can tell me. You buy -- you get your permits for
2 fish -- specific fish species. In some areas, it's
3 even for a specific area. And so, when the fish
4 species move, or when the abundances go up or down,
5 you're kind of restricted, based on what your permit
6 is. So, is there a way we can assess the permitting
7 system and make it more, responsive and more flexible
8 so that, as the fish stock abundance is changed, as
9 the locations change, those permits can respond to
10 those changes.

11 We also need to look, not just into the
12 fishing businesses themselves, but the supply chain.
13 And I'm going to dig a little deeper into that one,
14 but having flexibility in the supply chain. There is
15 a few discussion of insurance for fisheries. So the
16 idea is something similar to crop insurance, where, if
17 the farmers have a couple of bad years, there is a
18 federal crop insurance that helps them cover those bad
19 years.

20 Is it feasible to do something like that to
21 fisheries, so that when you have a couple of bad
22 years -- can we create some sort of insurance to help
23 cover that? And then, the final idea is consider
24 community fishing associations. And those of you who
25 read the MSA as much as I do, there is a specific

1 definition for community fishing associations in the
2 MSA, and that's not what I'm talking about.

3 I'm talking about just the idea of taking
4 some of the quota, and some of the permits, and having
5 that anchored in the community, so that the community
6 has some sort of control and power over that. So, dig
7 a little deeper into the flexibility in the supply
8 chain.

9 This is an example from Maine to show why we
10 need flexibility in the supply chain. Maine lobster
11 fishermen -- in 2012, there was an extremely warm year
12 in the Gulf of Maine, which is what the top graph
13 shows you. The temperatures were way above normal in
14 Maine. What that meant, that the lobsters were moving
15 inshore sooner. They were growing faster, and they
16 were molting faster, which means the fishery just
17 spiked.

18 Here is the normal catch, and here is the
19 catch in 2012. So, we have this huge increase in
20 catch. You think that's good for the fishermen. No,
21 no, no. So, there was a glut in the market, and the
22 prices just dropped. In fact, most of the processing
23 plants for the lobster are in Canada, and there were
24 fishermen picketing in Canada to not allow the import
25 of lobster from the United States, because there was

1 such an impact on the market, felt both in the U.S.
2 and in Canada.

3 And so, this is an example of a supply chain
4 that is not adequately flexible to deal with changes
5 and climate. So, there is a paper out in 2014 by
6 Flagoni (phonetic). Again, Australia. Australia is
7 kind of leading the charge here -- where they looked,
8 and they created a methodology to look across the
9 processing chain and figure out where the links here.

10 And I'm probably going long, so I'm not going to go
11 much. But here is what you want to look at.

12 They had the -- their example was the
13 southern rock lobster fishery, and the weak link for
14 climate, so if a hurricane came and wiped out the
15 airport, this fishery would be in trouble. So, the
16 biggest weak link -- this is what the red means. Red,
17 in this case, means biggest weak link -- was their
18 airport. So, was there a way that they could change
19 their supply chain, so they weren't so dependent on
20 the airport? Maybe was there a smaller second airport
21 that they could utilize.

22 The second most -- most weakest -- that's
23 not right. The second weak link was the processors,
24 and then the third was the Chinese system, where they
25 exported a lot of this as a live fish fishery to

1 China. So, it's just -- there is an example of
2 methodologies you can use to look across your supply
3 chain and figure out what are the weak links, and
4 where you may need to intervene before something
5 happens, some climate catastrophe.

6 Okay. So, I'm just going to end, and I'm
7 going to go into details on any of these, and just
8 list some of the underlying practices that were very,
9 very common across all the papers that I read, that
10 could improve management. So, obviously, updating and
11 clarifying the management goals as you're going
12 through changes, and you have your stocks changing,
13 and your distributions changing. The councils and the
14 fishermen need to know what are their highest
15 priorities. Is the priority retaining jobs? Is the
16 priority the communities?

17 And so, you're going to have a different
18 response, depending on what your priorities are. So,
19 clarifying beforehand what those management goals and
20 objectives are is a good step. Ecosystem models are a
21 good idea, to predict where we expect the ecosystem to
22 go, as these changes occur. But there will be
23 surprises, so we also need to monitor for change, in
24 not just the environment, but in the species. And
25 then, in many places, using regional planning to

1 address local issues. So, not just on the national
2 level, but you need to get down to the local issues.

3 So, my conclusions, again, management can
4 either be proactive or reactive. There are actions
5 that we can take to increase the resilience. I didn't
6 realize the resilience had been already tied to
7 climate change, so I didn't -- the politics of that
8 may be interesting.

9 Again, the approaches that are provided from
10 this literature review are not comprehensive, and I'm
11 sure there is a lot of other good ideas out there, and
12 suitable approaches will differ in the different
13 regions.

14 Okay. So, at that point, should I take
15 questions? Okay. Questions.

16 MR. OKONIEWSKI: Mike Okoniewski. On the
17 Bering Sea -- I'll start there.

18 MS. MORRISON: Okay.

19 MR. OKONIEWSKI: I think there is two
20 aspects of that. The catch share program can be
21 different things, obviously. But I think the
22 cooperative side of that is probably netting more
23 results for lower catches --

24 MS. MORRISON: Okay.

25 MR. OKONIEWSKI: -- than just the catch

1 share program cited in itself, where you got
2 the -- that the cooperative interaction, the move,
3 peer pressure, whatever it takes -- take group action,
4 versus individual action.

5 MS. MORRISON: Okay.

6 MR. OKONIEWSKI: In some cases, maybe not
7 all cases, but when you get a bycatcher concerned
8 about -- at least, from my experience, I think the
9 cooperative approach is a better one.

10 MS. MORRISON: Fascinating. Okay, good.
11 I'd like to talk to you more about that later on.

12 MR. OKONIEWSKI: I'd be glad to.

13 MS. MORRISON: Thank you. Okay. I can't
14 see name tags from here. Okay, Ted.

15 MR. AMES: Ted Ames. Just a point of
16 clarification. What happened with the lobster
17 debacle --

18 MS. MORRISON: Okay.

19 MR. AMES: -- in Maine was more involved
20 with having an early shed when Canadian processors
21 were closed down to repair and refurbish their
22 processing plants. Maine, and New England, in
23 general, had no processing for lobsters. They do
24 today.

25 MS. MORRISON: Oh, now they do? Okay.

1 MR. AMES: But the other component of that
2 that you should recognize is that after groundfish
3 collapsed, a substantial amount of the fishery is
4 coming from outside state waters, with fishermen who
5 have federal permits. And this simply opens up a
6 great deal more habitat than that occupied by lobsters
7 that wasn't, in the past.

8 MS. MORRISON: Okay.

9 MR. AMES: Other than that, it's very
10 interesting.

11 MS. MORRISON: Okay. Thank you. I love
12 clarifications, so thank you. That's good.

13 MS. BONNEY: So just two comments. One is
14 that I -- the first bullet you have, management can
15 either be reactive or proactive, I don't think it's an
16 either/or. I think it's both --

17 MS. MORRISON: Yes, very true.

18 MS. BONNEY: -- because of the -- like
19 reactive is uncertainty in science, and not knowing
20 what the net result could be, but you're reacting to
21 what actually happened. And then, the other one,
22 where you have the discussion of the -- you know, some
23 kind of insurance for the fishermen, and if the crop
24 fails, per se.

25 I would think that that concept should be

1 expanded to processors too. So, you know, if you were
2 in a region, and the crop fails, the processor is
3 going to take as much of a hit as the fishermen are.

4 MS. MORRISON: Okay.

5 MS. BRANDON: I'm not sure if I have a
6 question, but just wondering if you can shed light on
7 the term resilience, because when I think of
8 resilience, I think it just sounds like it's something
9 that's endless, like an ecosystem, or a fishery, could
10 be endlessly resilient. And that doesn't seem like it
11 could possibly be true. It seems like there must be
12 tipping points, where something flips over to a
13 different system or regime.

14 So, could you just maybe talk a little bit
15 about your definition of resilience, and what we're
16 really talking about? I guess that's my question.

17 MS. MORRISON: Okay, sure. And actually,
18 it's interesting. I had a slide on the definition of
19 resilience, and it was suggested that I take it out,
20 because that may be something that this group wants to
21 tackle, what you guys mean by resilience. In terms of
22 this literature review, what I meant by resilience was
23 the capacity of an ecosystem stock, or a fishery, to
24 be hit by something, adjust to the change, and rebound
25 back, to hit the main functions.

1 So, basically, you may not have the same
2 species after you rebound back from some sort of
3 impact, but to be able to hit the same function. And
4 so, there are tipping points, whereas, if changes
5 occur too much, you may not be able to bounce back and
6 hit that same function that you were before.

7 And that's something that I think fishery
8 councils are going to have to decide. Is it their
9 specific species they want to make sure are resilient?
10 Then you need to manage for that. If you're okay
11 with maybe the species mix changing, but the
12 functioning still happening, that's a different way.

13 MS. BRANDON: So ,just to follow up, so the
14 bounce-back part, is that -- are you mostly referring
15 to productivity levels, or what is the bounce back, to
16 what?

17 MS. MORRISON: I guess, in my mind, I had
18 never specifically clarified whether it was
19 productivity levels. If you're talking about a
20 specific stock, you may or may not bounce back. But
21 more, in my mind, of just meeting the function of that
22 ecosystem.

23 So, the example is coral reefs, where you're
24 switching from coral dominated to algae dominated, and
25 that's going to switch the species that you have and

1 what species are there, and its ability to withstand
2 storms, to withstand -- so that -- the functionality
3 of an algae-dominated coral reef is not the same as a
4 coral-dominated one. And I guess I need to figure out
5 how I'm going to apply that in the Northeast, or some
6 of the other fisheries.

7 So that's something maybe this group can
8 help wrap our head around. Keith.

9 CHAIRMAN RIZZARDI: So I have a question
10 about, say, the lobster example. And I'm wondering if
11 we have the management tools in the toolbox, right
12 here. So, we see this surge in catch, which then we
13 should be reacting to, because we should realize two
14 things. Number one, there is the possibility that
15 we're going to crash the market, and number two, there
16 is the possibility that we're over-harvesting, which
17 will then lead to a depressed supply in the future.

18 So, take your pick as to what species using
19 the lobster example. If we recognize that that kind
20 of spike is happening, do we have a tool in the
21 toolbox right now to stop the catch to avoid that
22 problem in the future?

23 MS. MORRISON: With total allowable catches,
24 if it's a -- if it's a spike in abundance
25 that -- where the productivity is increasing, we have

1 the ability to see that and respond to it, but not
2 instantaneously. So, it will be a slow response.

3 CHAIRMAN RIZZARDI: That's kind of what I'm
4 wondering, is are we able to react quickly enough to
5 the spikes, or do we end up having too much of a lag,
6 with the process that ends we dramatically exceed the
7 total allowed catch, because all the species shifted
8 on us, and then, suddenly, we've over-harvested. Next
9 year, we're dealing with crashes, and fishermen are
10 dealing with pricing problems. And it sounds like
11 that may be something that we need to be thinking
12 about.

13 MS. MORRISON: Yes. And I think that's a
14 key thing that we need to get out of this, is how are
15 we more responsive.

16 Yes. I'll go here, and then over there.

17 MR. AMES: I just wanted to point out, one
18 of the major differences between the collapsed
19 groundfish fisheries in Maine, versus this very robust
20 lobster population that we're harvesting, is that the
21 lobster management scheme protects lobsters for
22 a -- after they reproduce once, for two or three years
23 before they can actually enter the fishery.

24 And it also protects oversize. It has a
25 slot of legal size, and because it's that only, the

1 sub-legals, or other size, get thrown back.

2 The frosting on the cake is the only other
3 way that you're allowed to catch them is with a trap,
4 in the state of Maine. And that protects habitat at
5 the same time. So, along with fortuitous temperature
6 and the rest is this really very credible coastal
7 management that has worked. Thank you.

8 MS. MORRISON: Sure. Thank you. Ken.

9 MR. FRANKE: Yeah, just a real quick comment
10 on what Keith was talking about, about when do you
11 pull the trigger, as far as your approach in those
12 ACLs.

13 MS. MORRISON: Right.

14 MR. FRANKE: And we were talking earlier
15 about -- we've transitioned -- Pacific States gave us
16 some funding for electronic logbooks on the commercial
17 passenger fleet in Southern California, and we already
18 had -- we approached ACLs last year that were going to
19 close some things. And the issue we are running into
20 is the state data collection was so behind, et cetera,
21 that if they pulled that trigger, we ended up with a
22 red light, red light situation, where it was going to
23 take two years to reopen something, potentially, once
24 we pulled that trigger. But we were going to pull the
25 trigger, because we were behind on our data

1 processing.

2 So, I would submit that in the future, you
3 know, standardization of data collection, especially
4 on those ACL stocks, through electronic reporting ,may
5 be a fisherman solution to hopefully -- and a
6 manager's solution to hopefully reducing those times
7 that you need to pull that trigger, but then
8 secondarily I think it's at the council level that you
9 need to make some decisions on -- I would recommend
10 some kind of process to where we don't have a red
11 light, red light situation where you're waiting years
12 because of -- you were approaching ACL, you close
13 something, and now how do you reopen that in a timely
14 fashion if you didn't really cross that ACL.

15 So, thank you.

16 MS. MORRISON: Very good points.

17 MR. OKONIEWSKI: Well, I'll stay on the
18 lobster for a minute.

19 MS. MORRISON: Okay.

20 MR. OKONIEWSKI: Being -- our company is
21 heavily involved in supply chains all over the planet
22 earlier, but getting it to the customer and imported.

23 But your basic -- whether it's aquaculture -- I think
24 in agriculture, it's supply and demand.

25 MS. MORRISON: Uh-huh.

1 MR. OKONIEWSKI: So, I mean, saying that the
2 supply chain can't react, or is not flexible enough is
3 only part of it. It's also your market side. And you
4 do have consume --

5 MS. MORRISON: And they -- yes. And that
6 analysis looked into that.

7 MR. OKONIEWSKI: Right. But the supply
8 chain -- usually in these situations, you're going to
9 go, you know, oversupply, price depression, bigger
10 demand.

11 MS. MORRISON: Right.

12 MR. OKONIEWSKI: And getting it to the
13 customers, then -- if there is that demand, how do you
14 get it to the customer or consumer?

15 MS. MORRISON: Right.

16 MR. OKONIEWSKI: And so, balancing that is
17 all-important, but the more quickly things react, the
18 harder it is to go out and establish new markets,
19 because you have to establish a market before a supply
20 chain jumps in.

21 MS. MORRISON: Right.

22 MR. OKONIEWSKI: So, if you've got a new
23 country that opens up, and all of a sudden wants your
24 products, it's going to take some time to develop that
25 supply chain and investment.

1 MS. MORRISON: Uh-huh.

2 MR. OKONIEWSKI: It's not just merely
3 instantaneously just --

4 MS. MORRISON: Right. And I guess that was
5 the point of that study -- and I tried to cover too
6 much probably -- was that the more you can diversify
7 that supply chain so that there is multiple consumers,
8 then the more likely you can deal with any kind of
9 changes to spread that across multiple consumers. So
10 it's -- they --

11 MR. OKONIEWSKI: Which is good, until the
12 supply starts to go down again.

13 MS. MORRISON: All right.

14 MR. OKONIEWSKI: And then, so, you're caught
15 in between these. And, like in agriculture, you get
16 these wild swings, climate change has an effect on
17 that, I'm sure. But you have the government. Now,
18 they can take grain and keep it for a number of years,
19 can stack it.

20 MS. MORRISON: Right. So --

21 MR. OKONIEWSKI: But soon, you've
22 got -- you've got inventory-carrying costs to do that.

23 MS. MORRISON: Right.

24 MR. OKONIEWSKI: So, you have to take in
25 those business aspects to get a better range of

1 flexibility and understand the entirety of it.

2 MS. MORRISON: And I think that's the point
3 of the paper. You're just helping to clarify that.
4 And that was one of the ideas presented in that paper,
5 was move from the live fishery to more of a frozen
6 fishery so that you can -- you can save it where there
7 is demand.

8 I know -- I'm not a processor. I don't know
9 these things. I'm just telling you what the paper
10 says, so --

11 MR. OKONIEWSKI: In this case, I'd say it's
12 not a processor thing, it's a market thing.

13 MS. MORRISON: Okay.

14 MR. OKONIEWSKI: And there is a difference.

15 MS. MORRISON: Okay. I know there was one
16 hand --

17 CHAIRMAN RIZZARDI: Terry agreed that she'll
18 hold off for you to do the next presentation, so I
19 know you've got two to do.

20 MS. MORRISON: Okay. Next. All right. You
21 get to hear me again. You win.

22 So this -- I'm going to change route real
23 quick. So, this is a study I was co-lead on with Mark
24 Nelson. He's another scientist from Office of
25 Sustainable Fisheries. And so, it was a methodology

1 that we've created to assess the vulnerability of fish
2 stocks to a changing climate. Richard wanted to make
3 sure that I pointed out that we created this for fish
4 and invertebrates. Office of Science and Technology
5 is currently in the process of creating a similar
6 vulnerability assessment for protected resources, so
7 the turtles and the mammals, so that will be coming
8 soon.

9 So, at this point, we have -- what I'm going
10 to present is just for the fish and invertebrates. An
11 outline -- I'm going to just cover the methodology,
12 not quite so much in the need, probably skip those
13 slides. The goals and objectives, walk through the
14 vulnerability assessment framework, discuss a little
15 bit of the potential uses, the methodology, the
16 output, and then where we are, in terms of which ones
17 we completed, and where we're going next.

18 I'm just going to skip this. Just in terms
19 of the need, what about a quantitative approach? Why
20 do we need this methodology that just does a first
21 glance across lots of fish stocks? In the Northeast,
22 they did quantitative models, really good quality
23 quantitative models, for five species. It took
24 approximately two years to do each of those species,
25 multiple scientists across multiple expertise.

1 So, if you took the 50-plus species in just
2 the Northeast, we're talking that in a 100 years we'll
3 have a good handle on how climate change is going to
4 affect our species. So, this is an example of why we
5 need this kind of across-expert-based approach that
6 gives you a first cut of which species we expect to be
7 the most vulnerable.

8 So, the goal of this effort is to produce a
9 practical and efficient tool for assessing the
10 vulnerability of fish stocks on a wide range. What we
11 want is a relative vulnerable, so whatever stocks are
12 included in the assessment, we want them ranked as
13 very high, high, moderate, or low in their
14 vulnerability, and then also why. So, not just -- you
15 don't get out of this just a rank, okay, this species
16 is a high, but why is that species a high. What are
17 the exposure it expects to have, and what biological
18 characteristics created that high ranking.

19 And then, through this, we also can identify
20 where we have data gaps, so, where -- what are we
21 missing? What do we not know? Vulnerability
22 assessment framework, at this point, I'm just going to
23 concentrate on the bottom two. I know the word
24 resilience is here, but ignore it, at this point. It
25 was an earlier presentation slide, and it doesn't

1 really fit into this conversation.

2 But, we're looking at the exposure of the
3 stocks to changing climate, and then, their
4 sensitivity to that changing climate, will give you an
5 overall guess on their vulnerability. This is a
6 methodology that's widely used in terrestrial systems.

7 So, we learned from them and adapted it for the
8 marine systems. There are a few examples of marine
9 vulnerability assessments from Australia that we also
10 learned a lot from and talked to those researchers to
11 learn from them.

12 It uses existing knowledge, so what do we
13 know about SBCs and expert opinion. And if there is
14 quantitative data available, we use it. If not, it is
15 qualitative.

16 So, to clarify, when we created this
17 methodology, what did we mean by vulnerability? We
18 meant the risk of a change in the stock's abundance or
19 productivity. But we do understand that people who
20 work in the fisheries and the managers are also
21 interested in those stocks that are going to shift in
22 distribution. That high, medium, or low on the
23 vulnerability is not going to pull out those stocks
24 that shift in distribution.

25 If a stock is able to adjust by shifting a

1 distribution, it's going to be lower in vulnerability
2 to changes in abundance. But, we have a subset of
3 this -- of the attributes we can pull out, and predict
4 those stocks that have the ability to shift in
5 distribution. So, the output from this will give you
6 a vulnerability to changes in productivity, and a
7 propensity to shift in distribution, that it have the
8 ability.

9 So, I've covered this a little bit,
10 potential uses from the science side, is we can
11 identify those stocks that can benefit from
12 incorporating the environmental information into their
13 stock assessment, or into, maybe, their harvest
14 control roles, like with the Pacific sardine, identify
15 gaps in information, identify, maybe, where our
16 monitoring should be, clarify which stocks need to be
17 monitored.

18 And the management side, a lot of what I
19 just presented in the last presentation, this can help
20 identify those stocks we think that are more
21 vulnerable, where we need to start thinking about
22 where we may want to do some proactive management.

23 So, as I said, the methodology is the
24 exposure and the sensitivity of the fish stocks. The
25 exposure is going to vary, depending on what region

1 you do this in. So, for example, if it's being done
2 in the Bering Sea, sea ice may be important, and
3 covers of sea ice. Obviously, that would not be
4 important in the Caribbean.

5 So, the exposure variables are going to be
6 adjusted depending on the region. But we want the
7 sensitivity variables to stay the same. And the
8 sensitivity are the biologic -- the current biological
9 attributes of the species that predict how well it's
10 going to be able to adjust to a change in the climate,
11 and in the future.

12 A little bit more to the exposure. We
13 partnered with Office of Atmospheric Research, and
14 they helped create this web site at the bottom. I
15 will point out you have access to this -- to this
16 slide, so you can get this web site. They used global
17 models. It is not downscaled models, but they used
18 global models to give us predictions of the changes in
19 salinity, changes in temperature, changes in OA,
20 across the United States. So you can get an idea of
21 what the expected changes are going to be.

22 And we tried to -- when we set up our
23 exposure, we wanted to look at the expected change,
24 relative to the past variability, so that, in areas
25 where you had a high variability, that you expect them

1 to be better able to adjust to change than areas that
2 are pretty stable.

3 Again, sensitivity. These are the 12
4 attributes that current life history -- so how
5 specific are their habitat needs. Those species that
6 have specific habitat or specific prey needs or are
7 more likely to be impacted by changes, changes to that
8 habitat or prey occur than those that are more
9 generalist. So we did that. So there are these 12
10 attributes that we figured out best predicted what
11 biological characteristics predict a species
12 vulnerability.

13 So, as I said, this is an expert-based
14 scoring. And so, we wanted to give experts the
15 ability to score and show their uncertainty in the way
16 they score. So, an expert is going to score each of
17 their species in each of those sensitivity and
18 exposure attributes. So, an exposure will say, okay,
19 let's just -- how is, I don't know, red hake expected
20 to -- does it have a high specificity in its habitat
21 needs, or a low. And they are given five tallies. If
22 they're pretty sure that it has a moderate -- so it's
23 kind of generalist, but not a complete generalist.
24 They can put all their five tallies in the moderate.

25 And with this methodology for each of those

1 sensitivity attributes, we have a specific definition
2 of what we mean, and a specific of what we mean into
3 what is a high, what is a low, what is a moderate, so
4 to help the experts, so, it's not just -- if you don't
5 give them that kind of baseline, you can get a very
6 different set of opinions on what would be a high,
7 what would be a moderate, and a low.

8 And then they can use their tallies to show
9 that they're in certain -- this expert is very certain
10 that this is a moderate risk for that species. If
11 they're not so certain, they can spread their tallies
12 and say, I'm sure it's going to impact it, but I'm not
13 sure if it's a high or a very high. They can spread
14 their tallies across the high and very high, and show
15 that uncertainty.

16 If they have absolutely no idea, they can
17 spread their tallies across all the bins, and say, I
18 don't really know for this species what its
19 requirements are for larval dispersal, and so, they
20 can spread it. But we, on purpose, gave them five
21 tallies and four bins to make them give us their
22 expert opinion, so they had to put at least a second
23 tally in one of those boxes.

24 Along with this uncertainty we're getting
25 from the experts and how they spread their tallies,

1 we're also asking for a data quality score on each of
2 these species and their ranking, so they can say if
3 it's adequate data, limited data, based on expert
4 judgment, or no data. So, we can get an idea of where
5 this information is coming from.

6 So, the expert-scoring process is we have a
7 webinar where we explain the process to the experts,
8 walk them through the attributes and the definition.
9 They, on their own time, then go and do their original
10 ranking of the species and give each species a score.
11 We then bring them together in a workshop to discuss
12 where their scores may have differed. And here is an
13 example here.

14 So, the adult mobility of -- we'll say red
15 hake, just because it seems to be the one on my mind
16 today. These experts agreed. Each color is a
17 different expert's five tallies. So you can see that
18 all the experts believe that it was a low or moderate
19 for this species. So we're like -- we don't discuss
20 that. Experts seem to be in agreement.

21 The thing we might discuss at the workshop,
22 as an example here, where you have most of the experts
23 feeling that the habitat -- specificity of the habitat
24 needs are low to moderate, but you have Mr. Green
25 here, whatever that expert is, who seems to be saying

1 that it's high to very high.

2 So, then, we bring that up at the workshop,
3 so that if, maybe the expert, Mr. Green, knows
4 something that the others don't, he can share that.
5 Or, what is often the case, Mr. Green just got turned
6 around, and accidentally gave them the wrong way, so
7 just tallied his the wrong way. And after the
8 workshop, the experts are given a chance to fix their
9 tallies, if they need to. And then ,we combine all
10 the scores, and end up with a vulnerability ranking.

11 So, we get the exposure ranking for
12 each -- oops, wrong way -- for each species. That's
13 low, moderate, high, or very high, and a sensitivity
14 ranking, and then we combine that to get an overall
15 vulnerability rank. And this matrix kind of shows,
16 visually, how that works. We did use multiplication,
17 but it's a visual of that. It is, for the most part,
18 the lower of the two.

19 If you have a species that has a very high
20 exposure, but is not very sensitive, it should be
21 okay. If you have a sensitive that has a very low
22 exposure, but it's high sensitivity, it should also be
23 okay. So it's that interaction of those two. The
24 only place we deviated from the lowest is if something
25 was ranked very high, in either exposure, or

1 sensitivity. We knocked them up one bin, just to be
2 precautionary.

3 The best out put you're going to have from
4 these is each species is going to have a vulnerability
5 narrative. So, we've done this in the Northeast on 82
6 species, and each species then has a three-page
7 vulnerability narrative. And it's going to show you
8 the ranking of the experts across each of the
9 biological attributes and the exposure factors. And
10 you can see where they're low. You can where there is
11 issues. And then there is a narrative that goes with
12 this that says what other information we know, what
13 else is out there in the literature. And we're hoping
14 that these are going to be very useful for the
15 managers and for the fishermen.

16 So what -- where is the stages of this? As
17 I said, we finished it in the Northeast on 82 species.
18 That was our first run of the methodology. At that
19 point, we only used NMFS scientists. As we expand to
20 other regions, we're going to incorporate other
21 scientists. We have submitted those results to a
22 scientific publication. And, as soon as it gets
23 accepted, we'll be happy to share this.

24 It's also -- currently, assessments are
25 being run for the Bering Sea and for the California

1 current ecosystems, and we're hoping, then, to do
2 other areas, in the future.

3 This was a big project with lots of people,
4 so I just wanted to make sure I ended with all the
5 lists of all the people who have contributed to
6 creating this methodology and helping us run pilots
7 and testing it.

8 So, at that point, I will take questions on
9 this.

10 MR. MERRICK: As an addendum -- Richard
11 Merrick. And as an addendum to this, because this is
12 the only place where this has been done on this scale
13 in the world, I want to make sure that the process is
14 right.

15 MS. MORRISON: Yeah.

16 MR. MERRICK: So, this actually started off
17 with a pilot in the Northeast. They adapted that,
18 went to a full-scale application in the Northeast.

19 MS. MORRISON: Uh-huh.

20 MR. MERRICK: We then went to -- to an
21 independent peer review, and then through that, and
22 then it's going out as a general management for review
23 there.

24 MS. MORRISON: Yes.

25 MR. MERRICK: And our goal is that this will

1 be part of the whole vulnerability toolkit. So, we're
2 going -- after we do the West Coast and Alaska,
3 Pacific Islands, Gulf, Southeast, and like that, as
4 well. It is a bit of a time sink to do it. So, we're
5 not doing it all at once. So, basically, folks step
6 up to volunteer to do it from the -- not just the
7 centers, but the regional offices and the councils as
8 well.

9 CHAIRMAN RIZZARDI: Thank you, Richard.

10 All right. We have two more presentations
11 to follow before lunch.

12 MS. MORRISON: I have my own timing.

13 CHAIRMAN RIZZARDI: So I'm just making
14 people aware of that. Let's give Terry her
15 opportunity.

16 MS. BEIDEMAN: Okay. I'll be quick. Most
17 of my comments were on the literature review section.
18 I emphasize, I guess, that it's not one-size-fits-all,
19 but the genetic diversity stressing that you should
20 preserve the higher and the lower -- my background,
21 for the most part, at this point, is highly migratory
22 species. So, you know, I don't know -- I don't think
23 that would necessarily apply with all of them, so --

24 MS. MORRISON: Okay.

25 MS. BEIDEMAN: -- you know, red hake kind of

1 is a different matter. Flexibility of permits, at
2 least on the East Coast, I see that as like one of the
3 bigger problems as we come up against some of these
4 choke species issues, where, you know, the groundfish
5 fishery is kind of in one spot, and the other
6 fishery's in another spot, and never the twain shall
7 mix. We may have to do something like that.

8 I also see the data that was mentioned about
9 how things get closed, and they don't have the data to
10 either reopen them, or the process is too slow. So, I
11 think -- you know, I think the flexibility to use, you
12 know, an expedited process, or a frameworking process,
13 you know, helps move it along that way. I was just at
14 the South Atlantic Council. I had an issue with
15 dolphin fish, where they close the commercial. It has
16 a very low percentage of the allowable catch.

17 They have a very large percent of the
18 recreational allocation that has not been harvested,
19 for whatever reasons. And it's a species that, you
20 know, is healthy. Everyone pretty much agrees the
21 stock is in good shape. It's seasonal. You don't
22 have opportunity to catch it all the time, but -- so
23 they're discussing trying to find some flexible way to
24 transfer quota from one section to another, which has
25 always been the big sticky wicket. But I think people

1 are beginning to realize that, you know, change is
2 coming.

3 So -- and do with suppliers, the suppliers,
4 at least, in my experience in the infrastructure, are
5 as impacted as any fishermen are at least in the
6 Atlantic. And once the infrastructure is gone, the
7 possibilities should, you know, diminish.

8 MS. MORRISON: Uh-huh.

9 MS. BEIDEMAN: So I think if you're going to
10 have insurances, or things like that -- and I think
11 it's not a one-size-fits-all. It's a toolbox that you
12 have to look at. So, anyway, I noticed also on this
13 particular one that you have a citing for Mike Clark
14 down there at HMS, but I didn't really see much that
15 was HMS-related.

16 MS. MORRISON: Yes.

17 MS. BEIDEMAN: So I'm kind of interested in,
18 you know, where that's going to go eventually, I
19 assume. So -- and that's my remarks.

20 MS. MORRISON: Okay, yes. Mike Clark was
21 involved, but then he moved to the State Department.
22 So -- and we have -- we are -- we are talking to
23 Margot about this, if she wants to do an analysis for
24 the HMS stocks. But thank you for your comments.

25 CHAIRMAN RIZZARDI: Liz.

1 MS. HAMILTON: First of all, this is a real
2 impressive -- I love hearing this. You have this
3 fascinating, clashing intersection on the West Coast.

4 You know, we live with the El Niño cycles, right?
5 And it was told us that definitely, without a doubt
6 tearfully during another one, and the salmon -- and in
7 all the listings, you know, the El Niño is something
8 they've lived with for millennia, but we've got the
9 freshwater history.

10 Their freshwater life history is so impacted
11 that it's tough for them to survive these El Niño
12 cycles. And then, you overlay the climate change
13 impacts on the freshwater and the ocean, and so, I
14 think you guys have got to rush that vulnerability
15 reports, so the managers can use it more effectively
16 in salmon management. Those three things are heading
17 for a very -- and then, we have the blog. But anyway,
18 those -- that intersection sounds like we each can
19 blink out some species, if we're not reacting.

20 MS. MORRISON: Salmon are their own item.
21 Salmon are hard.

22 MS. HAMILTON: That is, you are looking at
23 salmon on your West Coast vulnerability assessment, or
24 is it just --

25 MS. MORRISON: With the way the methodology

1 is written, salmon will turn out as very high. And
2 it -- and so, they're looking at can they tweak it a
3 little bit for the West Coast assessment to get a
4 level of the higher or lower vulnerabilities within
5 those salmon stocks.

6 So I'm not really sure where they ended up,
7 but we have had discussions about that. If they were
8 to just use the methodology as we created it, I
9 guarantee salmon would end up as very high, across all
10 the stocks. And so, as I said, they're looking at how
11 they can tweak that, and get a little bit more
12 information for the salmon. And I can get an update
13 on you for that. I have not been as involved in that.

14 Okay? And I'm sure I used my time, so thank
15 you, guys. I appreciate --

16 CHAIRMAN RIZZARDI: Julie Morris for the
17 last question.

18 MS. MORRISON: Oh, sorry.

19 MS. MORRIS: So, Julie Morris. It seems
20 like methodology is designed to be more nimble than
21 the one quantitative analysis. That's sort of --

22 MS. MORRISON: Yes.

23 MS. MORRIS: -- the reason you're doing it.

24 So, I have a couple of questions related to that.
25 One is that, you know, when we went to setting ACLs

1 for all the stocks, there is a component of that which
2 had to do with model uncertainty, data uncertainty.

3 MS. MORRISON: Uh-huh.

4 MS. MORRIS: So, that seems like it's part
5 of the quantitative work that maybe you could pull in
6 to this effort. I don't know if you thought about
7 that. And then there is also -- we had to set, you
8 know, tolerance for risk for each species, and that
9 seems like it kind of crosswalks over to the
10 vulnerability, the biological sensitivity of species,
11 and you can -- we can pull some of that over.

12 And then, that leads to the final question.

13 Have you done, like, the expert methodology and
14 compared it with one of the quantitative two-year
15 species that you've looked at and seen do they line
16 up, how different are they.

17 MS. MORRISON: We don't have enough stocks
18 to really do that lining up. We tried to, but we
19 don't really have enough to be able to say, I think
20 most of the stocks that are done all end up in one
21 category, so you don't get the variability. So, we
22 haven't really been able to do that, that lining up
23 and testing of it.

24 In terms of its uses in management, I think
25 you're right. You have a good handle on where it

1 could be used. As headquarters, we don't try to tell
2 people how to do things, so we're going to follow up
3 with the Northeast and make sure we understand how
4 they've used it.

5 If there are tweaks we can do to make it
6 more useful from the management side of things, and
7 just make sure we follow up with them to see -- to
8 learn from the experience up there on how they are
9 using it for management, how it possibly could be
10 tweaked to be more useful.

11 But you're right. I like your ideas.

12 CHAIRMAN RIZZARDI: Thank you.

13 MS. MORRISON: Thanks.

14 CHAIRMAN RIZZARDI: All right. So, next up
15 is Lisa Colburn, Dr. Colburn, social scientist with
16 the Northeast Fisheries Science Center. And she is an
17 applied anthropologist in the Rhode Island Lab. And
18 she is doing research on the social indicators of
19 fishing community vulnerability and resilience.

20 So now what we're doing is driving
21 towards -- shifting from this on the fish to now what
22 happens to the community. Fish might not be
23 vulnerable. Well, what happens if the community is?
24 The fish might migrate north, but the community can't
25 keep chasing fish forever, and how do you make them

1 resilient, too?

2 So, thanks for being here, Dr. Colburn.

3 DR. COLBURN: I do want to say that the
4 presentation that was listed this morning on the web
5 site was a draft presentation, and this is the final
6 presentation. So, don't follow the one that was on
7 the web site. Heidi will circulate this in a couple
8 of days.

9 So, the context for the indicators of
10 fishing community vulnerability and resilience
11 is -- the impetus for that is the need for analytical
12 tools to conduct social impact assessments, which are
13 part of all environmental impact statements that we do
14 when we're faced with a change in a fishery management
15 regulation.

16 And one of the aspects of that is that we
17 are mandated to do place-based analysis. When we're
18 talking about a community, it must be that the
19 analysis -- at least, part of the analysis, has to be
20 place-based, meaning a geographically-bound entity.
21 There are other kinds of communities, communities of
22 interest, peer groups. And we recognize that. So,
23 this presentation is about the place-based community
24 and analysis in relation to that.

25 While, initially, the impetus was fisheries'

1 social impact assessment, we're also finding an
2 application of the social indicators for climate
3 change assessment. So, I will talk about that at the
4 end. I use the indicators that Wendy just spoke
5 about, and apply them at the community level. But,
6 first, I'll talk about our operationalization of
7 social vulnerability and social resilience.

8 The concepts are really complex and
9 intertwined, and there is not a lot of agreement
10 within the literature about the relationship between
11 these two concepts. And, further, the
12 operationalization, the actual measurement of these
13 concepts is quite different. We found many more
14 examples of social vulnerability being quantified on a
15 large scale, whereas social resilience has tended to
16 be more on a local scale, and more adapted to a local
17 situation.

18 Therefore, we are really -- what I'm
19 primarily talking about today is social vulnerability.

20 And the relationship that we see between the two is
21 that a change in vulnerability over time tells us
22 something about the resilience of a community.

23 So, we have this social indicators web tool
24 that is -- it's about to be revised, but right now,
25 you can Google it on NOAA's social indicators, and you

1 can find nearly -- social vulnerability data for
2 nearly 3,000 communities, between Maine and Texas.
3 And we also have indicators of fishing community
4 vulnerability and resilience that I'll talk about in a
5 moment.

6 The current web site, as I said, is for
7 about 3,000 communities on the East Coast and Gulf
8 region. But we're going to update it very soon with
9 national data, so we'll have over 4,000 communities
10 with the same information.

11 So, one of the things that we can do with
12 this tool is we can look at an indicator for a
13 community. It could be poverty. It could be
14 population composition, which is about race,
15 ethnicity, and language fluency, or any of the other
16 indicators that we have, and we can see the ranking
17 for that community, in relation to all of the other
18 communities around it.

19 In this instance, I circled New Bedford,
20 simply as an example community, and the indicator that
21 I've circled, or I'm highlighting, is commercial
22 fishing engagement, because it's very -- we all know
23 New Bedford is highly engaged in fishing. But, just
24 an example.

25 We can do this for both commercial and

1 recreational communities, between Maine and Texas.
2 For commercial fisheries, we use data from -- NMFS
3 data, pounds landed, value landed, the number of
4 permits, the number of dealers in a community.

5 The recreational data we got from the Marine
6 Fisheries Information Program. The one thing that I
7 will say is that the commercial fishery dependence
8 indicators that we have are consistent. They will be
9 consistent, in terms of the national indicators. The
10 recreational fishing indicators are a little bit
11 different, because the data collection mechanisms are
12 different, depending on the region.

13 So, for the moment, we have them for the
14 East Coast and Gulf Coast. But it will happen later
15 for the -- nationally. Oops, sorry.

16 So, one of the things that we did, looking
17 at social vulnerability, was to sort of separate
18 out -- let's first look at -- first look at all the
19 communities in the sample, 3,000 communities, or
20 nearly 3,000 communities. And what is the
21 vulnerability profile for these communities? And we
22 have five different indicators, which I can talk about
23 in more depth if you'd like. But I'm just going to
24 focus on poverty, because that's a more intuitive
25 indicator of vulnerability.

1 And what we can see here is that about 45
2 percent of the communities ranked as moderate to
3 highly vulnerable, in terms of poverty, whereas 65
4 percent ranked as low.

5 And then, we looked at -- we took just the
6 most active fishing communities, and we took a subset
7 of those, and we looked at the same indicators. And
8 what we found is is that for all of the indicators,
9 that there is higher vulnerability in communities that
10 are more intensively involved in commercial fishing,
11 than compared to the population as a whole.

12 What this looks like on an individual
13 basis -- and the one thing I did say -- I think,
14 Peter, you asked about ground truthing. We did
15 ground-truth this methodology, with about 4,000
16 interviews across 20 communities between Maine and
17 Texas, with good agreement, in terms of the results.

18 But, this is just an example, once again,
19 of New Bedford. The two types of vulnerabilities that
20 are more pronounced in New Bedford are personal
21 disruption and poverty, whereas, you look at
22 Stonington, Maine, and it's a different vulnerability
23 profile. It's more about the housing characteristics
24 in that community and also, let's see, the labor force
25 in that community.

1 And then, you look at a community like Point
2 Judith, and the five-vulnerability indicators that we
3 have don't appear to be particularly stronger an issue
4 in that particular community.

5 We also have indicators of gentrification
6 pressure vulnerability. And I'm not going to go into
7 depth about those, but I'm going to simply say that it
8 is an issue in many communities, and with declining
9 fish stocks, and the desirability of living in coastal
10 areas, that people moving in and wanting to buy
11 waterfront property traditionally owned by fishing
12 families, or a weakened fishing economy and businesses
13 closing, that gentrification pressure can sort of
14 irreparably change and transform the coastal
15 landscape, and that has an effect on fishing
16 communities, and their viability.

17 So, next, I'll talk briefly about climate
18 change and fishery management considerations. What we
19 do know is that it will change the opportunities of
20 communities, in terms of the opportunities to fish.
21 It could be a change in location, fish moving away.

22 We all know about fish moving between
23 management areas, and that there will need to be some
24 adaptive response to that. It will require adaptive
25 response for various reasons, and that one of the

1 things that may be -- may be advantageous for
2 communities is if they rely upon a diversity of fish
3 species, versus a single or very few species.

4 And then, last, what we know is that
5 communities that are more highly dependent on fishing,
6 and that are more highly vulnerable socially may
7 benefit from adaptation programs. So, in terms of
8 applying the vulnerability, climate vulnerability,
9 methodology that Wendy talked about, we did two
10 things. We looked at, on the left map -- we took
11 those vulnerability rankings, and we applied them.

12 We did an analysis, and we applied them at
13 the community level, so that if we allocated the value
14 landed across the different vulnerability categories,
15 and if a community vulnerability category, if there
16 was one that was higher than 50 percent, then we gave
17 that vulnerability ranking to a community.

18 It is a very simple approach. We have tried
19 weighted averages, and we find that the results are
20 fairly similar, and that this seems a more intuitive
21 and straightforward approach. But what we find is is
22 that, for instance, northern Maine, that because it's
23 reliant on primarily on lobster, and lobster is
24 moderately vulnerable, most of the communities have a
25 moderate vulnerability ranking.

1 But that begins to change as you -- as you
2 go South around the Cape, that more communities may be
3 more highly vulnerable, because of the species that
4 are harvested, but we also have some communities that
5 are mixed communities that we couldn't assign to a
6 category, because no more than 50 percent -- or less
7 than 50 percent -- it was distributed across the
8 different vulnerability categories.

9 And then, in terms of a catch diversity, we
10 did a Simpson diversity index, which is a -- it's like
11 a Shannon index of biodiversity. And that gave us an
12 idea of -- or a quantitative idea of the catch
13 diversity at the community level. And once again, you
14 can see, for Maine, a lowered -- on the lower
15 diversity side, with a moderate climate vulnerability
16 profile, but as you go South, you can see that it's
17 more mixed. And that -- when we look at this, an
18 example of this is -- or applied -- an application of
19 this is just looking at two communities with two very
20 different profiles.

21 When we allocated the value landed for New
22 Bedford, it came as -- it fell into the category of
23 high, very high. And, as you can see down below,
24 that's primarily because of its reliance on scallops,
25 which are high, to very highly, vulnerable to climate

1 change. And then, a community like Point Judith has a
2 more mixed profile of vulnerability, and that's
3 because of the variety of species that are exploited
4 there, and they're distributed across, from low,
5 moderate, high, and very high.

6 And just putting it all together, one of the
7 things that this multiple -- the multiple aspects of
8 this analysis can do is it can allow us to look at
9 fishing dependence, what is the importance, or
10 intensity, of fishing in the community, what is the
11 social vulnerability profile for that community, and
12 then, more recently, in this pilot project, with the
13 vulnerability indicators that Amy talked about -- I
14 mean, Wendy talked about -- is looking at -- beginning
15 to look at climate change and what its effects might
16 be, at the community level.

17 I made up for your overage.

18 MS. MORRISON: Well done.

19 CHAIRMAN RIZZARDI: Okay. Well, we're
20 running few minutes behind, so I just want to make
21 clear I'd like the members to limit their questions to
22 clarifying questions on the presentation. If you've
23 got commentary, we've got time allocated for a healthy
24 discussion, a little later today. So, any clarifying
25 questions, please.

1 MR. SHELLEY: I'm just trying to understand
2 the example of lobster in down-east Maine and scallops
3 in New Bedford. Scallops in New Bedford showed up as
4 a high vulnerability?

5 DR. COLBURN: They ranked high on the
6 analysis that --

7 MR. SHELLEY: On coastal Maine, portions of
8 the lobster were low vulnerable?

9 DR. COLBURN: Is moderate.

10 MR. SHELLEY: Moderate.

11 DR. COLBURN: Moderately vulnerable.

12 MR. SHELLEY: And I'm just curious. You
13 know, if you're thinking about it in terms of
14 alternatives available to the community, I would
15 think, just intuitively, that down-east Maine was much
16 more vulnerable, because there aren't alternatives for
17 the lobster fishery available to those communities.
18 But it doesn't seem to play out in your analysis.

19 DR. COLBURN: Actually, in terms of
20 the -- we have this particular indicator that looks at
21 labor force. And, for instance, Stonington, Maine,
22 there is low labor diversity in that particular
23 community. So, we would consider it a vulnerability.

24 That doesn't happen to be the case in New Bedford, or
25 Point Judith. But one of the vulnerability indicators

1 does get at, sort of, employment options.

2 MR. SHELLEY: Okay.

3 CHAIRMAN RIZZARDI: Mike, can you keep it
4 really quick?

5 MR. OKONIEWSKI: Yes. If I'm hearing this
6 correctly, you're establishing what the social
7 vulnerability is in the -- you said, as it exists
8 prior to the climate change, and then -- I mean,
9 you're kind of setting a base. Is that --

10 DR. COLBURN: Setting a baseline, yeah.
11 And, Ted, yes?

12 MR. AMES: Yes. I think that this is really
13 interesting because we -- we have added a
14 vulnerability analysis for down-east Maine. And
15 basically, the lobster fishery is primarily a state
16 waters fishery. And there are 22 inactive groundfish
17 permits in the area, from the eastern half of the
18 state, one or two scallop fishermen, and the one
19 herring fisherman. And so, basically, Maine has lost
20 access to federal fisheries in federal waters.

21 I'm sure -- did you factor in this
22 restricted access?

23 DR. COLBURN: You mean between state and
24 federal?

25 MR. AMES: Yeah.

1 DR. COLBURN: Our landing -- that's actually
2 a really good question. Our landings data looks
3 at -- so that the pounds in value include -- it
4 includes state landings and value, but less so for
5 permits. Our data is -- so, you might -- if we were
6 able to add that, and include it, the profile might
7 look a little bit differently. So, that was a really
8 good question.

9 MR. AMES: Yeah. That's interesting.

10 CHAIRMAN RIZZARDI: Thank you, Lisa. We
11 really appreciate that. Great presentation. In fact,
12 we've had two solid presentations in the context of
13 resiliency. The first one, if you think about it, can
14 help us focus on stock resilience. That one helps us
15 focus on community resilience. And now, this last one
16 is going to get us thinking about ecosystem
17 resilience. And all three of these approaches, you
18 know, were a part of what we laid a foundation for
19 earlier.

20 This presentation is being offered by Pat
21 Montanio. She is the director of the Office of
22 Habitat Conservation. She supervises all the aquatic
23 conservation programs in NOAA. She was there from '06
24 to 2011, left, ran off, did a whole lot of strategic
25 planning for the agency, via work on interagency

1 collaboration efforts, and now, has come back into her
2 position, where she is going to now be educating us on
3 ecosystem resilience. So thanks for being here, Pat.

4 MS. MONTANIO: Okay, thank you. So, it is
5 great going away and then coming back to see all the
6 progress that has been made, because it has been
7 considerable. So, what I'm going to do today is talk
8 a little bit about the importance of habitat
9 conservation to support coastal resilience,
10 ecologically, socially, and economically, and then,
11 talk a little bit about NOAA fisheries programs that
12 help support the resilience.

13 First and foremost, healthy habitats support
14 healthy ecosystems that support healthy fish.
15 Fishing-related industries in this United States
16 support \$200 billion in the economy and 1.7 million
17 jobs. Clearly, clearly, an important thing.

18 In the interests of time, I'm going to skip
19 the little video we have here, but if you have two or
20 three minutes later, please click on that. It uses
21 summer flounder as an example, and it illustrates the
22 importance of not just looking at one habitat type,
23 but supporting the habitats of the various life stages
24 of the fish that we care about.

25 So, in addition to supporting the fishery

1 economy and the fish, coastal habitats provide a lot
2 of other social benefits to communities. They provide
3 a significant amount of natural infrastructure. You
4 heard Holly talk a little bit about the natural
5 infrastructure that habitats can provide. Wetlands,
6 oyster reefs, they can enhance the water quality in an
7 area. Wetlands can help attenuate wave action and
8 protect communities. And, in fact, salt marshes can
9 dissipate wave energy by 50 percent, in the first two
10 and a half meters of the marsh.

11 They can also protect, and be used in
12 conjunction with more traditional protection efforts,
13 such as levies. So, if you put a marsh wetland
14 associated with a levy, the wetlands will protect the
15 levy, which then protects the communities. So, you
16 can get the ecological value, as well as the
17 protection values.

18 And then, wetlands can also provide some
19 major benefits for carbon sequestration. So, the
20 soils associated with the wetlands, and all, can store
21 significant amounts of carbon, and it's just another
22 added benefit on the benefits side of the equation for
23 protecting wetlands.

24 So, significant economic benefits. This
25 slide here shows some benefits from coral reefs.

1 Coral reefs comprise less than 1 percent of the total
2 habitat areas in the United States, yet provide
3 significant benefits to fisheries, to biodiversity, to
4 tourism, and recreation, and also as a major
5 protective source to the shoreline.

6 So, 95 percent reduction in wave impacts
7 from areas with healthy intact corals, compared to
8 those with destroyed corals. And, in fact, at times,
9 restoring coral reefs can be more cost-effective than
10 preparing bulkheads, or more traditional hard
11 structures.

12 So, now I'm going to turn to -- go through
13 some of NOAA Fisheries programs that help support
14 coastal resilience, and, starting with the national
15 policy overlay, and then moving to some specific
16 programs and examples.

17 So, at the NOAA level, Holly mentioned we
18 have this NOAA habitat conservation team, that
19 includes all the line offices of NOAA, that's looking
20 at how to leverage and put together the capabilities
21 across NOAA to help habitat conservation.

22 So, we most recently, in August, issued a
23 NOAA habitat policy that applies to all these line
24 offices. And what that does -- we did it with an
25 administrative order. It helps solidify the approach

1 of working together to expand through the next
2 administration. So, even though it supports the
3 coastal resilience priority of this administration,
4 it's really critical to the core missions of NOAA, and
5 important into the future. And so, this helps
6 solidify that. And it sets up a framework.

7 Tearing from the habitat blueprint
8 framework, it establishes some key concepts of how we
9 should be doing our business. That includes really
10 building on ecosystem understanding, and adaptive
11 management approaches to the use of habitat. It
12 includes supporting coastal communities, and building
13 their capacity and place-based efforts to support
14 habitat conservation. It talks about using the
15 natural infrastructure approaches as alternatives to
16 more traditional methods of protection, of community
17 shorelines erosion.

18 And it emphasizes a landscape approach to
19 conservation, where we look at not just one source of
20 impacts, but you look at the whole range of impacts,
21 and the whole range of values that the ecosystem
22 provides, at a larger watershed or landscape scale.

23 But inherent in all of this is the
24 importance of partnerships, of building those
25 partnerships to get the job done. There is limited

1 resources in everyone's bailiwick, and so, we need to
2 work together to meet common goals.

3 And then, finally, we have out, and it's
4 posted on the MAFAC web site, the NOAA Fisheries
5 Habitat strategic plan. And this is a plan done in
6 conjunction with the regional offices and the Office
7 of Habitat that really drills down -- taking those
8 principles, and drills down into what are the
9 priorities that we're going to operate under for the
10 next three to five years.

11 So, we're looking for comments on that, and
12 hoping you guys will look at that. It establishes
13 three primary goals. One is to conserve habitats for
14 living marine resources, including threatened and
15 endangered species, and managed fish species.

16 Second, it's a goal to restore the habitats
17 that have been injured by oil or hazardous waste
18 impacts. Most recently, I'm sure you've heard the
19 proposed settlement for the BP Oil spill in the Gulf
20 and Deepwater Horizon. \$8.8 billion is being proposed
21 to restore the natural resources from that event.

22 And third, it's to look at really increasing
23 the resilience of ecological, economic, and social
24 values of our coastal habitats, or of habitats in
25 general.

1 So, first and foremost, it's looking at a
2 broader landscape scale, trying to leverage the
3 opportunities across different organizations to focus,
4 more specifically, on common goals and objectives.

5 We have established ten habitat blueprint
6 focus areas around the country, and I'll show you a
7 map in a minute. But it's really to leverage the
8 activities that NOAA is already doing on the ground,
9 with partners desire to improve the areas, and looking
10 at those common goals, and how we can make more
11 measurable, concerted effort, by focusing on those
12 things.

13 We take advantage of other -- other
14 interagency efforts, such as the landscape
15 conservation cooperatives that Interior leads. And
16 that way, it's looking at what is the science that's
17 needed for these landscapes. How can we generate that
18 science, increase the availability of that science to
19 all the different managers at various scales, and then
20 get more done on the ground.

21 We have other efforts we work on, including,
22 you know, Puget Sound, Chesapeake Bay, looking at the
23 regional system recovery efforts, and working closely
24 with state and local NGOs and other partners there.

25 Then, we have a number of tools and some

1 statutory tools, management tools, like essential fish
2 habitat, which I'm sure you're familiar with. We
3 basically work with the councils to establish those
4 areas and designate those areas that are important to
5 the various life cycles of managed fish, and then,
6 once those areas are designated, we can work with
7 federal partners who are issuing permits in other
8 activities that may impact that habitat to make sure
9 that they're minimizing the impacts of important
10 areas, and able to mitigate where they can.

11 So, whether it's sand and gravel mining
12 offshore, or whether it's coastal development, there
13 are steps we can take to minimize these efforts. And
14 the EFH tools in the Magnuson-Stevens Act is just one
15 of the regulatory tools we have. We also have Fish
16 and Wildlife Coordination Act, Clean Water Act, and
17 others where we can engage with our federal partners.

18 Then we also have concerted efforts on
19 different habitat types. NOAA has a coral reef
20 conservation program that we work on, looking at
21 corals. We have a concerted effort looking at
22 wetlands, which are really vital areas for rockfish,
23 shrimp, menhaden, and many other species.

24 So, we've got is an interagency working
25 group looking at four different target areas: Tampa

1 Bay, Galveston, Cape Fear, and San Francisco, and
2 trying to look at what is impacting the wetland loss
3 in those areas, and coming up with strategies to
4 reduce that rate of loss or turn that rate of loss
5 around, because as important as our habitat
6 restoration programs are, it's a lot more
7 cost-effective to protect what we have, and to reduce
8 that decline, than it is to restore.

9 But it is -- one of our key programs is our
10 community-based restoration program. And in that
11 program, we provide significant technical assistance,
12 as well as financial contributions, to help restore
13 targeted areas. And these programs take a wide range
14 of forms. So, some of the restoration grants are
15 dealing with fish passage. We're trying to improve
16 fish passage in rivers for migratory species.

17 At the same time, those fish passage
18 programs can help remove outdated milldams, outdated
19 culverts, and other things that can actually help
20 alleviate a safety concern of the community, or help
21 reduce flooding in areas.

22 We look at living shorelines, which is
23 looking at ways to provide ecosystems on the shoreline
24 to help fish, but, also, could help minimize erosion
25 of the shoreline.

1 Then, most recently, we have -- last year,
2 in '15, we received \$4 million for coastal ecosystem
3 resilience grants. So, this was the first time this
4 grant program was instituted, and it's a complementary
5 program to National Ocean Service grant program.

6 So, what our \$4 million was intended to do
7 is to really look at targeted restoration efforts that
8 can address the impacts of extreme weather events or
9 climate change. NOS' complementary grant program
10 looked at how to build regional and community capacity
11 to respond to the same events, so, together, they are
12 addressing resilience in different ways.

13 So, we put a lot of restrictions on this
14 initial solicitation, and first and foremost was
15 having projects that were ready to go, that were ready
16 to move, except for the financial support that they
17 needed. And even with that kind of restriction, we
18 got \$45 million worth of proposals for a \$4 million
19 grant program. So, it demonstrates there is a
20 tremendous need. And, the down side of a program like
21 this is going to be all the grant applicants that
22 we're going to have to say no to, because we're not
23 going to be able to fund all of the great projects
24 that are out there.

25 So, where we are in that process, we have

1 completed the technical reviews, and we're getting
2 ready to issue the final grants within the next month.

3 So, I mentioned the habitat focus areas.
4 These are ten areas, designated. You can see wide
5 geographic areas, but what they have in common, even
6 though they're all unique places -- what they have in
7 common is clear, measurable conservation objectives,
8 where progress can be made in the short-term, and
9 where there are willing partners on the ground to work
10 with NOAA and other federal agencies in making a
11 difference.

12 So, the status of these, we've designated
13 them. We are in the process of developing the
14 implementation plans, which should be finalized over
15 the next few months.

16 So, then I want to turn to a couple of
17 specific examples of work we're doing. The first is
18 in the Russian River of California, which is a habitat
19 focus area.

20 So, the goals of this program are looking at
21 rebuilding salmon and steelhead stocks through habitat
22 measures, but also looking at it in conjunction with
23 water management on the river. And so, there is quite
24 a diverse array of partners across NOAA working with
25 the communities on this, in a variety of ways. We are

1 working with the Weather Service, and others, to have
2 better predictions of frost that the vineyards care
3 about in the area.

4 So, if you have a better prediction of the
5 frost, and you have to use less water to protect the
6 crops against the frost, you're keeping more water in
7 the system for fish.

8 We're looking at -- OAR is doing studies on
9 the atmospheric rivers in the atmosphere that tends to
10 bring storms concentrated in certain areas, which can
11 cause localized flooding. And we're also looking
12 at -- with NOS, with Sea Grant, and others, on
13 modeling the estuary, and looking at the different
14 components of the estuary.

15 So, it's really looking at multiple
16 objectives, looking at multiple skill sets that we
17 have in the organization, and applying it to a
18 problem. Similarly, in Puget Sound, we're looking at
19 salmon stocks, but we're also looking at flood
20 protections of the communities in those areas.

21 So, as we can restore natural areas for
22 hydrological restoration in the area, we can also
23 serve to protect against flooding of the communities.

24 So, again, it's an area where significant community
25 interest for multiple objectives are coming together

1 to get things done on the ground. And Puget
2 Sound -- and this is an area where we're also looking
3 at, very explicitly, a study on carbon sequestration,
4 how much carbon is actually stored in the wetlands
5 there, and how can we credit that and use that as an
6 argument in restoration.

7 The last area I'll take about is Cape Fear.

8 There, we're looking at, again, fish passage,
9 migratory fish, but also the clean water availability
10 to communities in the area, and with partners, such as
11 the Nature Conservancy, and others, looking at how we
12 can achieve multiple objectives towards that end.

13 As part of this effort, there is a \$100
14 million grant given to the National Fish and Wildlife
15 Foundation to do a study to identify resilience hubs
16 in the area, and, in particular, looking at ways that
17 the Corps of Engineers can maybe think about how they
18 conduct their projects differently, using natural and
19 nature-based infrastructure.

20 So, we're hoping -- we're working very
21 closely with NFWF, with the National Fish and Wildlife
22 Foundation, but also the Corps of Engineers, to make
23 sure that this will be information that's useful to
24 them in the long run, and sort of changing how they
25 think about projects and how they conduct their

1 projects.

2 So, to close, I mean, the take-home messages
3 are really habitat conservation benefits. A lot of
4 different things, supporting commercial fishing,
5 providing flood control, supporting the U.S. economy.

6 And there are a number of programs across NOAA and in
7 NOAA Fisheries that help contribute to these.

8 I just mentioned a few of them. There are
9 certainly others. And they do address our core
10 mandates and our core priorities in NOAA Fisheries for
11 recovering protected species and managed fish. But
12 they also have so many other co-benefits. And so,
13 it's the partnerships and leveraging that are really,
14 really critical here to achieve our mission.

15 And what I want to emphasize about the
16 partnerships is that these partnerships need to be
17 diverse partnerships. It's not fish that bring
18 everyone to the table. Some people care about fish.
19 Some people care about clean water. Some people care
20 about flood protection. And by building a coalition
21 and a partnership across diverse interests, you can
22 come up with common goals, and you can get more done
23 in the area, and you can deal with some of the -- I
24 think somebody mentioned the restrictions on grants,
25 which are really significant.

1 But if you overlay the different granting
2 mechanisms together in a partnership forum, you can do
3 a lot more. In NOAA Fisheries, sometimes we put our
4 grants towards engineering and design, which
5 complement a grant program where they're prohibited
6 from using engineering design in their money. So, by
7 pulling these things together, and looking at it on a
8 landscape scale with various partners, we are able to
9 get more done.

10 So, with that, I'll turn it over to
11 questions.

12 CHAIRMAN RIZZARDI: Thank you. I have a
13 question. Place-based habitat and conservation, and
14 I'm trying to understand where your funding can be
15 used. I know, I'm not going to go too far, because I
16 know it's time for our lunch break, but I saw your
17 slide on Russian River.

18 MS. MONTANIO: Right.

19 CHAIRMAN RIZZARDI: And the need for drought
20 resilience. And drought resilience usually requires a
21 reservoir in order to store the water at the right
22 time. So, can your funding be used to enhance
23 reservoirs? Because there is the place-based benefits
24 for the ecosystem downstream, but their location where
25 you really need the project to be done is somewhere

1 upstream.

2 MS. MONTANIO: It can be associated with
3 reservoirs, but it doesn't directly support the
4 reservoirs, which is probably other federal agencies,
5 and all. I mean, our programs are fairly small, so
6 you're looking at the leverage capabilities. But if
7 you are, you know, trying to address the reservoir
8 management, we certainly have science and forecasting
9 capabilities across NOAA. It will really contribute
10 to how you maximize the reservoir management. So,
11 that part of it, certainly, is a NOAA function.

12 So, when we've removed dams, or contributed
13 to dam removals, we've done associated repair and
14 restoration, and other kinds of things.

15 CHAIRMAN RIZZARDI: Thank you. Other member
16 questions?

17 MS. BRANDON: What sort of resilience do you
18 have in a watershed? That was on one of your slides.

19 MS. MONTANIO: So, I can't answer that
20 specifically. You know, I've been working, you know,
21 closely with NFWF. They're looking at areas and
22 projects that can help contribute to resilience. And
23 I think that's what they're calling the resilience
24 council. So, that -- that study by NFWF should be
25 available by January, I believe, so there will be more

1 information on that.

2 MR. OKONIEWSKI: I think you may have
3 touched on it, and already brought up partners today.

4 What -- who, specifically, are you viewing as
5 partners?

6 MS. MONTANIO: Anybody.

7 MR. OKONIEWSKI: Eligibility, I guess.

8 MS. MONTANIO: So, yeah. You know, so in
9 our grant programs, I mean, there are certain partners
10 there. But what we're looking at is partnerships more
11 broadly, because, depending on what they're doing, I
12 mean, the Department of Transportation can be a good
13 partner, if they're willing to talk to us, and look at
14 how they can create their infrastructure projects with
15 ways to minimize impacts to habitat.

16 So, we use the word partners very, very
17 broadly, and it's really looking at those common
18 goals, and where we can work together.

19 MR. OKONIEWSKI: But not just agencies?

20 MS. MONTANIO: Not just agencies. NGOs, you
21 know, certainly, fishing groups. We work with fishery
22 associations, significantly, on our partnership
23 grants. And another one is the National Fish Habitat
24 Action Plan and National Fish Habitat Partners, where
25 we're working with state fishing agencies, as well as

1 associations, and others.

2 CHAIRMAN RIZZARDI: Any other member
3 questions for Pat?

4 (No response.)

5 CHAIRMAN RIZZARDI: All right. Thank you.
6 Another excellent presentation. We got three more
7 coming after our lunch break, so when we get back,
8 we'll be talking about Sea Grant and following the
9 funding trail. We'll be talking about strategic
10 planning, and then later in the afternoon, we have a
11 member discussion. We'll try to see if we can get
12 some ideas out there, get some thoughts out there from
13 our group and start making the progress toward core
14 planning.

15 Tomorrow, we have time to put aside for
16 a -- what we call an ad hoc subcommittee meeting,
17 doing a little -- then try to shape a work plan. But
18 this was sort of the foundation of how we think about
19 resilience from a stock standpoint, an ecosystem
20 standpoint, a community standpoint. And we'll keep
21 going with this through the afternoon.

22 So at this point, it is 10 after 12:00.
23 We're going to take a break for an hour and 10
24 minutes, and come back at 1:20. I'll try to
25 accelerate the presentations slightly, shorten our

1 discussion, slightly, to keep it on the schedule, and
2 see you all in 70 minutes.

3 (Whereupon, at 12:10 p.m., the meeting in
4 the above-entitled matter recessed, to reconvene at
5 1:20 p.m. this same day, Tuesday, October 13, 2015.)

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(1:20 p.m.)

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CHAIRMAN RIZZARDI: Okay. Hope everybody had a nice lunch. Thanks for coming back sort of in time. So, Nikola's agreed to help us out, and be the first in our proceedings. Thank you. We've tackled a number of ways of looking at resilience. One of the big problems we have is how to pay for it. And, as Eileen said earlier, that will be tough when it comes to getting funding. So we have to think about where is the money going to come from. And in the next presentation, we get to think about money and where money comes from.

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So, we've got with us Nikola Garber, who is the acting director for the national Sea Grant program, and she has her PhD in international development. She manages and oversees the strategic decisions relating to a \$100 million budget of Sea Grants that go to our various colleges. And previously she was the Sea Grant Knauss fellowship manager.

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So, she has got a lot of experience moving the money around and trying to help us put into context where, perhaps, we can find opportunities to steer resilience programs. So, thank you for being

1 here.

2 MS. GARBER: Thank you very much. And just
3 a few other things. I worked on aquaculture and DNA
4 in fish and those kind of activities during my
5 master's, and Randy and I worked together when I was a
6 Sea Grant fellow up on Capitol Hill before I came over
7 to the national office.

8 So, first I just want to take a few minutes
9 to have a few folks from our office stand up so you
10 can know who some of these faces are. Sarah? Sarah
11 Bowman is our Sea Grant fellow currently in our office
12 working on the resilient fisheries, aquaculture. And
13 I know you guys are doing a lot of strategic planning.
14 We're working on our ten-year vision for aquaculture
15 in coordination with NMFS with Michael Rubino, who
16 you'll hear from in a few days, as well as NOS.

17 Jim Berkson is actually a NMFS science and
18 technology employee, office employee, and his job is
19 to actually work on NMFS and Sea Grant partnerships.
20 And, so 24/7, or 40 hours a week, he's working on what
21 we can all do together. And then Elizabeth Rohring is
22 our director of integrated communication, working
23 across how do we all across NOAA do different
24 activities together, as well as the social science
25 portfolio.

1 So, I just want to give you -- for those of
2 you who don't know as much about Sea Grant, next year,
3 we turn 50 years old. We were authorized in 1966.
4 And since the beginning, we're about the enhancing the
5 practical use and conservation of coastal, marine, and
6 Great Lakes resources to create a sustainable economy
7 and environment. So since the beginning, we've been
8 about both.

9 What is Sea Grant? Well, there is about
10 nine of us feds now in D.C. and a few contractors, and
11 then we have about -- oh, about 1,200 folks in the
12 field that are grantees. They're state and university
13 employees. As we said, our budget is about 62 to 67
14 million a year, and every federal dollar has to be
15 matched 50 cents on the dollar by the state programs
16 or university dollars, and so ,that puts up over the
17 100 million-plus.

18 We work in a lot of pass-through capacities,
19 so NMFS has been using Sea Grant in the past, as well
20 as NOS and other parts of NOAA and other agencies. So
21 really, the nexus here are programs in the center.
22 These 33 university-based programs are the conduit to
23 the states, the industry, and institutions. We engage
24 more than 200 educational institutions every year, 300
25 industry partners, and 1,000 local, state, and

1 regional partners. And it's not just a list of names.

2 A little bit later, and, actually, on our web site,
3 you can find all of our projects back to '95, and all
4 the impacts, and accomplishments, and who we work
5 with.

6 So what is our niche? We don't just do
7 research. We do the applied research technology
8 transfer, coupled with education and outreach
9 extension to the folks on the ground. A lot of our
10 people have been in the communities for a number of
11 years, and as retirements have been occurring, they're
12 training that next generation of future leaders to be
13 those boots on the ground, those people in the
14 communities, that someone can turn to, you can ask
15 when you're at the supermarket, what should I do about
16 X, and how does Sea Grant pull that together to help
17 those communities through.

18 I know you guys were talking a lot about
19 strategic plans. Everyone has strategic plans. Our
20 strategic plan -- the resilient community is in
21 economies, sustainable fisheries, and aquaculture,
22 healthy coastal ecosystems, and environmental
23 literacy, and workforce development.

24 That being said, coastal resiliency heads
25 all of these. Fisheries can cut across a number of

1 these different activities as well. And we're just
2 embarking on the 2016, in 2016, on our strategic
3 planning for '18 to '21, and with that, we reach out
4 to the other line offices. As well, as I said, we're
5 working on a ten-year vision for aquaculture.

6 As some of you may know, we get a line item
7 normally in the President's budget and on -- the Hill
8 supports it, on funding competitive aquaculture
9 projects in both research and tech transfer.

10 We also, last year, created -- there is a
11 lot of interest on the Hill for us to create a spot
12 where you could find a number of the Sea Grant
13 resilience activities, resilience tools that other
14 communities can use, so other extension agents. We
15 have about 300 of them nationwide, can look across and
16 see what New England is doing and maybe it's something
17 we can do out in Oregon, or somewhere else in the
18 country. And anyone in the general public can look at
19 these as well, and we're hoping not to reinvent the
20 wheel.

21 We also put a lot of these same tools up on
22 the NOAA climate toolkit, and so, we have that
23 crosswalking, and the ones that are appropriate, we
24 put both places.

25 Earlier, you heard from Lisa, and I

1 understand about vulnerability indices, and the
2 different communities at the national level. Here is
3 a number of metrics and measures. What Sea Grant does
4 is we have a couple of different tools that I'll
5 highlight here. As I said, there is a number on the
6 resilience toolkit. But this is the vulnerability,
7 consequences, adaptation planning scenarios, otherwise
8 known as VCAPS.

9 For example, this process was used in Maine
10 to identify threats to communities dependent on
11 fisheries. We take that national level data and look
12 at it, how it can affect the communities. In South
13 Carolina, they use the VCAPS tool for the blue crab
14 fisheries, and the Crabbers Who Care research network.

15 And like I said, I'm just highlighting a few
16 examples. We have a number of examples that we could
17 talk about, if we had many hours. So, in climate
18 change research, here Sea Grant works on research in
19 applied areas of fishery science. For example,
20 Virginia Sea Grant and partners are funding research
21 tools to understand how climate change and rising
22 ocean temperature impacts several aspects of flounder
23 biology.

24 And, similar to VCAPS, this is a different
25 coastal community resilience index tool. It has

1 really been used a lot across the Gulf of Mexico. 47
2 communities have used this tool, and 74 local
3 facilitators have been trained. What I thought you
4 guys might be most interested in is this new sector
5 specific assessments are beginning to be launched,
6 including the fisheries resilience index. And this
7 was actually developed using the delphi technique,
8 which is a group decision-making technique, using
9 expert input. And it was developed with
10 representation from the Gulf of Mexico fishing
11 community, and the Gulf of Mexico Fisheries Management
12 Council. And the training -- kind of the train the
13 trainers, that will happen in a few weeks.

14 Another place that Sea Grant really works is
15 in the community-supported fisheries, rebranding, and
16 more. Communities are exploring new ways to market
17 and sell seafood, including in Louisiana, the
18 Vermillon Bay sweet shrimp rebranding. New Hampshire
19 has been helping to set up and utilize the cooperative
20 community-supported fishery, since 2009. And in
21 Virginia Sea Grant, they work on value-added
22 workshops.

23 And, another example would be North Carolina
24 Sea Grant has been working on local marketing and
25 local catch for a number of years now. And I was

1 trying to find when all this -- we really started
2 pushing this a few years ago, a community-supported
3 fishery right here in the D.C. area.

4 And it's hard to find those kind, because we
5 have the community-supported agriculture, but how do
6 we get that out? How do we -- I have friends that fly
7 salmon in from Alaska, so you have that fresh salmon
8 here. What are some ways we can help our communities
9 bring value to their catch?

10 With fisheries declining in New Hampshire,
11 New Hampshire Sea Grant and partners worked on
12 multitrophic aquaculture activities. So, they were
13 working to figure out how they could make a system
14 that had many different parts, moving parts. And what
15 came in, EPA had said there would be too much nitrogen
16 coming out. And in this area, there is already too
17 much nitrogen, so New Hampshire came in and said,
18 okay, New Hampshire Sea Grant, let's do research to
19 figure out how we can fix that problem.

20 So, they researched how to decrease the
21 nitrogen loads and improve water quality, while
22 building aquaculture. So, it helps diversify the
23 species used, include the production, and also fix the
24 water quality, or help improve the water quality, in
25 that area.

1 Another example, over the past six years,
2 Florida Sea Grant has been working to diversity the
3 clam industry in Florida, which is currently -- well,
4 it was currently one species, so we've had a 50
5 percent increase in the diversification as this new
6 clam species, the native sunray venus clam, came
7 onboard. They helped with market testing, to try to
8 work with the consumers that would be eating it.

9 They went to the Boston Seafood Show, and
10 communities in Florida, as well as not just the
11 consumers, but the restauranteers and those folks
12 preparing the clam and saying, if this was brought to
13 market, would you eat it, would you start buying it.
14 And it's now looked at as a gourmet clam species. So
15 we should be seeing more of those, hopefully on the
16 menu shortly.

17 In workforce development, we're really
18 helping to improve the traditional fishing
19 communities, help them become more resilient. We work
20 with aquaculture extension and training, not only
21 through the congressional appropriation, but through a
22 number of our Sea Grant programs. They have
23 aquaculture extension agents that work year-round on
24 how we can help our communities.

25 Many of you have heard, I'm sure, the hazard

1 analysis critical control point, the HACCP model. Sea
2 Grant does a lot of training in that, as well as
3 safety-at-sea training for folks to how -- what can
4 they do better to make their boats safer, their work
5 environment safer.

6 Sustainability training, it's really
7 continual, because there is always something for cost
8 reduction. How can we become more fuel efficient in
9 the Gulf of Mexico? How can we work on research to
10 fix this net to do X, Y, or X, and help not only the
11 species rebuild, but keep the communities strong?

12 We work with communities to learn new gears
13 and new methods. We also work with the fishermen to
14 help in that research, discover near gears, and then
15 work with NMFS and the agencies over time to see what
16 can be implemented into laws and regulations.

17 For example, I forgot to mention the
18 safety-at-sea training. In Mississippi and Alabama,
19 they actually offer it in Vietnamese, because there is
20 a number of Vietnamese fishermen in the area. And
21 years ago, NMFS helped support one of our extension
22 agents that spoke Vietnamese, to help with the
23 community after Katrina had hit.

24 And knowledge transfer, one of the examples,
25 Hawaii Sea Grant is actually translating native

1 stories that had went out in the newspaper articles
2 from many years ago about traditional fishing methods,
3 and looking to see if any of those methods could come
4 back and be sustainable for the communities.

5 Fishing community needs, Maine Sea Grant
6 asked fishing communities how they understood
7 community resilience. And the report found a number
8 of items. The researchers talked with them, and they
9 said, what are your threats, and how are you
10 responding to them. So a number of threats they
11 identified -- and these can be extrapolated, as I'm
12 sure you heard in some of the earlier presentations,
13 across the country.

14 But it's maintaining operations on vessels
15 and working waterfronts, diversification of species
16 and fishing techniques, training and transitioning to
17 new methods, and facilitation of research to
18 operations, continuing -- it would be restoration and
19 monitoring of ecosystems, health and diversity,
20 evaluation of federal, state, and local management and
21 regulations, preservation and enhancement of working
22 waterfronts, and the waterfront access.

23 And there is actually the working
24 waterfronts conference is coming up, the third week in
25 November in Florida, if anyone is interested, with

1 national-level participation, and communicating the
2 importance of fishing heritage and traditions.

3 So, finally, what can Sea Grant offer? As I
4 said, these are just a smattering of the activities we
5 do, a lot of them in conjunction with NMFS and our
6 partners across the region. We bring that applied
7 research that addresses the stakeholders needs and new
8 techniques, the translation and communication of
9 science to practice.

10 As you may have heard in the past, the boots
11 on the ground, those people in the communities we can
12 call on in a moment's notice when it's needed. We're
13 the honest brokers of information. Fortunately for
14 us, we have no regulatory authority, and so,
15 therefore, we can just tell you, here are the facts,
16 and help the fishermen and the communities and the
17 environmental groups and the industry understand what
18 is out there, and they can make their decision. And
19 then, it's the continual workforce development and
20 training because everything is always changing.

21 With that, I can answer any questions now,
22 or I'll stay through the end of this session.

23 CHAIRMAN RIZZARDI: All right. Questions
24 from the members on this presentation? This has been
25 a great benefit. The slides have been posted already,

1 and are available, so you can take them home, as these
2 are available to the public. So questions?

3 MR. OKONIEWSKI: On the aquaculture -- Mike
4 Okoniewski. On the aquaculture side, we are getting
5 more involved in it as a company, and I think the
6 biggest thing we're finding out is permitting process
7 is lengthy, to use it -- and complicated. And the
8 agencies involved, state, county, federal, all have
9 different requirements for what they want.

10 Is there any effort, I guess, on the part of
11 Sea Grant, to look at that aspect of it, to, I guess,
12 speed the process up, or funding to bring the groups
13 together, as far as just some kind of process to speed
14 it along, I guess? Because, I mean, so far, we've
15 spent on one project I know of, I think about five
16 years now. We've got nowhere so far.

17 MS. GARBER: I know -- and Mike will
18 probably talk about this in a couple of days. I know
19 in the early 2000s, mid-2000s, we funded some
20 projects, more in the Gulf of Mexico, trying to
21 document what those processes were. And as we look at
22 our ten-year vision, what is the Sea Grant niche in
23 that, and then how does Sea Grant work with NMFS on a
24 number of those activities, because I know Mike's goal
25 has been, over time, too, to how do we streamline a

1 lot of things.

2 MS. SOBECK: Yeah. I think we are going to
3 have -- we have a couple of hours at least, I think,
4 on aquaculture tomorrow, and there is going to be
5 quite a bit of information about where we are on
6 those, exactly those kinds of questions. And then, if
7 you aren't satisfied with where we are and what we're
8 doing, I think that that's why we're having the
9 aquaculture presentations.

10 MR. OKONIEWSKI: I think, specifically, I
11 just want to know if Sea Grant had any focus on that
12 area at all at this point.

13 MS. GARBER: We have in the past.

14 MS. ROHRING: Sorry. Elizabeth Rohring with
15 Sea Grant. I will find out where we are on this, but
16 North Carolina Sea Grant was funding their aquaculture
17 specialists and some researchers to develop mapping
18 tool that had different layers for the different types
19 of permitting processes, and also places where -- you
20 know, so, basically, to help identify places where
21 aquaculture could be feasible. So, I'm happy to see
22 where they are on that, but they were really excited
23 with the tests they ran on that.

24 MR. OKONIEWSKI: Thank you.

25 MS. GARBER: Thanks. Any other questions?

1 (No response.)

2 MS. GARBER: Thank you.

3 CHAIRMAN RIZZARDI: All right. So the next
4 presentation will be Patrick Campfield, the science
5 director for the Atlantic State Marine Fisheries
6 Commission. I know Heidi had something to do with
7 helping him get here, so thank you. He is based in
8 Arlington, and conducts a lot of the assessment and
9 management of the 20 different marine stocks being
10 managed on the Atlantic Coast, and he also works
11 within the commission on many of the regional groups,
12 including the American eel efforts and working at
13 cooperative research. Thank you for being here, and
14 we're going to learn a little bit more.

15 MR. CAMPFIELD: Thank you, Keith. I'm going
16 to segue more from Wendy's presentation from a
17 national perspective, and zoom in on the sort of
18 Northeast Atlantic coast, and treat this, essentially,
19 as a case study, where we are using a number of the
20 data sources and analytical tools that NMFS has
21 developed, to date, to do an investigation of Atlantic
22 fish stock distribution shifts, as well as evaluate
23 different methods for potential harvest allocations.

24 And to Keith's point earlier, I am a
25 scientist, so I hope that you take what I'm saying

1 about climate change seriously.

2 (Laughter.)

3 MR. CAMPFIELD: Just a quick overview. I'll
4 talk about the methods and approach that we took to
5 detect climate-induced changes, and stock
6 distributions, and productivity. And then, our second
7 step in our investigation was essentially to reach out
8 to fisheries managers and other constituents to get
9 their feedback on different reallocation options. And
10 then, the final step in our project was to develop a
11 technical and management process to propose and
12 potentially adjust harvest allocations.

13 And then, I'll touch quickly on some future
14 directions for our commissions and our member -- our
15 commission and our member states, as well as pose a
16 few questions for you all on the committee.

17 So, if you've seen any talks about climate
18 change, you may have seen this slide, the global
19 perspective on how temperatures have changed, roughly,
20 in the last century-plus. You can look at the
21 different regions that you all come from, but it's
22 clearly a major issue for those of us on the Atlantic
23 coast, specifically the portion of the coast from,
24 say, Cape Hatteras, North, which seems to be one of
25 the global hot spots for increasing sea surface

1 temperatures.

2 So, for our investigation, although our
3 commission manages roughly two dozen different stocks,
4 we focused in on four: black sea bass, summer
5 flounder, scup, and winter flounder. We selected
6 those stocks for a couple of reasons. They have been
7 under state-by-state allocation systems, and so, this
8 would be most relevant to managing those stocks.
9 Also, there are a lot of anecdotal, as well as
10 scientific, reports that these species, these stocks,
11 were moving up and down the coast, mostly up.

12 So, our two major questions, what are the
13 distribution shift patterns for each of those four
14 stocks, and for those that are on the move, what are
15 the factors driving those shifts. And, what I'm going
16 to cover is essentially the work of many scientists
17 and fisheries managers, so I did want to recognize Tom
18 Harris' group from the Northeast Fishery Science
19 Center, who developed a lot of the analyses for our
20 commission's investigation, as well as Roger Griffis
21 and Wendy, with NOAA headquarters, who provided a lot
22 of input on our work.

23 And the management science committee for our
24 organization, which is essentially comprised of
25 fisheries managers, fisheries biologists from the

1 different states, as well as NMFS, and the Fish and
2 Wildlife Service, guided this project and
3 investigation.

4 So, the first step was to figure out how to
5 quantify shifts and stock distributions. And there
6 are a lot of methods behind this. We have a longer
7 60-page report, if anyone wants the details. But,
8 essentially, we use trawl survey data from the
9 Northeast Fisheries Science Center, Spring and Fall
10 surveys, and from the period of 1972 to 2008, and
11 essentially track changes in the center of biomass
12 along the Northeast shelf. And so, on this particular
13 map, we use Cape Hatteras as zero, and as you move up
14 the shelf, or up the coast, that would be the measure
15 of how much a stock is changing in its center of
16 biomass.

17 So, the summer results for the four species,
18 on the left are the results of the Spring trawl
19 survey, and on the right, the Fall survey. The top
20 panel is summer flounder, and the bottom panel winter
21 flounder. And we saw a significant trend of in summer
22 flounder, of them moving up the Atlantic shelf, from
23 the period of the early 1970s through the 2000s. We
24 did not see a significant trend for winter flounder.

25 Looking at black sea bass, in the top

1 panels, and scup, on the bottom panels, we also saw
2 significant trends at least in the spring survey data
3 for sea bass and scup, again, moving up along the
4 Atlantic shelf.

5 And this is just a geographic representation
6 for summer flounder, specifically, again, a forward
7 shift in their distribution from the 1980s on the
8 left, until -- up until the 2000s on the right, where
9 you could see that their center of distribution was
10 essentially off of Delaware Bay, up through New
11 Jersey, as well as Long Island in the 1980s, and then,
12 in more recent time periods, really the center of
13 biomass and the center of their distribution had moved
14 up to Long Island and coastal Rhode Island and
15 southern Massachusetts.

16 We also point out in the case of summer
17 flounder that there is an interacting effect of their
18 stock rebuilding, and the biomass increasing over
19 those time periods. You can see on the bottom that
20 the scales are different, and so, that was part of
21 that dynamic for summer flounder.

22 So, once we looked at those four stocks and
23 detected forward shifts in three of the four, the
24 factors driving those distributions were identified,
25 using a generalized additive model. I won't go into

1 the details, or show you any messy equations. But,
2 essentially, they teased out, not surprisingly, that
3 increasing water temperatures were driving the change
4 in distributions for the species. The species tend to
5 move North as the temperatures warm, but also, that
6 changes in population abundance were important.

7 As the population recovers or expands, they
8 tend to occupy a larger expanse of area. And in
9 particular, in the case of summer flounder, there is
10 an effect of changes in population size and structure.

11 With reductions in fishing pressure on flounder, it
12 resulted in re-expansion of the line structure.

13 We saw larger fish come back to the flounder
14 population. And a general relationship on our coasts
15 is that larger fish often occur further North than
16 smaller fish. Those are just plots of the increasing
17 water temperatures over that time period, as well as
18 the increase in the dates of biomass of summer
19 flounder.

20 That's just a little more detail on
21 geographic representation of how the smaller fish went
22 to the south, and then larger, say 20, or 25-inch
23 flounder, found up north.

24 Now, this is a different way of visualizing
25 these changes, again, in the three little stocks that

1 I mentioned, summer flounder in the light blue, black
2 sea bass in green, and scup in purple. You can see a
3 gradual shift moving forward on the coast in the case
4 of summer, summer flounder. In the 1970s, the center
5 of their population was closer to the New
6 Jersey/Delaware border, and then by the -- around
7 2010, they moved up to the New Jersey/New York border.

8 I also will point out a couple of other
9 species. Lobster, which we've heard a little bit
10 about today, clearly has shown a shift out of southern
11 New England, and more so into the Gulf of Maine, very
12 likely associated with the increasing water
13 temperatures of the Gulf.

14 So, our conclusions on these stock
15 distribution piece of the project are that climate
16 change and stock distribution relationships are
17 complicated. We saw evidence of forward shift in
18 three of those four species, sea bass, scup, and
19 summer flounder, with temperature clearly being a
20 significant driver for sea bass and scup. Again,
21 summer flounder looked a little more complicated, and
22 it was both a temperature effect, as well as
23 rebuilding of that stock, which resulted in them
24 moving into more northerly portions of the range.

25 Again, we did not see a significant shift in

1 winter flounder. And the fishing pressure and climate
2 both impacted distribution and abundance of those fish
3 stocks.

4 So, once we finish -- I'll just call it the
5 science piece of our project, we wanted to, for those
6 stocks that are shifting, begin to explore different
7 harvest reallocation options.

8 We did this by surveying our commissioners,
9 our fisheries managers, with a short list of
10 questions, really to put out different options for
11 adjusting harvest allocations, defining the methods
12 that would produce different allocations, and see what
13 they like best. And we also asked them about how
14 frequently we should reevaluate this whole question,
15 in terms of doing an analysis to see if stocks are
16 shifting, as well as potentially revising allocation
17 over time.

18 So, our opening question was should we just
19 keep things status quo. And the overwhelming
20 responses were no, that fisheries managers realized
21 that for a number of stocks, it is clear they were
22 shifting their distributions, in some cases,
23 productivity. So, almost three-quarters of them did
24 not support status quo of maintaining historical
25 allocations state-by-state.

1 The three new allocation options included
2 one where you used fishery-independent survey data to
3 understand trends in biomass, and then you essentially
4 set the harvest in proportion to those changes.
5 Again, in this example, in this investigation, we
6 relied on Northeast Science Center trawl survey data,
7 but I would like to point out, depending on the
8 different stock or species that you're looking at, you
9 need to tailor your data sources or your surveys to
10 that particular stock. You may not use the trawl
11 survey for lobster, for example.

12 The second option is what we simply called
13 the 50/50 approach, where half of the harvest would be
14 based on new biomass similar to the first option,
15 where you use the surveys to determine where most of
16 the biomass was. But the other half of the allocation
17 would be kept the same, essentially what we've done in
18 the past, with the historical allocation.

19 And the third primary option was to set new
20 allocations based on fishery performance, so that we
21 could track recent catch and retention rates. And
22 again, examples would be in the recreational fishery,
23 if they're seeing a lot more fish, like anglers up
24 North, they might be able to adjust the allocations
25 based on those types of measures.

1 And, in summary, our fisheries managers like
2 the second option, which I will point out is something
3 that Wendy brought to our attention in her, sort of,
4 literature reviews and other investigations of where
5 reallocation is taking place in other parts of the
6 world.

7 Our managers like this option because it was
8 sort of a less of an impact. Even the so-called
9 losers in the allocation game would still get to keep
10 half of their allocation. And then the other half
11 would be, you know, to areas where the stock was
12 standing or increasing in biomass.

13 They saw the fishery performance allocation
14 option as practical. It seemed like there were a lot
15 of different metrics, where you could quickly realize
16 where fish were moving. But they thought it would be
17 very challenging, especially from an enforcement
18 standpoint and from a socioeconomic standpoint, if
19 there were year-to-year fluctuations in the stock,
20 based on these measures. That would, you know, prove
21 challenging, both from management to change
22 regulations, as well as the fishermen to keep up with
23 varying catch levels from year to year.

24 We also, in our survey, asked for feedback
25 about a couple of sub-options related to flexible

1 landing. The first is that fishermen would land in
2 the state closest to where they caught fish, and then
3 the quota would -- it would count towards the state
4 quota where they were licensed. So, a simple example
5 would be if there is a boat out of Virginia, but goes
6 up to New Jersey waters and catches fish and lands in
7 New Jersey, those fish will still count towards the
8 Virginia quota.

9 The second option was to have fishermen land
10 in the state closest to where they were caught, but it
11 would count that quota in the same state. So if they
12 landed -- caught the fish off of New Jersey, landed in
13 New Jersey, it would count against New Jersey's quota.

14 And so, option two was favored by our fisheries
15 managers. It just seemed like a more streamlined
16 approach, straightforward approach to tracking
17 landings against quotas.

18 An additional question that we posed was
19 what do we do with our recovered stocks and possible
20 reallocation for those stocks that have hit their
21 spawning stock targets, for example, and have stake
22 on -- have 10 percent more than the target SSB. What
23 do we do with surplus biomass? And the majority of
24 our fishery managers would be in support of
25 essentially increasing the quota associated with new

1 biomass and a shifting stock.

2 And then, we also posed the question were
3 these stocks that are managed with state-by-state
4 allocation schemes -- would they be willing to shift
5 to a coast-wide or regional allocations, and the
6 majority said they would not support this approach,
7 for a couple of reasons. They think it could prove
8 susceptible to derby-style fishing, which would
9 certainly be problematic and perhaps a step backward,
10 as well as it may lead to individual states, or
11 jurisdictions, losing some of their quota.

12 And the last question was, again, how
13 frequently should we revisit stock distributions and
14 potential reallocation. And most of our commissioners
15 said every three to five years. We gave them one,
16 three, five, eight, and ten-year intervals. They
17 thought one year was, of course, too quick, because of
18 inter-annual variations, and productivity, and stock
19 distributions, due to temperatures, but ten years
20 would probably be too long, especially given, sort of,
21 the longer reaction time of fisheries management, that
22 you wouldn't want to wait ten years. So, we settled
23 on three to five-year intervals.

24 So, the last piece was once we documented
25 some distribution shifts and got feedback from the

1 commissioners, we wanted to try to implement, or at
2 least propose, a process for implementing any
3 allocation changes, at least in the Atlantic states
4 commissions, a process that starts at the individual
5 species technical committee, where they would, again,
6 determine the appropriate data sources for detecting
7 changes in stock A, B, or C, and then crunch the
8 numbers to provide harvest allocation, again with the
9 preferred option being this 50/50 percentage option.

10 Once the technical committee did those
11 analyses, they would provide the allocation results to
12 the management board to either run with that option,
13 or, in some cases, create ad hoc regional quotas. And
14 from there, if implemented, our states would develop
15 regulations to meet the regional conservation goals,
16 consistent with those regional quotas.

17 And so, that's about as far as we got. We
18 made a lot of progress with the science, again,
19 relying fairly heavily on NMFS and the folks of Tom
20 Harris' group, among others. We've outlined and
21 defined some preferred methods for possible
22 reallocation. And in the case of -- cases of summer
23 flounder, black sea bass, and scup, we have made a
24 shift towards regional management, to date, have only
25 made changes in the recreational allocations.

1 One of the focus areas for future
2 investigations that our commission may do -- there are
3 certainly additional stocks that are likely on the
4 move, notably lobster. Under our management, northern
5 shrimp appears to be -- it seems to be disappearing
6 from the Gulf of Maine, perhaps moving into Canadian
7 waters, in addition to the fishing pressure there.
8 Cod may be another candidate that is on the move.

9 But also, looking at some of our South
10 Atlantic stocks, we haven't heard a lot of issues for
11 the South Atlantic species that we have for the Mid-
12 Atlantic and Northeast species. But we have seen
13 pulses, for example, on red drum, where they're
14 showing up in greater numbers in the northern portion
15 of their range, say off of Virginia, and the Delmarva
16 peninsula. Other candidate species include tilefish,
17 tarpin -- I think there have even been reports of mahi
18 being caught off of Cape Cod. This is a picture of a
19 red drum caught earlier this year off of Cape Cod,
20 which is a pretty rare event.

21 And I also wanted to emphasize that, in the
22 last few years, and moving forward, through the stock
23 assessments, we're explicitly putting in terms of
24 reference to evaluate environmental changes,
25 environmental factors related to climate change that

1 may be having a major influence on the population
2 status and distribution.

3 Earlier, habitat conservation and resiliency
4 were discussed. That's another area for potential
5 growth for our organization to try to track shifts in
6 habitat types and understand how that impacts the
7 productivity of different fish stocks. A couple of
8 examples include in some of our major estuaries what
9 will be the interactions of, say, shoreline hardening
10 and rising sea levels. Could that lead to declines in
11 submerged aquatic vegetation, and the different
12 species that rely on SAV as nursery habitat.

13 We're also hearing reports in Florida of
14 mangroves moving up and down -- or moving up the
15 coast, I should say. So far, just maybe one or two
16 counties, but they could be moving into Georgia some
17 day, and the tradeoffs could be that as you move from
18 say a court grass habitat type to mangroves, it may
19 shift from dominance of species like red drum, and new
20 dominance by snook or other species that prefer
21 mangroves.

22 I will give a shout-out to the Atlantic
23 coastal fish habitat partnership. They are following
24 the lead of NFHP, the national partnership, to conduct
25 habitat assessments for key species. The Atlantic

1 partnership has done this for river herring and winter
2 flounder, including evaluating how habitat shifts may
3 impact their stocks in their distributions.

4 And a less defined area that we need to move
5 into is to figure out what to do with harvest
6 allocation winners and losers with any of these stocks
7 that may be moving out of certain states or certain
8 regions, even though they had a historical allocation.

9 How do we handle those tradeoffs?

10 And it was also socioeconomic impacts of
11 allocation have also been touched on. That's not
12 something that we have delved into at the Atlantic
13 States Commission, but that would be a smart way to go
14 too as we continue this work.

15 And then I'll just conclude perhaps with a
16 few discussion questions for your committee. Is this
17 investigation that we have done -- I think that's the
18 best approach to understanding climate impacts on
19 stock distributions, with the same type of approach
20 for the regions, or for various species or stocks.
21 Are the reallocation methods and outcomes reasonable
22 for both the commercial and recreational sectors?

23 And then, also, of course, to consider
24 whether climate fisheries interactions, they differ by
25 region, around the country, what additional factors

1 should be considered in your region? We've heard
2 discussion of how ocean acidification is very
3 important and a driver in the Northwest.

4 So, those are a few discussion questions I
5 had for you. I open it up to any questions you have
6 for me.

7 MS. BONNEY: Julie Bonney. I have one
8 question about the four stocks you said you looked at.
9 Are they coast-wide or are they out-of-stock
10 structure that drives the allocation by state?

11 MR. CAMPFIELD: They're -- in the case of,
12 say, black sea bass, very likely that they're stock
13 structure. And in our new assessment, that's
14 something that we're trying to better define. But, in
15 terms of summer flounder, we handle as a coastwide
16 stock, I think, as well as scup. And so, those
17 have -- for the most part, they handle as coastwide
18 stocks, with the exception of black sea bass. There
19 are other species that we manage that we didn't talk
20 about yet.

21 MS. BONNEY: So, based on this, then the
22 allocation is driven by conservation of stock, as
23 driven by who has the access to that stock, what we
24 arranged, then?

25 MR. CAMPFIELD: I mean, the allocations are

1 really based on the historical landings. So, there
2 may be circumstances where, you know, there are fish
3 off Virginia that are caught there, and then landed
4 back in Virginia. But there are also cases where
5 boats are coming out of -- they have an allocation for
6 species A. They have an allocation in, say, North
7 Carolina, but they run up the coast to New Jersey, or
8 New York.

9 MS. BONNEY: So, if I was a fisher, and I've
10 been denied fish in a different region, or am I
11 limited to one spot?

12 MR. CAMPFIELD: I think, to generalize, you
13 can fish in different regions.

14 CHAIRMAN RIZZARDI: With a federal permit.
15 It's different between a federal permit and a state
16 permit.

17 MS. BONNEY: A state permit is just for the
18 state; federal is different.

19 CHAIRMAN RIZZARDI: Could you give us a
20 sense of how much staffing and money went into this
21 exercise? Because what is running through my head is
22 whether or not this is scalable. And you engaged in
23 this at your regional level, and I'm wondering is it
24 really viable for this to be done for all regions, for
25 all of those stocks.

1 MR. CAMPFIELD: Yeah. I can't give you a
2 dollar amount, certainly, but, in short, this was
3 about an 18-month body of work. It relied heavily on
4 NMFS scientists, and then, of course, our, sort of,
5 state biologists and managers. So, I'd say roughly a
6 dozen, or 15 people, involved over 18 months, and I
7 would characterize it as, essentially, you know,
8 additional work that they did beyond their day-to-day
9 activities, although folks like John Harris' group
10 certainly focus on developing these underlying
11 analyses and findings.

12 MR. MERRICK: So, Richard Merrick. My
13 expectation -- and Roger will probably say the same
14 thing -- is that's what the regional action plans will
15 show us. So, our expectation is that partnerships
16 with the Center of Marine Science will be doing this
17 all around the coast. We can't do it all at once, so
18 it will have to be phased, so low-hanging fruit of
19 things we really need to deal with by some of these
20 shifting stocks that will be higher priority than
21 others. Or others will be really expensive, and
22 outside of the stock budget and cost a significant --

23 MR. GRIFFIS: And, Keith, the other piece,
24 the good news is that this information is now all
25 available on the web. So, when they started -- since

1 they started, we've taken all of the NMFS stock survey
2 information, put it on our web site, so anyone can go
3 and see how the distributions have shifted over time.

4 For any of the regions that we do the stock surveys,
5 West Coast, Pacific Island -- I'm sorry if it's
6 different out there, but -- because we realize that
7 this basic information about how the stock centralized
8 distribution has shifted over time. It's really
9 pretty critical to answer the question.

10 So, the good news is that we streamlined
11 that. That's all available. It's updated every year
12 as the stock survey information becomes available.
13 It's called Ocean Adapt Partnership at Rutgers
14 University.

15 MR. AMES: Yeah. A question. The
16 presentation is very persuasive for what is going on
17 South of Georgia's Bank, I think irrefutably. But in
18 northern Gulf of Maine, we have colder water, and,
19 yet, cod fish have disappeared. At the same time,
20 haddock, which are supposedly completely recovered,
21 have disappeared as well.

22 Do you have any -- have you examined any of
23 that information, and do you have any insights?

24 MR. CAMPFIELD: Again, I could generalize.
25 I mean, technically, our organization does not manage

1 those stocks, so that's why we have not focused on
2 them. But, I think, you know, the water temperature
3 information in the Gulf of Maine, it's gone up, you
4 know, four degrees in recent years, maybe the
5 underlying cost for why certain stocks may not have
6 returned. And that's just speculation. We haven't
7 done any of the analysis on it.

8 MR. AMES: It's tricky because we get
9 Scotian shelf water, and there is credible numbers of
10 cod and haddock, though certainly not fully recovered,
11 on the west of Nova Scotian shelves, and they are
12 funded. So, I was hoping you guys had a silver bullet
13 for explaining why there has been no recovery of
14 either of those stocks. But I do understand the
15 limitation.

16 MR. CAMPFIELD: I may defer some of the
17 tools that, you know, both Roger's group and John
18 Harris' group have developed at the fishery service.
19 They may have more insights on some of those species.

20 MR. OKONIEWSKI: If this is a -- if I
21 understand it, the federal fishery -- but if there is
22 state allocations to certain permits, or -- but it's
23 not a catch share program.

24 MR. CAMPFIELD: I pitch this one to Bob.
25 But, I mean, there -- these are jointly managed

1 species, both through Mid-Atlantic Council, and,
2 perhaps, New England Council, as well as our
3 commission in state waters.

4 MR. BEAL: Yeah. This is Bob Beal, for the
5 record. It's complicated. Some of the black sea
6 bass, for example, is the Mid -- we work with the
7 Mid-Atlantic Council and jointly manage that species.

8 The Mid sets the overall quota for the coast, and
9 then, ASMC subdivides that in the state-by-state
10 quotas. Some are flounder, for example, on the
11 commercial side. But again, we've managed that with
12 cooperation with the Mid-Atlantic Council, and
13 we -- ASMC and the Mid both have the commercial
14 allocations to the states included in our one joint
15 FMP. So it just varies by species, and scup is even
16 more complicated than that -- on different seasons,
17 and coast-wide allocations during certain parts of the
18 year and state-by-state allocations through ASMC
19 during the summer period. So, there is no one easy
20 answer to that question.

21 CHAIRMAN RIZZARDI: Thank you, gentleman.
22 One last question, and then this one will be it. So,
23 Liz.

24 MS. HAMILTON: Liz Hamilton. I -- as we
25 were looking at stocks that migrate, and you're

1 discussing reallocation, two points. One is I agree
2 with your social-economic bullet that you put on
3 there. I think we can't avoid using those tools when
4 looking at reallocation. But, I'm assuming that there
5 is a response -- when stocks move out of an area, that
6 there is a response to local -- there is localized
7 response, or there is other stocks that move north.
8 Am I wrong?

9 I mean, is there -- there is no vacuum out
10 there, right? So are -- there has to be a local
11 response from some of the local stocks, and then,
12 maybe other stocks that are migrating North from the
13 stressors of temperature change. Is that happening?

14 MR. CAMPFIELD: One of the --

15 MS. HAMILTON: Or, did you look at that?

16 MR. CAMPFIELD: You know, one slide, sort of
17 those trends for, I think, four or five different
18 stocks was spot, which is a small sciaenid coastal
19 recreationally-dominated fishery. And there are
20 reports that there are South Atlantic species that is
21 moving North, and we're starting to see it off
22 of -- you know, in Rhode Island waters, and other
23 parts of Southern New England.

24 And there are other examples of that. Some
25 folks in the South Atlantic are anticipating that some

1 of the snapper/grouper species may be moving up, more
2 into the Mid-Atlantic or deepwater fish, like
3 tilefish. I can only speculate on, you know, if
4 that's true or not. We'd have to do more in-depth
5 analyses like this.

6 But that's where the winners and losers part
7 comes in. We may be losing species A, but --

8 MS. HAMILTON: Gaining --

9 CHAIRMAN RIZZARDI: -- species D may be
10 moving up from the South.

11 MS. HAMILTON: That was my point on what
12 else should be considered. If you're looking at
13 reallocation, you want to add into the pot what the
14 new species are in front of my -- in front of my
15 porch, as well as the ones that left.

16 CHAIRMAN RIZZARDI: Thank you, Patrick.
17 It's informative, and I'm pondering how we pay for it
18 all. But, Richard, you've got the equalizing --

19 MR. MERRICK: Cost of doing business.

20 CHAIRMAN RIZZARDI: Yeah, exactly. We're
21 not going to have much of a choice. Our next speaker
22 is Rick Robins. He is currently the chair of the Mid-
23 Atlantic Fishery Management Council. He's also the
24 former chair of the CCC. I've been interacting with
25 Rick for years, in that capacity. He's got a

1 processing business on Virginia's Eastern Shore, and,
2 previously, he had experience as a processor up in
3 Kodiak, Alaska, so he has been all over the place, and
4 he's an avid recreational fisherman. He's got some
5 perspective on both the commercial and rec side of the
6 equation. So, thanks for being here.

7 MR. ROBINS: And a recovering CCC chair,
8 right? So, yeah, good afternoon. I'm Rick Robins. I
9 chair the Mid-Atlantic Council. I'll try to speak up.
10 It sounds like there might be an outboard in the HVAC
11 system today, so I'll try to beat that.

12 And first of all, thank you very much for
13 the hospitality and invitation to join you today. I
14 really appreciate the opportunity. This is an issue
15 that our council has done a lot of work on. We've
16 covered a lot of ground in the last five years,
17 essentially, on it. And like Patrick said, and I'll
18 be the first to admit, it's complicated. And after
19 all the work we've done, I still say it's complicated.

20 There aren't any easy answers to this question.

21 But before I get into it, I'll just point
22 out that our first foray into this question came about
23 as a result of our visioning project, that started
24 back in 2011. And that was intended to be a
25 relatively organic project, in which we had really a

1 massive outreach throughout the range of our managed
2 fisheries, and we wanted to hear from our constituents
3 about what they wanted to see the future in
4 Mid-Atlantic fisheries, and their management to look
5 like.

6 So, we went to them -- and we had important
7 meetings throughout the range. And one of the
8 consistent themes we heard was that conditions are
9 changing in our fisheries. Climate change is part of
10 that. Fisheries distributions are changing. They're
11 certainly not static. But management has been static.

12 Management has not been flexible. It hasn't been
13 able to respond. It hasn't changed. And now it's
14 contributing significantly to regulatory waste,
15 regulatory discards, and fisheries that are now
16 encountering species like black sea bass that they
17 never previously encountered. We're out on George's
18 Bank seeing more summer flounder than ever seen
19 before.

20 So it emanated up through that outreach
21 project. And those priorities were distilled into a
22 strategic plan that we put together on the heels of
23 that. So, for us, it has been a strategic planning
24 imperative, and one of our priorities in that. We
25 have subsequently launched, as a result of all of that

1 work, an ecosystem approach to fisheries management
2 guidance document.

3 So, as we go into ecosystem fisheries
4 management and already have a strategic plan in place,
5 we see these and climate readiness as really mutually
6 reinforcing initiatives. But that's how we got
7 started with it.

8 So, fish aren't political. They don't, they
9 don't -- they're not climate scientists. They don't
10 question it. But they have tails. They have thermal
11 preferences. And, in some cases, those are very
12 strong. And they exercise those preferences, whether
13 they're for thermal habitat, or for food, or whatever
14 they want to do every day in real time. They simply
15 respond to changing environmental conditions as they
16 change.

17 So, this is a thermal image satellite shot.
18 We look at these all the time. And a lot of people
19 can look at that and tell you what you would expect to
20 see in the Mid-Atlantic, given those conditions, at a
21 given time of year, based on the thermal imagery, and
22 based on that thermal habitat. And, as it turned out,
23 this was late spring, and right there at 100 fathoms,
24 there were huge concentrations of large bluefish, and
25 there were giant blue-fin tuna falling like sardines,

1 and eating the bluefish.

2 The co-occurrence of those species can be
3 explained largely by that thermal preference for
4 habitat and the presence of food.

5 But, that's the case with the marine
6 environment every day, so what is the big deal? Well,
7 the big deal comes in when you have a sustained
8 directional change, in terms of thermal habitat, and a
9 sustained directional change in the distribution of
10 fish stock. And so, this is summer flounder. Pat
11 already touched on this. I'll offer a little bit of
12 additional background, but part of the problem with
13 this issue -- you can see, there is a major change
14 from the period of the early 1970s, to the current
15 period, or the past decade, and it's a major change.

16 Now, we can't simply say that that's all
17 climate change, because there are other factors that
18 figure into that. In this instance, the stock was
19 rebuilt during that period of time. So, this was a
20 substantially depleted stock back in the 1970s. In
21 the 1980s, the stock was really hammered. They
22 removed about 60 million pounds a year. The stock was
23 overfished. It was substantially depleted. It was
24 taking on to a very low level of biomass.

25 And, as it turned out, that fishery was

1 focused on relatively young fish. So, if you looked
2 at the average age composition of the population back
3 then, they were very young. And when the fishery was
4 fishing on relatively young fish, the commercial
5 fishery was concentrated around the Virginia and North
6 Carolina Capes.

7 That changed substantially over time. As
8 the stock was subjected to a rebuilding plan, as the
9 age composition of that population was restored, we
10 had a lot more older fish in the population. As
11 Patrick said, those fish moved Northeast. So, part of
12 that was simply the restoration of the age structure
13 of the population, but it's exacerbated by changing
14 temperatures.

15 So, there are a number of factors going in
16 here, but the historical fishery that developed,
17 developed in the 1970s and the 1980s, and it developed
18 as the commercial fishery was concentrated down there
19 around those southern capes.

20 So, the community dependency and the
21 resilience question that comes in is the fact that the
22 management plan was based on those historical
23 attributes within the fishery. So, Virginia and North
24 Carolina, when, when the plan was developed, and it
25 went to a state-by-state allocation. Those states got

1 very large allocations of the quota.

2 Now, the fish have shifted. Many of those
3 boats that were fishing in the fishery were trawl
4 boats, so they're relative mobile. They can continue
5 to prosecute fishery, but instead of fishing off the
6 Virginia Capes in the winter time, they're steaming
7 off to the Hudson Canyon off of the state of New York.
8 They're catching the fish. They're having to send
9 them all the way back to Virginia and North Carolina
10 and offload the fish.

11 Meanwhile, the fishermen in New York want to
12 be able to buy North Carolina permits, so they can go
13 out in their backyard where the fish actually are,
14 catch the fish, and return them to port in Montauk, or
15 wherever in New York and sell the fish. And they see
16 the management system. If you live in New York, first
17 of all, you think that the system hasn't been
18 responsive to the changing conditions in the resource.
19 And they also see it as being particularly inflexible.

20 So, these are some of the issues that are
21 played out, I think, in the discussion that Pat
22 described with his commissioner. This is jointly
23 managed with the Mid-Atlantic Council, so it's also
24 very important to us. And we have opened and
25 initiated a comprehensive summer flounder amendment.

1 And this allocation question, or how can we somehow
2 build in some level of responsiveness that's
3 responsible, and responsive to the changing conditions
4 in the fishery is going to be one of the questions.
5 But it's not an easy question, and it has different
6 implications for the communities. It has different
7 implications for the sectors.

8 So, the trawl boats are currently able to go
9 out and participate in the fishery. If you're a North
10 Carolina trawl boat or Virginia trawl boat, you may
11 not see a problem with the current situation.
12 However, if they were to have landings flexibility and
13 be able to land those fish in another state, they
14 could theoretically improve their efficiency, reduce
15 their operating cost. You can think of the potential
16 benefits.

17 The loser in that scenario is the waterfront
18 fish packer or the fish house, the company that
19 unloads that catch and/or processing it down in North
20 Carolina or Virginia. So, it has, it has a
21 complicated suite of impacts that go along with it,
22 but it's a very important question.

23 And, again, the real need for us is to think
24 about how can we, how can we set up a system that's on
25 the one hand responsive, but also takes into

1 consideration, you know, historical levels of
2 dependence by the communities. You know, how do you
3 strike that balance. And I think it's not going to be
4 easy, but that's the question before us.

5 So, Pat has already touched on this some,
6 but the distribution of these fish -- so, summer
7 flounder is somewhat complicated, because you had a
8 restructuring of the age -- the age of the population.

9 With black sea bass and scup, you see significant
10 shifts. These are all north, northward shifts. It's
11 this sustained directional change over time that
12 really causes concern for us. And we want to -- we
13 want to be prepared for that and anticipate how it
14 might respond.

15 So, in the context of strategic planning,
16 one of the first questions we have -- and, similarly,
17 in ecosystems approach to management is one of risk
18 assessment, really trying to identify the risk and the
19 threats to the regional marine ecosystem and the
20 species which were responsible for managing.

21 And I will say we've had tremendous support
22 from the agency in terms of technical work that would
23 help further our understanding of what the
24 implications are of climate change for our managed
25 fisheries. And we've had a series of workshops to put

1 the council in a position to understand some of the
2 technical aspects of it. And, you know, we've had
3 great presentations on climate modeling to try to put
4 the council in that position.

5 And this is just one slide that indicates
6 that we should be prepared for continued change. So,
7 this looks historically back through the 1950s, and it
8 looks forward 50 years. And, as you look forward, you
9 see that events that we might think of now as a rare
10 and extreme thermal event are going to become more
11 normative over that time period. And it begins to
12 push that level of a two-degree Celsius change.

13 So, that's what we've been told to expect.
14 That's based on ensemble modeling and ensemble
15 forecasting, much like as used in the prediction of
16 hurricane paths.

17 So, I'll talk a little bit about adaptation,
18 and do it in the context of resilience, because I
19 think, as was pointed out earlier this morning,
20 resilience isn't all about vulnerability or
21 susceptibility. It's also about the capacity to
22 respond and change to those influences. So,
23 adaptation is not a new concept. It's an intrinsic
24 human characteristic, I think.

25 And, you know, we all grew up with the story

1 of *Moby Dick*. Well, Melville's novel was inspired by
2 the actual sinking of the whale ship *Essex*. When the
3 whale ship *Essex* sank, it was 10,000 miles from its
4 port of Nantucket, 10,000 miles. So, that was in
5 1820.

6 Fishermen have been chasing fish for as long
7 as they've been fishing. So, there is a certain
8 aspect of adaptation that goes -- that is wrapped up
9 in mobility and fleet mobility, that I think is a very
10 important characteristic. And, as we look across the
11 mid-Atlantic, and, certainly, I think, in any region,
12 we have a lot of diversity in our fisheries. We have
13 diversity in gear types. We have diverse
14 constituencies interacting with those fisheries. We
15 have some fisheries that are relatively immobile.

16 The port of Montauk, New York, is among the
17 most mobile fleets on the East Coast. As noted in the
18 upper right corner, the *Jason and Danielle*, that's a
19 squid boat that fishes on a variety of different
20 species out of Montauk. It fishes from the Haig Line
21 in Canada, to South of Cape Hatteras of North
22 Carolina. A boat like that that catches a
23 reasonable -- reasonably diverse composition of fish,
24 and across that broad range of area, is probably going
25 to be highly resilient to change.

1 Some of the other fisheries in our region
2 are relatively static. They don't have that option
3 for mobility. There may be species that come into the
4 area that can backfill some of those changes. But
5 that remains to be seen. You know, so we do have, I
6 think, an increased presence, or shift, in red drum
7 into the mid-Atlantic area. There are some Southern
8 species that are shifting in. Whether they're
9 commercially viable or not, you know, in some cases
10 remains to be seen.

11 So, there are significant uncertainties that
12 go along with how static gears and relatively static
13 fishing fleets might be able to cope with climate
14 change, in my opinion. And one of the, one of the
15 interesting things that comes up within fleets is that
16 there are individuals who are willing to travel.
17 There are day-boaters who fish in the mid-Atlantic,
18 that travel a lot, and they follow the fish. They'll
19 follow migration of fish from Virginia through New
20 York. They may fish for whelks in the Winter time in
21 Virginia, and, in the summertime, do the same thing in
22 Massachusetts.

23 So, they will follow the fish, depending on
24 the seasonality of the fishery. There are other
25 fishermen that fall under that same category of being

1 day-boat fishermen with the same gear that don't want
2 to travel. They simply prefer to stay at home, and
3 they're not going to travel.

4 So the impacts to some of these fleets are
5 going to vary, and it's going to depend, in part,
6 on -- I think, in large part, on mobility, and also
7 the diversity of catch that they may pursue. But the
8 management question that's wrapped up in this, I
9 think, is how can we facilitate that adaptive
10 capacity. How can we facilitate adaption to climate
11 change within our fishery management plans. And it's
12 a very complicated question.

13 When you look at the East Coast, we have
14 fisheries that are managed on a state-by-state basis.

15 That adds to the complexity. So, we had an East
16 Coast workshop that we hosted with all three Atlantic
17 Coast councils. We also had the Atlantic States
18 Marine Fisheries Commission involved. And we wanted
19 to really get into this issue of governance, and
20 management, and how can we prepare for the challenges
21 that we know are going to exist within the governance
22 systems we have, as it relates to climate change.

23 And that was a very productive two-day
24 session, and we went through -- we went through an
25 examination of the existing management mechanisms, but

1 it's clear that we're going to have a coordinate
2 approach in order to deal with that, because, right
3 now, there is a relative lack of flexibility in the
4 system, and thus we have the concrete -- I mean, there
5 are all sorts of analogies that come up when we talk
6 about state-by-state allocations and how rigid they've
7 been and how inflexible they've been.

8 So, just touching quickly on the things that
9 we've done so far, we've been through the risk
10 assessment phase. We've engaged the Northeast Fishery
11 Science Center. They're looking at all of our managed
12 species and doing a vulnerability assessment. That's
13 in peer review right now, so we anticipate that very
14 shortly.

15 We've also been getting the modeling and
16 predictive work out of the science center that I
17 showed earlier, but we're also collaborating
18 externally with Malin Pinsky. He was the author on
19 the seminal piece that went into *Science Magazine* back
20 in 2013, that really looked at climate velocities, and
21 how fish populations have shifted. And that study
22 indicated that about two-thirds of the population are
23 shift pole-ward in the deeper water.

24 But, in order to make that relevant at a
25 regional level, we can actually think about, as we

1 consider the risk associated with it, we need to have
2 that downscaled to a regional level that reflects the
3 ecosystem within the mid-Atlantic. So, we're engaged
4 with him on that project right now. We've already had
5 the coast-wide workshop on governance, and we'll be
6 following up on that. And we've initiated our
7 ecosystem approach to fisheries management, of which
8 climate is an important component.

9 So, as if we didn't have enough to monitor
10 already with fisheries, now the -- you know, one of
11 the challenges that goes along with this is the need
12 for a comprehensive monitoring strategy that, that is
13 inclusive, that, that gives us the information we
14 need. And one of the challenges, I think, as we
15 consider this, is setting up a management system that
16 doesn't simply chase noise. You know, the fact that
17 we have a hot summer doesn't mean that we need to go
18 out and redo our management plans. But we need to
19 think about integrating appropriate thresholds that
20 are scaled appropriately for triggering that change.

21 And Patrick spoke about the need for having
22 allocation reviews that are built into the process,
23 you know, so that you can -- in the context of how
24 these things might shift among states, that you're
25 periodically reviewing, to make sure those are

1 contemporary.

2 So, my executive director asked who is the
3 old guy in the slide. I'm from Virginia, so it's with
4 apologies, but it's Captain John Smith. I can't talk
5 about fisheries without invoking him somehow. But one
6 thing that's clear about climate change is that we're
7 not managing his ecosystem anymore, and we're not
8 going to be. The ecosystem has changed dramatically.

9 And there was some discussion about what colors are
10 good and what colors are bad. That orange up there is
11 bad.

12 So, two years ago, the Mauna Loa Observatory
13 observed 400 parts per million, in terms of carbon,
14 atmospheric carbon dioxide, and a level not seen since
15 the Pliocene era. So, I think what is clear is that
16 change is expected to continue, and the magnitude of
17 that risk and the magnitude of that threat is very
18 substantial, and warrants an appropriate response.

19 And so, in the context of managing
20 fisheries, I think we need to be fully engaged, and
21 make it a significant priority, so that we're devoting
22 adequate resources to it, from a planning perspective.

23 We can't change it. We can't -- we're not in charge
24 of environment policies in the U.S., but having said
25 that, we do have to figure out how do we integrate

1 this expected change in the management of our
2 fisheries.

3 With that, I'd be glad to answer any
4 questions, and I appreciate the opportunity to speak
5 to you today.

6 CHAIRMAN RIZZARDI: Questions, comments from
7 members? Yes.

8 MR. CLAMPITT: Paul Clampitt. So, you
9 guys -- so these fish and fisheries are managed
10 statewide and through -- nationwide, also, at the same
11 time, basically. My question has to do with IFQ
12 fisheries. So, do you have any IFQ fisheries in the
13 mid-Atlantic?

14 MR. ROBINS: Well, we do. So we have the
15 golden tilefish, the FNP, which is a federally-managed
16 ITQ-based fishery. That occurs offshore, and most of
17 that catch occurs off --

18 MR. CLAMPITT: Right. So that doesn't
19 matter, as long as it doesn't get past the mid-
20 Atlantic or goes through --

21 MR. ROBINS: Right.

22 MR. CLAMPITT: They get chased out of
23 wherever they want to.

24 MR. ROBINS: Right. And those are
25 long-distance boats, so --

1 MR. CLAMPITT: I'm just wondering if you
2 have people that are -- that have bought into these
3 management systems, and then, all of a sudden, the
4 fish moves out, and now it's somebody else's
5 management. How does that -- how have you thought
6 about that, or do you have that issue yet?

7 MR. ROBINS: Well, we do. I mean, it's a
8 great question. So the black sea bass -- further
9 adding to the complexity, all of the states have their
10 own different sets of measures for the commercial
11 fishery. And the state of Virginia, my own state, has
12 an ITQ program for black sea bass. And the
13 productivity of black sea bass in the southern range
14 has been much lower than it has been in the northern
15 range.

16 So, we still have, you know, a fairly static
17 system for managing that, but it's derived through the
18 ASMC side of the plan, with the state-by-state
19 commercial allocation. So, Virginia has subdivided
20 that into an ITQ program. People have bought that
21 quota.

22 Again, now, if you had a major change in
23 that resource, you'd still have to, I think, ask that
24 question, you know, what is the appropriate response.
25 And you continue to allocate it to states that may not

1 have that fishery, I mean, theoretically, off their
2 coast anymore. But that's the tension, because you've
3 got the historical dependence. You've got the
4 possible history of buying into permits or ITQs. And
5 then, that can change.

6 MR. OKONIEWSKI: Mike Okoniewski. Would
7 they be able to -- would the ITQ -- is that just for
8 statewidens, then, or for -- could they go to the
9 Atlantic state North, and finish then?

10 MR. ROBINS: They can go anywhere in federal
11 waters, but they have to land them in Virginia. So,
12 it's a -- there is still a state-by-state --

13 MR. OKONIEWSKI: The reasonable requirement
14 then for --

15 MR. ROBINS: It's a state-by-state landing
16 obligation.

17 MR. OKONIEWSKI: Okay.

18 MR. ROBINS: So, the landing has to
19 occur -- the catch can just occur in federal waters,
20 you know, anywhere, but it has to be landed back in
21 the obligatory state. Like I said, I mean, it's
22 a -- it's an incredibly complicated system on the East
23 Coast.

24 CHAIRMAN RIZZARDI: Julie Bonney, Peter
25 Shelley, then let's move on through.

1 MS. BONNEY: So, being the council chair and
2 also being on the CCC, you know, one of the
3 suggestions is that you look at doing a reallocation
4 every three to five years. Understanding how much
5 work goes into that, how do you prioritize allocation
6 systems, understanding the glacier pace of a council,
7 and if you had to go through the reallocation of every
8 species within your jurisdiction, I would think you
9 wouldn't get much done, but just think about
10 allocation.

11 So, I see the importance of trying to adjust
12 based on certain systems, but to just put everything
13 into that hopper, not matter what the system, seems
14 problematic. So, how would you prioritize all of
15 these conflicts?

16 MR. ROBINS: Well, first of all, we've never
17 done it, okay? We've never done a reallocation.
18 We've considered one in the scup fishery, but that
19 kind of deprioritized as we went along, because the
20 quota went up so high that everybody had enough
21 headroom. So, it was no longer pressing.

22 We are considering the question of summer
23 flounder. That will be the first time that we've
24 really seriously considered a reallocation. And I was
25 on the CCC working group that dealt with this

1 question. I mean, you know, they -- an allocation
2 review will take up a lot of resources, so we were
3 concerned about having a mandatory frequency.

4 I mean, I think a fixed frequency of three
5 to five years would probably be onerous, but, you
6 know, I would think that making sure that we do have
7 some provision in there for a periodic review, on a
8 species as sensitive as something like summer
9 flounder, probably makes sense. But, other species
10 are not going to be nearly as important. So, I would
11 think you could look at -- you could look across the
12 portfolio of stocks, and FNPs, and have a
13 prioritization plan, so that you're not just doing
14 reallocation reviews, you know, because, otherwise, it
15 would take up a lot of assets.

16 MS. BONNEY: So, do you think the council
17 would be the one to come up with the prioritization
18 plan, or --

19 MR. ROBINS: Yes.

20 MS. BONNEY: -- how would that --

21 MR. ROBINS: Well, for the council, yes.
22 But, you know, and we weren't involved in the -- we
23 weren't involved in the finishing work.

24 MS. BONNEY: Okay.

25 MR. ROBINS: Yes.

1 MR. OKONIEWSKI: So, the permits are in
2 Virginia, to land in Virginia. Is that correct?

3 MR. ROBINS: Right.

4 MR. OKONIEWSKI: On the ITQ part.

5 MR. ROBINS: Right.

6 MR. OKONIEWSKI: But if I lived in New
7 Jersey, could I buy one of those permits and get my
8 boat commercially licensed to deliver in Virginia and
9 own ITQ, even though I'm a New Jersey resident?

10 MR. ROBINS: Yes. There is not a -- there
11 is not a prohibition on residency.

12 MR. OKONIEWSKI: Okay.

13 MR. ROBINS: But you still have to land in
14 Virginia. There is still a landing obligation,
15 essentially.

16 CHAIRMAN RIZZARDI: Peter Shelley and Julie
17 Morris.

18 MR. SHELLEY: This is actually a question
19 for Dr. Merrick. You know, so much of this
20 understanding is being developed from this Fall and
21 Spring trawl surveys. And I assume -- I mean, those
22 are standardized for a lot of things, except for maybe
23 a kind of shifting ecosystem, or are they -- does it
24 capture the differences?

25 MR. MERRICK: They cover the whole range.

1 So the Fall and Spring bottom trawl surveys go from
2 the Bay of Fundy to the North Carolina/Virginia line.

3 MR. SHELLEY: So, you don't catch a codfish
4 on Georgia's Bank in October, and you used to catch 20
5 codfish in October. What would prevent you from -- if
6 you came in December, catching the 20 fish you used to
7 catch in October?

8 MR. MERRICK: We do not take that up. It's
9 been materialized in time and space. But if the
10 distribution is shifting within the season, we
11 wouldn't necessarily see that.

12 MR. SHELLEY: Does that matter? I mean --

13 MR. MERRICK: Well, usually the
14 distributions -- I mean, those are -- that's entry
15 angle variability. That's probably not the long-term
16 trends that we are seeing in the Malin Pinsky's
17 plotting. So, if those who are interested to cite
18 ocean adapt -- and Malin Pinsky from Rutgers has
19 basically looked at almost every commercial fish stock
20 in the United States and has plotted the fish
21 distribution that have been observed from various
22 trawl surveys of the various surveys.

23 MS. MORRIS: Okay. So the big problem is
24 that management is static, and the fisheries are
25 changing, so, management is very static. How do we

1 change the fisheries management, the federal fishery
2 management system, so it can be more responsive to
3 this thing? What -- what are you going to try?

4 MR. ROBINS: Well, again, you know, we've
5 already agreed to initiate a comprehensive summer
6 flounder amendment. So, that's going to open up
7 potentially pathways to resolve some of these things
8 that have been completely static in the past, because
9 allocations haven't changed since the day they were
10 first made. They were based on catches in the 1980s,
11 and the fishery today is very different than that.
12 But that will be the vehicle through which we address
13 it, within the context of that fishery.

14 MS. MORRIS: So, it will be a new amendment
15 that kind of says this 50/50 thing, or --

16 MR. ROBINS: The new amendment will be a
17 comprehensive review of the summer flounder plan.

18 MS. MORRIS: Okay.

19 MR. ROBINS: So, it will include updating
20 the goals and objectives.

21 So, those goals and objectives may reflect
22 the fact that we need to make sure that we're
23 balancing historical dependency with contemporary
24 conditions, in terms of the distribution of the stock,
25 and then deriving strategies from that that would

1 allow us to make some changes, potentially, to the --
2 either the way -- the way the fish are landed, you
3 know, having some landing flexibility, or reviewing
4 those state-by-state allocations, to try to catch that
5 up somewhat, because right know, you know, it's just
6 based off of conditions as they were in the 1980s.

7 MS. MORRIS: And then, you have some kind
8 of -- just set up some kind of framework, so you can
9 more quickly make changes in those in the future, if
10 certain triggers are met, or something like that?

11 MR. ROBINS: Well, I mean, we would consider
12 probably a continuum of adaptive management. But I
13 wouldn't think that we would change state-by-state
14 allocations real quickly, either. I mean, it would
15 probably be on that longer, you know, five-plus year
16 review period for updating those.

17 MS. MORRIS: And would you expect the
18 assessment information that you're getting, stock
19 assessment information, you're getting to have more of
20 these like climate factors built into the modeling?

21 MR. ROBINS: Well, I think the -- I think
22 the assessments are going to -- you know, what we'll
23 be asking of them is looking at that center of biomass
24 type metric, and, maybe, developing other metrics to
25 go along with that, so that we can better understand

1 the special distribution of fish, given the connection
2 of that back to the various ports and the interests
3 that play out. And that's a great example of a mixed
4 fishery, where, you know, it's like 60 percent
5 commercial, 40 percent recreational.

6 And so, you know, there is also a big
7 recreational interaction, which is going to be more
8 opportunistic, and so, making sure that that's tuned
9 to where the fish are is also going to be important.

10 And each one of those -- I mean, the
11 histories on both of those fisheries, recreationally
12 and commercially, are very, very complex, but, you
13 know, there is significant dissatisfaction, depending
14 on where you are, with some of the allocations on the
15 recreational and commercial fishery.

16 CHAIRMAN RIZZARDI: All right. Thank you.

17 MR. ROBINS: Thank you.

18 CHAIRMAN RIZZARDI: All right. So we've got
19 a list of seven questions that have been presented to
20 us by NOAA. I don't really see an easy way to have a
21 dialogue about the seven questions, in the context of
22 going around this room, but what I would like to see
23 if maybe we can go around the table and have initial
24 reactions to what we've learned about thus far, and
25 specifically, what role or opportunity you see in

1 MAFAC, and whether or not there is something you can
2 see us referring to the task force staff we have to
3 help us, both for the climate change task force and
4 the other task force.

5 So, with that in mind -- and, of course, if
6 you look at the annotated agenda and the seven
7 questions, you can see what I'm trying to get a sense
8 of is what the members would like us to be talking
9 about, and we'll break out into the ad hoc
10 subcommittee tomorrow.

11 And, Mike, you've been interrupted many
12 times today, I'm wondering if maybe you're ready to
13 finish your thoughts.

14 MR. OKONIEWSKI: I'll pass for right now.

15 CHAIRMAN RIZZARDI: Paul?

16 MR. CLAMPITT: Yeah, no. I'll pass.

17 MR. AMES: Thank you for passing. I won't,
18 mostly because it's my arse that's getting gored. I
19 think this is, perhaps, a fine approach for offshore
20 fisheries, but the bulk of Maine's remaining fishermen
21 are in boats from small to -- up to, maybe, 20 tons.
22 They traditionally fish within area 6A, which is about
23 20 to 30 miles offshore, and virtually all of the
24 species that we target reproduce only on the coastal
25 shelf.

1 The end result is once those local
2 populations are fished -- are extinguished, they
3 disappear. So, I think, while this is a great
4 approach for federal waters, most of federal waters,
5 there is a critical inner layer that contributes
6 greatly to the productivity of the fishery. There are
7 a different set of ground rules that needs to be put
8 into play. In risk of being shot, I would say
9 probably a lot of the ground rules in our lobster
10 fishery, for example, that ensures a good reliable
11 reproduction each year would make the difference.

12 And so, I think it's a win, a potential
13 win-win, for everybody. But if you go on targeting
14 simply by quota in federal waters, you're going to
15 eliminate an awful lot of local fisheries, and,
16 frankly, the state of Maine would be out of business
17 right now in all its fisheries, if it wasn't for this
18 tremendous boom in lobsters right now.

19 CHAIRMAN RIZZARDI: Heidi, are you putting
20 the same --

21 MS. LOVETT: I'm getting it, yes.

22 CHAIRMAN RIZZARDI: That's great. Thank
23 you.

24 MS. LOVETT: Uh-huh.

25 MR. RHEAULT: So, just to beg to differ, I

1 mean, we have put in a lot of those management
2 measures down in Southern New England, for the
3 lobster, and they had really no effect. We just got a
4 collapse of area two lobster section. It's pretty
5 clear that they went North to follow the temperature.

6 I think one thing that we need to consider
7 is that the entire fisheries management process
8 becomes jeopardized and loses credibility if we don't
9 adapt to changes in the fish stock abundance.
10 Fishermen in New England, in Southern New England, are
11 seeing unprecedented availability of black sea bass
12 and flounder, and yet, catch restrictions are cutting
13 many of their landings abilities. And so, it makes
14 them wonder whether the fisheries management process
15 is working at all, and whether we, as scientists,
16 don't understand what is going on.

17 So, I think we have to adapt to the new
18 distributions of the fish stocks as nimbly as
19 possible. I understand it's a challenge, but
20 otherwise, we will continue to lose credibility
21 amongst the regulated community.

22 MR. SHELLEY: For me, I guess, coming from
23 New England, is just -- and a little bit related, but,
24 I guess, to what Bob said, just that the overall
25 breakdown in confidence, I guess, between the science

1 and the fishing community, and the management process,
2 under static conditions, let alone shifting ecosystem,
3 where these models may become even more
4 unreliable -- or maybe unreliable may not be the right
5 word. Less predictive, and combined with a static, if
6 not declining, NOAA budget for some of the basic data
7 collection that would shed some light on this.

8 So, I think if there is anything we could
9 do, as a group, to help shape how these limited
10 resources are being applied or targeted towards some
11 of these, maybe, drivers of our fishery resource and
12 where it's going, that would be useful.

13 MS. MORRIS: So, you know, the points I was
14 just making when I was asking the questions like our
15 management system is not nimble and is not flexible.
16 It takes a long time. It's very deliberative. There
17 is a lot of public input. There is a lot of political
18 influence. And so, I'm concerned that we're going to
19 have all this new information on community
20 vulnerability coming in and stock vulnerability coming
21 in, and those kinds of things have to get into this
22 static system that we have for making fisheries
23 management work.

24 So, the literature review work on how people
25 in other places are doing things and coming up with

1 new techniques that are more nimble and flexible is, I
2 think, really important and really ought to be a focus
3 of our work going forward, to figure out how we can
4 take advantage of these new insights, this new
5 information, both what people are experiencing on the
6 water, and also what these different vulnerability
7 indexes are telling us. How can we get our management
8 toolbox ready to take advantage of this information
9 and make better decisions?

10 MS. BRANDON: I think there is value in
11 MAFAC and the subcommittee looking at these questions,
12 and, especially, having that shared definition for
13 resilience, what we would mean by that. World
14 Wildlife Fund has already -- World Wildlife Fund
15 Canada has already done a rapid assessment of
16 resilience in the Beaufort and Chukchi Seas. And we'd
17 like to do one in the Bering Sea.

18 So, I think there are other assessments out
19 there, in addition to what we've seen today in our
20 presentations, that could add insight. I think where
21 the rubber meets the road, kind of what Julie was
22 saying, it is really important how implementation
23 could occur, whether that's through -- like in the
24 Bering Sea, we are looking at a fishery ecosystem
25 plan. Other regions have other tools. So, how, how

1 would implementation come in -- conservation
2 management measures occur that result from resilience
3 information.

4 I feel like there was something else. I
5 can't remember my last point now.

6 MS. BEIDEMAN: Terri Beideman. I think that
7 we don't have a choice until things change, because
8 they are -- things are changing. So, we can choose to
9 contend with the time, and go on like we have been,
10 managing fish that are caught off of New York and make
11 them be landed in Virginia, which is, you know,
12 terrifically inefficient, and isn't good for fish,
13 either, to be on a boat longer than it needs to be.

14 I think that Julie's point about -- that the
15 process of fishery management plans, in general, is
16 not nimble. And I'm not saying it should be, or it
17 should be necessarily loose, but, somewhere along the
18 line, there has to be some way to have more
19 flexibility to respond to things quickly, you know,
20 beyond climate issues, which, you know, I live in a
21 coastal area. I don't like water coming up my
22 driveway either, and it has in the past, a couple of
23 years.

24 But, fisheries in general -- like, I talked
25 to guys that are fishing, you know, 80 to 300 to 1,000

1 miles offshore seeing all kinds of things that they
2 never used to see over in the past 15, 20 years. You
3 know, some of it as a result of management actions
4 that have happened and have increased the populations.
5 And some of it is climate, and then, some of it is
6 forage really, and they're all combined.

7 And I don't think we have a choice but to
8 try to make it so that we aren't wasting things,
9 because we're in -- stuck in a mold where there is
10 limits on this or you can only catch them here, you
11 can't do that.

12 So this -- I live in New Jersey, and
13 believe, me, everybody is talking about summer
14 flounder and what they're going to do, you know, and I
15 think we have to be flexible. I think they have some
16 plan with bluefish, where they try to reallocate them,
17 and also a lot of time fighting over who is going to
18 get a chance to catch the fish.

19 But we shouldn't be in a situation where we
20 aren't able to, because we can't respond quickly
21 enough to transfer it to someone who can, even if it's
22 a different state or using a different gear. I think
23 optimum yields under Magnuson-Stevenson try to find a
24 way to work it.

25 So, that's my thought. I think it -- I

1 think it's extremely complicated, so I don't -- I
2 wouldn't pretend to think that we can fix it. But I
3 don't think we can hurt by trying to help. So that's
4 my opinion.

5 MS. BONNEY: The more I think about this,
6 the more convoluted and complicated it gets. And
7 because, you know, you're talking about a habitat
8 restoration, water management, economic impacts
9 on -- you know, so the harvesters get to move and
10 chase the fish somewhere else, so those profits are on
11 the beach that just lost their entire infrastructure,
12 and the community, obviously, comes under pressure.

13 So, the question, in my mind, is how do we
14 target things for helping. So, obviously we're going
15 to have to have staff assessments to understand what
16 is happening to spots over time. We're going to have
17 to have some kind of a management reaction to the
18 councils, but it has got to be targeted and not -- you
19 know, in other words, you have to set priorities and
20 come up with some kind of a framework, in terms of
21 deciding which spot to try to address, in terms of
22 allocation, social impacts to the processors; and
23 communities overall.

24 You know, the easiest thing would be just to
25 give all the fish to catch processors, and they roam

1 up and down the coast and chase it where it is, as
2 long as we know of the stock in the fish. Then you
3 get into the issue of stocks that have stock
4 structure, so you could potentially, you know, try to
5 drive the allocation to deal where the stock is, but
6 you might be hurting the stock.

7 So, I guess I just get concerned about what
8 is the budget priority and what are the management
9 priorities. And otherwise, it's kind of like this is
10 splash fishing, and you really -- you've got so much
11 information coming out, you can't tell me or give me
12 policy or direction. So how do you develop
13 priorities, budget, and management, and policy to get
14 a reasonable outcome.

15 CHAIRMAN RIZZARDI: Hope that one will level
16 into the decoupling.

17 MS. BONNEY: Exactly.

18 CHAIRMAN RIZZARDI: Liz.

19 MS. HAMILTON: I think we can acknowledge
20 it's complicated until it blows up in our face. And
21 so -- and it will, I think. And one thing I'm seeing,
22 at my age, working on these issues, it's like a lot of
23 times we use complication to avoid change. We use
24 that as an excuse to avoid change. And NOAA is doing
25 some fantastic work. I think they're saying we're

1 doing the right things.

2 So, I guess -- I don't know if MAFAC is
3 capable of doing this, but we need to find advice
4 about how to take what you're doing and use it, make
5 it user-friendly, action-ready. And I think the
6 councils are going to need to be challenged with
7 figuring out how to incorporate this kind of data in a
8 meaningful way.

9 I don't know what the answer is. I mean, in
10 our council, there is a lot of complaints just with
11 the timetables in the current system. And you add all
12 this pertinent data lying around, and it becomes even
13 more difficult. But, you know, I don't know if they
14 look at other systems. I don't know how we change our
15 system to be more reactive and more responsible. But
16 I am concerned about 50/50 being used as a scientific
17 management tool, just worries me.

18 So, if MAFAC can be of use about how to
19 adjust our system -- I don't know. We have to be
20 mighty bold to do it, but maybe we are. I hope so.

21 MR. BROWN: Let me start out by saying that
22 change is normal, and there is no way through. It was
23 really good to hear the comments from Sea Grant,
24 because I think they've done a lot of work that sort
25 of makes it somewhat easier, in terms of taking a

1 deeper look at some of these resiliency issues. But
2 I'm deeply concerned at -- we started moving towards
3 an ecosystems approach, and now we're moving to a
4 coastal resiliency approach. And I think a good
5 ecosystems approach includes resiliency. I mean, it's
6 one of the fundamentals that goes in there.

7 And I think the key to us getting out of the
8 box that we're in -- because I don't think the way
9 councils are working right now is adaptive enough, you
10 know, is nimble enough to sustain itself, as a viable
11 way of doing business. And I think we need to move to
12 a more nimble and adaptive approach to management for
13 fisheries to remain relevant.

14 The first idea that comes to my mind is, you
15 know, migratory birds are managed with a framework
16 approach. And they deal with a lot of species, a lot
17 of states, a lot of territory. And I think there is
18 something within that process that we could learn
19 from.

20 Also, I wanted to add that, somehow, the
21 focus of media discussions are too much on negative
22 changes, and don't really encapsulate as many of the
23 opportunities that are set forward. So, if we look at
24 change in a distribution of species, well, you got
25 winners and losers, but are you really going to have

1 fewer winners? I'm not sure if that's clear.

2 So, I think we need to -- you know, if we
3 focus on not just the things that are going to be
4 less, but also speak more to the things where you're
5 going to have some increases, you're going to have
6 some species expanding their range. And some species
7 are going to be impacted. But, that's part of the
8 world. But, that's my two cents.

9 MR. DYSKOW: Sounded more like a dollar.

10 (Laughter.)

11 MR. BROWN: Speaking about the dollar, we do
12 need to have a greater emphasis on money. I think
13 that's one of the critical tools to make our resources
14 work. And I think it has sort of fallen off
15 the -- out of the budget cycle, a little bit

16 MR. BRAME: Well, I agree with Columbus. If
17 the only constant is change, then this whole place is
18 --. So, we need to be, like everybody said, more
19 nimble. And, the current council process moves at the
20 speed of snow. So, we do need to be more nimble. I'm
21 not sure, exactly, how we do that.

22 But, in the end, there is going to be
23 change. It's going to get warmer, sea level is going
24 to rise, and species are going to move, and there are
25 going to be winners and losers. And what I

1 think -- one of the things we ought to be helping NOAA
2 with is deciding how you -- if there are limited
3 resources, who you help, and who you don't. You don't
4 want to help somebody who is going to be out of
5 business, or a loser, in this equation.

6 So, I think some economic models that
7 compare value -- we don't need to know impacts so
8 much. You know, that really just tells you won and
9 who lost. But I think we need to compare value
10 amongst the different sectors in fisheries and
11 processes versus -- I mean, all of it, to decide how
12 to best spend our limited resources in this coming
13 era.

14 MR. DYSKOW: Well, I would agree with what
15 several people said about the environment being
16 dynamic. We have to admit that we're seeing change at
17 a pace that's accelerated beyond those cyclic changes,
18 which we are used to seeing in the past. Things are
19 changing. The environment is changing. Temperatures
20 are changing. This is all true.

21 So, this has created a dynamic environment
22 for many of our fisheries, but to underscore what
23 Julie Morris said, which I think is the most
24 significant comment I've heard today, is we rely on
25 our regional councils to manage these complex issues.

1 Are they capable of doing it? Are there resource to
2 do it? And, I don't believe they are. They're very
3 inflexible to change. But we've talked about nothing
4 but change today, so that's a challenge.

5 And another, just, observation. Obviously,
6 I'm a recreational fisherman. But the solution to a
7 lot of the things we're concerned about today is a
8 more robust aquaculture industry in the United States.

9 We would -- we used to commercially harvest ducks,
10 geese, all sorts of things. We don't do that anymore.

11 If we're going to supplement our commercial fishery,
12 we have to look at aquaculture as a significant part
13 of the solution to these challenges. We can't just
14 say, well, gee, there is problems with aquaculture.
15 Of course there is.

16 But, I think we're smart enough as -- not
17 me. I think somebody within NMFS is smart enough to
18 manage this, and to learn from past mistakes, so we
19 don't repeat them.

20 So, I would like to see aquaculture be
21 more -- as of a solution to our challenges, as opposed
22 to this thing we don't really want to do.

23 MR. FRANKE: Segueing off of what Phil was
24 talking about, on the aquaculture component, I know on
25 the West Coast, it is difficult, at best, to broker

1 any kind of aquaculture permitting process, due to
2 coastal commissions, et cetera. So, maybe one thing
3 that can be put as a point of recommendation is in
4 that aquaculture component, streamlining the process that
5 would be accepted by the states, and trying to break
6 down some of the coastal commission barriers, where
7 it's just more philosophical opposition than it is one
8 of substance.

9 Second comment, based on the recommendations
10 that we've heard some of the speakers provide, I put
11 out more question on the port authorities throughout
12 the nation. And I don't know the answer to this. If
13 there is a coordinated effort by NMFS to connect with
14 the port authorities, because -- I'll use an example.

15 We cover the ports from Santa Barbara to San
16 Diego, and 13 of them. I don't know of a single one
17 that either side has networked, but every one of them
18 was talking about sea level rise. The port of San
19 Diego is spending a ton of money on
20 environmental-related stuff. And I hear the
21 discussions, and I'm going, wait, NMFS has already
22 done a bunch of this.

23 So, I'm just -- I just put it out as, maybe,
24 a recommendation, strategic planning-wise, maybe a
25 coordinated effort to connect nationwide with the key

1 ports, so that we're all doing it the same way, and
2 not redundant in our efforts. Thank you.

3 MR. DONALDSON: I think that all of the
4 issues that I wanted to bring up have been talked
5 about a number of times. But I will reiterate the
6 comments about the council and their ability, or lack
7 thereof, to be able to deal with this. It certainly
8 takes a different approach, and, and I'm not sure that
9 the council -- and having experience in the Gulf of
10 Mexico, I'm not sure the Gulf Council can handle that.

11 I know there is frustration amongst the Gulf states
12 with the council process, and that's something that
13 needs to be addressed before moving forward with this.

14 Thanks.

15 MR. FISHER: I think we should invade
16 Canada.

17 (Laughter.)

18 MR. FISHER: That would solve a lot of
19 problems.

20 CHAIRMAN RIZZARDI: In the transcript of
21 today's meeting.

22 (Laughter.)

23 MS. SOBECK: Did you state your name for the
24 reporter?

25 (Laughter.)

1 MR. FISHER: Bob Beal.

2 (Laughter.)

3 MR. FISHER: A couple of -- so I think it
4 would be interesting to have the agency look at the
5 flexibility you do have, without hearing Magnuson,
6 because I don't think Magnuson will ever be
7 reauthorized in my lifetime. So, let's just get over
8 that, and let's figure out whether or not there is
9 some things that are possible, that would make some of
10 this a little easier.

11 Second thought is that this thing smells a
12 lot like NMFS trying to go down a new road,
13 potentially, by getting involved in local communities,
14 and trying to save all that kind of stuff. And, the
15 truth of the matter is, you don't have a lot of skin
16 in the game, because you're basically operating under
17 Magnuson. You have some authority under the Marine
18 Mammal Act, and you have some authorities under
19 Threatened and Endangered Species Act, but that's
20 about it.

21 So, everything else is basically
22 responsibility of local governments or the state. So,
23 I don't know how much you want to start getting
24 involved in that. That worries me, because we have
25 all this other need for information, which was brought

1 up earlier. So, I think -- you know, I've read your
2 strategic plan on the West Coast. And the problem I
3 see is there is no priorities in there. The whole
4 thing is just you want to do more. Well, we know
5 that's not going to happen.

6 So, what are really going to do, I guess is
7 what I'm worried about.

8 MR. MERRICK: Can I just comment? Under
9 Magnuson National Standard 8, it says we are supposed
10 to be concerned about this.

11 MR. FISHER: Well, you can be concerned
12 about it --

13 (Simultaneous discussion.)

14 MR. MERRICK: -- minimize adverse economic
15 impacts. Thank you.

16 MR. BEAL: I don't want to get in the middle
17 of those. Try to think of something to say that --

18 MR. MERRICK: Whether we do it or not is
19 another issue, but it's not just anything.

20 MR. BEAL: The whole prospectus from the
21 East Coast fisheries that we've been dealing with, you
22 know, the word resiliency kind of implies some sort of
23 rebound, or things turning around, getting better.
24 And there is a couple of examples on the East Coast,
25 where I just, frankly, don't see that happening.

1 Long Island Sound lobsters are essentially
2 gone, and I don't see that coming back. The water
3 temperature there is just not -- I don't believe it's
4 going to cool down to a level that those fisheries are
5 coming back in our lifetimes, unless there is a major
6 change and a quick change.

7 So, you know, what does resiliency mean
8 there? Is it switching to other species, or what is
9 it? I think Gulf of Maine, northern shrimp, the
10 shrimp, as Ed knows well, you know, it's a full
11 moratorium in the last two years. We're heading that
12 way this year, and that fishery harvests four and
13 five-year old shrimp.

14 And, unfortunately, there is no shrimp in
15 the pipeline right now, so we're -- so that fishery is
16 probably closed down for at least eight years, and in
17 my -- unfortunately, in our opinion, probably longer,
18 because the Gulf of Maine temperature isn't going to
19 cool down and be conducive to successful spawning for
20 those animals.

21 So, what happens to all of those folks that
22 are using that Gulf of Maine northern shrimp fishery,
23 to kind of fill in the gaps over the winter period,
24 and make a few dollars and, you know, the fishery is
25 unfortunately gone.

1 So, you know, what does that mean? Is
2 it -- you know, what do we do with that capacity that
3 was harvesting those animals? And I think it's -- you
4 know, that's the hard part here, the -- you know,
5 we're looking for how do we react to change and other
6 things. But some of these changes are, unfortunately,
7 in one direction, right now. So, we'll have to figure
8 that out.

9 The other is we're talking about fish stocks
10 shifting, moving to different parts of the ocean.
11 And, and I think when that happens, the overall
12 productivity of those stocks is going to change.
13 Black sea bass, as we heard earlier, is moving to the
14 North and to the East, and it has made it -- they've
15 made their way around Cape Cod, and they're finding a
16 lot of habitat in the Gulf of Maine that they like,
17 and then, they seem to be taking off pretty well up in
18 the Gulf of Maine, sort of Southern end toward Cape
19 Cod.

20 And, you know, maybe that's a good thing.
21 Maybe that is one of these fisheries that's filling in
22 behind some of the others that are moving out. But
23 the down side is they appear to be eating baby
24 lobster, so that's another problem.

25 But, so -- but, you know, there are other

1 stocks that are going to move to areas that are not as
2 hospitable, and they're not going to find a habitat,
3 and their total productivity will probably drop off.
4 So, how do we -- how do we account for these changes
5 in total productivity, either higher or lower, as
6 we -- as we deal with these resiliency issues. And I
7 think that's a tough science question.

8 I think, you know, Roger has done some work
9 on croaker. I think croaker may be one of the big
10 winners. It's one of the mid-Atlantic species that
11 seems to be able to adapt and live in a lot of the
12 Southern New England habitats, and maybe they
13 can -- you know, that's one of our fill-in species,
14 and those sorts of things.

15 So, I think it's -- I think the tradeoffs
16 are going to be difficult to explore, but it's
17 something we're going to have to do, and we're going
18 to have to deal with changes in overall productivity.

19 MR. SESEPASARA: Well, coming from islands
20 in the South Pacific, I'm quite interested in
21 listening here about different fish stocks on the
22 continental shelf here in the U.S. mainland. In the
23 islands, we have only tuna resources that we depend
24 on, and we don't have a continental shelf. But, we
25 have our own issues to deal with. Other

1 countries -- the international treaty, the tuna
2 international treaty, and all of that stuff that we
3 are dealing with in the South Pacific.

4 So, we have quite different problems facing
5 us down there than what you have here with the
6 complications of different stocks and how to manage
7 them here on the continental shelf. But like I said,
8 you know, in the islands, you go out one mile, and
9 you're looking at about at least three miles deep at
10 the ocean floor. You don't have a continental shelf.

11 So, we're only looking at the Atlantic species,
12 particularly, the tuna species, that -- from American
13 Samoa, that is the only resources, natural resources,
14 we have.

15 In our fisheries, we have two tuna canneries
16 in American Samoa. And if something happened to that
17 tuna fishery in American Samoa, we would go back to
18 the cave ages in the -- so, by the economy that we are
19 enjoying right now.

20 So, we have a different problem there in
21 American Samoa, and it's quite interesting for me to
22 sit in here and listen to all different kind of stuff,
23 assessment, and it's not easy to come out with the
24 solution of what is best management tools to use.

25 MR. OKONIEWSKI: Can I unpass? I wrote down

1 more stuff that I'm going to go through. But
2 the -- just concentrating on the idea of community
3 resilience, I've lived in a fishing community more
4 than not over my lifetime. And I've been 46 years,
5 maybe 47, going in this industry. It's the last of
6 the hunting and gathering on the wild side, and it's
7 already complicated. It's very complicated.

8 And I look at it, and I've looked at
9 companies like ConAgra and Tyson come into the
10 industry, very well run, very disciplined companies
11 that basically got their hind end handed to them on
12 the way out the door, because this is a really unique
13 business.

14 And, looking at that, I -- I look at what,
15 you know, what does it take to make a business tick,
16 and how does a business contribute to a community.
17 And I think, in most communities, if there is not a
18 successful business model, or a successful fleet, than
19 that community starts to get a stress level on it.
20 And that can be from lack of fish, or just lack of
21 market, or different reasons.

22 I do believe that NOAA and the states
23 have -- and the councils have it within their power to
24 help. And I view it as more of a partnership
25 arrangement than thou-shalt-not arrangement. If

1 you're interested in resiliency, from my mind, in the
2 community, then it's -- the key word I keep hearing
3 over and over again, and even in some NMFS documents
4 or FMPs, is flexibility. But what I see us moving
5 towards is less of it, unfortunately.

6 And that's a problem, because I think if
7 we're going into a new regime of climate shift, and
8 we're going to have to start making decisions on how
9 we fish for fish stocks based on environmental
10 conditions, among other things, we'd better have our
11 house in order before we take that plunge. And I
12 don't think we're quite there yet.

13 So, the resiliency factor, I think, is to
14 take a hard look at where these communities are now,
15 as far as infrastructure, vessels. For me, I look at
16 investment. Is it an investment opportunity? That's
17 what attracts business, a return on our dollar. And,
18 if I don't see money going back into the fleet, and I
19 don't see money going back in infrastructure, that's
20 usually a sign that things aren't as rosy as they
21 might be.

22 So, that's just a generic statement, but I
23 think it's fairly easy to establish, if you talk to
24 the stakeholders in the industry, you know, what their
25 concerns are, probably a lot of the same ones. So,

1 the flexibility part, I think, is key. I think the
2 collaborative approach to that, in some cases, using
3 cooperative management, is -- or cooperative --
4 cooperatives, I should say, managed -- has been very
5 successful in Alaska, in some areas. It's not without
6 its problems. But I think that could be one approach
7 that we can look at a little bit more.

8 And where these areas -- it's about getting
9 the fish out of the water to meet optimum yield. If
10 you're not -- that's what produces the money, pure and
11 simple. You have to -- you can't go over the ACL.
12 Long-term, that hurts our investment. So, we want to
13 manage to conservation levels that make sense. But we
14 do need traffic cops out there to keep us from going
15 over. There is no question. We have to be regulated
16 as industry people.

17 But on the other hand, I think we need to
18 start looking at how we partner up together to -- if
19 we're going to get this community resilience, it's not
20 just about social studies, and taking the metrics of
21 how many kids are on a school lunch program, and that
22 kind of thing. It goes back to how the businesses --
23 or the jobs that are there actually perform for the
24 people that occupy those businesses or those jobs. Is
25 there real money to be made there?

1 And there is a lot, I think, that can be
2 done. And I think this is a good -- good step. But I
3 also think we need to look at here and now, as to what
4 we had not reached yet as far as before we get too far
5 down the road and going in a different direction.
6 There is quite a few communities already that I think
7 are pretty stressed.

8 So, that would be my deal on that.
9 Aquaculture, I think, has a huge opportunity. Ken
10 said it perfectly, couldn't have said it better
11 myself. We are highly involved in aquaculture as a
12 company right now. I just recently found out a little
13 bit about how difficult it is, and I couldn't believe
14 it. I listened to one guy at a small conference we
15 had of oyster growers up in Washington states, 18
16 years to get a permit. That's not us, but that's what
17 he claimed, 18 years on his own property.

18 I don't know how that happened. I don't
19 even know if it's true. But if that's the case, that
20 is pretty bad. I'm really happy to see if NOAA has
21 got a policy on aquaculture development, but, as Ken
22 said, I think there are so many organizations out
23 there that are anti-development of any kind. I know
24 of one at least in the Humboldt Bay area that I think
25 NOAA could do a lot to help us get through some of

1 those hurdles.

2 And we have to do it in a responsible way.
3 There is no question. And if the environment is -- if
4 we trash it out, we've got an investment riding on
5 that, how healthy that environment is. So we are --
6 most of us are inclined to want to keep our
7 investments in good working order. But -- so, I do
8 think there is some large opportunities before us
9 here. And I'd like to see if we can find ways to work
10 more closely hand-in-hand to solve some of this stuff.

11 I believe we've got some bigger challenges
12 going forward. So thank you.

13 CHAIRMAN RIZZARDI: Thank you to the members
14 for posting comment on the items. Now, let's hear from
15 Eileen before we take a break.

16 MS. SOBECK: Without the benefit of having
17 heard the presentations, I apologize for that. But I
18 heard most of the comments. And I actually think that
19 it's -- you know, you guys have put some of the major
20 issues up on the table, and I'm looking forward to the
21 discussion that flows with them. And I find that -- I
22 found myself agreeing with almost everything everybody
23 said, even though some of it was, usually,
24 contradictory, perhaps.

25 You know, I think, you know, how do

1 you -- how do we increase flexibility, but maintain
2 the accountability that has gotten us where we are.
3 You know, the success of having recovered so many
4 stocks now makes them, perhaps, be in a position where
5 they are more likely to be potentially resilient to,
6 or adaptable to, the kinds of environmental changes,
7 climate changes, that they're facing. I'm glad that,
8 you know, all of that work and investment happened.

9 On the other hand, if we are now at the
10 point where the major stressors of fish are not
11 necessarily fishing, we either, you know, declare
12 success under the Magnuson Act, and walk away, and
13 have it be somebody else's issue, or we rise to the
14 challenge and try to figure out what the next chapter
15 is.

16 I think it's -- I think it's really
17 interesting to be in a room full of people who weren't
18 necessarily -- you know, aren't necessarily on this
19 committee because of their background in aquaculture,
20 and here, aquaculture comes to the forefront so often.

21 And I think that seems like a real kind of change in
22 momentum.

23 But just a couple of years ago -- and some
24 of you guys were here -- we had a meeting in San
25 Diego, the state Fish and Wildlife director, the state

1 director, talking -- wanting to talk to the states
2 directly, and not always during councils. And we sort
3 of said, what are your priorities, and they said, you
4 know, stock assessment, stock assessment, stock
5 assessment, and don't spend one stinking dollar on
6 aquaculture.

7 And I think that that's partly because of
8 the way the states look at aquaculture. It's not
9 necessarily run out of their state fish and wildlife
10 service, or fish and wildlife departments. It's more
11 like aquaculture -- agriculture, sometimes, often, and
12 so, we're kind of removing from the wild-caught world
13 to the aquaculture world. It's kind of world that
14 aquaculture doesn't always have a great place.

15 We don't have a very direct mandate to deal
16 with aquaculture the way we do to deal with
17 wild-caught fisheries in federal waters. And we all
18 know that most aquaculture is in state waters, and so,
19 you know, a lot of these permitting issues, so -- or
20 have to do with the states. And people have
21 acknowledged that, but -- so, we're trying -- we're
22 struggling as an agency just to see where our -- what
23 our role is.

24 I do see this being very closely related to
25 our core mission of promoting sustainable fisheries.

1 I think, you know, whether it's food security, or
2 growth in fisheries, it is likely -- it's not going to
3 come from wild-caught fisheries that are already being
4 fished at sustainable levels. It's going to be in
5 aquaculture.

6 On the other hand, our book on aquaculture,
7 our appropriations for aquaculture, are not as robust
8 as for the issues that we've traditionally dealt with
9 under the Magnuson Act. So, you know, Randy, you're
10 right. We are kind of getting into, you know, a bit
11 more of the penumbra of our -- of our -- of our
12 authority, but it's not clear that that isn't what
13 needs the most attention. And whether -- how -- how
14 we do that and how we do it in a way that
15 isn't -- doesn't go outside of our authority, and
16 doesn't compromise our core mission responsibilities
17 both on the science and fish side. That is the
18 challenge.

19 So, I think that, you know, you put a lot of
20 great issues on the table and a lot of the competing
21 tension in addressing them. So I can see this as
22 being fertile ground for discussion and
23 recommendations for the long run.

24 CHAIRMAN RIZZARDI: Thank you. And the plan
25 right now is for us to have a lot more discussion with

1 some context of an ad hoc subcommittee tomorrow, 3:00
2 to 5:00 that's scheduled. I'd like to ask the members
3 to please double back, take a look at the annotated
4 agenda, which includes the charge for us, the seven
5 questions that Holly has posted on there. That will
6 be part of the dialogue tomorrow.

7 I will share the notes that I have taken in
8 the discussion with my efforts, and I have the themes
9 and the key points that have been made here. And I'd
10 also like you to take -- if there is anybody here that
11 would be willing to cochair that ad hoc
12 effort -- because as I think about this, we're talking
13 as we learn, as the committee, about major changes
14 that are taking place on a global scale that are
15 impacting NOAA on a daily basis.

16 It has been recognized as a national
17 priority. They've asked us for help, and, perhaps,
18 this is going to be nothing more than a short white
19 paper. On the other hand, perhaps this is going to
20 grow into a document with a vision as robust as
21 Document 2020. And I think that's going to get
22 fleshed out in our subcommittee discussion tomorrow,
23 and, over time, the next few years for the
24 manufacturer. So I look forward to everybody
25 discussing this tomorrow. And with that, I'll suggest

1 that we take a 10-minute break and reconvene at 3:35.

2 (Whereupon, a brief recess was taken.)

3 CHAIRMAN RIZZARDI: Now, from the discussion
4 of climate resiliency and community to talking about
5 protected resources, endangered species, and the
6 species in the spotlight program, and how we're trying
7 to recover some of the species in our oceans. And
8 director of the Office of Protected Sources, Donna
9 Wieting, is here with us. And she is responsible for
10 the unit that implements Endangered Species Act,
11 conservation, and the Marine Sanctuaries Act
12 requirements, working with NOAA Fisheries. And she
13 has had 24 years at NOAA, bouncing around various
14 entities within NOAA. And we have the -- you can say
15 that again?

16 MS. SOBECK: Bouncing around?

17 (Laughter.)

18 CHAIRMAN RIZZARDI: Seven years in the
19 Office of --

20 MS. SOBECK: Climbing the professional
21 ladder, there we go.

22 (Laughter.)

23 CHAIRMAN RIZZARDI: I was seeing her
24 bouncing from top to top to top. Julie is deputy
25 director of the Office of Ocean and Coastal Resource

1 Management, deputy director of -- now and an acting
2 director of the unit, and then, now as director of the
3 Office of Protected Resources.

4 So, Donna, thank you for being here.

5 MS. WIETING: Thank you. Thank you very
6 much. Everyone hear me okay?

7 FEMALE VOICE: Not really.

8 MS. WIETING: Not really.

9 (Asides.)

10 FEMALE VOICE: You just have to speak up.
11 We'll hear you.

12 MS. WIETING: Okay. How is that? Is that a
13 little bit better?

14 FEMALE VOICE: Yes, thank you.

15 MS. WIETING: Okay. Well, thank you very
16 much. It's a pleasure to be back. There was
17 reminding me that I think it was about a year ago that
18 I talked with you about this idea we had, this idea
19 about -- we didn't call it Species in the Spotlight
20 then. We didn't have the lingo down, but this idea
21 about focusing on protected resources, those species
22 listed on the ESA, in a different way than we had
23 looked at them before.

24 And I'm really pleased that in that year's
25 time, we have -- we have been able to really flesh out

1 the idea and have some good news to share with you
2 about where we are on this campaign and this
3 initiative. And this -- my talk will be short, but
4 will help to provide a bit of an overview, or context,
5 so that when Julie talks about the work of the
6 recovery project that you're all doing, I think you'll
7 see how they work so well together, and how what
8 you're doing will really support the Species in the
9 Spotlight effort.

10 So, really, what we're looking at is -- you
11 know, we're trying to look back and say we've been
12 working on endangered species for a long time, over 40
13 years of the act. And the act has been very
14 successful in many ways. But we know that we've got
15 some challenges with budget challenges. We've got
16 challenges with a number of species that are listed.
17 And we want to make sure that we're focusing on those
18 actions, those recovery actions, those species, where
19 we can really make a difference and be able to
20 prioritize some of our activities, in a slightly
21 different way.

22 So we're looking at two ends of the
23 endangered species spectrum in our overall campaign.
24 I'm going to be talking more about the first one, the
25 Survive to Thrive, and, hopefully, at next year's

1 meeting, I'll be able to tell you a little bit more
2 about Recovery Ready.

3 But what we're saying is we've got those
4 species that are at most risk. These are the ones
5 that are -- their populations are declining. They are
6 not going in the right direction. And yet we do know,
7 we do know the kinds of management actions that we can
8 take to try to help stabilize those species. And
9 that's our Survive to Thrive.

10 So, we want to try to marshal resources that
11 we have, target our actions, and really reach out to
12 partners, those who have been with us all along the
13 way, but also new partners, to help us focus on those
14 recovery actions to stop that decline of those
15 species, help them stabilize, so we can try to get
16 them on the road to recovery.

17 And the criteria that I mentioned, they're
18 listed as endangered. They have declining
19 populations. And within our biennial report to
20 Congress, we have a process for how we identify what
21 priority actions there are. They are recovery
22 priority number one, those that we know very well what
23 we need to do, and can target those.

24 The Recovery Ready, as I said, is in a more
25 nascent stage, but it's looking at those species that

1 on the other end of the spectrum, those for which we
2 think, with some targeted action and resources, might
3 be candidates for downlisting, or delisting. And so,
4 we want to -- we want to be able to focus on those,
5 too, because that's our goal at the ESA.

6 But I'm going to talk more about Survive to
7 Thrive today, because this is what we have been able
8 to roll out in May. We rolled out the campaign, and
9 the eight species that we have identified, that meet
10 those three criteria, end up being leatherback sea
11 turtle, and we're focusing on the Pacific population.

12 Atlantic is doing pretty well. It's the Pacific,
13 both Eastern and Western populations, that are not,
14 and this tends to be more of an international type of
15 threat here, but leatherback sea turtles.

16 We have two Pacific salmon, the Sacramento
17 River winter run Chinook, and the central California
18 Coho. And then we have Atlantic salmon. So we've got
19 three -- three fish species. We've got an
20 invertebrate, for those who love invertebrates. We've
21 got white abalone on there. And then we have three
22 marine mammals. We have an Hawaiian monk seal, the
23 beluga whale, Cook Inlet Beluga whale, and the
24 southern resident killer whale.

25 So, these are the eight Species in the

1 Spotlight. These are the eight that we are seeing as
2 some of the most at-risk species that we're going to
3 focus some additional outreach and targeting and
4 marshaling resources over the next five years.

5 Just a little bit -- I want to put a picture
6 with a name. And we've identified some of the key
7 threats to these species. I'm not going to go through
8 all of these, but you'll -- I have the presentation,
9 and you can see what those are.

10 Much of this has to do with loss of habitat
11 or changes in habitat. Much of it -- some of it has
12 to do with climate change impacts, in some of these
13 extreme areas. Some of it has to do with
14 international effects, as I said. And some of it has
15 to do with part of where these species are. They're
16 in coastal areas. They are subject to a lot of human
17 interactions. And so those combined with low
18 population number has really made an impact on them.

19 Two of the Species in the Spotlight are also
20 those that are part of the recovery project that Julie
21 will be talking about. So, very interested to hear
22 how the results of that project and where you're --
23 what you're finding out there can help to influence
24 us.

25 What we're trying to do, as I mentioned, we

1 want to motivate partners to be able to help identify
2 what those recovery actions are that they can come and
3 we can work together on. We want to also be able to
4 guide our NMFS actions, where we have discretion. Can
5 we direct some of our efforts more intentionally
6 towards these species, and to these recovery actions.

7 We want to be able to work more with other
8 NOAA programs. There are so many other parts of NOAA
9 that we want to bring to the table and see how we can
10 leverage their capabilities in support of these needs
11 of these species. And we really want to take
12 advantage of regional and national events to talk
13 about these species and their importance.

14 So the next steps, as I said, we rolled it
15 out in May. I encourage you to look at our web site.

16 There is a great video that was put together where
17 Eileen talks about this and how -- and these species
18 are really in people's backyards. And so, the public
19 should have a real interest in being able to support
20 this effort, as well.

21 We are coming up -- we are getting close to
22 finalizing action plans. What we've tried to do is
23 recovery plans, as those of you who are working on
24 this project know, they can be long, and they can have
25 all -- lots and lots of actions. And we've tried to

1 distill that down to what are the top five or six
2 actions that we think are the most important to really
3 focus on now over the next five years for which we
4 think we will make some progress.

5 We've used the North Atlantic right whale as
6 sort of our guide here. You know, a number of years
7 ago, ten years ago, they were in a -- not a very good
8 state. We -- their population was declining, or not
9 doing well. What we did is we focused on the two main
10 threats, which happened to be in interactions with
11 fishing gear and ship strikes. We've made some great
12 progress there, and we're seeing a real turnaround in
13 northern right -- North Atlantic right whale
14 population numbers. They're actually growing at 2.6
15 percent a year, which is huge, a huge change.

16 So, we think if we can apply those same kind
17 of principles, focus on those key management actions
18 that are needed on these other species, we can,
19 hopefully, have the same kind of progress with them.

20 So, maybe mid-November, we get these final
21 rollout plans, get them to the public, and then
22 continue to expand our ability to work with partners
23 to bring more partners in, and take more action. We
24 want to evaluate these annually. We'll probably be
25 having more updates on our web site. And then every

1 two years, the biennial report is one we send to
2 Congress. We'll be doing a bigger evaluation every
3 two years for that report, to see how we're doing, and
4 what changes we might need in our course of action.

5 So, that's sort of an idea of what these
6 five-year action plans will be like. And we, of
7 course, as a key partner and a key part of our
8 thinking around this idea of recovery, we want to be
9 able to talk with you more about how we can not only
10 use the recovery project, and the results of that to
11 help us and support us, but also to look at how we can
12 better reach out to partners. And that's sort of the
13 second phase of the recovery project.

14 There are partners out there that we are not
15 as connected with as you all are, and we really look
16 for some guidance from you on how we can do a better
17 job on that -- on that part. As I mentioned, two of
18 our Species in the Spotlight are part of the recovery
19 project that you're working on, help us to see how we
20 can do a better job on those recovery plans, and those
21 actions, and are there other types of ideas that you
22 all have on how you can help us, and we can help each
23 other, in focusing on these species, reverse their
24 decline, and get them more in a stable place.

25 We've been doing quite a bit of in-reach and

1 outreach, working within NOAA and with external
2 partners. There has got to -- I'm sure there are so
3 many others out there that we benefit from working
4 with and getting connected with.

5 And so, this quote comes from the report,
6 the Species in the Spotlight report, which is the
7 biennial report. And it really has to do with -- we
8 have a lot of what we need in the sense of the tools.

9 We have the vision. We have many current, dedicated
10 partners. What we need is more, more of being able to
11 target our resources, being able to reach out more to
12 other partners, and to expand our relationships with
13 those we already partner with, and to be able to reach
14 out more to the public.

15 So, I will stop there, see if you have any
16 questions, and then be able to turn it over to Julie
17 to talk more about the recovery project itself.

18 Eileen, anything you'd like me to add, or
19 you'd like to add?

20 MS. SOBECK: Well, I just wanted to
21 compliment Donna and Sam Brown for actually sort of
22 coming up with this, because we did
23 produce -- we were very diligent in producing this
24 biennial report. And, you know, it had a lot of good
25 information in it, but we didn't do very much with it.

1 And I think that as this Administration actually has
2 been thinking a lot about what are the successes of
3 the Endangered Species Act.

4 And, you know, ultimately if you get a
5 species off the list, it's a long road to get there.
6 And I think that we get discouraged, and sometimes
7 don't see our victories. And I think this is an
8 approach to, again, hold ourselves accountable for
9 making progress and not kind of getting totally
10 discouraged just because the goal is far out,
11 and -- but also hold it -- you know, holding ourselves
12 accountable, so that we are making progress.

13 And one thing we've been struggling with, I
14 think, a bit in coming up with the plans is how to
15 move away from saying we don't know what is going on,
16 so what we need to do is study it to death. And how
17 do we -- which is true, you know, we do need a lot
18 more science investment. We do need to figure out
19 better what is going on. But to sort of -- but part
20 of the idea is to move us to the next level, like with
21 monk seals, where, okay, there is a lot of mortality
22 in the first year with monk seals. Maybe we need
23 research to figure out why that's happening.

24 In the meantime, we need to take, you know,
25 the young of the year and fatten them up and make sure

1 they don't die until we figure out why they
2 aren't -- they can't do that on their own. And we
3 have a substantial investment from a private entity,
4 the Marine Mammal Center, that put together this
5 hospital, privately owned. We didn't put a cent in
6 there, but we are -- we are big partners in the
7 permitting, capturing, transporting the monk seals.

8 But, obviously -- so I think that the things
9 that we're struggling with are how to -- how to winnow
10 down the long aspirational lists that are in recovery
11 plans to what can we do in the immediate future to get
12 a species turned around in a very concrete way, even
13 though they're going to be other longer-term
14 responsibility or needs, like research investments,
15 and who can help us do that.

16 How can we work with existing partners, or
17 finding partners, and focus on these agreed-upon kind
18 of actions, and how to give people credit for what
19 they are already doing or what they agreed to do in
20 these partnership arrangements.

21 MR. FISHER: Yeah. This is Randy, for the
22 record. Just out of curiosity, is there any way
23 that -- I mean, if you look at -- if you think about
24 the discussion we've had this morning, and you look at
25 the list, and you look at, like, coho in California,

1 for instance, I mean, I'm not sure that it's even
2 possible to bring it back. So, is there anything
3 short of God squad to say we're done, we're not going
4 to try and do anything anymore, because really we
5 can't?

6 I mean, it's kind of a -- I think we're
7 getting close to some of the cases where that is the
8 case.

9 MS. SOBECK: You know, I think it's really
10 hard to write a species off. A lot of people said
11 that about condors for the Fish and Wildlife Service
12 30 years ago and, you know, a specific, directed
13 intervention, intervention, a specific plan of
14 intervention has -- you know, some people would still
15 say that they're, you know, functionally extinct, but,
16 you know, they are back out in the wild. And so, I
17 guess we're not quite ready to give up on coho now.

18 But we did have some species that are worse
19 off, or in really, really bad shape, you know, like
20 the vaquita down in Mexico, very -- you know, down to
21 the last few dozen. There are a lot of people who
22 argued that maybe those should have been on this list,
23 that we needed a very concentrated, last ditch effort.

24 We kind of said, look, we're going to be doing what
25 we can for vaquita, but especially since they're not

1 under U.S. jurisdiction, and so we can't -- there is a
2 lot we -- there is not much we can do directly. We're
3 not going to put it -- make it one of our eight
4 species.

5 But we thought about those things. But I
6 guess we're not willing to give up on coho now. Will
7 we keep doing this for coho for 30 years if we don't
8 get turned around? Probably not.

9 MR. FISHER: And the reason why I bring it
10 up is because when you think about the resilience of
11 the communities -- and, in the case of mixed-stock
12 fishery, when we're trying to save three fish out of a
13 huge mixed-stock fishery, and we shut down the whole
14 thing, I mean, is there a time when we just say, you
15 know, we don't really know what we're going to do
16 here. And the only way, as I recall, we could get out
17 of the box was the God squad. And I didn't know of
18 anything, short of that).

19 You know, so my guess is the question is
20 going to come up more.

21 MS. SOBECK: But the God squad really only
22 helps you with section 7 consultations. It
23 gives -- it's a complicated action requests where
24 there is a federal action, there is a consultation,
25 and there is a jeopardy with no reasonable alternative

1 conclusion. If you go through this complicated
2 process, it said, you can get together this committee
3 and prominent officials that says you know what, you
4 can go ahead and take this action even though it is
5 likely to jeopardize the continued existence of the
6 species. But that's only -- that only says a federal
7 action can go forward. It doesn't actually give you
8 the affirmative -- it's not a generalized -- you know,
9 you don't have to worry about the species anymore.

10 You know, Atlantic salmon, you know, might
11 be -- some might argue it would be in the same -- in
12 the same boat. You guys can argue -- you guys can
13 argue with our list. What we basically said is we're
14 going to -- we're going to give these species five
15 years of our best effort, see if we can turn them
16 around, and then we're going to reevaluate. We're
17 going to see whether a big push actually makes a
18 difference. And by big push, it's everything from
19 identifying some actions, going out there and seeing
20 if we can convince the partners to make investments
21 they haven't made otherwise.

22 We're prioritizing these actions that would
23 benefit these species in some of our grant programs,
24 including our section 6 endangered species grants that
25 go to states and territories. You know, I think a lot

1 of them will have other benefits. A lot of them have
2 to do with coastal restoration, restoration of -- you
3 know, of habitat for areas for these species, which
4 will have a lot of ancillary benefits as well.

5 I take your point. It was hard to find that
6 mix. They had to be really bad off, but some people
7 would have said North Atlantic right whales were
8 headed --

9 MS. WIETING: They did.

10 MS. SOBECK: And they were just -- it was
11 just they were going to be history, and we turned them
12 around. We collectively.

13 CHAIRMAN RIZZARDI: So, Donna,
14 congratulations on this effort. I think it's
15 outstanding. You have me thinking back to nearly six
16 years ago, Paul Clampitt and I sitting in Hawaii and
17 talking about how the Endangered Species Act agenda
18 was being driven by lawsuits, that we weren't setting
19 our priorities strategically, that we were allowing
20 litigation to determine what we were doing, and we
21 were simply jumping from the next hot thing to the
22 next hot thing, based on what was happening in the
23 courtrooms.

24 And, I really think this is a great
25 initiative, because it gives NOAA the chance to try to

1 define the priorities, and some of the priorities to
2 the public. But I'd point out, it's still, at this
3 point, a plan, and the next piece of it is
4 implementing it, and not just implementing it, but
5 publicizing it, letting the world know that we are
6 achieving successes, that there is positive benefit
7 being seen.

8 And I hope we take advantage of our social
9 media campaigns, and our publicity opportunities,
10 because you've got a great list of species here. I
11 agree with you. The public is going to care. And I'd
12 like us to get to the point where we're able to sell
13 this program as Endangered Species Act at work.

14 MS. WIETING: Well, just so you know, if you
15 check the web site, our communications team has been
16 doing a great job of highlighting a species every
17 month, trying to show some of the positives that have
18 been happening, but also to draw attention to the
19 species' plight and the threats. And so -- but once
20 we have these action plans out, I think that will be
21 another jump forward.

22 I do want to recognize that, you know, we
23 have had a great support. Certainly, Therese Conant
24 has been a key person behind this whole effort. And
25 all of the recovery coordinators in the regions -- the

1 regions within NMFS are really owning these,
2 these -- many of these actions and really promoting
3 these species in their areas. So they really -- this
4 is a -- this is not a headquarters-only project, or
5 campaign. This really is a national NMFS campaign.

6 So, stay tuned. I think you'll see more on
7 the web site. And when we get those action plans out,
8 we'll be really hitting the streets harder on
9 publicizing.

10 MS. SOBECK: And the web sites for
11 each -- web page for each species, you know, includes
12 very prominently, you know, what can you do. We're
13 trying to -- you know, whether it's, you know, kids in
14 the classroom or, you know, beach cleanup, or
15 whatever, whatever it is, we're trying to -- we're
16 trying to -- we are trying to encapsule, like I said.

17 And if anybody around this table is associated with
18 any effort that is benefitting any of these species,
19 you know, we would love to put out a press release,
20 put out a tweet, put out something on Facebook.

21 I mean, I think we would like to do what we
22 can to reward partners, realizing that recovery
23 efforts are often way ahead of our power to
24 unilaterally implement them.

25 MS. WIETING: And I think that's an

1 important point. I mean, we're saying with this,
2 this -- these are actions that NMFS can't take alone.

3 We can't do all of what needs to be done. This
4 really takes a broad group of constituents, and
5 partners, and the public, with ourselves and other
6 federal agencies to try to -- to make the difference.

7 And so, that's really a big part of the message that
8 we're trying to express with this campaign.

9 Any other questions or comments?

10 (No response.)

11 MS. WIETING: All right. Well, thank you so
12 much. And I'll be back next year with more on
13 Recovery Ready. But I will turn it over to Julie now.

14 MS. MORRIS: Okay. So, the protected
15 resources subcommittee started in on this project last
16 Fall, and walked down the road a bit at our April San
17 Diego meeting, and then got really, really engaged
18 over the summer. And so, we have a draft report
19 that's with the meeting materials for this meeting,
20 and we welcome your comments on how to make the report
21 better, stronger, clearer. And at the end of this
22 short introductory presentation, we'll ask for those
23 comments.

24 We're still working on what the conclusions
25 would be for the draft report, and we'll be talking

1 about that in our subcommittee meeting tomorrow
2 afternoon. And this is what we did. We identified
3 seven recovery plans to focus on. We -- each member
4 of the subcommittee, and some people who weren't even
5 on the subcommittee, agreed to conduct an interview
6 with the recovery coordinator for each of those plans,
7 for the second member of the subcommittee sitting in,
8 and a lot of support from Heidi Lovett and Therese
9 Conant to set things up, frame the questions, get the
10 recovery coordinators ready.

11 And then we conducted those set of
12 interviews. We -- every lead interview, kind of wrote
13 up a summary of that interview, and then, over the
14 last month, we've been compiling that into
15 crosscutting themes and key themes.

16 And so, I'm going to -- we only have six of
17 the subcommittee lead interviewers here at this
18 meeting, but I'm going to ask each of us to spend just
19 two minutes talking about what the big insights were
20 from the interview that we conducted. And these
21 remarks are all summarized in the report, as well.
22 And I'm going to start with you, Ted.

23 MR. AMES: Cool.

24 MS. MORRIS: And Ted was the lead
25 interviewer on the North Atlantic right whale.

1 MR. AMES: Thank you. It's always nice to
2 talk about a success story, or what is evolving into
3 one. When this started out ten years ago, or
4 thereabouts, Gulf of Maine gill net and lobster
5 fisheries were under the gun. After a total of
6 somewheres around 125 recovery projects by National
7 Marine Fisheries Service, it turned the corner. And,
8 it covered the whole spectrum of interactions
9 with -- human interactions, but, a long with it, also,
10 behavioral characteristics of whales and what the
11 primary causes were, which were vessel strikes and
12 bycatch getting found with fishing gear.

13 And through extensive collaborations with
14 industry, found a fine line, which has allowed the
15 decline after the ending of whaling as an activity,
16 found the decline was still -- and numbers was still
17 going on, and implementing just this whole suite of
18 gear modifications, networking with the shipping
19 industry and commercial fishermen to identify areas
20 where vessel strikes were likely, and where gear
21 fouling was likely. And the end result was they have
22 reduced the amount of human interactions, to a point
23 where the population is recovering.

24 It's a work in progress. Because of the
25 problems with tags, it hasn't -- they haven't

1 completed mapping the distribution characteristics and
2 migration paths of the creditors. They don't know
3 where all of the whelping areas are. But it's a work
4 in progress. And the perspective is for even further
5 reduction in bycatch and vessel strikes.

6 And that's the thing in a nutshell.

7 MS. MORRIS: Thank you, Ted.

8 MR. AMES: It's very good.

9 MS. MORRIS: Thank you. Columbus.

10 MR. BROWN: Okay.

11 MS. MORRIS: Small-tooth sawfish.

12 MR. BROWN: Okay. I was under small-mouth
13 sawfish group. And the plan was completed in 2009.
14 And the recovery area spans from Texas to the Atlantic
15 coast of Florida. The small-mouth sawfish is a big
16 reform species. When the original plan was written,
17 old records and anecdotal data were all that were
18 available. And recent technology developments and
19 better data should help the recovery team to identify
20 more realistic and measurable outcomes that are
21 indicative of recovery successes.

22 NMFS has committed to updating the recovery
23 plan. One of the challenges that we have is the plan
24 leader is in another job, and so, NMFS is in the
25 process of recruiting -- still in the process of

1 recruiting a replacement for the team member.

2 And it was really good having her on the
3 call, because she was very insightful, in terms of
4 some of the problems that they encountered early on,
5 and many of the issues that still face them. But all
6 in all, I think that the -- you know, a few insights
7 that were important to pass on, and one of them is
8 that, you know, when you have good teamwork, it goes a
9 long way. A little money helps a whole lot,
10 especially when it comes to partners, including NGOs
11 as partners.

12 And the new technologies that have developed
13 over time have been very helpful in us getting a
14 better handle on a species like the small-mouth
15 sawfish, with internal tags. And that's going to
16 follow, because it has taken a while to get permits.
17 And there were a few permits that were available at
18 this time. And -- but the new data are beginning to
19 come in that is really going to put the recovery team
20 in a much better place of identifying measurable
21 outcomes.

22 We feel that there are a number of
23 opportunities for the recovery team, and one of them
24 is spending some more time on educating the public,
25 and maybe laying that out as a separate group of

1 actions in the plan. And, the recovery team is having
2 some difficulty getting animal husbandry information
3 from our domestic aquaria that have sawfish. And I
4 think, perhaps, this can be looked into a little
5 closer.

6 I might note that they didn't have that
7 problem in the Bahamas, but they did have the problem
8 at some of our U.S. aquaria.

9 MS. MORRIS: Thank you.

10 MR. BROWN: And I think we also have an
11 opportunity to reach out to the State Department to
12 help with Cuba, Bahamas, and Mexico, and our dealings
13 on these recovery plans. That's it.

14 MS. MORRIS: Thanks, Columbus.

15 Heather is going to have a steller sea lion,
16 western distinct population.

17 MS. BRANDON: Thanks. Just standing up so
18 you can see me down there, hear me. This population
19 has 82 recovery actions, 70 were started, 10 not
20 started, and 2 are completed. In the document, we
21 summarized factors contributing to a successful
22 implementation of the recovery actions, and then,
23 also, challenges. So, I'll just summarize those
24 quickly.

25 Historically, there was incredibly good

1 funding for the species, which then resulted in the
2 capacity and capability within the research community.

3 And there is also good rapport between the federal
4 government, state, academic, and private researchers,
5 and co-management with native groups is also very
6 strong.

7 The challenges, many of which are outside of
8 the control of NMFS, include working with the state of
9 Alaska on certain key actions. They're a strong
10 partner on some actions, but not on others, including
11 when developing a habitat conservation plan. The
12 state has not done that, and does not have plans to do
13 that.

14 NMFS staffing dedicated to the recovery plan
15 is minimal right now. Long-term resources are
16 unpredictable. The recovery plan has no
17 implementation plan, and there are no tools to track
18 trends at a landscape scale. And, finally, the
19 biggest factor in -- or the biggest challenge is poor
20 weather in the western Aleutian Islands, which limits
21 monitoring and research actions.

22 MS. MORRIS: Thanks, Heather. Next, Paul is
23 going to talk about sperm whales.

24 MR. CLAMPITT: Okay. Thank you. Let me just
25 say, so you can first understand that the first part

1 of the recovery plan, the final recovery plan, to move
2 on with my report. There is an estimated 300 to
3 450,000 sperm whales worldwide. And it states in the
4 downlisting criteria that it will be considered when,
5 given the current project threats and environmental
6 conditions, the sperm whale population, in each ocean
7 basin in which it occurs, satisfies the risk analysis
8 standard for threatened status, and the global
9 population has at least 1,500 mature reproductive
10 individuals consisting of at least 250 females and 250
11 males in each ocean basin.

12 So, I interviewed Mr. Greg Silver, who is
13 one of the authors of the recovery plan, and he
14 acknowledged that sperm whales were doing quite well
15 worldwide. There are 48 recovery actions, and only
16 two are partially completed. The problem is that the
17 recovery actions are designed for completion in a,
18 quote, "perfect world", which means a world with
19 unlimited resources.

20 Even though it is acknowledged that sperm
21 whales are doing well globally, except for the
22 Mediterranean Sea, it still has to be proved that
23 there would be many -- it still would have to be
24 proved that there would be many environmental
25 interests which would challenge any finding that would

1 delist sperm whales in court. In order to delist
2 sperm whales, protective resources would have to do an
3 extensive population study and also show that their
4 population is increasing.

5 In the sperm whale five-year assessment, it
6 states that this would take eight years and
7 \$173,900,000. So, the reality is the protective
8 resource would -- and I understand this -- would
9 rather spend their time and resources on species that
10 really need help, like the monk seal. It takes -- it
11 takes us more -- it takes more effort to remove an
12 animal from the endangered species list than it does
13 to list them in the first place. The sperm whale is,
14 basically, on the back burner.

15 MS. MORRIS: Thanks, Paul. And then Terri
16 is going to talk about white abalone.

17 MS. BEIDEMAN: Yes. I know absolutely
18 nothing about white abalone, and so, it's very
19 interesting to me. Pam Yochem sat in on it, and she
20 was very helpful. And, without Heidi's terrific
21 notes, I would have been lost. But, I interviewed
22 Melissa Newman, who is the abalone recovery
23 coordinator for NOAA, out of Long Beach, California,
24 so we have a bicoastal group on there.

25 But I learned a lot about it. I found from

1 her conversation that, when it was originally
2 finalized in 2009, that a lot of their concerns had to
3 do with habitat, and habitat degradation, and forests,
4 and things like that. And, she said that she felt
5 that most of the habitat concern within U.S.
6 jurisdiction had been addressed by several marine
7 protected areas that were primarily put in by the
8 state of California, but some -- there was some
9 overlap.

10 However, that is not the case with the
11 straddling Mexican area, which is the issue that kept
12 coming up, is we can do what we want here, but we
13 don't have a lot of control there.

14 Anyway, so, so, because of that, they know
15 that they have not been reproducing in the wild. So,
16 captive propagation for the species is the chosen
17 route. And they had initial ups and downs, but they
18 have now, they believe, 3 or 4,000 on the path to
19 being eventually outplanted -- new term for me -- and
20 they're in the growth process. Because the population
21 estimates were a little bit pessimistic initially, it
22 gave them a little more time.

23 Funding, of course, and staffing, as always,
24 seemed to be a prevailing theme. And they're learning
25 a lot from activities that are happening like in

1 Washington state and other states to do with other
2 species of abalone, although they don't know at this
3 point, and they still need to do more genetics on
4 whether they could be completely correlated. They
5 seem to be learning a lot, and one of them was don't
6 put them out there too soon.

7 So, they intend to hold on to and grow them
8 until they're at least four years old, which is about
9 40 millimeters, I think, if I wrote that right. So,
10 the problem that they're coming up with, besides the
11 Mexican border issue, which is, you know -- they had
12 described problems with data sharing, with public and
13 private entities that view work products as
14 intellectual property. And that is slowing down the
15 data exchange.

16 They depend on cooperation with government
17 entities and foreign governments, and some
18 disagreements lead to delays in some of those actions.

19 The genetic work has been intermittent, because the
20 person who was doing it moved on to do other things.
21 And they're outgrowing their facilities to hold these.

22 As these animals get bigger, they need more space.

23 So, they are considering reaching out to
24 aquaculture companies, potentially, to see if they
25 might be able to help in that regard. So, I think

1 that they will eventually grow enough of them. What
2 happens when they put them out there? We won't know,
3 and how El Niño and other climate things in the
4 Pacific would have an effect.

5 But clearly, trying to work with other
6 governments is going to be -- because the population
7 is harvested, to some degree, in Mexico, and
8 the -- they did -- she said that they did this -- it
9 took a long time. They got all the permits. They
10 decided they were going to do a survey of some sort.
11 They went down at the last minute. The government of
12 Mexico said -- changed where they could be, and where
13 they went, they didn't find one single abalone. So,
14 they think that maybe that was rigged a little.

15 But anyway, it was very interesting, and I
16 appreciated Pam's help on that. I did get through all
17 27 of the actions, but I learned a lot, so --

18 MS. MORRIS: Okay. Then I'm going to talk a
19 little bit about Middle Columbia Gorge steelhead
20 trout, and then, direct you to some of the tables in
21 the document that summarize some of the crosscutting
22 themes.

23 So, the Mid-Columbia steelhead trout has a
24 strong team that's working well together. They have a
25 lot of support and buy-in on specific recovery

1 actions, from local entities in the area. They're
2 going to an update and review of those -- of their
3 plan and their actions, which is great, and trying to
4 set new priorities. And they have had a lot of money
5 from the Bonneville Power Administration to implement
6 many of their recovery actions.

7 So, those are all the really positive things
8 that are going on for steelhead trout. The downside
9 of all the local buy-in is that the initial recovery
10 plan was composed of sub-basin unit plans that were
11 assembled in order to draw this money from Bonneville
12 Power Administration, and many of the actions really
13 don't have a strong connection to the recovery of
14 steelhead trout.

15 So, there was a lot of money flowing from
16 Bonneville to these local projects that people wanted
17 to do. Those all got pushed into the recovery plan,
18 but now they're figuring out that a lot them don't
19 really relate directly to steelhead trout recovery, so
20 this reprioritizing, and trying to make this
21 connection between the action and the recovery
22 criteria is a real important phase that they're going
23 through now, that they know more about what really
24 matters in terms of focusing their efforts.

25 They have some disagreements about -- among

1 government entities regarding recovery actions, which
2 slows them down. Funding is particularly hard to
3 maintain for monitoring actions, because they're a
4 little more -- they're just kind of boring, but
5 really, really essential. Sometimes the actions are
6 taken before there is a thorough assessment of where
7 the right way to do the action is. And sometimes
8 they're fixing problems that don't really exist.

9 And some of the sequenced actions, the party
10 responsible for the first step of the action follows
11 through and gets it done, and then, the party that's
12 supposed to -- a different party is supposed to take
13 up the subsequent steps, and then, they drop the ball.

14 And an example of that is there was a dam removal on
15 the White Salmon River. Pacific Corp. was responsible
16 for the baseline studies prior to dam removal, and
17 for the removal of the dam, and so that was all
18 completed very well. And then, the entity that was
19 supposed to pick up the post-dam removal monitoring
20 was not prepared to do that. And so, fish have been
21 moving back into the White Salmon River, and nobody is
22 like monitoring to document what the changes are.

23 So, sequencing is an issue. If you want to
24 look at the table of crosscutting issues, that's on
25 page six of the report. The crosscutting positive

1 issues -- and, there is a number of them. These
2 reduce -- these updates and reviews that are going on
3 are great. There have been management actions that
4 have really helped, that have been completed, and have
5 really helped.

6 In several of the examples, they're stable,
7 well-functioning teams. There is technology advances
8 that have -- that are providing better data on range
9 and movement, and there is good co-management with
10 some tribes, and section 6 cooperative funding is
11 getting a lot of really important research done with
12 the states.

13 And then on page 8, there is a table of
14 crosscutting negative factors from the interviews,
15 jurisdictional issues, funding and staffing levels
16 that are below what is required, this idea of check to
17 make sure the recovery actions are linked to limiting
18 factors, or recovery criteria, when setting the
19 priorities. People need better data on behavior and
20 distribution and limited factors. And it's sometimes
21 hard to get stuff done when it involves a foreign
22 government. Progress can be difficult.

23 And when NMFS -- when NMFS only leverages
24 sort of convincing and -- you know, they got -- they
25 don't have the power to make other agencies do what

1 needs to be done. It all has to be done through
2 successful partnerships, and relationships is a
3 negative factor.

4 If you scroll to the end of the document,
5 there are some pie charts. This is an attempt to look
6 at -- they're very colorful. There is an attempt to
7 look at, sort of, across the seven plans of the
8 actions that were discussed in the interviews.
9 According to their status, did anything stand out as a
10 differentiating factor?

11 And so, we have that analysis for actions
12 that were complete, actions that are partially
13 complete, and actions that are ongoing and current,
14 actions that are ongoing and non-current, and actions
15 that are not started. And the only thing I'll point
16 out there is that compared to the other status
17 categories, not started actions were less likely than
18 the others to be linked to the criteria. So, that's
19 sort of good news. They weren't started. They were
20 not linked to recovery criteria.

21 So, we welcome any questions or comments or
22 suggestions you have to improve the draft report.
23 We're probably going to be finalizing it before
24 December, and so, we'll circulate it again for
25 any -- if we make any -- when we make changes and add

1 conclusions and recommendations, we'll circulate it
2 again, and ask for your comments once more. But is
3 there anything right now that anybody would like to
4 say, suggestions for the subcommittee before we meet
5 tomorrow to discuss it?

6 MR. SHELLEY: I was surprised that I
7 couldn't find the word politics anywhere in here.

8 (Laughter.)

9 MR. SHELLEY: I would say in my two minute
10 speech, that you would have heard something about it.

11 (Laughter.)

12 MR. SHELLEY: I mean, they're so fraught, at
13 least popularly, with politics and political barriers
14 and political tensions, and, maybe, it's sublimated
15 into some of these jurisdictional fights, or in other
16 sort of language in the report. But did you not pick
17 up any politics, in terms of positives or negatives?

18 MR. BROWN: On the sawfish, we did pick up
19 some. There was some challenges in the state of
20 Florida, between them and NMFS staff, in terms of what
21 they were willing to do and not willing to do, or they
22 were very political. So that, was it.

23 MS. SOBECK: Liz, do you want to comment?

24 MS. HAMILTON: I was just wondering if there
25 was one that maybe wasn't in recovery, because the one

1 in the Northwest is certainly that way, and Southern
2 California is. It's the nature of human beings, when
3 you're trying to recover a species, and you're making
4 money on that species, to tighten the reins.

5 MS. SOBECK: Terri.

6 MS. BEIDEMAN: I just wanted to add that I
7 was the second chair, there, for the Hawaiian monk
8 seal, which was the most logistically challenging one,
9 time zone-wise. And kudos for staying late, Heidi.

10 But, in any event, one of the things that I
11 recall is that they had politics among getting permits
12 to cull sharks that are eating baby monk seals in a
13 particular area. And, I actually have heard Donna
14 make some mention about survival of the babies, and
15 that -- I think that there is some politics involved
16 in not allowing those permits to go forward and
17 therefore, you know, that they're not having as much
18 success with that in a particular day. But, I'm sure
19 it's in more detail in the report.

20 MS. BRANDON: I guess the way that the
21 interviews were constructed, I feel like they were
22 constructed purposefully to avoid the political
23 discussion, because we didn't interview fishery
24 participants. We didn't interview NGOs. We didn't
25 interview folks who were parts of lawsuits. We

1 interviewed the NMFS protected resources staff person
2 that's in charge of the recovery plan. So, the person
3 I interviewed, she's not to tell me, you know, wow, we
4 had a political fight, and here are the different
5 factions. She's just going to focus on the recovery
6 action, has it happened, or hasn't it. If it hasn't,
7 why hasn't it.

8 And so, you can read between the lines on
9 some of these things and see, like, oh, Alaska doesn't
10 want to do a habitat conservation plan, which probably
11 some politics in there. But, the way that the
12 interviews were constructed, it was not to get at the
13 political. Another issue that -- is that it was an
14 important aspect that we could, you know, do more
15 interviews, or shape what we're doing in a different
16 way.

17 MR. SHELLEY: Well, I guess I was looking
18 for it in terms of lessons learned. We know there is
19 some approaches. The thing is, it's this top-down
20 federal actions that are happening, and go in at a
21 very local, land-use -- I mean, not in a bigger area
22 of conflict between governments, almost in the statue
23 of limits that it sets up. And I was just interested
24 in are there any lessons to be learned, or things that
25 seem to facilitate that action in political terms, or

1 that tend to aggravate sort of the natural political
2 tensions that are there.

3 MS. MORRIS: Okay. So we'll talk about that
4 tomorrow afternoon.

5 MS. SOBECK: But it's kind of hard, you
6 know, in 90 minutes to get into all the subtleties.
7 And, one thing, I -- I mean, it will be interesting to
8 see how this all plays with our new campaign, because
9 how do we use northern right whale as -- you know, I
10 don't think that individual local entities could
11 change an IMO's policy. That we would expect, you
12 know, a coalition, including NOAA, really working with
13 the Coast Guard and IMOs to change the rules.

14 And I think that -- maybe I'm wrong, but I
15 think that that helped in going to the fishermen to
16 try to get the gear rules changed, because it wasn't
17 just let's go to -- let's speak with fishermen first.

18 It was like, yeah, let's deal with ships' rights
19 because we know that's killing animals.

20 And so I think --

21 MR. SHELLY: No. That's a good point.

22 MS. SOBECK: You know, I think they can --

23 MR. SHELLY: That's a good example.

24 MS. SOBECK: I mean, I think, right, the
25 political dynamic is there. It's hard to know how it

1 plays. But I did like your -- Julie, your chart, your
2 matrix, and, you know, things that were barriers,
3 because I do think that when we're not focusing on
4 everything, we can focus on a few things, we can go to
5 specific states, we can elevate certain things, we can
6 try to -- you know, we do -- we, NOAA, NOAA Fisheries,
7 we do have a very robust relationship with the State
8 Department.

9 Each individual protected species recovery
10 plan occurs -- that -- might not. But we as an entity
11 do, and so we can prioritize some of these things and
12 maybe make more progress than individuals were doing,
13 doing it themselves. So, I think identifying those
14 categories of barriers, and where they come up in
15 particular cases, can be helpful. Again, will we be
16 able to do it for all species, for all recovery plans,
17 all at once? Probably not. But I think it's a
18 helpful guide, maybe, to assess that in our view, spot
19 light species.

20 MR. MERRICK: Can I just annotate that,
21 since I was involved with respect to the right whale
22 discussion? I would -- I have never been involved
23 with an ESA discussion that was more critical. It was
24 in the White House. We had the President's economic
25 advisors coming to us and telling us how to analyze

1 biological data. What I thought was great through all
2 that was that the agency stood behind us. They stood
3 for science. Congressman Rohrabacher just -- he could
4 have done anything else, and I don't care. But he
5 stood up to the White House for us. And that's why it
6 seems pretty cool it went through.

7 That's pretty cool. And Sam was there. And
8 Sam was, And I was just out in the field, and I see
9 these people doing these great things for us. So,
10 yeah, there is politics. But the agency has really
11 shown that they did a good job when it came to
12 conservation work.

13 MS. SOBECK: And it's in everybody best
14 interest to turn these species around and get them to
15 be successes. So, yeah, that is a big -- that is a
16 big winner.

17 MS. MORRIS: Any other comments or
18 suggestions for the committee's further development of
19 the draft document?

20 (No response.)

21 MS. MORRIS: Well, then, thank you, and
22 we'll be back on Thursday to tell you about next
23 steps, right?

24 CHAIRMAN RIZZARDI: And this will be the
25 subject of --

1 MS. MORRIS: Right.

2 CHAIRMAN RIZZARDI: -- protected resources
3 and committee dialogue tomorrow.

4 MS. MORRIS: Tomorrow, that's right.

5 CHAIRMAN RIZZARDI: Thank you, Julie.

6 MS. MORRIS: Sure.

7 CHAIRMAN RIZZARDI: Okay. We have one item
8 left on the agenda, and it is the return of Roger
9 Griffis, who, at this point, is becoming a MAFAC
10 regular. He is the Climate Change Coordinator for the
11 Office of Science and Technology. He is a marine
12 ecologist by training. And, today, he's going to be
13 updating us on his climate change science strategy, by
14 giving us some insights into the role that our own
15 task force has played on that process. And, of
16 course, Roger has also been key staff advisor to that
17 group as well. So, thanks for joining us again,
18 Roger.

19 MR. GRIFFIS: Great. Thanks very much,
20 Keith. Thank you all for staying, staying awake. I
21 know the room felt a little warm. It gets cooling,
22 and hopefully -- I understand I stand between you and
23 perhaps some cold beverages and some celebration. I'm
24 going to keep this short and sweet. I want to begin
25 with a thank you. Thank you for a rich conversation

1 about this important topic of resilience, resilience
2 of the resources we're charged to take care of and the
3 people that depend on them.

4 Much of that thinking, and much of the
5 conversation that you all had today, was much of the
6 thinking that went into the agency to decide two or
7 three years ago, for Richard Merrick to charge us, and
8 challenge us with developing a climate science
9 strategy to try and identify what were the information
10 needs that this agency needed to help resources in the
11 communities that depend on them to be resilient.

12 So, I really echo with what you were talking
13 about today. And, really, the rationale echoed the
14 rationale that you all talked about today, that the
15 world is changing. There are tremendous growing
16 challenges for doing our job, NOAA Fisheries. And the
17 impacts are real.

18 We talked about some of those today, from
19 changing productivity, shifting distributions,
20 changing abundance, and changing fisheries, that there
21 is much at risk, both the resources themselves and
22 those that depend on them in all different ways, and
23 those impacts are expected to increase with continued
24 projected changes in the climates -- in the planet's
25 climate system.

1 So, much of what we're looking at today on
2 the West Coast, with the droughts, for example, and
3 the increasing ocean temperatures, are the kinds of
4 situations that we're probably going to be facing more
5 of into the future.

6 So, the challenge for us, as you recall, was
7 to identify what is the key science, what is the key
8 information and tools that the agency needs to do its
9 job in a changing world. That was the foundation by
10 which we developed the climate science strategy, and
11 it was built to address these three key questions that
12 we heard from managers, whether it be protected
13 resources, or fisheries, or councils. They wanted to
14 know answers to these three things. And it was
15 interesting to watch today from the conversation,
16 through Wendy's presentation and others, that these
17 were many of the same key questions that were
18 identified.

19 What is changing? Why is it changing? And,
20 of course, you may not care why, but you got to know
21 why if you're going to get to this one. This is the
22 tough one, and this is the crystal ball that everyone
23 wants, is, well, how will it change? What should I
24 plan for five years, ten years from now. And then,
25 obviously, the big question that we've wrestled with

1 today is, well, how do we respond. What -- how should
2 we respond? How capable, as Julie said -- is our
3 management system capable of even taking the
4 information in and determining and taking that action.

5 So, that was the foundation for development
6 of the climate science strategy. Its goal is to
7 increase the production, delivery, and use of that
8 climate-related information to put us in a position of
9 taking action and supporting climate-ready decisions.

10 It identifies these seven key objectives to meet our
11 information requirements, and its intended use,
12 obviously, is to guide development of our own science
13 enterprise at national to regional levels.

14 But, but by that, we mean our partner
15 science enterprise, as well, Sea Grant, for example,
16 being a key partner in that science enterprise,
17 academia, as well. So, we've worked backwards from
18 the orange back towards me, saying, well, what
19 information would we need to manage fish stocks in a
20 changing climate. How about protected species? How
21 about aquaculture actions? What is the key
22 information that those decision-makers are going to
23 need?

24 And based on that, we identified seven key
25 elements, or information areas, that are really going

1 to be needed, and they're embodied in the climate
2 science strategy, and they're laid out here in this
3 lovely pyramid, which you've seen before.

4 And it's interesting. We talked about
5 almost all of these today. You look at Patrick's
6 discussion of shifting distributions and the
7 allocation challenges that that set in motion.

8 We're talking about being able to track the
9 change of the -- in distribution here, maybe even
10 having some early warnings to know how things might
11 change in the future, building on that to talk about,
12 well, how do we know what the mechanisms of change, so
13 that we can have more robust projections of what might
14 happen to lobsters in the Gulf of Maine, say, 10 to 15
15 years from now, when those diseases and other things
16 that seem to have wiped them out in Long Island Sound,
17 will they be creeping North with the changing
18 temperatures?

19 And then, enabling the management side to
20 use that information in more sophisticated
21 science-based advice tools, like robust management
22 strategies, or scenario planning.

23 So, like, we're launching a three-year
24 project in the Bering Sea right now, to play out
25 different types of emission scenarios, i.e., what will

1 the world look like under different emission
2 scenarios? What will the Bering Sea look like under
3 those different scenarios? What will the stocks look
4 like under those scenarios? And then, enable us to
5 play out different management responses, so we can say
6 back to the North Pacific Fishery Management Council,
7 under these scenarios, here is how this management
8 plan -- this management strategy might work, this way
9 or that way.

10 That's the kind of sophisticated management
11 scenario planning that we really need to be able to
12 do, and then, being able to incorporate that
13 information into the reference points we use, so that
14 we're managing towards the ocean that actually exists
15 today, or tomorrow, or ten years from now, rather than
16 doing stock assessments and managing for stocks, or
17 oceans, that, in fact, no longer exist.

18 So, those are the seven goals of the climate
19 science strategy. If everything works right -- and,
20 of course, we got the resources we need, and the
21 partners we need, this would enable us to do better
22 tracking of the changes and provide early warnings.
23 You heard about the 2012 warming event in the Gulf of
24 Maine. Ted is very familiar with the lobsters,
25 remember, came early and molted early. That event was

1 very predictable.

2 If you look back, we have the data and
3 information. We could have forecast that in December,
4 and we could have provided the early warnings. And,
5 in fact, out of that event, a number of partners are
6 developing an early warning system for the Gulf of
7 Maine, so that we can provide six months heads up
8 early warning on those kind of situations, in the
9 future.

10 We should be able to provide increased
11 understanding of what is vulnerable and the mechanisms
12 of change, and use that to do much better forecasting
13 and projections, so that the industry can plan ahead.

14 Maybe they need to shift ship type. Maybe they need
15 to shift where the processors are going to be. We can
16 do a much better job on forecasting and projections.
17 We can build the information into our reference points
18 for climate-sensitive assessments and reference
19 points, and play out scenario planning in a way that,
20 that we really should, looking into that crystal ball.

21 I believe that by doing this, we can reduce
22 impacts and increase the resilience for many of our
23 resources in the communities that depend on that.

24 The next step is to actually make this real
25 on a regional basis. So, right now, we've launched an

1 effort over the next year to develop regional action
2 plans that take this strategy and customize it for
3 each region, so that each region within the next
4 seven -- six months is going to have a customized plan
5 that says, for us, on the West Coast, or the Gulf of
6 Mexico, or the Northeast, here are our strengths, here
7 are our weaknesses, here are our priorities for doing
8 this strategy in this region.

9 Because each of these regions, as you know,
10 is facing a -- its own combination of climate-related
11 impacts. They're at different levels of capability.
12 And so what we're trying to do, what we're asking them
13 to do, is develop their customized regional action
14 plan, so that, within a year, Eileen and others in the
15 agency can say, we know exactly what is needed to do
16 this in each region. We know exactly the steps we'd
17 take. We know the science we need. And we can also
18 have our partners lined up to help us do this from
19 academia and NASA, to the Department of Defense, and
20 all kinds of others.

21 That's the vision, and that's the dream of
22 why we're doing these regional action plans.

23 It obviously also makes it a lot easier for
24 us in clearly talking to the Congress, and others,
25 about how much it's going to cost, and what it's going

1 to take to do this. So, that's what is going on now.

2 Part of what I was supposed to do is also say thank
3 you to the climate task force for all your help in
4 shaping the strategy. Your comments were very useful.

5 We're hoping you will help us also look -- review the
6 regional action plans and help us engage partners as
7 those become available.

8 Right now, our science centers and regional
9 offices are leading drafting teams for each of the
10 regional action plans. They've engaged the councils,
11 and others, in doing that. We anticipate draft
12 regional action plans in the January or February time
13 frame. Those will then be available for public
14 comment.

15 We're hoping, at that time, you all might
16 help us really engage both the science folks, folks
17 involved in the science enterprise, but also the folks
18 on the management side, and the industry, to help us
19 refine these, so these are the best possible roadmaps
20 for the kind of information we're going to need in
21 each region to enable the kind of decisions that you
22 all were talking about today.

23 So, that's where I wanted to take you, an
24 update on the strategy, remind you what it was about,
25 where we are on the regional action plans. I'll give

1 you one highlight, a couple of highlights. They're
2 being done in very similar ways. The Southeast is
3 actually holding a major workshop for 75 experts from
4 science and management, in about two weeks, to help
5 identify the key science needs and priorities in that
6 region. Others are taking a little bit different
7 tack.

8 It's quite challenging because that region
9 obviously includes some of the Gulf of Mexico, the
10 Caribbean, and the Southeast, but that's just one
11 example of the kind of efforts underway to develop
12 these regional action plans.

13 To date, we've had a tremendous response.
14 Our federal agency and state agency partners are
15 really quite interested in this. Many of the
16 needs -- I'm looking at state, state folks. Many of
17 the needs that are identified in this strategy, in the
18 action plans, we think are going to be useful to you
19 all as well.

20 And, I think I've covered most of this. The
21 idea is to customize, inform our future efforts,
22 develop them, expand the partnerships, and really
23 leverage the resources, and they'll be final by next
24 October. But the key step here for you all is to help
25 us in this time frame, in early 2016, help us take a

1 good look at these, help us engage other partners, and
2 I think I'll stop there. Thank you very much.

3 CHAIRMAN RIZZARDI: Thank you, Roger.

4 MR. GRIFFIS: And I do have copies of the
5 reader's digest version of the strategy here. They're
6 over on the back table there. Thank you.

7 CHAIRMAN RIZZARDI: Any questions or
8 comments from the members?

9 MR. SHELLEY: Roger, this feels like an
10 agency-driven process, which I like. I think it's at
11 the right proper level, you know, this regional level.

12 Some of these regions have two councils. Some of
13 them have single councils. Some of them -- I'm
14 interested to know what you see the role of the
15 councils, or the state fishery management processes,
16 in this process. Are they -- are they roles of
17 commenters? Are they going to have jurisdiction over
18 elements of it? How do you see that relationship
19 working over the next year?

20 MR. GRIFFIS: Well, part of the goal here is
21 to strengthen and build the kind of science enterprise
22 at each region that it's going to take to do this.
23 Some regions have a very strong science enterprise to
24 do that. That is, the science community and the
25 academic science community and the federal agencies

1 are in synch, work well together. It's a well-oiled
2 machine. In others, it's really not.

3 So, part of the motivation here is to enable
4 all of those that are part of that science enterprise
5 to come together and say, well, we think this is a
6 priority, and here is the role we play in that. So,
7 clearly, this is a climate science strategy. We're
8 trying to build science capability. But the other
9 side of it is we've got to make sure it's ground truth
10 in the -- what -- in the management needs, and what
11 the management side feels are the priorities for that
12 region.

13 So, we wouldn't -- it wouldn't work so well
14 if we ended up with a regional action plan that
15 focused on, you know, ocean acidification in the Gulf
16 of Mexico. If that wasn't a key issue, then the
17 managers, they haven't thought it was a key issue.
18 So, to answer your question, I think it's critical
19 that we have the science enterprise writ large,
20 involved in developing this. There is no way we can
21 come out the other side with a mobilized science
22 community without that.

23 But I think we've got to have the management
24 community involved, too, partly to help advance that
25 conversation that Julie was pushing us on about what

1 might be needed on the management side to be taking
2 all of this information in and using it effectively,
3 both helping guide what are those priority actions for
4 each region, but also, I think it's beginning to move
5 the whole community, science and management, forward,
6 and saying how are we going to do this.

7 Science may be great, but if we're still in
8 a position where we can't get it to the right place at
9 the right time, and have a system that's responsive
10 enough, we will have failed.

11 Richard, did you have something to add to
12 that?

13 MR. MERRICK: You know, I've told centers
14 that this is the plan that they develop with the
15 regional office and the council. This is not a plan
16 that they, in the regional office, develop and send to
17 the council for their review. I think the reason
18 Roger insisting that is; they need to get ownership of
19 this from the very beginning, recognizing that we need
20 to understand what they need. But they also need to
21 recognize, like, from what all we've heard this
22 morning, that it's a big task in there for them, as
23 well.

24 No point in doing regulatory science on
25 changes in distribution if they're not in a position

1 to then use that in management.

2 Peter, do you have anything to --

3 MR. SHELLEY: No. And then, we get in that
4 context. I'm thinking of the -- you said the Newman's
5 council's angle of priority study process that they're
6 doing right now. This, I don't think, is on it. So,
7 you know, there is a potential disconnect there.

8 MR. MERRICK: The priorities in process are
9 very different than something that will be in this.

10 MR. SHELLEY: Yeah.

11 MR. MERRICK: But they don't recognize the
12 need to deal with changes in distribution. They don't
13 have that as a priority. Then they are really missing
14 something.

15 MR. SHELLEY: And I think they have a
16 valuable staff. I'm just curious how you see it, you
17 know, working on --

18 MR. MERRICK: We're sort of laying the
19 regions on their own sort of context without telling
20 them, so if you look at the South, the Southern part,
21 where the Caribbean, the Gulf, and the South are all
22 coming together, that's very different than what we're
23 seeing, for example, in the West Coast, with the two
24 centers and the one council are working together. All
25 of a sudden, we're going to be in December, okay.

1 MS. SOBECK: Just keying off of that, you
2 know, we've had a lot of -- a lot of planning
3 pressures and prioritization pressures on our regions
4 and science centers. And once they do these
5 exercises, then we pull them all together. And I
6 don't -- I don't actually blame them. I think that,
7 you know, they're reeling -- this is more other duties
8 as assigned. And I think, you know, we've done it
9 with -- I don't know. Fill in the blank.

10 MR. MERRICK: BFM is there.

11 (Simultaneous discussion.)

12 MR. MERRICK: They actually all fit
13 together, but it's not easy for people to go off in
14 different directions.

15 MS. SOBECK: So, I mean, I guess there is
16 no -- you know, it's not a perfect world, and so, my
17 guess is the first iteration of the strategic plan is
18 going to leave out little pieces of these. But once
19 they come up with their regional plans on the county's
20 specific topics, then we need to help them, work with
21 them, kind of make sure that those are all rolled up
22 together and, you know, again, it's not perfect, but
23 we've got to start sometime, and that's where we --

24 MR. MERRICK: A change in the culture, so
25 that you can't do it all at once. If you compare what

1 is happening in Alaska, where they're far ahead of
2 some of the other regions, let's say -- so, all these
3 issues, that we expect more from them than what I
4 expect out of the Caribbean. With the Caribbeans
5 moving ahead, we should be happy.

6 MR. SHELLEY: Yeah.

7 MS. BONNEY: Well, that was my comment.
8 Some of these things seem so overlapping. I mean,
9 ecosystem-based management, stock prioritization,
10 climate change, marine protection, marine special
11 plans, all these agendas that kind of move together.
12 And I get concerned that some of the staff may get
13 just kind of garbage in/garbage out, because you've
14 got so many strategic things on their lists to do.

15 I mean, I would think what ecosystem-based
16 management and climate change -- to me, they're
17 totally linked.

18 MR. MERRICK: They are. They should be.

19 MS. BONNEY: And then what some assessments
20 are going to be as they enter the prioritization of
21 that, it may be driven by some of the findings for
22 what stocks are more at risk because of climate
23 change. So, just it seems difficult when you've got
24 all of these threads, and you're trying to build a
25 rope, and you're kind of depending on who is assigned

1 to what. I mean, national standing to lead the effort
2 of the regions over there, as well.

3 So hopefully, just don't keep throwing new
4 strategic plans on a different topic that's overlaid
5 with something else. And, I guess, at the end of the
6 day, how do you integrate all of those and that it's
7 all about money at the end, I think. I mean, where is
8 the staff resources going to come to take on a new
9 agenda item, when they have all these other things
10 they're trying to accomplish. And I think the stock
11 prioritization is October 2016, as well.

12 MR. MERRICK: Yeah, the central region.

13 MS. BONNEY: Yeah. So that's a big issue,
14 too. So I think you're asking a lot from the people,
15 even in the North Pacific.

16 MS. SOBECK: You know what? I like your
17 rope analogy. You know, I think, you know, some
18 regions have some of those threads better figured out
19 than others. And, you know, they're perfectly okay
20 with people recycling parts of the plan that they've
21 already done. But -- and at the end of the day, it
22 will -- the question is how strong is the rope, and do
23 we really have all of the threads there.

24 On the other hand, you know, if there is a
25 region, or a science center, that has completely

1 ignored the -- hasn't focused on a -- it's doing all
2 the ecosystem-based stock except for it just doesn't
3 have a -- it doesn't have a science plan for the
4 climate element. That's a pretty significant, you
5 know, strand to not have in your rope.

6 And so, I mean, I agree, it can either
7 duplicative and, you know, piling on these
8 assignments. But I do think that it is generally
9 assumed -- and they do see that they're related, and
10 we are encouraging people to not be duplicative.
11 We're trying to let people be organic and flexible,
12 depending on their regions and how they -- you know,
13 how they approach it, and how far. You know, Alaska
14 has one council in one state, and, you know, on the
15 other hand, really high-value fisheries with really
16 powerful commercial interests.

17 You know, I mean, it's very different than
18 some of our other more spread-out -- with, you know, a
19 ton of hassles and ton of states. So, I don't know.

20 MS. BONNEY: Well, I just know I was just at
21 the planning of the North Bering -- North Alaska
22 Science Center on stock prioritization. That was a
23 big chunk of the shoe leather. And they started
24 developing different workers to start to address that
25 issue. And then, knowing that the time line on this

1 is October of 2016, which is an overlap.

2 MR. MERRICK: There is nothing to it. It's
3 a five-year plan.

4 MS. BONNEY: And then I guess my other
5 comment, do you have concern -- I mean, when we went
6 to this -- of what marine spatial planning initiative,
7 which is from 2007. And then Congress kind of said,
8 no way, or we're not going to fund all that effort.
9 Do you have concern about moving down a climate agenda
10 and having similar kick-back from Congress?

11 MR. MERRICK: We've already had it. And
12 I've been on the Hill repeatedly about this, and maybe
13 again. But when I go on the Hill and talk about
14 climate change, I say climate change. And so far,
15 as -- I think there is a changing recognition that, so
16 long as you're not talking about let's stop driving
17 too many cars or putting so much carbon into the air,
18 but talk about what is happening in New England, or
19 what is happening on the West Coast with OA, those are
20 things that the Hill seems to be able to deal with.

21 How do we deal with that, deal with those
22 problems that we've got right? It's clearly that --
23 we have to say something about that. You know, my
24 bigger concern is not so much overtasking the centers.
25 It's getting the centers, the regional offices, and

1 councils, to actually work together. And that is a
2 heavy lift, that getting together. Doing a lot of
3 science to support this is easy, compared to getting
4 the council to change the way that they do framework
5 action so they can respond to advice you're giving him
6 every couple or three years.

7 And they want to do it, but they just don't
8 have the time to do it. And they're used to this
9 structure they've developed that's very awkward. And
10 we've talked about it today. Trying to streamline
11 that is a big deal. That's going to be a real
12 challenge before anything else changes.

13 But, it's also a big challenge getting my
14 people to actually talk to the councils, and get them
15 to listen. A lot of scientists out there think we
16 know better than what the councils or regional offices
17 know.

18 So, the comment I made earlier to Peter
19 about I told the center that they had to include the
20 council in developing the draft for the marine action
21 plans. That was because I'd just had a council chairs
22 meeting, and they all felt excluded, because nobody
23 was talking to them. And I found it clear from the
24 beginning that they were supposed to be there. So
25 Roger and I had this sort of pow-wow and then Roger

1 called and I called people to talk to the center
2 directors, saying they had councils to be part of this
3 process.

4 MS. BONNEY: I mean, at least from what I've
5 seen in the North Pacific, there is a lot of energy
6 and effort going to ecosystem-based management and
7 developing -- what is the terminology?

8 MS. BRANDON: The fishery ecosystem plan?

9 MS. BONNEY: For each one of the regions, so
10 we have one in the Atlantic, and through the Bering
11 Sea. So, to me, this is like it's moving, as to
12 climate science. And so I hate to -- as long as
13 intersect together, I don't think you're going to get
14 too much resistance. But I've seen this totally
15 different. People are going to maybe push back. I
16 don't know.

17 MR. MERRICK: So, you know, we've got Anne
18 Hull and some of the work she's doing already is right
19 where we'd like to see the other centers get to, but
20 that's a clear 10, 15 years away from that. And when
21 I was on the planning in team back in the '80s, we
22 started doing things then in the Gulf in various
23 synchronized teams. That's the stuff that it would be
24 great to see the other councils doing.

25 And they're starting to do it. But that's

1 only really a start. The hard part is we can't hold
2 out the Alaska, the North Pacific Council as being the
3 model for everybody, because the councils have heard
4 them so long, they get turned off. So it's a very
5 delicate walk.

6 CHAIRMAN RIZZARDI: Heidi, could you put up
7 Roger's second-to-the-last slide, please?

8 MS. LOVETT: Sure.

9 CHAIRMAN RIZZARDI: Roger and Richard, will
10 you both be here tomorrow for the ad hoc working group
11 discussion?

12 MR. MERRICK: I won't.

13 CHAIRMAN RIZZARDI: You will not. Roger,
14 can you be here tomorrow?

15 MR. GRIFFIS: What time is that?

16 CHAIRMAN RIZZARDI: It's scheduled for 3:00
17 to 5:00 tomorrow. Because, what strikes me is that
18 second-to-the-last slide. And what the header is, we
19 need to act now to reduce impact and increase
20 resilience. And we spent too much work day talking
21 about resilience. And resilience has been framed for
22 us in pretty much the way you've got it there. We
23 need to be thinking about the resilience of the
24 fishery, the resilience of the community, the
25 resilience of the ecosystems.

1 And, what you've laid out is that the
2 climate science strategy maps very nicely with the
3 discussion of resilience. And I can foresee that
4 tomorrow, in our dialogue, we'll be talking about
5 things where -- like question five in the seven
6 elements, is where are there data gaps, and that ties
7 in very closely with what is in the climate science,
8 climate science strategy. You know, I can see that
9 our committee might send a directive back that to the
10 climate task force to help us get more information,
11 dig in deeper, and come up with some ideas.

12 And I would really like to have the input
13 and collaboration of staff, because one of the things
14 we've also learned through Julie's effort in recovery
15 is how valuable it is to have MAFAC members working
16 hand in hand with the staff and getting some input and
17 feedback on the ways. And if we're not charging along
18 down a path that you guys aren't going to be
19 responding to, or aren't going to be in.

20 So bottom line, it would be really helpful
21 if somebody could be in the room for the dialogue
22 tomorrow, from 3:00 to 5:00.

23 MR. GRIFFIS: I can come back. Thank you.
24 And from what I've seen of the charts that you all are
25 considering of the tasks, it would be -- it would be

1 tremendously useful to have MAFAC help us think
2 through these questions and issues that we started the
3 day on, that Holly framed for us, and Eileen did
4 about, what is resilience, what does it mean for
5 resilient stocks, resilient communities. What can we
6 do to help advance that?

7 And I thought the most interesting part of
8 it, too, I think is by -- and reading the draft
9 materials was -- and maybe, Peter, you touched on
10 this -- was how are our constituencies thinking about
11 the science, and what are the needs from their
12 perspective. I think that would be very useful and
13 inform the kind of climate science work that we're
14 trying to pursue. Thank you.

15 CHAIRMAN RIZZARDI: Thank you, Roger.

16 Any other member comments or feedback?

17 (No response.)

18 CHAIRMAN RIZZARDI: Thank you. It is 5:15.
19 Tomorrow, we will be convening again at 9 o'clock in
20 this room.

21 MS. SOBECK: Yes.

22 CHAIRMAN RIZZARDI: Hopefully, we'll have
23 the noise issues tackled, the air conditioning
24 tackled, and really better things along the way. We
25 have our NOAA reception for retiring members

1 downstairs in the restaurant this hotel. And I look
2 forward to seeing everybody down there shortly, and
3 thank you for an excellent discussion.

4 (Whereupon, at 5:14 p.m., the meeting in the
5 above-entitled matter adjourned, to reconvene at 9:00
6 a.m. the following day, Wednesday, October 14, 2015.)

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REPORTER'S CERTIFICATE

DOCKET NO.: N/A
CASE TITLE: MAFAC Meeting
HEARING DATE: October 13, 2015
LOCATION: Silver Spring, Maryland

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the National Oceanic and Atmospheric Administration.

Date: October 13, 2015

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