
Task Force Meeting

of

1ST LEGISLATIVE DISTRICT ECONOMIC DEVELOPMENT TASK FORCE

*“The Task Force will take testimony from invited guests
concerning the state of the aquaculture industry in the region”*

LOCATION: Wildwoods Convention Center
Wildwood, New Jersey

DATE: August 27, 2015
1:30 p.m.

MEMBERS OF TASK FORCE PRESENT:

Senator Jeff Van Drew, Chair
Assemblyman Bob Andrzejczak, Vice Chair
Scott Bailey
Curtis J. Bashaw
Raymond M. Burke III
Norris Clark
Vicki T. Clark
Joseph Derella
Roy Foster
Barbara M. Jones
Dr. Peter L. Mora
Victor Nappen
Bill Nardelli
Dr. Richard C. Perniciaro



ALSO PRESENT:

Patrick Brennan
Kevin J. Donahue
Office of Legislative Services
Task Force Aides

Eugene Lepore
Senate Majority
Task Force Aide

Hearing Recorded and Transcribed by
The Office of Legislative Services, Public Information Office,
Hearing Unit, State House Annex, PO 068, Trenton, New Jersey



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COMMITTEE NOTICE

TO: MEMBERS OF THE FIRST LEGISLATIVE DISTRICT ECONOMIC DEVELOPMENT TASK FORCE

FROM: SENATOR JEFF VAN DREW, CHAIRMAN

SUBJECT: COMMITTEE MEETING – AUGUST 27, 2015

The public may address comments and questions to Kevin J. Donahue, Patrick Brennan, Committee Aides, or make bill status and scheduling inquiries to Kimberly Johnson, Secretary, at (609)847-3840 or fax number (609)292-0561. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.

The First Legislative District Economic Development Task Force will meet on Thursday, August 27, 2015 at 1:30 PM at the Wildwoods Convention Center, 4501 Boardwalk, Wildwood, New Jersey 08260.

The Task Force will take testimony from invited guests concerning the state of the aquaculture industry in the region.

Issued 08/20/15

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For changes in schedule due to snow or other emergencies, call 800-792-8630 (toll-free in NJ) or 609-292-4840.

TABLE OF CONTENTS

	<u>Page</u>
David Bushek, Ph.D. Director and Associate Professor Haskin Shellfish Research Laboratory New Jersey Agricultural Experiment Station Rutgers, The State University of New Jersey	10
Lisa M. Calvo Aquaculture Extension Program Coordinator Haskin Shellfish Research Laboratory New Jersey Agricultural Experiment Station Rutgers, The State University of New Jersey	15
Michael P. De Luca Senior Associate Director Institute of Marine and Coastal Sciences Rutgers, The State University of New Jersey	21
Elizabeth Haskin Owner Betsy's Cape Shore Salts	36
Brian Harman Aquaculture/Husbandry Manager Atlantic Capes Fisheries	38
APPENDIX:	
PowerPoint presentation, and Fact sheet submitted by David Bushek, Ph.D.	1x
<i>New Jersey's Delaware Bay Oyster Management & Restoration Programs</i> submitted by Scott Bailey Chairman Delaware Bay Shellfish Council	17x
pnf: 1-76	

SENATOR JEFF VAN DREW (Chair): The first order of business would -- I will open the meeting up, and actually will ask to go around the table and for everybody to briefly introduce who they are and what they're about.

And I'm Senator Van Drew; I'm the Chair of this Committee. And I might as well give my opening statement at this point, which is very brief.

It's no secret that there are huge challenges for the 1st Legislative District, but not only for the 1st Legislative District -- for the State of New Jersey, as far as economic development, economic activity, and energy. And we thought -- a number of us -- it would be good to just have some very serious, non-political roundtable discussions on how to approach this: What we could do, whether it was-- Are we training and educating for the right types of jobs that are out there -- which we discussed last time, and we had university professors from all of our universities and colleges nearby -- to what industries are best-suited for the area; how can we enhance tourism; enhance the fishing industry and aquaculture -- which is what today is about. And we are going to continue to move forward with those issues.

Today is about the aquaculture industry; it is something that has long -- for a number of years -- interested me. And what has particularly disturbed me is the simple fact that aquaculture in other states -- that was in relatively the same position as it is in New Jersey -- has exploded and grown, and, quite frankly, is doing better and expanded much more than it has in New Jersey. And that is to a great degree due to the process you

have to go through in New Jersey in order to establish an aquaculture center or aquaculture business.

And, you know, I will again say that you can maintain the environment, you can preserve the environment, you can ensure that we are safe environmentally -- and by the way, aquaculture only enhances the environment. But you can do all of that and yet, at the same time, have a quicker, more thorough, and efficient process.

The process we have now for a new business that wants to enter the aquaculture industry is virtually impossible to achieve, and that doesn't make sense.

So while we've been moving along -- we've done some wonderful things, particularly in academia, these private entrepreneurs who have the patience and have the time -- other areas, other states have literally grown 30 times as much as we have in the State of New Jersey. That's not good. So we need to do better.

At the end of this entire discussion, Assemblyman Andrzejczak and I are going to introduce some legislation that is-- In fact, we might as well, really, discuss that now briefly; and then we can go on and everybody can introduce themselves and speak.

We have two pieces of legislation that we have the drafts for today. And anybody who is interested in looking at them-- They don't have bill numbers yet because we're not in session today, but they will have bill numbers.

And the first piece of legislation would require the Department of Agriculture and the DEP to adopt a joint permit application process.

Now I'm just going to read you a small statement. I usually don't read, but I think this really summarizes it very, very well.

“The Bill would require the Secretary of Ag, in consultation with the Commissioner of Environmental Protection, to develop and implement an Aquaculture Permitting Review Program” -- so it would be one program, one process, a one-stop shop in order to get this done -- “to provide for the coordinated review of any aquaculture project. The Permitting Review Program would provide for a joint permit application for any permit, any approval, any process, any authorization that would be needed/required for an aquaculture project, and would consolidate the process for a joint permit application. The joint permit application includes all of these permits and processes.” And they go into all the different acts that deal with this, and that would be New Jersey Agriculture Development Act, the Pesticide Control Act, Freshwater Wetlands Protection Act, the Coastal Area Facility Review Act, the Water Supply Management Act, the Water Pollution Control Act, the Realty Improvement Sewage and Facilities Act, the Water Quality Planning Act, the Safe Water Drinking Act, the Flood Hazard Area Control Act. This is the point: all of those pieces of legislation, in some way, impact that. So folks almost can never get that done and, quite frankly, not every group is on the same page. And by *group*, I mean every bureaucracy is not on the same page at the same time.

There are currently, now, between Federal permits and State permits, at least a dozen different types of permits, processes, or applications that somebody in aquaculture has to go through. Think about how virtually impossible that is. It's amazing that we have as much aquaculture as we do, quite frankly, in the State of New Jersey.

The other piece of legislation would require the Department of Ag-- Oh, by the way, in that piece of legislation I just mentioned, the Department of Ag would be the lead organization, in consultation with the DEP. The other piece of legislation requires the Department of Ag and the DEP to work together with the Army Corps to come together with a unified, simple, but thorough application process with the Army Corps as well. And this has been done in Virginia. What we are doing is similar to what has been done in states like Virginia and Maryland. And here, today, you're going to hear a little bit on why we need to do that.

So those are my opening comments. We're going to go around the table-- Next we'll hear from Vice Chairman Assemblyman Andrzejczak; and then we'll just go around, and just briefly introduce who you are and why you're here.

Vice Chair.

ASSEMBLYMAN BOB ANDRZEJCZAK (Vice Chair):

Good afternoon. I am Assemblyman Bob Andrzejczak; I am the Assemblyman here in the 1st legislative District, and also Chairman of the Agriculture and Natural Resources Committee for the Assembly. I would like to thank everybody for coming out today.

So far this Committee has been very beneficial. We've been able to not only learn a lot, but also implement a lot of what we gathered, right here, with this group, and really draft a lot of good legislation. And hopefully, we'll very soon have that in law and we'll be seeing South Jersey move forward in the right direction.

I'm very happy to be here today speaking about aquaculture. Being Chairman of the Ag Committee, I have toured the entire state; I've

been to farms, I've been to different operations and, not only that, I've been to the different aquaculture operations as well -- not only the Rutgers facilities, but also the farms down on the bay shore. And it really is amazing -- the potential that we have, right here, in South Jersey.

The struggle that they're dealing with is -- like the Senator said, it's just a bunch of bureaucracy in a way, a lot of red tape. We really need to cut through that and be able to help these people out and help these farmers begin to grow a crop just as any other farmer in South Jersey does.

So I'm happy that not only all of you came out today, but all of our guest speakers came out today as well. And I hope that it will be a very beneficial meeting, and I hope we gain even more legislation, besides these two great bills, out of this meeting today.

So thank you.

SENATOR VAN DREW: Thank you, Assemblyman.

My Chief of Staff, Allison Murphy, who won't introduce herself, but is doing a great deal of the work. (laughter)

And next, Mr. Foster -- introduce yourself.

MR. FOSTER: Thank you.

My name is Roy Foster; I am the President of the Atlantic Cape May County AFL-CIO. I work directly for Electricians Local 351 as the Assistant Business Manager. I am Chairman of the Atlantic County Improvement Authority. This is not my wheelhouse -- this one here -- but you got my attention, especially with the list of the different divisions of the State you have to go through just to get it passed. So it seems like something that would be good, and it shouldn't be that much of a stumbling block.

But anything I can do to help -- I'm honored to be on this Committee. And I missed the last meeting, but I'm here to help.

SENATOR VAN DREW: Peter.

DR. MORA: Yes; Dr. Peter Mora. I'm the President of the Atlantic Cape Community College. Our service area is both Atlantic and Cape May counties. I know the District here, for us, mainly Cape May County -- although the Task Force is broader. But with respect to what we can bring to the table, we are the only higher education facility that has a full-time, degree-granting capacity in the County. We offer associate degrees; we also offer bachelor's degrees to our partners at four-year colleges who would want to work at our site. We do that over in Atlantic City and in Cape May. So we have the capacity here to do four-year or graduate education -- not us, but with senior partners at our facility. Mainly we do associate degree transfer students, as well as any kind of workforce development that would be needed to work for people who are in these kinds of jobs that might be expanding -- who would be needing some kind of certification or something like that, or licensure.

So we are an asset; a 70,000-square-foot facility, totally accredited, and it is right there in Cape May Courthouse.

DR. PERNICIARO: Richard Perniciaro; I'm the Executive Vice President of Planning and Research at Atlantic Cape Community College. I will say that when I was Planner in Lower Township -- which goes back to 1983, I think -- the second day on the job the Mayor picked me up and took me down to the Fish Factory -- the remains of the Fish Factory, down by the ferry -- menhaden plant. I think it was (indiscernible) Industries that owned that at that time. But it was in ruins, and his question was,

“Why can’t we just bring back a fishing industry and a fish (indiscernible) industry, and a growing industry that goes with it?” So I haven’t found the answer to that, now, in 30 years. So it will be interesting to hear.

SENATOR VAN DREW: And that’s why we’re trying to dig in and figure it out.

DR. PERNICIARO: Yes.

SENATOR VAN DREW: I agree with you.

MS. CLARK: Good afternoon. Vicki Clark, President of the Cape May County Chamber of Commerce, representing 800 businesses throughout Cape May County and others that do business in the County. And we’re very interested in expanding work and business opportunity -- diversifying that from the traditional tourism industry.

Thank you.

MR. NARDELLI: Hi, I’m Bill Nardelli of Nardelli Brothers. We are fifth generation, 100-year-old vegetable growers in Cedarville, New Jersey, as well as Vineland. I am a resident of Hopewell Township, and also Ocean City. Both of our facilities are very close to the Delaware Bay, so we are very familiar with the industry and are looking to get it back and promote it. Anything we can do in the form of -- positive for agriculture, we’re all about. And any way we can help, we’d be more than happy to.

I’m honored to be here. Thank you.

MR. BAILEY: Good morning. Scott Bailey, oysterman and commercial fisherman for 31 years, now out of Port Norris on the Delaware Bay. I’m on the Shellfish Council 19 years now; current Chairman. I’m looking to do anything possible to advance the fishing industry in New Jersey and South Jersey. There’s a lot of potential; we just need some help.

Thank you.

MR. BURKE: My name is Ray Burke; I'm from Burke Motor Group in Cape May Courthouse. My family has been in the automobile business here for about 103 years.

SENATOR VAN DREW: That's not long enough. (laughter) (Indiscernible); sorry.

MR. BURKE: You would think we would have figured it out by this time, wouldn't you?

And I also represent Sturdy Savings Bank, where I am on the board; and the Wetlands Institute, where I am Chairman of the Board.

SENATOR VAN DREW: Vic.

MR. NAPPEN: Good afternoon, everyone. My name is Victor Nappen. I currently live in Upper Township, representing the Greater Atlantic City Chamber of Commerce.

Senator, I am now past Chair, but the Chamber has asked me to stay on board; so with your permission--

I think this Committee is doing some very good work, and I am very excited to be here.

Professionally, I'm Vice President of Atlantic City Linen. We are a large hospitality provider in this area, so the work that's being done in this Committee is very important to us.

Thank you.

MS. JONES: I'm Barbara Jones; owner of SERVPRO, Cape May-Cumberland--

SENATOR VAN DREW: Barbara, put your mike on.

MS. JONES: Sorry. Barbara Jones, SERVPRO, Cape May-Cumberland counties; I am one of the owners, with my husband. I'm also a board member for Greater Vineland Chamber of Commerce; board member and Treasurer of the American Bio Recovery Association. Obviously I have a vested interest in the economic development in both Cape May and Cumberland counties, and South Jersey. And I am very happy to be here.

MR. CLARK: My name is Norris Clark. I'm here because I am happy to head up a company that does marketing and communications. We handle the marketing for a number of the large businesses in Cape May County, so we have a big stake there. And also I am very proud to serve as the Deputy Mayor of Lower Township.

FREEHOLDER DERELLA: Joe Derella; Freeholder Director of the fabulous County of Cumberland. This is a very interesting topic for us because we are heavily involved with water activities. When I say water activities: oyster industry, crabbing industry; as well as agriculture. It's the number one producer of revenue in regards to providing jobs in our county. I am also interested in any red tape -- what we can do to cut down on how we get permits and develop economic development, because we have lost about \$1 billion in ratables in our county in the last five years. So we are really struggling.

MR. BRENNAN (Task Force Aide): My name is Patrick Brennan. I am the Legislative Services Committee Aide for this group. So I help make the phone calls and get everyone here. (laughter)

MR. DONAHUE (Task Force Aide): Kevin Donahue with the Office of Legislative Services. I am one of the other two Task Force Aides.

MR. LEPORE (Senate Majority Office): Gene Lepore with the New Jersey Senate Majority Office; and I staff Senator Van Drew for this Committee.

SENATOR VAN DREW: All right. Have I forgotten any other housekeeping? I think we're good, correct?

Please all rise for the pledge of allegiance. (all recite pledge)

I always start my Committee meetings in the State House with that. I can't believe I forgot that here. Thank you.

And we will start-- I hope I will get everybody in the right order. From the Haskin Shellfish Research Laboratory -- Dave, I believe you want to go first, correct?

DAVID BUSHEK, Ph.D.: Yes.

SENATOR VAN DREW: Dave Bushek.

DR. BUSHEK: Thank you. It's-- Are these microphones on? Do I need to do anything to turn them on?

UNIDENTIFIED MEMBER OF COMMITTEE: They're on.

SENATOR VAN DREW: They should be on.

DR. BUSHEK: Okay. It's a pleasure to be here. We're all--

SENATOR VAN DREW: Dave, just keep in mind -- the larger ones are the ones that actually amplify; the smaller ones -- for everybody who has been around, I think you all know that, around the table, the smaller ones are actually recording. All of this is recorded and transcribed.

DR. BUSHEK: Okay. It's a pleasure to be here. I'm here with several of my colleagues. We're going to have one presentation that we'll sort of tag-team on; so that will help us get through a lot of the background

information so that we can get into some discussions, if all of you have questions about aquaculture.

We're going to be talking mostly about aquaculture. I heard *fisheries* and *aquaculture* mentioned; they are often mentioned in that order. I just want to make a point that they are two different activities. Their commonality is that they're both involved in food production -- and that's a very important industry. This country is in a major deficit in its food production, particularly in seafood production. Something on the order of 80 to 90 percent of the seafood consumed in this country is imported, when it could be produced here. Seafood that is caught and produced here is often exported, and not consumed here. We could do a lot to change that.

So I'm going to begin with a couple of slides here, and then I'm going to ask Lisa Calvo, who is our Aquaculture Program Coordinator, to talk. And then she's going to introduce Mike De Luca, who is the Director of the New Jersey Aquaculture Innovation Center here in Cape May. And then we're going to hear from two local oyster farmers -- Brian Harman, who is the farm manager for Cape May Salts, which is run by Atlantic Capes Fisheries; and Betsey Haskin, who will also speak to us, and she owns and runs Betsy's Cape Shore Salts on the Cape Shore.

So if you're not aware of it, there is a bit of an oyster renaissance going on right now. We're going to focus mostly on oysters here; aquaculture is much broader than that, but an oyster renaissance has been going on for almost a decade now, and New Jersey is late in coming to the table to take advantage of it. This has been fueled by the foodie movement, if you will. So there are a lot of -- there is a new generation of food eaters. They're interested in experimenting with different types of

foods, and oysters are something they've become attuned to. They look at eating oysters as an experience. It's sort of an adventure; it's a different sort of aspect to eating food.

It ties in very well with local food movements -- produce food locally; don't spend a lot of money shipping it around the world to get it, you can get it locally. There's an emphasis on sustainability. A lot of the farms have learned how to brand their product very well so it makes it interesting and attractive. It's all part of that experience.

And there's a huge increase in the abundance going on -- not necessarily yet from New Jersey; the potential is there -- but in other parts of the country where high-quality oysters are now becoming available to a lot of the markets.

Many of you expressed comments in your introductions that you're well aware of the history. There is a long history of oyster fishing and, actually, oyster farming in New Jersey. Oyster farming in the United States started in New Jersey; we're the first state to ever lease bottom out for that practice. It has supported more than just the oyster industry. So when you hear that, you should also be thinking about support for marinas, support for transportation, support for restaurants, food processing facilities, and tourism as well. All those get tied in to this kind of an industry.

The way that it worked in New Jersey is, as you can see on that map up there -- let's see if this pointer works -- these black blotches here are the natural oyster beds. They existed in the upper part of the Bay. But the growers realized quickly that if they moved them into the lower area, they would produce a very high-quality product that they could ship off to

market. They did that to the extent that they began to reach their capacity of production on these natural beds. They then had to go out-of-state and bring in oysters from out-of-state so they could even increase their production further.

Well, that was wonderful for many years, until the appearance of something called *MSX*, which is a parasite that attacks oysters. It doesn't attack humans at all; it's not harmful to humans, but it does attack oysters and kills them pretty quickly. In 1957, something on the order of 95 percent of the oysters that were planted in the lower part of the bay was lost. So imagine if you were a farmer and you lose 95 percent of your crop -- that's going to wipe you out pretty quickly.

So we were able to do a number of things to help recover that. And then another pathogen that kills oysters, again, called *Dermo* moved in. So the lower bay up here is no longer productive. Oysters are doing fine in the upper bay because the salinity gradient protects them; its lower salinity protects them from these diseases to some degree. But Rutgers went on to do some other things. Doc Haskin, who our laboratory is named after, in 1962 began breeding oysters. And you can see the results of his hard work here. You don't even need a graph; it forms its own bar graph here -- just putting the two trays of oysters side-by-side. He has about-- We see now, with these stocks, about 90 percent higher survival than if you bring a native stock in and plant it in the Bay. They are highly resistant to these diseases.

We went further -- and we have one of the world's best geneticists, one of the world's best oyster geneticists in our laboratory, Dr. Ximing Guo. And he was able to develop what we might call a *seedless oyster*.

If you have ever eaten seedless watermelons -- how many of you have ever eaten seedless watermelons? Okay, those are oysters -- they don't reproduce, there are no seeds in them. You can't get a seed and plant it and have another plant, another animal. These oysters are similar to that; they don't reproduce. As a result, the ones that you see on the bottom there are nearly double the size of the ones on the top. So the ones on the top are the normal oysters, and the ones on the bottom are the seedless oysters. Those require aquaculture to reproduce. They can't be produced naturally; they have to be produced by aquaculture. They grow faster, they go to market sooner, you decrease all your costs, they can be bred from our disease-resistant lines. All this stuff makes aquaculture possible in New Jersey.

So where we are right now is, these lower grounds are no longer productive because of the diseases that are there. But we have been able to stabilize the fishery. And we've done that through a very rigorous process. We work with Scott Bailey -- who is here today -- on the Shellfish Council, and the New Jersey DEP. And we've been able to stabilize our fishery production at about 80,000 bushels a year. That provides an economic impact in Cumberland County, where the docks are, of about \$3 million, with an expanded impact of about \$18 million to \$30 million to the local economy.

We can do more than that. So what's the growth potential? Well, there are two options to do more: one is to increase the size of the oyster population so that we can harvest more from it. You can't increase the amount that you harvest without harming the population, so you have to increase the population before you can take more. So we have been

working hard on that, and several of you -- Senator Van Drew, for instance -- have been supportive of things like the shell planting and the Oyster Revitalization Program that's focused on increasing the population of oysters.

The other thing we can do is develop aquaculture. And as you heard in the opening comments, there's a lot of potential to do that. Other states are doing it, and we want to take advantage of that.

So what I'd like to do now is to turn this over to Lisa Calvo, our Aquaculture Program Coordinator, to tell you a little bit about how aquaculture is done, and how we do that here in the county.

LISA M. CALVO: Let me just catch up quickly, here.

Well, thank you for having me here today. And what I'd like to do with my portion of this discussion is, sort of, set the landscape of where we are with shellfish aquaculture in New Jersey, specifically oyster aquaculture as it relates to the tri-county area that you all represent.

As a baseline, I'd like to talk, first, about aquaculture. Aquaculture is agriculture; it's agriculture in the water. So we are basically farming aquatic organisms. This farming involves some sort of intervention in the growth process. We are either seeding, stocking, feeding, or protecting from predators.

So a very important aspect of the definition of *aquaculture* and *agriculture* is that farming implies ownership of the stock. So we're coming at it from a little bit different place than a fishery where you have a publicly managed resource. This is actually farmers who start with seed, and grow that seed out.

Okay, so Dave talked a little bit about Doc Haskin and his work to breed selectively disease-resistant oysters. So this is really the basis of the aquaculture that we have here in New Jersey and, really, enabled aquaculture to flourish all over the eastern coast of the United States. So Doc Haskin was really a pioneer in producing these disease-resistant stocks.

So we have a hatchery here in New Jersey; it's a very large hatchery, a public hatchery. It's the New Jersey Aquaculture Innovation Center. Hopefully, many of you have visited. If you haven't, please get together with us and we would love to have you visit. The Center is important for both research and technology, but also for production. We actually produce the majority of seed that the New Jersey growers buy and grow out to market size here in the state.

The process begins with the seed from the hatchery, and the growers will purchase it at 1 millimeter, 2 millimeters, or even as large as, maybe, your thumbnail. And they'll put it in different types of containers. The containers have varied size mesh; so as they're very small, they start in a fine mesh container -- here you see just plastic mesh bags -- and they'll grow them for a year-and-a-half to a three-year period, to market-size.

So it's a very intensive process; it involves a great deal of husbandry. You don't just put them out there, come back in three years, and have your product all beautifully lined up. It's hard, hard work. When the growers are out there, every day, they're washing, they're sorting, they're grading, they're hauling the product off the flats for market, they're really taking care in this -- in this product.

One of the things that's unique about the aquaculture product and different from the wild harvest product is, it's cultureless. Essentially,

the young oysters are tricked in the hatchery to settle as an individual, so they're not glued to one another -- like a wild oyster would form a reef. This ensures the production of a very uniform, consistently shaped and sized oyster, which is cherished in the marketplace.

We have two types of grow-out systems here in the Delaware Bay and in the Atlantic coastal bays. There's an inner tidal situation where we have basically these plastic mesh bags positioned on racks -- secured to racks. *Inner tidal* implies that you can walk out at low tide; the tide ebbs out, and you can actually walk out on these sand flats. And that's when the growers will tend the oysters. This method is borrowed from Europe; it's been around for a very, very long time and has been adapted for our conditions in the lower Delaware Estuary. It's an ideal grow-out situation there. So that's the primary way that we produce oysters here in the lower Bay.

And you can see where that occurs -- just off of the Green Creek area; the blue dot on the map.

Moving up Bay, where you see the yellow dot off the Maurice River, we have a couple of growers who are pioneering subtidal aquaculture in the Bay. So this happens in deeper water, and basically you need infrastructure: You need a vessel to get out to the water, and to be able to lower these cages -- bottom cages or floating cages -- into the Bay. Again, it's the same seed, it's the same length or production cycle. It's just a different means of doing it.

There are about 30,000 acres of leased bottom that's available for shellfish grow-out -- shellfish production in the Delaware Bay. We'd like to see a good deal of this used for oyster aquaculture in the future.

Right now, we have some technological difficulties in terms of innovation and what kinds of systems work for our Bay. While oysters are grown worldwide in a variety of conditions, the Delaware Bay can be a pretty hard and difficult place to grow oysters. So you can't necessarily take a system that works in the Chesapeake Bay and adapt it to New Jersey without much innovation and work to modify and adapt.

So that's where we are. We'd like to see some offshore growth in this industry. There are plenty of places to do it, plenty of leases. We need the innovation.

Either way, our ultimate goals are these distinctive high-quality, half-shell oysters. It's a white tablecloth, high-end, oyster bar oyster; very high-end. So you're getting a higher price for the oyster than the wild fishery so that you can pay for all that intensive labor that you're investing to grow out those oysters.

And our product stands among the best on the East Coast. They're really a beautiful product, great tasting, consistent quality. So we're very proud of our work.

Last week, there was a very special event at the Oyster House in Philadelphia: a partnership between Philadelphia Fair Food, which is an organization -- a nonprofit organization that helps farmers link with markets in the city environment. And we've been working hard to establish a relationship with both Fair Food and the Oyster House. And they had a special week of featuring our local product. There was product provided from six farms -- several of them representing Cape May County -- and basically it was a fundraiser for Fair Food. So they offered two types of platters: a local pearl platter, which included oysters, clams, a bluefish dip,

and some wonderful scallop ceviche; and then a half-dozen local oyster and clam platter.

By Monday -- this began on Monday -- by Monday at 7 p.m. the owner of the restaurant was calling, saying, "This is going way too well. Can you double the product; can we have more by Wednesday morning?" So by the end of the week, they had sold \$6,000 worth of product in just those two menu items. The event was so popular, the customers received the local product so well and were so pleased to have it there -- it was a smashing success. And it just speaks to the potential and the demand of the local product in this marketplace. And New Jersey is so well positioned -- with New York, the Shore market, and Philadelphia market.

Okay -- where we are right now. Let's talk numbers a little bit.

We have one public hatchery -- and that's run by Rutgers University -- that is producing oysters at this time. In 2013, seven farms sold about 1.5 million aquacultured oysters. The average farm gate price was 55 cents per oyster. Direct market prices yielded 85 cents to \$1.25 per oyster. The farm gate value to the farmers was \$860,000. And if you use a standard seafood multiplier of 6, that's nearly \$6 million in extended value.

At the beginning of 2014, there were 16.5 million oysters in production, and the anticipated harvest for 2014 was 3.1 million oysters.

So that sounds good; but if you put it into perspective of what's happening on a larger scale around the country, and you turn south, particularly to Virginia, you'll see our production is really very small relative to what they're doing. This is a chart of Virginia production from 2005 to 2014. The number of oysters sold: 39.8 million oysters sold in 2014. These are just aquacultured oysters, grown in containerized systems. If you

look at our bar, we would be equivalent to the 2005 value. So in just a 10-year time span, they've seen tremendous growth.

I don't know that we can get there; but if we had a production of 39.8 million oysters here in New Jersey, that would put about \$22 million into our local economies. So we're pretty excited about that prospect.

So we see tremendous opportunity here. We're very close to regional markets; this wonderful local food movement is just driving all kinds of interest. In the Delaware Bay, we have wonderful growing waters that produce high-quality oysters with exceptional flavor. Thousands of acres of shellfish leases exist in the Delaware Bay; we just need the innovation to make them useful aquaculture sites.

We have tremendous expertise in Rutgers -- in the Aquaculture Innovation Center. And we have a wonderful cooperative community of environmentally responsible shellfish growers. And that's really great.

I'd like to add to this that it is really a green industry. There's an increasing body of scientific literature; every year we're seeing more and more studies that are demonstrating the value -- the ecological services that shellfish farms provide to the environment. So not only can shellfish aquaculture provide significant economic benefits to coastal communities, they're also improving our water quality and enhancing the habitat of our estuaries. So it's kind of a win-win situation.

We're not without challenges, though. And Mike got the short straw today. So I'm going to pass this conversation over to Mike De Luca, who is going to present and talk about what those challenges are.

SENATOR VAN DREW: Before we move on, I wanted to point out that Curtis Bashaw from Congress Hall is here.

Curtis, say hello to everybody.

MR. BASHAW: Hello. We love your oysters, We use them in all our restaurants, and they're delicious. (laughter)

SENATOR VAN DREW: And Curtis, as everybody else knows, when you do need to speak, the microphone in front of you -- the green button to the right is the one that will put it on.

Also, at this point in time, since we had two presentations, does anybody have any questions for the prior two presenters?

Mr. Burke.

MR. BURKE: Yes, I have a couple questions.

First is, if I understand what you've been saying, the Chesapeake Bay seems to be an inherently easier place -- or a more favorable place to raise oysters. It just probably happens easier there for a number of reasons. If that's the case, is it likely that they will always enjoy the cost advantage over our folks here trying to raise oysters?

M I C H A E L P. D e L U C A: Do you want to address that? (no response)

I think one of the advantages that we have over that of the Virginia growers is the proximity to markets -- Philadelphia, New York; less transportation costs. With the local food movement, you can get fresh product there very easily. And as I think both Dave and Lisa mentioned, the product coming out of the Delaware Bay is far superior than what the Virginia growers are producing. It's a high-quality product, and that's a

reflection of the growing conditions and the growing waters here in the Delaware Bay area and along the Atlantic Coast.

MR. BURKE: My other question is, prior to the parasite infestation, what led people to believe that the lower part of the Bay would be more beneficial to use than the upper part of the Bay?

DR. BUSHEK: So the lower part of the Bay has a higher salt content. There is a little bit of a better food quality there. As soon as you move the oysters down, they begin to fatten up pretty quickly. The fresher the water, the sort of slower they grow, as well, in the upper part of the Bay. There's more expansive area, so you can spread the oysters out as well. And it was ground that was available to be leased -- that was another aspect of that, whereas the upper Bay did not have that.

MR. BURKE: Okay, thank you.

DR. MORA: Jeff, I have a question.

SENATOR VAN DREW: Yes, Peter Mora.

DR. MORA: Yes, thanks.

I noticed on some of the earlier slides -- they talked about local farming connection for this product. We have a nationally recognized culinary academy; it's housed out of our Mays Landing campus, but it can move around if we needed it to.

We do a farm-to-table emphasis over there with the, I guess, more traditional farms that we have around here. It's been very successful for the past several years. We train all our Culinary Institute to be able to understand that wherever they go they need to be mindful of what grows there and how to use that when they are at a different location -- wherever they are going to be in their careers.

Is there any kind of parallel to this, for a culinary program to look at working with these aquaculture farmers? I guess I don't even know what term you use here. I'm just asking a question; I don't know-- We have a resource; I'm asking--

DR. BUSHEK: Yes. So these sort of farm-to-table, or -- I'm trying to think what the fish analogy of that is; there's another--

UNIDENTIFIED MEMBER OF COMMITTEE: Dock-to-fish?
(laughter)

DR. BUSHEK: Dock-to-fish has been done. I would say that it probably took the strongest start over on the West Coast. There's a huge-- In the Pacific Northwest, there's a huge aquaculture industry over there. They wiped out their oysters during the gold rush, and then began importing a non-native oyster from Japan. And that fueled their aquaculture development. But they do clams, and scallops, and everything over there. We could grow into that as well here.

That kind of movement, of farm-to-table stuff-- There's the East Coast Shellfish Growers Association -- which has a membership of about 1,000 farms on the East Coast -- does these sorts of events. And we'd be happy to work with you on that.

DR. MORA: We'd be more than happy to talk with him about that, Jeff. I'm not sure where it would lead, but we do it with the traditional farm-to-table -- we do that now.

SENATOR VAN DREW: Now you have got to adapt a dish.
Vice Chairman.

ASSEMBLYMAN ANDRZEJCZAK: I actually have quite a few questions.

The shell planting -- would that only be beneficial at the northern end of the Bay, or would we benefit from that as well?

DR. BUSHEK: So it would be beneficial in both areas; it would operate in different fashions. In the northern end, it's a public fishery that is a public resource. So it's regulated as a fishery. In the southern end, it would be on private leases, and it would be under the control of the lease owners down there.

ASSEMBLYMAN ANDRZEJCZAK: Also, what would be a significant amount of shell planting -- how much would have to be planted to make a difference in our beds?

DR. BUSHEK: So on our natural beds, we would like to see about a half-million bushels of shell planted annually. We were doing that for a while, from 2005 to 2008, with a federally funded project. That project helped significantly to get us through a period of low recruitment that allowed us to sustain the fishery. Had we not seen Hurricane Irene and Tropical Storm Lee come through and hammer the very upper beds with fresh water, we'd probably still be seeing the benefits of that. So we're looking to try and repeat that program so we can get back to where we were prior to that.

I don't know if Mr. Bailey wants to add anything about the amount of shell that-- He's been very involved in that, with the Shellfish Council.

MR. BAILEY: Well, with the enhancement of the upper beds on a significant volume, we could come back from where we were before Lee and Irene; and increase the production, probably, 50 percent or more with a dedicated, steady program of shell planting, and moving of set down the

Bay once you attain the set on the shell -- which has been proven. And it just needs to be done every year. We've had some little bit better sets, and it's been working out, and it's been proven. I see the oysters coming through my packing house, and I'll see the little bits of shell that have been planted on those oyster shells where they have grown to that planted shell. It's proven, and it's effective. We need to seek the funding for it.

SENATOR VAN DREW: Another question?

ASSEMBLYMAN ANDRZEJCZAK: So after the disease came through and kind of wiped out the beds up north, the new breed that was introduced -- is that more sustainable down south, as far as-- I know aquaculture is being done right there, basically, along the shoreline. But is there potential for, if the shells were planted, would that oyster be able to last out in deeper waters?

DR. BUSHEK: So that's actually a very complicated question to answer, but I'll try and do it as brief as I can.

As we were doing our artificial selection, just the way that any farmer would breed a tomato against tomato blight or anything like that-- We were doing that same kind of artificial selection, where a farmer would take the survivors and breed them again -- that's how that worked. In the natural population that was occurring as well.

But in the upper part of the Bay it was occurring very slowly -- and that process continues in the upper part of the Bay -- because they weren't getting a high exposure to the disease. Where we were doing it in the lower Bay, hitting them really hard and breeding just a very strong survivor, we were able to accelerate that process. So that is continuing in the upper part of the Bay, and if we planted oysters in there they would

continue to spread their resistant genes to the other oysters as they breed and reproduce in there.

In the lower part of the Bay, there are other things that limit it -- predators, in particular, that come in. When they're young there are a lot of small crabs, and worms, and things that can attack the young oysters. As they grow larger, larger things come in -- like skates and rays will come in and eat the shellfish. And if they're singled up -- which is the way that you like them on your grounds -- they're very easy pickings for those sorts of things.

So aquaculture is one way to overcome that. The other way is to do a process called *spat-on-shell* where we would actually seed the large shells with oysters on them so that they're a large object that predators can't get quite as easily.

ASSEMBLYMAN ANDRZEJCZAK: So if you did the shell planting in the southern end, would that be -- or if you gradually did shell planting-- So if you started up north and kind of built that back up again, then worked your way south, would it eventually become sustainable to the point where we would have active beds down in the southern end of the Bay?

DR. BUSHEK: So the beds at the southern end are an extensive form of aquaculture, and they would have to be replanted every time they were harvested. There wouldn't be a harvest limit on them as we do in the upper part. They probably would not persist down there on their own without some active -- very highly active management.

SENATOR VAN DREW: Because of all the predators.

DR. BUSHEK: Because of all the predators. And then if the predators don't get them, the disease pressure down there is very high as well, and could overcome them.

ASSEMBLYMAN ANDRZEJCZAK: How much are other states investing into shell planting? Are other states investing into it, or is it more of a federally funded project?

DR. BUSHEK: No, other states are. I don't know state by-- I know a couple of examples. South Carolina has public shellfish grounds that they plant annually. Virginia and Maryland both have shell planting programs. Maryland, I believe, has a deal they worked out with the Army Corps: whenever a dredging operation occurs, a portion of the mitigation for the impacts of that dredging project goes toward shell planting. Most of that money, or -- I shouldn't say *most* -- a portion of that money, a pretty large portion of that money is going towards restoration -- for habitat restoration, where they're being closed to the fishery and just being planted for shellfish habitat. But another portion of that money is being planted on public grounds where they can be harvested.

SENATOR VAN DREW: I know you've spoken about what's going on south of us. Is there anything going on north of us?

DR. BUSHEK: Yes. Lisa focused on the southern stuff in Virginia because that's where we had that graphic from. But similar things are occurring in Rhode Island and in Massachusetts; Maine is starting to develop quite a strong shellfish aquaculture industry. In Massachusetts, I want to say there's somewhere on the order of 360 farmers in that small state, with much less shoreline than we have in New Jersey. Rhode Island --

I'm not sure what the number is, but it's in the -- it's more than 50; I was going to say around 60 in Rhode Island.

SENATOR VAN DREW: Okay. And I know Mr. Burke has a question before you go on to that.

When you show the graphs -- and I know for a fact, because we've all spoken before, a major problem is the regulatory control. And that's why we have the legislation that we do now.

By the way, just as a side comment. No one should think that legislation is going to be easy to move through -- because it makes the Department of Agriculture the lead agency, in consultation with the DEP, and takes those 12 different -- at least 12 different processes and puts them into one-stop shop -- a one-process, where you would go through all that. Has that been one of the main impediments? From the growers, I hear that it is.

DR. BUSHEK: Absolutely. (laughter)

SENATOR VAN DREW: In fact--

MR. FOSTER: There was no follow-up. He just went, "Absolutely."

SENATOR VAN DREW: I just want to-- Because, I mean, this is-- I wish more-- And this is where -- so, just a slight editorial comment, and then, Ray, we'll get on with your question.

This is where, sometimes -- and more times than we like -- government is a hindrance rather than help. I mean, number one, we all want to maintain -- I said this in the beginning -- we all want to maintain the quality of the environment and the quality of the water. And in fact, if the water isn't good, and the quality isn't high, the oysters aren't going to

do well; they're not going to thrive, obviously. But because of, literally, the regulatory mechanism that exists in New Jersey, it is virtually impossible for this particular industry to really thrive. Those numbers you saw on the bar graph are really telling; the bar graph shows it. And, you know, this is going to be a real labor of love. It's not going to be easy to get through, but we think it's important to start the process -- the legislation does that. We're going to have to continue to work on it.

But you will probably hear -- I don't know how to say this as objectively and gently as possible -- some folks say that it is anti-environmental, or there will be some environmental groups that may be opposed to the legislation. There's no reason to be opposed to the legislation. There's a difference between maintaining the environment and stopping all commerce and business. And we have to make sure that we don't do that.

You know, I can remember years ago -- and Vicki, you've been around long enough to remember -- it isn't that way so much now, when there were groups that were against beach replenishment. Now we find that beach replenishment is also habitat; that's made a big difference, and it's helped a lot and has really advocated for beach replenishment and getting those dollars there.

So probably, as we go forward with the process of the legislation that's in front of you, we'll also have to advocate. We've talked about this before -- Norris, and others at other meetings also -- this is a real benefit to the environment and actually cleans -- I'll use my terminology -- cleans the water, maintains the environment, and is a good thing to have.

Am I saying anything incorrect?

DR. BUSHEK: No. (laughter)

SENATOR VAN DREW: I just want to make sure before I say it.

With that being said -- Mr. Burke, I know you have another question.

MR. BURKE: Yes. Let me just say, Jeff, that I think from the Wetlands Institute point of view, I think they would welcome this. I think they see the benefit of this project. I don't think you'd have a problem with those folks.

Two things, concerning seed production: Is there any practical limit, at this point, to how much seed can be produced with our existing facilities?

DR. BUSHEK: Yes. We're producing everything we can, and there is a greater demand than what we can produce. It's actually limiting our ability to conduct additional innovation for either other species -- clams, or scallops, or something else -- because of the demand for the seed production right now. We would like to see private hatcheries and nurseries develop.

MR. BURKE: And I think I know the answer to this, but my other question is, do our competitor states have access to this seed as well as we do?

DR. BUSHEK: We can sell the seed to other states, yes.

MR. BURKE: And are you doing so now?

DR. BUSHEK: We do sell some of the seed to other states.

MR. BURKE: And would Virginia be one of those states?

DR. BUSHEK: I believe some is sold to Virginia occasionally.

MR. BURKE: Okay, thank you.

DR. BUSHEK: Having said that, there is an advantage to producing seed locally. And that may change soon, on a coast-wide basis, because these pathogens that attack the oysters can be moved with seed. So there's an emphasis to try and produce the seed locally, and that might become a regulatory issue. If that happens, then New Jersey will be limited to what we have here and we won't be able to import seed.

MR. BURKE: Thank you.

SENATOR VAN DREW: Rich.

DR. PERNICIARO: What happened in Virginia, I guess, is the question. Were there policy changes in Virginia? What exactly made the industry grow as fast as it did? That's the first question.

DR. BUSHEK: Okay.

DR. PERNICIARO: And then a simple one, I think: Is there no potential for finfish farming in New Jersey?

SENATOR VAN DREW: Just to jump in, real quick. The legislation in front of you is modeled after Virginia. So for one thing, I know we very much used, on both pieces of legislation, the Virginia model. It is much more of a one-stop shop; they're not going through 12 different regulatory processes and many, many different statutes. I know that's one of the issues. And you can probably speak better to that, Dave.

DR. BUSHEK: Well, I'm going to let Mike De Luca do that, because you're getting into the challenges and he's going to run through some of those. And it's going to directly answer a number of questions.

SENATOR VAN DREW: And I know, Scott, you had a question as well. So Scott, is it along similar lines?

MR. BAILEY: No, it's just a reply to Mr. Andrzejczak's question about the--

SENATOR VAN DREW: Okay, Scott, why don't you go ahead and reply to the Assemblyman.

MR. BAILEY: Okay. You asked about shell planting. Maryland and Virginia both have an extensive program. If we put in 25 to 50 percent of what they do on a yearly basis, we would increase our production on the wild fishery probably 50 to 75 percent.

ASSEMBLYMAN ANDRZEJCZAK: Do we have a-- Do you have a dollar amount of what this is, put into their operation?

MR. BAILEY: I don't have an exact amount, but Maryland is putting millions into it.

ASSEMBLYMAN ANDRZEJCZAK: Yes.

MR. BAILEY: And they're getting a lot of money from that tag line on the Army Corps of Engineers. And I would like to speak with you and Mr. Van Drew about why we don't have a tag line with the Philly Corps of Engineers, seeking that same money for funding for our Bay.

SENATOR VAN DREW: Well, one of those-- There are two pieces of legislation; one of those legislations would direct the DEP to work directly with the Army Corps, again, on that model -- the Virginia model -- and try to do something.

MR. BAILEY: Thank you.

ASSEMBLYMAN ANDRZEJCZAK: I have one more.

SENATOR VAN DREW: Sure -- Assemblyman Andrzejczak.

ASSEMBLYMAN ANDRZEJCZAK: So basically the Rutgers facilities are the only ones producing shellfish right now, as far as nurseries

and hatcheries go. Is nobody else doing this because of the red tape in the way, as far as being able to start the process?

MR. De LUCA: I do believe that there are some impediments for other seed production and nursery operations to get going. I'm going to address that in my remarks, because there are a lot of questions coming in now about the challenges. And if I can go through those, it may answer some of the questions, and then we can have a general discussion -- if that's okay with--

SENATOR VAN DREW: Okay. Were there any other questions for the previous speakers before we move on? (no response)

All right.

MR. De LUCA: Okay, well, let me just add my thanks to Senator Van Drew and Assemblyman Andrzejczak for the opportunity to be here today.

Again, my name is Mike De Luca, and I direct the Aquaculture Innovation Center that's been referred to. And my role today is to discuss the challenges to expansion of the industry in New Jersey. We've seen what other coastal states have been able to do, and the economic benefits that they have and are reaping from shellfish aquaculture.

Well, why not New Jersey? And I think you've been getting at some of the issues that are inherent here. And so what I would like to do is briefly discuss the challenges; talk about one recent challenge that came up about a year ago, with respect to the Red Knot migratory bird that has some association with the aquaculture industry in the Delaware Bay. And then invite our two oyster growers to come to the podium and provide some firsthand, direct experience that they have had -- examples that they've had

facing expansion of their industry -- the challenges from their perspective; an oyster grower's perspective in New Jersey. And then we'll wrap up with some recommendations, or suggestions, or next steps -- some of which I think you've already addressed in your opening remarks, Senator. So I think you will see some good agreement there.

So one of the key impediments, if you will, or challenges here in New Jersey is that we haven't made shellfish aquaculture a priority, unlike other states -- like Virginia, like Maryland. We need the State government -- either the Legislature, or the Governor's Office, or both -- to establish this as an economic priority for the State. And let me just add too that the comment about environmental benefits is very, very important. This is a green industry, and shellfish aquaculture does provide significant environmental benefits, as was discussed earlier.

A lack of a stable management system: I think a number of you have already hit on this. What we have here in New Jersey is a very complex, confusing process for growers to obtain leases, and permits, and to receive consistent guidance on policies associated with shellfish aquaculture. It's a very, very challenging system to navigate.

Shellfish aquaculture is primarily conducted in the Coastal Zone. There is a lot of competing demands for use of our coastal or near-shore waters: birding, fishing, swimming, boating, and so on. And that is an issue that also has, and continues to be, a challenge to the growth of the industry.

The Senator just mentioned -- or someone mentioned poor water quality. There are a lot of potential suitable areas for shellfish culture, as well as for the development of grow-out or nursery systems, but

the water quality is not such that they can be conducted in these waters. So we need to address that. And I'll have some recommendations a little bit later on each of these points. I just want to lay out some of the challenges, initially.

I think Mr. Burke raised this question earlier. The Delaware Bay, is a very dynamic, high-energy environment. It can be a difficult place to work in, and it does require some novel, or new, or innovative techniques and strategies geared to work in -- unlike other large bay systems in other states.

I just made this point: We do need to work on some gear innovation and development.

Okay. One of the most recent challenges that the industry has faced relates to the Red Knot. This is a migratory bird -- water fowl -- that makes an annual trek from South America to the Arctic each spring -- an epic journey. And one of the major stopovers for this bird is the Delaware Bay where it refuels to complete its journey to its spawning grounds in the Arctic. This bird was listed as *endangered* by the Federal government earlier this year or late last year. And a number of agencies and NGOs raised concerns about the potential impacts of shellfish aquaculture on the Red Knot and its ability to forage and not be disturbed, and its ability to replenish its resources to complete its journey.

And so some restrictions were imposed on the shellfish farmers this year. And rather than me telling you about those, I'd invite Betsy and Brian to come up and speak directly about those -- and a few of the other challenges, particularly with respect to the management system, that they've experienced. And I should mention too that Rutgers did mount a study to

try and identify and quantify the impacts -- potential impacts, I should say, of shellfish aquaculture on Red Knot foraging this past spring. That study has been completed, and we do expect the results to be released shortly -- hopefully in the next few weeks.

SENATOR VAN DREW: Brian and Betsy -- go ahead.

ELIZABETH HASKIN: I'm Betsy Haskin. And I'll tell you a little bit about the Red Knot, but I will start out by saying I'm a small grower; I work by myself, more or less. And the regulations, the restrictions, the permitting is onerous. It's very complicated, it's not clear-cut, it's hard to get clear answers. And to get your way through all the permits takes a lot of time, money; and if you're the only person trying to grow oysters, you don't have that kind of time, let alone the money. I mean, this is not a get-rich-quick scheme. It takes a lot of work to earn your money. And it's worth it, but I don't have money to hire lawyers and people to walk me through a permitting system. And I shouldn't really have to, I don't think.

I work on a Family Riparian Grant, which was -- mistakenly, a lease was put on top of it about 20 years ago. And I still haven't been able to get a Federal permit -- which I need from the Army Corps of Engineers -- because it's taken 15 years since I brought it to the State's attention to finally, just last month, get the State lease removed from my Riparian so that I can now apply for a Federal permit. And then I have to go through all of the other 11 agencies and-- It's overwhelming, quite honestly. So that really is a problem that could be fixed by streamlining, and working with the Department of Agriculture and seeing that somebody helps us get

through the morass of lack of information, lack of clarity that we're kind of floating around in right now.

And then, at the same time, you're asking about hatcheries and nurseries. There are regulations that are very unclear about those. So I belong to a farmers' co-op of three small growers, and we wanted to start a nursery this past summer because Rutgers was looking for people to -- they would like private people to start nurseries and hatcheries so that they can do more innovation and less production. And after looking into it and talking to the DEP, we kind of realized it was just too difficult, and we just backed away from it. We don't have the-- Again, we don't have the time or the money, the resources to sort all that out.

But that is a big -- another big stumbling block. And we could have private nurseries -- private hatcheries, private nurseries in the state, and Rutgers could do more research and innovation. And it would be to all of our benefit.

And then, as far as the Red Knot. Real quickly, I will tell you that that puts a cloud of uncertainty over everything we do, ever since it's been listed. About 10 years ago it was listed as a *State-threatened species*, and certain recommendations came down from the State for us to follow about how, when we go out to our farms, we just go on one path; we don't run up and down the beach; we just -- one path. We stay -- we've moved further off-shore; we didn't take our dogs out there with us to chase birds. We were told to be more careful, and we all were.

Then when it became a federally listed species this past year, apparently those things were all thrown out the window. And while it's a Federal issue and the Federal people have to issue the permits -- it's the U.S.

Fish and Wildlife and the Army Corps -- they consult with the State -- with the State DEP agencies, and the divisions in the State DEP couldn't agree on how to handle it. And we really weren't a part of the process at all. And I feel that it isn't necessarily being-- There's a resolution to this that will protect the birds and protect the oyster growers. And we all have to share the Bay; we care about the Bay, we care about the birds. There is an overlap of about three weeks when the birds are there, when we're there; but it's a high -- it's a time that we really need to be working, so we can't not go to our farms during that time.

What we need is somebody to help the State -- to get to where the agencies in the State work together to help resolve it with the Feds, and to include us, and to include good science. Because I think what's happening is happening behind closed doors, and it isn't always-- Science isn't always being applied to it. And all stakeholders aren't necessarily being brought in, in some constructive way. And so that really has to be helped, and that could be helped from somebody at the top of the State saying, "Look, you guys work together to get this resolved for all of our benefit."

And now-- Sorry, Brian; I talked too-- I took up all your time.

BRIAN HARMAN: My name is Brian Harman; I manage the Cape May Salt Oyster Farm for Atlantic Capes Fisheries. We started in 1997, and we're growing in the same location, now since 1997, on the Delaware Bay Cape Shore.

I don't know if you saw -- a couple of slides ago there was a guy with a shovel. It looked like he was involved in the Salt Flats in Bonneville or something. (laughter) It was actually the Cape Shore this past winter,

and it was completely frozen over -- like two feet of ice -- with our farm underneath. There's a picture right there. Sort of going out to survey the damage, I guess, before you could really see what damage was done underneath. That's just one example of the harsh conditions we have out there.

And I want to, sort of, talk about a couple of things. First, before I get into that, I want to go back to the hatchery issues. For me, one of the biggest benefits to having more than one hatchery locally is I don't have to put all my eggs in one basket. So if I order -- I need millions of seed from a hatchery to be able to plant. And there's going to be mortality out on the farms. So I'm only going to wind up harvesting a fraction of what I purchase. If the one hatchery that's producing my seed has an issue -- which, it happens, because, I mean, we're dealing with environmental factors, and they're live animals. It's much smarter to have your eggs kind of spread out in different baskets, so to speak.

Before Hurricane Sandy there was another hatchery up in Tuckerton which was just starting to get into oyster seed production, and it seemed like he had a good thing going. And then Sandy came through and wiped it out. So since then, we've just been reduced to Rutgers -- which has been doing a great job keeping up -- but it's definitely important to try to make it easier for-- It's also like an entrepreneurial thing. I mean, there are guys right now who want to get started; they've got biology degrees, and they are more than qualified to get a hatchery up and running right in Cape May County. It's just more difficult than you might expect.

I also want to offer-- It seems like the big picture and the big focus today is trying to streamline the permitting process and make it easier

for people to get started in oyster farming. Literally, every couple of months I hear about a new oyster brand; you know, a new name: the *Skinny Dipper* oyster in Maryland. (laughter) It's like a new -- it's a brand name of oyster that just popped up not long ago.

It's happening all the time; there are new farms starting up all the time. Our state is really missing out on that, because we really do have-- The speakers before me have all said it's a really unique product, people love our product. They're not kidding. It's not like any other oyster anywhere. And so it's important that people who want to get into this, they want to work out on the water and produce a sustainable product that's good for the environment to grow -- we need to try to make it easy enough that they're not just going to give up before they even get started, which has been happening.

The other thing is, we've been around since 1997. We've had our own, sort of, different headaches with dealing with regulation and red tape. One example is, we got an ADZ from the State -- which is an Aquaculture Development Zone -- on the Cape Shore for 2012. And right away when we were legal and ready to go, we moved product there, started growing, things were going great -- we had a bad winter in, I guess it was, 2013; it was like the first real bad freeze-up in a while.

MS. HASKIN: Yes, we had two in a row.

MR. HARMAN: Yes. You know, we had big mortality; over 50 percent of our farm was lost because, as you can see from the photos, you know how the tide goes out and everything is exposed. So you try to move your oyster racks down into deeper water so they're exposed less and there's less a chance of freezing.

So anyway, after two years of growing on this ADZ, you're eligible for an extension -- which extends another 700 feet out into deeper water. After that first freeze-up, we were eligible for that extension, and we said, "Okay, great. Let's apply for this, and we're going to move the majority of our farm into that deeper water, and we're going to be exposed less. It's going to help our survival over the wintertime."

We were told it would be a nice cut-and-dry process since we're doing everything correctly, had all our permits, and it's just a simple application. It would be, like, two weeks to a month and we would get our extension.

It didn't happen; there was some sort of impediment. I never really got a good explanation, but we still don't have our extension now. This was before Thanksgiving of 2014 that we applied for it.

MS. HASKIN: It's starting to get close to a year.

MR. HARMAN: Yes, it's almost a year, now.

And we got hit with another tremendously brutal winter last year, as everybody knows. We lost even more product last year -- over, probably, 65 percent of our oysters that were out on the flats.

So, I mean, I don't want to cast all the blame on-- We probably should have had multiple plans; but this was going to be the bulk of our over-wintering plan for the last year. And it just, kind of-- Every time I would call and ask, "What's going on? What can we do to help sort it out or move things along? Can we get some sort of exception or something just so that we don't lose all this product again?"

So anyway, that's just a kind of personal example from somebody who's -- a company that's been around, dealing with this for a

long time. It can still be a tremendous monetary loss. It's sort of hard to get answers as to what direction things are going in and why things are being held up.

MS. HASKIN: It's true. There is definitely a lack of clarity about the situation.

SENATOR VAN DREW: We are going to try to help with that. I realize the depth of it, and I don't want to go into a larger conversation; so much of it is because where we're located within the State of New Jersey, so much of it is a lack of knowledge. You try and educate other legislators from other areas. When they think of economic development, they think of factories, real estate, high-tech, pharma, the financial industry. That's what really the majority of New Jersey thinks economic development is. So it is always a challenge.

And then on top of that, you're dealing with all this DEP bureaucracy, and other bureaucracy, which makes it even more unbelievably difficult. They've even internally tried to work it out, and evidently have been unable, as you know -- I'm not telling you anything that you don't know, you know all this already -- have been unable to actually internally be able to work it out themselves.

It is an example-- And I kind of say what I think. You know, I've been around a long time, so I'm not worried about it at this point any more. It is an example of governmental bureaucratic dysfunction. I'm not saying the DEP is, in its entirety; but this particular area of it has been. And it has been a real problem; we really lost economic development because of it.

I know Assemblyman Andrzejczak has a few thoughts he wanted to share.

Just before he does -- speaking to staff here, what we're also going to try to do-- Besides the two pieces of legislation, which I think-- And please take a look at them and make sure you are comfortable with them; I think you will be -- that it basically creates this one-stop shop, with the Department of Ag working in consultation with DEP, where you go for all of it and then you're done.

Also, doing a resolution. I think, as we listen to this, just saying-- And resolutions, you know -- they matter. They don't do everything that you want them to do, and the intent of every resolution doesn't come to final fruition. But it still has value. A resolution just -- that in essence says that we need to focus more of our resources; if we're really serious about doing this in aquaculture, we need to focus more resources on it. That would be one resolution and one piece of legislation we would be doing.

And the second would be -- and, again, it doesn't mean we can get it, or I can get; and I'm on the Senate Budget Committee. But things are awfully difficult, it's been brutally hard. We know what's going on in New Jersey, and it's going to get harder, and not easier. But we're going to do a supplemental appropriation for dollars for the aquaculture industry as well.

You know, the only way you're going to -- and I'm digressing a second, then we'll go on with Assemblyman Andrzejczak -- people say, "How do you grow the economy?" You don't necessarily have to spend money to make money; but sometimes you have to appropriate money in

the right places in the right ways. So whether, in my opinion, it is appropriating money for something that is proven that it can do really well, and it can produce a unique product -- that literally almost nobody else in the world can produce -- right here in New Jersey to the quality that it has; or whether it's saying New Jersey -- again, which costs money and we haven't done it, and we need to do-- We need to deal with the inheritance tax and the estate tax, and some of the costs that we have in New Jersey and taxing pensions, so that people stay in New Jersey. All of those have financial price tags to them. But they all have price tags that, at the end of the day, reap a greater financial reward. And that's the point, and that's why we should do it.

So we don't know where it's all going to lead, but believe me we're really going to try.

Assemblyman, I know you have some interesting information as well.

ASSEMBLYMAN ANDRZEJCZAK: So not only from the tours, but from today as well, I've come up with a few really good ideas that are really going to benefit the industry.

Jersey Fresh: With aquaculture being a part of the farming industry, you could easily be able to tie -- promoting is one thing that was discussed. We could easily be able to tie aquaculture in with Jersey Fresh and be able to promote the aquaculture industry through those fundings. Now, the problem with that is, Jersey Fresh was once funded at \$1.6 million; and unfortunately it is very successful, and therefore the State automatically thought, "All right, well, they did a really good job. We'll take that funding back now." And they took it down to about \$50,000. So

we're more than likely going to be looking at legislation, as far as bumping that number back up again; and also tying aquaculture and New Jersey Fresh to really promote the product that we have here. And actually, that is going to be really beneficial.

As a State, we really need to invest in not only the promotion, but also the shell planting as well. If you don't plant the shell and you don't grow the beds, you're not going to have a product to be able to promote, right?

So we really need to look at designating money to those two areas. It is an environmentally green industry. The Senator said it: Whenever you talk about bringing new industry into the area -- which we desperately need down this way -- a lot of different environmental groups get really up in arms and they get nervous about what the idea is. This is an idea that is not only sustainable, but it's green; it not only helps out the oyster industry, it is helping out the fishing industry as well by providing habitat and environment for fish even closer inland.

So it really is a win-win industry. I don't see any negatives with it; it is an industry that I highly, highly support. And those are just a few of the ideas I came up with just sitting here. There are many more on the way, and I hope to be able to put a whole package together and put it through my Committee once we get back into session.

SENATOR VAN DREW: Thank you, Assemblyman. It sounds good.

A supplemental appropriation too would be to the Institute of Marine and Coastal Sciences -- just so we know where that would be going.

Mr. Bashaw.

MR. BASHAW: Thank you, Senator. This is a great meeting.
Nice to see you guys again.

I had the privilege of touring the oyster beds last year and going through the hatchery. I believe Norris set it up; and it was amazing to see it. I was curious about it because we're consumers of those oysters and they really are among the best in the country. We opened a hotel on Long Island, and we brought the Cape May Salts there and did blind taste tests. And those Montauk girls don't stand up to the Cape May oyster one bit. (laughter) And it's an exciting opportunity.

I also had the privilege, through Richard Crossley, of touring the whole Red Knot thing. And both of these competing things up on the Bay Shore, for us in the hospitality business, were opportunities for tourism. Because I know our guests would enjoy learning more about the oyster, and then eating the oyster; in the same way that they love coming to Beach Plum Farm and enjoying the food at our restaurants.

Also, the Red Knot is a phenomenon that Oprah did her show on, and it's a fascinating thing -- the whole birding-- It was really sad to get the phone call this winter from an employee of ours whose boyfriend -- or husband, Matt, has one of the small little oyster farms up there. And flagging the elephant in the room -- which was the Federal designation of the Red Knot -- they were passing rules almost on their own that would virtually prohibit these guys from accessing their farms at the exact time they need it. Now, this is after they've made the investment.

And you can't grow a business without certainty. And it was-- I talked to the Senator's office; you guys were helpful. Senator Booker's office jumped in on it. They, in fact, just called me the other day, and I

would share with you guys what they were doing. But it's that -- it has to be figured out so that there is some grandfathering and security for the existing players to be able to access their beds and not have to go through these hoops. It's kind of scary especially for the smaller folks, like Betsy, whose-- You know, she doesn't have time to deal with this. And you know, Lauren called me out of desperation, because her -- Matt--

MS. HASKIN: Matt Williams.

MR. BASHAW: I don't know his last name.

MR. HARMAN: They actually-- I mean, the State did studies on Red Knots, which-- The findings from those studies determined that's the spot he should grow to not affect the Red Knot. And now they're telling him, "You know what--"

MR. BASHAW: It's kind of crazy. I probably spent 45 hours on this myself, just because I care about the business. But a quarterback to facilitate a real dialogue -- you know, get Larry Niles, get you guys in a room and figure it out. I mean, there has to be a way so that Larry calms down and doesn't feel like-- It reminded me of trying to get Congress Hall renovated, actually. (laughter) Because you talk to a fire--

MR. FOSTER: Whoa, whoa, whoa. Why do you have to go there? (laughter)

MR. BASHAW: If you talk to the fire guy, and the only thing the fire guy sees is the fire exit; and then you talk to the preservation people for the tax credits, and all they see is the original material. And you're like, "Guys, I can't satisfy both of you."

And so I think an effective approach here would be to self-- Come up with some locally brokered resolution, and then go back to --

because the bureaucrats, they have a million things to think about, and no one is going to take the time to go through and work out some sort of accommodation. That's the biggest short-term threat I see to you guys. And you know I just want to vouch for what they're saying, because I've spent a lot of time on this myself this winter. And I'm a huge fan of the opportunity of this -- not just from the economic development of having more people put to work, but from the branding of our State, from the tourism opportunities and the spin-off opportunities. I think it's a win-win if we can really get focused on this and help solve it.

MR. CLARK: Senator.

SENATOR VAN DREW: Yes, Mr. Clark -- Norris Clark.

MR. CLARK: I want to re-echo what Curtis just said. This issue is a challenge; it's coming home to Lower Township in a big way. It intersects with our need for beach replenishment, as well as our need to grow an important industry.

The story-- I learned about this; it started with the economic development of Lower Township. We looked around; we figured out that this is one of the bright and shining stars for our region. We figured out that these folks were creating a great product. We figured out that the tourism industry can sell this as a unique experience to help draw people to this area, looking for experiences. We figured out that they could grow, by a factor of at least 10, very easily. I've seen factors of up to 100. So that's number one.

Number two, Sandy comes along. And as a result of Sandy, FEMA was reawakened -- that four-letter word, FEMA -- was reawakened. They came down our shorelines and they redesigned the maps. And they

put most of Lower Township into a flood zone that wasn't in a flood zone, which then made us all feel very insecure about our beach situation. And they talk about economic impact: all those folks along the shore needing higher insurance rates, the value of their homes -- it was huge.

So then we go up to the DEP to see Bob Martin -- the Mayor and I -- and we say, "What can you do to help us out?" He pulls out a map -- the whole State of New Jersey -- and says, "Good news. After FEMA, there's going to be money flowing into the State to restore these beaches." He showed us a map from Sandy Hook right up to the shores of the Bay Shore and says, "We're going to underwrite, through the Army Corps, these projects to restore beaches."

We came back, saying, "Hooray. Folks, don't worry. They're going to restore the beaches."

What happened was, that once they got right down to it, as you know, they looked at the Bay Shore and said, "Hey, number one, you don't have enough economic value in terms of your real estate to really justify the Army Corps project. We have to take care of the folks on the Atlantic Coast. Number two, the Army Corps project that was proposed in 1998 -- the driver for that project was primarily habitat preservation; that's the driver for you. That's the Red Knots; it's for the horseshoe crabs."

And so then, as you know, we called you up and said, "Help. We need to work together on the Bay Shore to preserve this for all the species that live along here, including the humans."

So what I-- Then the next step was, we looked around at the folks who were getting some sand, and we realized that the most successful projects in Middle were, basically, hugging the Red Knots, right? We

hugged the Red Knots, because that's a justification for-- They stopped to make sure they can lay their eggs, eat the eggs that the horseshoe crabs are laying.

So Larry Niles is saying -- what he is coming into and saying, "We want you, Lower, to consider enforcing the beaches to be closed for this month period of time that the birds are going to be coming along here and eating the horseshoe crabs." And what we're realizing is that that's a hook for getting beach replenishment. Now that they're a federally protected species, that's a huge hook that they're dangling out there for beach replenishment.

So it's coming together that we get-- The Red Knots are there; we need to look to them for money for beach replenishment. We also need to look to them-- Importantly, this is part of the character that makes-- You're about to -- you have put in front of the Legislature a resolution to help everyone realize and remember that this Bay Shore is a treasure, a national treasure that we need to embrace holistically.

So what Curtis said was exactly correct. Get through the red tape; get the environmentalists in the room; get the aquaculture folks in a room; get a map, and map out the sections -- what we need to be able to-- It's only a month, or three weeks, where we're looking to keep people off the beaches as much as possible in certain areas so that we can ensure that there's enough landing zones for the Red Knots as they come here.

And what I know is, everyone's of good will. These folks are huge environmentalists by calling. They love the environment as much as anybody, we all know that. And so get them into a room without the red tape and say, "Okay, where are we going to -- how can we work this out?" I

know that it can be worked out. With your leadership and a map you can make this work out so that we can have all of it. We can have the beach replenishment; we can have the Red Knots with safe landing zones; and we can have really great oysters to serve our customers.

Thanks.

SENATOR VAN DREW: Thank you.

MS. CLARK: Senator.

SENATOR VAN DREW: Yes -- Ray. I'm sorry; did somebody call me?

MR. BURKE: Yes, Vicki.

SENATOR VAN DREW: Okay.

MR. BURKE: I'll just be a second, Vicki.

I absolutely agree with you. And, you know, I've been in attendance for a lot of these Red Knot discussions so I understand the emotional -- how charged this can be. But you're absolutely right that the Red Knot really drove the beach replenishment. I mean, that's what really legitimized it in terms of the Federal funds. So you're absolutely right about that.

I still remain optimistic that compromise is possible on this. I think that if you get everybody calmed down enough to talk about it, I think there are ways that it can be dealt with. But I have one question for you, ma'am, and that is: To what extent can beach access be offset by increased water access to your beds? In other words, if you could limit the amount of beach that it takes to service your beds, but you had better access from the water, is that a practical compromise for you?

MS. HASKIN: Not for where I am. And in fact-- You know, I just have a very narrow path; I go in and out. And I do that one time each low tide, each day. So my actual impact on anything on the beach is minimal.

MR. BURKE: Yes.

MS. HASKIN: Because I go on foot, or I take a kayak. So going by boat from where I am really isn't very practical. And I would have to say, I don't think it's necessary because I think the level of -- the level of my disturbance on the beach is very, very small.

MR. BURKE: Okay, thank you.

UNIDENTIFIED MEMBER OF COMMITTEE: It's often less than the number of taggers that are out there, and counters, for the Red Knots themselves. (laughter)

MS. HASKIN: That's true.

MS. CLARK: So, a question: If the red tape and the bureaucracy could be eliminated, what type of economic development opportunity is there for creating sustainable jobs -- year-round jobs -- and are there other complementary products, if you will, that could be developed by enhancing and supporting the oyster industry?

MR. HARMAN: I think-- Yes, for one, just the addition of more shellfish farms, more oyster farms, a larger diversity of brand names. You know, we'll see *New Jersey* on more menus throughout the northeast, New York City -- it's really great to go into a raw bar in New York City or a high-end, white tablecloth restaurant and be able to see *Cape May Salt, New Jersey*. And it actually took a long time for the New York to accept New Jersey, at first, through my experience (laughter).

UNIDENTIFIED MEMBER OF COMMITTEE: That's true.

MR. HARMAN: I kind of had to beat down the door in Grand Central Oyster Bar, for example -- one of the oldest and most famous oyster bars in New York -- to get the head chef, Sandy Ingber, there to actually feature our product on his menu, because he felt that *New Jersey* had a negative connotation and he didn't want to see it on his menu. We're now in there every week, and he's like-- You know, the people rave about it and they love our product. And I think the more farms we have out there, the more connections are going to be made, the more restaurants our state is going to be featured in. I think it's just going to be a positive upswing for, I guess, our reputation, you could say, as an environmentally clean state.

But I'm sort of digressing here. I think another sort of complementary product of that could even be something similarly modeled off of Hog Island oyster in California, where there is a farm right there, there are tourists, there's a restaurant, a retail market.

MS. HASKIN: Lower Township.

MR. HARMAN: Yes, it could be even featured right on the Cape Shore if we could find a little spot. I think it would just be amazing. We have Route 47 that drives right down the Cape Shore with a ton of traffic. And I'm sure people would love to drive in there and eat some oysters and see the farms.

MS. HASKIN: And I think the Villas would be a great spot for that. Like, you know, a beachfront oyster bar, restaurant, winery, brewery. I mean, you could do a lot with it, and you could have--

ASSEMBLYMAN ANDRZEJCZAK: I know other states are already doing that. I know Maryland is one -- where they're tying the

oyster industry into the tourist industry. And basically people are going out, they're doing a tour of the farms, a tour of the operation; sampling on the farm, and then, later on, another part of the tour and part of the experience is going into a restaurant and seeing that product -- that raw product be put on a menu. And I mean, Curtis, that's pretty much what you're doing. But it's really going to be a matter of tying that all together.

And we recently did legislation on that; it was, kind of, a really silly piece, but it was the--

MS. HASKIN: Oh, that's right. (laughter)

SENATOR VAN DREW: What was it -- *Slurp*?

ASSEMBLYMAN ANDRZEJCZAK: *Slurp*--

MS. CLARK: *Slurp, Sip, and Suck*, right?

ASSEMBLYMAN ANDRZEJCZAK: Yes.

UNIDENTIFIED MEMBER OF COMMITTEE: What?

(laughter)

ASSEMBLYMAN ANDRZEJCZAK: And it is promoting the oyster industry, along with the beer and wine industries.

MS. HASKIN: Right.

ASSEMBLYMAN ANDRZEJCZAK: Kind of designating a week -- or a weekend, in trying-- I mean, really, extend our tourism industry and turn it into a fun event. So there is a lot of potential as far as reaching out to other areas in the local community that are going to be benefiting from it.

MS. CLARK: But even, to follow up on that beyond-- I mean, obviously we can extend our tourism product by enhancing and marketing the locally grown oysters. But for lack of a better example, is there

something that the oyster shell could be used to do that would provide another lane of job opportunity? And, like I said, that's really the only example I can come up with at the moment; but as we see the great need here to expand job opportunities that are not just solely tied to the tourism industry, or health care, and elder care, and things like that -- is there a broader scope of opportunity?

MS. HASKIN: Oyster shells are actually, I think, hard to come by, by now, because they're being bought up, I think, by a lot of growers in the Chesapeake for shell replanting. So, I mean, that's where, as I understand it -- that's the big value in oyster shells, is using them to replant in--

UNIDENTIFIED MEMBER OF COMMITTEE: Oyster beds.

MS. HASKIN: --oyster beds.

ASSEMBLYMAN ANDRZEJCZAK: That, and chicken feed.

MR. BASHAW: I think, to your point, Vicki, if you just have okay oysters, and you keep it small, people love to go see how they're grown and they'll eat them. If you have a world-class oyster and you increase your capacity of production, then not only do you get the byproduct here, but you have a brand ambassador out there. They're saying, "Gosh, what is happening on the Delaware Bay?"

We need to get these things to be exportable. And if we're getting them exportable in a broader sense, that's going to create non-tourism jobs that will round out our economy -- plus our products that are exported will be brand ambassadors for us and help people say, "Well, what is happening down there along the Bay Shore?"

So I feel like the first focus is just to get it bigger, if we can. And to make sure the brand isn't diluted -- whether it's Delaware Bay, Cape May Salt, Cape May Saline -- I mean, you guys are figuring that out. (laughter) But it would be nice for the nomenclature to be consistent so, as you get further afield from here, the big picture is: Montauk versus Rhode Island versus Delaware Bay oysters -- those Delaware Bay are the best.

SENATOR VAN DREW: Mike De Luca, and then Bill Nardelli.

MR. De LUCA: Yes, I would just like to expand on the response from Brian and Betsy.

I think there are a number of complementary benefits -- economic benefits from the growth of the industry. One is just the experience. People like to get their hands dirty; go to a working dude ranch and actually participate in a field program or activity. And that has value; people will pay to do that. We see many examples of that.

Secondly, as the industry grows there will be the need for services -- accountants, lawyers; there will be transportation needed to move the product into the markets. There will be purchase of additional equipment and gear, so manufacturing will benefit. Those are just a few examples. But that will create jobs outside of this particular industry and outside of the core tourism industry as well.

And then finally, I'd just like to mention that my good friend and colleague, Lisa Calvo, has designed and developed a wonderful educational program called *PORTS, Promoting Oyster Restoration Through Schools*. And it actually engages elementary and middle school students, and their teachers, and their parents, and community leaders in stewardship of

the Delaware Bay resources. And they actually prepare shell bags for deployment in the Bay, to catch larvae and promote attachment of seed oysters that have been transplanted to a protected area up Bay. So there are opportunities to actually engage the public, as well as our school students, in a stewardship of this treasure that we have here in the Delaware Bay Shore. And that can also result in some economic benefits as well.

And Senator, I haven't finished my presentation, so I hope in a few minutes we can get to that too. (laughter) Because I do want to just revisit the challenges and talk about some of the key steps, which I think are very synergistic with the bills that you've (indiscernible).

MS. HASKIN: We'll leave the table (indiscernible).

SENATOR VAN DREW: We will. We have a high-energy room, though. We have a lot of people in this room who have done a lot of stuff in their lives. (laughter) They have ideas.

Bill Nardelli.

MR. NARDELLI: I just want to bring up a few points.

Being from the local area, the oyster industry was a huge employer; it was a huge industry for many, many years in the Port Norris area -- Mr. Bailey could attest to that -- and the Robbins family. We hauled hundreds of loads of oysters with our trucks across the country. So it's just a reintroduction of the Delaware Bay oyster. And I market a lot of Jersey Fresh products to all the major cities east of the Mississippi, and we see a huge demand for locally grown; we see a huge recognition of Delaware Bay oysters in conjunction with the Jersey Fresh programs.

But, as so many things have happened in New Jersey, we've fallen behind. Our Jersey Fresh program has been cut back because of finances. But we were one of the innovators, and we were one of the founding companies that got involved with Jersey Fresh. We saw big production; we did very well with it, and we introduced it to a lot of people who had no idea what was produced in New Jersey.

The Delaware Bay oyster already has an introduction. It's a recognized brand and commodity all throughout the country. We see them in Florida, I've run into them in Florida; we see them in fine restaurants in Chicago. So there's a demand -- it's not something that you have to promote or push; it's already there. There's a demand -- there's a hidden demand for it that would really promote -- it's a big promoter of jobs, for transportation; and, as everyone realizes in the agricultural industry, it trickles into so many other communities and parts of the community, and so many other businesses.

So the Jersey oyster -- the Delaware Bay oyster has a great recognition, great brand recognition. And we hauled hundreds of loads of oysters and shellfish out of the Delaware Bay until this disease started to take them. So the 1940s, 1950s, and 1960s were a huge industry, and a big employer.

So I think this lends itself very well; I am very admirable of what you're trying to do. And I think that with a little help -- like we need in any part of agriculture, or any industry, or any business in New Jersey -- streamlining is very important and critical. And these people can't get their products planted, can't get them harvested. The adverse conditions are something we deal with in any industry that's dependent on the weather

and the outdoors. But it shouldn't be something that we have to be tied to with regulations. We'll take our chances with Mother Nature, but let's at least try to streamline some of the bureaucracy of it.

SENATOR VAN DREW: We're going to try; God help us. I'll be all white by then.

Michael, wrap it up.

MR. De LUCA: Okay.

It's so good to see such an engaged group. And I think you've certainly -- you're in agreement with the challenges that we identified from our own perspective in the academic world.

So let's talk about the next steps.

Establish shellfish aquaculture as a State economic priority. We talked a little about this, and I have a few bullets that I will speak to for each one of these. Design a management system tailored to the shellfish aquaculture industry; and then support research, technology development, and innovation. I think these three categories capture a lot of what we have been discussing here today. And we have a few suggestions.

With respect to establishing this industry as a priority for New Jersey, one of the key elements that other states have used to advance aquaculture is that there was a top-down mandate. The governor, or the legislature said, "This is an economic priority. We're going to do it. We're going to invest in aquaculture." And that was compelling. It compelled the agencies to take it seriously, give it a sense of urgency, and coordinate their activities.

We talked about the economic and ecologic benefits that can result from this; the demand that's growing. Other states are out-competing

us in markets. This is truly an opportunity to create jobs and new economic opportunities in South Jersey.

We talked a little bit about this too: Design a management system tailored specifically for the shellfish aquaculture industry.

Establish a State ombudsperson for shellfish aquaculture. A few folks mentioned something along these lines. And I think it's very synergistic with the one bill you proposed for a one-stop shop, where growers can go to an individual who is in a position of authority in State government, and perhaps supports pretty high up the food chain. But that person is who they deal with, with respect to leases and permits. And we do have differing policies being administered by State government. There are nine agencies or divisions of State government that have some oar in the water with respect to shellfish aquaculture. They always don't agree on implementation of policies. So establishing a high-level ombudsperson for the shellfish aquaculture industry, we believe, can be a near-term action that can be taken to help the growers navigate this complex management bureaucracy that's in place now, as efforts move forward to streamline them and consolidate it into, perhaps, a single agency.

I just mentioned this point here. It's onerous for the industry to deal with the State in this industry. We already mentioned how to deal with that.

Support pathways for growth of shellfish aquaculture. This is an area where I think we can be proactive. Identify suitable areas for industry expansion that reduce conflicts with other uses of the Coastal Zone, like the Red Knot. I think you heard an example from Brian, wherein the industry had already identified locations for their Aquaculture

Development Zones that took into account some of the concerns about Red Knots years ago. And that was thrown out the window when it was federally listed.

The State Office of Coastal Management, every five years, has to redefine its priorities for coastal management throughout the state. They are in the process of doing this now, and their proposal has been submitted to the National Oceanic and Atmospheric Administration, which oversees coastal management in partnership with the states. And aquaculture is a priority in their new five-year plan. And a number of us have spoken with them about an opportunity to do some spatial planning; that is, let's start right now and identify suitable areas for expansion of the industry throughout New Jersey.

Restore water quality. About 10 or 15 years ago, the State DEP actually did a very nice job in reopening up some areas that were closed to shellfishing -- shellfish aquaculture. This focused on upland sources of contamination, stormwater management. There is no reason why we can't recommit the State to doing that again, with a focus on the Delaware Bay Shore.

Provide land-based access to the Aquaculture Development Zones. This is becoming problematic. We have these areas that have been designated for shellfish aquaculture, and in some cases it's becoming very difficult to get to the farms via land access. That's another area that needs attention and can benefit from a mapping effort. I think it was Norris who spoke to the need for a map.

And then, finally, develop technology to advance subtidal shellfish aquaculture. Lisa Calvo spoke to the different demands of that

type of shellfish aquaculture: new gear, new strategies, new technologies will be required.

A lot of the support -- grant support that we receive at Rutgers is from Federal sources. And so when we're competing for research dollars or innovation dollars related to shellfish aquaculture, we're responding to a Request for Proposal with priorities that have been set by the Federal government. And typically those are regional or national in scale and don't always align very well with the needs of the State here. And so it's important that if, indeed, there's a supplemental appropriation, that we recognize that the priorities that we have here in New Jersey need to be driven by the stakeholders in this -- the industry itself, and not some large Federal agency. That's a really encouraging opportunity that was mentioned earlier.

And just a little side point too. You had mentioned the Institute of Marine and Coastal Sciences as the potential administrator or recipient of those funds. Unfortunately, the Institute of Marine and Coastal Sciences at Rutgers University -- which had achieved the rank of Number 4 in the world in terms of its stature -- was dissolved last year. And so a number of the elements have been parsed out throughout the University; and I think the more appropriate place for those funds would be the Haskin Shellfish Research Lab, which includes the Cape Shore Lab, the Aquaculture Innovation Center, and a Fisheries Center as well. We can provide more detail on that later.

And I think I have one more slide; yes.

So we just wanted to finish up by reiterating that within New Jersey, within certainly Rutgers, and potential partnerships with other

institutions of higher education here in South Jersey, the capacity exists to do the research. We have the technical staff; albeit small, they are very talented. And we have the innovation infrastructure in place to support this industry.

Other states, as we've heard several times today, have launched shellfish aquaculture into a major economic activity. The potential for New Jersey is here and it's now. I think we've identified some near-term steps that can be taken; your legislation certainly falls into that. And I would just urge this body to act swiftly. The time is now. These are operations that are certainly taxed and challenged by the many challenges that we identified here today. And certainly my colleagues and I welcome an opportunity to work with you to help this industry grow, and promote it, and foster it, and enable it to flourish.

Thank you very much.

SENATOR VAN DREW: Very good, Michael. Thank you, all.

Just to wrap up and to review what Assemblyman Andrzejczak said, what others have said. And then I'm sure there will be more dialogue afterward.

We drafted two pieces of legislation: one of them, with the DEP, would have to work similar to the Virginia model with the Army Corps of Engineers, again, for a more unified vision in how to approach permitting and how to approach the entire process. The Department of Ag, in consultation with the DEP, would adopt a joint permit process which would be one-stop shop, one permit process. Those are the two bills that we've drafted already.

What was discussed here today -- again, the work product today, besides those two bills, would be a resolution calling on State support to promote, cultivate, and support shellfish aquaculture; which is something that we talked about just to, at least, get the mindset in there. A resolution urging State and Federal officials to resolve the Red Knot issue for shellfish farmers -- again, just to try to bring that issue about; at least to make people think about it and try to move in the right direction.

To restore funds -- Assemblyman Andrzejczak's idea -- to the Jersey Fresh program.

And then, finally, the supplemental appropriation to support the Haskin Shellfish Lab -- and whatever the proper terminology should be there, to get those dollars there.

I don't know what we can do and can't do. You know, I have a promise that I've always made -- one simple promise in my entire political life. The only promise that I make is that we'll work our hardest and do our best to accomplish that. Where it will all go, we don't know. But certainly if we don't try, we're never going to get there, so it's worth trying.

With that, if there are any last-minute comments, you are more than welcome to that.

Yes, Victor.

MR. NAPPEN: Just a quick one.

Is this primarily a cottage industry, or are there major players in the market? For example, you chatted quickly about Virginia. Is there a major company in Virginia that's making a large profit that would be interested in coming to Jersey and, with respect to the folks up here who made a great presentation -- are we missing something? Is there a company

out there that's waiting for this legislation to move forward? Is there a key player in the business that can be part of this?

MR. HARMAN: I think-- I mean, for talking about the oyster aquaculture industry, I guess the intensive aquaculture industry-- Atlantic Capes is definitely the largest supplier in New Jersey right now. As far as Virginia-- I mean, there's a company down there called Cherrystone Aqua-Farms which, I mean, it's mind blowing the amount of clams and oysters that they're growing.

I don't know if you were hoping they could come-- I'm sorry; did you say if they could come here and maybe offer-- (laughter)

MR. NAPPEN: No, no. Curtis just told me how big you guys were.

MR. HARMAN: Oh, okay. (laughter)

MR. NAPPEN: I was just-- You know, multi-state opportunities and success in one state doesn't necessarily give you success in another.

MR. HARMAN: Got you; all right.

SENATOR VAN DREW: Other questions? Anybody have anything?

Yes.

MR. BAILEY: I just have some paperwork I'd like to pass out about the wild-caught fisheries.

SENATOR VAN DREW: Absolutely. So please, everybody, just don't jump up. Why don't you do that right now? I'll keep them in their seats, because the minute they're gone they'll be like a shot--

MR. BAILEY: It will answer Mr. Andrzejczak's questions.

MR. FOSTER: Jeff, does Curtis have the *Oyster Van Drew* on the menu yet?

SENATOR VAN DREW: No. (laughter) I don't even eat oysters anywhere else.

MR. FOSTER: The Oyster Van Drew.

MR. BASHAW: On the Red Knot thing, I think a resolution is great. I actually think-- You know, it was Senator Booker's AA; his name is Kevin--

SENATOR VAN DREW: Whomever; go ahead.

MR. BASHAW: --whoever, called me and said, "What you should do is get local officials and just call a meeting with Larry and the oyster folks, and sit down and talk about the rules that you think would work." I think actually facilitating a small meeting locally, just to talk about the rules-- Because if there is consensus locally, that will have a big impact on the legislatures federally, and that could put real pressure then on the Army Corps, I think.

SENATOR VAN DREW: And that would be good. My sense has been that they don't really care or are concerned about it. But I think it would certainly be good to do it, you know?

MR. BASHAW: Okay; great. That was the feedback from the Senator's office. (laughter)

SENATOR VAN DREW: It's no, I know -- which is easy to do.

You know, sometimes, as we all know, and that even includes this meeting -- and I'll be very honest about it -- it's so much easier to talk about eventual outcomes, to talk about issues and ideas than actually to get them done. And as somebody who's gotten a lot done, Curtis, you know

the truth in that. But we certainly will try. I have to think about that a little bit.

We have a couple of questions from OLS, evidently. Correct? A couple of things that we thought were good ideas too.

The difference -- these are good questions -- the difference in cost structure for New Jersey versus other markets. In other words, is it more expensive for your guys to do this than it is for the folks in Virginia and Maryland?

MR. HARMAN: I can say our location on the Cape Shore has a couple really specific, I guess you could say, unique problems having to deal with. Okay, two off the bat: one would be the exposure. You know, the wintertime -- the ice that we get -- which means that we have to actually move the vast majority of our farm to another location to avoid mortality, which is pretty much certain mortality if we have a winter like last year.

The other big issue we have, that they don't see nearly as significantly in Virginia and Maryland, is a biofouling mudworm called *Polydora* which -- it's actually an organism that settles onto our oyster bags. It makes a little mud tube around itself. It's a very small worm, but multiply that by millions and it basically smothers all our gear. And if we don't get out there and physically pump those mudworms off with water, it will just smother our whole crop and it will die. So we actually, on our farm alone, hire probably four to five people, and that's all they're doing five days a week. They are out there pumping oysters, washing this mudworm off. So I think other locations up and down the coast that don't have these problems -- they're saving quite a bit of money not having to deal with that stuff.

ASSEMBLYMAN ANDRZEJCZAK: For our other farms that don't have these problems in other states, are they getting the same quality of oyster that we are? You're shaking your head "no" back there.

MS. HASKIN: I would just say, I think our oysters are some of the best on the whole East Coast.

ASSEMBLYMAN ANDRZEJCZAK: So are we able to market them and sell them for a higher price because of the care that we put into it?

MS. HASKIN: Yes, absolutely.

MR. De LUCA: I would just add a comment to what Brian said about this mudworm.

Polydora, which certainly is problematic, might be resolved through some research. There have been some thoughts about some, perhaps, biological controls that could be used for them. But that's something that, perhaps, could be pursued with the supplemental appropriations. That's a research question that I think we could help the industry with.

SENATOR VAN DREW: Okay, thank you.

And then the last question I had is, if we were to expand greatly, what is the cost impact of the increase scale? In other words, if you have a larger increase scale, are you able to produce -- is each oyster going to cost more? Is it going to cost less? Will it be about the same? And, in all honesty, do you not know at this point?

In other words, are they-- Because they do have-- They produce a lot more, but ours is a better oyster; but because they do produce a lot more, are they able to produce their oysters in a cheaper way?

MR. HARMAN: I would anticipate--

SENATOR VAN DREW: Less expensive.

MR. HARMAN: I would anticipate the cost of production to go down. And another thing is, the demand is so high for our product. I mean, it's not as if we're going to produce too many and flood the market. I mean, you know, we have people in (indiscernible)--

SENATOR VAN DREW: So, quite frankly, the demand is still there; the cost is going to go down.

MR. HARMAN: Oh, yes.

SENATOR VAN DREW: And this is a good thing; this is America, you know. Your profit is going to go up.

MR. HARMAN: Right.

SENATOR VAN DREW: Okay.

MR. HARMAN: This is what we need.

SENATOR VAN DREW: Anybody else?

MR. CLARK: Just a quick question.

Do you have-- None of your farming is done in Lower right now, right? You're pretty much just above the border in Middle, right?

MR. HARMAN: That's right.

MR. CLARK: So there's no--

MS. CALVO: There's a permit pending. (laughter)

MR. CLARK: Okay, so my question is, you're looking at opportunities in Lower Township, right? And what is your -- what have you been hearing, or what's your impression about what the opportunity is there, in terms of getting access to those beaches?

MS. CALVO: I haven't spoken directly to anyone in the Villas area at all. But I know when they first sited the ADZs, there was a reason the State settled where they did. There were problems going further south, and there were problems going further north. So they were sort of stuck there. And I think now they would like to revisit that and try to establish some aquaculture developments, and a little further south. And the State is investigating that; that is my understanding.

MR. CLARK: Okay.

MS. CALVO: But there is some interest in some of the coastal Bay areas as well.

SENATOR VAN DREW: And the applicants are having a heck of a time, I think.

MS. CALVO: Yes.

MR. CLARK: Because Larry was looking to-- He was looking to -- he was wondering why we couldn't have some of the -- bring some of the aquaculture further south.

MS. CALVO: Right. So it took about 10 years to identify those areas that they settled on -- 36 acres of in-shore area, 10 years of work. Several sites were considered and did not move forward. And even within the area they identified, there's a chunk in the middle where there were two landowners who did not want that work happening outside their property. So there's a big gap in the development zone there.

So it is not an easy task when the prioritization of the State -- everyone else is considered first. You know, if it's the wildlife habitat, it's the landowner, it's all these other priorities and conflicting land use. So it's

really a policy issue: How do we want to use our coastal waters? And that's a bigger discussion. It's, you know-- It's--

SENATOR VAN DREW: This is all exasperating. I heard you (indiscernible); Curtis is exasperating me. (laughter) And it is; it's unbelievably hard. I mean, I just-- It's very, very difficult, and it is very challenging. And this has been going on for years. I mean, I remember I toured your facility years ago when I was, I think, a freshman Assemblyman all those years back. And to see how difficult it is to get something that is obviously good done is really frustrating. And that's-- I'm having a very candid conversation here, again. The difficulty with the Red Knot issue -- nobody wants to hurt the Red Knots; we want them to thrive; we want that all to be good. It's good for tourism, it's good for the environment, it's an amazing ecological story -- at the same time, a great deal of concern that because of that, you know, we're not going to be able to move forward in an industry that we should be able to move forward with.

FREEHOLDER DERELLA: Is this--

SENATOR VAN DREW: I just-- One second; I know the Freeholder Director has been very, very quiet, to your left here.

Freeholder Director Derella.

FREEHOLDER DERELLA: Jeff, I have had several conversations with Scott in regards to the business down there.

SENATOR VAN DREW: This affects Cumberland County as well, by the way. We've been very Cape May County-centric here.

FREEHOLDER DERELLA: Oh, tremendous--

SENATOR VAN DREW: I just want to point out that this Task Force deals with Atlantic, Cape May, and Cumberland counties.

FREEHOLDER DERELLA: It's a huge impact.

SENATOR VAN DREW: We haven't forgotten you.

FREEHOLDER DERELLA: Yes. What's good for one county, obviously, is also good for the others. I guess if the hurdles could be changed, we could make our way through and get rid of 10 years, and 12 years of trying to get permitting, and moving forward. If you could increase the opportunity -- the business metrics by 50 percent, what would that mean in actual jobs? Because in my world, that's a concern.

I don't know if anybody can give me an answer to that question or not; but what kind of actual job growth could we see?

MR. BAILEY: Well, every time we do that, you're putting more oysters through the box in the house; then you're selling boxes; labor to pack them; wash them; and in their case, washing the bags, handling them, harvesting them, bringing them in. And once they're boxed and ready, then you have to ship them. And you go to the restaurant, and then they have to have a shucker, and a cook, and a chef, and all that stuff. I mean, if they showed \$5 million or \$6 million, if you increase that 50 percent it could be \$7.5 million or \$10 million -- plus numerous jobs.

FREEHOLDER DERELLA: I guess I'm just trying to get a handle on what are the true job opportunities, because that's--

MR. BURKE: What's the multiplier effect?

MS. CALVO: Right.

MR. BURKE: That's what you want to know.

FREEHOLDER DERELLA: Yes, that's the question you're going to get. You know, when we sit in our seats -- well, economic growth, economic growth. We recognize this, but this is something we need to latch

onto and help grow. We have to get over the hurdles. But in realistic terms, what are we looking at? Because I know the multiplier is there, but is it 200 more jobs? Is it--

MS. CALVO: If I may speak to that?

In terms of what we see coming out of Virginia -- Virginia has the best census program for oyster farming in the U.S., I would say. So they're very well detailed in their statistics.

With the scale of that 39 million oysters produced in 2014, they employed about 250 people direct on the farm. That doesn't include the transporters, the packers, the restaurants, the shuckers. So I think it's fair to assume that that scale would be similar in New Jersey. You can only move and handle husbandry of so many oysters -- so possibly higher.

FREEHOLDER DERELLA: So the same kind of growth that we kind of saw for Virginia, we could mimic that; or even just half that, you're talking 150 to 200 more jobs just on the oyster itself.

MS. CALVO: On the farm.

FREEHOLDER DERELLA: Doesn't count the multiplier outside.

MS. CALVO: Yes.

FREEHOLDER DERELLA: Okay, that helps. Thank you.

SENATOR VAN DREW: And with that, I think we're ready to wrap up.

I think probably soon, if not the next one, I'm going to ask my Cape May folks to hopefully be there as well -- because there is a lot we can learn, because we are a region -- and a lot of folks cross county lines, to work.

Freeholder Director Derella, I know there has been a huge amount of conversation and a lot of activity in Cumberland County regarding economic development -- what you're doing with the technical school, what you're doing with the County College, what you are doing with the Workforce Investment Board, how they are all tied in. Quite frankly, the challenges are there where things haven't gone so well and where things are going well. And in one of the processes, we're all going to make sure that we get over -- and I think probably the County College would be the best place to have it -- and have a meeting there, and just see what it is that we can do there to help. I know you've been proactive with it, and the challenges have been huge. But we would like to do that as well.

And I know we didn't have folks -- of course Scott is, but this-- Cumberland is a huge challenge, and I give the Director credit because he's been really proactive in trying to really move forward, and be ahead of the game and do more. One of the things we haven't done yet -- we've had a tough time scheduling it -- just general conversation. And Freeholder Formica -- who is not here today, but has been here in the past and is interested -- I'd like to see what they're doing in Atlantic as well. Because they're doing -- they have their own group that they're working on.

Are we training people for the right jobs? Somehow the thing that I still wonder about out there -- and I'm digressing a little, and forgive me, because we're going to wrap this up. We know that there are jobs out there; we know that there are growing industries, and that there are growing areas. And are we training our people somehow to fulfill those jobs? The reality is that we're not very often, and we need to do better with that. And that's something that we need to discuss as well. I'd love to do that.

I think that's what your goal is, is it not, in Cumberland?

MR. FOSTER: We're--

SENATOR VAN DREW: Literally, go to any business and say -- you know, and that's, I think, one of the goals that we're trying to have here, even, as the-- We all are; organized labor is too.

MR. FOSTER: I'm Chairman of the Improvement Authority--

SENATOR VAN DREW: The Improvement Authority is trying to do the same thing. And I know you all in Atlantic County -- I believe the Executive has come out with a plan.

MR. FOSTER: Well, we hired a--

SENATOR VAN DREW: Yes.

MR. FOSTER: He's still finishing up now, yes.

SENATOR VAN DREW: And that plan is finishing up. And then I think there should be a report soon too. Because the bottom line is, in my opinion -- and let me just editorialize for a little bit -- the most beautiful area of the state, Atlantic, Cape May, and Cumberland counties, has the biggest problems: unemployment, educationally, and a host of other areas. We have the most to offer, yet we have so many difficulties and challenges for people to make a living. And we can do better with this.

You know, when we were talking before about marketing your oysters -- you market an oyster and you say it's a *New Jersey oyster*, you're going to have a harder time getting it in a restaurant. You say it's a *Cape May oyster* or a *South Jersey oyster*, it's going to get in that damn restaurant a whole lot faster, you know? So we do have a lot to offer here, and somehow trying to get over this hump has not been easy. But we have to keep working at it.

Anybody else? (no response)

I think we've had enough for today.

MR. FOSTER: A lot of oysters.

SENATOR VAN DREW: Yes, it was a lot of oysters.

The only thing I can't believe is you guys didn't -- this is a joke, I want you to know, for all legal purposes; and this meeting is recorded. This is a joke, I am not serious. (laughter) But the joke is: I can't believe you guys didn't bring us some oysters. Now, we really don't want any, and we know you can't do that. (laughter)

MR. BURKE: I'm not a politician. I'll take some. (laughter)

SENATOR VAN DREW: Thank you all very much for being here.

(MEETING CONCLUDED)