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Lowry Yankwich and Doug Christel Talk about the South Fork Offshore Wind Project– January 5, 2022

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Hannah Perls: Welcome to CleanLaw, from the Environmental and Energy Law Program at Harvard Law School. In this episode, Lowry Yankwich, a third year student at HLS speaks with, Doug Christel, policy analyst for the National Oceanic and Atmospheric Administration's Sustainable Fisheries Office. They discuss the approval of the South Fork Wind project, which is only the second commercial scale offshore wind project to be approved in federal waters. They talk about the possible impacts on fisheries from the South Fork project specifically and wind development in general, and explore ways in which developers and government agencies are attempting to address and mitigate concerns raised by fishers. We hope you enjoy this podcast.

Lowry Yankwich: Okay, Doug, thank you for signing up to talk again. It's always pleasure to get to talk with you and I always really look forward to it. Thank you for agree to talk once again.

Doug Christel: Thank you for having me. I always enjoy our conversations. I'm looking forward to the discussion.

Lowry: I thought as a starting point, it'd be helpful for people to understand, given that we're going to be talking about wind development and the South Fork Wind Farm in particular, to understand where you are coming from and the vantage point that you have on this topic. Could you just tell a little bit about yourself and what your job is as a policy analyst at NOAA? Yeah. As a starting point, just, what's your vantage point on this?

Doug: I'm a fishery policy analyst with the National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office. And I serve essentially as the fisheries lead for the offshore wind team for the region. And so my focus is really on fisheries issues associated with offshore wind development. Previously, I managed a number of fisheries along the Atlantic Coast from the Grand Banks off Newfoundland, all the way down to Florida. But now my focus is really on evaluating how fisheries are impacted by offshore wind development. And so as part of that, I review the Construction and Operations Plans and associated environmental impact analysis to really identify the biological impacts that might occur to fisheries resources and the operational and socioeconomic impacts to fishing vessels and the associated communities. I really look at all broad potential interactions between fishery resources, be it biologically or social, and the offshore wind development process.



- Doug: I lead a team trying to improve the data and analysis available to describe phishing operations, catch and effort and revenue associated with fishing in wind lease areas. And then we also try to develop and review proposals to address research questions and priorities, and try to fill in the information gaps that exist on various issues related to either fishery biology, habitat characteristics, or even fishing operations that we're just not aware of how vessels may or may not be affected by offshore wind development. Part of the job is also talking with all constituents, including both commercial and recreational fishermen and their associated representation groups, developers, state, and federal agencies and researchers to better understand their perspectives and how they think fishery interactions will occur with the offshore wind projects. And collectively, we try to work towards minimizing those impacts biologically or social economic. My job is really to help inform the offshore wind development process to make sure that everybody understands what's happening and what might be affected. And as offshore wind development is a new use, we're trying to get to understand how that might interact with existing uses like fishing interests.
- Lowry: This might be a strange question, but as a follow up, how well do you feel you understand the possible impacts at this point after grappling with these questions now for some time?
- Doug: I think it's always going to be a learning process. I don't know that anyone in particular, fully understands and appreciates or can anticipate how the fishing interests or the fishing resources themselves will be affected. And so I think we're asking a number of questions, we're exploring a number of issues, and I think we're learning on a daily basis just how those interactions might be occurring and what constituents and entities might be affected and how they're affected. It'll probably take years for us to understand it just as much as we've been exploring and trying to figure out how to manage fisheries for 30, 40 years. And so I think it's going to be an ongoing educational process. We're making progress in certain circumstances, but there are a lot of data gaps and every day brings up new questions that we try to explore to the best of our abilities.
- Lowry: We may talk about this later, but I'm curious, how big the team is that's doing what you do. I know you said you run a team, but are you the main ones thinking about these fisheries impacts for offshore development? Are there many others doing that? Who else are you working with, I guess?
- Doug: Right. Within the National Marine Fisheries Service, particularly the Greater Atlantic Region, we have two offices that are involved, the Greater Atlantic Regional Fisheries Office, which is more of the policy and regulatory side. And then we have the Northeast Fisheries Science Center, which is more the research and science-oriented side. We have only a few dedicated individuals that are working 100% on wind. Most of our wind team, which varies depending on how you define it and what their degree of involvement is, but it's



really maybe 30 people at max of which only probably a core of 10 are dedicated in offshore wind development projects. It's relatively small for the scale of the projects that we're being asked to review along the coast from Maine to North Carolina, primarily. Right now we have 17 projects under various stages of development. 10 of which, in all likelihood will be under review in some sort during 2022.

Doug: We've got a whole lot of work on our hands and only a handful of us that are really dedicated to doing it. We have habitat specialists, we have protected species specialists. I'm for better or worse, the lone person dedicated to fisheries, although we have some assistance from economists at the Science Center as well. Within NMFS, it's really a small cadre of individuals that are focused on this, although there are a number of people who contribute in one form or another directly and indirectly to our work.

Lowry: Thanks. That's helpful to understand the internal ecosystem a bit. As a starting point, we're going to talk more specifically about the South Fork Wind Farm and the recent approval of the Construction and Operations plan there. But people coming from the outside, might have heard about the fishing community being hesitant, opposed, insert verb to offshore wind development, and may have even heard of lawsuits filed by organizations like the Responsible Offshore Development Alliance, which represents fishing industry interests at large, challenging government agency decisions to approve these kinds of projects. Could you give a sense of what some of the major concerns are for fishers about offshore wind development?

Doug: Sure. As you know, fishing has been occurring along the Atlantic coast for hundreds of years. And so it's a traditional way of life. It's often passed down from generation to generation. The vessel operators are out there every day, fishing on the ocean, they understand what's going on and where it's going on. And so this new operational use of the oceans through offshore wind development is certainly changing that dynamic. Fishermen are incredibly resilient in not only addressing changes to resource conditions and weather conditions, they've taken the better part of 40 years to adjust to the management conditions with the modern fishery management initiatives. And so they're adjusting to a new entity in their realm. And they are concerned about how that new user will not only affect their direct operations in terms of where and when they can fish, but they're also interested and concerned about how the construction of these projects will affect the biological resources.

Doug: A sustainable fishery is based on having healthy populations and associated habitat. And so if there are potential impacts to that habitat and the fisheries populations, they are concerned that that will in turn affect their livelihoods and their economic viability. And so that really is what boils down to it. They need healthy fish populations and habitat in order to have healthy livelihoods and businesses. And so anything that could potentially negatively affect their ability to conduct their business and operations or the resources that they



depend upon are sensitive issues. And so we're still trying to figure out what that means and what the impacts may be to not only fishing operations, like where, when, and how fishing might be affected, but also what it might mean to the fish populations.

Doug: And while we have a lot to learn from the European models, the Atlantic ecosystem, particularly, the Western Atlantic ecosystem is really different from the European models. And so we can build upon that information base, but we also have a lot of uncertainties for how it might occur here. And so that uncertainty raises concerns. As we understand with uncertainty in our daily lives, it does produce a level of anxiety and sensitivity that you're seeing result in some of the actions and comments being provided on these projects.

Lowry: Yeah. It struck me in researching this just how unprecedented and unknown, the word you keep using is uncertainty. And that really came through loud and clear for me as I was researching. It's impossible to know exactly what will happen as a result of construction and operation of these developments. I had another question as you were talking that I thought might be helpful as a general starting point, which is how fragile these fish populations are. On the one hand, you could say, what's the big deal with wind farm developments? It's tens of turbines that are not that large in the scope of the vastness of the ocean. What's so disruptive potentially? And can't the fish just aren't they going to survive, in any case? What's the state of the fish population that makes it potentially susceptible to the changes here?

Doug: Well, each fish population is unique in that it has certain habitat requirements, certain feeding preferences, migratory pathways, seasonality, spawning behaviors. And so it's really difficult to generalize in a broad sense, how the impacts will affect a species. We have a number of species. I think we manage 42 individual species from Maine to North Carolina directly in federal waters. There's a number of other species that are managed in state waters. But those 42 individual species are unique in their characteristics. And so certain habitats are utilized by certain species for feeding, for protection, from predators, for spawning. And we're still trying to figure out how those habitats will be affected, both pelagic and benthic habitats. Meaning, the water column will be affected by current flow temperature, disruption, mixing patterns that will all affect the various life stages of the species. And so each individual species will be affected differently.

Doug: And so we're trying to understand primarily with those that are most important to the commercial and recreational industries, but also to the baseline characteristics of the ecosystem. And so there are a lot of unanswered questions because the hydrodynamics are affected, where and when the water flows also dictates where and when the fish eggs that are floating within the water columns settle. And if they settle in good habitats, then there's increased likelihood that the species will be healthy and continue to reproduce. If they settle in habitats that are either vulnerable to predation or don't have food



resources, then that could have negative impacts. And so we're trying to understand those dynamics given the resources we have. And some species will thrive. We know that offshore wind development will produce habitat such as structure and rocks and other structures that will attract fish. It's like black sea bass, for example, they love rocky habitat.

Doug: And if you're putting a wind turbine in a sandy habitat, you're converting sand to rocks. And so that'll be good for black sea bass, but it may not be so good for, for example, summer flounder who prefer more sandy flat bottom habitat. And so there will be different impacts for different species, and that will in turn have different biological impacts on the ecosystem in terms of predator-prey relationships. And it will also affect the communities, the fishing industry and the recreational interests that harvest those species. It's difficult say how fragile the populations are, but we're certainly aware of these changes to the habitat because they precipitate other impacts to the fishery species. For example, if we're converting habitat from sand to rocky, then that's going to change the dynamics. Very similarly, if we are disrupting complex habitats, such as boulder fields and whatnot, then that too in turn has some impacts on whether and how the species utilize those areas.

Doug: For example, in certain areas, such as Coxes Ledge, there are complex structures that fish species utilized to aggregate and spawn. For example, Atlantic cod will aggregate around these complex habitat structures because they produce refuges for the young fish. Once they breed, the eggs settle. The larval fish and juvenile fish settle into these niches and can evade predators while also still feeding and growing. If those habitats are changed or altered or affected by offshore development, that could in turn affect the viability of those younger fish to survive, and therefore, increase the population over time. And so there are a number of factors that are influencing how sensitive fish populations are to these changes.

Lowry: And it seems like with places like Coxes Ledge, there are particular parts of the ocean floor or ocean that are uniquely productive or important for these fisheries. Is that fair to say?

Doug: Yes, that is accurate. And each project area will be unique in its contributions to the individual species. And so we have to be cognizant of that and we have to be sure that the environmental analysis for each project reflects the unique characteristics of individual areas to individual species. Not every species is present in every project area, and so handling each project individually is necessary to make sure that the decisions are based upon the best available science and appropriate analysis for the species that are affected.

Lowry: Absolutely. Yeah. That makes sense. And given that we're talking around the edges of Coxes Ledge, let's pivot to talking about the South Fork project and we'll get into why it's significant vis-a-vis Coxes Ledge, but could you give a brief



outline of what the South Fork project is and what the proposal for that project is?

Doug: Yes. The South Fork project was originally proposed to build 15 turbines about 35 miles east of Montauk point, halfway between Block Island, Rhode Island and Martha's Vineyard, Massachusetts. And it was really intended to bring about 130 megawatts of offshore wind electricity to the east end of Long Island. And so it was really meant to address a localized energy need on the east end of Long Island through renewable energy sources. And the project is located in an area known as Coxes Ledge, which is a topographic feature in the bottom, where there are a number of habitat that are sensitive to complex habitat, meaning it's pebbles, rocks, boulders in small aggregations, or over a decent amount of area that attracts fish for various reasons, whether it's migratory corridors or feeding grounds or spawning activity or refuge for larval and juvenile stages. It's an important element in the ecosystem for this region.

Doug: And so the significance of South Fork is really from a biological or fisheries characteristic is, it is an area where there are a lot of fish of a diversity of species. And the fishermen are obviously attracted to that area because that's where the fish are. In the early development stage of the offshore wind program, Massachusetts and Rhode Island attempted to reduce some of the areas that are most important biologically, as well as to the fishing industry. And Coxes Ledge was one of those areas where they did take certain parts of it off the shelf for further wind development, but not all areas were taken out of the leasing area portfolio. And so South Fork is one of the areas that borders on this broader geographic feature called Coxes Ledge. And that among two or three other projects are all in that general vicinity of location. That describes the general features of the area.

Lowry: That's really helpful. I think we've talked about this in the past, but I'm curious with your mentioning them taking part of Coxes Ledge out of the wind energy area. That relies on having good data about what parts of the area are most valuable or are most important to fish populations. How accurate or precise are the data that regulators are able to work with in making these kinds of decisions? Because they seem quite consequential, the decision. But how do you feel about the data that they're based on?

Doug: Data that they're based on comes from a couple of sources. And from a biological perspective, we do an annual survey of fishery populations throughout the Atlantic Coast in the spring and in the fall. And in some cases the winter and the summer for various species. But the main surveys are spring and fall survey. We're using bottom tending gear. And these surveys form the biological basis for where and when fish are. That data relies on random stratified sampling. And there's a number of tows that we conduct each year, but the number of tows in each particular box in the ocean is not that great. And so we have 60 some years of survey activity in this trial survey that inform it, but clearly the more data the better. That's one from a biological



standpoint. We also have operational data in the form of vessel logbooks. And each vessel is required to complete a log book entry for each trip or parts of a trip that operate in certain boxes of the ocean.

Doug: And for those trips, they're only required to produce one coordinate point that's supposed to be representative of an entire trip. And for example, a seven day trip by a commercial vessel may only actually report one fishing location that's supposed to be representative of the entire trip. We only have one dot in this big ocean that's supposed to represent several days of fishing activity. And so the resolution from a spatial scale is really not that great. But the logbooks weren't intended to produce information on such a fine scale as like a 12- or a 15- turbine wind project area. They were really generated or developed to evaluate fishing activity over much larger geographic scales relevant to the fishing populations. Each population of fish is spread out over thousands of miles of the ocean. And so these log books were really intended to capture where and when fishing was occurring relative to those fish populations. They weren't meant to capture fishing locations at such a precise scale as to evaluate whether they or inside or outside of a wind project area.

Doug: And so, unfortunately, that is the only data that is comprehensively applied across the fisheries. And so it's the best broadest scale data source we have, but it has very limited area precision. What we've tried to do is combine it with other data sources, such as scientific observers on trips that record the start and end location of each fishing tow. And we combine that to model the data, to try to give a likelihood of that one location representing the fishing activity. And so we have concentric circles, which indicate the probability of a fishing location. And so as you go farther from that central point, the probability of fishing decreases. We use that model to try to generate likelihoods of fishing activity. It's not exactly where fishing occurs because we just don't know that on every single individual operation. But it gives a better picture than a single point in and of itself.

Doug: There are other sources such as satellite receiver data that produce hourly geographic locations, but that's not applied throughout the fishing industry. Only a subset of the fisheries that we manage have vessel monitoring system requirements that have that hourly position signal. And so we can't use that broadly to depict fishing operations. And so we've got to really maximize what data are the best for the individual uses. And we're exploring that with various researchers from the state of Rhode Island to the Virginia Institute of Marine Sciences. Rutgers University is also doing some work on that. And we're trying to figure out what's the best methods to capture the fishing operations and resulting impacts to not only fishing operations, fishery resources, but also communities as well. We're trying to make the best out of the information that we have available.

Lowry: It's interesting just to hear how you're adapting. It's almost like statistical methods to understand these populations based on limited data. Before we



get too, sort of, in the weeds with the fishery side of things, I wanted to step back and reflect on the significance of the South Fork project within state and federal energy goals. Biden has announced really ambitious goals for clean energy development and specifically for wind energy development. And so I was curious if you could speak a little bit to how South Fork fits into that. And also the state of New York has similarly ambitious goals.

Doug:

Right.

Lowry:

What's the significance of this project to those stated goals?

Doug:

From an electricity generation perspective, South Fork is not a very big project. It's 12 to 15 turbines producing about 130 megawatts of electricity. And New York state's goal is 9,000 megawatts of offshore energy generation by 2035. It's a very, very small fraction. And that's even a smaller fraction of the administration's goal of 30 gigawatts by 2030. This project in itself is meant to meet a localized energy need on the east end of Long Island. It will contribute to both the state and the administration's goals of renewable energy, but it's a really a small fraction. But as I stated, it's one of 17 projects that we have at least for the Atlantic Coast through North Carolina. And there's a number of projects south of North Carolina. And in the Gulf of Mexico, they're starting to plan and on the West Coast. And they are even considering in the Gulf of Maine. There are a number of initiatives that will help achieve the administration's goals, but this project is a very small portion of that.

Lowry:

That said, it's only the second to be approved. Is that right?

Doug:

Correct.

Lowry:

Of this larger scale. There is Vineyard Wind quite recently as well.

Doug:

Mm-hmm (affirmative).

Lowry:

And so it seems like the pace is really quickening now. And I remember you mentioned in a prior conversation, these early approvals feel like they have greater presidential value or they're bellwethers in some ways for how BOEM will approach projects in the future.

Doug:

Yes. As you stated, this is the second project to be approved or a commercial scale project, I should say, in federal waters. And we are still learning the interpretations of applicable law. We are still answering these numerous questions from biological economic operational standpoint. And so there is a lot of uncertainty in terms of how the law will be applied, how the processes are being worked, how the concerns raised by various constituents will be implemented or addressed by the projects. And so we're at the initial stages of offshore wind development in the United States. And while we can certainly learn from practices applied in Europe, it's an entirely new legal and social and



cultural environment that we're operating in within the United States. And for better or worse, the Atlantic is the first go at this process. And so we're really pushing the envelope in a lot of ways, both on a scientific front, on a policy front, on an operational front.

Doug: And we're trying the best as we can to make informed decisions using the best available science available at the time. But it will be difficult to interpret and understand until we get some of these projects reviewed and even constructed because we can make models of what may happen. But until we actually evaluate what is going on in the marine environment in response to these projects, there will still be this uncertainty. And so we're trying to develop monitoring programs to be able to understand and appreciate what the impacts of these projects will be in a more real-time manner, such that the information we gain from these early projects can inform projects that are further down in the development or review process. And so we're just at the beginning. And so there's a heightened sensitivity to these projects because, as you said, they will set precedents, both for how the process works and how participants engage in that process and what the results of that engagement will be.

Lowry: You've just been talking about evaluating these projects and thinking about their impacts. And can you give a sense of what goes into these environmental impact studies that are at the heart of this environmental review for wind projects? What is the work that goes into that from your end? And also with the quickening pace of offshore development, are there sufficient government resources to carry out these pretty extensive environmental impacts studies?

Doug: There's a lot to go into that question. As you know, that we have the Construction And Operations Plans, which are one document that describes the developers intent to develop the project and how they're going to build it. And the overall outline of the project and first attempt at evaluating its impacts. We review those documents and those documents are often hundreds or thousands of pages. We also have the Site Assessment Plan, which is a document that precedes the Construction and Operations plan. That is really a document describing how they're going to collect information to inform the development of the project, where and when and how to site the wind turbines and the cable locations. And then we also have the environmental impact analysis associated with the Construction and Operations Plan and that Site Assessment Plan. All of these documents are many hundreds or thousands of pages. And we review several of these for each project.

Doug: For example, we review the draft environmental impact statement, the final environmental impact statement, Construction and Operations Plan, the Site Assessment Plan. For each project, we review four or five documents of many thousands of pages. And so it takes a good amount of time to review these documents, evaluate the information contained therein, develop and provide



comments on those documents to the decision making agency, the Bureau of Ocean Energy Management. And in the process, we're also interacting with constituents. We're talking with developers. We're meeting with fishing interests. We're conducting research with various partners throughout the coast. And each project requires many thousands of hours. And right now for 2022, we expect to review documents associated with seven out of the 17 projects that are on the table. And so you do the math on that, that's many thousands of pages. We expect to essentially review at least one project, environmental impact statement and Construction and Operations plan each month, starting this spring.

Doug: And reflecting back on what I stated before, we have roughly about 10 staff that are full-time dedicated to it. And then other individuals responsible for partially reviewing these projects. We also have authorizations under the Marine Mammal Protection Act, the Endangered Species Act and the Magnuson Stevens Fishery Conservation and Management Act. We have responsibilities to conduct analysis, develop conservation and recommendations authorizations to take protected species. And so we're not just reviewing these documents, we're actually writing documents that are associated with the environmental assessment and take statements for these projects. And so it's a lot of work that goes into this. Right now, we're operating under a continuing resolution, which means that our budget is essentially frozen at existing levels.

Doug: And so we don't expect to have additional funding for additional staffing resources for the immediate future. If that funding does become available, we'll still need time to hire that staff, get them trained and integrate them into the review process. And so realistically, it's going to be a challenge to meet the demands of this pace, given the ambitious goals, both at the state and the administration level. And so we're doing our best with the resources we have, but we are certainly not fully equipped to address the issues. And we're working really hard. We've got a great group of dedicated individuals who will work tirelessly to contribute as much as they can to these reviews. But there's only so much you can do when you also have other responsibilities as part of this.

Lowry: It definitely seems like a huge lift for people in your position. I guess I want to go back to South Fork and to the Construction And Operations Plan, because there are some interesting features of the final approval, specifically going to fisheries, whether it's choosing the habitat alternative or the micro siting. But would you be able to talk about the Construction And Operations Plan from that fisheries angle? Like some of the main ways in which it addresses concerns of the fishing community and people concerned about fish habitat?

Doug: Right. Well, there are a number of concerns addressed by the fishing community and other constituents. And I think it'll be difficult to mitigate every concern raised by every affected constituent. The fundamental things there,



there were efforts in the construction operations plan for South Fork to try to address those concerns. For example, originally it was proposed to 15 turbines, it was approved for 12 turbines. Those turbines can be micro-sited, meaning they can be placed in a site within in a range of an authorized location to minimize the impacts to those complex habitats. Not only are the number of turbines reduced by a little bit, but they also can place them in the most advantageous point to reduce the impacts on that complex habitat. That's certainly one element that tries to do that. There are some other considerations regarding seasonality of construction and operation activities that attempt to avoid the times of the year when North Atlantic right whales, for example, are migrating through the area to reduce the sound impacts on those species.

Doug: There are elements where there will be collecting more information about the location of spawning aggregations of cod and the potential to modify construction activities to address that, any potential aggregations. And so there are a couple of elements that address some of the biological concerns. Several states engaged in negotiations with the developer itself to try to compensate for impacts to fishing operations and the revenues associated with those operations. That addresses some of those concerns, not every party and vessel fishing in that area was involved in those discussions. And so there are some lingering concerns whether that compensation is fully comprehensive enough to address all of the parties that will be affected or may be affected by this project. And so there are elements within the Construction and Operations Plan as approved that address some of those concerns. But it's ultimately up to the individuals that are affected by this to determine whether those concerns have been effectively mitigated and they will make that determination themselves. But there are elements in the construction plan that address some of the fundamental concerns that were raised during the development of these projects.

Lowry: I want to go through a few of those in a little more detail, because it's really interesting. Just with the micro-siting to start out, I'd be curious, what does that mean on a practical level? Like you said, a difference on the order of feet, on the order of 100 yards, on the order of a quarter mile? What's the scale of variation in micro-siting? And then how effective do you think that can be for avoiding critical habitat?

Doug: I would like to confirm this, but I think it's a matter of 500 feet diameter for where that project can be sited. It might be meters, I'd have to check the metric [note: he checked, it's feet] But it's not like you could move it within a great degree, but Bureau of Ocean Energy Management has identified site locations. And then there's a certain radius from that site location that these individual turbines can be moved from that central point to minimize that location. The difficulty with that is, it is somewhat limiting, not only in the radius, but also to preserve the spacing between turbines that was at least an element of the mitigation of safety and navigation impacts.



- Doug: For example, South Fork, along with adjacent leases owned by various developers had agreed to a universal one by one nautical mile spacing oriented in the north-south-east-west direction, such that it's a literal grid pattern of turbines. And so to preserve the agreed upon spacing and orientation. Those turbines can't really stray too much from that centralized point. And so that in conjunction with the COP requirements indicated the radius of that micro-siting. I can certainly check in on that, but I think it's 500 meters or 500 feet. I'd have to check the metric.
- Lowry: Yeah, that's helpful. It makes sense that they're limited by the need to preserve the grid that is preordained. And so it's tweaking around the edges a little bit.
- Doug: Yeah. And keep in mind that the cables that connect all of these are also part of this habitat impacts sensitivity, because as we all know, cables have to connect all of our electric devices and it's the same with wind turbines. And so each one of these turbines is connected to the other and then to an export cable that plugs it into the shore power grid. And so these cables, in addition to the turbines themselves, are impacting the habitat because you have to essentially bury these cables to ensure not only they're not disturbed by any anchors or fishing operations, but also to protect them from or to reduce the electromagnetic fields that are generated and the temperature differences that are associated with these electric cables. And so they're often buried and that means trenching through the bottom to bury them whether it's in whatever habitat that are there. That's another element as well. And that was a factor in terms of where and how these turbines were sited.
- Lowry: I'm curious, we've been talking a little bit about the micro-siting and the cables' placement, which directly impacts the fish habitat. What about the transit lane proposals by the fishing community? And you mentioned the one nautical mile spacing. What do you think about these concerns raised by the fishing community that these developments and South Fork, as one of them raise safety concerns or could impede navigation for fishing vessels trying to fish in the area?
- Doug: The universal orientation and spacing certainly helps alleviate some of the navigational concerns in that there's a uniform grid patterns that do not change from project to project. There are, I can't recall the number, but there are a number of projects in close proximity in this general region. And so having uniformity of spacing does allow, to some degree, for transit lanes and operational lanes in a predictable manner. It would be different if each project could identify the optimal orientation and spacing, and that would cause a real difficulty in navigating. Having those all agreed upon is definitely a positive. That said, each vessel has its own sensitivity to safety concerns. And so while one individual may be comfortable operating and transiting through areas with wind turbines spaced at one nautical mile, others may not. And it also is dependent upon the conditions. For example, in a bright sunny day with no wind it's relatively straightforward to navigate and even operate the gear within



these areas. But in a nor'easter or a heavy sea or a heavy current, it might get more and more challenging.

Doug: And so it's up to each individual fisherman to determine whether it's safe for them to navigate and operate within these areas. And we have certainly heard from individual organizations and fishermen themselves that they are not comfortable or that they would prefer wider transit lanes. And that was an alternative in the South Fork Wind project where at least the Southern portion of the project would be spaced broadly, or there wouldn't be as many turbines in the Southern portion to facilitate an East to West transit lane across these project areas. And that wasn't considered because my understanding is that there were evaluations not only from independent contractors, but also from the Coast Guard, suggesting that navigation and operation should not be impeded given the uniform grid pattern. Not everybody agrees with that, and there are certain operational characteristics that are specific to vessels that may or may not facilitate.

Doug: One of the biggest unknowns is whether and how insurance rates will be affected. When I get my life insurance, it always reminds me not to do dangerous things like skydiving. And I would imagine that similar policies are being considered for fishing vessel insurance. And so what we don't know is just how those insurance companies will react to fishing within turbine areas. It could become a concern such that the rates will go higher or there will be an incident and insurance will be more and more difficult to come by. That's one of the bigger issues that's hanging over this entire process, is how and whether fishing vessel insurance will be affected. But other than that, it's really up to the individual vessel to determine. And this is an issue that's not necessarily specific to South Fork. This has been raised in just about every project area.

Doug: We've had several conferences and discussions with the Coast Guard, with developers, BOEMS, NMFS, each trying to understand and appreciate what the existing operational patterns are. And so we try to provide our satellite vessel location data to identify patterns, seasonally and yearly to evaluate whether these transit lanes align with what has been offered. And so we all compared our notes and there was a couple of maps being drawn and there were alternatives considered. And so they're still being considered in all of these projects. To date, South Fork and Vineyard Wind have not identified transit lanes in their approval process.

Lowry: Actually, that leads into to a question that I wanted to ask, hearing you talk about this stuff. To what extent are the cumulative impacts of wind development being considered as part of the individual consideration for projects? You mentioned, for instance, the effect of building turbines on black sea bass populations where it's actually maybe a boon for black sea bass. And South Fork's relatively small, but if we're building wind turbines up and down the coast, that could be a much larger change. How much are those kinds of comprehensive or cumulative impacts being considered for individual projects?



Doug: Well, by law, they're required to consider cumulative impacts. And it's just a matter of how you define the reasonable range of projects that might be affected. And so under the National Environmental Policy Act, they are required to do that in terms of their environmental impact statements. Each project will evaluate the cumulative impacts. And as we go project by project that reasonable and foreseeable future actions changes, and the first projects we have a subset. And as projects progress, we will probably have more and more projects added to that cumulative impacts. And so from all aspects covered under NEPA, the cumulative impacts will be evaluated. And right now, we have five turbines or seven turbines in the water, including Block Island and a research project off of Virginia. But that's it. And so right now, we have some information. We're using the best available information to evaluate those cumulative impacts.

Doug: But as I said before, there's a lot of uncertainty. Some of the biggest levels of uncertainty apply to the broader biological and hydrodynamic issues. For example, the cold pool is a pool of water, a stratification of the water that occurs due to our geographic and hydrodynamics for the Atlantic Coast. And it's very influential in terms of fisheries resources. And if the current flow is disrupted or affected in any way by the wind turbines, that could change where and when and how the cold pool forms and that in turn might have biological impacts. And so we're working with a number of entities to research what changes to the hydrodynamics might mean not only on the formation of the cold pool, but at the distribution of larval resources and eggs, as I stated before. And so these bigger picture ecosystem approaches are very influential in terms of the cumulative impacts.

Doug: From a biological basis on fishery resources, migration, feeding, predator, prey, relationships, expansion, and contraction of fishery populations, all of those factors are cumulative. They're not project specific in many cases. And so we need to understand what the populations of fish will do response to these wind projects. And then in turn, obviously, is the fishery impacts, where and when vessels will fish. If they don't feel comfortable fishing within wind turbine areas, will they relocate to a different area? And will that relocation change what they catch and how they catch it, or how much they catch and what the value is? And so from a cumulative perspective, that's one of the greatest challenges because in the current process, we have upwards of 2000 turbines that might be put into the Atlantic Coast between now and 2030, or more, depending on the efficiency of the turbines and size, etc. And so that's a lot of turbines across a large area and there's plans for more, as the administration goals increase.

Doug: And so understanding those dynamics from the oceanographic conditions to the biological conditions, to the socioeconomic operational conditions, is a challenge. And we're continually learning based on the research and interactions with the experts, fishing industry, researchers, developers, et cetera, they're all contributing to this broader narrative. And what our objective



as an agency is, is try to collect the best available information and put that analysis out there for consideration.

Lowry:

That's, again, seems like a pretty huge task, but really important to be thinking about the broader impacts of these projects as they come online. I want to spend the last few minutes we have together looking forward. And actually, the first question I have is we're seeing with wind development, it's the creation of a new industry in these communities on the East Coast. And there's no right answer here at all, but what do you imagine this kind of development doing to the social fabric or to the characteristics of these communities along the coast over time, assuming that we see continued ambition to create, to do wind development offshore?

Doug:

Sure. I mean, that's a very difficult question to ask. I mean, the social fabric of New England is wedded to the ocean and to the climate, to having a healthy environment. And I think all of those aspects don't necessarily have to compete. I'm an optimist. I think it's always possible for people to disagree, but still get along and agree on other issues. They may not agree on all issues, but they can agree on others. And I think there's definitely a possibility and a probability that we can coexist. It's just a matter of making sure that we recognize what we all collectively have in common and try to optimize ways that we can work together to achieve our collective interests. Fishermen want to protect marine sources while also catching them on a sustainable basis and making a profit doing so. In a similar way, offshore wind developers want to address climate change and produce renewable energy while making a profit doing so.

Doug:

And those objectives aren't mutually exclusive. It's in our collective interest to really identify the best places to site these offshore projects and build them in a way that minimizes the impacts to the resources, including operations and fishery in communities, but also generating the renewal power that we need to reduce greenhouse gases and achieve our objectives regarding climate change. And so I think we got to work together. It's going to take a lot of work. Open and honest dialogue with respect between parties is essential to doing that. And so it doesn't necessarily have to tear the social fabric. It can capitalize on our shared interests in the ocean and the environment and working on the water. And so we just need to build upon the wealth of knowledge that each party brings to the table, such as the immense amount of information and knowledge that the fishermen have regarding marine resources and the environment, and their ability to adapt along with the ingenuity of the offshore developers to find creative and effective solutions to address these very complex problems.

Doug:

And you can see the amount of effort that all parties are putting into this, be it from the number of fishermen that are participating in these meetings to the community outreach that developers are doing to the amount of work that states and federal agencies are investing in research opportunities and ways



to provide the data to inform these decisions. And so we're all vested in this, and hopefully, we can work together in effective way to address our collective interests, which I don't think are too far off. It's just a matter of trying to hone it in a manner that minimizes the impacts of the existing uses while facilitating the development of these new uses.

Lowry: There is a possibility of coexistence, not just one industry comes in and the other goes out. It sounds like what you're saying?

Doug: Right. I mean, that is ultimately our collective objective is to find ways to harmonize between the multiple uses while still minimizing the impacts to our marine trust resources. And that is certainly an objective that our agency holds dear.

Lowry: Not to end on a... That was such a positive note, but I think one question that at least is in my mind is whether RODA, which I mentioned earlier, is a fishing industry spokes organization, whether it will be likely to sue BOEM over its approval of the South Fork Constructions and Operations plan in the same way that it sued BOEM over its approval of Vineyard Wind Construction And Operations Plan. Do you see that as something likely to happen or are there differences between the projects that make it less likely?

Doug: Well, it's certainly a possibility. I can't certainly speak for the fishing industry, but they may very well sue if they feel there is an outstanding legal concern with the project, as it's approved. There are similarities between projects, but each project is unique and it's not necessarily appropriate to speculate or compare the lawsuits brought against one project with the prospect of a lawsuit for another project. As they noted before, the habitat, the fishery resources, the legal issues, the procedural issues, they're all different. And hopefully, we've done our duty and have minimized those differences to the extent possible and make sure that we're compliant with all legal standards.

Doug: But not everybody agrees with that. And so it's certainly within their right to consider legal action if they feel it is necessary to do so. But I think it's too early to say. Right now we have multiple lawsuits for Vineyard Wind, and it's unclear if and how those will be resolved and whether they will have influence over other projects. But to date, I'm not aware of any suits for South Fork. I think that we'll have to wait and see what happens on all parts, whether it's from South Fork or Vineyard Wind. But it's really difficult to compare projects because they're so unique by themselves.

Lowry: That totally makes sense. Given everything you've been saying about South Fork, each project is its own thing. Just as we conclude, are there any topics that we didn't really get to that you'd been wanting to talk about or thought we should cover in having this conversation today?



- Doug: It's difficult to say what's missing because there are so many parts to this dialogue. We could probably talk for days on offshore wind development and how it's affecting our communities, our resources, and what's the best way to do it. I think that's what is fascinating about working in this field is that it is a new realm. It is something that is novel. And we're all trying to explore how to make the best of the situation and really try to find a way to achieve our individual interests and our collective interests. And so it's definitely a challenging environment. We are learning new things every day. We are evaluating new things. The pace is substantial in terms of the impact, but it is precipitating a lot of good research. It's precipitating a lot of good conversations. Hopefully, it's engaging communities that haven't been engaged before.
- Doug: Hopefully it's bringing together participants that haven't learned about each other. Maybe I'm an optimist, but I'd like to think that we can all grow and learn from this process provided we all respect each other and try to base things on facts. And that's the challenge. It is a very difficult environment to operate in. It's a very difficult process to follow. It is very time consuming. But at the same time, it's a very important topic to address not only from addressing climate change, but also addressing and making sure that we have sustainable fisheries and fishing communities. That is part of the cultural fabric as you noted of this region, is that we are wedded to the ocean and we do appreciate the environment and we're doing our best to address both.
- Lowry: Thank you. I think that's a really good place to leave it. Thank you so much for talking with me today. It's always really fascinating to talk to you and hear how complex this moment in time is. Thanks for taking the time. And I hope to talk to you again soon.
- Doug: My pleasure. Thank you for having me.

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