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BD045

**Interviewer 1:** So just to get started, we’re hoping that you could tell us a little bit about your area of expertise.

**BD045:** Ok. Yeah. So, I came up through NOAA as an ecosystem modeler. So that’s where my name’s associated with the Chesapeake Bay office. I was building ecosystem models of the Chesapeake Bay. And just doing other kinds of ecological models. So I’m very, kind of, quantitative side of things. And then I moved on to be an ecosystem modeling coordinator for NOAA. So I worked with ecosystem modelers around the country to kind of develop these models and use them for fisheries management and ecosystem based management, that sort of thing. And now I’m doing an acting role as the division director of the marine ecosystem’s division in the office of science and technology under fisheries. So, plugging into ecosystem stuff a lot that way as well too. Just because I’m a modeler, and I used to do different modeling that’s commonly used in fisheries management, I get pulled into working with a lot of other offices on modeling as well. I don’t know if you’ve talked with other folks from NOAA, but there’s certainly the ocean service and other folks like that.

**Interviewer 1:** Gotcha ok. So is your work now still focused on the Chesapeake? Or is it broader spatially?

**BD045:** Yeah, it’s broader. I haven’t really pushed any buttons on a Chesapeake Bay model in a while. But I can speak to, sort of, more broadly what’s going on around the country with fisheries. Is there a regional focus to the project for you all, or…

**Interviewer 1:** Yes and no. So, the really high level goal of the project, like I said in the email, is to understand the role of biodiversity in marine resource management. But that of course is a really lofty high level goal. And so, to get a more context dependent theme, we’re running three case studies. One of which is in the Gulf of Mexico, so we just did that one last fall, down in Mobile with [Interviewer 2] and her collaborators at University of South Alabama. And then our second case study, which we’re starting now, is the Chesapeake Bay. And then our third will be the Salish Sea, which we’ll do this fall. So we’re talking with folks in those three case studies, but we’ve been also interviewing folks that were at national spatial scales or other regions, because we’re trying to get a really big picture perspective on some of these issues.

**BD045:** Ok. Cool, cool.

**Interviewer 1:** So yeah. So any -

**BD045:** Yeah, I’m familiar with, modeling activities in the Gulf and the Salish Sea as well.

**Interviewer 1:** Ok, cool.

**BD045:** And other regions as well. I can help with the big picture goals and maybe a little bit about the Chesapeake.

**Interviewer 1:** That’s perfect, yeah. Any context you can provide for the Chesapeake is helpful for us, but whatever you’re most comfortable with in terms of your current area of work responsibilities and expertise is great.

**BD045:** Yeah, sounds good.

**Interviewer 1:** Ok. So, for these interviews we’re using a tool called mental modeler. Are you familiar with that tool at all?

**BD045:** Is that the one that was developed by Steve Gray a long time ago?

**Interviewer 1:** Sure is, yeah.

**BD045:** Yeah. So I’ve done those workshops, these ecosystem modeling workshops, and I taught with that. So we actually invited him to come to one of our workshops and give us a demo in 2014. And he’s moved, I don’t know where he is now, but I’m glad to see that’s still being used. Because that’s one of the tools I promote using for ecosystem modeling. Build a mental model first before you try to start quantitative modeling. So, yeah. With that sort of semi-quantitative, or however you want to call it, that’s a big one. We’re using mental modeler like things, not necessarily mental modeler, so. I’m pretty familiar with it, yeah.

**Interviewer 1:** Awesome. Well this will be easy for you then. So that’s the tool that we’re using for this work. Steven Gray is a collaborator on this project. So he’s helping develop some of these methods.

**BD045:** Oh, ok. Cool! He might vaguely recall me from almost 10 years ago.

**Interviewer 1:** Ok, cool. I’ll mention it. So, yeah, I’ll go ahead and share my screen. And the hope is that we’ll actually build a mental model today together, through the research questions. And then yeah, what we’ll actually be doing is - so for our three case studies, we are using mental modeler to run workshops. It’s probably similar to what you’ve done with Steven Gray before. So, I’ll go through some pretty open-ended questions, and as you’re answering I’ll add in some system components to the map. And I’ll ask you to clarify, add, remove, concepts to make sure you agree with how we’re interpreting your responses. And then, as we have our system components down, we’ll go ahead and we’ll talk about potential linkages between those components. Um, but, to start - really like I said, the high level goal is to understand the role of biodiversity in marine resource management. And so, one thing that we learned early on in this project is that experts conceptualize and think about biodiversity in different ways. And of course you can measure it in multiple different ways. And so, just to start, we’re wondering what you think about when you think about biodiversity.

**BD045:** So many things. You’re going to need a lot more blocks. You know, so my first - when you hear biodiversity, you think back to your early ecology classes. You know, you can measure biodiversity with the Shannon Weaver, whatever, index. You know, all these indices. So to certainly think about it, yeah, this is a measurable thing, right? From a science, kind of a real first principle science. Like species indices, sure. And you know, because I’ve been in an agency where we try to do things, you know, all that conservation and management. You start to think about, you know, oh yeah. Biodiversity is more thinking in terms of, I don’t know how to say this in a single word but maybe I’ll just keep talking and we’ll come up with something. But a mix of species, you know. To kind of define an ecosystem more. Or functions in an ecosystem, or roles. Well, I wouldn’t say roles. You’ve got to see how they perform different functions in an ecosystem to, sort of, influence the resiliency. Yeah there you go.

**Interviewer 1:** Ok. Does that sound good? Ok.

**BD045:** Um, and then, there’s also in the advocacy world, it’s a very broad term. Biodiversity, when you think about that term, they say biodiversity but maybe they’re more focused on invader species, or protected species, that sort of thing. Yeah. So we’ll keep it to three things for now.

**Interviewer 1:** Ok. I didn’t mean to constrain you by only adding three boxes.

**BD045:** No, no, no! I think that’s good. Actually, I would just start getting into the weeds about it. Yeah, those are kind of the different realms.

**Interviewer 1:** Perfect, that’s great. Thank you. So, in an attempt to help conceptualize and help come up with a definition or framework for biodiversity, our team has come up with four bins for marine biodiversity. And so I’ll add those in as concepts. And we’re wondering if you agree or disagree with those components and we’d love to know if you would like to change anything about them. Really just getting your perspective of if this is how you think about biodiversity. So I’ll go add those in. They’re habitat forming species, key food web supporting species, species of conservation concern, and harmful organisms.

**BD045:** Hm. Very interesting. I don’t really think of - you know, harmful is another perspective for my mind. I don’t think a species is trying to do harm, it’s just - I’m just being me. It’s inconvenient for people or for some other animal, but that’s life. So I - I have not thought about it.

**Interviewer 1:** We can remove it if you don’t agree with it.

**BD045:** Oh no, you keep it there. I mean, I can see why people would. You know, harmful algal blooms, we use the word all the time. It helps in ecosystem management. So I get it. There’s pure science, plus policy management, and then the one that I think about, in terms of fisheries management, where do the things that you eat fall into these? You’ve got food web supporting species, right, so there’s a - if I think about if you have a food web, or a trophic pyramid, they’re more of a trophic level species, or intermediate. But we’re often eating, in a marine system - well we eat up and down the food web. But we often eat, you know, top level predators or mid-level secondary predators. And sometimes I guess we eat up and down the food web. We eat algae, we eat - so yeah, I guess just food species maybe? Or human consumption species? Maybe add that in there.

**Interviewer 1:** Ok. Yeah, we - other fisheries folks have added in… based on what you’ve just said we’ve added in top predators or target species for fisheries?

**BD045:** Yeah, target. That’s it.

**Interviewer 1:** Ok, I’ll just add target species then. And so, I’ll just add in… as you’re talking I can add in some more species as well. But I’ll add that in early. Um, ok. Any other thoughts on those bins before we move on?

**BD045:** Um… well yeah. I do think of a spectrum of, sort of - and maybe these are encapsulated here. But there’s more charismatic species, things that people pay attention to? Like the target species, like dolphins, or something that’s you know… and then there’s less charismatic, but just as important species. And they’re probably - on the venn diagram they probably overlap.

**Interviewer 1:** Yeah.

**BD045:** So, yeah. All of the lower trophic level stuff, it’s important for biodiversity and probably how you lump or split that would really affect your species indices scores, your biodiversity indices.

**Interviewer 1:** Right, ok.

**BD045:** I don’t know how to - maybe this is just another dimension of what you’re already showing me here. So I don’t know…

**Interviewer 1:** Yeah, ok. I think that that’s probably important to add. So we can add charismatic… do you want to do megafauna, or just species? Maybe species, based on what you were saying.

**BD045:** Yeah, either way is fine.

**Interviewer 1:** Ok. And then…

**BD045:** I don’t want to cut off if something’s megafauna or not.

**Interviewer 1:** Right, yeah. And then non-charismatic megafauna? Or non-charasmatic species, I mean?

**BD045:** Um, yeah we can put that for now. We can come up with something for it later.

**Interviewer 1:** Yeah, I don’t know if that’s right, but ok. Um, ok. And those… well I know you were talking about the species indices. But maybe we’ll circle back to that.

**BD045:** Yeha, yeah.

**Interviewer 1:** Ok, great. So then, when thinking about these components of biodiversity, how do you see the role of marine resource management in approaching management for these biodiversity components? Are there management decisions right now that are considering or managing for biodiversity?

**BD045:** Yeah. I think so. And it’s tricky because there’s such a broad array of management, right. We think, oh - a typical one we think of is just generally fisheries management. Right. Just basic, classic, conventional, single species management. And then there’s more ecosystem based fisheries management, or broader even yet, ecosystem based management.

**Interviewer 1:** Right. Ok. And then, are there management processes that you think are needed to better manage for biodiversity?

**BD045:** Um… I think ecosystem based management could be that thing, right. I think it’s, you know, the idea of ecosystem based management is to manage an ecosystem rather than a species at a time so you maintain a sustainable ecosystem for all the uses we have for a system. You know, human consumption, biodiversity, economic value, enjoyment, you know. Human recreation or enjoyment.

**Interviewer 1:** Yeah.

**BD045:** I think ecosystem based management is geared towards that. So it’ll be all these things along with biodiversity. Um, but, the issue is that we’ve just had such a long history of single species management, that we kind of overshadowed some of them.

**Interviewer 1:** Right.

**BD045:** Efforts towards ecosystem based management. And then, the percentage - I guess we’re still developing better approaches to manage for biodiversity. All these other values.

**Interviewer 1:** Ok, great. So one of our next questions was going to be, you know, what are the core ecosystem services that are considered in management for the system. So I went ahead and added human recreation and enjoyment and economic value, because you mentioned those that are key services.

**BD045:** So, wait. Say the question again? Ecosystem services…

**Interviewer 1:** Yeah, so are there core ecosystem services that you think about related to biodiversity, and in terms of these management approaches, are targeting?

**BD045:** Um… see I have this trick here, because I know about this type of modeling approach and the tendency for scientists to fill these up and have lots of complicated ideas. So I’m trying not to be like that, but I can’t help it. So I guess that doesn’t matter to you all, it’s part of what you’re trying to figure out. It’s not fair. I’ve written a paper on this stuff too.

**Interviewer 1:** You - yeah, no. Time is always a constraint on these things and they can get pretty complex, but we especially, like, getting the core concepts for us is really important at this phase to inform our agenda. So, yeah. Whatever you think of is what we want to capture.

**BD045:** Yeah, sounds good. Yeah. So other ecosystem services to biodiversity… yeah. I think biodiversity is just important for the basic structure or function of an ecosystem. A less diverse ecosystem should be less resilient. And then that would start to affect all the other ecosystem services, so.

**Interviewer 1:** Right.

**BD045:** So that’s - maybe a core ecosystem service is economic value and consumption. Yeah, that’s sort of… so that’s the heart of it to me. You know, maintaining biodiversity.

**Interviewer 1:** You’ve mentioned ecosystem resilience a few times, should we add that as a second component or maybe add that to this concept?

**BD045:** Yeah. Part of the structure and function - I guess resilience, yeah. I don’t know. As a side part to it, or offshoot of it.

**Interviewer 1:** Ok. Yeah we can do ecosystem resilience, and then we’ll add… so you’re saying this is what’s needed for ecosystem resilience, basically. And I think you’ve also been talking about the importance of this for ecosystem resilience as well.

**BD045:** Yeah.

**Interviewer 1:** Ok, great. And that’s - you know, for the sake of time too, I’d like to start drawing relationships like this as you’re talking. Because, you know, we won’t have time to go through every potential relationship, but adding in the core relationships that you think of is what we really want to capture.

**BD045:** Yeah, sounds good.

**Interviewer 1:** Ok. And then - so this one can really enhance the complexity of the model, but what are the core stressors that you’re thinking about when you think about management for biodiversity.

**BD045:** Ooof. Might need to squish all of these out. No, but the core stressors for…

**Interviewer 1:** Yeah, like, really the top ones that are relevant to this.

**BD045:** Yeah, I know. I’ll try to keep it to three or four.

**Interviewer 1:** That would be perfect.

**BD045:** Climate change would probably be a bigger… um, habitat destruction sounds bad, but call it habitat destruction. You know, we’ve got mangroves and corals that are all…. I think we’ve got overharvesting of the species that we consume. And pollution and microplastics, those sort of things. I think pollution’s a good general -

**Interviewer 1:** Ok.

**BD045:** Stressor. It’s the - this is off the top of my head, but if I were to sit down and do it myself, I’d probably model it very differently, well not very different, but somewhat different.

**Interviewer 1:** Yep. Yeah, we hear that alot. People say, you know, if we had an afternoon to think about this, they’d say it could spiral.

**BD045:** But yeah, we’ll keep it three or four. I’ll stop there.

**Interviewer 1:** Great. And then, the last thing for concepts - who are the, and again just the top four that you think of, who are the core stakeholders that are affected by these system dynamics?

**BD045:** Well, I don’t think we all appreciate it, but certainly everybody.

**Interviewer 1:** Ok, we can just do humans, or society.

**BD045:** Yeah society. Society in general. Um, but probably more appointed would be folks who fish, fisher folks, fisher people. Yeah, people who recreate in the marine environment, or their business is associated with marine recreation.

**Interviewer 1:** Operators and participants?

**BD045:** And certainly environmental NGOs who keep track of this, you know. I’m saying society in general, and then I’m listing people who would actually be paying attention.

**Interviewer 1:** Ok, um. Do you want to remove society? Or we can leave that broad as well.

**BD045:** If you can do it as a circle for all the groups, I don’t know.

**Interviewer 1:** Ok. We’ll leave it as an umbrella concept. Ok.

**BD045:** Yeah.

**Interviewer 1:** Great. Ok, so, with our remaining 30 minutes, it would be great to add in more relationships. Usually what i’ll do is i’ll go through each concept and I’ll ask if this concept was to increase, for example if ecosystem resilience was to increase in this system, how would that impact the other system components. We have a lot of components, so we can do it that way or if there’s just some core relationships that you see to get started that you want to add, whatever is easiest for you and makes most sense.

**BD045:** Yeah. I’m trying to process, here.

**Interviewer 1:** Yeah, take your time. I’m going to color code them as well, because we find that that’s helpful if you want to go through the management concepts and then the… the other groups.

**BD045:** Yeah, that makes sense. Good, so yeah, I’ll give you a minute to finish color coding those.

**Interviewer 1:** Ok. How does that look? Oh, I guess that was a service right? Ecosystem service. Ok, great.

**BD045:** So I’ll go ahead and talk about connections. But also i just want to talk about - there’s probably some clustering that can happen too. So single species management has a strong arrow that connects to human consumption and also a connection to human recreation. That would be a medium level, yeah.

**Interviewer 1:** Yeah, so I know that you’ve done mental modeler before. So you - for the sake of time we don’t always do the weights, but since you already know about them and you already know the tool, we can add in weights. Whether the relationships have a low, medium, or high impact. So I’ll go ahead and add those since you’re talking about them. So this is - single species is high human consumption, and then it’s medium to recreation, you said, right?

**BD045:** Yeah, right. I didn’t know if you’re going to do some later analysis, but you need more than just the one zero.

**Interviewer 1:** Yeah, we’ve been using the workshops to kind of flesh out some of the more core system dynamics, but it’s always great to have more detail during these individual meetings. So if you could add it, that would be great.

**BD045:** Yeah. Sounds good, um, I was kind of rambling but we can… so, let’s say habitat destruction should be probably connected to habitat forming species. And there’s sort of a medium weight. Well, actually a strong weight and negative, right. And then habitat forming species, well I guess these are all species that add to biodiversity and add to ecosystem indicators, so I don’t know how you would…. Like all of these species in my lower left corner kind of connect to diversity and ecosystem function.

**Interviewer 1:** Right, ok.

**BD045:** Yeah. Is that fair?

**Interviewer 1:** Yeah, yeah. And would those all be high? Or medium, or low?

**BD045:** Yeah. Um, I would say - well they’re all kind of equally. It’s hard to kind of - maybe an equal medium for everything.

**Interviewer 1:** Ok.

**BD045:** Yeah we could spend a week and really sort it out.

**Interviewer 1:** Yeah, so that’s where - we’re kind of trying to get a baseline level of data through these individual interviews. And [Interviewer 2] and I are analyzing them. Exactly as you described, semi-quantitatively and using the workshops to flesh out the details that are, you know, case study specific as well.

**BD045:** Yeah, yeah. And, um… let’s see. Pollution doesn’t connect here. And so pollution, I use it very generically because it might be microplastics in the ocean, it might be bait, so… but I’m thinking pollution certainly can have a positive effect on harmful organisms, if that makes sense.

**Interviewer 1:** Yeah.

**BD045:** Right. You know, poor water qualities, a little less desirable and harmful organisms can fit in that. Pollution can also have a negative effect on human consumption.

**Interviewer 1:** Sorry, you said pollution has an effect on human consumption?

**BD045:** A negative effect on human consumption, yeah. And now, I’m thinking that charismatic and non-charismatic species are not that useful in all this. But, I don’t know. If you want to keep them off to the side somewhere in case somebody else had crazy thoughts. I don’t know. This is your mental map, or your way of capturing thoughts. Whatever works best for you.

**Interviewer 1:** Yeah, i’ll just leave them in the corner. And [Interviewer 2]’s taking notes too so we’ll have those there.

**BD045:** Ok. And then also the species indices, that’s more of a measurement then a… so I don’t know if it would be connected to anything necessarily.

**Interviewer 1:** Ok. And we can also - yeah, so we also wanted the concepts to have directionality, so we could change it to data for species indices, or we can just kind of leave that off to the side too. Whatever you see fit.

**BD045:** Yeah. I don’t see how it fits exactly in this.

**Interviewer 1:** Ok.

**BD045:** So right now I’m looking at this and I’m feeling that I’m a fairly well tempered scientist, I’ve seen much worse graphs and sites. Oh yeah, have you thought about all these?

**Interviewer 1:** Yeah, these stakeholders?

**BD045:** Yeah. Well, like, I mean, all the stressors have a negative effect on the stakeholders, whether they appreciate it or not. That’s another thing. But that might start to - that’s going to make it a lot more…

**Interviewer 1:** So what we can do is I’ll add climate change to these guys, but then I’ll go back in and I’ll add all these guys after the fact so visually it’s not that crazy.

**BD045:** Ok. Yeah, it gets way more gnarly.

**Interviewer 1:** [Interviewer 2] will you make a note of that, for me? To make sure I do that. Thank you.

**BD045:** So, are we still thinking about connections?

**Interviewer 1:** Yeah, are there any… so maybe, yeah. Let’s see if there’s any that we don’t have. So we have stressors, we have stakeholders, um, I think we don’t have anything connected to endangered species and protected resources? If there’s anything there.

**BD045:** Yeah. And I’ll also, just because it’s so - harmful organisms would definitely have a negative effect on human recreation.

**Interviewer 1:** Mhm. Ok.

**BD045:** Um, and probably negative economic value.

**Interviewer 1:** Ok. And I’ve just been going ahead and making those ones, unless you specify.

**BD045:** Yeah, we can get them in as when and then we can… so, endangered species and protected resources should be influenced by EBM and by single species management. I mean, that’s right now how we manage.

**Interviewer 1:** Right.

**BD045:** But I would make it a little less strong for the ecosystem based management.

**Interviewer 1:** Less strong, ok. And are those positive?

**BD045:** What’s that?

**Interviewer 1:** Sorry, are those positive connections?

**BD045:** Yeah, yeah.

**Interviewer 1:** Ok. Just want to make sure.

**BD045:** I think. If we didn’t have any kind of management on them, I don’t know where they’d be. And how we can - they’re part of the diversity of species ecosystem function, so they feel less lonely now. Is there anything that’s not connected?

**Interviewer 1:** Let’s see. I think we have -

**BD045:** It’s really a cool software, isn’t it. It’s been a while since I’ve…

**Interviewer 1:** Yeah, it’s really, um, for the workshops part of what we’re doing is using this tool to run those scenario analysis, if you’re familiar with that component of it. So we’ll look at tradeoffs to different management approaches and how those will impact conservation and preservation of biodiversity versus the ecosystem services that different stakeholders and resource users rely on.

**BD045:** Yeah, I did this with other folks for Chesapeake oysters. Because different stakeholders, sort of, look at what affects oyster reefs and oyster harvests and sustainability. So it’s - and then I used to do it as just an exercise for classes I would teach. For stakeholder groups. So I think that’s really good too. Anyway, I’m off on a tangent here.

**Interviewer 1:** No, that’s - we’ll tell Steven Gray. He’ll love to hear that, that’s really cool. Yeah, anything else that you want to add?

**BD045:** I think this is a good… Well, this kind of bothers me over here. Climate change is affecting all these areas, but then it’s not connected to anything else. Right, I think climate change probably, I’d have to say, has a negative effect on the structure and function of ecosystems. And even then, I’m always - it’s going to change and it’s not what we’re used to, so that’s negative. I don’t know if that’s really negative or not, but that feels like it’s more connected to the rest of the…. And then I guess fisher folks have an effect on target species. I would say it’s, I don’t even think it’s all that negative. Maybe slightly negative? I don’t know, I’m not a -

**Interviewer 1:** We’ve also, you know, if folks just want to add a linkage and leave it as a question mark, we can do that as well. Of course it’s better -

**BD045:** Ok, let’s go with that. It’s probably - it probably varies species by species, stock by stock.

**Interviewer 1:** Ok. Let me make sure that goes the way…. And do - it sounded like we should do that for climate change to structure and function the ecosystem? Or should we leave that as negative?

**BD045:** Yeah. I - yeah. Because it’s - yeah, exactly. I’m saying it’s negative, but it’s like well, it depends. Right? If you want to be able to catch shrimp in the Chesapeake Bay in the next few years, that’s a positive thing.

**Interviewer 1:** Mhm.

**BD045:** But, I mean like harvestable quantities. You could do it now, but… let’s see. We really haven’t talked about how the stakeholder groups… although there’s the fisher folks. And I guess, any of it… are you allowed to do loops in these.

**Interviewer 1:** Mhm. Are you - like a feedback loop to itself?

**BD045:** No, not a self feedback, but you know, you can only have one arrow in one direction per block, right?

**Interviewer 1:** You can have it be bi-directional. So it goes both ways between two concepts. Mhm.

**BD045:** Ok, I forget how these work. Because I feel like climate change is having a negative effect on all these things, but climate change is also happening - these things are also having an effect on climate change. Like society, in general, is probably increasing climate change, so that’s a positive effect. I think environmental NGOs are decreasing or slowing down, so maybe that’s a negative, but very slight. Yeah, there we go. Alright. So again, if we talked for a week we could keep adding and doing things. If you’ve got 15 minutes we could pause and see if there’s anything else? Or…

**Interviewer 1:** Yeah, yeah that’s great. Ok, we’ll stop and save there. Yeah, so I guess if that looks good, in the last 15 minutes I wanted to ask if you had any recommendations for other folks in the region or in general that you think would be good participants in our project or are willing to talk with us? Specifically, and I’m not sure if you worked with any stakeholders or resource users in the Chesapeake, but we’re starting workshop recruitment for the Chesapeake and connecting with stakeholders and resource users can be a challenge. So like, any fisher folks, recreation users, would be great if you had any thoughts.

**BD045:** Yeah, you know, how long are you going to be doing these? How many… are you going to ramp this up in a couple weeks, in a couple months, or six months?

**Interviewer 1:** So, our workshop is the first week of April. It’s April 3rd and 4th in Edgewater. So we’re hoping to have - we’re doing individual interviews for the month of February. So, we’re hoping to be done by early March, and we’re asking folks if they’d be willing to come to the workshop the first week of April.

**BD045:** Ok, um… have you work with anybody from the NOAA Chesapeake office?

**Interviewer 1:** We’ve met with one person from the Chesapeake office. Bruce Vogt, we’ve talked with.

**BD045:** Ok, yeah. He’s great. I’d also say he probably has a lot of recommendations for fisheries, gulf rehabilitation, so that would be a good network. If you want someone who works in the Chesapeake and knows about these models, I could recommend to you one of my co-authors. Amy Freitag. Have y’all come across her name?

**Interviewer 1:** I don’t think so.

**BD045:** I can - let me just give you her email right now in the chat. And then have you worked - what fishery agencies have you talked to?

**Interviewer 1:** So, I’ve talked with someone from the Mid-Atlantic Fisheries Council. And then we have someone from… is it? [Interviewer 2], what’s the agency that you had recommended? The Atlantic Fisheries Commission? I’m getting that wrong.

**BD045:** Atlantic Marine Fisheries Commission. AMFC. Not to confused with the South Atlantic Fisheries Council, that’s the SAFC. Um, I would also think of the state agencies. Maryland DNR, Virginia Marine Resource Commission, Chesapeake River Fisheries Commission, uh… yeah. I would grab a person or two, if you’re trying to get some management agencies. And then they are plugged into some stakeholder groups. You know, they have their different councils and stuff. And you might get lucky and a few other folks could also respond as well. So that’s probably your best in to those. I would give - well the name that we give, Linn Fagely, with the DNR. Does that sound familiar to you?

**Interviewer 1:** Yeah, it does.

**BD045:** Have you worked with her?

**Interviewer 1:** I don’t think we’ve talked to her, but I do have that name.

**BD045:** Yeah, ok. Yeah, that’s the sort of people I would… but then there’s also recreational, you know, Maryland Watermen, if you’re plugged into somebody there.

**Interviewer 1:** I actually don’t think we have.

**BD045:** I forget what they call it now. There’s a lot of these watermen’s groups, they call them, but Maryland Watermen - they just had a big expo. Maryland Watermen Association. And it’s in Annapolis. Kind of near the goodwill there. Maryland Watermen Association, probably some of those in Virginia. So that’s more commercial, and then something like CCA. I forget what things stand for.

**Interviewer 1:** It’s ok. I think we have already been connected with someone from CCA.

**BD045:** Chesapeake Conservation Association, yeah. So, if you’ve got the big groups then you probably… you know, I don’t remember specific names anymore. It’s getting harder and harder for me to - and a lot of those move around too. Because it’s been around 6, 7 years since I’ve worked in the Chesapeake Bay. On a regular daily basis. Well, there’s another guy who does ecosystem modeling who also have connections with some fishing groups. That would be Tom Ihdi. He’s at the um - I can look up his email address for you. He’s going to think a lot like me, but even more detailed unfortunately. I’m trying to think… I don’t know if you - sorry, you were asking for stakeholder groups. Not just science groups. There’s the Chesapeake Bay Foundation, have you talked to those folks?

**Interviewer 1:** I don’t think so. So I did give a presentation last fall to the sustainable fisheries GIT which I think was physically at the Chesapeake Bay Foundation, but I don’t think we’ve talked with anybody there.

**BD045:** Yeah. So you could look up their fisheries people. They would have some connections. Other stakeholders… here’s an interesting idea, so there’s the Chesapeake Network Funders, or the Chesapeake Funders Network. I’ll look that up for you. But they would have a much bigger picture view, you know. It’s a group of all the places like the Chesapeake Bay Foundation and others who kind of pull together. It’s kind of a meta group of funders. And they have a new - Megan Melligan Pearson is their executive director. I’m just going to have to see their website. I can’t find their email addresses. Oh no. Here it is. I’ll send those. And they tend to get very broad into water quality and stuff. So I don’t know how far down th biodiversity… I mean they have climate related projects. You know, they’re a stakeholder but they also club together a lot of stakeholders. So that’s off the top of my head. Maybe some groups I haven’t thought about to add to your list.

**Interviewer 1:** Yeah, no that’s great. There’s a lot that we haven’t heard of so that’s great. Thank you so much. Yeah, and then just the last thing - if you have the capacity and are interested in joining us in April at the workshop. I know you said that you haven’t been working in the Chesapeake as much, but I think your perspective would be really useful at the workshop if it interests you. Obviously you don’t have to give an answer right now, we can send you information if you’re interested.

**BD045:** Yeah, I’m interested partly to see some of the folks I haven’t seen in a while but also it depends on when and all that sort of stuff. So it’ll be in Annapolis is what you’re saying?

**Interviewer 1:** It’ll be in Edgewater at the Smithsonian Environmental Research Center. And it’ll be April 3rd, a full day on April 3rd and a half day on April 4th. I have those dates right, [Interviewer 2]? Right.

**BD045:** I will lock my calendar and I can’t make any promises, so…

**Interviewer 1:** Yeah.

**BD045:** Full day April 3rd… and what are we calling this? Biodiversity group or something?

**Interviewer 1:** Yeah! Sure. Biodiversity workshop. Sure.

**BD045:** I mean, I’ll just mark that on my calendar and we can sort it all out later.

**Interviewer 1:** Great, perfect.

**BD045:** Yeah this is good. The other connection I have here in my role as the Director of the Marine Resources Division is we have the National Systematics Lab under our group. And we just had a big thing where our administration for NOAA fisheries had an understanding with the Smithsonian. So lot’s of connections there. Emmett Duffy is, you know, a good friend of NOAA and all. So it’s probably good to keep those connections since we’re supposed to be understanding each other at a very high level.

**Interviewer 1:** Yeah. So Emmett’s actually my supervisor. He’s the lead on this project.

**BD045:** I thought that might be the case. And I kind of knew him through the Chesapeake Bay and now through the National Systematics Lab. But if we ever met, it was very brief.

**Interviewer 1:** Cool.

**BD045:** And the final thing I have for y’all. Once the paper gets published, I’d like to see it afterwards.

**Interviewer 1:** Yeah, absolutely. We’re working on our first manuscript right now which will be from these individual interviews, and we’re writing workshop summaries after the workshops and we’ll write a manuscript as well. So, um. If you aren’t able to attend the workshop, we’d be happy to send you the workshop summary if you’d be interested in that as well.

**BD045:** And are y’all thinking about - what we did with our oysters is we had all the different stakeholders and we’re trying how to… big picture solve the problems. First off, do we see a problem the same, and then second of all, if we do interviews, do we get the same results based on those stakeholder groups? Or what ever group it is? It’s like, oh yeah actually, even though we see things a little different, you see these preparations having the same affects on how you see the world. I think our title is Are you think what I’m thinking?

**Interviewer 1:** That’s great. Is that a published manuscript that I could find on your google scholar page?

**BD045:** Yeah, I think Amy Frietag was the lead on it.

**Interviewer 1:** Cool, ok.

**BD045:** Alright.

**Interviewer 1:** Well, thank you so much for your time again, we really appreciate it. And I’ll follow up with that workshop email hopefully in the next couple of days and we’d love to see if you’re able to come. But of course, no worries if not. We know everyone’s super busy.

**BD045:** Yeah. Sounds good. I’ll tentatively commit right now since it’s far out. Alright, take care.