National Sea Grant Advisory Board
Fall 2024 Meeting
Savannah, GA
August 18, 2024
Briefing Book

National Sea Grant Advisory Board Bios

2024-2025

Jim Murray, Ph.D. (Chair) Naples, FL
Current term (1 year extension) ends 1/25/2025

Dr. James Murray retired in 2011 as Deputy Director of the National Sea Grant College Program. He spent his entire 37-year career with Sea Grant including Sea Grant Scholar at SUNY College of Environmental Science and Forestry, Extension Specialist at Minnesota Sea Grant, Extension Leader at New Jersey and North Carolina Sea Grant Programs, National Sea Grant Extension Leader and finally Deputy Director of the National Sea Grant College Program. Murray was the recipient of the President's Award, Sea Grant Association, and the Wick Award for Visionary Career Leadership by the Sea Grant Extension Assembly. Currently he is a member of the Florida Sea Grant Extension Program Advisory Committee and volunteers at NOAA's Rookery Bay Estuarine Research Reserve.

Nancy Targett, Ph.D. (Vice Chair) Portsmouth, NH
Current term (1st) ends 6/5/2026

Dr. Targett is Distinguished Professor Emerita and Dean Emerita, University of Delaware, College of Earth, Ocean, and Environment (CEOE). She has more than 38 years of experience in higher education and served 10 years as Director of Delaware Sea Grant and Dean of CEOE. Then, as Acting President at UD, she guided the institution through a 15-month period of transition. Dr. Targett also served as Provost
and Vice President for Academic Affairs at the University of New Hampshire. At UD she led the team that formed First State Marine Wind (FSMW), a joint venture between the university and Gamesa Technology Corporation that built a commercial scale wind turbine on the marine campus. She served on the FSMW Board of Directors for six years. Dr. Targett also served a

three-year term as the Chair of the Board of Trustees for the Consortium of Ocean Leadership, six years on the Mid-Atlantic Fisheries Management Council, and three years on the Ocean Studies Board. While DESG Director she held multiple elected positions for the Sea Grant Association. Dr. Targett was named an Aldo Leopold Leadership Fellow in 1999 and in 2016 received the Order of the First State from then-Governor Jack Markell in recognition of her contributions to the State of Delaware. Dr. Targett received her M.S in Marine Science from University of Miami, and her Ph.D. in Ocean Science from University of Maine.

Deborah Stirling, J.D. (Past Chair) Columbia, SC
Current term (2nd) ends 9/6/2026

Ms. Deborah Stirling is a researcher in the Burroughs and Chapin Center for Marine and Wetland Studies at Coastal Carolina University in South Carolina. She manages the Southeast Atlantic Econet program (SEA Econet), which is the National Weather Service's presence in the Southeast for the National Mesonet Program. In addition, she is CFO of Infinite Habitat @ Innovista, an engineering design and sustainability company which offers consulting particularly in renewable energy, and other aspects of the built environment. Ms. Stirling is a retired SC attorney specializing in science, engineering, technology, environment, and climate research. In addition, she was a legislative advisor to the National Academy of Sciences for several years. Ms. Stirling spent 10 years as Subcommittee Counsel for Oceans and Atmosphere for the U.S. Senate Committee on Commerce, Science, and Transportation, and then was Legal Counsel for the University Corporation for Atmospheric Research (UCAR). She currently serves as a Commissioner on the South Carolina Floodwater Commission. Ms. Stirling has a J.D. from the University of South Carolina Law School.

Peter Betzer, Ph.D. (Member-at-Large) St. Petersburg, FL
Current term (2nd) ends 6/25/2025

From 2008 to 2018 Dr. Betzer served as the President of the St. Petersburg Downtown Partnership, a group focused on expanding the cluster of technological businesses that are associated with St. Petersburg's extensive marine and medical research complex. Prior to joining the partnership in 2008, Dr. Betzer served as Founding Dean and Professor of The University of South Florida's College of Marine Science. Dr. Betzer is the author of over 60 scientific publications in journals and books and in 1985 was a co-recipient of a Distinguished Authorship Award from the National Oceanic and Atmospheric Administration. Dr. Betzer was appointed to the Ocean Sciences Advisory Panel for The National Science Foundation (NSF) in 1986, was elected to The University National Oceanographic Laboratory System (UNOLS) Council in 1990 for which he served two terms (1992-1996) as Vice-Chair. In 2005 Dr. Betzer was appointed to the Ocean Research and Resource Advisory Panel (ORRAP) a 15-member group that formulates recommendations about ocean research to federal agencies. Dr. Betzer received a Distinguished Achievement Award in 2010 from the University of Rhode Island. Dr. Betzer has a Ph.D. in chemical oceanography from the University of Rhode Island's Graduate School of Oceanography, and a B.A. in geology from Lawrence College.

Carole Engle, Ph.D. Strasburg, VA
Current term (2nd) ends 9/6/2026

Dr. Engle is a nationally recognized and highly-respected aquaculture and natural resource economist. She served as a Professor of Aquaculture Economics and Marketing at the University of Arkansas – Pine Bluff (UAPB) and created and directed UAPB Aquaculture and Fisheries Center. Dr. Engle has produced numerous economic and market analysis oriented peer-reviewed, extension and grey literature papers, book chapters and books to the benefit of commercial fish and shellfish farmers, prospective farmers, government agencies, and the public. She also has shared her expertise, research, and experience in a wide variety of capacities as an officer or member of several professional associations and as chair or member of numerous public and private advisory groups. Dr. Engle has a Ph.D. and M.S. in Aquaculture Economics from Auburn University and a B.A. in Biology/Rural Development from Friends World College.

Deidre Gibson Ph.D. (Member-at-Large) Yorktown, VA
Current term (1st) ends 6/5/26

Dr. Gibson is the Chair of the Department of Marine and Environmental Science at Hampton University. She is a broadly trained biological oceanographer with research interests centered on the trophic ecology, reproductive biology, and population dynamics of zooplankton, but more specifically, gelatinous zooplankton, and currently oyster restoration. Her research harbors an emerging emphasis on identifying mechanisms through which climate change and anthropogenic alterations of habitats affect gelatinous zooplankton and other aquatic organisms. While at Hampton University, she has served as PI on several NSF and NOAA grants that continue to train the next generation of African American marine scientists. Dr. Gibson earned her B.S. in Oceanography from the University of Washington and Ph.D. in Marine Science from the University of Georgia/Skidaway Institute of Oceanography.

Meghan E. Marrero, EdD New Rochelle, NY
Current term (1st) ends 1/30/2027

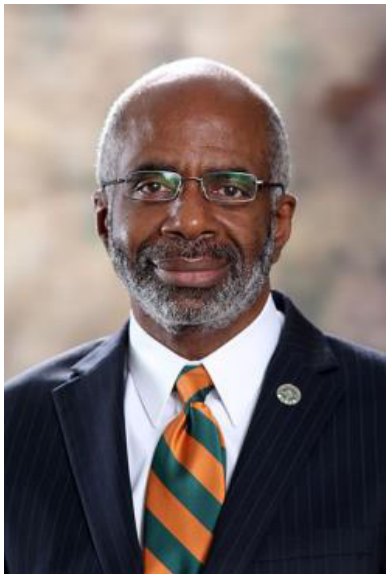
Dr. Meghan Marrero is a Professor of Secondary Science Education at Mercy University and co-Director of the Mercy Center for STEM Education, working primarily to improve access to STEM education for diverse learners. Her research centers on ocean literacy of students and teachers, as well as STEM teacher education. Meghan was a Fulbright Scholar to Ireland in 2018, where she focused on teaching and research around family learning in science and engineering for early childhood students and their families. A former high school science teacher in New York City, Meghan has been involved with several national and international ocean literacy initiatives and currently serves as the United States National Coordinator for the All-Atlantic Blue Schools and USA Blue Schools. She served as President of the New York State Marine Education Association (NYSMEA) from 2009-2014, and President of the National Marine Educators Association (NMEA) in 2018-19. Meghan holds a B.S. in Biological Science from Cornell University, an M.A. and EdD in science education from Teachers College,

Columbia University, and an advanced certificate in educational leadership from Queens College.

Kristine Norosz Petersburg, AK
Current term (2nd) ends 12/9/2026
Kristine Norosz has worked in multiple sectors of the Alaska seafood industry for close to four decades. She started at the Alaska Dept. of Fish & Game in 1979 as a fisheries technician and biologist doing field work for both the Sportfish and Commercial Fisheries Divisions. Moving to the commercial harvesting sector she worked as a deckhand using a variety of gear types to target halibut, salmon, crab and black cod. In 1989, she entered the policy arena and served as executive director of two harvester organizations before being recruited by a major seafood processing company. Kris was employed as the Director of Government Affairs for Icicle Seafoods, Inc. until she retired in 2017. Kris has served in various capacities on many fisheries and public policy bodies: member of the International Pacific Halibut Commission and Alaska's Arctic Policy Commission; advisor to the North Pacific Anadromous Fish Commission, North Pacific Fishery Management Council and the Northern Panel of the US/Canada Pacific Salmon Commission. She continues to promote workforce development programs for Alaska's maritime industry. A resident of Petersburg, Alaska for the past 46 years, Kris serves on several state-wide non-profit boards and actively promotes philanthropy.

Jack Payne, Ph.D. Gainesville, FL
Current term (1st) ends 1/30/2027
Jack Payne recently retired as the Senior Vice President for Agriculture and Natural Resources at the University of Florida and the Administrative Head for the Institute of Food and Agricultural Sciences. Prior to his position at Florida, he served as a Vice President at Iowa State University, and, previous to Iowa State, he was Vice President and Dean at Utah State

University. Jack also has experience at two other land-grant institutions: Pennsylvania State University, where he served on the faculty of the School of Forest Resources, and, later, at Texas A&M University, where he served as a faculty member in the Fisheries and Wildlife Department. After leaving Texas A&M University, Payne had a long career with Ducks Unlimited (DU), as their National Director of Conservation. While at DU, some of his successes included the development of DU's private lands program with agriculture, the development of a national conservation easement program and the expansion of their Mexican program to Central and South America. Payne received his M.S. in Aquatic Ecology and his Ph.D. in Wildlife Ecology from Utah State University and is a graduate of the Institute for Educational Management at Harvard University. Jack is a member of the Farm Foundation Round Table, a member of the Senior Advisory Board for Solutions from the Land, and a Board Member of the Bonefish and Tarpon Trust. He recently was appointed for a 4-year term to the National Sea Grant Advisory Board by the U.S. Secretary of Commerce Gina Raimondo.



Larry Robinson, Ph.D. Tallahassee, FL
Current term (1st) ends 1/17/2027

Dr. Robinson serves as Florida A&M University's (FAMU) 12th president and as a distinguished service professor at the University. Dr. Robinson is also actively engaged in research with students and faculty as the director and principal investigator of the Center for Coastal and Marine Ecosystems. Through the Center, FAMU is leading the partnership and collaborating with five universities to make a major impact on coastal and marine ecosystems education, science and policy. Dr. Robinson's recent honors include an appointment in July 2018 to serve on the national STEM Education Advisory Panel. Congress authorized the creation of the panel to encourage U.S. scientific and technological innovations in education.

Martin Tadlock, Ph.D. Sherman, TX
Current term (1st) ends 1/30/2027

Dr. Martin Tadlock is a Professor of Education at the University of South Florida where he served as Regional Chancellor of the USF St. Petersburg campus. Dr. Tadlock has a 43-year history of leadership in higher education as a professor, chair, dean, provost, and interim president across five different universities. While at USF St. Petersburg, he received the 2021 National Association of Student Personnel Administrators President's Award and led collaborative efforts of four colleges and universities to create a Truth, Racial Healing and Transformation Center for St. Petersburg/Pinellas County. Prior to Florida, he was instrumental in securing a state financial award in 2006 creating a Manufacturing and Applied Engineering ATE Regional Center of Excellence in Minnesota, one of two National Science Foundation Applied Technology Education Centers in the state. While at Utah State University from 1993-2001, he established the first middle level teacher licensure program in the state and the largest graduate seminar in the western U.S., providing professional development to over 500 middle school teachers and administrators each year. Dr. Tadlock began his career as a middle school teacher in the 1980's, then as a professor and director of the National Center of Education for the Young Adolescent, a University of Wisconsin Center of Excellence and the largest provider of professional development for middle school teachers and administrators in the U.S. Dr. Tadlock's Ph.D. is in Educational Administration and Leadership from Miami University of Ohio.

National Sea Grant Advisory Board
2024 Fall Meeting Draft Agenda

Marriott Savannah Riverfront
100 General McIntosh Boulevard
Savannah, Georgia, 31401
August 18, 2024

Sunday, August 18, 2024
Open to the public 8:30 am - 5:15 pm eastern

8:30 - 8:40 am (10 mins)	Welcome Designated Federal Officer Brief; Roll Call Call to Order; Approval of Agenda; Approval of Fall Meeting Minutes	Dr. James Murray - Board Chair Ms. Susan Holmes - Designated Federal Officer Dr. James Murray - Board Chair
8:40 am	Public Comments	Ms. Susan Holmes - Designated Federal Officer
8:40 - 8:50 am	Appreciation for Outgoing Board Member	Dr. Jonathan Pennock - Director, National Sea Grant College Program
8:50 - 9:00 am	Board Executive Committee Membership - *(Decisional)*	Dr. James Murray - Board Chair
9:00 - 9:15 am	New Board Subcommittee Discussion - MSI-related charge/ membership - *(Discussional)*	Dr. Deidre Gibson - Board Member
9:15 - 9:30 am	New Board Subcommittee	Dr. Nancy Targett

	- Mission Support Charge and Membership - *(Decisional)*	- Board Vice Chair Dr. James Murray - Board Chair
9:30 - 10:00 am	Morning Break	Dr. James Murray - Board Chair
10:00 am - 12:00 pm	“State of Sea Grant” Report to Congress - *(Discussional)*	Dr. Jack Payne - Board Subcommittee Chair
12:00 - 1:00 pm	Lunch Break	Dr. James Murray - Board Chair
1:00 - 3:00 pm	Sea Grant Extension Panel - *(Informational)*	Dr. Jack Payne - Board Member
3:00 - 3:30 pm	Afternoon Break	Dr. James Murray - Board Chair
3:30 - 5:00 pm	Strategic Discussion of the National Sea Grant College Program (NSGCP) - *(Discussional)*	Dr. Jonathan Pennock - Director, National Sea Grant College Program
5:00 - 5:15 pm	Wrap up	Dr. James Murray - Board Chair
5:15 pm	Adjourn	Dr. James Murray - Board Chair

National Sea Grant Advisory Board Meeting
March 4-5, 2024
Draft Meeting Minutes

Yours Truly Hotel
Washington, DC

Monday, March 4, 2024

OPEN TO THE PUBLIC – 9:00 am – 6:00 pm Eastern Time

Dr. Jim Murray (Board Chair) welcomed everyone and officially called the meeting to order. He then turned the meeting over to Ms. Holmes (Designated Federal Officer (DFO)) for a DFO briefing and Roll Call.

Ms. Holmes read an official statement explaining her role to the group and took the roll call of the members of the Board. She then turned the meeting over to Dr. Murray (Board Chair), who went over the agenda for the meeting and then called the meeting to order.

Roll Call
Members of the National Sea Grant Advisory Board (Board):
Dr. Peter Betzer; Dr. Carole Engle; Dr. Deidre Gibson; Dr. Meghan Marrero; Dr. Jim Murray (Board Chair); Ms. Kristine Norosz; D. Jack Payne; Dr. Martin Tadlock; Dr. Nancy Targett (Vice Chair).

Nominee for the National Sea Grant Advisory Board (Board):
Dr. Dijanna Figueroa

Board Ex Officio Members:
Dr. Jonathan Pennock – Director of the National Sea Grant College Program (NSGCP), and Dr. Darren Lerner, President of the Sea Grant Association (SGA).

National Sea Grant Office (NSGO) staff in attendance:
Ms. Susan Holmes – Designated Federal Officer (DFO) for the Board, National Sea Grant Office, Dr. Nikola Garber – Deputy Director, National Sea Grant Office, Ms. Donna Brown, Project Administrator, National Sea Grant Office; and Ms. Patricia Razafindrambinina, National Sea Grant Office.

9:00 am - 9:10 am: Approval of Agenda and Minutes (Dr. Jim Murray, Board Chair)

Agenda

Dr. Murray gave an overview of the agenda and requested a motion to approve it.

Motion to approve the March 4-5, 2024 agenda: Dr. Peter Betzer

2nd: Ms. Kris Norosz

Vote: All in Favor

September 2023 Meeting Minutes

Dr. Murray asked for a motion to approve the September 2023 meeting minutes.

Motion to approve the minutes from the September 10-11, 2023 Board Meeting: Ms. Kris Norosz

2nd: Dr. Meghan Marrero

Vote: All in Favor

9:10 am: Public Comments (Ms. Susan Holmes, Designated Federal Officer (DFO)

There were no public comments.

9:10 am – 10:10 am: Introduction and Discussion with NOAA Administrator (Dr. Richard W. Spinrad, NOAA Administrator)

Dr. Murray (Board Chair) introduced Dr. Richard Spinrad, current NOAA Administrator. Dr. Spinrad has served as Chief Scientist for NOAA management and he was the Assistant Administrator in OAR for a number of years. He has been a faculty member and has had appointments at Oregon State University, George Mason University, and the Naval Academy and he now has 12,000 employees he's responsible for at NOAA. So, without saying anything further let me introduce Dr. Rick Spinrad, thank you for joining us.

Dr. Spinrad - Thanked everyone for all their work in support of NOAA and emphasized the importance of science in education, particularly through his appointments at various universities. He stated that this was his first opportunity to join the National Sea Grant Advisory Board (NSGAB) as the NOAA Administrator and welcomed the opportunity to answer any questions about the content of his NOAA Update. Excited to be here today to share about NOAA priorities and have an open conversation. I was supervisor for the Director of the Oregon Sea Grant Program – not indicative of every program, but familiar with Sea Gant design, structure, etc. The Sea Grant Program is a perfect example of how NOAA works with our state partners to provide substantial benefits to coastal, marine, and Great Lakes communities through research, extension, and education.

NOAA's Key Strategic Priorities:

- Establish NOAA as the U.S federal government authoritative source for climate products and services.
- Advance economic development without sacrificing environmental stewardship, with a particular focus on advancing the New Blue Economy.
- Integrate equity into everything we do, including how we build and provide services within NOAA. Promote diversity, equity, inclusion and accessibility in the workforce. Externally, we will provide equitable access to our products and services including tribal.

Linking Sea Grant and NOAA Equities:

- BIL/IRA Investments
    - Recent Louisiana Sea Grant visit during OSM.
    - Partnering with others
    - Marine Debris
    - Climate-Ready Workforce
    - Coastal Inundation Community of Practice
    - Alaska Native Tribal Health Consortium
- We're building out other partnerships as well:
    - USPTO/NOAA MOU;
    - RAA
    - And more on the horizon.
- Seeking guidance on how to sustain the momentum of these activities:
    - USPTO MOUG Signing
    - Marine Debris Workshop hosted by Oregon Sea Grant.
    - CERF
    - Tribal Engagement Sea Grant
    - Recent meeting with Louisiana Sea Grant and LSU during Ocean Sciences Meeting 2024
    - Living Shorelines (Virginia Sea Grant)
- Sustaining the Momentum:
    - We are getting into the final year of this administration.
    - We've made progress through investments in industry proving grounds, accelerators, etc. via BIL and IRA, but not through base funding.
    - How do we maintain this progress?
- Sustaining the Momentum:
    - We are getting into the final year of this administration.
    - We've made progress through investments in industry proving grounds, accelerators, etc. via BIL and IRA, but not through base funding.
    - How do we maintain this progress?

- FY24 appropriation, FY25 budget, FY26 formulation
    - Federal budgets are a multi-year efforts with Congress and the White House
- But there are also opportunities:
    - Offshore Wind (OSW)
    - mCDR FTAC and investments
    - FRN posted on 02/23/2024 to inform the development of an implementation plan regarding marine carbon dioxide removal (mCDR) research.
    - Responses will be accepted until April 23, 2024
    - New Subcommittee on Climate Services
- New Opportunities:
    - The recent release of the National Climate Resilience Framework.
    - NCA5 is being rolled out at the White House level.
    - The FTAC is moving forward.
    - We're seeing new mCDR investments.
    - NOAA will continue to play a leadership role at the upcoming COP28 in Dubai.

Dr. Spinrad thanked everyone and then opened the floor for Q&A session.

Dr. Murray – Based on background, we're unable to get additional monies to be the core of our human resources because it's my understanding, it's so competitive and some other coastal programs were able to sort of build their core. So, the question I have is, it's an age-old problem in Sea Grant for sustaining our infrastructure over the years, that has never kept up with that need. So, looking to the future, what might Sea Gant do to position itself to build our core resources at the state local level?

Dr. Spinrad - The first thing I'd say is I do understand the specific implications to Sea Grant. And I'd say this is not necessarily the problem, in the sense that a lot of what we're doing across the board, though, is grossly undervalued. But I think there are two key elements that I'd recommend you think about. One is, one is sort of strategic and the other would be focusing on the economic development piece. Doing so in the context of what I said should be the future build out of this trillion-dollar industry. I'm trying to find a better phrase for it. I call it the climate industrial complex. The trouble is that it has a bit of a negative connotation to a lot of folks. But I think you understand what I'm saying is that this thing is turning along, I guarantee you, in every one of the communities where you live, there is an entrepreneur who's thinking about, can I develop a climate product that will work for my local fishing industry, my local community planner, and I would say, to the extent you can up the game, within Sea Grant to engage with that group, every community has an economic development. To the one sort of number, every state in every county, every parish has something like that. But let's think about

exploiting economic development. It might mean a different kind of extension agent in the future. But that's not necessarily bad. And I think that gets to the point of workforce development as well. So, I would say focusing on economic development may be a good way to do it. And we want to help you do that in a way to have Sea Grant extension agents on the ground purely advocating for economic development, then some venture capitalists saying hey, I want to do this thing, because folks who might tend to trust venture capitalists, people trust the agents on the pier. The other part, I would say, is a tactical one. And it's one that I'm trying to build into a lot of our budget justifications and activity. And it's spending less time talking about the value proposition more time talking about positive wins. So, the way I characterize this is, the National Weather Service will tell you their missions, products and services, their sort of unwritten defenses passes or there is loss of life and property. And I mean, it sounds awful. But the fact of the matter is, we have more success in justifying investments in radars and new satellite models or new forecast model development. If you don't do this, you will have to evacuate more of the population during a hurricane and there is a greater chance of loss of life. If you don't do this, we won't be able to sustain the average 12-minute lead time on tornado forecast. If you don't do this, we're never going to be able to tell you when a tropical cyclone like Burbach is going to transit all the way up to the currency. And so, the cost of words is what not doing certain things means to lifestyles and livelihoods is an argument that can work.

Dr. Betzer – You spoke about the offshore wind. And also, there's a major emphasis on economic development. When you look at it, it's the scale of the interstate highway system that Eisenhower brought to bear on the United States. And so, the Gulf Coast, the East Coast, the West Coast, fixed arrays, floating arrays. In addition to that you've got ports and harbors, where I think the agents that Jim talked about are going to be needed to really assess what's going to happen when you start to judge dredging of these harbors and the dispersal of the materials that are in them.

Dr. Sprinrad – It's interesting because if you asked me that question two years ago, I would have a very different answer than I do right now. That is because if you are even looking at the media coverage on the administration's push toward offshore wind, two years ago, two and a half years ago, the lead on all the origins was that effectively, the Biden Harris administration can't get its act together. And we need to get the job done and are under the gun. So, we focus specifically on building a better relationship with other agencies and industry, even things as fundamental as putting the timeline for lease sales and permitting and final decision making on offshore wind development, and NOAA's schedule permitting around the Endangered Species Act and Marine Mammal Protection. And oh, by the way, on our operational precepts for conducting surveys, so you know, we've conducted a survey for a particular species over the last couple of decades in a certain way, and they've been informed that there have been changes to

the survey as dramatic economic implications. So, we had to get the NOAA relationship working better. We've spent a lot of time and credit to all our staff in the National Fisheries Service for making that happen. But, now if you look at the media coverage the developers are still frustrated because it's not on permitting it's on supply chain. And they're pushing the limits on trying to get final decisions on these wind farms in extraordinarily fast time. And I think we've accommodated that. At the end of the day, most of the challenges that we face now are ones of communication, making sure people understand.

Dr. Targett - Sea Grant really is aligned with the three things that you talked about - climate balanced, and equity, we've done some wonderful work, in effect leading work and know with equity and the balance aspect I think about what we've been doing between communities and businesses and that feedback through research and translating work into the benefit of communities' work that's been done on building codes and communities for example, etc. And so, I do think that achievement certainly goes up its game. But I also think that NOAA needs to be aware maybe a little more of what Sea Grant really is doing and the 'boots on the ground' and so on. And to have that maybe manifestation I wonder if there's a way for that to be manifested more perhaps in some of the funding that comes directly from NOAA from things like the work we do on resilience in some of the other areas that Sea Grant has done so just maybe a consideration for the future.

Dr. Spinrad – We welcome your thoughts on how we can up the game on that.

Dr. Figueroa - I work in the K12 – when I'm thinking about services and products, prioritizing education, if we're looking at things two years from now, how do you see education efforts changing in the next five years – if I were to look back historically.

Dr. Spinrad – One is that education is a challenge for us at NOAA because if I wanted to be an urban bureaucrat, I would say we don't have authorization for education programs. But, I have great faith in the program work in Sea Grant. Engagement is something that I love and feel passionate about, not so much from the standpoint of how we built another internship or another scholarship or make sure the best science is built into science, environmental standards, but actually bring you into the process.

Dr. Murray – Let's end this with a little fruit for thought – advise Sea Grant and NOAA – think about how this Advisory Board might help NOAA writ large – issues in the future – let Susan Holmes know what you think Sea Grant should look at and as a reminder we're here for NOAA not just Sea Grant.

10:10 am – 10:30 am – Morning Break
10:30 am - 11:00 am – 2024 'State of Sea Grant' Report to Congress (Dr. Jack Payne, Chair of the Biennial Report Subcommittee)

Dr. Murray – It is in our legislation that the National Sea Grant Advisory Board provides a report to Congress every four years and in the interim there's a shorter report on progress provided. Dr. Payne has kindly stepped up and chaired the subcommittee that's going to write the next report. And one of the things that is in that report is recommendations for Sea Grant that we provide to Congress. One of the action items today is for Jack to present what the committee has been thinking about in terms of recommendations. Dr. Murray then turns the meeting over to Dr. Payne.

Dr. Payne – Good morning everyone. I'm glad to have this opportunity to talk about what we've done so far. And I must admit that if you're taking on this role, we spent some time just trying to get started because we're all new to this committee. Judy Gray and LaDon Swann have been tremendous in helping to steer us in the right direction.

What we've been doing since November is meeting twice a month collecting all the information we discussed and received from the network and keeping us on tract. And, Susan Holmes of course, is not on the committee, but she's always there at the national office to provide advice and counsel when needed. So, it's a great committee. But thanks to Judy, we finally have figured out what we're supposed to do, so we're ready to rock and roll. This is what we're proposing to the Board that it will look like as far as an outline:

What we're responsible for is mostly the second and third columns. The first column, the submittal letter of course, comes from the Chair of the Board. The responses to the 2020 recommendations, we do not do that, that is the responsibility of the National Sea Grant Office. The Sea Grant model is pretty much the same as what was in the other report. What we've been spending a lot of time on is mainly what the 2024 recommendations will be. And the featured issues and emerging opportunities that we're suggesting to the Board for consideration. The Board is going to finally decide this. A lot of those recommendations, suggestions would be very specific, and important to the future Sea Grant.

Dr. Pennock – Thanks Jack, we've had a number of folks in our office who've contributed to each of these specific responses but also to the write up. I feel comfortable that we will as a program and as the national office have pretty solid things to report on that.

Dr. Payne – Thanks Jon I appreciate what you just said, because we spent the most time so far as a committee discussing what we want to put in for 2024 recommendations and its related back to this. So, I saved that for last because that's been the most difficult. So, remember this is very preliminary, we're going to look at all the data. But, going through all the topics I know the great work that the network does out there and our 34 programs, these are some of the things that were rising to the top in terms of numbers so that it was a common theme on these topics in the various programs that came from the States.

Dr. Murray - Thanks Jack for the excellent summary. I'm amazed at how much you picked up in such a short time on the Board.

Dr. Targett – I really liked the presentation and all the work that the committee has done. I like the recommendations, but I wonder if there's not an opportunity to rephrase some of them to get the same ideas across with some of the terminology that Dr. Spinrad used today. I loved his

comment about stewardship and the blue economy. We do that all the time, that's been our mantra from the beginning, is there some way to work that in and say, to extend the balance that we do between environmental stewardship and the economy, work in those kinds of words he used around climate in the climate recommendation, it's just a thought.

Dr. Payne - I think we as a committee all agree on that, I didn't say it as well as you did. But, when I talked about rewriting the diversity recommendation to still be the same thing, but in a politically sensitive way that doesn't cause our state programming trouble, apply that as a whole to the recommendations.

Dr. Pennock – I apologize for the speed of everything and you are all doing a great job as things are picking up. While we're talking about the recommendations for this cycle. The one that struck me and makes me a little nervous sometimes is when I feel like the recommendations are going to be asking for money that I might not have, right. The SGA and the national program had what were called theme teams years ago, they always had focus areas. And they're pretty big focus areas now. And there were things called theme teams that were really good in SGA, I think. And it was a way to dig down a little deeper and network visioning, we created that in 2017. Because they were no longer being used to really work in teams. And there were people doing amazing work around the network, so we wanted to try to have discussions and build the discussion between different programs and different entities that were doing the work. And we came up with a 10 that we have had there now. There was never a commitment and never a guarantee. It was really that we put money into allowing those groups to get together and go to meetings and talk about how they do that work. There was never a direct connection to new dollars. That's some frustration. I absolutely understand that. But I do have a recommendation that says continue what we did in 2017. Right now, seven years ago, just because I feel like some of that justification is because we haven't added drastic debt. I'm not sure if that's where we want to be and how we continue to build those areas that were being very successful in the network and how to invest in that. Moving forward is that I'm not sure linking it directly to the 2017 recommendations is the answer.

Dr. Payne – I appreciate that Jon and those of us on the committee to hear that because it's difficult because of the passion without understanding the background.

Ms. Gray - Also there was a lot of effort put into all the visioning teams – right now there is a feeling that there is no more implementation – it doesn't necessarily mean more money, you can't even find them on the website and I tried mightily. So, the sense was that there was a ton of effort put into something that languished – and why is it languishing? Why can't we continue to put effort into that and not necessarily money but energy and focus on trying to implement

whatever is still languishing among the recommendations from those visioning teams. Because so much work was put in and because they're still important.

Dr. Pennock – I'm sure no one would probably argue; how would you do as a recommendation to implement what we did this last time coming back to the national office. Most of the implementation falls on our responsibility. And that's where our buying antennae goes up. It's like ok, how can I make this happen?

Dr. Payne – Let me say that once we get the response from the national office to the committee, I think that will help shape our views on how we want to continue.

Ms. Norosz – The difficulty for me, and maybe some of the team members, is to understand what's happened? So, when I think about a recommendation, to me, it means doing something different in order to raise it up into a priority. It's not to say that those things that we had recommendations in the past still aren't important, but if we don't recognize and move on we're probably always going to have the same recommendation. So, I feel there needs to be some discussion as to how we approach this.

Dr. Payne – What Kris said is really important that the committee needs to face up to this and this has been the hardest discussions we've had. The whole network is represented very well, and we're trying to make everybody happy. But again, we want these to be at a very high level and something that's going to be significant for Congress that we haven't done before. So, thanks for that, I really appreciate the overview and where things are going.

Dr. Lerner – Two things, when you do have a draft available, every single director is going to immediately look for their program.

Dr. Payne - That's why at the end of the report, we have highlights from every program.

Dr. Lerner - More importantly than that, of course is how that comes together. I think emphasis on partnerships and regional collaborations, etc. within our own programs is how you make plays, and I'm not suggesting it hasn't been mentioned, I'm just trying to kind of give comprehensive advice and the emphasis on partnerships, the emphasis on the leveraging that we do in the numbers are going to show that but there's more than just numbers that demonstrate that leveraging that we do within our own programs and in the states where we work and across programs, etc. regional collaboration to the extent that you're able to kind of pull that out. This is our voice to Congress. It is like an opportunity. This body, I think, can't talk to Congress, unless Congress has come to talk to us. This is the one way you can, so take that

initiative to talk to Congress to the extent you're able to think about some of the things you heard earlier that came up with Dr. Spinrad, that kind of growth of that core and base, and we go back and forth between these. But, supporting the need and continuation of that message so that Congress is hearing from us right from the Sea Grant Association. And it's more difficult to hear it from the National Sea Grant office directly. I can't help but emphasize the need for that growth to keep up with this kind of capacity that we are demonstrating and leveraging.

Dr. Payne – Great comments. One little fact I forgot to mention, is when I talked about food security and preserving biodiversity and climate change, I talked about how we need to grow 56% more food and we need an area twice the size of India. What I meant to say after that, we got to make it more relative to the Board, it applies also to aquaculture and what I understand is that we need a 58% increase in what we produce today through aquaculture to meet that goal. And when you look at our sustainable fisheries program, it's my understanding that a third of fisheries are overfished and 60% of their maximum sustainable limits. So, it really draws attention to the Sustainable Fisheries and Aquaculture program of Sea Grant in terms of these global challenges. Thank you.

Dr. Murray – Jack, that was a great report, particularly since this is your second meeting. You know as much about Sea Grant as the old timers here. So, we put a good discussion on, let me try and paraphrase a little bit of the discussion because I understand that what we have to do today as a Board is to approve going forward with the recommendations or the modifications or additions that we want to offer now. So, in terms of trying to summarize the discussion, we heard that the recommendations need some language change, reflect the kind of goals that Rick was talking about, and make it look different than the last time. Same thought, but make it match the language with more of a priority. There's a question around the sort of diversity language based on politics. My view is to do what's right – as you stated it is the way we ought to state it. There was a discussion on the envision documents, basically we want to prod the implementation which is something the Board can do, without the expectation that the National Office is going to find money that it doesn't have. So, we might want to word that in a way that encourages continuation.

Dr. Payne - That's assuming that the board creates a new one on work-force development. Address Kris remarks and move on from that.

Dr. Targett - I did find a few things troubling - if we are going to rehash 7 yrs. ago, shouldn't we be revisiting those instead of reinventing them? And I'm not saying let's just continue them. So, I'm wondering if there's a way to get the same ideas or elevate it up a little bit for Congress thinking in a broader way about it. Again, title and balance between environmental stewardship

and audit, and the other one about social justice -and use Rick's language, and then continue to leverage.

Ms. Norosz – To that point, do we even have to say that? It's so inherent to what we've already done. I just feel like when we talk about leverage -- we're all about leveraging. So why is that even a recommendation? That's why I'm having trouble with this recommendation, we're just reiterating what we already do. I think it's a waste of time to do that.

Dr. Murray – I heard one new recommendation. This is our opportunity to bring it to the attention of Congress and I think we all know our core programs and human resources are stretched way too thin. And we need to build that capacity. And I think the recommendation that needs to be in this report addresses that.

Dr. Lerner – Correct me if I'm wrong, recommendations while written to the National Sea Grant College Program are really recommendations to Congress. Conduit is through the National Sea Grant College Program…right? I think I've got that right. That's the framework in which we're thinking if you think about Jim supporting the idea that we focus on growing that core, National Sea Grant can't do that in and of itself. It's doing it via Congress. So, I think, to me that seems to be the approach and thinking even though the words are different, and thinking what are we asking Congress? What are we bringing to the attention of Congress about programs – demonstrating all the great things that the network is doing, to then take the recommendations to be able to leverage staff to grow the program further and to have boots on the ground.

Dr. Tadlock – I'm just kind of reiterating what I've hard working with legislators a lot the past few years in the State of Florida. Their language is different from ours. And the point that was raised about how it's going to impact economic development and how it's going to benefit our constituents and people back home, it has to be in the language of the audience for this report.

Dr. Pennock – What we're talking about are recommendations to Congress. I think there actually is an opportunity to keep the recommendations in this space, which is good, it's a recommendation from the Board to Congress, so that falls on our office to address. So, when you have a separate place in which the wording that we're talking about comes in, we don't want to mix that wording when it is something for Congress, or whatever that might be, we put that elsewhere and not necessarily mix oranges and apples.

Dr. Engle – This has been a really good conversation. I appreciate all the comments. A lot of the issue of support for core programs that have been around for a long time ever since I've been on the Board. And that's one thought. And then I have this other line of thought that these are

recommendations. But we also have a separate list of emerging issues that, as you said, a number of issues are growing. I'm wondering if we shouldn't have a recommendation here? It goes back to Kris's comments – is there a way to link those two. Those are the core programs more or less, whether we should have one that does address core programs more or less and within that some of the continuing kinds of things in that recommendation that you work towards supporting emerging issues that's also part of the core – then there's aquaculture literacy, culture and environment. And, then we're going to have food security -- people need to understand the reality.

Dr. Brown – I'm Joshua Brown in the National Sea Grant Office. I'm our environmental literacy and workforce development lead. As I was thinking about what Dr. Spinrad said about the weather service earlier, in the past they weren't able to grow their budget until they started to characterize it as there will be loss of life and property if this doesn't happen. The recommendations are nice, but what are the consequences if those recommendations are not addressed? And do we spell that out in the report? To Kris's point of what happens to keep carrying them forward? Well, we have the consequences, we will not be able to support, we won't be able to help communities prosper, demonstrated over the last five decades that we help our communities will no longer be able to provide that kind of support, that kind of return on investment, sort of thing. And I know we don't like to talk about consequences, but maybe that would be something that is helpful.

Dr. Payne – The discussion we had today is very similar to what the subcommittee has discussed. Many good ideas and many important things that are difficult to get our arms around. So, I appreciate this opportunity to discuss them.

Dr. Murray - Based on this discussion, those on the subcommittee and on the Board – by our last session tomorrow hopefully come back with another slide, maybe adding or deleting a recommendation or two. And, we will have this discussion again. I think it would ultimately be really helpful to the subcommittee to have more time to discuss this and get it right. We will table this discussion until tomorrow.

11:30 am – 12:00 pm – Board Participation on Sea Grant Network Groups (Dr. Jim Murray, Board Chair)

Dr. Murray gave a short history and some background on the network groups. He shared the benefits and the various activities of the network and the need for guidelines. He mentioned the responsibilities of these groups such as participating in network activities, attendance and participation in major meetings of the networks and reporting those activities to the Board at

least annually during a Board public meeting, as well as reporting to networks on the purpose and mission of the Board and the status of the Board's current activities. Who is interested in participating on Network Groups. We're looking preferably for someone who knows something about extension, coordinating and legal networks. We have guidelines in the briefing book, so I'm going to ask for two votes. First, vote to approve the slate of the liaisons that we just chatted about with Jack as the assembly extension leader, Dijanna communications, Nancy as the research and fellowship coordinator, Meghan education, Deb as the legal network coordinator and Martin fiscal officer. I would like to get a motion to approve these liaisons.

Dr. Murray asked for a motion to approve the lists of liaisons.

Motion to approve the lists of liaisons for the Sea Grant Network Groups: Dr. Peter Betzer
2nd: Ms. Kris Norosz
Vote: All in Favor.

Dr. Murray asked for a second motion to approve the guidelines of how the liaisons functions which is in the briefing book.

Motion to approve the guidelines of how the liaisons function: Dr. Martin Tadlock
2nd: Ms. Kris Norosz
Vote: All in Favor.

12:00 pm – 1:00 pm – Lunch Break

1:00 pm – 3:00 pm – Panel: Sea Grant Connections with Minority Serving Institutions (MSIs), (Drs. Deidre Gibson and Dijanna Figueroa, Board Members)

Dr. Murray – Introduced Deidre and Dijanna and gave an overview of their background. He also introduced the panel members and presenters:

Dr. Gibson – I've been on the Board for about a year – during a lot of the Board meetings I heard Jon talk a lot about working with HBCUs and Minority Serving Institutions (MSIs) – The purpose of this panel is to hear about Sea Grant connections with minority serving institutions, which includes HBCU's historically black colleges and universities, tribal colleges and universities and NOAA cooperative science centers. So, there's three things you must know. The first is that the National Sea Grant Advisory Board has requested a better understanding of Sea Grant connections with minority serving institutions and their Diversity, Equity, Inclusion, Justice, and Accessibility (DEIJA) efforts. So, the session will include a panel discussion, moving forward with diversity, equity, inclusion, or DEIJA organization structure and programming through Sea Grant. And then the second part of the panel session will include a panel of representatives from these CSCs talking about the work that they do and how they connect or don't connect with Sea Grant.

Dr. Figueroa – I'm really excited about the next couple of minutes we will spend together. As a K-12 educator, and also as a leader in national foundation's whose lenses are through ocean sciences. Over the last eight years, the Sea Grant network has developed two national Communities of Practice in its programs to facilitate peer learning and promote leadership on DEIJA and traditional local knowledge. Additionally, the National Sea Grant office has been working with other NOAA offices to address the administrative executive order on racial equity and government services. The Board's recommendation on DEIJA have been included in the 2016, 2018 and 2020 State of Sea Grant report to Congress, this session that we're going to do today, will provide an overview and update on how NSGO and the Sea Grant network have been enhanced DEIJA and TLK in its organizational structure and programming. So, I'm happy right now to introduce to you our first set of panelists. We'll have Maddie Kennedy and Amara Davis from the NSGO.

All the panel members spoke and gave an overview of how the NSGO can strengthen Sea Grant engagement with MSI's, NOAA EPP/MSI CSC institution panelist and Sea Connections and how to enhance involvement of minority serving institutions (MSI's) in US aquaculture.

Dr. Gibson then opened the floor for questions.

Dr. Betzer - I wondered if Florida State vs. other institutions, if you didn't go to upper administration and say, look this is a really important program you're eliminating your diversity and equity officers, why not put the money into creating the match for the underrepresented minorities that are applying through the center?

Dr. Moray - To my knowledge, I have not heard of the positions, specifically being eliminated at FAMU. So, we do not use the terminology that we're hearing thrown around. The DEI terminology venue as an HBCU attracts students and has strong support to students from these traditionally underrepresented communities. So, I'm not aware that there is any money that can be redirected. I would like to say that as I've moved from a major university where I was fully research funded, I was very happy about the support that we get from our office, for example, I think we actually have more partnership and engagement between individual research. This could be in part because of the additional leadership pulling in the advancements in the research capabilities. However, resources are limited. So, in order to expand the capacity of these institutions, we have to go outside of the institution and the state funding to be able to build progress and infrastructure and provide even financial mechanisms.

Dr. Murray – I was happy to see that further DEIJA vision principles were sort of entered into the national strategic plan. But as you know, the PIE system includes the planning, the implementation and the evaluation. If you thought at all about sort of building this into the evaluation system, which we're about to be doing site visits, the best incentive is to have programs reviewed against these principles. Have you thought about building this into the evaluation system – it's something to think about.

Ms. Holmes – The way the evaluation is set up, is the programs are being evaluated against their own strategic plans. All programs are advancing in the DEIJA space and during the program reviews we see those plans and you can ask those questions of the programs as to what they've done. Because as Mark said, there's a spectrum here across the network and what they're trying to accomplish within their states. The programs are being evaluated against their own strategic plan and not in comparison with other programs because they each are facing different challenges.

Dr. Lerner - In earlier conversations with Beth, Maddie and Amara – how do we deal with our programs that may not be able to do either – we had programs that simply said I can't do this right now. Other than following up on that collectively in this environment.

Dr. Gibson – Have some of the Sea Grant programs talked about what they're doing. But, then also I like what the CSC's are doing, and how we can work together to solve it. And so, if you've worked with the CSC, you don't necessarily have to use their language that is prohibited in some areas, you're just working with a cooperative Science Center within NOAA. I wanted to have some conversation around that and maybe it's too early to say, hey, what can we do? But, moving forward, what are some ways that we can leverage what each other are doing and that was the whole goal of this. And so, I don't know where to go from there. But now you see what the CSCs are doing are all the things that we do – it's really hard to train our students so how do we work together so that no one's getting their hand slapped and using the language that we can't use, but still working together and progressing. And I know that the thing about the match is a huge issue. But there are other ways that I think you can partner with students coming in. I think Dr. Moray mentioned about some of the Sea Grant offices or programs, posting students in our nurture, that might be something that we can do because of expanding the research capacity across the Board. The CSCs have partnerships all around the country. It's not just on the East Coast, our partners are spread throughout. I'm interested in how we can leverage, beyond money, but for partnership building.

Dr. Pennock – Thanks for the presentations. I think there are a multitude of opportunities, working with some of the existing structures, Sea Grant doesn't have deep enough pockets to just move money to expand certain things, right, we have to figure out how do we dive into the value of stronger equity and what we're trying to do while still achieving the goals we're charged for in our authorizing language if you want to take it back that far.

Dr. Chigbu – I think maybe there's a way for our centers to work with the Sea Grant programs especially at the beginning with students who are considering research so that ultimately the outcome of the research will have more relevance to the communities and can then be shared with the communities.

Dr. Murray – This has been a really good discussion, so I'd like to ask Dijanna and Deidre where do we go from here?

Dr. Figueroa – We've received a lot of information and I want to thank everyone on the panel for sharing these stories. And now it's time for us to process and identify connections and

opportunities. And I wonder if there's an opportunity to formulate a committee around this so that we can spend more time processing the information.

Dr. Gibson – I guess my question is that in order for us to move forward we would have to see if there is any interest in this collaboration. Because if there's not -- I'm seeing heads shaking - so I'm assuming it's a yes.

Ms. Holmes - I can walk you through the steps and processes for creating a Charge to the Board.

Dr. Murray – So what I'm hearing is that there's an action item where Dijanna and Deidre and whoever else get together and think about a Charge for the subcommittee report and when we want to do it, and give some thought to outside members and it doesn't have to be Board members, it can be the Sea Grant community with knowledge in this area. Just give it some thought and it doesn't have to be elaborate. And, at our next meeting, if you so choose, have a short proposal that we can discuss, put it in the federal register and then vote on it.

Dr. Gibson – We would like to thank the panelists and look forward to more work to be done down the line. Thank you.

3:00 pm – 3:30 pm – Afternoon Break.

3:30 pm – 4:30 pm – Enhancing Involvement of Minority Serving Institutions (MSI) in U.S. Aquaculture (Drs. Chuck Weirich and Mark Rath (National Sea Grant Office (NSGO)
Dr. LaDon Swann, Director of Mississippi-Alabama Sea Grant Consortium gave an introduction of Chuck and Mark and shared some details of their working relationship.

Dr. Weirich – Thanks LaDon for that introduction. We had the honor of presenting this information to you today. We've been talking about engaging MSIs better and aquaculture over the years ever since I've been at Sea Grant for like the last almost five years. And we do have some congressional direction as well. We've been thinking about it, but we really needed to expand this and Katelyn did, she came in and her work is definitely a template that we can base future work on towards this engagement. The goals were to conduct a needs assessment of aquaculture and related programs at Minority Serving Institutions (MSIs) across the country through a need's assessment form and meetings. The scope was focused on coastal marine Great Lakes resources we serve at Sea Grant, and engaged with some traditional land grant institutions, MSI institutions, University of Arkansas and also Kentucky State University as well. Also, our goal was to complete a final report, which hopefully will be available soon.

Dr. Weirich commented that they were amazed at the different designations of MSIs - we traditionally think of HBCUs and Hispanic serving institutions, but there's a wide variety which involves indigenous communities and Native American tribal colleges. So, there's a lot of designations out there and we tried to reach out or engage with all members. I'll now hand it over to Mark to talk about the results.

Dr. Rath – Not very many of the institutions that Katelyn interacted with actually have formal programs, either degrees or certificates for aquaculture. A few do. Most of them have a couple of courses here and there. Or they've got faculty that have aquaculture research underway. And that presents volunteer learning opportunities for students that are molded as institutions but there isn't a whole lot of formal certification or degree programs, which wasn't really surprising but it's nice to get that documented and to learn from these institutions why that is in various places.

Dr. Rath gave examples of general program goals, challenges and areas of need and additional themes from meetings. He gave some suggestions as to next steps towards increasing aquaculture engagement at MSIs. He concluded by stating that there are many creative ways to engage MSIs regarding aquaculture to include aquaculture in curriculum and other course offerings (e.g., ecology, biology, botany), research and skill cultivation for industry or community and what aquaculture should look like and understanding MSI goals is a start. It's important to understand the background and challenges faced by individuals, and it's important to initiate efforts at smaller institutions. The need for understanding history or MSI designation is to disenfranchisement with the US government and an opportunity to chip away mistrust and distrust. Aquaculture is in the early stages of growth in the U.S. and as such, there are opportunities to build relationships based on aquaculture and engage MSIs proactively, rather than as an afterthought. We'd like to thank everyone that participated in the questionnaire and I would like to now open the floor for questions.

Dr. Betzer - There are big institutions and smaller institutions, so, what about capacity building? The possibility of having some of the money going toward those faculty members that are in minority serving institutions that really want to get some training or want to interact with the larger facilities?

Dr. Weirich – Thanks for that. We haven't put pen to paper yet, but we are wrapping up with Katelyn. Initially, we have the aquaculture collaboratives or aquaculture hubs – 11 of them that were started back in 2019 on various topics- and we were thinking let's have an MSI. We are thinking about capacity building. Especially towards faculty and knowledge, perhaps towards supplies to upgrade facilities, although we have to watch the construction. But, we're thinking

that our initial jump into this is to write funding opportunities directed towards capacity building toward aquaculture to get the ball rolling and make connections.

Dr. Rath - And I think it's important too, that we keep these calls really broad topically, because it's not just fish biology, or officious and economics, there's engineering there's nutrition, both human and animal nutrition. A lot of those programs existed in science, but they haven't really considered the idea that aquaculture might be an eligible topic area for them to expand into.

Dr. Murray -Thank you guys for all your hard work.

4:30 pm – 5:10 pm – Welcome New Board Members (Dr. James Murray, Board Chair and Dr. Jonathan Pennock, Director, National Sea Grant College Program (NSGCP)))
Dr. Pennock – Gave an introduction of the three new Board members (Dr. Meghan Marrero, Dr. Jack Payne and Dr. Martin Tadlock). We're happy to have each of you join the Board and the talent you've already brought by the experiences you have. He also mentioned our impending Board member Dr. Dijanna Figueroa who is still going through the hiring process but should be joining the Board soon. Dr. Pennock then asked each member to introduce themselves and give a bit of background. He then asked the current Board members to introduce themselves and give some background on their experiences with working with NSGAB.

5:10 pm – 5:20 pm – Evaluation Committee Membership (Dr. Nancy Targett, Board Vice Chair)
Dr. Targett – I'm honored to be the Chair of this subcommittee and the people who are on this subcommittee are Peter Betzer, Meghan Marrero and Jack Payne. And, we've asked Jim Murray who was our current and past Chair to serve as an advisor to us on the committee and the other person who's on that committee is an external expert. I ask for a vote to bring Paul Anderson, who is the former Sea Grant Director, to be the external expert on this subcommittee. Paul, was a longtime director of Maine Sea Grant. He was very active in the SGA. He held a variety of positions in the SGA. Very well thought of in the Sea Grant network, as someone who's very thoughtful and very well thought of, but most importantly, he's been retired long enough that he doesn't have the conflicts of interest that more recent retirees would have. So, what I'd like to do is bring forward to this group, Paul's name as the nominee and external member of the subcommittee. And of course, the other person who is really integral to the subcommittee as she is to everything that we do is Susan Holmes, she will of course serve as the DFO and support for that subcommittee as well and to also keep us all honest. So, the recommendation we're bringing to the Board is to ask Paul Anderson to be the external expert member of this committee. She then turned the meeting back over to Dr. Murray.

Dr. Murray asked for a motion to accept Paul Anderson as the 5th member of the Evaluation Committee.

Motion to approve the nomination for the Evaluation Committee: Dr. Jack Payne

2nd: Dr. Meghan Morerro

Vote: All in favor

Dr. Targett – Went over the timeline and commended Susan Holmes and Summer Morlock for the amazing job they did in pulling everything together for the site review visits.

5:20 pm – 5:50 pm – Strategic Discussion of the National Sea Grant College Program (NSGCP) – (Dr. James Murray, Board Chair and Dr. Jonathan Pennock, Director, National Sea Grant Office)
Dr. Murray - Asked the Board what topics they wanted to discuss during the strategic discussion session.

Dr. Payne – Ethics, what our role is, specifically is to advise the National Sea Grant office. And I think it would be good for the Board to strategize on core funding from NOAA and invariably this includes Sea Grant's budget. I don't understand all the details, but I do understand that some of the ways that money can be used by different entities is not permitted within Sea Grant. I think in our advisory capacity, we can help with that.

Dr. Targett - I wondered about a subcommittee that had some kind of title like 'Delivering on the Sea Grant Mission'. And that could include challenges around core funding, also could be what

we could do to inform or advise NOAA and others about what we are doing and how we can help them deliver better on the mission.

Dr. Murray – The Sea Grant Association is working on a white paper with a futuristic look for Sea Grant. What can we do in the shorter term, to position ourselves to get to those issues? I think what Nancy is suggesting is embedding them in a sort of configuration.

Dr. Targett – I just don't want to lose the research component of what Sea Grant does. And I worry that we keep hearing from NOAA about the importance of extension, which is totally why I think our model works is because it's research that goes to education and extension that goes into the community and businesses and then back, it's a loop. And we iterate on that by back and forth interactions and I think if they take away that research component we won't be able to do that, so I think we should reinforce that. That's the only reason I suggested that.

Dr. Murray – We put together subcommittees. A subcommittee doesn't have to be just our Board members. We can have external experts on the subcommittee. So, if we're trying to deliver a message to high-level people, we would want to have those sorts of people as external experts on the subcommittee. So, think broadly and creatively.

Dr. Murray then gave some closing thoughts and the meeting adjourned.

Meeting adjourned at 5:33pm

National Sea Grant Advisory Board Meeting
March 4-5, 2024
Draft Meeting Minutes
Yours Truly Hotel
Washington, DC

Tuesday, March 5, 2024

OPEN TO THE PUBLIC – 9:00 am – 3:00 pm Eastern Time

Dr. Jim Murray (Board Chair) welcomed everyone and officially called the meeting to order. He then turned the meeting over to Ms. Holmes (Designated Federal Officer (DFO)) for a DFO briefing and Roll Call.

Ms. Holmes read an official statement explaining her role to the group and took the roll call of the members of the Board. She then turned the meeting over to Dr. Murray (Board Chair), who went over the agenda for the meeting and then called the meeting to order.

Roll Call
Members of the National Sea Grant Advisory Board (Board):
Dr. Peter Betzer; Dr. Carole Engle; Dr. Deidre Gibson; Dr. Meghan Marrero; Dr. Jim Murray (Board Chair); Ms. Kristine Norosz; D. Jack Payne; Dr. Martin Tadlock; Dr. Nancy Targett (Vice Chair).

Nominee for the National Sea Grant Advisory Board (Board):
Dr. Dijanna Figueroa

Board Ex Officio Members:
Dr. Jonathan Pennock – Director of the National Sea Grant College Program (NSGCP), and Dr. Darren Lerner, President of the Sea Grant Association (SGA).

National Sea Grant Office (NSGO) staff in attendance:
Ms. Susan Holmes – Designated Federal Officer (DFO) for the Board, National Sea Grant Office, Dr. Nikola Garber – Deputy Director, National Sea Grant Office, Ms. Donna Brown, Project Administrator, National Sea Grant Office; and Ms. Patricia Razafindrambinina, National Sea Grant Office.

9:10 am – 10:00 am – Discussion with NOAA Office of Research Assistant Administrator (Dr. Steve Thur, NOAA Assistant Administrator)

Dr. Murray - Opened the session by introducing NOAA Research's Assistant Administrator, Dr. Steve Thur.

Dr. Thur – I have read 17 strategic plans. One for each NOAA Research program and lab that I am in charge of, and was surprised at how different each was. I would like to identify a key challenge across all of the strategic plans: the diversity of research conducted makes it challenging to tell a unifying story across the 17 strategic plans. I am passionate about using science to solve societal challenges, and that is the primary driver that has kept me at NOAA for all these years. One effort that I'd like to highlight is convening groups from the science and research side to create a unified message and passing that along to a team of communicators to convert the science jargon into something understandable and useful for the communities that NOAA serves. A lot of my efforts are planned with a generational look, with the goal of lasting, long-term impacts.

I have crafted the top four challenges that NOAA Research seeks to solve:

1. Confronting challenges from our changing climate
2. Protecting Against Extreme Weather Events and Environmental Hazards
3. Managing Too Much and Too Little Water
4. Sustaining a Healthy Environment and Economy.

Challenge #1 is a cross-cutting challenge that impacts all other challenges: will we have water? How do we produce food? This is the one challenge to rule them all.

Challenge #2 is motivated by finding ways to prevent loss of life and minimize impacts due to extreme weather events and environmental hazards. For example, a question that I often ask programs is, "If I have more money, is it better to put research on extending the lead time of an extreme event or towards understanding human behavior on what people do when they get the notification? From my perspective, harmful algal blooms are one of the environmental hazards that may fit under Sea Grant's purview.

Challenge #3 is about droughts and floods, where a primary concern is on how to provide better estimates for future flows, as well as water management.

Challenge #4 focuses on the connection between the environment and the economy (NOAA is housed under the Department of Commerce, after all). How do we make good stewardship while maintaining a prosperous society? What science do we need to do?

The four challenges are interrelated, and I see Sea Grant fully contributing to challenges 1 & 4 and partly contributing to the two remaining challenges.

To summarize, a challenge that I have is how to knit together the capacity of the various facets of NOAA. Within OAR, there are untapped connections between labs, other programs, and Sea Grant. I acknowledge that Sea Grant is unique, but that doesn't mean that it cannot be better connected with other unique beasts within OAR. My vision is to find an effective way to funnel needs from programs to OAR and also move in the reverse direction. I urge Sea Grant to share any recommendations on how OAR can make that happen.

To close the talk, Dr. Thur brought up the news of the recently published FY2024 budget, where Sea Grant remained at level funding. He mentioned that it is a positive and the best of the bunch when it comes to OAR as a whole. Out of the 18 OAR budget lines, 13 (including Sea Grant) were given level funding, and 5 had a decrease from FY2023. I project that OAR as a whole will have a decrease in the budget for FY2025, and the cuts will be more broad-based (I see a decrease in all 18 lines of funding). I implore all Sea Grant directors to prepare for such an event this year so that there will be some flexibility when next year comes.

Dr. Murray - Proceeded to thank Dr. Thur for his presentation and opened up the discussion to the meeting attendees.

Dr. Payne - Shared that he is currently leading the subcommittee charged with writing the State of Sea Grant Biennial Report to Congress and asked how OAR wanted advice from Sea Grant, the answer to many questions is outreach.

Dr. Thur - Responded by noting that he has had conversations with all directors and agreed that the production of quality science and communicating it is the core to providing the best scientific information. On the budget side, on the core programmatic elements, communicators have produced high-quality work, but we do need more of it. NOAA/OAR can do really good work by doubling the budget - but even then, NOAA would still be at a quarter of NASA’s budget. In reality, NOAA/OAR has attempted to grow the budget portfolio in areas that we think are important and where challenges need to be addressed. I focus on the long-term growth of core programs, although Congress and decision-makers tend not to view that as important as new efforts. I am a realist and see that the current level of funding is the best NOAA can do at the moment. He also highlighted the work of Dr. Darren Lerner and colleagues who have external constituencies who can relay messages to the hill.

Dr. Murray - Assuming that NOAA has outreach needs and Sea Grant has outreach capabilities (external connections, Sea Grant liaisons at NOAA labs), it is worth noting how other agencies, such as EPA, have maximized the use of Sea Grant outreach more than NOAA. For example, the EPA and Sea Grant extension have worked out an agreement where Sea Grant agents went to EPA for training and received take-home materials, and each extension agent was granted $5,000 to go back to their home state and do work. Some of these extension agents are still working on smart growth with that little seed money.

Upon hearing this, Dr. Thur remarked that NOAA/OAR would like to replicate such programs with seed money and would like to know more information on how to use Sea Grant more effectively.

Dr. Lerner - Took the conversation back to the four societal challenges highlighted by Dr. Thur. He sees that Sea Grant has a place in all four challenges across the 34 programs. He recalls Dr. Spinrad's remarks from the previous day regarding core capacities, BIL, and IRA and expressed concerns about how NOAA would leverage BIL and IRA funding into the future and not go back to the lower levels of funding. He also emphasized that an increase in core capacities is crucial and is a double-edged sword that can shift workload from communities to other things. He continued by saying that it is important that we maintain our core capacities. We have been moving forward with programmatic requests, and we know things are going to be pulled back. Our responsibility is to bring up those difficult conversations, and we continue to talk together. Help us think through that and bring it to the table so that NOAA and DOC understand that it is the communities that we represent.

Dr. Thur - Concurred and stated that he understood and noted that what Darren brought up was not quite within what the Assistant Administrator's scope can control. He then talked about how politically agnostic (or not) the societal challenges are. He said that the topic of climate is politically charged and challenging. However, one can talk about the challenges without talking about climate. In summary, finding methods of communication that reach all without being political will assist in getting the message out.

Dr. Targett - Applauded OAR's integration around these issues and recognized that some people are skeptical about it. She pointed out the need for trusted people on the ground to assist in communication. She also mentioned that Sea Grant did not benefit from the Bipartisan Infrastructure Law (BIL) as much as was hoped and asked Dr. Thur: Do you think there is a way in the future that when such funding comes along that Sea Grant is recognized for what Sea Grant does?

Dr. Thur - Responded with the following explanation: When discussions were held regarding BIL and the Inflation Reduction Act (IRA), I was seated at the National Ocean Service, so I was not part of those discussions at OAR. The Secretary of Commerce herself made those decisions. OAR didn't fare as well as other Line Offices - it was not just Sea Grant. I urged the Board not to view the decision to not send more money through Sea Grant as negative, as it was not part of the analysis. BIL, in contrast to IRA, was very prescriptive about how agencies spend money. The IRA, by contrast, had three areas. The level of external influence was more for BIL than it was for IRA.

Dr. Murray - Pointed out Sea Grant's ability to leverage university strength and urged the Advisory Board, the Assistant Administrator, and Dr. Jonathan Pennock, the National Sea Grant Office (NSGO) director, to harness that talent.

Building upon that, Dr. Thur called back to the four challenges that he shared and mentioned that one assessment was done on social science capability. Climate challenges can't just be answered by other sciences any longer, and NOAA needs to grow its social science capability. OAR should grow both internal and external capabilities (and external is likely the path of less resistance). I expect to see the needle move in social sciences with money flowing through Sea Grant from other NOAA programs.

Dr. Betzer - Built upon the idea of social sciences and behavior and highlighted that fascination and appreciation of coral reefs, which are major economic drivers, have changed people's behaviors. On that, Dr. Thur agreed.

Dr. Pennock – Brought up the topic of DEIJA and asked Dr. Thur how he would speak to equity in the political environment that we are in.

Dr. Thur - Responded with the following: diversity and how inclusive we are as an employer, equity in serving customers, and the need to discuss how to leverage diversity policies. On the one hand, there is a thought of "Why bother with DEIJA? I am a public servant. The taxpayers are who I serve". Historically, they have not been served as much as they should have been. When there is a market failure, the government steps in regardless of political standing on DEIJA.

Dr. Murray - Closed the session by thanking Dr. Thur, and Dr. Thur expressed his gratitude for the time provided to interact with the Sea Grant Advisory Board (NSGAB).

10:00 am – 10:30 am – Morning Break

10:30 am – 11:00 am - Sea Grant Association Update with Q/A (Informational) – (Dr. Darren Lerner, President, Sea Grant Association (SGA))

Dr. Murray opened this session by introducing Dr. Darren Lerner, the President of the Sea Grant Association (SGA).

Dr. Lerner - Began by sharing the outline of his updates: in this session, I will be talking about the past, present, and future of the Sea Grant Association (SGA). He expressed his gratitude to Dr. Pamela Plotkin and Dr. Jim Hurley (both of whom have recently retired) for their service to the SGA and wished them well.

Next, he gave a recap of the Sea Grant Association meeting in Guam that was held in September 2023. A few topics that were discussed at the Guam meeting included One Sea Grant, DEIJA, Capitol Hill Interactions, and resilience. He also shared that members of the SGA and NSGAB actively participated in planting over 100 trees in Guam. He then emphasized his gratitude to Guam Sea Grant for their fantastic work. He also highlighted the SGA's visit to Saipan, where the Northern Marianas College has been working to start a Sea Grant Program. The Northern Marianas College welcomed the Sea Grant visitors with open arms, and the SGA meeting attendees had a chance to interact with the local community during community night. He also shared how many Sea Grant folks were stranded in the airport for over 24 hours and bonded.

Before moving on to the second bullet point of the outline, which is present, he gave meeting attendees a brief explanation of what the SGA is, their roles, and their goals. Now, on to the present. I would like to welcome Dr. Jack Bladauf and Dr. Christy Remucal, who recently joined the SGA. He also shared a graph that showed the years of service for Sea Grant directors as of Spring 2024: an average of 7 years and a mode of 0-5 years, followed by 6-10 years.

Updates for the future: He shared with the attendees what the SGA is and will be doing during this week of the meeting in Washington, DC. The SGA's external relations committee will be doing deep discussions on FY24 and FY25 budgets, programmatic requests, and continuing resolutions. Additionally, the committee will also be conducting multiple visits to Capitol Hill. The program mission committee will be discussing professional development opportunities, the Oceanography Special Issue, as well as doing a DEIJA evaluation. In that same week, the networks advisory council will be collecting updates from the extension, research, education, communications, legal, and fiscal networks. The ethics committee will also be revising the code of conduct to develop new guidance documents and opportunities to support best practices for Sea Grant network-wide activities.

In addition to the committees, special sessions will also be held during the meeting. Topics include offshore wind, truth, and racial healing transformation, OAR update, aquaculture roadmap, American Shore and Beach Preservation Association, and Marine Debris.

To end his presentation, he invited all meeting attendees to join the annual John A. Knauss Marine Policy Fellowship Reception and reminded attendees to be on the lookout for more information to come regarding the 2024 Sea Grant Week. He then opened up the floor for questions.

Dr. Murray – I appreciate the work that you and the NSGO has done to create the concept of one Sea Grant. I think Sea Grant is working more seamlessly together now than it has in history. He then gave credit to Drs. Lerner and Pennock for making that happen.

Dr. Lerner - Appreciated Dr. Murray's comment and mentioned that the primary area for improvement is core capacity. Programs need more money in core funding. In this case, I'm thinking of the capacity of programs and how each program may not be able to manage large-scale tasks such as the coastal resilience and regional resilience challenge. The bottom line is that the network needs the capacity to do good work. He acknowledges that the NSGAB, NSGO, and SGA play different roles and can accomplish this request from different pathways. His request to the Board is to continue to find pathways to promote the core increase for the network so they have the capacity to do the work that they are promising and continue to be competitive.

Dr. Payne - Highlighted how the NSGAB was able to express their concern regarding capacity to the Assistant Administrator earlier in the meeting. Additionally, the Board is preparing a report for Congress that will include a recommendation for a core increase in capacity building.

Dr. Murray - Closed this session and introduced the next part.

11:00 am – 12:00 pm - National Sea Grant Office Update (Informational) – (Dr. Jonathan Pennock, Director, National Sea Grant College Program (NSGCP))

Dr. Murray - Introduced the Director of the National Sea Grant Office and National Sea Grant College Program, Dr. Jon Pennock.

Dr. Pennock - Greeted the meeting attendees, and mentioned that many of the updates that he will be presenting today had been presented a week before during the Webinar for the Network. However, as many NSGAB members were not present, this will be news to some.

He then jumped into fiscal matters. He reiterated that Sea Grant has been granted level funding for the current fiscal year through FY 2025, and may bring limited funds for new initiatives. He also highlighted the currently open Notices of Funding Opportunities (NOFO) and several ones that will be opening in the near future.

Building upon the topic of grants, he acknowledged the network's frustration with the new grants tracking system (eRA) and echoed their frustration. He assured the attendees and the Sea Grant network that NSGO is working to provide all the flexibility possible and that he appreciates their patience and continued hard work.

In conclusion, he touched upon the Planning, Implementation and Evaluation (PIE) Guidance and Annual Reporting, as well as changes that will be made for the 2024-2027 period. He then thanked everyone for the opportunity to present his updates and opened the session for questions from the audience.

Dr. Murray – What is the one thing that keeps Dr. Pennock awake at night?

Dr. Pennock – It's the budget. It's comforting to hear FY24 budgets, however everything we (Sea Grant) do flows out of the workflows that we have, and we have had some challenges with the new systems that are coming in (eRA and the new budget system). We are running $500 billion worth of funds right now that we're managing as a pretty small group that are active grants. Now, some of those are at the tail end. He then admitted that FY25 budgets keep him up at night and will continue to do so for a while.

Dr. Murray - Brought up that the 2018-2023 four-plus two-year omnibus cycle was an anomaly, although, in his opinion, it worked well. Previously, the omnibus was structured for four years, but most of the programs have two-year cycles.

Dr. Pennock - The only reason we got this four-plus two-year omnibus cycle was due to the impact of a shutdown and the pandemic, both of which delayed evaluation and other processes.

Dr. Murray - The National Sea Grant Office has, in a way, given any thought towards expanding graduate research fellowships in social sciences and expanding the social science capacity,

especially seeing as Sea Grant has had great successes in fisheries fellowships. I'm curious to hear your thoughts on future fellowships that focus on social sciences.

Dr. Pennock – I have had some of those conversations with Dr. Thur, and he is deeply committed to social sciences. I think that it is indeed within the Sea Grant wheelhouse to do something like that. The thing is, Sea Grant does not provide core funding for social science. However, there is a budget for social science within NOAA. We may be able to go to parts of the agency, like the weather service, and do something as partners. Another possibility is to utilize cooperative institutes. I would love to see a Sea Grant Cooperative Institute in social science. There are a number of opportunities, but we haven't really had any discussions about them.

A question came in from the audience regarding the Blue Economy. The discussion about the blue economy and the role that Sea Grant programs can play, SBIR may be a sweet spot. The question continues as the asker wonders if there is funding there, and an opportunity for Sea Grant agents to tap into those tools to help the network.

Dr. Garber - Mentioned that we've continued to reach out about aquaculture. Historically, Sea Grant has $2-3 billion of our budget that is used for research; it's about 3.5% taken off, or you have to pay it out in the next year. It goes into this SBIR pot. Historically, Sea Grant ran our money through us, but the amount was not as large as it is now. So, we have been in conversations with them. I urge the attendees to share their ideas on the topic. Earmarks and community-supported activities that are going through NOAA Research and will go into SBIR.

Dr. Pennock – Mentioned that the most recent SBIR involvement was in aquaculture. They (SBIR) buy into that for that year, but it really depends on how they advertise each year. There is a discussion to be had on where we could probably be most effective in terms of getting ideas together that Sea Grant could rally around. As it is a competitive proposal, there will be losers, and that is a tough place with all of the different opportunities. I urge you, if you have any ideas from the Board or other places, to send them his way. The NSGO has been trying to do work with other line offices.

Dr. Murray then thanked Dr. Pennock and called this session to a close.

12:00 pm – 1:00 pm – Lunch Break

1:30 pm – 2:50 pm - Continued Discussion on 2024 Recommendations for the State of Sea Grant Report to Congress

In this session, Dr. Jack Payne, who is the chair of the Biennial Report to Congress subcommittee, started the discussion by recalling where the Board got to the previous day regarding the topic. The first recommendation: “In response to growing community needs to address climate readiness and resilience, the National Sea Grant College Program should work to strengthen core programs with its university partners in support of research, extension, and education functions.” This recommendation is in response to questions that were asked to the NOAA Administrator, Assistant Administrator, and representatives of the SGA. He then opened the session to discuss and react to this first recommendation.

Dr. Murray – My first reaction was to say that I understood the crux of this recommendation. He then pointed out the word strengthen, and how congress may interpret that. He suggested more clarity, but concurred that this recommendation is fine.

Dr. Targett - Followed up with suggesting the addition of pointing out Sea Grant’s support of the communities that it serves and clear wording that Sea Grant is working to achieve a community impact. She mentioned that, as written, the recommendation does not illustrate how Sea Grant impacts communities.

Dr. Murray - Added a minor comment to clarify what strengthening core programs entails, possibly by adding human infrastructure, and making it clear that it is the root of the request for program expansion. My concern is that Capitol Hill staff who read this may interpret that Sea Grant should have more research dollars, when in fact, what we are recommending is to expand capacity and human infrastructure.

Dr. Payne - Shared the second recommendation: “Recognizing the importance of economic development for long-term community stability, the National Sea Grant College Program needs to balance environmental stewardship with the blue economy to promote sustainability.” Regarding this recommendation, I’ve discussed this with Judy Gray, who currently serves as the external expert on this subcommittee, and she expressed her concern regarding this recommendation, as it sounds like we are promoting economic development and sustainability. Jon has suggested that the emphasis be shifted toward balancing the local economy. People may be worried about promoting economic advancement over conservation.

Dr. Targett - Suggested that instead of the word balancing, it needs to be more considerate of the blue economy to promote sustainability.

Dr. Murray - Emphasized that the narrative portion of the recommendation should be used to clarify the definitions that we are using.

Dr. Payne – Shared the next recommendation: “The National Sea Grant College Program should focus on improving environmental literacy, including ocean, climate, aquaculture, and Great Lakes literacy, in the communities it serves.”

Dr. Garber - Asked the Board’s thoughts on the word “coastal,” as it seems like that word (which is included in Sea Grant’s mission) is missing from this recommendation. Sometimes, the word ocean is more closely associated with blue or deeper water. Additionally, clarity on what is defined as environmental literacy is needed.

Dr. Murray – Why is aquaculture singled out?

Dr. Engle - In the aquaculture realm specifically, there is an incredible amount of misinformation and myths. Sea Grant plans and programs that have competitions that include aquaculture literacy exist, and that’s why that was added.

Dr. Murray – I suggest that this can be clarified in the supporting narrative of the recommendation.

Dr. Targett - Then highlighted something that Dijanna had mentioned about being aware of the audiences and what it would mean to them when we say we want to improve environmental awareness. She then suggested that the word awareness be used up front as someone in Congress will understand that and then tie it to literacy. Additionally, does this literacy cover oceans? Environmental industry sustainability? Safety, resilience, and risk? Does literacy mean an elevated awareness?

Ms. Norosz - Concurred with this.

Dr. Figueroa - Added that environmental literacy should be added back, as she thinks that humans are very much aware of the environment, but in the human-nature relationship, there is a disconnect. And so, the awareness piece is like they’re aware of what’s the connection and after the literacy.

Dr. Payne - The last recommendation is regarding DEIJA. Dr. Payne shared two versions of this recommendation to get the Board’s thoughts on each of them and to see which version the subcommittee should move forward with:

The National Sea Grant College Program recognizes the critical importance of deepening its commitment to social and environmental justice, equity, and inclusion. The Program should enhance its efforts in assessing, broadening, and embedding these principles throughout its organizational framework and activities to develop a more inclusive and dynamic environment that accurately reflects the diverse communities it serves and to ensure that all its initiatives and programs contribute to equitable outcomes for all.

As the National Sea Grant College Program progresses, it recognizes the critical importance of deepening its commitment to social, climate, and environmental justice. To achieve this, the Program should enhance its efforts in assessing, broadening, and embedding these values throughout its organizational framework and activities. These efforts should work toward the development of a more dynamic environment that mirrors the multifaceted communities we serve. This approach can help ensure that all its initiatives and programs contribute to fair outcomes for all.

Dr. Figueroa - Explained that some triggering words were removed as a response from different members of the community. She stated that crafting this was a challenge and reminded the Board of the reality of Congress today and of unfair threats to the Sea Grant budget that can result from misunderstood and misplaced actions on words.

Dr. Payne – Stated that he advocates for us to have a recommendation around these issues and also wants to address various people and situations to come to some sort of compromise.

Dr. Targett - Suggested that the recommendation points out the deepening importance of the NSGP. As we progress, we recognize the importance of multiple perspectives. To understand the multifaceted or diverse communities that we are charged with addressing, then go on to say the rest of it.

Dr. Murray - Then suggested using taxpayers as part of this recommendation so that when we talk about multifaceted communities, this can mirror the multifaceted taxpayers in the communities that we serve.

Dr. Payne - On the contrary, I advise that we do not adopt the taxpayers' framing, and use that in the response, which is what some politicians justify reducing or cutting federal endorsed state support for DEI efforts in higher education. Further taking the angle of taxpayers creates an opportunity to justify disproportionate investments into communities by tax brackets, along with different tax structures, or US territories and states is complex.

Ms. Norosz - Stated her appreciation for this thought, as she pointed out that a lot of us know that historically, those areas of the community that are wealthier and pay more taxes and resources, and so it certainly was not the intention to go down that road.

Dr. Murray – I see the opposite, taking Little Haiti in Miami as an example. Those people pay taxes, maybe not as much, but it provides an opportunity to go do programming and delay their taxpayers to deserve our services.

Dr. Figueroa - Expressed that she prefers not to use the taxpayer term. Additionally, I want to point out the K-12 aspect. My six-year-old daughter wants to benefit from these services, but she is not necessarily an active taxpayer. It could be interpreted a little bit differently. There are more inclusive words. Additionally, I removed the word inclusive for a reason and tried to replace that with other things, and "taxpayer" layers onto it as well for people to interpret in different ways.

Dr. Petrone – Concurred with Dijanna's statement that using the term taxpayer excludes the K-12 community.

Dr. Pennock - Added his thoughts and suggested that finessing the words to this recommendation would be helpful. He also stated that the term "As the National Sea Grant program progresses" needs to be written as if the Advisory Board is making a recommendation to the program, not just the National Sea Grant Office, and he thinks that there is a word or two that needs to be shifted, and these efforts should work toward the development environment. I want to make sure that we have that as a recommendation for what Sea Grant should do.

Dr. Targett - Then said that the real question is, are we all comfortable with this *toeing the line* that Dijanna has proposed?

Dr. Gibson – Stated that she has no other suggestions. She said that it is really sad that we have to do this and whitewash everything. The Board agreed with this sentiment.

Ms. Norosz – Emphasized that the Board and sub-committee have had all those conversations but still want to be sensitive to the audience of this report.

Dr. Figueroa - Expressed her sadness about having to change the language and is not sure if she felt good about it. However, she wants to make sure that the impact of our language will not do harm. She hopes that as a committee, they can come together and develop language around this that will not cause harm to the program but will also allow us to meet the objectives that

we have laid out before us. It is a hard place to be, and she wanted to state on the record that it is really challenging to do this work. This is the time for us to make a stand and say the words that we need, or is this not the time? What are the impacts these words are going to have in the next 2, 5, 10, 20 years from now?

Dr. Tadlock - Posed the question regarding declaring Sea Grant values. Does this recommendation align with our values? Can we live with these as stated, or do they need to be stated more strongly?

Dr. Figueroa – It should be stated more strongly. The ideas of environmental, social, and climate justice at a high level encompass many of the other things that we are seeing, so ultimately, the goal of inclusion is justice. And we are getting justice in there [the recommendation] in a way that is particular to the work that Sea Grant does. She continued by stating that inclusion and diversity are core values to her.

Dr. Marrero - Added that we have a Sea Grant value statement that includes DEIJA language, and we've worked towards that as a community and as a program. So whatever language you use, it shouldn't take away from that.

Dr. Murray - Then stated that it seems that the committee is leaning towards DEIJA recommendation B, and started a motion to accept all 4 of these recommendations (1, 2,3, 4B) with any wordsmithing that the subcommittee may do.

Dr. Targett - Added that the first sentence of the recommendation should be "*The National Sea Grant College Program recognizes the critical importance of understanding the perspectives of the multifaceted community it serves"* and then go on to say that to achieve this, *the program should enhance its effort in assessing, writing, and vetting the values of social, climate, and environmental justice throughout the organization, etc." or "the values of inclusivity."* She emphasized that whichever DEIJA recommendation ends up being used, the first sentence should express recognition.

Dr. Garber – Brought up the topic of funds. As the program only has so much money, the goal for the National Sea Grant College Program is to be able to do all of these? Are we already reaching a number of communities that need us that don't have a lot of money on the coast (as many as we possibly can) with the funding we have? There's still a lot we are missing. I have heard from a lot of extension agents that they are working with a number of communities, and if they had more funding, they could work with even more communities. So how do we highlight what we're doing, and we know we're not doing enough because we have so many

communities that we can't reach? How do we get out to those? And this could then double down on some of the other recommendations.

Dr. Targett – Then proposes, *"As the National Sea Grant College Program progresses, it has increasingly recognized the need for understanding the perspectives of the multifaceted community it serves."*

Dr. Garber - Also urged the sub-committee to think about how we cannot do everything, and so which part of this recommendation is Sea Grant? Which part can Sea grant help to change, and how?

Dr. Murray - Then brought back the question of whether people have something in their minds that they feel should be a recommendation but is not.

Dr. Tadlock - Answered the question with the following, "I can't live with diversity and inclusion not being in the language in any of the recommendations". We need to find a way to make that apparent --that we value that. And it's a principle that we stand for this practice. It's already in your strategic plan. It's already in other documents. Why wouldn't the Board support that by including that language in the recommendation?

Dr. Murray - As chair of the Board, I suggest that this discussion will be continued in an upcoming meeting.

Dr. Figueroa – Chimed in, in response to Dr. Tadlock's concerns. She suggested that we get that language into the narrative paragraph.

Dr. Tadlock – I would rather see them in the recommendation headline because we are saying that it is about our principles and values. I like how the recommendations were written.

Dr. Figueroa – Shared that she has a skill set for translating and navigating the DEIJA space, and she wrote the second version of the recommendation that would be less triggering. However, just because she did so does not mean she was supportive of it. I am also supportive of the first statement that included our values, although the second version may be more palatable to the target audience, I just want the Board to have the opportunity to choose.

Dr. Targett – I believe that the group has made progress around the first three recommendations and wanted the group to think about Dr. Engle's suggestion about making sure we insert the Sea Grant values statement in some places.

Dr. Murray - Then said that he went along with recommendation B because that's what he thought the committee was in favor of. However, he could also go along with A. He summarized that the argument really comes down to whether or not the word diversity is used.

Dr. Targett – Commented with the following, "we know where we need to go". We know what we need to do. We want to do no harm, and we want to live to fight another day for all of this. And so, how much of a compromise is too much? That's what I'm struggling with right now. Is it too much of a compromise -- maybe we can put those words into equity and inclusion, which are really important words, can we put them in context in other places that make it clear that these are part of our values, but we leave them out as "trigger words" and for some people, not all people in this and if you do that are we compromising too much and it counts as putting in the value statement proceeding, which is a statement for Sea Grant, and then putting our words in, does that help to negate -- I don't know and that's what I'm struggling with. I suggest we talk about that versus the harm that is done for all the people that have suffered injustice and non-inclusion, and our people suffered that for a long time."

Dr. Murray then brought back the motion on the floor. The motion was to accept all four recommendations with the caveat that the DEIJA recommendation could be amended.

Motion to accept all four recommendations: Dr. Peter Betzer
2nd: Dr. Meghan Marrero
Vote: All in favor

With that, Dr. Murray finished the discussion on recommendation and looks forward to seeing it again in a more final format in August. He then thanked Jack and the subcommittee for driving a difficult but very good discussion.

At this point, 8 minutes remained for the session, and Dr. Murray used it to tee up two conversations:

1. To have a future conversation on working with MSIs and HBCUs;
2. We would like to have a future conversation about evaluating the infrastructure and core human capital issues.

Both of these may result in the creation of subcommittees for the upcoming Board meeting.

As the meeting drew to a close, Dr. Murray proceeded to thank all attendees, participants, organizers, and speakers for their presence and contributions, and officially closed the meeting.

Meeting adjourned at 3:00 pm

National Sea Grant Advisory Board
2024 Fall Meeting

Agenda Item: Advisory Board Executive Committee Membership

Purpose

Decisional – Advisory Board Executive Committee officer membership.

Three Things You Must Know

1. Executive Committee Positions include Board Chair, Vice Chair, Past Chair, and two Members-at-Large.
2. Current Board Executive Committee membership:
    a. Board Chair: James Murray (Jan 2024 - Dec 2024)
    b. Vice Chair: Nancy Targett (Jan 2024 - Dec 2025)
    c. Past Chair: Deborah Stirling (Jan 2024 - Dec 2025)
    d. Member-at-Large: Deidre Gibson (Jan 2024 - Dec 2025)
    e. Member-at-Large: Peter Betzer (Jan 2024 - Dec 2025)
3. A call has been sent out to fill positions for a 2 year term: January 20245 - December 2026. Open positions include the Chair, Vice Chair and a Member-at-Large position.

Background

- The Board will vote on nominations for the Board's Executive Committee open positions during public Advisory Board meetings.

Red Flags/Comments

- None

NSGAB Action Items

- The Board will vote on Executive Committee officer membership.

Attachments and/or Links:

- Board Charter with language for the Executive Committee and committees is on the Advisory Board website.

National Sea Grant Advisory Board
2024 Fall Meeting

Agenda Item: Minority Serving Institutions Discussion

Purpose

Purpose of the session is informational and to have a follow-up discussion on the Sea Grant - Minority Serving Institution (MSI) panel held during the March 2024 Board public meeting.

Three Things You Must Know

1) A panel discussion was held to highlight the capabilities of two NOAA CSCs and SG programs to facilitate potential collaborations.
2) The Board will continue the discussion to determine if a subcommittee should be formed.
3) During the next Board public meeting a motion may be made to form a subcommittee on the topic if that is the decision of the Board.

Background

- At the March 2024 Board public meeting a Sea Grant-MSI panel was provided.
- The Board expressed interest to gain more understanding by investigating how the MSIs, particularly the NOAA Cooperative Science Centers (CSCs) and Sea Grant programs could collaborate.

Red Flags/Comments

- None

NSGAB Action Items

- This is an informational session.

Links

- https://www.noaa.gov/office-education/epp-msi/csc

National Sea Grant Advisory Board
2024 Fall Meeting

Agenda Item: Mission Support Charge and Membership

Purpose

To establish a Board subcommittee to undertake a holistic assessment of Sea Grant's ability to deliver on its mission. (decisional)

Three Things You Must Know

1) An ever-expanding coastal population, along with the effects of climate change on the coastal environment, have greatly increased the demand for Sea Grant research, extension and education resources.
2) To provide additional services to meet its customer demands and legislative mandate requires a functioning core infrastructure at the NSGO and within its 34 university-based administrative entities, yet Sea Grant's core buying power has eroded despite the increased demand for services**.**
3) It is proposed a subcommittee be established and tasked with analyzing why this has occurred and what steps should be taken to change course.

Background

- Sea Grant was provided strong endorsement by the IRP and the very favorable reviews by the 34 site visit teams which reviewed each Sea Grant program making it clear that overall Sea Grant performance is at a very high level.
- Sea Grant has a broad congressional mandate to address the Nation's highest priorities regarding the understanding, assessment, development, management, utilization and conservation of ocean, coastal and Great Lakes resources.
- Over the past 21 years, Sea Grant has lost more than 41% of its core buying power despite the increased demand for services**.**
- The Board is concerned that this erosion of the base is increasingly preventing Sea Grant from achieving its mission.

Red Flags/Comments

- None

NSGAB Action Items

- It is proposed that a Board subcommittee be established which requires a vote and decision by the full Board.

Links

- Attached below is the charge to the Board to stand up a subcommittee.

Charge to the National Sea Grant Advisory Board to Create a Committee to Assess How Sea Grant is Delivering on its Mission

Purpose

To undertake a holistic assessment of Sea Grant's ability to deliver on its mission.

Background

The National Sea Grant College Program (Sea Grant) is a Federal-University partnership program that brings science together with a wide range of communities for sustainable solutions. Sea Grant was established by the U.S. Congress in 1966 and works to create and maintain a healthy coastal environment and economy.

The Sea Grant network consists of federal-university partnerships between the National Oceanic and Atmospheric Administration (NOAA) and 34 university-based programs in every coastal and Great Lakes state, Puerto Rico, and Guam. The network draws on the expertise of more than 3,000 scientists, engineers, public outreach experts, educators and students to help citizens better understand, conserve and utilize America's coastal resources.

An Independent Review of Sea Grant (2021) found that the place-based Sea Grant model linking research to application to community is well recognized, highly effective, and highly valued by Sea Grant's many partners. It recognized the role of the National Sea Grant Office (NSGO) in leading the network with its strategic guidance, facilitating individual program success, aggregating program outcomes into network wide accomplishments, and identifying new opportunities for partnership and growth. The Independent Review Panel (IRP) found the Sea Grant Planning, Implementation and Evaluation (PIE) system and its associated PIER database captured impacts and outcomes at local, regional, and national levels. The metrics and outcomes evaluated across all programs during the last site review (2018-2019) are impressive and reflect the strength of the program-driven science and outreach.

Sea Grant has strong support from its stakeholders, particularly the business sector, Non-governmental Organizations, and local and state governments that value its integrated approach. In 2022, the Sea Grant economic benefit was conservatively estimated at nine to one.

Charge

Given the strong endorsement by the IRP and the very favorable reviews by the 34 site visit teams which reviewed each Sea Grant program, it is clear that overall Sea Grant performance is at a very high level. However, an ever-expanding coastal population, along with the effects of climate change on the coastal environment, have greatly increased the demand for Sea Grant research, extension and education resources. To provide additional services to meet its customer demands requires a functioning core infrastructure at the NSGO and within its 34 university-based administrative entities. Yet

when adjusted for cost of living, Sea Grant core funding has not kept pace with inflation. For example, over the past 21 years, Sea Grant has lost more than 41% of core buying power despite the increased demand for services**.** Sea Grant's authorizing legislation says "...*the National Sea Grant Advisory Board shall advise the Secretary and Director concerning…strategies for utilizing the Sea Grant College program to address the Nation's highest priorities regarding the understanding, assessment, development, management, utilization and conservation of ocean, coastal and Great Lakes resources…*". The Board is concerned that this erosion of the base is increasingly preventing Sea Grant from achieving its legislative mandate. This subcommittee is tasked with analyzing why this has occurred and what steps should be taken to change course. The analysis should include;

- What impact the expanded coastal science and outreach needs will have on Sea Grant in the years ahead,
- What resources (financial, human capital, university support, etc.) a Sea Grant program should have to ensure that it meets its legislative mandate in light of significantly expanding constituent needs,
- What minimum amount of funding is required to establish a basic and viable core infrastructure (research, extension, education, communications, and administrative services), and
- An examination of Sea Grant's place in the federal budget system and how Sea Grant's value is communicated within it (NOAA, DOC, and Congress).

The subcommittee will be composed of five to seven members who are drawn from the Board and the external community of experts. It will be co-chaired by a member of the Board and an external expert. The NSGO, SGA, SG Network and SG's many partners will be valuable resources for the committee. At the conclusion of its work, the subcommittee will advise the Board, NOAA, and NSGO of its findings.

Further Details and Timeline

- The full Board should plan to approve the charge and committee membership during the Summer (August 2024) Board meeting.
- The Board subcommittee should plan to provide updates to the Board during subsequent meetings and deliver a full report no later than Fall 2025.
- Following approval by the Board, the report will be forwarded to the NOAA Administrator, NOAA Assistant Administrator for NOAA Research, and the Sea Grant Director.

National Sea Grant Advisory Board
2024 Fall Meeting

Agenda Item: 2024 Biennial Report to Congress

Purpose

Decisional- This session is to discuss and vote on the 2024 “State of Sea Grant’ Report to Congress.

Three Things You Must Know

1. The Biennial Report Committee has finalized the 2024 *State of Sea Grant* report to Congress based on input from the National Sea Grant Office, the Sea Grant Association, and the Sea Grant Network.
2. The Board will need to vote to approve the final report before it is shared with Congress and the public.
3. The report is to be submitted to Congress no later than January 2025. The Board will need to approve the final version during this meeting.

Background

- The State of Sea Grant 2024 is the Official Report to Congress from the National Sea Grant Advisory Board. The Report summarizes Sea Grant’s contributions to the Nation in 2021-2024 and offers the following relevant topics that provide a better quality of life for American citizens and a healthy environment for America’s coastal and Great Lakes communities:
- Responses to the 2020 Report’s recommendations have been addressed and new recommendations have been made.
- Sea Grant’s four major focus areas are represented in the report: Sustainable Fisheries and Aquaculture; Healthy Coastal Ecosystems; Resilient Communities and Economies; and Workforce Development and Environmental Literacy.
- Featured Issues include Climate Adaptation and Community Resilience, Regional Ecosystem-Based Management Collaborations, and Commercial Industry Support and Workforce Development.
- Emerging Opportunities describe Energy Transitions and Coastal Resilience, Sea Grant’s role in promoting food security through aquaculture and sustainable fisheries, and the strengthening of extension and education for science-based decision-making.
- The major impacts and highlights of each state Sea Grant programs are listed.

- With the reauthorization of Sea Grant in 2020, the Board shall report to Congress at least once every four years on the state of the National Sea Grant College Program and shall notify Congress of any significant changes to the state of the program not later than two years after the submission of such a report. The Board shall indicate in each such report the progress made toward meeting the priorities identified in the strategic plan in effect under 33 U.S.C. § 1123(c) of the Act and provide a summary of research conducted under the program.

Red Flags/Comments

- None

NSGAB Action Items

- Decisional session - a vote is required for approval

Links

- 2024 Biennial Report to Congress (attached below)
- 2022 Interim Report to Congress
- 2020 Biennial Report to Congress
- 2018 Biennial Report to Congress
- 2016 Biennial Report to Congress
- 2014 Biennial Report to Congress
- 2012 Biennial Report to Congress

THE STATE OF Sea Grant

2024 BIENNIAL REPORT TO CONGRESS

LETTER FROM THE CHAIR

Dear Members of the United States Congress,

On behalf of the National Sea Grant Advisory Board (Board), it is my privilege to share with you The State of Sea Grant 2024 Quadrennial Report to Congress, developed by the Board as directed by the 2008 Sea Grant Act (PL 110-394). The State of Sea Grant 2024 provides an update on the National Sea Grant College Program (Sea Grant) over the past four years and is the seventh such report to Congress.

This report is flush with examples of how Sea Grant creates a culture that connects esteemed, peer-reviewed actionable science with robust and dynamic capabilities in extension and education. Sea Grant's cutting-edge planning, implementation, and evaluation system allows for intricate programmatic accountability. The summary metrics contained in this report are evidence of that adherence to programmatic accountability. The societal impacts highlighted in this report are organized within four strategic areas Sea Grant has chosen to focus its resources. Those areas are Sustainable Fisheries and Aquaculture, Resilient Communities and Economies, Healthy Coastal Ecosystems, and Environmental Literacy and Workforce Development. Please note that Sea Grant has made considerable progress on the four recommendations found in the Board's 2020 report to Congress, which include:

(1) support implementation of its Network Visioning
(2) amplify efforts to incorporate social and environmental justice, equity, diversity, and inclusion in its structure and programming
(3) seek opportunities and collaborations to leverage Sea Grant's unique strengths in building coastal community resilience
(4) make improvements based on the findings and recommendations of the Independent Review Panel and Board Evaluation Committee.

Through extensive deliberations, and in the spirit of promoting continued excellence, the Board offers four new recommendations for Sea Grant to pursue over the next four years. These include that Sea Grant: (1) should work with NOAA and Congress to strengthen core capacities with its university partners in support of research, extension, and education to achieve community impacts; (2) needs to continue environmental stewardship, balancing it with the blue economy to promote sustainability and community stability; (3) should focus on improving environmental awareness and literacy, including coastal, ocean, and Great Lakes literacy, to aid in decision-making that builds safer and more resilient communities within the communities it serves; and (4) should enhance efforts to ensure that all initiatives contribute to equitable outcomes reflecting the diverse communities we serve.

As Sea Grant funding expands to address ever more pressing societal needs, it will be critical that investments in Sea Grant's core infrastructure at the state and local levels keep pace and are balanced with the funding of new initiatives. It is because of Sea Grant's core infrastructure that such significant achievements as shown in this report are made possible.
The Board also recognizes and appreciates the U.S. Congress' longstanding bipartisan support for Sea Grant, often during difficult budgetary times, and is grateful that Congress entrusts Sea Grant to address the nation's most urgent coastal needs. We look forward to continuing our work with you to address critical needs of our nation.

Sincerely,

James D. Murray,
Chair of the National Sea Grant Advisory Board

SEA GRANT PROGRAMS

Alaska Sea Grant (AK SG)

California Sea Grant (CA SG)

Connecticut Sea Grant (CT SG)

Delaware Sea Grant (DE SG)

Florida Sea Grant (FL SG)

Georgia (GA SG)

University of Guam (UOG SG)

Hawai'i Sea Grant (HI SG)

Illinois-Indiana Sea Grant (IL-IN SG)

Lake Champlain Sea Grant (LC SG)

Louisiana Sea Grant (LA SG)

Maine Sea Grant (ME SG)

Maryland Sea Grant (MD SG)

Massachusetts Institute of Technology Sea Grant (MIT SG)

Michigan Sea Grant (MI SG)

Minnesota Sea Grant (MN SG)

Mississippi-Alabama Sea Grant (MS-AL SGC)

New Hampshire Sea Grant (NH SG)

New Jersey Sea Grant Consortium (NJ SGC)

New York Sea Grant (NY SG)

North Carolina Sea Grant (NC SG)

Ohio Sea Grant (OH SG)

Oregon Sea Grant (OR SG)

Pennsylvania Sea Grant (PA SG)

Puerto Rico Sea Grant (PR SG)

Rhode Island Sea Grant (RI SG)

South Carolina Sea Grant Consortium (SC SGC)

Texas Sea Grant (TX SG)

University of Southern California Sea Grant (USC SG)

Virginia Sea Grant (VA SG)

Washington Sea Grant (WA SG)

Wisconsin Sea Grant (WI SG)

Woods Hole Sea Grant (WHOI SG)

National Sea Grant Law Center (NSGLC)


Washington
Oregon
Minnesota
Maine
Lake Champlain
New Hampshire
MIT
Woods Hole
Rhode Island
Connecticut
New York
New Jersey
Wisconsin
Michigan
Pennsylvania
Illinois-Indiana
Ohio
Delaware
Maryland
Virginia
North Carolina
USC
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National Law Center
Georgia
South Carolina
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PACIFIC OCEAN
Hawai'i
Puerto Rico
PACIFIC OCEAN
CARIBBEAN SEA

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CONTENTS

Researchers observe a gray whale swimming through kelp off the Oregon coast. Photo courtesy of Oregon Sea Grant

A landscape photo of the Sleeping Bear Dunes National Lakeshore in Michigan. Photo by Hali Motley, Michigan Sea Grant

EXECUTIVE SUMMARY

The State of Sea Grant 2024 is the Official Report to Congress from the National Sea Grant Advisory Board. The report summarizes Sea Grant's contributions to the Nation in 2021-2024 and offers recommendations and opportunities that provide a better quality of life for American citizens and a healthy environment for America's coastal and Great Lakes communities.

Sea Grant consists of a National Office staff and 34 university-based programs, which include extension professionals, educators, communicators, and researchers, who, along with other partners, accomplish program goals in four major areas: Sustainable Fisheries and Aquaculture, Healthy Coastal Ecosystems, Resilient Communities and Economies, and Environmental Literacy and Workforce Development. Sea Grant's partners include government agencies, academia, industry, non-profit organizations, and individuals.

The recommendations made in the 2020 Report have been addressed. Actions taken are described in this report.
For the 2024 Report, the Board recommends that Sea Grant:

1. Strengthen Core Capacities with University Partners
The National Sea Grant College Program collaborates with NOAA, Congress, and its university partners to strengthen its core capacities to support research, and engage in extension and education that collectively achieve community impacts. This enhancement will support research, extension, and education, ultimately achieving significant community impacts and addressing growing societal needs for climate readiness and resilience.

2. Balance Environmental Stewardship with the Blue Economy
The program continues to promote environmental stewardship, including topics like renewable energy, aquaculture, and mariculture, while promoting sustainability and community stability. This balance can be achieved through workforce development and ensuring healthy coastal ecosystems.

3. Improve Environmental Awareness and Literacy
The program enhances its focus on environmental awareness and literacy, including ocean, coastal, and Great Lakes literacy, which is crucial for safer and more resilient communities, aquaculture, and healthy coastal ecosystems.

4. Ensure Equitable Outcomes Reflecting Diverse Communities
The program deepens its commitment to social and environmental justice, equity, and inclusion. This involves assessing, broadening, and embedding these principles within its organizational framework and activities to ensure all initiatives contribute to equitable outcomes and accurately reflect the diverse communities served.

RESPONSES TO 2020 RECOMMENDATIONS

RECOMMENDATION ONE

The National Sea Grant College Program should continue to support the implementation of the Network Vision Plans.

RESPONSE

The National Sea Grant Office (NSGO) and the Sea Grant Network successfully used the 11 Network VIsioning Plans to guide and implement Sea Grant strategic priorities during the 2020-2024 period. In 2020, the NSGO provided competitive funds that supported implementation of the plans and the development and enhancement of formal Communities of Practice (CoPs) for most of the network visioning topical areas. The plans and CoPs served as important cornerstones for the development of new partnerships and the development of the 2024-2027 National Sea Grant College Program Strategic Plan. Specifically, NSGO staff designated as Focus Area Leads for the strategic planning effort reviewed and incorporated the vision documents relevant to their focus area during the first phase of Strategic Plan development, which informed the 2024-2027 Strategic Plan. NSGO staff also supported the Sea Grant functional or topical networks (such as the Fisheries Extension Network and the Water Resources Network) in implementing specific Network Vision Plans through supporting network and community meetings, facilitating partnership development and, where possible, providing new financial support for network liaisons and direct implementation of goals. Notably, the Diversity, Equity, Inclusion, Justice and Accessibility (DEIJA) CoP was supported in the development of the new Community Engaged Internship Program for underserved undergraduates and network-wide engagement evident throughout this document and acknowledged specifically in the Executive Summary.

RECOMMENDATION TWO

The National Sea Grant College Program should continue and amplify efforts to incorporate social and environmental justice, equity, diversity, and inclusion in its organizational structure and programming.

RESPONSE

Serving all of the nation's coastal and Great Lakes communities has been a cornerstone of Sea Grant since its inception in 1966. Over the past four years, the National Sea Grant Office (NSGO) has implemented several practices supported by peer-reviewed studies to enhance diversity, equity, inclusion, justice, and accessibility (DEIJA) in its granting processes. These changes include: modifying Sea Grant competitive applications to better serve applicants from diverse backgrounds; requiring bias awareness training for reviewers; and developing and implementing a demographic survey to assess the communities served by grant awards; encouraging applications from diverse groups through a DEI statement in funding opportunities; and surveying aquaculture engagement at Minority Serving Institutions (MSIs) to determine how to better support these efforts. Internally, Sea Grant has brought on Knauss fellows and federal employees to support DEIJA efforts, and continues to participate in broader NOAA and interagency groups focused on social and environmental justice, equity, diversity, and inclusion.

With funding from recent legislation, Sea Grant established new competitive opportunities focused on climate workforce development, marine debris prevention, and technology development for marine debris removal, with several designated as Justice40 programs to support historically underserved communities.

RECOMMENDATION THREE

The National Sea Grant College Program should continue to actively seek opportunities and collaborations to leverage Sea Grant's unique strengths in building coastal community resilience.

RESPONSE

Sea Grant has deep roots in communities across coastal and Great Lakes states and U.S. territories and works with them to improve resilience and reduce impacts from extreme weather, climate change, and coastal hazards. Over the past four years, through direct investments supported by additional Congressional funding and new partnerships, Sea Grant programs across the U.S. scaled up hands-on community engagement and science capacity and projects in support of community resilience (see 2023 Resilience Investments and USCRP Partnership for more detail). Highlights include a continued partnership with NOAA's Disaster Preparedness Program to support innovative all-hazard initiatives; partnering with the Department of Defense to assist military and adjacent communities; leading research to understand needs related to climate-induced mobility by leveraging National Science Foundation funding; and developing a user-friendly guide for an interagency sea level rise report. Sea Grant also successfully increased engagement with Tribal, Indigenous, and historically marginalized and/or underserved communities, to improve resilience and reduce impacts from extreme weather, climate change, and coastal hazards by supporting local and Indigenous knowledge sharing, and additional research, bringing communities and decision-makers together to co-develop information and actions to improve community preparedness and adaptation. In 2022 (as reported in 2023), Sea Grant's work resulted in: 1,099 communities receiving training to improve resilience with 354 of those communities implementing sustainable development practices to improve resilience to date; and 1.1 million acres were restored or protected as a result of Sea Grant activities.

RECOMMENDATION FOUR

The National Sea Grant College Program should make adjustments based on the findings and recommendations of the Independent Review Panel and Board Evaluation Committee.

RESPONSE

In 2020, the National Sea Grant Advisory Board (NSGAB) thoroughly reviewed the site review visit process and concluded that it has matured into a highly effective tool, providing valuable insights for the Sea Grant community. They also identified opportunities for improvement. The NSGO incorporated feedback and recommendations from the NSGAB into a revised Site Review Visit Guidance document, aiming for continuous improvement in future site review processes. In 2021, an independent review of the National Sea Grant College Program was conducted and concluded that Sea Grant delivers substantial accomplishments and impacts, with a strong return on investment. The NSGO was found to effectively administer and grow the program's ability to achieve its mission, and four recommendations were given to facilitate NSGO's continued improvement: 1) upgrade and improve the Sea Grant Planning, Implementation, Evaluation and Reporting (PIER) database; 2) align Sea Grant Planning, Implementation, Evaluation (PIE) policy with the new OAR line office review policy; 3) revisit Sea Grant's Allocation of Funds policy; and 4) revisit the Sea Grant Partnership Framework.

Since 2022, the NSGO has worked to address these recommendations by: 1) working with NOAA IT to make critical improvements to the PIER database while awaiting platform stability and resources/funding to support the development of a new PIER database system; 2) working with OAR to ensure that the upcoming Independent Review of the National Sea Grant college Program and the NSGO in 2026 achieves the review goals for both Sea Grant and OAR; 3) carrying out an Advisory Board-led assessment of the 2014 Allocation Policy and issuing an updated Policy for the Allocation of Funds, FY 2024 and Beyond (Allocation Policy); and 4) reassessing and updating the Sea Grant Partnership

Framework to ensure that it is focused and responsive to the strategic priorities in the 2024-2027 Sea Grant Strategic Plan. Each of these items will continue to be revisited on a regular basis to ensure that Sea Grant's commitment to continual improvement is achieved.

SEA GRANT MODEL

In 1966, Congress passed the National Sea Grant College and Program Act, which charged the federal government to develop a network of Sea Grant Colleges modeled after the Land Grant College system. This model combines research with public engagement through its extension, legal and communication services and education programs. Sea Grant extension can be defined as the delivery of scientific research and knowledge to fishers, community leaders, and other Sea Grant constituents, while identifying their needs in order to inform new scientific inquiry.

From the beginning, it was anticipated that the three pillars (research, extension, education) and the network of cooperating universities would be mutually supportive. Time shows that the vitality of coastal and Great Lakes communities, their habitats, and their ecosystems, together with the marine resources upon which these communities depend, benefit from Sea Grant's programs far more profoundly than Sea Grant's founders imagined.

Those benefits come from the power of the Sea Grant model, a synergistic interplay of goal-directed research, conducted by many of our nation's finest scholars, with the rapid and sustained application of that knowledge to solve problems and make better informed choices. Sea Grant's use-inspired research agenda is informed by constituent input and then directed toward solving local and national coastal and Great Lakes issues.

The education and development of new generations of researchers and staff from diverse fields are integrated into Sea Grant's research, education and extension activities. That integration, along with a balanced investment in research, extension, and education, is the commitment of a multitude of individuals in academia, government, and industry throughout the Sea Grant network. Their contributions support the economic, environmental and social vitality of our nation's oceans, coasts, and Great Lakes and the communities that depend on them.

BY THE NUMBERS GOES HERE

BY THE NUMBERS GOES HERE

SEA GRANT'S FOCUS AREAS

SUSTAINABLE FISHERIES AND AQUACULTURE

Since Sea Grant's inception over 55 years ago, its support of Sustainable Fisheries and Aquaculture has focused on topics including species improvements, production methods, gear technology, management, workforce development and training, processing, food safety, business development, economics and marketing, permitting, and restoration. From revitalizing shellfish beds to pioneering seaweed farms, the Sea Grant network is making waves in the aquaculture industry. Through innovative research, collaborative extension programs, and timely responses to crises like the COVID-19 pandemic, Sea Grant initiatives across the U.S. are bolstering commercial fishing, supporting sustainable aquaculture practices, and ensuring the safety and accessibility of seafood. Below is a snapshot of the diverse projects undertaken by Sea Grant, highlighting their impact on both the economic vitality and environmental health of coastal communities.

Aquaculture

A sustainable U.S. aquaculture industry creates jobs in the blue economy and can help reduce the $20.3 billion federal seafood trade deficit (2023 value). Aquaculture research, education and engagement (communications, extension and legal) programs implemented by Sea Grant are grounded in the needs identified by the aquaculture community. These programs cover applied and basic research, education and engagement.

FL SG's long-term aquaculture research and extension programs continue to support Florida's clam and shellfish industry. The industry currently supports 543 jobs and $14.7M in labor income annually in underserved, rural coastal counties.

AK SG and partners developed a program to provide tools and training for aspiring Alaskan seaweed farmers. At least four new seaweed farms and two seaweed hatcheries were established as a result of these programs.

A man holds up a cord of cultivated sugar kelp in Washington. Photo by Stephen Schreck, PSRF

Sea Grant supported the creation of specialized aquaculture hubs to focus on priorities of the industry:

CT SG led the Sea Grant National Seaweed Hub and served as a contributing expert to the 2022 FAO-WHO report on food safety for seaweed.

MN SG brought much-needed expertise and networking to Great Lakes-region aquaculture. Sea Grant's Great Lakes Aquaculture Collaborative, a project inclusive of all the Great Lakes Sea Grant programs, provided training, resources, funding opportunities, expertise, marketing, consumer services, and networking for aquaculture producers, consumers, and marketers across the region.

A history of working in restoration aquaculture allowed Sea Grant to quickly pivot during COVID-19 to support the shellfish industry when many restaurants were closed:

NJ SGC created a habitat restoration market opportunity for oyster farmers whose markets collapsed due to the COVID-19 pandemic. Seventy-three thousand oysters were purchased from sixteen New Jersey farmers to enhance oyster reef habitat at four locations.

MS-AL SGC used COVID-19 Rapid Response funding to purchase approximately 575,000 oysters from farmers, when markets were limited, to place onto reefs for restoration in Alabama and Mississippi. This was the equivalent of restoring 29 acres with an economic value of $764,634.

Commercial, For-Hire, and Recreational Fishing

The Sea Grant Network's support of outcome-based programs for the commercial wild capture, for-hire charter and recreational fishing industry has endured for more than 50 years. Sea Grant's research, education and engagement programs develop the best available science that is applied by industry and resource managers.

Guam Sea Grant members and partners around an aquaculture tank. Photo courtesy of Guam Sea Grant

GA SG and **NC SG** organized a Ropeless Fishing Gear Technology Workshop, to review and assess the applicability of the gear for use in the commercial black sea bass pot fishery. The workshop led to the South Atlantic Fishery Management Council including black sea bass on-demand pot gear in their black and gag grouper framework amendment.

FL SG helps the state in managing, deploying and monitoring its network of 3,800 artificial reefs that are used by 48% of Florida's saltwater anglers targeting reef fish in the Gulf of Mexico, and generating $3B in economic activity.

WA SG worked to bridge the gap between commercial harvesters and seafood buyers through an ongoing consumer marketing awareness campaign to encourage direct sales of seafood in Washington.

MI SG's Great Lakes Angler Diary (GLAD) program recruits anglers to use an app to submit numerical and geographical data about fish they catch. Data has helped the Michigan Natural Resources Commission and Michigan Department of Natural Resources make informed decisions about steelhead harvest limits and other fishery policies.

OH SG organizes the annual Ohio Charter Captains Conference to help Lake Erie charter businesses be more successful through training in business management, regulatory requirements, and environmental issues.

Seafood Marketing

A man holds a Golden Shiner bait fish. Minnesota Sea Grant and partners developed the Sea Grant Great Lakes FreshFishFinder.org website to connect consumers directly to fresh fish suppliers. Photo courtesy of Minnesota Sea Grant

Robby Brandano, head of purchasing and sales at Great Eastern Seafood, examines fresh haddock ready for processing in Boston. Photo courtesy of the Cape Code Commercial Fisherman's Alliance

Marketing seafood ranges from highly processed products sold nationwide to niche marketing at the local level. To help with seafood marketing,

MI SG and partners developed the Sea Grant Great Lakes FreshFishFinder.org website as a Great Lakes region wide website to connect aquaculture producers, bait dealers, and commercial fishers directly to consumers in response to the shift in market conditions and supply chains caused by the COVID-19 pandemic. The website was an initiative of the Sea Grant Great Lakes Aquaculture Collaborative.

RI SG's Legal Program provided essential analysis to Manna Ocean Foundation to enable them to launch an organic seafood label. The U.S. had not established any organic standards for seafood, making it difficult for domestic products to satisfy consumer demand or participate in market growth for organic products.

MIT SG applied COVID-19 Rapid Response funds to help develop alternative markets and revenue streams for sustainable fisheries in Massachusetts. Creating new markets for smaller haddock and skate as a sustainable long-term model to support the fishing community and contributing to food banks and food pantry systems in Massachusetts and the region are an added benefit for our constituents.

CT SG implemented a three-phase project providing short-term work and income to industry contractors to offset the economic hardships from COVID-19 that directly benefited 33 companies by providing alternative marketing strategies, updated direct marketing guidance, help with financial applications, a web site featuring shellfish businesses and compensation to those participating in the natural bed rehabilitation and broodstock planting program.

HEALTHY COASTAL ECOSYSTEMS

The United States manages millions of square miles of coast that contains diverse and productive ecosystems. These ecosystems span the tropics to the Arctic to the Great Lakes and support a variety of recreational, commercial, and subsistence activities, from tourism to coastal hazard preparedness to reducing marine debris. Sea Grant collects, translates, and applies scientific information to maintain and restore healthy coastal ecosystems. Sea Grant's comprehensive approach underscores its indispensable contribution to safeguarding marine ecosystems and coastal communities.

Habitat Restoration and Coastal Resilience

Sea Grant programs are actively involved in coastal habitat restoration and resilience projects.

WA SG is working on the application of coastal resilience models that mitigate risks, protect infrastructure, and enhance community preparedness and is involved in King Tides and sea level rise research in coastal communities.

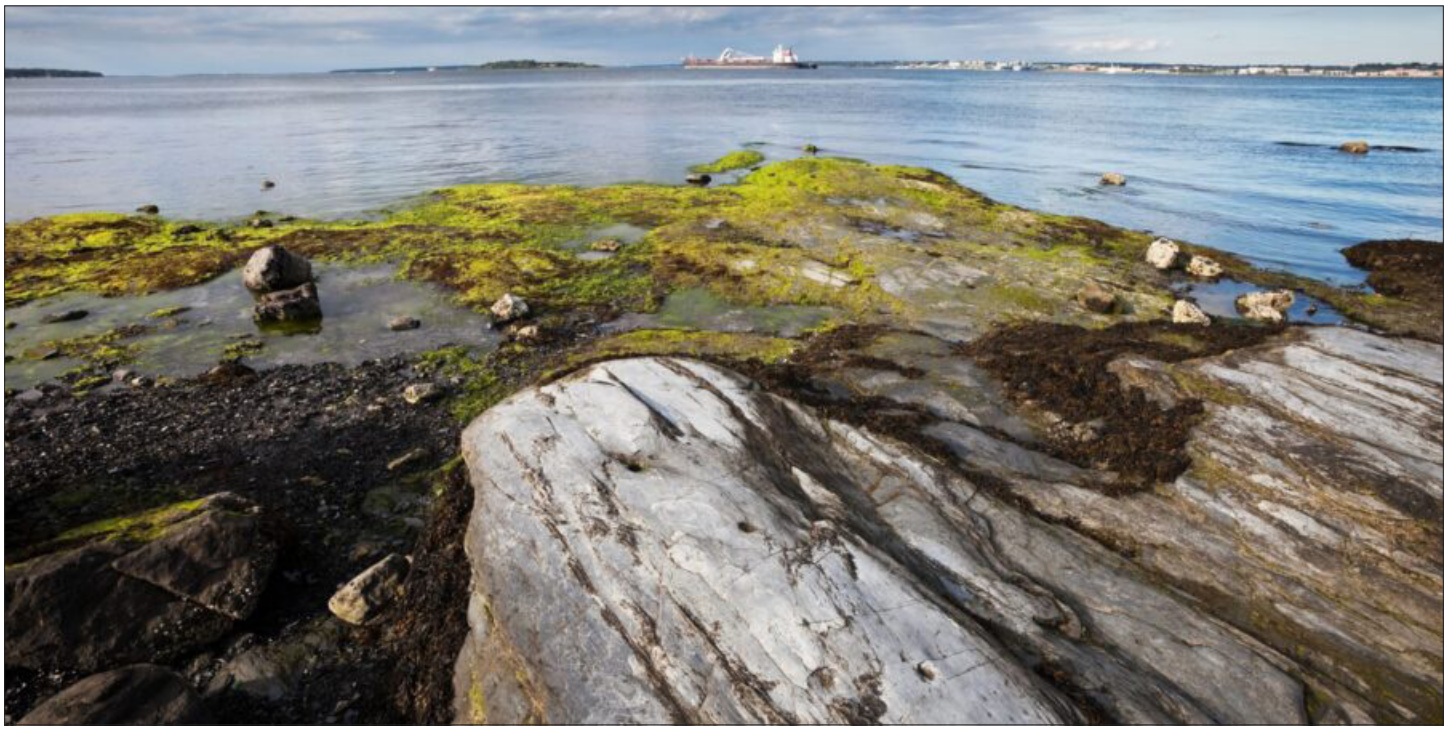
OR SG is helping to create a carbon-neutral future by reducing pollution that causes climate change and other actions, as well as accelerating nature-based solutions that store greenhouse gas emissions.

NY SG is evaluating the potential of seagrasses for carbon sequestration, identifying heat and disease resistant strains of bay scallops and investigating opportunities for the aquaculture industry, such as the cultivation of seaweeds, cold storage of shellfish larvae, and perceptions of ecosystem benefits of oysters.

DE SG is involved in environmental DNA (eDNA) research and monitoring projects to study aquatic ecosystems and biodiversity in Delaware's coastal waters.

UOG SG conducts engagement and research programs on a recurring issue of eroding soil bleeding into the sea. The resulting sedimentation smothers and kills coral reefs and harms nearshore fisheries.

A seagrass meadow underwater. A New York Sea Grant-led team is assessing the ability of seagrass to draw down carbon dioxide from the aquatic environment. This could reduce the effects of ocean acidification. Photo by Kaitlyn O'Toole, New York Sea Grant



A landscape photo of Narragansett Bay, Rhode Island. A research team led by Rhode Island Sea Grant showed that ecosystems in the bay are affected by nitrogen output from the Rhode Island Sound. Photo courtesy of Rhode Island Sea Grant

Water Quality

Sea Grant programs across the nation are involved in efforts to improve coastal and Great Lakes water quality.

OR SG helped the Oregon Department of Environmental Quality develop ocean acidification and hypoxia assessment methods to address Oregon's requirements for the Federal Clean Water Act and related submission to the EPA.

RI SG elucidated connections between Rhode Island Sound and Narragansett Bay. These water flows play a critical role in transferring nitrogen in this system, with the potential for improvement and degradation of water quality in this system.

SC SGC implemented "Water Chats", a water quality technical training program that connects natural resource professionals and decision-makers with the latest water quality research in the state to inform management decisions.

NJ SGC helps improve coastal water quality through its Extension, Education, and Research activities. Their Extension Program has coordinated the Clean Vessel Act program in New Jersey for over twenty years, reducing boat sewage waste from entering our estuarine and coastal waters by transferring the waste at pumpout stations at marinas and designated clean vessel boats.

Marine Debris

Sea Grant programs across the nation play a pivotal role in addressing marine debris, showcasing their commitment to mitigation through diverse strategies and collaborative efforts. Sea Grant action plans extend beyond community cleanups, effectively mitigating single-use plastics and engaging in innovative recycling initiatives.

AK SG spearheaded a multi-partner response to Arctic marine debris, engaging communities, Tribes, businesses, and government agencies to tackle the challenge posed by increased maritime vessel traffic in the northern Bering Sea and Bering Strait, which served as a model for coordinated response efforts, spotlighted in key reports like the NOAA Arctic Report Card and the NOAA Marine Debris Program.

DE SG, along with partners and volunteers removed 340 derelict crab pots from the Delaware Inland Bays. Derelict crab pots can cause damage to boat propellers and often trap other sea creatures.

MS-AL SGC marine debris program led 162 cleanup events resulting in more than 95 tons of debris removed and included over 7,300 volunteers that contributed more than 20,000 hours of volunteer service during the past four years.

OH SG led efforts to prevent and mitigate marine debris. Their beach cleanups have removed 286 pounds of trash, restored 37 acres, and gathered 384 volunteer hours.

A volunteer walks along a beach in Georgia collecting trash in a bag made from an old shrimp net. Georgia Sea Grant began the "Trawl to Trash" program, purchasing discarded nets from shrimpers to re-use as trash collection bags. Photo courtesy of Georgia Sea Grant

The **WHOI SG** shrink wrap recycling program educates residents and businesses about single use plastic and provides a mechanism to recycle the plastic wrap used to protect boats in the winter months. In 2021 more than 20,000 pounds of plastic was diverted from the landfill, incinerator, or improper disposal, and reused in new products.

CT SG and **NY SG** led an effort with 45 partner organizations and institutions to complete the 2022-2027 Long Island Sound Marine Debris Action Plan, identifying strategies and actions to address single-use plastic and other consumer debris.

GA SG's Trawl to Trash project brings together commercial fishers, coastal residents, and local K-12 students to prevent litter from entering the marine environment while also inspiring behavior change in Georgia's coastal communities.

RESILIENT COMMUNITIES AND ECONOMIES

In 2020, 129 million people – or 40% of the United States' population – lived in coastal counties of the United States (US) and its territories. This represents an increase of 46% over the past 50 years (NOAA Office for Coastal Management Economics and Demographics). Within those counties, 54.6 million people were employed. They earned $4 trillion in wages and produced $10 trillion in goods and services (2020 NOAA Report on the US Marine Economy). By 2020, the marine industry alone – the businesses that rely upon the ocean or Great Lakes for their existence – supported more than 163,000 businesses and 3 million jobs nationally. This represents an average increase of 15% in marine industry businesses since 2010. The growth of coastal communities and economies increases their vulnerability to extreme weather, tsunamis, and catastrophic events such as Hurricanes Ian, Ida, Typhoon Mawar, and various atmospheric rivers that have hit the US mainland west coast. Communities located near sea level are at particular risk of damage during such storms and events. Communities can build resilience to such events through planning, education, use of nature-based solutions, and disaster response preparation and implementation. Sea Grant's research, extension, and education build capacity at the local level to assess and reduce risk to local communities.

Training and Education

SC SGC and **LC SG** and partners teach 12 unique continuing education courses for real estate professionals. These focus on coastal and shoreland ecosystems, water quality, flooding, floodplain mapping, flood insurance, septic and drinking water systems, and building regulations in critical coastal and shoreland areas.

These courses build real estate professionals' knowledge, and both knowledge and resilience of home buyers and sellers to water resource-related, coastal, and ecosystem challenges such as flooding, sea level rise, and erosion. More than 1,875 real estate professionals were educated in 80 workshops sponsored by the two programs since 2014, which allowed them to expand their knowledge and share resources with their

A home sits atop a hill near the embankment of a body of water. Lake Champlain Sea Grant hosts several real estate continuing education classes that familiarize realtors with coastal home information to pass on to their clients.Photo courtesy of Lake Champlain Sea Grant

clients. In FY2021 alone, the economic value of Lake Champlain Sea Grant's real estate professionals' education program was estimated at $22 million.

PR SG collaborates with the National Disaster Preparedness Training Center (NDPTC) to coordinate sessions of the Natural Disasters Awareness for Community Leaders and Planning for Disaster Debris Management.

PR SG has provided certified courses in Spanish to 74 community leaders, and other professionals from Puerto Rico and the U.S., free of charge.

Planning and Implementing: Building Resilience in Military Communities

GA SG made connections with the U.S. Department of Defense (DOD) that led to a $6.8 million grant to **MS-AL SGC** to install living shoreline at Keesler Air Force Base in Biloxi, Mississippi to reduce wave erosion, prevent marsh degradation and improve the base's resilience to extreme weather events.

Legal and Policy: Partnering to Create Model Flood Insurance Bylaws

WHOI SG partnered with the National Flood Insurance Program (NFIP) office and with FEMA Region I to create a model bylaw for NFIP compliance statewide. The bylaw is now required to be adopted by the 341 coastal communities in Massachusetts that participate in the NFIP. This work contributed to the profitability of over 350 small family businesses, supporting over 600 jobs.

ENVIRONMENTAL LITERACY AND WORKFORCE DEVELOPMENT

Environmental Literacy

Students from Vigor High School (Prichard, Alabama) build remotely operated vehicles (ROVs) as part of Mississippi-Alabama Sea Grant Consortium-funded programming with Discovery Hall Programs at Dauphin Island Sea Lab on Dauphin Island, Alabama. (Photo by Discovery Hall Programs)

Environmental Literacy involves fostering opportunities for all to understand their place in the environment. It includes professional learning for formal and non-formal educators, as well as opportunities for students, youth, and community members to participate in a variety of experiences provided by Sea Grant programs.

A knowledgeable and skilled population is crucial for the future health of the planet. Sea Grant tackles this challenge head-on by fostering an environmentally literate public that reflects the range of diversity in coastal communities. From training middle schoolers in Maine to identify microplastics to equipping Alaska's coastal residents with climate resilience tools, Sea Grant empowers citizens of all ages through lifelong formal and non-formal learning opportunities.

Additionally, Sea Grant cultivates a diverse and skilled workforce equipped with the scientific, technical, and communication expertise needed to address pressing local, regional, and national ocean and coastal challenges.

An Environmental Literacy model is the Center for Great Lakes Literacy (CGLL), a collaborative effort led by Sea Grant educators throughout the Great Lakes watershed (**IL-IN, MI, MN, NY, OH, PA, and WI**). CGLL is a regional network of Sea Grant educators and partners that foster basin-wide Great Lakes stewardship by providing hands-on experiences, educational resources, and networking opportunities among an engaged community of educators, scientists, and youth. In 2022, the CGLL team enhanced coordination with the Great Lakes Sea Grant Directors Network, launched a regional newsletter, started a teacher mentorship program, and presented it at meetings and conferences. But most importantly, the team developed innovative virtual learning materials accessible to educators on issues of critical importance to the region. In March 2023, CGLL launched two new modules featuring aquatic invasive species (AIS) and the urban water cycle. In one year, CGLL has supported professional learning opportunities for 150 educators and directly impacted 3,800 youth.

Workforce Development

Sea Grant invests in building a knowledgeable and skilled workforce through targeted initiatives. This includes providing undergraduate and graduate students, as well as postgraduates, with valuable hands-on experience and access to cutting-edge scientific resources. By empowering individuals to develop expertise in coastal and marine resource management, Sea Grant ensures a future workforce prepared to adapt and thrive in a changing environmental, social, and economic landscape. Sea Grant's workforce development initiatives:

- Grow awareness among the nation's diverse population of career paths that support the needs of the nation's coastal communities.
- Increase opportunities for undergraduate and graduate students, and post-graduates to gain knowledge, skills, and experiences in the science and management of watershed, coastal and marine resources.
- Ensure the existing and future workforce can adapt and thrive in changing environmental, social, and economic conditions.

An example of a targeted workforce development initiative is the Delaware Technical Community College Green Infrastructure Workforce Development Program. In 2019, **DE SG** formed a collaborative partnership with Delaware Technical Community College, the state's open-admission institution of higher education, to provide workforce training for students and early career professionals. The paid internship program focuses on the lifecycle of a green infrastructure project, emphasizing: (1) site assessment and design, (2) materials procurement, (3) construction, (4) post-construction monitoring, and (5) long-term site management.

Participants learn job-specific skills through hands-on fieldwork, explore careers by working directly with industry professionals, and develop a resume/cover letter and interview skills. Projects range from working in headwater ecosystems (constructed wetlands, riparian buffers) to the coast (living shorelines, subtidal oyster reefs). Over four years, 34 participants engaged in over 10,000 hours of training in the program. Preliminary evaluation of the program showed that the program has been broadly beneficial and has had a positive impact in terms of increased career awareness, technical skills, and confidence in gaining meaningful employment.

SEA GRANT'S FEATURED ISSUES

Climate Adaptation and Community Resilience

Community resilience in the context of climate adaptation refers to the ability of communities to prepare for, withstand and recover from, the impacts of climate change. It involves building adaptive capacity, social cohesion, and resourcefulness within communities to effectively respond to environmental challenges and disruptions caused by climate-related disasters. Community resilience strategies aim to enhance the ability of communities to bounce back, adapt, and thrive in the face of changing climate conditions.

Ocean Climate Action Plan

Sea Grant supports the goals of the Ocean Climate Action Plan (OCAP). The Plan, announced by the White House in 2023, is a comprehensive strategy aimed at addressing climate change impacts on the ocean and coastal areas. Key components of OCAP are:

- Creating a carbon-neutral future
- Accelerate nature-based solutions
- Enhance community resilience to ocean change.

Some examples of Sea Grant programs to create a **carbon-neutral future** are the Clean Boating Program offered by **FL SG**, publications provided by **HI SG** on the ramifications of increasing temperatures of the world's oceans, research by **MIT SG** on coastal carbon sequestration, and **WA SG's** research on Kelp Aquaculture (which grew out of the ability of macroalgae to absorb nutrients and carbon dioxide as it grows). Kelp and other seaweeds also can be grown for food, animal feed, organic fertilizer, biofuels and other sustainable products.

Regarding the second component, the acceleration of **nature-based solutions**, one notable publication is "Nature-Based Solution Manual for Kiawah Island" by **SC SGC**, which aims to enhance community resilience on Kiawah Island. **WI SG's** "Nature-Based Shorelines for Wisconsin's Great Lakes Coast" uses or mimics natural features to stabilize the coast. These natural features can include vegetation, beaches, dunes, and reefs.

A landscape image of Hanauma Bay, Hawai'i. Hawai'i Sea Grant has produced new research showing the consequences of raising ocean temperatures. Photo courtesy of Hawai'i Sea Grant.

LA SG is helping the Pointe-au-Chien Indian Tribe develop nature-based solutions to mitigate climate related hazards, which threaten the Tribe's continued existence in the region and ability to thrive.

In the third component, **enhancing community resilience to ocean change**, Sea Grant plays a significant role in supporting communities to prepare for and adapt to ocean changes. A key example is in **Hawai'i**, where Sea Grant is assisting efforts to assess the readiness of the state to handle the impacts of climate change on its communities.

In Georgia, Sea Grant is helping coastal communities in low lying areas build resilience into planning efforts. **GA SG** is partnering with the US Dept. of Defense to help protect coastal installations and surrounding communities from climate change, shoreline erosion, extreme weather, and flooding. This work by Georgia Sea Grant is now spreading to Dept. of Defense installations across the country.

Climate adaptation planning capacity for coastal communities & Tribes
The National Sea Grant College Program is active in helping communities in their climate adaptation and resilience, from planning to implementation. Programs are helping to identify vulnerable communities most affected by climate change and develop science-based, expert-informed resources and approaches to implement climate change adaptation and resilience strategies. Sea Grant assists coastal and Tribal communities with climate adaptation planning by providing scientific research on climate impacts, facilitates community engagement, and offers technical support. Sea Grant integrates traditional ecological knowledge with western scientific research to address unique climate challenges effectively. Sea Grant helps communities understand vulnerabilities to sea level rise, coastal erosion, and severe weather events through tailored resources like vulnerability assessments and mapping tools. Futhermore, Sea Grant's educational initiatives raise awareness and inform policymakers, while partnerships with local agencies and organizations enhance resource coordination.

FL SG, LA SG, MS-AL SGC, TX SG, and at least nine communities have incorporated adaptation strategies into their hazard mitigation and/or comprehensive plans, funded 25 overall community adaptation projects as part of The Gulf of Mexico Climate and Resilience Community of Practice initiative. The group also has recognized four individuals, four communities, and one community-based organization for excellence in climate resilience through the Spirit of Community Award.

Boats on Bayou Pointe-Au-Chien, Louisiana. Due to climate change, this area experiences one of the highest global rates of sea level rise. Louisiana Sea Grant assisted the Pointe-au-Chien Indian Tribe in developing nature-based solutions to mitigate climate related hazards. Courtesy of Louisiana Sea Grant

SEA GRANT'S FEATURED ISSUES

LA SG created detailed time-series maps of land loss that shows Hurricane Ida's impact on the Pointe-au Chien Indian Tribe's traditional lands, information that the Tribe is using to help inform local climate adaptation and protection planning processes and communicate their needs externally to identify sources of support for their efforts in becoming more resilient to future storm impacts.

ME SG's Climate Resilience Coordinator led critical stages of information gathering, report writing, and communication for the Community Resilience Workbook which offers an inventory of best practices, useful tools, available resources, technical experts, and all current climate adaptation activities across the state. This led to secondary state and NGO investments to use the resource as a scaffold for a state-wide education and technical assistance program beginning in 2023. This statewide effort aligned activities and galvanized a commitment for a Maine climate preparedness best practices information clearinghouse which can evolve under the oversight of state agencies.

AK SG and partners developed a new resilience planning tool that provides a five-step resilience planning process with resources and case studies. This tool was made available to over 80 Tribes in Alaska that have received funding from the Bureau of Indian Affairs to create climate adaptation plans. These climate adaptation plans help communities envision the future and develop actions now to support increased future well being.

WA SG partners on the Northwest Resilience Collaborative's Tribal Coastal Resilience Portfolio developed a better understanding of the climate readiness of Northwest Tribes, provide actionable knowledge for advancing climate adaptation, and enhance the capacity for addressing climate risks.

HI SG led the five-year update of the Hawai'i State Sea Level Rise Vulnerability and Adaptation Report in 2022, in partnership with the State of Hawai'i and University of Hawai'i Climate Resilience Collaborative. The updated Report was published in December 2022 and summarizes advances in global climate predictions, provides updated projections for sea level rise throughout the Hawaiian Islands, catalogs the actions taken in response to the nine recommendations and 49 recommended actions in the previous Report, and sets updated priority recommendations over the next five years to guide Hawai'i's response to sea level rise.

Boats rest at the dock in Hydaburg, Alaska. Hydaburg, home to the native Haida Tribe, experienced shrinking populations and harvest of salmon, hooligan, herring, and shellfish as a result of climate change. Alaska Sea Grant and partners developed a resilience planning tool that was made available to over 80 Tribes in Alaska. Photo by Davin Holen, Alaska Sea Grant

Regional Ecosystem-Based Management Collaborations
Individual Sea Grant Programs are greater than the sum of its parts. In addition to working at the local and state levels, State Sea Grant programs collaborate at regional and national levels to address larger geographic issues including chronic and acute disasters. Regional-based management collaborations of Sea Grant programs involve partnerships and initiatives that focus on enhancing aquaculture, coastal community resilience, and advancing Indigenous aquaculture practices. These collaborations aim to promote sustainable practices, research, and communication within specific regions. Regional examples include:

The four **Gulf of Mexico Sea Grant College programs (TX, LA, MS-AL, and FL)** develop and implement Gulf of Mexico-wide Extension programs focused on diverse topics including reef fish, oil spill science outreach after the Deepwater Horizon Spill, and climate and resilience topics through leading a climate and resilience Community of Practice.

In the **South Atlantic region, Sea Grant College Programs from SC, GA, and FL** are leading contaminants of emerging concern research programs with priorities informed through community engagement. Programs from NC, SC and GA are developing a regional commercial fishing workforce training program; and all five South Atlantic programs (NC, SC, GA, FL and PR) recently held a regional climate resilience workshop to share resources and best practices and develop collaboration opportunities based on shared priority issues and needs.

In the **Pacific region, Sea Grant College programs, including AK, WA, OR, CA and USC**, collaborate on strengthening the renowned commercial fishing industry and the growing aquaculture industry through the west coast seafood marketing efforts, development and provision of resources for businesses; training and apprenticeship programs for producers throughout their careers; and applied research that increases the resilience of fishing, aquaculture and seafood products and communities in the face of uncertainty, such as climate change, pandemics, global market cycles and new ocean uses, such as offshore wind energy.

Students participate in trawling aboard a reserach vessel as part of Mississippi-Alabama Sea Grant Consortium-funded programming with Discovery Hall Programs at Dauphin Island Sea Lab on Dauphin Island, Alabama. Photo by Discovery Hall Programs

The **Mid-Atlantic programs, including DE, MD, NC, NJ, NY, PA and VA** collaborate on a number of initiatives, including oyster aquaculture as in hatchery operations, field and classroom-based educational programs; invasive species education; and rip current and surf zone safety in the wake of numerous fatal and near-fatal events along their popular beaches. Several state programs are currently working together to develop unbiased offshore wind resources in hopes of clarifying misconceptions and misinformation.

The **Great Lakes Sea Grant Network's Center for Great Lakes Literacy** is a collaboration effort led by Sea Grant educators throughout the Great Lakes watershed to foster informed and responsible decisions that advance basin-wide stewardship by proving hands-on experiences, educational resources and networking opportunities promoting Great Lakes literacy among an engaged community of educators, scientists and youth.

The **Northeast Sea Grant Consortium** supports the region's coastal ecosystems, economies, and communities, as part of the 34 programs in the National Sea Grant College Program. It is a regional collaboration that includes eight Sea Grant programs in seven Northeast states: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. The eight Sea Grant programs work together to build a future where people live, work, and play sustainably along our region's coasts, collaborating on regional initiatives in research, education, extension, and communications, leveraging local expertise to create regional benefits and accomplishments. Specific regional projects and initiatives include: Ocean Acidification – completed, Human Dimensions of Coastal and Marine Ecosystems – completed, American Lobster Initiative – underway, Regional Aquaculture Hubs – underway, Ocean Renewable Energy – 2021 – underway, and Fisheries and Offshore Wind Interactions RFP – 2024 – accepting proposals. For more information, please see www.northeastseagrant.com

Surfers in the ocean at Carolina Beach, North Carolina. The Mid-Atlantic Sea Grant programs collaborate on several initiatives to benefit their region, including rip current and surf zone safety. Photo courtesy of North Carolina Sea Grant

Commercial Seafood Industry Support and Workforce Development

A shortage of qualified employees is a recurring theme identified by members of the seafood producing sectors. Working waterfront businesses rely on a skilled and reliable workforce. Supporting the workforce needs of the seafood industry will aid improving the resilience of our Nation's working waterfront and rural communities. Most Sea Grant programs provide workforce development programs.

AK SG initiated the On-Board project with funding through the Young Fishermen's Development Act. This collaboration among 3 NGO's and AK Sea Grant resulted in commercial fishing crewmember trainings held in Sitka and Petersburg, with future trainings planned for Kodiak and Nome.

AK SG also developed the Business of Fishing Program, a one-day class offering commercial fishing business training in coastal communities around the state. It is designed for boat owners, permit holders and fishermen looking to improve their business management skills.
Sea Grant is making a concerted effort to work with communities of people who have not yet benefited from Sea Grant workforce programs.

SC SGC partners with Minorities in Aquaculture to offer hands-on aquaculture training to women of color through internships on South Carolina oyster operations. Three university women of color conducted internships on SC oyster farms in 2022.

FL SG helped create and sponsor a multi-day in-person conference to provide professional development, training, and networking among non-traditional aquaculturists in Florida. To date, over 150 individuals have participated including representatives of several minority groups and numerous students.

HI SG is leading internship, training, education, and outreach opportunities to strengthen a diverse aquaculture workforce in Hawai'i, American Samoa and Guam. Industry workforce priorities identified via the Hawai'i Aquaculture Collaborative are being supported through 30 internships that engage community members with seven academic institutions and 14 aquaculture businesses and nonprofits that provide training, skill and knowledge acquisition, and experience in aquaculture in Hawai'i and the Pacific region.

Olivia White, an undergraduate student majoring in biology with a concentration in environmental science at South Carolina State University, grades oyster seed in an aquaculture nursery. South Carolina Sea Grant Consortium teamed up with nonprofit Minorities in Aquaculture to provide aquaculture internships to women of color. Photo courtesy of Lowcountry Oyster Company

ORGANIZATIONAL EXCELLENCE

To achieve its research, extension, and education goals, Sea Grant seeks organizational excellence by investing in the following:

Sea Grant Rigorously Plans and Evaluates

Sea Grant is committed to careful planning and rigorous evaluation to ensure programs have local, state, and national impacts. Strategic plans are developed for each program, consistent with the plans of NOAA and the U.S. Department of Commerce. Quadrennial reviews are based on the goals and objectives in each program's approved Strategic Plan and comprise site visits to assess performance, management, scope and success of engagement with interested parties, and degree of collaboration. Results, along with an assessment by an Evaluation Committee to ensure consistency across the network, are used by the NSGO to determine whether each program is: 1) qualified for recertification as a Sea Grant program, and 2) eligible for merit funding. In response to a 2018 recommendation from the Board, Sea Grant expanded its evaluations to include the NSGO and Sea Grant overall.

Sea Grant Assesses Economic Benefits and Impacts

Due to Sea Grant's matching requirement, there is at least one dollar of state and local funds for every two federal dollars spent. Sea Grant has collected economic benefits and impacts data since 2010 and began a public-private partnership in 2017 with Eastern Research Group, Inc. to increase the network-wide capacity to more reliably and more consistently value the economic benefits that Sea Grant programs provide their coastal communities. By 2020, this partnership created more than a dozen tools and best practices that can be used by non-economists in the form of methodology guides and other job aids, to help Sea Grant economically value its work.

Sea Grant Ensures a Strong Legal Framework

The National Sea Grant Law Center is a nationally recognized and respected resource on ocean, coastal, and Great Lakes law. In 2019, Sea Grant designated the Law Center a "coherent area program," elevating it from a temporary project in recognition of its excellence. The Law Center has conducted critical law and policy research, translated scientific information for policy makers, and reduced legal barriers to the adoption of innovative management strategies that address emerging community needs. The **Sea Grant Legal Network** has programs in five states (**Alabama-Mississippi, Louisiana, North Carolina, and Rhode Island**) and attorneys working with Sea Grant across the country. For example, as the shellfish aquaculture industry grows, legal conflicts can arise as states seek to develop and expand the industry. In response, in 2019-2020, the Law Center and four members of the Sea Grant Legal Network examined legal impediments to shellfish aquaculture. Resulting research and outreach informed policy changes that reduced permitting barriers.

Education and Workforce Development is Enhanced through Sea Grant's Experiential Fellowships

On Capitol Hill and among federal agencies, Sea Grant's national fellowship programs are well known. Since 1979, the John A. Knauss Marine Policy Fellowship program has provided opportunities for students with advanced degrees to work at the forefront of marine science and policy. The collaborative National Marine Fisheries Service Sea Grant Fellowship program has, since 1999, been placing individuals in research positions focused on either population and ecosystem dynamics or marine resource economics as a step towards workforce leadership. The Coastal Management Fellowship program fostered by Sea Grant for NOAA's Office for Coastal Management within the National Ocean Service enables postgraduate students to work on projects identified by individual state coastal zone management programs. In addition to national fellowships, individual Sea Grant programs provide opportunities through over 20 state fellowship programs.

Sea Grant Addresses Program-Wide Challenges through Visioning

Since 2017, the NSGO has funded Network Visioning to increase the capacity of Sea Grant programs to work and plan together on priority topics. The Diversity, Equity, and Inclusion (DEI) Network ensures that Sea Grant continues to infuse DEI principles into its leadership and culture and has led several state and national initiatives. In collaboration with the NSGO and external partners, the DEI community of practice organizes professional development opportunities for Sea Grant employees.

Two-Way Communications are Fundamental to Sea Grant

Every Sea Grant program is committed to building strong two-way communications networks that bring together Sea Grant's extensive resources with the needs and expertise of coastal businesses and communities.

DE SG's recent Coastal Resilience Design Studio brought together educators, students, scientists,

A boat sails among quaculture fish pens in the ocean. The Sea Grant Legal Network researches possible and actual legal obstacles to aquaculture to inform future policy changes that will ensure fewer barriers to permitting. Photo by Tapani Hellman.

science volunteers, engineers, designers, artists, and other academic institutions to develop a large-scale green infrastructure project along a tributary to the Chesapeake Bay that provided habitat, pollution reduction, biodiversity, and recreational opportunities. Bringing together diverse groups,

USC SG organized and facilitated a regional workshop on improving oil spill preparedness and response in Santa Barbara, CA as part of a workshop series with five Sea Grant programs and the National Academies of Sciences Gulf Research Program.

LA SG's Louisiana Discovery, Integration, and Application (LaDIA) program builds better connections among researchers, extension personnel, and constituents to: increase awareness of the sophistication of local knowledge, better target their investigations, and share results, producing more robust research and outreach plans that include input from local partners.

Sea Grant Leads National and Regional Partnerships

Sea Grant partners with other NOAA programs to bring NOAA's research to the network and interested parties through Sea Grant Partnership Liaisons. In addition to leveraging funds, the liaisons provide a pathway between new research and community audiences. Sea Grant currently hosts 10 liaisons in NOAA labs and programs and announced an opportunity to fund additional liaisons with federal science and service agencies. The Mississippi-Alabama Sea Grant Consortium is a regional and national leader in multi-state, multi-region strategic initiatives, managing $15.8 million in projects covering a broad range of topics related to fisheries, oil spills, hurricanes, flooding, waterways, and restoration. Working with the **HI SG** and **AK SG** programs, **WA SG** is leading a three-year grant to advance sustainable Indigenous aquaculture practices and enhance seafood production in the Pacific region. The first summit highlighted traditional Hawaiian aquaculture practices and technologies and included representatives from 13 Pacific Northwest Tribes and many more from across the globe. The immediate outcome is shared practices, shared communications, and a long-term commitment to integration of traditional and local knowledge with research, extension, and education.

NOAA Sea Grant funded research and work with coastal and Great Lakes communities across the nation have been highlighted in a special issue of "Oceanography" the official journal of The Oceanography Society. To learn more about Sea Grant's important impacts please visit: https://tos.org/oceanography/issue/volume-37-issue-1

2024 SEA GRANT RECOMMENDATIONS

RECOMMENDATION ONE

The National Sea Grant College Program works with NOAA, Congress, and its university partners to strengthen core capacities to support research, and engage in extension and education that collectively achieve community impacts.

In response to growing societal needs to continue to address climate readiness and resilience, the board recommends that the National Sea Grant College Program work with NOAA and Congress to strengthen core capacities (here defined as human infrastructure) with its university partners. This would allow enhanced support of research, extension, and education, and achieve lasting community impacts.

RECOMMENDATION TWO

The National Sea Grant College Program continues to promote environmental stewardship while balancing it with the blue economy to promote sustainability and community stability.

The Board advises the National Sea Grant College Program to continue to build upon its environmental stewardship which may include but is not limited to the topics of renewable energy, aquaculture, and mariculture, while at the same time ensuring the promotion of healthy coastal ecosystem and community stability, which can be done through workforce development.

UH Mānoa graduate student Seaenna Correa-Garcie at Waikalua Loko I'a stands over a basket of red limu. Photo by HI SG

2024 SEA GRANT RECOMMENDATIONS

RECOMMENDATION THREE

The National Sea Grant College Program focuses on improving environmental awareness and literacy, including ocean, coastal, and Great Lakes literacy, to aid in decision-making for safer and more resilient communities, aquaculture, and healthy coastal ecosystems.

Awareness and literacy are the foundation of resilient communities, aquaculture, and healthy coastal ecosystems. Within the context of this recommendation, the Board recommends the National Sea Grant College Program strengthen opportunities to develop environmental awareness and literacy to enhance informed decision-making regarding ocean, coastal, and Great Lakes resources.

RECOMMENDATION FOUR

The National Sea Grant College Program enhances efforts to ensure that all initiatives contribute to equitable outcomes that reflect the diverse communities served.

As the National Sea Grant College Program progresses, it recognizes the critical importance of deepening its commitment to social and environmental justice, equity, and inclusion. To achieve this, the Program should enhance its efforts in assessing, broadening, and embedding these principles throughout its organizational framework and activities. These efforts should work toward the development of a more inclusive and dynamic environment that accurately reflects the diverse communities it serves. This approach can help ensure that all its initiatives and programs contribute to equitable outcomes for all.

Students working on shoreline plant production at Norfolk State University's greenhouse facility and biology lab. Photo by Jay Clark, VA SG

A boat sails on the ocean with wind mills in the background. Sea Grant programs have been assiting in offshore wind energy development. Photo courtesy of Rhode Island Sea Grant

EMERGING OPPORTUNITIES

New and exciting programs being developed within Sea Grant are: Understanding Energy Transitions and Coastal Resilience, Sea Grant's role in Promoting Food Security through Aquaculture and Sustainable Fisheries and Strengthening Extension and Education.

Understanding Energy Transitions and Coastal Resilience

Sea Grant programs support outreach to provide the best information about sustainable and renewable energy sources and address environmental and economic challenges. Through its core strengths of extension, research, education, and communication and by partnering with a diverse network, Sea Grant is contributing to a better understanding by local communities of our Nation's rapidly evolving pace in renewable energy, such as offshore wind energy (OWE) development.

Some key areas of Sea Grant's involvement in OWE:

- **Environmental Impact Assessment:** Sea Grant programs conduct research to assess the potential environmental impacts of offshore wind energy projects on marine ecosystems, wildlife, and coastal communities. This includes studying the effects of turbine placement, noise, electromagnetic fields, and construction activities on marine species and habitats.
- **Engagement:** Sea Grant facilitates engagement with interested parties and public outreach to promote dialogue among developers, regulators, coastal communities, fishermen, environmental organizations, and others involved in offshore wind energy planning and decision-making processes.
- **Policy and Planning Support:** Sea Grant provides scientific expertise and policy guidance to inform the development of regulations, permitting processes, and best practices for offshore wind energy projects. This includes addressing regulatory frameworks, spatial planning, and ecosystem-based management approaches.
- **Workforce Development:** Sea Grant programs collaborate with industry partners, educational institutions, and workforce development agencies to support the training and education of a skilled workforce for the offshore wind energy sector. This includes proofing resources for job training, internships, and educational programs in renewable energy fields.

- **Technology Innovation:** Sea Grant supports research and innovation in offshore wind technology, including advancements in turbine design, installation methods, monitoring systems, and grid integration. This research aims to enhance the efficiency, reliability, and sustainability of offshore wind energy development, such as changes in marine ecosystems, navigation routes, and coastal economies. This includes assessing socio-economic impacts, community benefits, and risk mitigation strategies.

Some state program-specific examples:

HI SG is collaborating with the Hawai'i State Energy Office (HSEO) to develop an extension program focused on sustained dialogue and relationship building between island communities across the state and HSEO to inform the state's energy future. The effort seeks to develop information pathways and trusted relationships through reciprocal knowledge transfer and to support community-based energy planning to unlock ocean energy development, including assessment of whether a community is well-suited for and interested in future development of an ocean-energy focused community-based renewable energy (CBRE) project.

NY SG's development of the "Offshore Wind Energy Federal Participation Guide," with the purpose of demystifying the federal OWE process, helping communities learn the language, proofing past development examples, and reducing barriers to submitting public comments on federal agency actions. The guide has been shared with communities outside of New York.

CA SG is compiling science-based non-advocacy information about Central Coast Offshore Wind Development through social-media and informational sessions, and making it accessible to regional partners via a website and community seminars and workshops.

ME SG is serving as the Maine Offshore Wind Research Consortium Program Manager to establish and implement a research strategy to better understand the local and regional impacts of floating offshore wind power projects in the Gulf of Maine.

The **RI SG** Law Program is collaborating with each Northeast Sea Grant program to respond to key OWE legal questions identified by their local communities. Topics include community benefit agreements, cable transmission, and Tribal engagement.

CA SG and OR SG are in the process of building programmatic capacity in aspects of offshore wind development.

The **Northeast Sea Grant Consortium (NESGC)**, in partnership with the National Oceanic and Atmospheric Administration's Wind Energy Technologies Office and Water Power Technologies Office, joined together to fund a research competition in 2021. The competition sought proposals to improve understanding of the effects of ocean renewable energy development on coastal communities, including the fishing industry. This includes wind and hydrokinetic waves, currents, and tidal energy in the U.S. northeast, from New York Bight to the Gulf of Maine.

These funded research projects aim to catalyze social science and technology research in the Northeast that will further our understanding of the effects of ocean renewable energy on community resilience and economies. Through this research competition, NEFSC and its funding partners are providing a regional approach to supporting objective research on ocean renewable energy across interested parties, including developers, communities, fishers, etc. Jointly, with additional funding from the NEFSC, the regional Sea Grant programs are implementing actions to ensure that research results are appropriately communicated to local and regional decision-makers and community members.

Not only do Sea Grant members sit on national OWE-advisory boards, but through the National Sea Grant OWE Liaison Initiative Sea Grant is investing in bolstering the capacity of the Sea Grant network and implementing targeted collaborative initiatives. In addition, the National Sea Grant Office participates in NOAA's internal OWE working group and engages with other experts and responds to shared goals.

By addressing these key areas, Sea Grant programs play a vital role in advancing offshore wind energy development in a sustainable and responsible manner, while considering the environmental, social, and economic implications of renewable energy projects in coastal and marine environments.

Towers and blades for the South Fork wind farm being built off the Long Island coast are staged and prepared for transport to the site at State Pier in New London. Photo by Judy Benson, Connecticut Sea Grant

Waterman Tommy Leggett works on his oyster cages located along the York River in Hayes, Virginia. Sea Grant programs are working to enhance aquaculture in the U.S. to address address food insecurity. Photo by Aileen Devlin, Virginia Sea Grant

Sea Grant's Role in Promoting Food Security through Aquaculture and Sustainable Fisheries

Food security is a fundamental concept that refers to the availability, access, utilization, and stability of food for all individuals at all times. Ensuring food security is essential for promoting human health, well-being, and sustainable development. Food security remains one of the greatest challenges facing humankind today, as it is vulnerable to various threats that can jeopardize the availability, access, and stability of food for individuals and communities. These threats can be influenced by a range of factors including environmental, social, economic, and political issues. Some examples are climate change, natural disasters, water scarcity, land degradation, cultural insensitivity and hegemony impacting traditional subsistence fishing, conflict and instability, economic shocks, food waste, and inadequate infrastructure. Addressing these threats to food security requires a multi-faceted approach that integrates sustainable agricultural practices, climate adaptation strategies, disaster risk management, and policy interventions to build resilient food systems and ensure food security for all.

With the human population predicted to reach 10 billion by 2050, food security will be a critical issue in the very near future. Using traditional cultivation, 58% more food must be produced on additional land the size of India. Clearly, agricultural science must discover how to grow more food on less land with fewer inputs of water and fertilizer.

Aquaculture and sustainable fisheries also must play an important role in meeting this global food security need. Sea Grant, a national network of programs focused on marine and coastal issues, plays a significant role in promoting food security through aquaculture and sustainable fisheries. Sea Grant programs work on research, education, and engagement initiatives to enhance food production from the ocean and coastal ecosystems while ensuring the long-term sustainability of marine resources. Here are some ways Sea Grant contributes to food security using aquaculture and sustainable fisheries:

1. **Collaboration and Partnerships:** Sea Grant collaborates with government agencies, academic institutions, industry partners, and non-profit organizations to address food security challenges through aquaculture and sustainable fisheries. By fostering partnerships and

collaborations, Sea Grant programs leverage expertise and resources to develop innovative solutions for enhancing food production and sustainability in marine ecosystems.

The **Indigenous Aquaculture Collaborative** is a network of Pacific-region Sea Grant programs **(AK SG, CA SG, HI SG, OR SG, WA SG)**; Northwest Tribes and First Nations, Native Hawaiian and Indigenous communities; and organizations and universities working as a community of practice to advance Indigenous Aquaculture. The collaborative integrates community engagement, restoration, applied research, and education to share experiences, knowledge, and strategies that enhance local and cultural seafood production in the broader Pacific region.

2. **Aquaculture Development:** Sea Grant programs support the development of sustainable aquaculture practices to increase seafood production and meet the growing demand for seafood. By conducting research on aquaculture technologies, species diversification, and best management practices, Sea Grant helps aquaculture producers improve their operations and enhance food production from marine resources.

   FL SG worked to develop ways of raising and shipping young red snapper, boosting the growth of a nascent aquaculture industry for this high-value marine finfish in the Southeast U.S.

   MS-AL SGC created The Commercial Oyster Aquaculture Sector Training (COAST) program and provided funding to five apprentices that received hands-on training and on-farm work experience in the oyster aquaculture industry. The COAST program is being expanded.

Seafood on display at a fish market. Florida Sea Grant has worked with the aquaculture industry to develop ways of raising and shipping young red snapper, a high-value marine finfish in the U.S. Photo courtesy of Florida Sea Grant

3. **Technology Transfer and Extension:** Sea Grant programs facilitate the transfer of aquaculture technologies and knowledge to industry, including aquaculture farmers, seafood processors, and coastal communities. Through extension services and outreach activities, Sea Grant educates interested parties on best practices for aquaculture production to promote food security and economic development.

   DE SG is educating the public about aquaculture, specifically oyster aquaculture, oyster hatchery production, oyster grow out, recirculating aquaculture systems and aquaponics. They are working with private industry to engage in on-bottom oyster culture and with non-profit groups in habitat restoration. In addition, DE SG gives public lectures on these subjects and provides tours to the public of their aquaculture facilities. They are also working directly with private industry, and non-profit organizations to better aid in the sustainable application of aquaculture throughout Delaware.

   NY SG Administers and Modernizes the National Seafood HACCP Alliances Internet Training Course that helps ensure the safety of the seafood consumed.

   SC SGC worked with local breweries in the Charleston area to examine the utility of spent grains as a nutrition source for red drum by providing protein and digestibility. Analysis of the spent grains after 12 monthly samples are promising for using this byproduct.

4. **Sustainable Fisheries Management:** Sea Grant programs work on fisheries management initiatives to ensure the sustainable use of marine resources. By conducting research on fish stocks, ecosystem dynamics, and fishing practices, Sea Grant helps inform fisheries management decisions that promote long-term sustainability and resilience of fish populations. Sea Grant responds to the needs of the fishing industry identified by Congress through research and engagement programs. For example Sea Grant programs in the Northeast, Southeast and Gulf of Mexico are involved in major research and engagement initiatives including:

An orange bucket full of fresh lobster. Sea Grant's American Lobster Initiative funds research and extension aimed towards supporting the lobster industry. Photo by Tim Briggs, Maine Sea Grant

   CT, NH, NY, MIT, RI and WHOI SG support research and extension efforts of the American Lobster Initiative to address critical knowledge gaps about American lobster and its iconic fishery including an informational website on the American Lobster Initiative (Maine Sea Grant).

   NC SG is involved with highly migratory species (HMS) through its research and

funding initiatives. HMS include tuna, billfish, and shark, which are important to the ocean's ecosystem health and commercial and recreational fisheries.

MS-AL SGC partnered with **FL, SG, LA, and TX SG** to respond to a Congressional request to estimate the red snapper abundance in the Gulf of Mexico to support a regional team of scientists who employed a novel large-scale population survey to independently estimate that there are 87 million adult red snapper. These results influenced how the fishery is being managed across the U.S. Gulf of Mexico.

SC SGC has a project underway to use genetic markers to estimate the absolute abundance of red snapper in the Southeast Region.

MS-AL SGC also has a project underway to estimate the absolute abundance of Greater Amberjack in the Gulf of Mexico and Southeast Regions in partnership with **VA, NC, SC, GA, FL, LA and TX SG.**

5. **Food Safety and Quality:** Sea Grant programs focus on ensuring the safety and quality of seafood products from aquaculture and fisheries. By conducting research on seafood safety, handling, and processing practices, Sea Grant helps improve the overall quality of seafood products and enhance consumer confidence in the sustainability and safety of seafood

   VA SG validated thermal processing methods to improve seafood safety and increase the shelf-life of seafood products.

   IL-IN SG helped fish farmers from around the Midwest to explore fish processing for local markets and engage in food safety training.

   The **NSGLC**, through SG National Seaweed Hub, produced a seaweed food safety publication.

6. **Community Engagement and Education:** Sea Grant programs engage with coastal communities, seafood industries, and policymakers to raise awareness about the importance of aquaculture and sustainable fisheries for food security. Through educational programs, workshops, and outreach events, Sea Grant teaches sustainable seafood practices and encourages community involvement in marine resource management.

   VA SG provided bilingual training to increase the understanding and application of food safety practices.

   NH SG trains students and early career workers in laboratory and field methods for assessing seafood safety.

Overall, food security is a complex issue that requires a holistic approach to ensure that all individuals have access to safe, nutritious, and culturally appropriate food to meet their dietary needs and lead healthy lives. Promoting food security is crucial for achieving sustainable development and addressing hunger and malnutrition worldwide.

Strengthening Extension and Education for Science-based Decision-Making

Critical societal challenges, including sustainability, resilience, healthy ecosystems, renewable energy, and food security are complex and affected by the daily actions of the hundreds of millions of people across the U.S. A public that is well-informed with the most recent and reliable scientific information offers greater opportunities to resolve complex issues—individually and collectively. The rapid pace of scientific discoveries, our understanding of the ecosystems within which we live, and technologies to meet the food and energy needs of the expanding human population require robust, comprehensive educational efforts at the K-16 level. Far-reaching extension programs are also needed, to engage with communities, making their needs known to researchers and then assisting interested parties to adapt new information to their specific conditions.

The Sea Grant network includes active extension professionals and educators well-positioned to expand efforts to enhance understanding in important emerging areas such as offshore wind energy and aquaculture and to expand existing programs in environmental literacy as related to ocean, coastal, and Great Lakes resources. Thus, the National Sea Grant College Program (NSGCP) is particularly well-suited to improve science-based decision-making through its model of research, extension, and education. This three-pronged approach contributes to resolving complex societal issues in the following ways:

1. **Extension provides a two-way conduit to convey community needs to researchers and then work with communities to adapt new, improved technologies and strategies to meet their needs.**
   The extension component of the NSGCP model ensures that critical community needs are communicated to researchers and educators, directing efforts to those that will provide the greatest assistance to communities. Research results then flow back to communities through

Angee Doerr (in red sweater), a marine fisheries specialist with Oregon Sea Grant and the Oregon State University Extension Service, teaches fishermen about first-aid during a training in Newport, Oregon. Photo by Trav Williams of Broken Banjo Photography

the ongoing engagement of extension personnel who assist individuals in adapting research results to their specific conditions.

2. **Education is the foundation of informed communities at multiple levels of society.** Education is a core function of Sea Grant and encompasses formal, informal, and non-formal learning approaches. It is the essential foundation of all four focus areas, ensuring that natural and social sciences are infused at a broad societal level to support science-based decision-making. Sea Grant educators cultivate key relationships in their communities and are sought after for their expertise in creating innovative and transdisciplinary programs and serving in influential leadership roles. Previous NSGAB reports have called on Sea Grant to strengthen its role in Environmental Literacy (2014). The fundamental element is providing educators with the resources and support required at program, regional, and national levels. With backgrounds in both education and science, Sea Grant educators provide on-the-ground expertise that drives informed decision-making and facilitates lifelong learning.

3. **Strengthening the extension and education programs of the NSGCP will enhance the adoption of effective approaches to meeting societal challenges.** Increased community engagement through strengthened extension and education efforts will enhance connections with diverse communities through participatory science and hands-on programming in real-world scenarios. Greater adoption of effective practices and enhanced workforce development will enhance the capacity to meet current and future challenges, empowering coastal communities to thrive.

Teachers participate in the Coastal Ecosystems Field Course taught by Virginia Sea Grant extension. Increasing environmental literacy in the public is a foundation of all Sea Grant's focus areas. Photo by Lathan Goumas, Virginia Sea Grant

PROGRAM LISTING & HIGHLIGHTS

Alaska Sea Grant

AK SG partners with Kodiak Area Native Association (Adapt Alaska, 2024) to develop resilience and adaptation models for their Tribal Climate Adaptation Plan and co-hosts an AK SG State Fellow to develop an ocean acidification monitoring plan for Kodiak Archipelago Tribes.

AK SG operates the Kodiak Seafood and Marine Science Center (2020), which serves as Alaska's workforce development and applied research center focused on seafood harvesting, processing and mariculture industries.

AK SG has secured over $7 million in grants and is providing leadership to manage and prevent marine debris (Alaska Sea Grant, 2024) in Alaska through community-led removal efforts, innovative recycling business models, and increased coordination among partners and communities.

California Sea Grant

CA SG is supporting the Wiyot Tribe in securing 46 acres of ancestral coastal wetlands for ecocultural restoration (California Sea Grant, 2024), increasing the Tribe's total land holdings by 10%.

CA SG, in collaboration with USC Sea Grant is researching deep ocean DDT contamination (Amalia, 2023) off the Southern California coast through community-based research.

CA SG, together with the Noyo Ocean Collective, organized and hosted the first Fort Bragg Blue Economy Symposium and Learning Festival, focused on exploring ways to use the ocean's resources sustainably to create jobs and improve the local economy, while also protecting and restoring the marine ecosystem.

Connecticut Sea Grant

CT SG, along with partners, sustained the shellfish aquaculture industry (Benson, 2020) through COVID-19 restaurant closures by facilitating direct marketing to the public, and buying back oversized oysters, providing assistance (Benson, 2020) to 67% of Connecticut shellfish businesses.

CT SG educational coordinator participated in the Intergovernmental Oceanographic Commission (IOC) group of Experts in 2022 which is tasked with communicating with the Ocean Literacy international community, providing guidance on the application and evolution of the Ocean Literacy Framework of Action for the UN Ocean Decade and reporting to the IOC Assembly.

CT SG continues to host the Connecticut Sea Grant-led Climate Corps program (Benson, 2020), a new model of undergraduate STEM education combining classroom instruction, service learning and Extension outreach, with more than 25 climate adaptation projects completed for municipalities and other community partners.

Delaware Sea Grant

DE SG provided instrumental support to Sussex County in adopting a county-wide Buffer Ordinance, the first comprehensive environmental policy passed in Sussex in 30 years.

DE SG designed, and constructed a small-scale shellfish hatchery aimed at producing between 50-75 million oyster larvae each year.

DE SG formed a collaborative partnership with Delaware Technical Community College, the state's open-admission institution of higher education, to provide workforce training for students and early career professionals.

Florida Sea Grant

FL SG collaborates with the NOAA Restoration Center to grow the Return 'Em Right program to more than 30,000 Gulf of Mexico anglers now actively participating in training and reef fish release gear programs.

FL SG partners with the Florida Fish and Wildlife Conservation Commission to manage six new personnel to coordinate the state's response to stony coral tissue disease targeting threats over 350 miles of reefs that include the Biscayne National Park and the Florida Keys National Marine Sanctuary and span from Dry Tortugas National Park to the St Lucie Inlet.

FL SG, through its leadership of regional hazard resilience initiatives, helped the City of Cape Canaveral secure $26.6M in funding for nature-based solutions to acquire land and conservation easements to protect transportation infrastructure from chronic flooding due to rising sea levels.

Georgia Sea Grant

GA SG collaborates with military communities, federal and state partners, and community leaders to improve resilience to coastal hazards through the Coastal Resilience DoD Liaison Program.

GA SG coastal ecotour certification program provides ecotour companies with best practices for water-based tourism activities and guides for educating visitors about responsible recreational use of coastal resources..

GA SG brings together commercial fishermen, fisheries managers, and right whale researchers to assess the applicability of Ropeless Fishing Gear Technology for use in the commercial black sea bass fishery, resulting in the South Atlantic Fishery Management Council approving new gear in their black and gag grouper framework amendment.

University of Guam Sea Grant

UOG SG runs a biannual research competition that supports the goals and objectives of the program, including cross-cutting principles to cultivate partnerships and enhance diversity and inclusion.

UOG SG launched "Chalan Diskubre", a place-based educational magazine for students and young adults, at the Micronesian Mall.

UOG SG implemented a "Fishing for Future Famagu'on" campaign to encourage more sustainable fishing habits.

Hawai'i Sea Grant

HI SG produces an award winning television series Voice of the Sea (VOS) which reached a decadal milestone of broadcasting on television in Hawai'i and the Pacific region;VOS has been awarded a total of 43 national Telly Awards in recognition of its television excellence since it first aired in 2014.

HI SG collaborated with local nonprofit organizations to develop and publish Kūlana Noi'i, which provides guidance for building and sustaining long-term relationships between communities and researchers to promote more collaborative and mutually-beneficial partnerships.

HI SG assisted the Hawai'i Department of Health (DOH) to identify regions that should be prioritized for cesspool conversion based on the risks posed to human and environmental health.

Illinois-Indiana Sea Grant

IN-IL SG loaned water quality monitoring equipment to classroom educators who, in turn, spent up to two weeks of additional time teaching aquatic science and Great Lakes information in their classrooms.

IL-IN SG conducted a scoping process resulting in funding for four research projects focusing on the socioeconomic impacts of PFAS in the Great Lakes region.

IL-IN SG led a collaborative workshop between federal, state, and Tribal management agency personnel and academics to identifying priorities that guide regional science and monitoring activities in Lake Michigan.

Lake Champlain Sea Grant

LC SG contributed to road salt reduction initiatives including developing resources and organizing training that resulted in implementation of reduced-salt practices across the area.

LC SG developed curricula and provided watershed science education to thousands of

Kindergarten to 12th grade students, teachers and members of the public including aboard a new, state-of-the-art research vessel.

LC SG provided free continuing education opportunities in support of water quality information and regulations for real estate professionals through eight different courses to Vermont and New York-based real estate professionals both online and in person.

LC SG supported volunteers to monitor more than 80 lakes to collect data that informed state of Vermont management decisions.

National Sea Grant Law Center

NSGLC Conducted research for IL-IN SG leading to expanded coverage for aquaculture species under the Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish (ELAP) Program.

NSGLC Ocean and Coastal Law Fellowship Program provides post-graduate research opportunities for attorneys that successfully prepares them to pursue careers in the fields of ocean, coastal, and Great Lakes law.

NSGLC provided grant funding to GA SG supporting the first Sea Grant Blue Carbon Symposium in May 2023 where legal scholars, marine scientists, and industry decision-makers convened to create a whole-field understanding of coastal blue carbon investment.

Louisiana Sea Grant

LA SG leveraged existing partnerships and relationships to provide a first-of-its kind, two-day science communications conference for 52 graduate students from eight Louisiana universities.

LA SG celebrated the 30-year anniversary of the LA SG oyster hatchery and lab which produces high-quality oysters to benefit aquaculture, coastal restoration and research needs and provides training and guidance for new and established farmers in conjunction with LA SG alternative oyster culture (AOC) efforts.

LA SG assisted Louisiana seafood companies in participating and successfully bidding in the USDA Shrimp Purchase Program – resulting in more than 174,000 cases of shrimp valued at more than $19.6 million sold to the USDA. Also aided the state's largest catfish processing facility in receiving a $7 million USDA grant to expand its capacity, equipment and workforce.

Maine Sea Grant

ME SG co-hosted a Seafood Educator's Summit to promote industry-connected, hands-on learning opportunities as part of the Maine Seafood Economic Accelerator's (SEA Maine) Workforce Development Initiative.

ME SG continues to coordinate efforts through the Northeast Regional Lobster Extension Program in partnership with six Northeast Sea Grant Programs with a four-year American Lobster Initiative (ALI) award from the National Sea Grant Program.

ME SG developed and tested scenario planning exercises from 2019 to 2023 to improve coastal storm preparedness with eight Midcoast Maine communities; exercises which were implemented in early 2024 when severe coastal storms caused widespread damage to coastal infrastructure.

Maryland Sea Grant

MD SG Law and Policy Fellowship has supported three postgraduate fellows in working with state agencies on coastal and environmental law and policy issues since the program launched in 2020.

MD SG provided a watershed restoration specialist to work with underserved communities along the Chesapeake Bay to address flooding issues while emphasizing sustainable resilience and water quality.

MD SG funds researchers at Morgan State University to develop and refine Maryland's first native oyster lines.

Michigan Sea Grant

MI SG trains paddlers to identify, report, and prevent the spread of aquatic invasive species through the MI Paddle Stewards program.

MI SG partners with The Michigan Fish Producers Association and Michigan Aquaculture Association on “Mi Fresh Fish,” a consumer education marketing campaign raising awareness of fish raised, caught, or processed by Michigan businesses.

MI SG co-leads the Center for Great Lakes Literacy (CGLL), a regional collaborative Sea Grant network that fosters a community of Great Lakes and freshwater stewards by engaging, inspiring and supporting educators, scientists, and youth.

Minnesota Sea Grant

MN SG led a collaborative One Block at a Time project with local community members, partner organizations, and Illinois-Indiana and Pennsylvania Sea Grant programs to identify climate hazards, understand and collect community knowledge, and implement community projects to address local water challenges in marginalized neighborhoods in Duluth, Minnesota, Hammond and Michigan City, Indiana, and Erie, Pennsylvania.

MN SG brought expertise and networking to Sea Grant’s Great Lakes Aquaculture Collaborative, a project inclusive of all the Great Lakes Sea Grant programs, providing training, resources, funding opportunities, expertise, marketing, consumer services, and networking for aquaculture producers, consumers, and marketers across the region.

MN SG partnered with the Spark-Y youth nonprofit group to develop and share educational materials about seafood and aquaculture, including the Spark-Y cookbook and demonstration videos on seafood preparation and recipes.

Mississippi-Alabama Sea Grant Consortium

MS-AL SGC funded programming to support the establishment and sustainability of commercial oyster farming in Mississippi and Alabama which has grown into a multi-million dollar industry.

MS-AL SGC increased STEM skills and understanding of healthy coastal ecosystems, fisheries, and resilience for more than 186,000 K-12 students through the MI-AL SG consortium supported environmental education programs.

MS-AL SGC provided leadership for a regional program that delivered oil spill science to diverse audiences reaching more than 248,000 people and helping other communities and regions facing oil spill disasters.

Massachusetts Institute of Technology Sea Grant

MIT SG applies artificial intelligence (AI) technology to diverse challenges in fisheries, aquaculture, and climate adaptation by working with partners to develop computer operated automated video monitoring and assessment systems to improve fisheries monitoring and population assessments, aquaculture hatchery production and operations, aquaculture robotics and autonomous farm assistance vehicles, and monitoring and forecasting of coastal and ocean acidification in the Gulf of Maine region.

MIT SG developed aquaculture oil spill preparedness workshops and training programs for the Mashpee Wampanoag Tribe enabling the Tribe to better prepare for responding to and protecting the Tribe’s shellfish farm and cultural resources.

MIT SG and WHOI SG partnered to develop an internship program focused on diverse communities that provides basic training, wraparound services, and immersive experiences prior to placement with a farm, regulator, or other element of the industry.

New Hampshire Sea Grant

NH SG continued collaboration with the NH Offshore Wind Stakeholder Outreach Workgroup

to encourage community conversation and engagement as offshore wind energy is sited and developed in the Gulf of Maine.

NH SG research results have helped evolve policy to allow for consideration of oyster seed importation from a wider array of regional areas to address the increasing incidence of shellfish-borne illnesses caused by Vibrio parahaemolyticus (Vp) in the Northeast

NH SG has trained students and early career workers in laboratory and field methods for assessing seafood safety, preparing them for work in seafood safety and related jobs.

New Jersey Sea Grant

NJ SGC developed, implemented, and evaluated a pilot aquaculture apprenticeship program (2022) to introduce six high school students to shellfish aquaculture as a career path and emerging food source, resulting in the summer employment of a student participant.

NJ SGC celebrated 20 years of its family-friendly signature two-day outreach event promoting environmental literacy, marine resource stewardship, and energy conservation and reaching more than 15,000 lifelong learners with exhibitors, hands- on activities, free field trips, scavenger hunts and accompanying website with host partner New Jersey Natural Gas.

NJ SGC has been funded by two National Sea Grant Aquaculture Initiatives to develop and expand the Regional Shellfish Seed Biosecurity Program that serves the Atlantic and Gulf of Mexico coasts and now the west coast to facilitate biosecure transfers of shellfish seed in support of commerce and restoration of shellfish.

New York Sea Grant

NY SG engages communities state-wide to document and communicate risks and impacts of flooding, storm damage, and coastal shoreline change through a public app-based MyCoast NY portal; uploaded photos are georeferenced to real-time environmental conditions to generate reports for and inform decision-making by state and federal agencies, emergency managers, local planners, and residents.

NY SG Seafood Incentives Program implemented in partnership with seafood markets and businesses to educate consumers and create awareness about locally fished and farmed seafood.

NY SG coastal Processes and Hazards Specialists assist shoreline property owners and managers in Lakes Erie and Ontario, and other waterbodies in the Great Lakes Basin, to manage erosion and flooding through virtual and in-person site visits, shoreline consultations, and workshops and targeted information products, empowering residents to make science-based decisions and remain resilient to coastal challenges.

North Carolina Sea Grant

NC SG led an architecture design studio collaboration with the city of New Bern, North Carolina to support efforts for a planned redevelopment of the flood-prone historically Black community Duffyfield neighborhood after the devastating Hurricane Florence.

NC SG led StriperHub, a project to improve striped bass aquaculture methods and economic production models and to help establish competitive commercial striped bass businesses through technology transfer, marketing support and industry development partnerships.

NC SG partners with the Waccamaw Siouan Tribe to build citizen science soil and water testing network

Ohio Sea Grant

OH SG provides training for sustainable angling and conservation for Ohio fishing guides through the creation of the Erie PrOH certification program empowering fishing guides to promote the industry, fishery, and conservation-oriented practices.

OH SG's Business Retention and Expansion

program identified needs and concerns of coastal marina businesses with partners from three state agencies.

OH SG educates underserved youth from Cleveland about single-use plastic bottles and trash trapping technologies through the new Beach and On-water Trash Trapping Tech Team for Lake Erie (BOTtttle) program.

Oregon Sea Grant

OR SG funds research to optimize feeding and rearing of wild-caught "zombie" sea urchins from overgrazed kelp forests guides and inspires new aquaculture businesses.

OR SG organizes day-long "STEM at Sea" research cruise expeditions for high school students to participate in authentic research experiences that are mentored by graduate students and early career scientists.

OR SG -supported investigators estimate that gray whales ingest up to 21 million microplastics and microfibers a day by feeding on contaminated zooplankton.

Pennsylvania Sea Grant

PA SG collaborated with property owners, land trusts, and state agencies to permanently protect nearly 16 acres of land in the Lake Erie watershed.

PA SG developed aquatic invasive species (AIS) identification and reporting tools, including a field guide and a smart phone application.

PA SG continues to lead the Lake Erie Watershed Cooperative Weed Management Area (LEW-CWMA), focusing on the stabilization of habitats of conservation concern in western Pennsylvania.

Puerto Rico Sea Grant

PR SG promotes the consumption of the invasive lionfish since 2015 by including lionfish in the menu of 26 local restaurants through collaboration between environmental partners, local fishermen, and the restaurant industry.

PR SG develops an outstanding Commercial Fishers Diving Certification Program certifying 29 fishers as PADI Open Water, nine community members as PADI Emergency First Responder and PADI Emergency Oxygen Provider in Cabo Rojo and Vieques.

PR SG's information dissemination and advice about the value of the Maritime Terrestrial Zone (MTZ), influences coastal communities and environmental NGOs demanding the demolishment of a private illegal swimming pool and other recreational facilities developed with crooked permits at a famous beach and marine turtle's habitat.

Rhode Island Sea Grant

RI SG developed a training video demonstrating how users can upload reports with images to the MyCoast app to track shoreline change and flooding and to prioritize resilience and mitigation efforts.

RI SG conducted legal research and analysis to determine a municipality's ability to create a voluntary buy-out program for relocation efforts in response to increased flooding, and engaged municipal officials in a workshop where the findings were applied in their towns.

RI SG facilitated a series of community meetings that assessed and reviewed aquaculture permitting in the state that created suggested changes for the permitting process which resulted in administrative and regulatory changes to the state's coastal zone management program.

South Carolina Sea Grant Consortium

SC SGC provided essential planning, assistance, and information resources to multiple coastal communities to help them assess vulnerabilities to flooding and implement plans for climate adaptation.

SC SGC developed Calling the Coast Home - a program that won the prestigious Sea Grant Superior Outreach Programming Award (SOPA)

in 2022 - a series of 4 courses for real estate professionals training about risk, flooding, and the natural history of the coast.

SC SGC researchers worked with local breweries to test the utility of spent grains as a food nutrition source for red drum (an important mariculture species).

Texas Sea Grant

TX SG Extension Program assisted in the creation of 4 Cultured Oyster Mariculture farms, an emerging industry in Texas, resulting in 12 new jobs and generating an economic impact of $565,230 during 2023.

TX SG's Monofilament Recovery and Recycling Program engaged 88 volunteers across the state, sponsoring 271 collection bins, collecting and recycling of 143 pounds of used fishing line removed from the environment in 2023.

TX SG raises public awareness about artificial intelligence's (AI) crucial role for disaster resilience planning, resulting in design and dissemination of a crowdsourcing application, Blupix, which uses Geographic Information System (GIS) information along with user-contributed photos to calculate floodwater depth and communicate results back to users for risk mitigation.

University of Southern California Sea Grant Program

USC SG partnered with multiple local sustainable aquaculture producers and a South Central Los Angeles community organization, the "South Central Seafood Hub," to pilot one of the only pipelines to improve equitable access to local seafood among middle- and low-income communities of color in Los Angeles.

USC SG in collaboration with several Sea Grant programs and funded by NSF, hosted one of five national workshops addressing climate-induced human mobility and its socioeconomic consequences, and published the workshop findings in a report for city planners, decision-makers, and practitioners. It is now being used as a model for the other five regions of the country.

USC SG has educated over 30,000 people in the last two years through K-12 education programming for formal and nonformal venues and development of a marine biology book as part of a series aimed at priority communities of Latinx, Black, Indigenous, and other underrepresented and underserved populations.

Virginia Sea Grant

VA SG supports living shoreline plant production and testing by working with the Knott-Alone Hold Fast program for veterans and Norfolk State University students.

VA SG Communications Center launched the Aquaculture Information Exchange allowing members of the aquaculture industry access to an online community, working groups, information resources, networking events, and educational opportunities.

VA SG extension personnel at the Virginia Institute of Marine Science's Marine Advisory Program ran the VA SEA program which connects graduate students' science with K12 classrooms around the world. Over the last 6 years, the program has provided professional development training and mentorship to 59 graduate students who have developed 66 K12 lesson plans that have been downloaded more than 16,000 times across 159 countries.

Washington Sea Grant

WA SG lead 10 years of detecting and monitoring invasive European green crab in Washington state by providing volunteer training, scientific expertise and original research to proactively inform response and management of this damaging invasive species in Washington.

WA SG partners with USGS and others to expand the Coastal Storm Modeling System (CoSMoS) for place-specific, long-term resilience planning along Washington's coast.

WA SG Expand student horizons and jumpstart early careers in marine science through a robust

suite of fellowship programs with a demonstrably regenerative nature: six out of seven host offices in Washington are now led by former Washington Sea Grant fellows.

Wisconsin Sea Grant

WI SG facilitated a positive change in Great Lakes seafood sustainability ratings that is worth $15 million in economic value, helps domestic businesses and supports at least 83 jobs tied to the lake whitefish and lake cisco commercial fishing industry.

WI SG researchers studied tree-ring records of managed fire history and Indigenous knowledge about pine communities along two Lake Superior peninsulas to understand Indigenous resiliency practices, which are now being incorporated into public land management plans in at least one coastal city.

WI SG Wisconsin Sea Grant supported a first-of-its-kind study of natural foams in more than three dozen rivers and lakes, quantifying 36 PFAS compounds and finding high concentrations, which validates a current Wisconsin Department of Natural Resources warning that people and pets avoid foam due to health risks.

Woods Hole Oceanographic Institution Sea Grant

WHOI SG Explores the diverse ecosystems and sustainability challenges of Cape Cod and Cape Verde through an exhibit for the Cape Cod Cape Verdean Museum and Cultural Center developed by a Community Engaged Internship student from Bridgewater State University.

WHOI SG Establishes CoastSnap stations to engage communities in coastal monitoring across the Northeast, enabling individuals to use smartphone camera mounts to capture and upload photos that generate a record of beach erosion and recovery, enhancing public participation and understanding of coastline change.

WHOI SG offers a 10-week interactive course, Fundamentals of Shellfish Farming, covering shellfish biology, hatchery production, field grow-out, safe handling, pest management, and business practices to support the growth of Massachusetts's $30.9 million shellfish aquaculture industry.

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Acknowledgements

The National Sea Grant Advisory Board is the National Sea Grant College Program's Federal Advisory Committee. The Board advises the National Oceanic and Atmospheric Administration and the National Sea Grant College Program on strategies to address the nation's highest priorities for understanding, assessing, developing, managing, utilizing, and conserving ocean, coastal, and Great Lakes resources.

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On the Cover
United States Capitol Building on a Sunny Day. Photo by Andy Feliciotti

A seal dives off the coast of Nihoa.
Photo by: NOAA Fisheries

National Sea Grant Advisory Board
2024 Fall Meeting

Agenda Item: Extension Panel

Purpose

Informational - raise awareness of the depth and breadth of Sea Grant Extension work across the network and illustrate how the Sea Grant Extension works at local, regional, and national levels and enhances NOAA and other's work through partnerships.

NSGAB to consider revisiting and updating the 2000 "Byrne Report," which successfully increased awareness of and opportunities for the Sea Grant network including Sea Grant Extension.

Three Things You Must Know

1) Sea Grant Extension is the largest functional area within the Sea Grant network, and funding for extension programs is partially supported by Sea Grant omnibus and associated match funding. Extension programs and staff are increasingly more reliant upon other funding sources to better serve communities throughout the nation.
2) Sea Grant Extension is unique across NOAA and, with the exception of USDA's Land Grant Cooperative Extension, there are no other organizations with a similar mission supported by any federal agency. Sea Grant Extension Professionals are often the "boots on the ground" in engaging with coastal communities to address their coastal science and outreach needs.
3) A comprehensive review of Sea Grant Extension and its potential to serve an expanded role within and external of NOAA has not been conducted in almost 2.5 decades. The confluence of emerging and longstanding coastal problems, groups that seek to emulate Sea Grant Extension, development of new technology, funding challenges and opportunities, divisive political climate, high staff turnover, and fulfillment of Sea Grant's non-advocacy role provides unique opportunities for Sea Grant Extension to continue to thrive and identify new ways to overcome challenges.

Background

- Sea Grant Extension was part of the original vision by Althestan Spilhaus that proposed the formation of "Sea Grant colleges" in the 1960s, and early work focused on fisheries issues.
- A national, forward-looking review of Sea Grant Extension was conducted in 2000 and resulted in new opportunities and ideas for NOAA, the National Sea

Grant Office and state Sea Grant programs to implement. A follow-up Implementation Plan was crafted in 2003.
- By 2022, more than 850 people identified themselves as being part of the Sea Grant extension network, worked in all four Sea Grant focus areas, and reached almost 1 million people.

Red Flags/Comments
- No red flags

NSGAB Action Items
- Towards the end of the session there will be a request for the Board to consider supporting a fresh review of Sea Grant Extension.

Links or Attachments
- Sea Grant Extension Assembly website: https://seagrant.oregonstate.edu/ExtensionAssembly
- A Mandate to Engage Coastal Users: A Review of the National Sea Grant College Extension Program and A Call for Greater National Commitment to Engagement (2000) (also known as the "Byrne Report"): https://seagrant.oregonstate.edu/sites/seagrant.oregonstate.edu/files/sgpubs/onlinepubs/q01001.pdf
- Implementing the National Oceanic and Atmospheric Administration's Mandate to Engage Coastal Users: Opportunities for National Sea Grant Outreach Growth (2003): https://seagrant.oregonstate.edu/sites/seagrant.oregonstate.edu/files/sgpubs/onlinepubs/q03002.pdf
- Fundamentals of a Sea Grant Extension Program (2012) (update in development): https://seagrant.oregonstate.edu/sites/seagrant.oregonstate.edu/files/asgepl/extension_fundamentals_web_final-2013.pdf
- Sea Grant Extension By the Numbers and Recent Superior Outreach Programming Award Winners and Nominees (hardcopy version of document to be provided at meeting).

Sea Grant Extension Assembly Session
at the National Sea Grant Advisory Board Meeting
Savannah, Georgia
Sunday, August 18, 2024
1:00 – 3:00 pm

Objectives:

- Raise awareness of the depth and breadth of Sea Grant Extension work across the network
- Illustrate how Sea Grant Extension works at local, regional, and national level and enhances NOAA and other's work through partnerships
- Share specific, discrete and concrete requests or ideas for the NSGAB to consider discussing

Agenda

Time	Activity	Lead
1:00-1:05 pm	Introduction	Jack Payne, NSGAB
1:05-1:20 pm	Background about Extension and Extension Assembly	Presenter: Steve Sempier, Mississippi-Alabama Sea Grant Consortium (Chair, SGEA)
1:20-2:00 pm	Extension Panel -Introductions -Project 1:Hazardous Material Transport Outreach Network (HazMaTON) -Project 2:Florida Friendly Fishing Guide & Florida Friendly Angler -Project 3:South Central Los Angeles Sustainable Seafood Hub -Project 4:Laurel, Delaware: A story of long-term transformation -Project 5: Engaging Citizens to Monitor and Document Shoreline Flooding and Erosion in the Northeast	Facilitator: Julia Peterson, New Hampshire Sea Grant (Chair-elect, SGEA) Panelist 1:Amy Schrank, Minnesota Sea Grant Panelist 2:Savanna Barry, Florida Sea Grant Panelist 3:Amalia Almada, USC Sea Grant Panelist 4:Chris Petrone, Delaware Sea Grant Panelist 5:Michael Ciaramella, New York Sea Grant
2:00-2:30 pm	Board Q and A related to extension overview and panel discussion	Moderator: Julia Peterson

2:30-2:40 pm	Emerging Issues Identified by the Extension Assembly	Presenter: SGEA Representative
2:40-3:00 pm	NSGAB Discuss Emerging Issues and Final Comments	Moderator: SGEA Representative (Jim Murray moderates if there is an action item/charge for the NSGAB)

National Sea Grant Advisory Board
Fall 2023 Meeting

Agenda Item: Sea Grant Strategic Discussion

Purpose

Informational - The session will provide the Board with the opportunity to reflect on program updates and planning, and share thoughts on future directions.

Three Things You Must Know

1. This session is to provide discussion among the Board members and *ex officio* members to dive deeper into topics based on their areas of expertise.
2. These discussions, while informational, can help frame future directions for the NSGCP.

Background

- The Board has asked for time to be set aside for these discussions during their semi-annual meetings.

Red Flags/Comments

- These discussions are not to provide advice to NOAA, but to help plan for upcoming needs, reports, or committees.

NSGAB Action Items

- Informational

Links

- None