Tour de Coasts: Results of a Global Coastal Sustainability Survey

Funding Agency Report

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Authors:

Katya Altman | University of South Carolina
       Principal Investigator, email: katyaaltman@gmail.com

Xiaoyu Fang | East China Normal University

Heath Kelsey | University of Maryland Center for Environmental Science

Anja Scheffers | Southern Cross University

Dwayne Porter | University of South Carolina

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Executive Summary

Sustainability is a global challenge that requires collaboration among multiple stakeholders to address complex issues and develop actionable solutions for sustainable futures. Recognizing this need, a group of researchers launched the Tour de Coasts initiative to create a forum for knowledge exchange on priority coastal sustainability concerns and to develop a comprehensive understanding of global coastal sustainability challenges and opportunities.

The Tour de Coasts initiative engaged more than 200 participants in a global online survey to explore key aspects of coastal sustainability, including its definition, local barriers and challenges, contributions to addressing these challenges, and research priorities necessary for advancing sustainability efforts. The survey respondents represent and work across 79 countries and geographic regions spanning six continents (excluding Antarctica), with the highest representation from Europe and West Africa.

When defining coastal sustainability, participants emphasized social and economic equity alongside responsible resource use as fundamental principles. They highlighted the importance of preserving and improving the environment by balancing human activities with natural systems, addressing pollution and environmental degradation, and strengthening resilience and adaptation strategies. Achieving sustainability, according to respondents, requires policy-driven governance, cross-sector collaboration, the implementation of ecosystem services and nature-based solutions, and advancements in scientific research and technological innovation.

The survey results identified a range of barriers to coastal sustainability, with governance and policy challenges, financial constraints, and public awareness emerging as the most significant. Weak regulations, political interference, limited funding, and ocean illiteracy were frequently cited as obstacles that hinder sustainability efforts. Addressing these challenges will require stronger policies, increased financial investment, enhanced public education, and more integrated management approaches to support long-term resilience in coastal communities and ecosystems.

Participants also described their contributions to coastal sustainability, with many emphasizing their work in knowledge generation and research. Their efforts span various disciplines, including climate change adaptation, coastal management, ecosystem conservation, policy development, and stakeholder engagement. Many respondents highlighted their roles in conducting scientific studies, developing sustainability frameworks, promoting inclusive decision-making, and implementing innovative solutions to address pressing coastal challenges. The findings emphasize

the critical role of interdisciplinary research and applied knowledge in driving sustainability efforts forward.

The survey ranking research priorities results highlight a strong focus on governance, communication, human well-being, and behavioral change in coastal sustainability research. Researchers increasingly prioritize interdisciplinary approaches that integrate policy, community engagement, and equity alongside environmental science. While ecological, technological, and economic factors remain important, they are often viewed as supporting broader sustainability efforts. The findings emphasize the need for policy-driven, community-centered research and practical solutions that directly benefit coastal populations.

The next steps for the Tour de Coasts initiative, building on the survey findings, include:

- Knowledge Dissemination: Sharing survey results through reports, presentations, and interactive forums to inform global and local sustainability efforts.
- Expanding Engagement: Strengthening connections with coastal communities, policymakers, researchers, and practitioners to foster collaboration and implement findings in real-world contexts.
- Securing Additional Funding: Pursuing funding opportunities to support further research, implementation projects, and policy development that directly address sustainability challenges.
- Advancing Implementation Research: Conducting follow-up studies and pilot projects that test and refine sustainability solutions, focusing on governance strategies, community-led initiatives, and scalable innovations.

By taking these steps, the Tour de Coasts initiative aims to bridge the gap between research and action, ensuring that insights gathered through this global effort contribute to meaningful, long-term improvements in coastal sustainability worldwide.

Goals of Tour de Coasts

It has long been the goal to begin meaningful knowledge exchange among the global network of Future Earth Coast (FEC) affiliated researchers and practitioners, and communities engaged with them. These partners have unique understandings of coastal sustainability issues reflective of a variety of coastal system types, geographies, and socio-economic realities. However, this understanding has been underutilized and the FEC network has not been engaged to the extent that it could be. We propose to engage our colleagues in FEC International Project Offices (IPOs), Regional Engagement Partner organizations, and the FEC Academy and Fellows groups through a series of interactions that can help to answer the following research questions.

The goals of the Tour de Coasts were:

1.) Create a forum for knowledge exchange about priority coastal sustainability concerns.

2.) Create a comprehensive understanding of coastal sustainability challenges and opportunities from a global perspective.

The project team invited additional interested members of the FEC Executive Committee (ExCom) to participate in the project design, implementation, analysis, and authorship of results. The report uses qualitative analysis, synthesis, and visualization methods. Qualitative thematic coding and word clouds for text analysis are presented below. The word cloud highlights the most frequently mentioned words, with larger text sizes indicating higher mention counts. Word clouds were generated based on the survey results for geographic distribution (Figure 3), the definition of coastal sustainability (Figure 4), barriers to coastal sustainability (Figure 5), and participants' contributions to coastal sustainability (Figure 6).

Results are organized as follows: geographic distribution, definition of coastal sustainability, barriers to coastal sustainability, contributions to coastal sustainability, rankings of research priorities, survey demographics, and conclusions.

Geographic Distribution

The first question in the global coastal sustainability survey asked participants to identify where their research is being conducted using an interactive heat map. Participants were allowed to select up to ten locations, generating a dataset that reflects a broad geographic distribution of coastal research efforts worldwide (Figure 1). The 212 responses revealed a total of 79 unique countries and geographic locations, showcasing the extensive scope of coastal sustainability studies across different regions. A word cloud was generated based on the survey results to visually represent the geographic distribution of responses (Figure 3). The word cloud highlights the most frequently mentioned words, with larger text sizes indicating higher mention counts.

In the word cloud (Figure 2), prominent locations such as Germany, Ghana, the USA, China, India, and Nigeria stand out due to their high frequency in the dataset. The survey results point out the global nature of coastal sustainability research, with a wide range of geographic areas being studied. The broad representation of regions and countries indicates a strong international commitment to addressing coastal challenges, though certain regions appear to be more extensively studied than others. Key geographic regions like the Caribbean, Baltic Sea, and Mediterranean are also emphasized. This visualization effectively showcases the widespread focus of coastal sustainability research while highlighting areas of concentrated study.
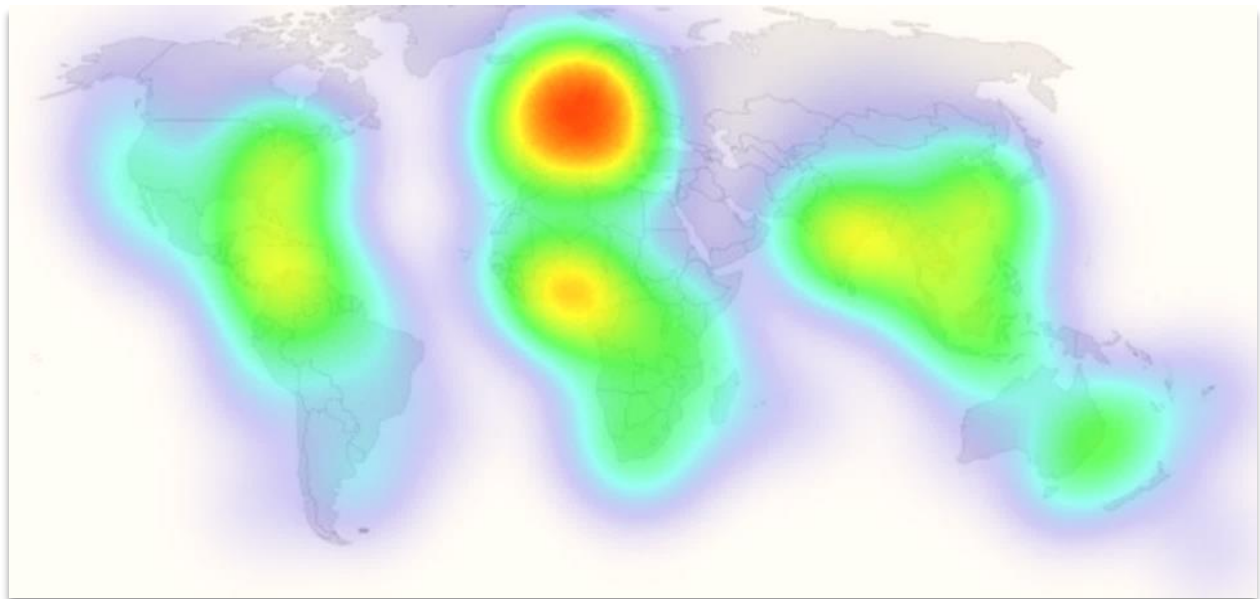

Figure 1: Heat map of the geographic distribution of where respondents' research had been conducted.

The results indicate that most participants conducting coastal sustainability research are based in Europe and Africa, with significant representation from other regions as well (Figures 2 and 3). It is important to highlight that all continents, except Antarctica, were mentioned, illustrating the global relevance of coastal sustainability issues. The highest number of mentions came from Germany, Ghana, and the United States, each receiving nine mentions. These were followed closely by China and India (eight mentions each), Nigeria (seven mentions), and Italy and South Africa (six mentions each). This distribution suggests that research efforts are particularly concentrated in regions with significant coastal populations, economies reliant on marine resources, or pressing environmental challenges related to coastal management.

Beyond individual countries, several broader geographic regions were frequently mentioned, emphasizing the importance of transboundary coastal systems. Among these, the Caribbean, Baltic Sea, North Sea, West Africa, Arctic, and Mediterranean stood out as prominent areas of focus (Figures 2 and 3). The Caribbean and Mediterranean, for example, are known for their rich marine biodiversity, significant
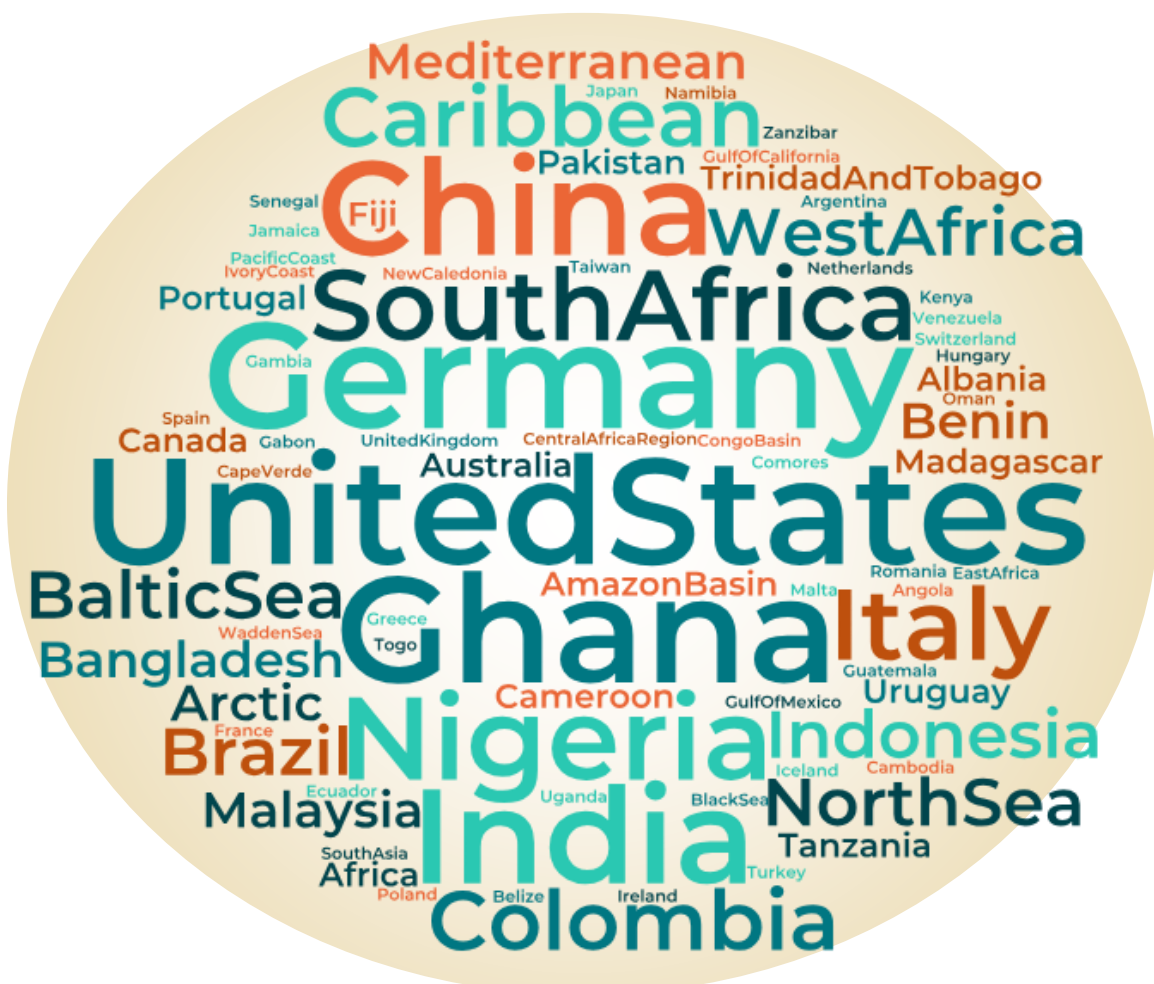

Figure 2: Geographic distribution word cloud.

tourism-driven economies, and vulnerability to climate change impacts such as sea-level rise and extreme weather events. Similarly, the Arctic's inclusion highlights growing scientific interest in polar ecosystems, where climate change is rapidly transforming coastal and marine environments.

The diversity of locations identified in the survey emphasizes the multifaceted nature of coastal sustainability research. As further report results show, coastal challenges vary widely based on geographical context—while some regions focus on mitigating climate change impacts, others prioritize biodiversity conservation, marine resource management, or coastal urbanization challenges. The mentions of both highly industrialized nations and developing coastal regions suggest a balanced representation of research that spans different socio-economic and environmental contexts.

Many countries and regions received single mentions, including Angola, Belize, the Black Sea, the Congo Basin, the Gulf of California, Iceland, Jamaica, Zanzibar, and others (Figures 2 and 3). These responses demonstrate that while some locations are the focus of concentrated research efforts, others may be emerging areas of study or regions with specialized, localized coastal sustainability challenges. It is also possible that these locations have fewer researchers contributing to international survey efforts, highlighting potential gaps in global research coverage.

This geographic distribution data can provide valuable insights for future collaborations, funding allocations, and policy initiatives aimed at ensuring comprehensive and equitable research efforts in coastal sustainability worldwide.

Countries and regions with 9 mentions were Germany, Ghana, Unites States, 8 mentions were China and India, 7 mentions is Nigeria, 6 mentions were Italy and South Africa, 5 mentions were Caribbean and Colombia, 4 mentions were Baltic Sea, Brazil, Indonesia, North Sea, West Africa, 3 mentions were Arctic, Bangladesh, Benin, Malaysia, Mediterranean, 2 mentions were Africa, Albania, Amazon Basin, Australia, Cameroon, Canada, Fiji, Madagascar, Pakistan, Portugal, Tanzania, Trinidad and Tobago, Uruguay, and 1 mention were Angola, Argentina, Belize, Black Sea, Cambodia, Cape Verde, Central Africa Region, Comoros, Congo Basin, East Africa, Ecuador, France, Gabon, Gambia, Greece, Guatemala, Gulf of California, Gulf of Mexico, Hungary, Iceland, Ireland, Ivory Coast, Jamaica, Japan, Kenya, Malta, Namibia, Netherlands, New Caledonia, Oman, Pacific Coast, Poland, Romania, Senegal, South Asia, Spain, Switzerland, Taiwan, Togo, Turkey, Uganda, United Kingdom, Venezuela, Wadden Sea, and Zanzibar.

Figure 3: Geographic distribution and number of mentions.

Defining Coastal Sustainability

The second question in the survey asked participants to define coastal sustainability by responding to the prompt: *"Sustainability has different aspects in different contexts. What do you consider coastal sustainability to mean in the context of your research or location?"* This open-ended question aimed to capture diverse perspectives on coastal sustainability across different geographic and disciplinary backgrounds.

A total of 82 definitions were provided, offering a broad and comprehensive understanding of coastal sustainability worldwide. Figure 4 presents a word cloud highlighting the most frequently mentioned terms in these definitions. The most commonly named words were sustainable (31 mentions), environment (24), ecosystem (18), resources (18), human (15), and use (12). These terms indicate a strong emphasis on environmental integrity, resource management, and the role of human interactions with coastal systems.

A qualitative analysis and synthesis of these definitions revealed key thematic categories that capture the various interpretations of coastal sustainability (Table 1). The participants define coastal sustainability as social-economic equity (41%, 34 responses); responsible resource use (39%, 32 responses); preservation, conservation, and improvement (33%, 27 responses); harmonizing human activities and nature (21%, 17 responses); resilience and adaptation (18%, 15 responses); policy, governance, and collaboration (17%, 14 responses); pollution, human impacts, and degradation mitigation (12%, 10 responses); ecosystem services and nature-based solutions (10%, 8 responses); scientific research and technological innovation (7%, 6 responses). Most definitions were assigned to more than one category.

The most frequently mentioned theme was social and economic equity (41%, 34 responses), which emphasizes supporting livelihoods, food security, water quality, public health, safety, human well-being, and socioeconomic development while fostering equity and social justice to ensure that coastal communities thrive.

Closely related, responsible resource use (39%, 32 responses) was another major theme, highlighting the need for the wise use and management of coastal and marine resources, ensuring a balance between human consumption and ecosystem renewal.

Figure 4: Coastal sustainability definitions word cloud.

Many participants also framed coastal sustainability in terms of preservation, conservation, and improvement (33%, 27 responses), stressing the importance of conserving and enhancing coastal ecosystems, resources, and biodiversity to maintain long-term environmental health.

Similarly, the theme of harmonizing human activities and nature (21%, 17 responses) emerged as a key concept, focusing on the need to live in balance with nature by ensuring that development and livelihoods coexist sustainably with natural processes.

With climate change posing an increasing threat to coastal areas, resilience and adaptation (18%, 15 responses) were frequently cited as crucial components of coastal sustainability. Responses in this category emphasized preparing for and adapting to environmental changes such as climate resilience, sea-level rise, saltwater intrusion, and natural hazards.

Additionally, participants recognized the importance of policy, governance, and collaboration (17%, 14 responses) in addressing sustainability challenges through

Table 1: Definitions of coastal sustainability.

Categories	Description	Examples*
Social-Economic Equity	Supporting livelihoods, food security, water quality, public health, safety, human well-being, and socioeconomic development while fostering equity and social justice for communities to thrive	41%, 34 responses: 3, 5, 6, 7, 8, 10, 16, 18, 19, 20, 21, 27, 30, 31, 32, 33, 39, 40, 47, 49, 50, 51, 54, 59, 60, 61, 67, 68, 71, 72, 74, 78, 79, 80
Responsible Resource Use	Wise use and management of coastal and marine resources, ensuring the balance between resource use and ecosystem renewal	39%, 32 responses: 2, 4, 6, 7, 10, 12, 13, 15, 17, 18, 21, 22, 24, 25, 28, 30, 33, 38, 39, 40, 41, 45, 47, 48, 52, 54, 59, 60, 64, 70, 75, 80
Preservation, Conservation, and Improvement	Conservation and improvement of coastal ecosystems, resources, and biodiversity to ensure long-term sustainability and environmental health	33%, 27 responses: 2, 5, 9, 10, 13, 18, 20, 21, 23, 25, 26, 27, 29, 35, 37, 43, 46, 49, 51, 54, 59, 65, 69, 70, 71, 73, 79
Harmonizing Human Activities and Nature	Living in balance with nature, establishing and maintaining equilibrium between human activities (e.g., development, livelihoods) and natural processes	21%, 17 responses: 1, 14, 19, 27, 28, 30, 31, 36, 37, 38, 49, 57, 61, 62, 72, 74, 82
Resilience and Adaptation	Preparing for and adapting to environmental changes, including climate resilience, sea-level rise, saltwater intrusion, and natural hazards	18%, 15 responses: 2, 3, 11, 23, 34, 50, 51, 55, 64, 67, 70, 76, 77, 78, 81
Policy, Governance, and Collaboration	Emphasizing governance, stakeholder collaboration, policy development, multi-sectoral approach, community awareness, education, and collective stewardship behavior to address sustainability challenges	17%, 14 responses: 5, 7, 9, 12, 16, 18, 21, 29, 32, 34, 44, 53, 54, 66
Pollution, Human Impacts, and	Reducing pollution, improving environmental health, reducing harm to	12%, 10 responses: 8, 15, 28, 39, 44, 45, 58, 62, 68, 78

Degradation Mitigation	the environment, and tackling degradation issues	
Ecosystem Services and Nature-Based Solutions	Protecting ecosystem services while employing sustainable and innovative solutions like nature-based or hybrid coastal protection	10%, 8 responses: 20, 25, 42, 52, 63, 65, 71, 80
Scientific Research and Technological Innovation	Using research, data, technologies, and interdisciplinary approaches to address sustainability challenges and support long-term environmental health	7%, 6 responses: 17, 36, 53, 56, 68, 82

* See the list in Appendix A.

effective governance, stakeholder engagement, policy development, education, and collective stewardship behavior.

Another critical aspect was pollution, human impacts, and degradation mitigation (12%, 10 responses), which included reducing pollution, improving environmental health, and addressing the degradation of coastal environments to maintain ecosystem integrity.

Participants also highlighted ecosystem services and nature-based solutions (10%, 8 responses) as essential elements of sustainability, advocating for the protection of ecosystem services and the use of innovative solutions such as nature-based or hybrid coastal protection measures.

Finally, scientific research and technological innovation (7%, 6 responses) were identified as key drivers of sustainability, emphasizing the role of research, data, technology, and interdisciplinary approaches in addressing coastal sustainability challenges and ensuring long-term environmental health.

Most definitions encompassed multiple themes, as shown in Table 1, demonstrating the interconnected and interdisciplinary nature of coastal sustainability. The diverse perspectives collected through this survey underscore the complexity of sustainability in coastal regions, where environmental, social, economic, and governance factors must be integrated to achieve long-term resilience and sustainability.

Integrated Definition of Coastal Sustainability: *Coastal sustainability involves the harmonious integration of human and natural systems to preserve, restore, and enhance coastal ecosystems and biodiversity. It requires responsible resource use, mitigation of pollution, and adaptation to environmental changes such as climate impacts. Emphasizing social equity, economic resilience, and the inclusion of diverse stakeholders, coastal sustainability is guided by scientific research, innovative solutions, and regionally tailored policies to ensure the well-being of current and future generations.*

Barriers to Coastal Sustainability

The third question in the survey asked participants to specify coastal sustainability challenges by responding to the prompt: *"What barriers do you see to achieving coastal sustainability in your area?"* This open-ended question aimed to explore diverse perspectives on barriers to coastal sustainability across locales and professional experiences.

A total of 79 barriers to coastal sustainability responses were provided. Figure 5 presents a word cloud showing the most frequently mentioned terms in these responses. The most mentioned words describing barriers to coastal sustainability were lack (26), coastal (22), communities (13), resources (10), climate (9), governance (8), and education (8). These terms imply a stark prominence of deficiencies in multiple sectors to address sustainability challenges.

A further analysis of these definitions revealed key thematic categories that capture the multitude of challenges to coastal sustainability (Table 2). The participants stated barriers to coastal sustainability as governance and policy challenges (30%, 24 responses), economic and financial constraints (29%, 23 responses), perception, education, and awareness (27%, 21 responses), environmental and climate pressures (23%, 18 responses), conflicting interests and land use pressures (20%, 16 responses), lack of integration and holistic approaches (15%, 12 responses), social and equity issues (14%, 11 responses), technological and data limitations (6%, 5 responses).

The most frequently mentioned theme was governance and policy (30%, 24 responses), with weak regulations, political interference, lack of enforcement, overlapping mandates, and insufficient prioritization of coastal sustainability by decision-makers.

Closely followed were economic and financial constraints (29%, 23 responses) emphasizing limited funding for research, coastal management, and community projects; economic pressures that prioritize short-term gains over sustainability.

Many participants also discussed barriers to coastal sustainability in terms of perception, education, and awareness (27%, 21 responses) highlighting limited

public understanding of coastal sustainability, ocean illiteracy, and insufficient education on sustainable practices.

Another theme was environmental and climate pressures (23%, 18 responses), focusing on rising sea levels, extreme weather events, ecosystem degradation and pollution, overexploitation of marine resources, and habitat destruction.

Another critical aspect was conflicting interests and land use pressures (20%, 16 responses) with increasing pressures of mass tourism, urbanization, industrial activities, competing stakeholder priorities, and real estate expansion.

Participants also highlighted a lack of integration and holistic approaches (15%, 12 responses) with siloed governance, insufficient collaboration, failure to integrate ecological and social considerations, and short-term planning.

Figure 5: Barriers to coastal sustainability word cloud.

Table 2: Barriers to coastal sustainability.

Categories	Description	Mentions* (N=79)
Governance and Policy	Weak regulations, political interference, lack of enforcement, overlapping mandates, and insufficient prioritization of coastal sustainability by decision-makers	30%, 24 responses: 1, 3, 4, 5, 7, 8, 9, 12, 15, 17, 19, 21, 23, 26, 29, 31, 36, 45, 47, 49, 50, 57, 62, 67
Economic and Financial Constraints	Limited funding for research, coastal management, and community projects; economic pressures that prioritize short-term gains over sustainability	29%, 23 responses: 4, 7, 8, 11, 16, 24, 29, 30, 32, 35, 37, 47, 49, 53, 58, 59, 60, 66, 69, 70, 73, 74, 77
Perception, Education, and Awareness	Limited public understanding of coastal sustainability, ocean illiteracy, and insufficient education on sustainable practices	27%, 21 responses: 2, 4, 6, 8, 12, 14, 22, 26, 27, 42, 44, 46, 47, 51, 54, 55, 56, 63, 77, 78, 79
Environmental and Climate Pressures	Rising sea levels, extreme weather events, ecosystem degradation and pollution, overexploitation of marine resources, and habitat destruction	23%, 18 responses: 4, 10, 12, 25, 33, 34, 39, 46, 47, 48, 58, 61, 64, 65, 68, 70, 71, 72
Conflicting Interests and Land Use Pressures	Mass tourism, urbanization, industrial activities, competing stakeholder priorities, and real estate expansion	20%, 16 responses: 4, 11, 13, 15, 28, 29, 38, 40, 41, 47, 52, 59, 60, 63, 66, 74
Lack of Integration and Holistic Approaches	Siloed governance, insufficient collaboration, failure to integrate ecological and social considerations, and short-term planning	15%, 12 responses: 18, 20, 31, 32, 36, 50, 51, 52, 63, 67, 69, 76
Social and Equity Issues	Power imbalances, corruption, marginalization of local communities, inequitable access to resources, and lack of inclusion in decision-making	14%, 11 responses: 12, 23, 31, 35, 37, 38, 43, 44, 57, 64, 69
Technological and Data Limitations	Limited access to equipment, reliable scientific data, lack of monitoring and evaluation, and inadequate use of technology for sustainability	6%, 5 responses: 8, 16, 51, 53, 75

* See the list in Appendix B.

Additionally, frequently cited were social and equity issues (14%, 11 responses) addressing power imbalances, corruption, marginalization of local communities, inequitable access to resources, and lack of inclusion in decision-making as a critical barrier to sustainability.

Finally, technological and data limitations (6%, 5 responses) were another key barrier to sustainability with limited access to equipment, reliable scientific data, lack of monitoring and evaluation, and inadequate use of technology for sustainability.

Many barriers' descriptions were assigned to more than one category, as shown in Table 2, supporting the understanding of complexity of sustainability barriers and multisectoral nature of such challenges. The survey results reveal a range of barriers that hinder coastal sustainability, with governance, financial constraints, and public awareness emerging as primary challenges. Addressing these issues requires stronger policies, increased funding, better public education, and integrated management approaches. By overcoming these barriers, coastal communities and ecosystems can build greater resilience and long-term sustainability.

Contributions to Coastal Sustainability

The fourth question in the survey asked participants to follow the prompt by responding to: " *Describe how you think your work contributes to coastal sustainability.*" This open-ended question aimed to explore various contributions to coastal sustainability for the survey participants.

A total of 77 contributions to coastal sustainability responses were recorded. Figure 6 demonstrates a word cloud with the most frequently mentioned terms in these responses. The most cited words describing participants' contribution to coastal sustainability were coastal (40), change (18), sustainability (17), ecosystems (14), knowledge (13), research (13), work (13), climate (11), and management (9). These terms emphasize the strong focus on coastal ecosystems, climate change, sustainability efforts, and knowledge generation.

Key themes in contributions included research and knowledge generation (56%, 43 responses), sustainable resource management and restoration (40%, 31 responses), community engagement and capacity building (38%, 29 responses), education and awareness (34%, 26 responses), climate adaptation and resilience (32%, 25 responses), governance, policy, and decision support (31%, 24 responses), technology and innovation (17%, 13 responses), risk management and disaster preparedness (9%, 7 responses).

More than half of respondents identified research and knowledge generation as their primary contribution to coastal sustainability (56%, 43 responses). Participants reported advancing scientific understanding of coastal ecosystems, sustainability

science, and adaptation strategies through research and knowledge dissemination, helping to inform policy and decision-making.

Another key area of contribution was sustainable resource management and restoration (40%, 31 responses). Respondents emphasized the importance of balancing conservation with responsible resource use, focusing on ecosystem protection, habitat restoration, and sustainable fisheries management to support long-term sustainability.

Community engagement and capacity building (38%, 29 responses) emerged as a prominent theme, highlighting the significance of working with local communities to identify challenges, co-produce knowledge, and empower marginalized groups. Respondents stressed the need to increase transparency in decision-making to foster more equitable and resilient coastal futures.

Figure 6: Contributions to coastal sustainability.

Table 3: Contributions to coastal sustainability.

Categories	Description	Examples*
Research and Knowledge Generation	Advancing scientific understanding of coastal ecosystems, sustainability science, and adaptation strategies through research and knowledge dissemination.	56%, 43 responses: 1, 3, 4, 6, 8, 9, 10, 15, 17, 19, 20, 21, 25, 27, 28, 30, 31, 32, 37, 38, 39, 42, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 60, 61, 62, 63, 64, 66, 68, 73, 74, 75, 77
Sustainable Resource Management and Restoration	Balancing conservation with responsible resource use, ecosystem protection, and sustainable fisheries management.	40%, 31 responses: 7, 8, 10, 13, 20, 23, 24, 25, 28, 29, 30, 32, 35, 38, 40, 42, 45, 46, 47, 49, 51, 54, 55, 57, 58, 62, 63, 66, 68, 74, 76
Community Engagement and Capacity Building	Working with local communities to identify challenges, co-produce knowledge, empower marginalized groups, and increase transparency in decision-making.	38%, 29 responses: 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 23, 26, 29, 30, 31, 47, 48, 49, 50, 55, 56, 59, 62, 63, 64, 66, 67, 74, 77
Education and Awareness	Enhancing public knowledge about coastal sustainability, climate change, and conservation through education, training, and advocacy efforts.	34%, 26 responses: 4, 5, 7, 8, 11, 14, 16, 22, 26, 29, 30, 31, 36, 43, 46, 49, 50, 53, 57, 65, 68, 69, 70, 71, 72, 76
Climate Adaptation and Resilience	Addressing climate change impacts, sea-level rise, and ecosystem restoration through mitigation, adaptation, and nature-based solutions	32%, 25 responses: 4, 5, 6, 7, 8, 9, 10, 20, 21, 22, 25, 30, 35, 42, 46, 47, 49, 50, 55, 64, 66, 68, 73, 74, 76
Governance, Policy, and Decision Support	Providing scientific input for policy, supporting law and governance improvements, and developing frameworks for sustainable coastal management.	31%, 24 responses: 7, 8, 13, 16, 18, 19, 24, 33, 34, 36, 41, 44, 48, 50, 54, 55, 58, 59, 61, 64, 65, 66, 67, 74
Technology and Innovation	Utilizing remote sensing, GIS, modeling, digital applications, social media, new tools and approaches to support sustainable coastal management and public awareness	17%, 13 responses: 4, 12, 32, 36, 39, 41, 52, 53, 56, 60, 64, 67, 76
Risk Management and Disaster Preparedness	Enhancing resilience against coastal hazards, improving risk communication, and integrating multi-hazard risk reduction strategies	9%, 7 responses: 4, 34, 49, 60, 64, 72, 73

* See the list in Appendix C.

Closely related, education and awareness (34%, 26 responses) was also frequently cited as a key contribution. Participants focused on enhancing public understanding of coastal sustainability, climate change, and conservation through education, training, and advocacy efforts aimed at fostering long-term behavioral and policy changes.

Climate adaptation and resilience (32%, 25 responses) was another critical contribution, with respondents working to address climate change impacts, sea-level rise, and ecosystem degradation through mitigation strategies, adaptation planning, and nature-based solutions.

Participants also highlighted their roles in governance, policy, and decision support (31%, 24 responses), emphasizing contributions such as providing scientific input for policy development, supporting legal and governance improvements, and creating frameworks for sustainable coastal management.

The theme of technology and innovation (17%, 13 responses) emerged as an important aspect of sustainability efforts. Respondents described leveraging remote sensing, GIS, modeling, digital applications, social media, and new tools to support coastal management, risk assessment, and public engagement.

Finally, risk management and disaster preparedness (9%, 7 responses) were noted as a vital contribution, with participants working to enhance resilience against coastal hazards, improve risk communication, and integrate multi-hazard risk reduction strategies to safeguard coastal communities and ecosystems.

Research Priorities in Coastal Sustainability

Survey participants were asked to rank 12 pre-identified research priorities[1] based on their relevance to their work. The priorities were: individual, cultural, community, and ecological health; use crises to inform; economics and financial incentives; effective and inclusive communication; ecological analyses; governance; technology and increased connectivity; human behavioral change; food, water, and housing security; modeling; potential for managed coastal retreat; and coastal disease threats and health benefits.

The participants ranked each priority as high, medium, or low priority for their research (Figure 7). The results highlight a spectrum of priorities, ranging from governance and communication to ecological and technological considerations, providing insight into the key areas of focus and importance in coastal sustainability research.

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[1] The priority research questions identified by Friedman et al. (2020) and then updated by Sandifer and Scott (2021).
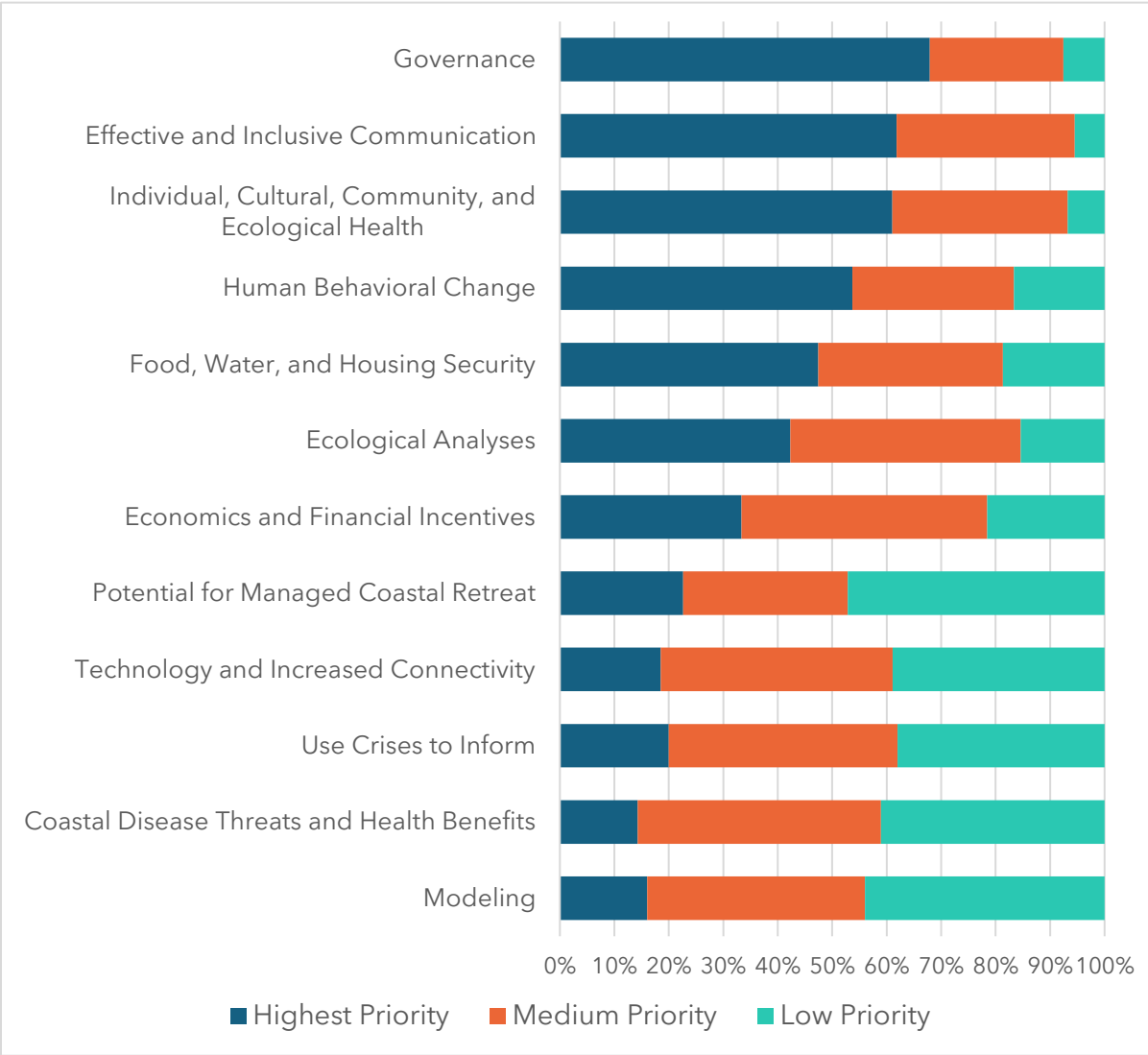
Figure 7: Ranking of priorities in coastal sustainability research.

High Research Priorities: Among the 12 priorities, governance emerged as the highest-ranked priority, with 67.9% of respondents identifying it as most relevant to their work. This result underscores the critical role of policy frameworks, regulations, and institutional coordination in achieving coastal sustainability goals. Closely following governance, effective and inclusive communication (61.8%) and individual, cultural, community, and ecological health (61.0%) were also ranked as high priorities. These findings highlight the increasing recognition of the human and social dimensions of coastal sustainability, emphasizing the need for strong stakeholder engagement, knowledge exchange, and community-based approaches. Another key priority was human behavioral change (53.7%), indicating that addressing societal

attitudes, decision-making processes, and cultural shifts is essential for advancing sustainable coastal practices. Food, water, and housing security (47.5%) also ranked high, reinforcing the importance of ensuring fundamental human needs in the face of environmental and socioeconomic challenges.

Medium Research Priorities: Several priorities were ranked as moderately relevant, with nearly equal distribution between high and medium relevance. These include ecological analyses (42.3%), economics and financial incentives (45.1%), and technology and increased connectivity (42.6%). These areas highlight the ongoing need for interdisciplinary research that integrates ecological understanding, financial mechanisms, and technological advancements to support sustainable coastal development. Additionally, use of crises to inform sustainability efforts (42.0%) and coastal disease threats and health benefits (44.6%) were recognized as moderately relevant to many respondents, emphasizing the role of health-related concerns and crisis-driven responses in shaping sustainability strategies.

Lower-Ranked Research Priorities: While still acknowledged as important, some priorities were ranked lower in relevance compared to others. Potential for managed coastal retreat (22.6% high priority, 47.2% low priority) was among the least prioritized topics, suggesting that while coastal retreat is a recognized adaptation strategy, it may not be widely applicable to all coastal regions or research areas. Its lower ranking could also reflect practical challenges such as policy resistance, economic constraints, or community reluctance to relocate. Similarly, modeling (16.0% high priority, 44.0% low priority) had one of the lowest rankings, indicating that while predictive modeling is valuable, it may be viewed as a tool rather than a core research focus. This could suggest that many researchers prioritize applied, policy-driven, or community-based approaches over computational or predictive techniques. However, it is important to note that modeling remains a critical component of sustainability research, particularly in climate impact assessments, disaster preparedness, and ecosystem management, and its lower ranking may reflect disciplinary differences among survey respondents rather than a lack of perceived importance.

Key Considerations: The survey results reveal a strong emphasis on governance, communication, human well-being, and behavioral change in coastal sustainability research. These priorities suggest that researchers increasingly recognize the importance of interdisciplinary approaches that integrate policy frameworks, community engagement, and equity considerations alongside environmental science.

While ecological, technological, and economic considerations remain important, they are often seen as supporting elements within broader sustainability efforts rather than standalone priorities. The lower ranking of managed coastal retreat may indicate

ongoing challenges in implementing large-scale relocation strategies, with many researchers focusing instead on resilience and adaptation measures that allow coastal communities to remain in place. Similarly, the lower emphasis on modeling could reflect a preference for applied, on-the-ground solutions over theoretical or predictive research, though modeling continues to be a key tool for informing sustainability decisions.

These insights provide a roadmap for future research efforts, emphasizing the need for policy-driven, community-centered, and interdisciplinary approaches to tackling coastal sustainability challenges. The results also highlight the importance of integrating scientific innovation with practical solutions that directly benefit coastal populations, ensuring that sustainability efforts remain both actionable and impactful.

Survey Demographics

The survey collected voluntary demographic information from participants to provide insight into the backgrounds of respondents and the diversity of perspectives represented in the study. The data on participants' roles, gender, and age distribution highlight the professional and demographic composition of those engaged in coastal sustainability research and practice.

Survey respondents represented a variety of professional roles within their organizations (Figure 8). The largest group of participants identified as professors (42%, 26 respondents), followed closely by researchers (37%, 23 respondents), indicating strong academic and research representation. Additionally, students (10%, 6 respondents), supervisors (15%, 9 respondents), and administrative professionals (13%, 8 respondents) contributed to the survey, reflecting engagement across different career levels and institutional functions. A smaller subset of participants (11%, 7 respondents) selected "Other," suggesting involvement from professionals in roles not explicitly listed, such as policymakers, consultants, or practitioners working in non-academic settings. Participants specifically listed community engagement, coordinator, startup, founder, and retiree roles.

The gender distribution of survey participants (Figure 9) included 50 male respondents (63%), making up the majority, followed by 29 female respondents (36%). One participant identified as "Other," highlighting the inclusion of diverse gender identities in the survey. While the responses indicate a gender imbalance, they also reflect ongoing efforts to include a broad spectrum of perspectives in coastal sustainability discussions.

Survey participants represented a wide range of age groups, with the majority falling within the 35–44 (34%, 27 respondents) and 45–54 (23%, 18 respondents) age brackets. The 25–34 (18%, 14 respondents) and 55–64 (16%, 13 respondents) groups also had significant representation, indicating that mid-career professionals and early-

career researchers are actively engaged in coastal sustainability work. Fewer participants belonged to the 65–74 age group (6%, 5 respondents), while younger respondents in the 18–24 (3%, 2 respondents) and under 18 (1%, 1 respondent) categories were less represented, suggesting limited engagement from students or young professionals. No respondents were recorded in the 75 and older age categories.

The survey demographics reflect a diverse and experienced group of professionals dedicated to coastal sustainability. The strong representation of academics and researchers, combined with the inclusion of students, administrators, and professionals in other roles, highlights the interdisciplinary and multi-sectoral nature of coastal sustainability work. While gender disparities persist, the data suggest broad participation across career stages and expertise levels, enriching the discussion on global coastal sustainability challenges and solutions.
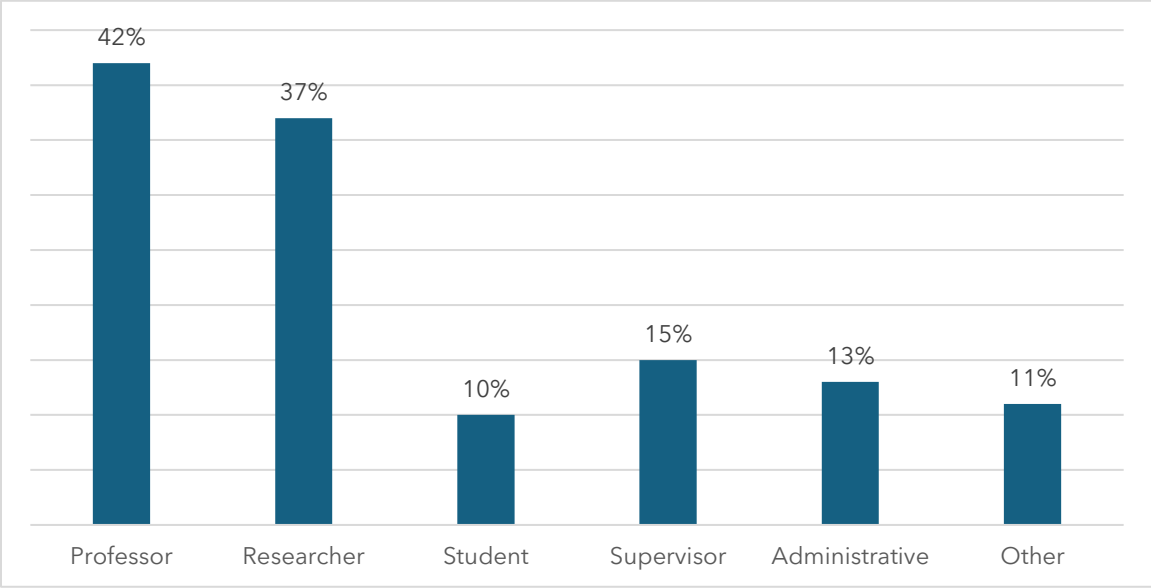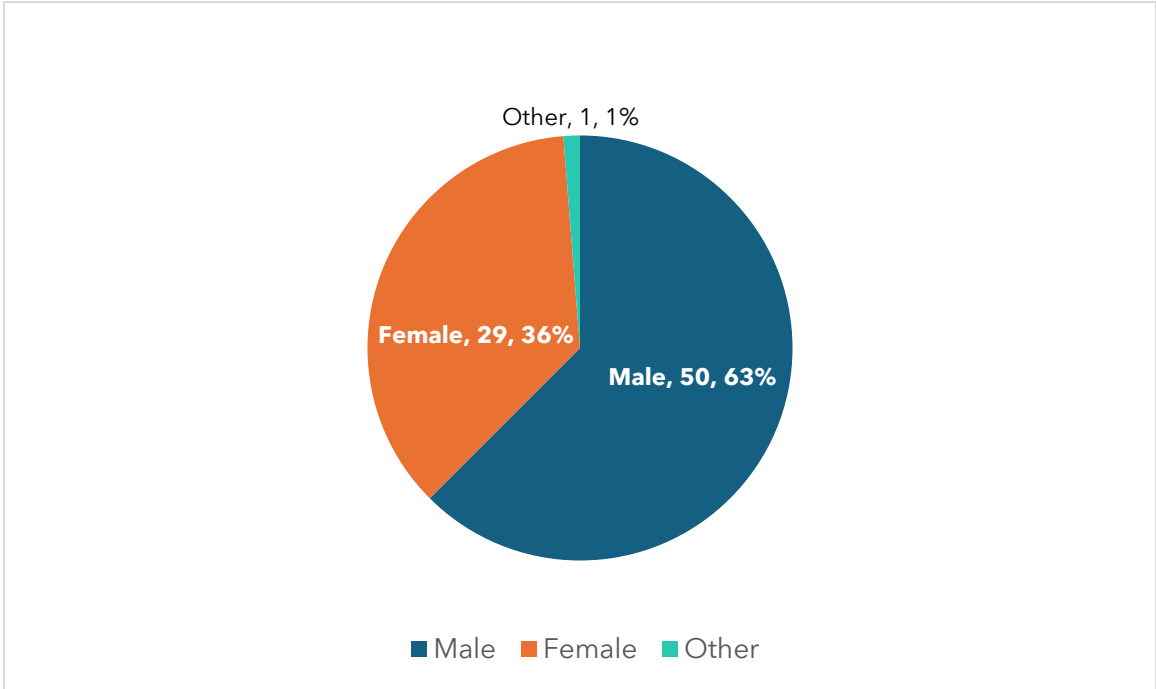

Figure 8: Role in the organization.

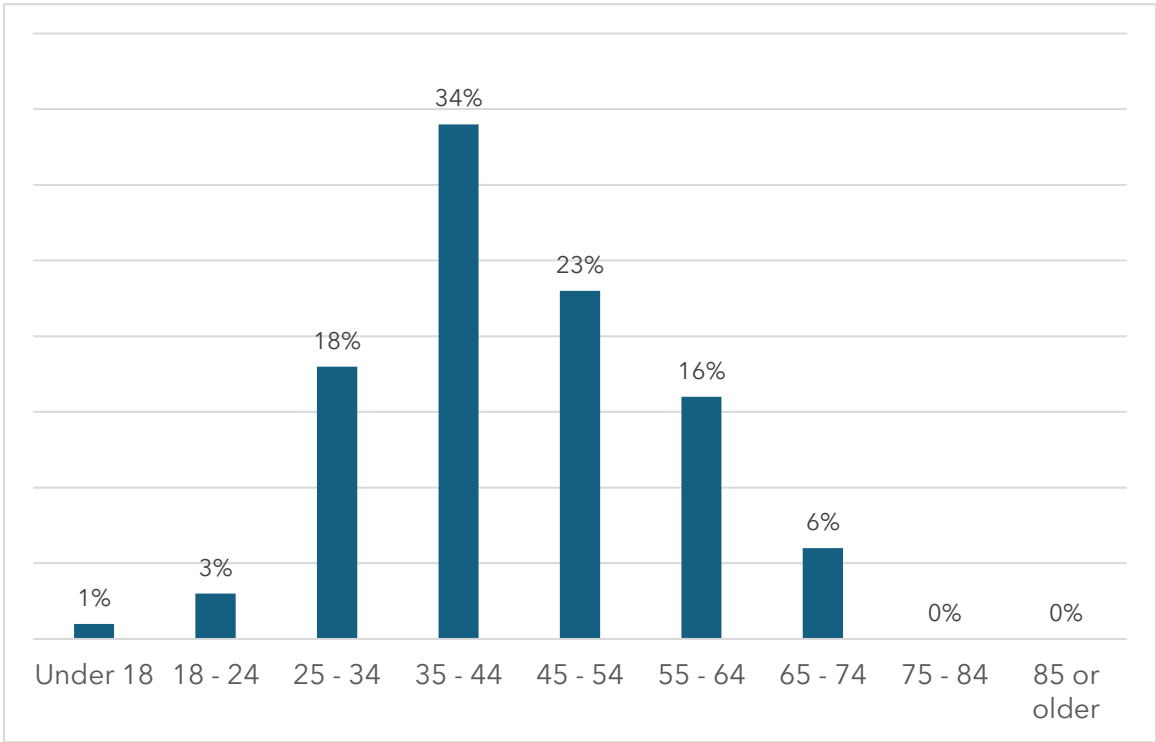*Figure 9: How do you describe yourself?*


Figure 10: How old are you?

Conclusions

The Tour de Coasts initiative provided a global perspective on coastal sustainability, engaging over 200 participants online from 79 countries and geographic regions across six continents. By collecting insights on definitions of sustainability, key barriers, contributions, and research priorities, the survey has advanced knowledge exchange and highlighted both shared challenges and region-specific concerns in coastal sustainability efforts. The findings reinforce the importance of governance, financial investment, public awareness, and interdisciplinary collaboration in achieving long-term sustainability goals.

Successes: The survey successfully engaged a diverse and international audience, reflecting a wide range of expertise, disciplines, and geographic perspectives. The responses provided valuable qualitative and quantitative data, contributing to a comprehensive understanding of coastal sustainability that integrates environmental, social, economic, and governance dimensions. Additionally, the initiative fostered cross-sectoral engagement by including researchers, policymakers, and community representatives, creating a foundation for future collaborations and implementation strategies.

Limitations: Despite its broad reach, the survey had some limitations. Regional representation was uneven, with higher participation from Europe and West Africa, while other regions, such as the Pacific and South America, were less represented. Additionally, while the survey captured diverse perspectives, some stakeholder groups, such as local policymakers, Indigenous communities, and industry representatives, were underrepresented, potentially limiting insights into their specific challenges and contributions. The study also relied on self-reported data, which may introduce biases in how participants perceive and describe sustainability challenges and solutions.

Lessons Learned: The Tour de Coasts initiative spotlighted the need for continued engagement and dialogue to ensure a truly inclusive and representative understanding of coastal sustainability. Future efforts should focus on expanding outreach to underrepresented regions and stakeholder groups, incorporating more localized case studies, and fostering ongoing discussions beyond survey responses. Additionally, the results highlight the importance of integrating scientific research with actionable policy and community-driven solutions, emphasizing the need for increased funding, stronger governance frameworks, and public education initiatives.

Next Steps: Moving forward, the Tour de Coasts initiative aims to disseminate findings, strengthen partnerships, and secure funding for additional research and implementation projects. By leveraging the insights from this survey, stakeholders can work toward more effective, equitable, and resilient coastal sustainability solutions worldwide.
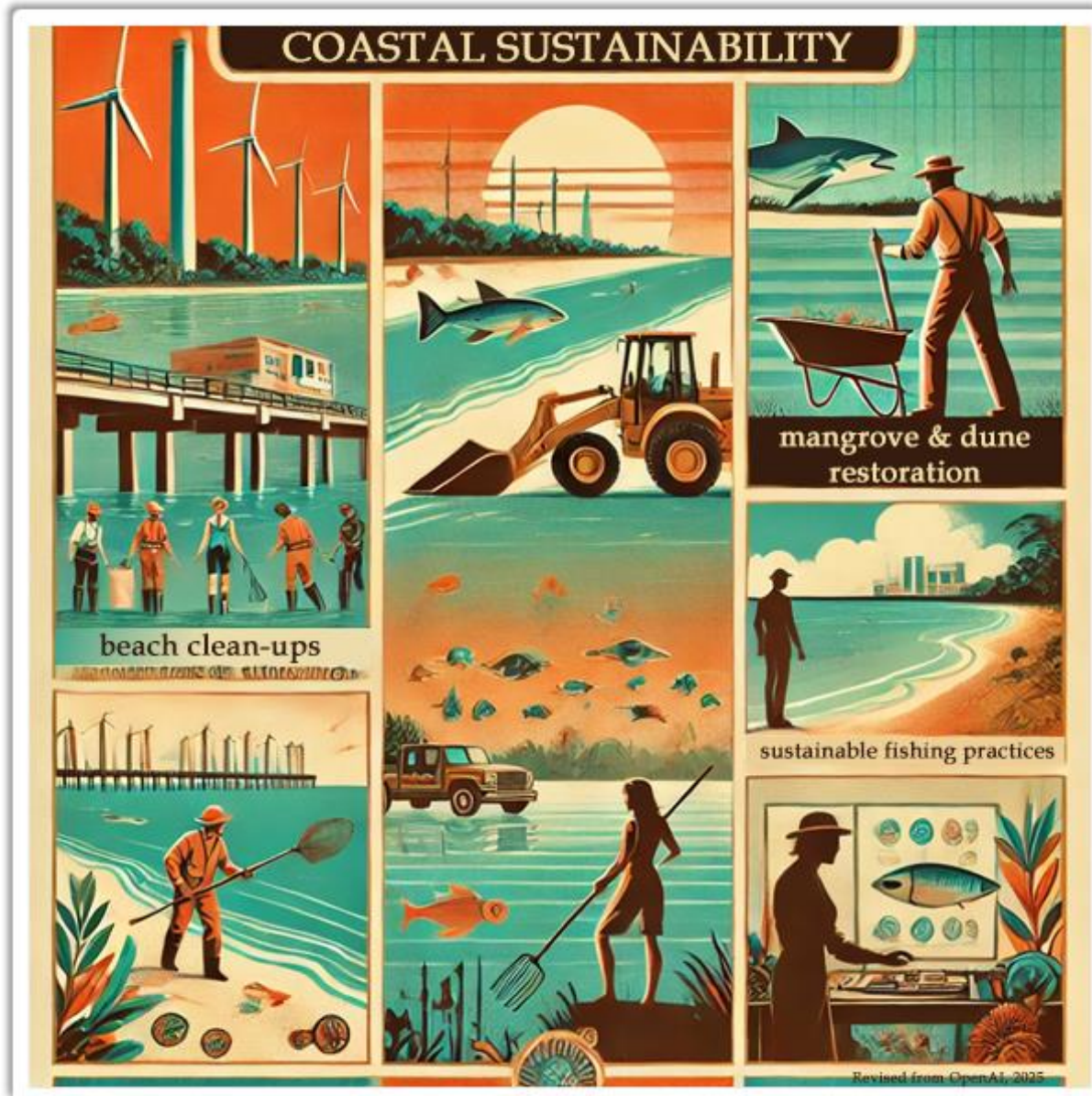
Appendix A: Definition of Coastal Sustainability

"Sustainability" has different aspects in different contexts. What do you consider coastal sustainability to mean in the context of your research or location?

1. People living in harmony with nature.
2. Coastal sustainability means managing human activities to preserve and enhance coastal ecosystems, biodiversity, and resilience to climate change while meeting the needs of present and future generations.
3. Public health concerns associated with a changing climate (e.g., residential mold resultant from increased flooding).
4. Use of the natural capital of the coastal zone, maintaining the ecological processes and functions of the ecosystems.
5. Policies and practices that promote stewardship, health, safety, and equity to enable coastal communities to thrive in the face of a changing climate.
6. Includes environmental and social-economic sustainability (wicked problem research).
7. Co-creation and co-designing of interventions that boost coastal community livelihoods, govern environmental or coastal/marine resources and safeguard them from future risks.
8. Healthy coast.
9. In my field of study Sustainability means conservation. Ghana has 5 Ramsar sites which are poorly managed, it has NO Marine protected areas and efforts over the years to establish one has remained futile. There are also no proper marine spatial plan on how our marine and coastal areas should be put to use although efforts are on the way. If these issues are addressed I feel our resources will be put to a more sustainable use.
10. Ensuring the use of coastal natural resources improve livelihoods while simultaneously protecting coastal biodiversity and ecosystem system provisioning services.
11. Adaptation to short and long term environmental change.
12. In the context of coastal Tamil Nadu, particularly in Coromandel Coast of Tamil Nadu, Sustainability is least pronounced. Rampant resource exploitation has been taking place all over the coasts of these regions, and "sustainability" approach is inevitable in this region. That should happen only with the strong intervention of the state government.
13. Sustainability is about preserving and improving the environment that is constantly under development pressure.
14. Sustainable livelihoods within sustainable non-human natural environments.
15. Resource use and tackling pollution issues.

16. As I have seen the coastal communities are suffering day by day in hunger and no development for their betterment. Fishermen communities' children are so far from education. Presently according to my observations, they are not getting good catch of fish whom they depend. World organization should focus on their education that is their sustainability.
17. Sustainably using water and coastal areas by using environmentally friendly technologies such as marine renewables.
18. Vital for biodiversity and well-being of oceans.
19. Meeting environmental and social objectives and outcomes through implementation of marine. planning and coastal management and not solely economic development.
20. Water and food quality and maintenance; Stability and balance of the coastline.
21. Coastal sustainability is my research context is in bequest value formation in which we would secure our coastal resources now and to the future generation as well.
22. Our coastal areas here depend heavily on fishing to sustain our economy and food security and the environment.
23. Coastal sustainability means the conservation and preservation of coastal ecosystems and resources for future generations, considering climate and human anthropogenic impacts.
24. I consider sustainability to mean building to last.
25. Coastal sustainability is the responsible use of coastal waters and their associated resources in a sustainable way, in the hope of preserving and managing this crucial ecosystem for the benefit of future generations.
26. From cradle to grave.
27. Better environment and ecological system, harmonious community, good social-economic development.
28. Trying to reach an equilibrium condition among human impact and the dynamic processes acting upon a coast.
29. Development of policies and regulations, education and awareness, and restoration and conservation projects.
30. Environmentally economically and social blue economy.
31. Aspire to achieve a balance between socioeconomic development with environmental care. Above all, in my region the main source of wealth comes from coastal and marine ecosystems.
32. The Inclusive participation of coastal communities in the management of oceans and marine coastal areas.
33. That the natural resources, can be used for the communities in a responsible way, and that generate last-longing wellbeing for these communities.

34. We look at sustainability from a governance perspective in identifying current arrangement and needs to improve those to adapt to climate change across in a multi-sectoral approach.
35. Sustainable coastal resources.
36. Coastal Geomorphology and Human Habitat.
37. The balance between conservation and development.
38. balance between socio-economic and ecological impacts.
39. Reduce pollutions, clean environment, organic growing.
40. Environmentally friendly and responsible, economically sound and stable, societally and socially equitable, just and fair.
41. Use of coastal ecosystem services so as not to compromise them.
42. Coastal landscapes which are managed in a way that they can provide ecosystem services, remain ecologically intact and provide home for all inhabitants (human and non-human).
43. Long lasting benefits, low or no negative impacts.
44. Trinidad and Tobago is a high-income country with bustling offshore petroleum and shipping industries, yet little is invested in corporate environmental responsibility. We've had hundreds of oil spills over the past 8 years, including a devastating one in Tobago this year. Underwater noise is also unregulated, and cetacean strandings are common. Furthermore, the manatee population is on the brink of extinction. Sustainability is a new concept to our government and it's the responsibility of NGOs such as TTCSN (Trinidad and Tobago Cetacean Sighting Network) to ensure the sustainability of our ecosystem, as no government efforts are being made to divert from the dwindling fossil fuel reserves.
45. Coastal sustainability is the wise use of the coastal environment to ensure that the needs of the present and future generation are met without causing harm to the environment.
46. Protecting coastal environment.
47. The use of marine and coastal resources in ways that foster socioeconomic development while maintaining the health and functioning of ecosystems.
48. The possibility for continued use of coastal resources and services by humans.
49. Coastal Sustainability in the context of my research and location (Barrackpore, West Bengal, India) would primarily focus on the balance between economic development and environmental preservation along the coastal regions.
50. Climate resilient development in terms of sea dependent communities.
51. In the West African context coastal sustainability is complex involving environmental, societal and economic issues that are compounded by the impacts of climate change.
52. To allow dynamics, to maintain functions, and to extract less resources than are regrowing.

53. Coastal sustainability should focus on creating scientific literature focusing on regional information need and associated issues, especially in the Asian region. It is also a time to look into shifting the focus from denial and despair to action rather than on the solutions to social issues and ways to adapt to its effects in the way they were reported.
54. A management strategy that allows people to live and work safely in the area while its natural assets are maintained for the future.
55. Understanding and adaptation to climate change processes.
56. Digitalization of ocean resources to monitor and create a sustainable strategy to protect the species.
57. Human development does not change the course of nature.
58. Reduction of pollution and coastal degradation.
59. It means the use, protection and preservation of the coastal environment and its resources in a way that meets the need of the present and coming generations.
60. Prioritizing the socio-economics of the fishermen communities in coastal resource utilization and management.
61. Increasing wealth, safety food and water, good environment and ecology, increasing jobs, et al.
62. Balance between human impacts and natural systems.
63. Nature-based solutions, ecosystem services, hybrid coastal protection.
64. From a geophysical hazards viewpoint, sustainability should include livability as a result of energy, resource, and space consumption harmonized/compounded with vulnerability and impending hazards (such as increasing SLR, seawater ingression into freshwater, tsunami/earthquake).
65. Maintaining the ecosystem structure and functioning, as well as its ecosystem services, for the future generations.
66. Collective stewardship behavior.
67. Peoples capacity to cope with sea level rise, tropical cyclones and inclusive adaptation.
68. In Mediterranean basin, overfishing. CO_2 intake, above-expected rising temperatures and N/P pollutants discharged by drainage all pose an array of sustainability issues, in (large?) part interlinked, as coastal/floodplain urban sprawling, port traffic, and urban subsidence are all depending upon growing population and its density. While this applies almost anywhere over temperate regions worldwide, the Mediterranean is a unique combination of "the best" and "the worst" factors and, as such, acts as un unlikely 'over-natural' laboratory. The Arctic basin, in itself a world of diversity, overstresses (if that's possible) the very concept of what actually is or might be sustainable.
69. A long term healthy condition for biodiversity.
70. Legally, sustainability has mostly focused on the use of resources, as in something is sustainable when the system is healthy enough for humans to

continue exploiting it. This has been changing in the last years to also include nature protection per se and even climate change matters.

71. The ability to maintain marine and coastal ecosystem services for environmental conservation and human well-being now and into the future.
72. Conditions of ecosystems over time to support one another and provide services for human activities, livelihoods of coastal communities and their long-term co-existing relations with the coastal ecosystems, balance in demand/supply, preserve cultural practices amid development.
73. Conservation and restoration of coastal ecosystems and biodiversity.
74. '- to be able to continue living in the area, also for future generations.
75. Renewable.
76. Resilience.
77. Climate adaptation.
78. Providing economic coastal solutions that can resist the changing climate and have little to no adverse impact on the natural environment but provide social benefits.
79. Preserving and enhancing the social and environmental values of the coast, in a way that does not adversely affect any one group (human/non-human) now or into the future.
80. productivity of the ecosystem to support the economic and ecological needs of the area.
81. That coastal processes key for resilience and adaptability are maintained on multi generational timescales.
82. With attention.

Appendix B: Barriers to Coastal Sustainability

What barriers do you see to achieving coastal sustainability in your area?

1. Governance and not a priori concern.
2. Education, education, education!
3. Anarchy, illegal activities.
4. Inuvialuit Settlement Region (ISR - Mackenzie Delta area) - climate warming 3x global average, accelerating erosion of permafrost coasts, reducing ecosystem services of winter river and sea ice, in modern communities where traditional adaptation practices are ineffective., Cost for small remote communities. Nova Scotia - entrenched private property rights, lack of broad public awareness, absence of political will.
5. Operationalization of environmental governance.
6. Limited focus on marine social science research.
7. Political interference 2. Lack of resources 3. Low investment in research 4. Overlapping of core mandates by responsible agencies allowing for shift in blames 5. Alternate livelihood.
8. Political, legislative and governance barriers including lack of human resources, technical equipment to conduct monitoring and evaluation of coastal resources, overlapping legislation and limited fiscal resources, lack of public knowledge of the importance of coastal resources to climate change adaptation.
9. Lack of planning and political will.
10. Trawlers, Industrial Fishing, Riverbed sand mining.
11. Money, housing demand, recreational demand.
12. Power, inequity, corruption, consumption focus, poverty, lack of education, media manipulation.
13. Conflict of interest with diverse resource users. Besides, we are getting always no feedback for sustainably using resources from environmentalists, instead focus on conservation.
14. If coastal communities are well educated, then there is no barrier.
15. Strong industry interests and geopolitical issues.
16. Lack of reliable and systematic scientific data and research.
17. Lack of implementation of environmental management, lack of political priority, other issues being deemed more important for action.
18. Coastal management based on scientific knowledge and not just economic interests.
19. Weak rules and regulations.
20. To join the international community in developing a climate resilient.
21. Lax environmental laws, political and regulatory capture, poor planning of coastal developments.
22. Lack of awareness and adaptive capacity.
23. 1: Lack of interest with regards to the coastal ecosystem by the government in power. 2: Inadequate technical know-how on how to judiciously exploit coastal

resources in a sustainable manner by the citizens. 3: Little or no education with respect to coastal literacy in the Nigerian society.
24. Funding, exclusions.
25. Excessive use of coastal zone and inappropriate protection.
26. Lack of interest of most of the decision makers and little to middle interest from stakeholders to work toward coastal sustainability.
27. Education and awareness, and restoration and conservation projects.
28. Pressure of mass tourism.
29. Little support for government environmental programs and academic research and the increase in North American tourists and digital nomads.
30. Financial and capacity building barriers.
31. Lack of respect for the communities knowledge, governance and use over the ecosystems. Science is not approaching needs of the people, but the needs of the funders. That ends up in an increase in papers, but not increase of the wellbeing of the communities.
32. Lack of human and financial capacities, as well as fragmented approaches.
33. coastal pollution and encroachment.
34. Sea Level Rise, Global Warming, Cyclonic Event and Salt Water impact.
35. Government efforts are mainly awareness-oriented, with insufficient funding and limited benefits reaching local communities.
36. Collaboration with decision makers.
37. Lack of funding for women.
38. Competing and conflicting interests of local actors and different stakeholder groups.
39. Over-exploitation of natural marine resources; over-construction in the coastal zone.
40. Coastal management often is for humans and weightens economy higher than ecology.
41. Land use change decision without enough consideration of long term impacts.
42. Education and awareness.
43. Poverty, ignorance and corruption.
44. Poverty and lack of awareness among local communities.
45. Policies that do not adequately account for social, economic and ecological benefits and consequences.
46. Over-exploitation due to lack for information, foresight or alternatives, or due to greed.
47. Achieving coastal sustainability is hindered by rapid urbanization, overfishing, industrial pollution, climate change, lack of awareness, economic pressures, weak governance, and land use conflicts. These interconnected challenges require a multifaceted approach to protect marine ecosystems and ensure sustainable development.
48. Sea level rise, extent and severity of cyclones, salinity intrusion and marine pollution.

49. Poor implementation of policy, top down approaches, lack of resourcing for effective management.
50. Germany: Siloed Thinking in Administration: E.g. No handling of terrestrial pollution by marine ministries; Fiji: Dominance of Western, Capitalistic Extractivism.
51. The challenge of access to coastal sustainability related information is two-fold: first, presents information valid in scientific scrutiny and second, it has to understand how and in what ways vulnerable communities adapt to the impacts of changes.
52. High commercial interests.
53. In-situ data / decision makers willing to invest.
54. High level of ocean illiteracy.
55. Lack of understanding of coastal resilience! The self-repair capacity of coastal zones is poorly understood.
56. Low education among community members.
57. International policies and advisories on ocean governance is unsustainable and marginalize the fishermen communities. More than 40% of EU fisher folks earn less than national minimum wage, whereas in India the fisher folks below poverty line escalates beyond 60%.
58. Environmental pollution, improper industrial or aquacultural distribution, lost of jobs.
59. Over development, over population, real estate booms.
60. Conflicts between uses, resources, limiting administrative tools for implementation of sustainable coastal management.
61. Coastal stretches undergo expanding settlements and are projected to host 70% of global population by 2050; this alone is a turning point that dictates an all-around, physical element that cannot just be "put aside" - being made of the same human beings that sustainability and protection is ideally aimed at.
62. Priorities of decision makers do not reflect the priorities of citizens and ecosystems.
63. Lack of intrinsic motivation from the key stakeholders to engage in a long-time action.
64. Increasing environmental stresses, racialized policy, social stratification.
65. Concerning the Mediterranean basin, increasing demand for fish haul (sea-ward) and increasing exposure to geophysical hazards (earthquake, tsunami, floods, subsidence) along coastal stretches (land-ward) hamper efforts to render sustainability efforts or measures concretely actionable.
66. Economic development.
67. Law, policy and administration still separating between nature protection and climate protection (e.g. separate ministries and offices on all levels of governance, separate laws for climate change and nature protection: Klimaschutzgesetz & BNatSchG…). They are interlinked and should go hand in hand. Also: Often sectoral approach while overarching approach is necessary.

68. Population pressures - hunger leading to overfishing and habitat destruction, climate change impacts altering the baseline of the system's carrying load.
69. Knowledge transfer across generations, lack of collective action, dominant 'western' or 'foreign' ideologies not only by scientists but by non-native residents, political instability and/or inefficiency/complex governance structure, lack of resources, lack of vision vs short-term goals, looking at a single issue without understanding the priorities or seriousness of other problems facing the community.
70. Climate change and rising sea levels, insufficient funding.
71. Sea level rise, competition for land.
72. Ecosystem.
73. Funding.
74. Economic development.
75. Lack of readily available comprehensive Datasets.
76. Short-term planning of climate hazards, in the absence of broader consideration of all elements of coastal management and their integration across sectors and regions.
77. Lack of funding for research and dearth of knowledge among local communities.
78. Mental/perception. People do not understand the problem of current coastal protection approaches and do not believe that soft solutions can provide sufficient protection.
79. Insufficient awareness for population.

Appendix C: Contributions to Coastal Sustainability

Describe how you think your work contributes to coastal sustainability.

1. Research sustainability science application on a local level.
2. We work alongside communities to identify issues and science-based solutions.
3. Generation of new knowledge in ecology and management of coastal ecosystems, training of new researchers and dissemination of the knowledge generated to society.
4. ISR - documentation and modelling of projected coastal change defines the challenges; enhanced local capacity and co-production of situational awareness and hazard knowledge on social media during annual ice breakup. Nova Scotia - documentation of rates of coastal change in region with most rapid sea-level rise in Canada, and promotion of public knowledge of coastal hazards, including increased hurricane risk.
5. Speed up implementation of climate adaptation.
6. Collaborative co-designing of solutions by using perspectives and narratives of vulnerable or sedentary coastal communities.
7. My work sees to explore the importance of marine protected areas in increasing the decline in fisheries especially the small pelagic which are the backbone of the national's economy.
8. As an educator and researcher I have generated knowledge to building capacity among young professionals to manage the challenges of the built environment and impact on coastal resources. My research also translates into policy which influences decision-making among Caribbean stakeholders (governments, business, academicians, professional associations, civil society).
9. Improved theoretical knowledge on ecosystem dynamics under global change.
10. My work has explored how and why the "culture" and local capitals of the marine fishing community is essential to respond to climate change, and to build sustainability in the long run.
11. To make people aware of the issues at hand.
12. Increasing transparency, supporting empowerment and capacities of marginal people, developing tools and approaches.
13. I can keep myself in between resource use and conservation in a sustainable manner.
14. I am sure if we give them good education then they will care their coasts because they are blank with the coastal destructions. I have communicated with them and found lack of facilities from govt side.
15. Synthesizing knowledge on issues of scientifically and societal concern.
16. I am working in the university and teaching CZM to Masters students.
17. For many years I have been generating knowledge about coastal dynamics in terms of mangroves, sediment transport and pollutant dynamics at the continent-ocean interface.
18. Due to my program am pursuing, MPhil Blue Economy, Governance and Social Resilience would help me contribution to coastal sustainability one day.

19. To make proper research and development strategies for the future.
20. My research delves into coastal management and adaptation, stakeholder engagement which are at the center of coastal sustainability issues.
21. My work highlights the role of coastal ecosystems in mitigating flood risk.
22. It shed some light on how one can advance coastal stability at a tipping point of climate crisis.
23. In fisheries and capacity building.
24. Coastal protection and restoration.
25. I do intensive research in beaches, estuaries and coastal wetlands trying to understand how they cope with the effects of global and local modifications.
26. The project of teaching ocean education through watercolor art contributes to coastal sustainability by combining creativity and environmental awareness, inspiring participants to value and protect marine ecosystems. By learning about ocean life and the challenges it faces, students develop a sense of responsibility and connection to the coastal environment, promoting sustainable practices and fostering a culture of conservation that can have a lasting positive impact on the preservation of our coastlines.
27. Blue cruise nautical tourism marine tourism marina sea based all research activities my research area.
28. Provide information on ecosystem services and environmental management in mangroves and other coastal wetlands.
29. We plant trees in coastal areas and we fight against the pollution of oceans and coastal areas through advocacy campaigns.
30. I am trying to evaluate mangrove expansion process, through a more democratic way of scientific and projects production, within a co-design context. When this is the future of project focus, the sustainability for the use of coastal resources can be reached, having into account all the users and their needs.
31. Raising awareness for issues through participatory approaches with stakeholders.
32. Monitoring of coastal biodiversity important aspect of coastal sustainability.
33. Coastal Regulation Zone modification.
34. Security resilience.
35. Targeting precision restoration and future development.
36. Using GIS data analysis, can use modern maps and visualization for citizens and decision makers.
37. Understanding how environmental change (incl. land/sea-use change, climate change, sea level-rise, pollution), as well as human activities, such as the use of ecosystems and their resources, affects ecosystem processes that underlie ecosystem services and their geographical distribution.
38. I work on water quality and that is vital to sustain living resources in the coastal zone.
39. Remote sensing allows a monitoring without bias and allows to detect changes.
40. Nature based ecosystem restoration.

41. Through acoustic and visual monitoring of marine mammals in Trinidad and Tobago, we will establish a species inventory as well as photo-ID database of local and migratory marine mammals to monitor health on the population and individual levels. We will also establish baseline levels of ambient noise to allow the creation of policy that will protect our oceans from irresponsible levels of petroleum and shipping activity.
42. Climate change is a threat to coastal sustainability, as such I am interested in researching on climate change mitigation and adaptation strategies to ensure a sustainable coast. In proffering solutions to the impact of climate change, mangrove ecosystem proves to be very relevant, because of its mitigation and adaptation role. I intend to research on the sediment characteristics of mangrove and how this affect mangrove health. I believe that if the substrate on which mangrove forest grows is not suitable, then restoration and conservation efforts will be wasted. The knowledge as to which soil patch or sediment condition is most suitable for a particular mangrove species will inform restoration decisions.
43. Highlighting the importances of coastal sustainability.
44. My work shows how focus of ecological objectives in conservation leads to societal impacts such as inequality, violation of human rights and economic freedom.
45. Quantifies ecosystem services to outline carrying capacity. investigates societal aspects, e.g. alternative livelihoods, communication pathways, to improve ecosystem resource/service use.
46. Raising awareness about coastal issues, providing information on sustainable practices, and supporting research that aims to understand and address these challenges.
47. Center for People and Environ under my supervision promoting nature-based solution which contributes to coastal sustainability.
48. The Resilient lagoon network is connecting stakeholders, proving platforms for discourse and sharing management best practice.
49. Germany: I try to connect two independent allies for coastal sustainability, nature protection & climate protection. Fiji: I ask local communities about their values.
50. My work helps me to understand the problem of climate change in terms of the complex nature of policy and governance as it continues to shift towards new dimensions. I would like to look into how capacity building will help the climate activists and practitioners to develop their capacity in addressing climate change with the right information at the right time to ensure greater participation of common people.
51. Providing a knowledge base for strengthening ecosystems.
52. Monitoring and impact based predictions.
53. Creation of ocean application to digitalize the ocean economy to educate the public about the ocean and its importance.
1. Gain a thorough understanding of the coastal zone; 2. Impose certain limits on human activities to avoid exceeding its natural recovery threshold; 3. Attempt restoration in severely impacted areas.

54. Through reduction of coastal erosion and pollution.
55. Improving the socio-economics of fisher folks through application of ICT and satellite assisted fisheries e-commerce are among our solutions. Our work is focused to enable stock reporting and trade linkages from ocean.
56. To remediate the polluted coastal environment.
57. Improving management of coastal habitats.
58. Decision making support, knowledge resource for local communities.
59. My attempt is to contribute to highlight potentially contradictory approaches into how (geo)physical hazards are (un)dealt with. Being life at all levels the ultimate scope of safety by modeling and prediction, I attempt to contribute at the cross-disciplinary discourse on life at the nexus among hazards, opportunities, fragilities and aspirations.
60. By providing insights in possible directions for change.
61. I am researching about stewardship behavior in small-scale fisheries management system.
62. Understanding social vulnerability, social-ecological systems, coastal adaptation.
63. I am interested in how pre-existing geophysical hazards (especially earthquakes) overprint with ensuing ones, both those affecting the geosphere (e.g., urban subsidence) and the hydrosphere (sea-level rise), as they may elicit, drive, or compel altogether complex scenarios concerning how 1) coastal populations perceive compounded risk in the medium-term, and 2) governing bodies and international institutions indicate ranges of solutions.
64. Law and policy need to keep up with the science, need strong links to science. As a lawyer working in otherwise mostly natural science projects we can create these synergies and bring them to non-natural science stakeholders as well (legal/ social scientists in ministries).
65. Documents current environmental conditions, documents pressure and direction of environmental change, builds human capacity to manage resources, document change and build for resilience, and works with governments across scales to manage the situation sustainably.
66. Supporting decision-making process by providing informing instead of imposing a solution, including voices from various stakeholders across sectors and generations, understanding the problem from a system approach to find the interconnectedness of various problems and risks.
67. As an archaeologist, historical ecologist, and educator, I provide deep-time baselines to the nature of coastal ecosystems, data that can enhance restoration and conservation efforts.
68. I am afraid it does not.
69. Reduce CO2 emission.
70. Help to Save our Planet!
71. Risk communication.
72. Improving the design of coastal structures and the assessment of vulnerability to coastal flooding and erosion.

73. By better understanding the relationships between people and environment (social-ecological systems), and the processes by which people and groups interact/share resources to build their capacity to respond to change.
74. Estimates productivity and envisages the natural drivers of photosynthetic protist communities on a spatial and temporal scale.
75. I show how nature can be part of the adaptive solution to improve coastal resilience.
76. My work can change population behavior.