Topics at the nexus of climate change, fisheries, and blue foods

A webinar series highlighting the impact of climate change on fisheries, aquaculture, and the communities who depend on them

May 2026: Blue Food Futures - from local insights to global impact

Date and Time: May 28, 12:00-13:00 US East Coast EDT (UTC-4)

This webinar installation will feature four fellows working with the Blue Food Futures Program who are examining the complex challenges facing small-scale fisheries and coastal communities worldwide. Dr. Liliana Sierra Castillo will explore how displacement in fishing communities is driven not only by climate change but by historically rooted colonial and extractive systems, drawing on work in Honduras and Puerto Rico. Dr. Gladys Mwaka Holeh will discuss the potential of seaweed aquaculture in Kenya to support livelihoods, nutrition, and climate resilience, while addressing barriers to equitable growth. Dr. Ruyel Miah will present research that analyzes governance and interconnected vulnerabilities in transboundary fisheries in the Sundarbans. PhD candidate Aphiwe Moshani will examine how climate change and historical inequities shape fisheries access and ocean governance in South Africa.

Presentation 1 – Blue Food Futures Fellow Dr. Liliana Sierra Castillo

Abstract: Mobility in small-scale fishing communities, including displacement and forced movement, is increasingly understood through the lens of climate change, with climate-driven relocation commanding growing attention in both research and policy. Yet this framing captures only a fraction of the displacement these communities experience. The physical, cultural, and social dispossession that small-scale fishers face is not new, nor is it reducible to climate. It is historically rooted, ongoing, and deeply entangled with colonial and extractive systems that have long shaped who has access to coastal spaces, resources, and the relational ties that make those places meaningful. This work draws on empirical fieldwork carried out in small-scale fishing communities in Honduras and Puerto Rico, using mixed-methods approaches including interviews, surveys, and oral histories, grounded in feminist political ecology and intersectional frameworks. Together, these approaches allow us to center the differentiated ways in which dispossession and displacement are experienced across gender, race, class, and identity, while keeping structural and historical power relations at the core of the analysis. From this foundation, we argue that centering colonialism and coloniality in how we understand small-scale fisheries fundamentally changes what we see. These communities do not experience ocean, coast, and land as separate domains; they inhabit them as an interconnected whole, where disruption to any one dimension reverberates across the entire fabric of place, identity, and livelihood. In Honduras, climate change is reinforcing and accelerating historical injustices, including land dispossession, the implementation of marine protected areas without community consent, and the expansion of extractive tourism. In Puerto Rico, colonial status has made coastal communities particularly vulnerable to the same extractive tourism dynamics, compounding climate vulnerabilities with structural political marginalization that limits community agency and self-determination. We argue that if we want small-scale fishing communities to be genuinely climate resilient, we must move beyond material and climate-only framings of mobility and displacement and begin treating climate change as an exacerbating force acting on systems that were already unjust as resilience cannot be built on foundations of ongoing dispossession.

Webinar Presenter: **Liliana Sierra Castillo,** postdoctoral researcher University of Rhode Island, Department of Marine Affairs; Research affiliate, University of California, Santa Barbara, Environmental Studies Program, is a Honduran interdisciplinary marine scientist with over a decade of experience partnering with coastal and small-scale fishing communities across Latin America. My work sits at the intersection of

science, policy, and community engagement — finding actionable, equitable solutions to the complex challenges faced by the people who depend most on coastal ecosystems. Dr. Sierra Castillo's works across the full cycle of policy-based decision-making such as collecting and interpreting empirical data, applying rigorous analysis, and co-developing policies and management tools that are both effective and just, always centering the voices, histories, and needs of the communities themselves. Dr. Sierra Castillo's expertise spans mixed-methods research, ethnography, fisheries science, place-based conservation, and the facilitation of participatory processes that empower local stakeholders to shape their own futures. As a Postdoctoral Researcher at the University of Rhode Island/Ocean Nexus, Dr. Sierra Castillo is currently investigating migration, displacement, and dispossession in small-scale fishing communities in Puerto Rico and Honduras, uncovering systemic drivers and amplifying community-led visions for resilience.

Presentation 2 – Blue Food Futures Fellow Gladys Mwaka Holeh

Abstract: Artisanal seaweed aquaculture is increasingly recognized as a promising blue food pathway for strengthening livelihoods, nutrition security, climate resilience, and inclusive ocean-based economies. Yet in many global food, climate, and ocean policy discussions, seaweed remains underrepresented compared with fisheries and other aquatic food systems. Drawing on ongoing PhD research from coastal Kenya and the wider Western Indian Ocean, this presentation explores how small-scale seaweed farming can contribute to sustainable, equitable, and climate-resilient blue food transitions. The presentation will bring together evidence from socio-economic surveys, cultivation-system assessments, nutritional and bioactive research, and climate-focused analyses. Fieldwork with seaweed farming communities in southern Kenya highlights the importance of seaweed farming for women's livelihoods, household income, and local value chains, while also revealing persistent constraints related to buyer concentration, payment timing, limited value addition, marine spatial conflicts, and environmental stressors. Experimental work comparing shallow and deeper-water cultivation further shows that adaptation strategies must be assessed carefully: while subtidal systems may offer more stable environmental conditions, current evidence suggests that they require further technical and economic optimization before they can be recommended widely for smallholder farmers. By connecting place-based evidence from Kenya with broader Ocean Decade conversations, the presentation will show how seaweed aquaculture can inform climate adaptation, sustainable food-system planning, biodiversity-sensitive aquaculture, and equitable blue economy governance. It will also emphasize the importance of local knowledge, gender-sensitive innovation, market diversification, and science–policy translation in shaping blue food futures that are both globally relevant and grounded in coastal community realities.

Webinar Presenter: **Gladys Mwaka Holeh,** is a research Scientist at the Flanders Marine Institute (VLIZ); Doctoral Researcher at Ghent University; 2026 Blue Food Futures Fellow with the Stanford Center for Ocean Solutions. Ms. Mwaka Holeh's research focuses on artisanal seaweed aquaculture in Kenya and its role in advancing food security, nutrition, climate resilience, coastal livelihoods, and equitable blue economy development. Her PhD work integrates socio-economic and value-chain analysis, cultivation-system performance, nutritional and bioactive assessment, climate-change impacts, and informal seaweed-based product pathways in coastal communities. Drawing on field-based research with seaweed farmers and laboratory-based analysis of tropical red seaweeds, she works at the interface of science, policy, and community realities to translate local evidence into decision-ready recommendations. Gladys previously served as a Senior Research Scientist at the Kenya Marine and Fisheries Research Institute and has contributed to regional blue economy, mariculture, and coastal livelihood initiatives across Africa. Her work aims to strengthen African coastal perspectives in global blue food, climate adaptation, and Ocean Decade policy dialogues.

Presentation 3 – Blue Food Futures Fellow Dr. Ruyel Miah

Abstract: Small-scale fisheries around the world face multidimensional vulnerabilities rooted in social, natural, economic, institutional, and political factors. These vulnerabilities are further amplified in transboundary systems. Set within the context of the climate-fisheries nexus, this study assesses the vulnerabilities of small-scale fisheries and the challenges to transitioning from vulnerability to viability in a transboundary setting. Focusing on the Transboundary Sundarbans mangrove forest between India and Bangladesh in the Bay of Bengal, data were collected through household surveys, key informant interviews, and focus group discussions across multiple locations in both countries. The findings reveal that small-scale fisheries experience diverse, interconnected vulnerabilities stemming from social (e.g., reduced income and increased social injustices), natural (e.g., declining fish stocks linked to environmental and climate-related changes), and governance systems (e.g., increased restrictions and limited access). Critically, the current governance structure largely fails to address these vulnerabilities or support a transition toward viability. Key barriers include a lack of coordinated transboundary governance, divergent interests and values among institutions, and mismatches between governance goals and on-the-ground implementation. The study emphasizes that amplifying the participation and voices of relevant stakeholders is essential to developing comprehensive governance actions on both sides of the forest and enabling viability transitions. It further recommends that governing institutions establish systematic processes to assess vulnerabilities and their interconnections within transboundary fisheries systems, thereby supporting the resilience of fishing communities and the long-term health of the forest ecosystem in a changing climate.

Webinar Presenter: **Md. Ruyel Miah** is an interdisciplinary researcher focused on governance, equity, and sustainability transitions in small-scale fisheries and blue food systems. He completed his PhD in Sustainability Management at the University of Waterloo (2025), following an MA in Geography from Memorial University, Canada, and an MSc in Coastal and Marine Fisheries from Sylhet Agricultural University, Bangladesh. Dr. Miah is a 2026 Blue Food Futures Fellow, hosted by the Stanford Center for Ocean Solutions, a Project Coordinator for the Climate Change Adaptation, Dispossession, and Displacement (CiCADD) project at York University, and a Research Associate with the V2V Global Partnership at the University of Waterloo. His research integrates governance analysis, access to markets and resources, and community engagement to advance equitable and sustainable pathways for small-scale fisheries in transboundary and Global South contexts.

Presentation 4 – Blue Food Futures Fellow PhD Candidate Aphiwe Moshani

Abstract: South Africa's coastline is a site of compounding crises. Across the Benguela Current Large Marine Ecosystem and the subtropical Indian Ocean seaboard, fishers report declining catches, shifting species distributions, and longer distances travelled offshore, biophysical changes driven by climate variability that are reshaping coastal food systems. These ecological stresses, however, do not unfold in a political vacuum; they intersect with entrenched inequalities produced through colonial dispossession and apartheid-era spatial exclusion from the sea. This presentation argues that the climate-fisheries nexus in South Africa must be understood through the governance architectures that determine how climate risk is distributed and who possesses the institutional capacity to adapt. Despite reforms such as the Marine Living Resources Act and the Small-Scale Fisheries Policy, regulatory frameworks continue to marginalise many traditional fishers, privileging large-scale commercial interests while thousands depend on marine resources for food security, livelihoods, and cultural continuity. Drawing on empirical research in Richards Bay, this study shows how ocean-dependent communities navigate a 'triple burden', ecological change, historical dispossession, and exclusion from decision-making.

Webinar Presenter: **Aphiwe Moshani** is a PhD candidate and researcher based at the University of Cape Town, South Africa dedicated to advancing just and inclusive ocean governance and Blue Economies in the African context. Central to this work is a focus on ocean and coastal conflict stemming from historical and

contemporary exclusions. Moshani studies how the legacies of colonialism and an apartheid ocean governance regime have implications for traditional fishers in Richards Bay, KwaZulu Natal, South Africa who face restricted access, criminalization, and displacement. With a strong foundation in ocean and coastal governance, feminist theory, and transdisciplinary research, Moshani explores the possibility of thriving in locally managed marine areas and food sovereignty as pathways toward sustainable, community-driven ocean stewardship. With a passion for contributing toward a redress of systemic inequity, Moshani is committed to producing knowledge, frameworks, and policies that center the needs of women and marginalized coastal communities. As a Blue Food Futures Fellow, she will contribute to research that moves regional and international policy frameworks toward recognizing the complexities and historical context of ocean and coastal conflict in the Blue Economy. Her work will also explore local imaginations and methodologies that support autonomous, self-sustaining blue food systems on the African coastline.

This webinar series is jointly hosted by the UN Ocean Decade Programs Blue Food Futures, Fisheries Strategies for Changing Oceans and Resilient Ecosystems (FishSCORE), Sustainability, Predictability, and Resilience of Marine Ecosystems (SUPREME), Sustainability of Marine Ecosystems through Global Knowledge Networks (SmartNet), and Fisheries and Marine Ecosystem Model Intercomparison Project (FishMIP) and endorsed project Basin Scale Events to Coastal Impacts (BECI). This webinar series highlights current efforts and challenges at the climate-fisheries nexus. Presentations and discussions will range from data-driven efforts to better understand oceanographic and biological changes affecting fisheries, to how the results can be used to inform fisheries management, aquaculture, and sustainable food decisions, to the many ways people and broader communities are being impacted by and adapting to changes in marine ecosystems and marine resource use.