PHD DISSERTATION DEFENSE

MANAGEMENT AND DESIGN OF MARINE RESERVES AND RIGHTS-BASED MANAGEMENT SYSTEMS IN SMALL-SCALE FISHERIES

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Monday, May 7, 2018, 2:00 PM
MSI Auditorium

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ABSTRACT Sustainable management of small-scale fisheries is one of the greatest challenges facing our ocean today. These fisheries have a collectively large ecological footprint and are key sources of food security, especially in developing countries. My dissertation explores different pathways to provide incentives for small-scale fishery conservation and management. First, I explore how we can provide economic incentives for the establishment of marine reserves (areas where no fishing is allowed) in coastal communities. I develop a framework to incorporate both tourism and fisheries benefits in marine reserve design, and apply this framework into a bioeconomic model simulation. Results show that accounting for tourism benefits will ultimately motivate greater ocean protection. Second, I explore key design challenges and management incentives of Territorial Use Rights for Fisheries (or TURFs) from all over the globe. TURFs establish exclusive fishing zones for groups of stakeholders, which eliminates the race to fish with other groups. I find that about one third of the TURFs worldwide are not appropriately designed, thus hindering their potential for success. Lastly, I use a bioeconomic model to investigate whether TURF networks have the potential to address design challenges of single TURFs. I explore the cooperation incentives of TURFs within a network and ask how market-based strategies can improve system-wide outcomes. I find that market-based strategies have the potential to revert overharvesting incentives to achieve fishery sustainability. Overall, the insights from my dissertation suggest that providing the right incentives is key for sustainably managing small-scale fisheries.

BIO My research is focused on marine protected areas and rights-based management systems in small-scale fisheries. I use a mix of empirical analysis and model simulations to find the appropriate management solutions to global overfishing problems. I graduated from the Federal Rural University of Pernambuco, in Brazil, with a BS in fishing engineering. Before my PhD, I pursued a master's degree at the Bren School as a Latin American Fisheries Fellow. My ultimate career objective is to improve fisheries management in Brazil while defending marine protected areas and proposing and implementing sustainable practices for improving the livelihood of small-scale fisheries communities.

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