



INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH

Climate change, oceanographic variability and the artisanal fisheries in the South West Atlantic (a *Human Dimensions* project in CRN2076)

Climate change and variability in the marine and coastal environments pose a risk to fisheries production. Such variability in the marine and coastal environments has an economic impact on fisheries. Subsistence and small scale fisheries are highly dependent on coastal resources and marine stocks. This is why fishing communities need to adapt in order to assure optimal economic return from fisheries. This project examines impacts on shrimp fisheries in the Patos Lagoon estuary in southern Brazil to build more adaptive and less vulnerable fisheries systems through the understanding of the social vulnerability, adaptation capacity, and socioeconomic impacts.

Goals

Understand the effects of coastal environmental variability on pink shrimp (*Farfantepenaeus paulensis*) fisheries and communities in the Patos Lagoon of Southern Brazil.

First results

- Wind and ocean currents determine how much pink shrimp artisanal fisherman can harvest in the Patos Lagoon. Shrimp larvae spawn off the coast and are carried into the lagoon by ocean currents. Successful catch seasons follow periods of landward currents forced by southwesterly winds and low river runoff. In contrast, large river outflows prevent the influx of larvae into the lagoon, sharply decreasing shrimp catches. El Niño (ENSO) may reinforce these trends; it shifts the distribution of migratory species.
- Fisherfolk perceive the effects of environmental processes as being much stronger when coupled with inadequate policies, such as the fixed season for shrimp fishing or the easy access to credit that leads to unsustainable expansion of the fishing fleet. Unintended consequences from these policies, such as overcapacity and unsustainable fishing, could be minimized by more flexible regulations and better understanding of the interaction between environmental and social processes.
- A joint project has been developed with Rede CLIMA – INCT para Mudanças Climáticas, Zonas Costeiras, a Brazilian network for the interdisciplinary study of coastal climate change, to understand how the media addresses climate change issues in the context of coastal environments.
- The study will be particularly useful in the management of shrimp fisheries and catch prediction models under a changing climate

Principal investigator and lead agency

Patrícia Raggi Abdallah – patrizia@furg.br

Environmental and Economics Science Study Center, Federal University of Rio Grande

Co-investigators

Jorge Pablo Castello (Federal University of Rio Grande, Rio Grande, Brazil), Ussif Rashid Sumaila (Fisheries Economics Research Unit, Fisheries Centre, University of British Columbia, Vancouver, Canada), Denis Hellebrandt (University of East Anglia, UK).

Link to other IAI Projects

This project is part of the *Collaborative Network* project **An international consortium for the study of oceanic related global and climate changes in South America” – SACC Consortium.**

Project web site: <http://www.sacc-hd.furg.br>

List of publications: [http://iaibr1.iai.int/bs?publications/2076-HD .pdf](http://iaibr1.iai.int/bs?publications/2076-HD.pdf)



Fishing pink shrimp in the estuarine area of the Patos Lagoon, Brazil



Woman selecting pink shrimp (*F. paulensis*) after artisanal fishing in the Patos Lagoon, RS, Brazil



A typical fish market located close to the fisheries communities of Patos Lagoon, RS, Brazil

