

# Third Academic Forum Chile France

Workshop Climate and Biodiversity

- The context of this workshop is without a doubt the decade of the ocean and the opportunities and challenges that science is facing.
- Most of the topics that were addressed deal with impacts of climate change on biodiversity in the ocean, its functions and ecosystem services.
- Interactions between natural and human environments.
- Towards a better understanding of the processes that generates or affect biodiversity using direct observation, data science and mathematical modelling, among many sciences.

## Talks highlight:

- Necessary approaches of ecosystem services in aquaculture, the complex processes of climate impact on and from farms, not fully understood yet, but clear indicators that negative impacts are growing.
- Knowledge gaps of environmental impacts of Salmon industry and the importance of social forcing in decision making and social perception of aquaculture.
- Importance of other aquaculture sectors such as seaweed. Not yet a long-term project funded in Chile dealing with that issue, although it could account for a good percentage of blue carbon in the future.
- Existence of truly natural laboratories of pristine parts of the ocean to investigate the impacts of global change without (too much) local anthropogenic disturbances.
- Problem of anthropogenic impact and the challenge of science for observing the ocean and battling plastic pollution.
- Theoretical models of the evolution of genetic diversity under clonal reproduction, with applications in evolutionary biology but also resource management, pest control and other applications. Also global models to relate biodiversity with changes in the environment.

## **Some networks of research were presented:**

- The CEODOS program was presented which is a consortium of centers of excellence and TARA Foundation dedicated to follow climate change in the entire coast of Chile every 5 years. CEODOS is also linked to 3 French Chilean laboratories CMM, LIA MAST and INRIA-Chile. As part of the latter, novel efforts on biodegradable plastic using the plastisphere (microbial communities associated to plastics) as a model for study and experimentation were presented. The importance of information on the real properties of plastics to long last erosion was addressed. This work is supported by several networks at the national and international level. But it needs a long-term support.
- The Task Force Ocean, created in France (CNRS) to define major orientations in marine sciences, and OMER, a large interdisciplinary network created to better understand ocean dynamics, increase knowledge of marine ecosystems, foster interactions between science and society expressed the need for scientific survey in marine sciences

## **Final discussion:**

- Many teams have accumulated significant amounts of data in marine systems. This is based on important local and collaborative efforts of exploration of the marine realm. This data is incredibly relevant for the identification of patterns relating changes in the environment and biodiversity. Today it requires modelling efforts to understand the patterns and test specific hypotheses about the processes generating them.
- Need of a fine/better integration of research groups, available data and approaches to make a more efficient use of resources (ocean exploration is expensive), but more importantly, to elaborate synthesis of the accumulated knowledge (not only identify knowledge gaps).
- The Chile-France network represents a kind of “critical resource” to address these issues. It is rich in experience, quality of science, diversity, ..... We need to make an effort to make this collaboration exploit in the next years to be a global reference in this topic.