PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE

Worlds of Algae: Exploring the emergence of marine transition experiments in Chile

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Abstract

One of the most urgent socio-environmental crises facing humanity is the massive deterioration of earth's ecosystems. The scale of this process is so vast that there is talk that we are living through the sixth mass extinction of species, leaving no ecosystem worldwide unaffected. Although when thinking about these processes we tend to concentrate on land-based ecosystems, marine ecosystems are also experiencing massive degradation processes. Human-induced phenomena such as ocean warming, extensive pollution, acidification and deoxygenation, are causing ecological struggles everywhere. In parallel, the relentless extraction and ubiquitous pollution associated with industries such as fishing and aquaculture have also become a leading cause of marine environmental degradation.

Given its extensive coastline and the massive scale of its fishing and aquaculture industries, Chile is very much at the center of such processes of anthropogenic marine degradation, with some studies estimating that 2/3 of the country's fisheries have been heavily affected by anthropogenic degradation. Being the very foundation of marine ecosystems all over the Chilean coastline, **macroalgae forests** are at the very center of such processes of degradation. Along with a worsening of the ocean's ecological conditions, an ongoing boom on its extraction – that has turned Chile into one of its leading exporters worldwide – has caused massive damage to several key macroalgae forests. Such decay does not only affect the nonhuman component of marine ecosystems but also the human groups depending on them, especially dozens low-income seaside communities scattered all along the country.

The recognition of this degradation is not new, motivating since mid-1990s different kinds of public and private interventions to turn marine-based industries towards sustainability. So far, these interventions have been mostly ineffective, mainly because they have taken an incremental approach to the issue, not really challenging the roots of the system that connects the extraction of macroalgae with ever-growing levels of environmental damage and injustice.

The leading **hypothesis** of this research project is that a **new kind of productive project regarding macroalgae is slowly emerging in Chile**. Following the relevant literature on sustainability transitions in the fields of environmental humanities, science and technology studies (STS) and political ecology, this project will understand these projects as ***marine transition experiments*** **(MTE)** or initiatives aiming at ***enhancing the sustainability of the macroalgae productive sector through an experimental redefinition of the identities and relationships among some of its leading components***. The project will focus especially on three components these MTEs usually aim to redefine (with variable intensities): (1) its **social** component, towards a more nuanced understanding of the socioeconomic, political and cultural complexities involved in transition processes, (2) its **epistemic** component, towards a more holistic approach to knowledge production and higher levels of public engagement, and (3) its **nonhuman** component, towards the establishment of relations

of mutual care and respect with the involved nonhuman biological entities.

In empirical terms, this project will investigate three kinds of MTEs centered on human-macroalgae interactions in Chile. First, we are going to study **valuation MTEs**, or initiatives aiming at challenging traditional views of algae as mere weeds by making socially evident its multiple values, from ecological to cultural. Second, we are going to study **domestication MTEs**, or initiatives aiming at replacing the direct extraction of macroalgae from the seabed by its careful cultivation and harvesting. Third, we are going to study **potentiation MTEs**, or initiatives aiming at potentiating particular components or processes of macroalgae in order to turn them into products or components of technical processes.

The general objective of this research project will be **to explore using a transdisciplinary social science approach the emergence of valuation, domestication and potentiation MTEs centered in the macroalgae industry in Chile**, putting a specific focus on the barriers and frictions they are currently facing and exploring novel ways to enhance their potential. This exploration will be based on the development of in-depth case studies of ongoing MTEs. In each of these cases, **multispecies ethnography** will be mixed with **action-research** initiatives, so as not only to describe and analyze in a dense transdisciplinary way the issues and opportunities arising from these initiatives, but also to collaborate with multiple publics on sketching possible ways on which they could be strengthened and expanded.

Contact

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