Prefaces

One of the greatest concerns of our society relates the fast loss of global biodiversity. Resulting from an extreme fragmentation of the territory the extensive marine areas of the Chilean Fjord Region make up a unique fractal ecological system where the loss of biodiversity could bring catastrophic consequences. The seldom-mentioned feature that there are some 80.000 km of coastline should be properly recognized and integrated in the national environmental policies because they represent an incalculable number and diversity of marine habitats and thus they are enormously valuable to the natural genetic heritage of the country.

The timely contribution of information and knowledge contained in this book reaches superlative relevance; it comes to fill a most uncomfortable vacuum and need, marine life in the region is extremely poorly known. Taxonomic effort has been declining worldwide despite programs such as the global Census of Marine Life, but the problem is particularly serious in our country where taxonomic marine research has been underfinanced and in general production-focused, leaving non-commercial biota rather orphan of attention.

The book, the product of more than a decade of sampling and documentation by the editors and collaborators, embedded into the Census of Marine Life NaGISA project, reveals an unexpectedly rich and colorful benthic life. Although it consists of a simple selection of the most abundant, conspicuous and easily accessible species, results are impressive. For a large number of the treated species their distribution ranges were extended while many others are first records for Chile, and more interestingly, over 10% of the included species were new to science. The book presents new unexpected biodiversity hotspots in the most unlikely setting.

Very few marine areas in the world are facing the fast economic development as the Chilean Fjord Region. Most of the involved activities, in particular the fast growing salmon farming industry, are having or will have dramatic impacts on the marine ecosystem. Sustainable development is only possible when supported by a solid knowledge of the ecosystem otherwise we could be fatally damaging the most valuable of the ecosystem services. With less than 0.0075% of the surface area having a certain protection status on the paper, the Chilean Fjord Region must be one of the least well managed marine areas of the world. It goes without saying that correcting this reality is a major challenge to the Chilean state and the concerned world at large. Conservation requires taxonomic, ecological and biogeographical baselines studies such as this. The planning, establishment and management of a network of MPAs is then a critical and urgent task that will require the contribution of all learned Chilean institutions and much collaboration from abroad in the gathering of the needed knowledge on the fjord biota and its environment.

I hope this work will have the virtue of making Chileans and the scientific community at large, aware of the existence of one of the most important world-scale ecosystems and inspire the new generation of Chilean marine scientists to dedicate themselves to its study, promoting its conservation (= wise use) and changing the present reality of the most neglected marine system in the world. Knowledge is power and this book certainly equips us with a view into a fantastic living world which may be critical for the well-being of the country and the planet.

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While impressive efforts are undertaken to discover and chart the life in the deepest and most remote parts of our world's oceans, there are still coastal areas close to active cities and farms, that remain largely unknown, unexplored. The steep, deep rocky clefts and canyons of the Chilean Patagonian Fjord Region are such places. The beauty, abundance and diversity of life there is astonishing: rich forests of colourful sponges, hydroids, anemones, sea squirts, polychaete worms, peanut worms, bryozoans, molluscs, echinoderms and much more – a cross section of life on earth. Nearly all of the more than 30 major divisions of animal life are there, while only about half occur in all terrestrial environments combined. Taken as a whole, the fjord ecosystems represent a unique treasury of creatures including many species that are known only from individual canyons.

This extraordinary volume, the result of thousands of hours of observation and research over the past ten years, compiled by dozens of contributors, has arrived at a critical time.
Tragically, the ancient systems celebrated here, a priceless heritage of biological wealth developed over hundreds of millions of years, are being degraded and destroyed in a few decades as a consequence of pollution from nearby development and conversion of many into salmon farming operations. It is an enormous loss that until now has largely escaped the notice of the people of Chile and of the world at large.

It is a familiar story. Globally, the natural systems that sustain us are being consumed at an accelerating rate, driven by the 19th century attitude that it doesn't matter how much of the natural world is destroyed — humankind will somehow prosper. Few imagined then that we had the power to alter the way the world works, or diminish the abundance and diversity of life, especially in the sea. Yet, in just half a century, 90% of the ocean's big fish have been consumed globally – tunas, swordfish, sharks, cod, salmon, groupers, marlin, and many more. More than 400 highly polluted "dead zones" have developed in coastal waters, and half of the kelp forests, sea grass meadows and coral reefs have either greatly declined or disappeared.

This is a pivotal time for Chile's wondrous undersea canyons. As underscored in this volume, their enormous significance is understood as never before; as never again, perhaps, there is a chance to save them. There is time, but not a lot, to insure that future generations will not see this book as a gallery of lost worlds. Rather, the knowledge contained here inspires hope that Chilean Patagonian fjord ecosystems and the life they contain will be embraced and protected, as an enduring, living legacy.

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