

PERU AND CHILE'S FISHMEAL INDUSTRY

The Fishmeal Revolution: The Industrialization of the Humboldt Current Ecosystem. By Kristin A. Wintersteen. Oakland: University of California Press, 2021. Pp. 225. \$85.00 cloth; \$29.95 paper; \$29.95 e-book.
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In 1972, a group of scientists published a report titled “The Limits to Growth.” The report argued that the planet was on track for a rapid decline in global industrial capacity sometime around the middle decades of the twenty-first century if the international community did not quickly reduce the environmental impact of exponential economic and demographic growth. Half a century later, scholars in a variety of academic fields are re-engaging and re-examining some of the questions first tackled by “The Limits to Growth.” Among them are the small but vocal group of environmental historians of Latin America, several of whom have placed at the center of their stories the impact that the unbridled industrial growth of the twentieth century has had on ecosystems across the region. The Fishmeal Revolution is part and parcel of this trend. Wintersteen’s book tells the story of what happened when the contingencies of industrial-scale fishing for global commodity markets collided with the dynamic, highly complex, and volatile marine ecosystem known as the Humboldt Current.

It is difficult to do justice to a book such as Wintersteen’s in the brief space of this review, with its multiplicity of historical actors—scientists, international organizations, state officials, fishermen and workers, the Humboldt Current and the anchoveta themselves—and varied scales (local, national, and transnational), but the main thread of the story and argument is fairly straightforward. Peru and Chile industrialized the capture of large fish stocks off their coasts and their “reduction” into fishmeal during the decades after 1950. This transformation followed the explosive demand for high-protein feeds in the rich nations of the Global North for their rapidly expanding industrial livestock and poultry operations.

Typical of frontier economies, this “fishmeal [industrial] revolution” followed a familiar but at the same time unpredictable cycle of boom and bust that resulted from overexploitation, limits to the scientific understanding of complex marine ecosystems and fish populations, climate variability, and generally shortsighted or loosely enforced policies. The years of abundance generated great profits for the few, unsafe living and working conditions for the many, and heavily polluted coastal settlements that celebrated (as nineteenth-century English industrial cities did with coal smoke) the fish stench that enveloped them year-round as the “perfume of progress and riches” (99). The bust years (decades, actually) caused widespread human suffering and ecological devastation. To some degree, this cycle has continued to the present day. Ultimately, the book’s central objective is to “reveal the interconnectedness among the seemingly disparate localities, marine and terrestrial ecosystems, and the circulation of nutrients within the emerging industrial food system” (119). And it does so quite convincingly.

Marine environmental history is a fairly young area of inquiry within environmental history, but it has developed rapidly since the 1990s. To my knowledge, this is the first book-length study of a major marine ecosystem in Latin America. But that is by no means its only contribution; it also offers an integrated analysis of both material and cultural changes. Like some of the industrial fishing companies that Wintersteen examines in detail, the book is “vertically integrated” methodologically, discussing a wide range of topics, from fish biology to fishing-boat technology to the development of global markets for fishmeal, and it shows how they were connected. But perhaps the book’s greatest contribution is to demonstrate how fundamental the Humboldt Current ecosystem was for the global consolidation of animal-based industrial farming, in turn an essential part of the Great Acceleration that took place after World War II.

Other fine insights appear throughout the book, for example, how populations of some of the most valuable species associated with the Humboldt Current, such as the Peruvian anchoveta (*Engraulis ringens*) and the Pacific sardine (*Sardinops sagax*), have shown remarkable resilience and the capacity to recover to some degree after the onslaught of industrial fishing. This seems to suggest a different story from those of the commercial fisheries off the coast of California and, especially, that of the Northwest Atlantic cod, whose collapse since the early 1990s seems irreversible.

Scholars today are probably generally more attuned to the unpredictability and dynamism of social and ecological systems than the authors of “The Limits to Growth” were. But while a book such as this one operates under the assumptions that nature is not static but changing, that human history is contingent, and that considerable uncertainty about human environmental relationships is inevitable, it illustrates the historical reality of environmental boundaries to human activity. It turns out that even the oceans are finite.

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PERU’S LAND REFORM

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In early April 2021, shortly before the first round of the Peruvian general elections, the public television channel TV Perú pulled a programmed broadcast of the documentary *La revolución y la tierra*. A balanced account of the 1969 agrarian reform, featuring rich visual material and extensive interviews, *La revolución y la tierra* is the most watched documentary in Peruvian history. The director, Gonzalo Benavente, explained that the