Review

SWIMMING IN CIRCLES: AQUACULTURE AND THE END OF WILD OCEANS. By Paul Molyneaux Thunders Mouth Press, New York, 2007

Not quite under control

The book under review paints an integrated picture of the complex reality of shrimp and fish production globally

In this very recent publication, Paul Molyneaux highlights the crisis in fish production as it has been unfurling in the last two to three decades as scientists and fish business companies try to demonstrate that the fall in capture fisheries can be replaced by aquaculture.

Having himself worked in marine capture fisheries and retrained as a writer / journalist when it collapsed, he presents, in an extremely sensitive, live and readable style, the unethical and unsustainable route taken to end fisheries in the wild.

Essentially a journey through the communities of marine organisms, fishing people, seafood farmers and the offices of those who run aquaculture industries at different levels, the book exposes the reader to the experiences of real people and locations, moving between Maine and eastern Canada on the Atlantic coast, and Sonora and Sinaloa in Mexico on the Pacific coast, highlighting the battle for survival between the artisanal fishers and the salmon farms in the former and between the subsistence fishers and shrimp farmers in the latter.

In a very lucid, travel-diary writing style, Molyneaux weaves in and out of fishers' and farmers' experiences, government decisions, scientific promises and vagaries, the directions given by administrators and scientists of multilateral institutions, and the acumen of the business giants, making no judgements himself but certainly helping the reader understand the folly in the prediction that production has to keep pace with growing demand of consumers, whose only criteria is the availability of cheap seafood.

Molyneaux helps the reader look at aquaculture from the perspective of ecological economics, which recognizes limits to growth, and, at the same time, exposes the prospects of biotechnology that imply that all limitations in production can be overcome. He juxtaposes this view with the struggle of the artisanal fishers and the shrinking fish stocks, actually attempting to consider the perspectives of the targeted fish and shrimp themselves.

Through his interactions with officialdom, Molyneaux highlights the impetus given by the Food and Agriculture Organization of the United Nations (FAO), which predicted in Kyoto in 1976 that aquaculture would be the food-producing system of the future, and the way its policy was carried through by its scientists despite all the disease, environmental destruction and marginalization of people that aquaculture causes.

Global trade

The United States, Mexican and Norwegian governments do likewise. While Molyneaux notes their logic of the law of comparative advantage—that aquaculture farms can feed more people than fishing can, which, in turn, leads to increased food security—the experiences of people in coastal communities prove the opposite. In addition, the global trade in aquaculture products has spread the pathogens to shrimp farms around the world and sometimes led to the contamination of wild stocks, and the assumption that technology can

substitute for natural and social capital continues to accelerate the depreciation of both.

Molyneaux does not fail to draw attention to the dismissive reactions of all fisheries-related sections to environmentalists and big-budget non-governmental organizations (NGOs) and the endless yet impractical debate on their use of the precautionary principle. He nevertheless presents sufficient evidence to support their claims. For example, in October 2001, the infectious salmon anemia outbreak that began in the Norwegian-owned company Atlantic Salmon of Maine, US, spread throughout Cobscook Bay, leading to the destruction or early harvest of 2.6 mn farmed salmon. Maines' production fell from 36 mn pounds in 2000 to 15 mn pounds in 2002. By 2005, a new management regime cut harvest to a little over 11 mn pounds. The viral epizootic brought the US$60-mn-a-year industry to its knees and the three large farms in Cobscook Bay laid off roughly 400 of the 1,200 salmon farm workers that year. Only a US$16-mn bailout package kept the big producers from abandoning Maine. The massive movement of water, which made the bay so attractive to salmon farming, also spread pathogens. Health monitoring and bio-security measures, such as washing of feed barges and other equipment, cost New Brusnwick salmon growers around US$40,000 per site per year, in addition to losses from ongoing disease outbreaks. As with salmon, the best scientist in the shrimp world sought ways to enable their industry to live with disease rather than eliminate it. By 2001, the major shrimp viruses had caused at least US$10 bn in losses, not counting the destruction of certain wild stocks in the northern Gulf of California. Molyneaux gives similar evidence of the impact of the use of drugs and contaminated feed pellets.

He notes that most research institutions are deeply tied to the aquaculture industry. Very little money has gone into risk assessment and monitoring of wild stock, which could return and haunt the industry when it starts looking for brood stock, as it needs uncontaminated shrimp. Moreover, studies like that of David Carpenter, reveal that in addition to polychlorinated biphenyls (PCBs), farmed salmon had levels of at least 13 organic pollutants more than 10 times higher than their wild counterparts. But techno-optimism goads institutions to pour millions of dollars into solutions-oriented research to address the problems inside the pens and ponds through biotechnology, disease control and what some refer to as the "geographical cure".

Offshore farms

Focusing on the present trend to move farming offshore, Molyneaux discusses the system to lease the open oceans, which stimulated the promulgation of the

Offshore Aquaculture Act in 2005 in the US, and highlights the need to ensure that the National Environmental Protection Act applies to the exclusive economic zone (EEZ) as well.

Molyneaux also brings in convincing arguments regarding the food conversion ratio. While the Suzuki Foundation accuses salmon farmers of taking more fish protein from the ocean than they generate, and destroying the ecological balance that supports wild stocks and communities, ecological economist Peter Tyedmers of Canada's Dalhousie University highlights how fish farming in the worst-case scenario uses more than three times the resources commercial fishing uses per ton of fish produced. According to Stuart Barlow and Ian Pike, by 2010, the aquaculture industry would take 79 per cent of the world's available fish oil and 48 per cent of available fishmeal, provided supply remains constant at 6-7 mn tonnes of meal and 1.1-1.4 mn tonnes of fish oil annually. Tyedmers also proves that even if the conversion ratio of food in salmon production is better than for other animals like chickens and pigs, it is the quality of food they consume that has to be taken into consideration.

Feeding high trophic-level fish to farm fish turns the food pyramid upside down and, depending on the amounts of fish used, could increase the ecological footprint of farmed fish exponentially. But as cod and salmon farmers move offshore, shrimp farmers move inshore, attempting to wean shrimp off fishmeal diets by creating microbial systems within recirculating tanks and protecting them from disease. Finally, it is not the Malthusian argument but market factors that enhance consumption, and Molyneaux explains how the shift in production and marketing changed Americans' taste in seafood. For thousands of people who had never eaten wild salmon, the farmed varieties pouring out of Chile, Norway and other regions taste great. In 2002, five companies produced 40 per cent of the world's salmon. By 2005, Panfish controlled 30 per cent of global farmed salmon production, making it the undisputed king of farmed salmon through vertical integration. There is no differentiating between farmed and wild fish. No labels are required to identify chemicals used in production. Consumers make a statement through their buying and they put economics ahead of social and environmental considerations.

Corporate paradigm

For the consumer, cheap fish is more important than sustainably produced fish, resulting in a struggle with the wild-fish producers for a place in the market. New initiatives work only within the paradigm defined by the corporate world. The business houses and governments driving the new industry believe they have it

under control. They might have failed in fisheries but, using the same development rationale, they believe they can succeed with aquaculture.

The poor people and the wild species pay the opportunity costs of these development choices, as they attempt to survive in a degraded environment that can no longer produce subsistence foods. Rather than solve fisheries problems, the industry continues to consume natural capital. Molyneaux concludes that the cost of technology in terms of its tendency to accelerate resource decline soon exceeds its benefits.

While this book paints an integrated picture of the complex reality of shrimp and fish production globally, unfortunately it is not the policymakers who will draw inspiration from it. The very structures of administrative power and thinking defy an integrated understanding of life systems. The logic of money reigns supreme whereas what actually sustains life and livelihood is the interconnectedness of living systems. The scientific community may treat the book lightly, as the author does not strictly adhere to academic norms of referencing. But, on the whole, the book provides an immense amount of information and evidence for ordinary people who desire to safeguard life on the planet.

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