Mexico: Growing opposition to industrial shrimp farming

Shrimp, considered as the country's pink gold, became the focus of Mexico's export-oriented fishing activity because of the importance and economic value of the crustacean in the international --particularly US-- market. Five Mexican states along the Pacific coast (Sonora, Sinaloa, Nayarit, Oaxaca, and Chiapas) and two along the east coast (Tamaulipas and Campeche) have developed shrimp aquaculture.

Sinaloa is currently the state with the largest number of shrimp farms and the highest production levels of cultivated shrimp and where environmental problems associated with the industry's development are most prominent. The rapid proliferation in the number of shrimp farms is affecting the coastal ecosystems and the rural communities that depend on the resources provided by these ecosystems.

Despite existing regulations, there is a consensus that the aquaculture industry is transforming the coastal ecosystems of Sinaloa in a way that is affecting the livelihood and quality of life for residents of the many rural coastal communities.

The coastal lagoons and estuaries that characterize Sinaloa contain a diversity of habitats including mangrove forests, salt-marshes, inter-tidal pools, swamps, freshwater inner lagoons, and brackish and seawater systems. A key environmental concern is the impact of shrimp farm construction on ecosystems. This issue is most prominent in the southern region of the state, where a single lagoon system can contain many shrimp farms. During the rainy season, the region's lagoons are habitats and nurseries for postlarvae and a variety of fishery resources, which form the basis of the commercial fishing activity and are also exploited by the rural coastal communities as common property. When these lagoons dry up with the end of the rains, they have traditionally been mined for salt both by individuals gathering it for home consumption as well as by some cooperatives.

Today, in order to guarantee a permanent water supply to the shrimp farms, canals have been built to connect the lagoons with estuaries or the ocean, leading to permanent flooding. The government has granted concessions, mostly to private investors, to build shrimp farms in these coastal lagoons. Moreover, the concessions have converted a highly diverse coastal ecosystem into a monocrop system. This has resulted in a greater marginalization and displacement of the social sector and in an increased distrust of the government agencies in charge of developing the aquaculture industry. By transforming common-property lagoons into a privately owned resource, the concessions have exacerbated Sinaloa's social conflicts.

The discharge from shrimp ponds is considered to be one of the more recent and serious direct sources of pollution in Sinaloa's coastal waters. Shrimp-farm wastewater contains large amounts of organic material, fertilizers, chemicals, and antibiotics, which cause eutrophication in the lagoons and estuarine systems. In Sinaloa, wastewater from shrimp aquaculture activities has been linked to the formation of phytoplankton blooms, eutrophication, and the development of red tides in coastal marine waters

An additional environmental concern is the impact of the industry on mangrove ecosystems. In Mexico, there are approximately 123 coastal lagoons, most bordered by mangrove swamps. Mexico is home to four mangrove species: red (Rhizophora mangle), white (Laguncunaria racemosa), black (Avicennia germinans), and buttonwood (Conocarpus erecta). Mexico's mangrove forests cover approximately 660,000 hectares. Sinaloa's mangrove forests serve as nesting and feeding grounds for a large number of resident and migratory birds and as nurseries for shrimp, which form the basis of the inshore fishing industry. The trees are also used by the rural population as firewood and lumber. Over time, mangrove ecosystems in Sinaloa have been transformed by mining, agriculture, and the cattle industry. Currently, the shrimp aquaculture industry is also contributing to the ecological transformation of these ecosystems. It has been estimated that by 1994, 10,000 hectares of mangrove forests were destroyed to build shrimp ponds. Untreated shrimp-pond effluents are also contributing to the damage.

The global concern over the negative impact of commercial shrimp farming on the environment and humans has fueled the emergence of various grassroots social movements to resist the expansion of the industry. Among the causes igniting this resistance are local people's concerns with increasing pollution, and the loss of common-pool resources. In Mexico, resistance to the industry's expansion is slowly starting to appear and for the most part, this opposition has been developed by several of the fishing cooperatives in southern Sinaloa and northern Nayarit. Activities of fishing cooperatives in these states have included confrontations with personnel of shrimp farms and negotiations with government agencies in order to limit the expansion of the industry.

Among the most important grassroots organizations to oppose large-scale shrimp aquaculture near fishing grounds is the Federation of Fishing Cooperatives of Southern Sinaloa (The "Guerreros del Sur" --Warriors of the South), which comprises 21 fishing cooperatives with a total of 2,000 fishermen. In 1998, the Guerreros del Sur openly opposed the construction of a shrimp farm in their granted fishing area, claiming that seven cooperatives would no longer be able to fish in the area because the shrimp farm would invade their space. The Federation had previously prevented the construction of a shrimp farm in another nearby community. In that case, the majority of the members of this community supported the effort, and the shrimp farm was not constructed. Members of this Federation have also actively opposed the collection of wild shrimp larvae in coastal areas near their fishing grounds. In some instances, they showed up with truncheons to confront marine biologists and other shrimp farms personnel to demand they stop harvesting shrimp larvae. A number of fishing cooperatives in northern Nayarit have also opposed the construction of a shrimp farm near their fishing areas. In this case the fishermen have accused a private company of destroying large tracts of mangroves with their shrimp-pond operations. The fishing cooperatives were joined by an environmental organization, Grupo Manglar.

As more people become aware of the potential effects of the shrimp aquaculture industry, the fishing cooperatives and community groups opposing the expansion of the industry will get more support. There is no doubt that industrial aquaculture farming has had important ecological and social impacts, which in the long run may lead to the further erosion of the coastal and marine ecology and the ability of rural households to make a living.