

BACKGROUND

WINTER 2002

VOLUME 8 • NUMBER 1 • 50c

Farming Shrimp, Harvesting Hunger: The Costs and Benefits of the Blue Revolution

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Protesting shrimp farms in Bangladesh.

Not long ago, shrimp were considered a rare and expensive delicacy. Not anymore. Thanks to soaring demand from the US, Japan, and Western Europe, shrimp are now raised on an industrial scale in tropical countries. Today shrimp rival tuna as the most popular seafood consumed in the US. The dramatic growth in the consumption of shrimp is due to its increasing affordability. The sharp decline in the price of shrimp over the last few decades has been driven by increased production, propelled by the lure of exporting shrimp to earn foreign exchange, and stiff competition among the producers along the tropical coasts of Asia, Latin America, and Africa. Industrial shrimp farming is quite distinct from the subsistence, traditional, or artisanal aquaculture that has been practiced for millennia by local people in Asia and elsewhere.

Industrial shrimp aquaculture is an integral part of the so-called Blue Revolution — the concerted effort to increase the industrially farmed production of a diverse array of aquatic species. Like the earlier Green Revolution, the Blue Revolution is frequently promoted as a way to help feed the world's hungry by increasing the supply of affordable food. The results of the Blue Revolution have been exactly the opposite.

As the earlier Green Revolution was necessary to establish the global corporate agro-food system, the Blue Revolution is an essential part of integrating aquatic species (including cultured shrimp) and coastal ecosystems into that same global food production system. Hundreds of national and multinational corporations, financially

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Shrimp farm under construction in Ecuador.

Recent industry projections estimate that farmed shrimp will account for more than 50% of total global production within the next five years.

strapped national governments, and international development and donor agencies have promoted the expansion of industrial shrimp farms. They justify their efforts on the grounds that shrimp farming can contribute to the world's food supply by compensating for the decline in capture fisheries, generate significant foreign exchange earnings for poor Third World nations, and enhance employment opportunities and incomes in poor coastal communities.

2 The increasing popularity of industrially cultivating shrimp began in the early 1970s. Back then, total world production of shrimp, almost all from wild capture fisheries, was around 25,000 metric tons. Today total world production is close to 800,000 metric tons, about 30% from shrimp raised on farms in more than 50 countries. Recent industry projections estimate that farmed shrimp will account for more than 50% of total global production within the next five years. While approximately 99% of farmed shrimp are raised in developing countries, almost all of it is exported and consumed in rich, industrial countries — the US, Western Europe, and Japan.

The explosive growth of the aquaculture industry has generated mounting criticism over its social, economic, and environmental consequences, and has provoked the establishment of hundreds of non-governmental organizations (NGOs) at the local, national, and international levels. Escalating conflicts between critics and supporters of industrial shrimp farming have transcended local and national arenas. In 1997 these conflicts catalyzed the

formation of two major global alliances: The Industrial Shrimp Action Network (ISA Net) composed of environmental, peasant-based, and fisher-based NGOs opposed to unsustainable shrimp farming, and The Global Aquaculture Alliance (GAA) made up of industry groups created to counter the claims and campaigns of this activist ISA Network.

Trends in the Production and Technology of Industrially Farmed Shrimp

The booming expansion of farmed shrimp has been part of the dramatic increase in aquaculture (the cultivation of aquatic species) over the last two decades. During this time, the total production of farmed shrimp has grown faster than any other aquaculture commodity worldwide. Asia raises approximately 72% of cultured shrimp while the rest come primarily from Latin America. For several years now, Thailand has been the world's largest producer of cultured shrimp accounting for nearly 30% of global production. Other major Austral/Asian producers include Indonesia, Vietnam, India, Bangladesh, the Philippines, Myanmar, and Australia. In Latin America, the largest producers include Ecuador, Mexico, Honduras, Brazil, Panama, and Belize with smaller industries in Colombia, Guatemala, Venezuela, Nicaragua, and Peru.

Shrimp farms vary from extensive, semi-intensive, intensive, to super-intensive technological systems of production. Regardless of the production system employed, the construction and expansion of industrial shrimp farms transform

coastal ecosystems in profound ways. Extensive systems, common in countries including Vietnam, Bangladesh, the Philippines, and Indonesia, are carried out in low-lying natural enclosures close to the sea along estuaries and bays, often in seasonal lagoons. Tidal flows into and out of the enclosures provide the stock of juvenile shrimp, feed, and water exchange. Stocking densities are low and yields can range up to 500 kilos per hectare. The semi-intensive systems that predominate in Latin America and China generally are located above the high tide line and characterized by larger capital investments; the construction of artificial ponds from 2 to 30 hectares in size; the use of commercial feeds; and the use of diesel pumps for water exchange. Yields range from 500 to 5,000 kilos per hectare - much greater than with the extensive systems.

The most capital intensive and technologically sophisticated systems of production are called intensive and super-intensive systems. Intensive systems in Thailand, Taiwan, and some areas of Indonesia, are characterized by smaller individual ponds (0.1 to 1.5 hectares in size); high stocking densities; use of commercial feeds, pesticides to kill predators, antibiotics to prevent disease, non-organic fertilizer to boost nutrient supply; diesel pumps for water exchange; more frequent flushing of pond wastes; and aeration. Yields can be quite high - from 5,000 to 20,000 kilos per hectare - but intensive farms are also most prone to shrimp diseases and mortality, and generate a huge amount of pollutants that choke estuaries and other natural ecosystems when flushed out.

Semi-intensive and intensive shrimp farms function more or less as aquatic feedlots for shrimp and have environmental impacts similar to those associated with factory farming of cattle, hogs, and poultry. Juvenile shrimp produced in hatcheries or captured in the wild are used as seed stock in the ponds, where the water has been fertilized to create an algae bloom. The water is aerated to maintain dissolved oxygen and replaced regularly to prevent the buildup of metabolic wastes. The shrimp are fed formulated, commercial diets made in part from fishmeal, to produce rapid growth. In the tropics two or three crops per year are

possible in such ponds. The fattened shrimp are then cleaned, beheaded, and packed for export either on the farms or in nearby packing plants for export to the US, Japan and Europe.

Environmental and Social Concerns Surrounding Industrial Shrimp Farming

Industrial shrimp farming has caused social dislocation, ecological change, and environmental destruction that is arguably worse than from many earlier Green Revolution technologies. Some of the most serious environmental problems include the destruction of coastal wetlands, water pollution, disruption of hydrological systems, introduction of exotic species, and depletion and salinization of aquifers.

One of the most critical social problems identified by local peoples as part of expansion of the Blue Revolution is the loss of communal resources — including mangrove areas, estuaries, and fishing grounds — that local people depend on for both subsistence and commercial economic activities. Commercial shrimp farming has displaced local communities, exacerbated conflicts and provoked violence involving property and tenant rights, decreased the quality and quantity of drinking water, increased local food insecurity, and threatened human health.

The major questions to ask include, do the touted benefits of shrimp farming outweigh the risks/costs to local people and environments? Do employment opportunities compensate for declines in access to communal resources and other social and cultural costs? Are the environmental and human costs balanced in some way by improving local lives, livelihoods, and cultures?

The answers to these questions are quite complex and depend, to some extent, on individual contexts. However, a widespread response shared by many people living in the locales in which the shrimp farming industry has expanded is a thunderous "NO!" This is especially true where those protesting industry practices and expansion in places like Bangladesh, India, Indonesia, Thailand, Honduras, and Guatemala are murdered. Shrimp farming, outside of har-

vesting and packaging, is not labor-intensive. Neither is the industry known for providing high wages, except to the few aquaculture experts who set up and maintain production systems. Add to this the fact that income from pre-existing livelihood activities like fishing and farming may be affected negatively by the loss of habitat and environmental degradation. Benefits related to broadening the economic base of rural areas, generating local employment, enhancing food security, and conserving local environments are minor compared to the overarching objectives of industrial shrimp farming — generating profits for corporations and increasing foreign exchange earnings for Third World nations.

From Local to Global Advocacy

The explosive growth of the industry has generated mounting criticism over its social, economic, and environmental consequences. Since the 1980s hundreds of grassroots and NGO groups resisting the unsustainable expansion of industrial shrimp farming operations have been established by local people in Asia, Latin America, and Africa. Escalating conflicts between critics and supporters of industrial shrimp farming have transcended local and national arenas. These tensions have resulted in global alliances of environmental and peasant-based NGOs opposed to

shrimp farming and industry groups seeking to counter the claims and campaigns of this resistance coalition.

In 1997, groups opposing the industry established ISA Net to resist the industry and inform the public (see box). ISA Net's growing strength and accomplishments, in turn, have elicited organized response from the shrimp industry (producers, processors, importers, input suppliers) and its government and academic supporters. Industry proponents formed the Global Aquaculture Alliance (GAA) to promote aquaculture and act as a public relations arm of the industry. Today ISA Net and several supporting institutions are engaged in a variety of efforts to sustain local lives,

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livelihoods, and coastal environments. Their efforts need continual financial and personal support from the public especially with the aggressive expansion of the industry that continues to put the lives and livelihoods of local peoples as well as coastal wetlands and other natural ecosystems in peril. You can help.

ISA Net

Witnessing the pattern of impoverishment and environmental degradation on one shrimp-farming country after another, a wide array of groups and individuals from environmental and grassroots organizations, natural and social scientists, aquaculture experts, journalists, and policy advocates formed a global alliance to address these problems. It was essential to show that it is the growing appetite of rich US, Japan and Western European countries that lead to the environmental and social havoc caused by farming shrimp. Hence, on World Food Day, October 16, 1997, the Industrial Shrimp Action Network (ISA Net) was founded.

Leading grassroots groups in producing countries like Yadfon in Thailand, Nijera Kori in Bangladesh, WALHI in Indonesia, and Consumers Association of Penang in Malaysia and environmental groups in consuming countries including the Natural Resources Defense Council, World Wildlife Fund, Mangrove Action Project, Forest Peoples Programme, and Swedish Society for Nature Conservation, as well as private foundations such as the MacArthur Foundation and the Rockefeller Brothers Fund, have become involved in the network addressing the social and environmental impacts of industrial shrimp farming.

What You Can Do

Help save the lives and livelihoods of traditional farmers and fishers and save declining wetlands in tropical countries.

- ☆ **Be Part of ISA Net's E-mail/Fax Alert Brigade.** Influence governments and international institutions to make decisions that protect people's rights and tropical wetland ecosystems. You can help convince heads of governments to stop harmful projects, laws or policies. To join the brigade, send e-mail to isanet@shrimpaction.org with the subject ISA Net Fax Alert.
- ☆ **Ask Where Your Shrimp Comes From.** Be part of the effort to raise the social and environmental consciousness of distributors, chefs, restaurateurs, and grocers. Let them know that you care how your shrimp was farmed or caught.
- ☆ **Refrain From Consuming Factory Farmed Shrimp.** By doing so, you reduce the demand for it and thereby become part of a global effort to move the industry towards sustainable social and environmental practices.
- ☆ **Inform Your Relatives, Friends and Colleagues.** Tell your family, friends and co-workers about this important issue. Invite them to visit www.shrimpaction.org
- ☆ **Order ISA Net's book on shrimp aquaculture available June 2002!** It contains country reports by leaders working on this issue both in producing and consuming countries, as well articles by social and natural scientists. Please contact ISA Net to order.
- ☆ **Join ISA Net!** Your tax-deductible contribution will help tremendously to save mangrove forests and improve the lives of people in the producing tropical countries. Write your check to ISA Net and mail it to: ISA Net, 14420 Duryea Lane South, Tacoma, WA 98444 USA

Related web sites:

www.shrimpaction.org
www.earthisland.org/map/aqclt.htm
www.earthsummitwatch.org/shrimp/

Notes

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- Background for unattributed statements on the production technologies of shrimp farming can be found in "About Shrimp Farming" by Bob Rosenberry, November 2001. <http://www.shrimpnews.com/About.html>

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