

The looming fish crisis

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PERHAPS the only reason that governments around the world have been slow to respond to environmental crisis is that the earth is still producing plenty of food -- enough fibre, grain and fish to support six billion plus people. Many are malnourished, of course, but that's primarily a matter of bad distribution. However, a closer look at the trend is disturbing. There is a difference between current production and capacity, which is the amount of grain or fish the globe can produce indefinitely.

According to FAO (Food and Agriculture Organisation) statistics, the world's fish harvest has now risen from 49 million tons in 1965 to over 110 million tons today. Most worrisome, according to the same organisation, around 60 per cent of the world's various commercial fish stocks are now being harvested near or beyond sustainable levels. Judging from the seafood sections of the western supermarkets, there would seem to be plenty of fish left in the oceans. But this appearance of abundance is an illusion, says Sylvia Earle, former chief scientist for the US National Oceanic and Atmospheric Administration. Already, Earle fears an international armada of fishing vessels is on the verge of exhausting a store house of protein, so vast that it once appeared to be infinite. Giant high-tech vessels roam the world's waters, scooping up their once bottomless bounty. Environmentalists call the vessels the "strip miners of the sea". These big, ocean sweeping factory trawlers, trailing nets at least a kilometre long capable of hauling up 400 tons of fish in a single gulp, are blamed for an assault on worldwide fish stocks. Alarmed Scientists of the World Conservation Union have added more than 100 species of marine fishes to the list of "Threatened Animals". "Many of the world's formerly productive fisheries are seriously depleted and some have collapsed due to overfishing", says a report by Greenpeace.

According to Greenpeace and a wide array of fisheries experts, the spread of large-scale factory trawling is the single most important cause of the pressure on fish stocks. Among the first big users of the ships was the former Soviet Union's state-run fishing industry, which operated 400 trawlers in the heydays of the 1960s and early 1970s. But the huge vessels are now



The rich but vulnerable marine hub

operated by most of the world's major fishing countries. The US, which had no factory fleet at all before 1983, has about 60 large trawlers plowing the rich fishing grounds of the North Pacific. Spain operates a fishing fleet of more than 300,000 tons capacity including 85 freezer factory ships. The factory ships are marvels of modern fishing technology, behemoths ranging up to 100m in length with crews of as many as 100. Sophisticated fish-finding sonar, spotting aircraft and precision satellite-based navigation leave little to luck.

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catch ran not more than 20 million tons a year in 1950. By 1989 the marine catch hit 86 million tons. It has dropped since, partly because the ocean has been stretched to or past its limit in some places.

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Reports indicate that by-catch is the main cause of depletion of the North Sea herring population, which has fallen so precipitously that the European Union in the recent past cut the annual catch quota by half, from 314,000 tons to 156,000 tons. It is reportedly learnt that European fishermen operate so-called beam trawler using a net arrangement that is devastating in the shallow waters they usually fish. In this kind of trawling, heavy

chains are dragged over the sea bed to drive fish into the nets, destroying shellfish, worms, sea urchins and other bottom dwelling creatures. Precisely speaking, these boats have really "transformed fishing into an ocean-going strip-mining industry".

As rich countries have depleted their stocks of fish they have imported growing quantities from developing countries who now catch far more fish than they used to do. According to calculations by the Washington-based International Food Policy Research Institute, in 1995 fish exports from developing countries were worth \$23 billion, more than their earnings from meat and cereal exports combined. But if overfishing continues, it could hurt poor countries, because their people rely more heavily on fish for protein than do the rich world dwellers.

Of course overfishing is not the only human activity that is jeopardising life in the oceans. Coastal pollution, habitat destruction, filling in wetland and building dams are adding to the crisis. But it is overfishing, the NDRC (Natural Resource Defence Council) report says, that constitutes the most urgent threat and demands the most immediate action. Shockingly, the economic and technological barriers that have kept overfishing within bounds appear increasingly shaky. Should these barriers

collapse, commercial extinction would escalate into biological catastrophe.

Some of the world's most demanding and prized fish are on the verge of extinction. But in this case, other than blaming overfishing as the only one factor, we must remember that more damage is done by dams and pollution in the rivers and streams. Though less familiar but the havoc wreaked on the nitrogen cycle is worth recounting here. Through the use of fertilisers, the burning of fossil fuels and land clearing, humanity has doubled the levels of nitrogen compounds that can be used by living things. But these levels are more than can be efficiently absorbed by plants and animals in land and water and recycled into the atmosphere. These excess nitrogen compounds wash into fresh and saltwater systems, where they produce dead zones by stimulating suffocating growths of algae. Since the 'global food system is based on aggressive use of fertiliser, restoring the balance of nitrogen cycle poses a daunting challenge.

Even more devastating is what we have done to the water cycle. So large is the human demand for fresh water for different purposes that many great rivers like the Yellow River in China, the Nile in Egypt and in Bangladesh rivers like the Padma, Meghna, Dhalashwari, Madhumati and old Brahmaputra have almost dried up or lost their original course because of forma-

gather up 120 metric tons of fish in a single sweep.

The biggest source of coastal or river pollution is waste from farm animals, fertilisers and human sewage. They can spawn red tides and other harmful algal blooms that rob oxygen from the water, killing sea and riverine population, especially fish. Improving sewage treatment and cleaning up the run off from farms will be increasingly vital to preserving coastal water quality as well as sea wealth. It is true that because of excessive use of fertilisers and pesticides in the agricultural lands in our country food production has trebled but the harmful silt and run off from the high land streaming into rivers namely the Padma, Meghna, Rupsha, Buriganga, Shitalakhya and a host of other rivers have created spreading dead zones devoid of fish or any marine life. Because of the alarming nature of

river pollution, there has been a precipitous decline in Hilsa fish catches from the rivers Padma and Meghna.

However, the fish resources in the Bangladesh's territorial water zone in the Bay of Bengal remain vastly unexplored. Till now about 18 antiquated deep sea trawlers most of them 20 to 35 years old are engaged in deep sea fishing. The annual catch, it is learnt, is about 3.8 lakh tons, presumably about six percent of the resources. But the country of rivers, haors and baors, once an abundant store-house of silvery protein is now facing acute fish crisis. The country's vast majority of the poor people are starved of the most essential but cheap protein. Fish stock or breeding of fish in the rivers and haors has been depleted because of pollution, sediment and contaminated run off from the degraded soil. Most river and ocean pollution

come from land. Gravity is the sea's enemy. Silt running off clear-cut forest land ruins fish and other water creatures either in the sea or river. Pesticides and other toxics sprayed into the air and washed into the rivers find the ocean as the last resting place.

Though the ocean's woes can seem overwhelming, solutions are emerging. Most people have shed the fantasy that the sea can inexhaustibly provide food, dilute endless pollution and accept unlimited trash. In 1996 the US passed the Sustainable Fisheries Act, which mandates rules against overfishing -- a recognition that protecting sea life is a good business. But measures have to be multiplied to meet the looming fish crisis.

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tection, road construction and shrimp culture projects have converted most of such rivers into a series of interconnected lakes. Such a water system has dire consequences for thousands of species adapted to free-flowing water. People in large numbers have gone to fish farming as a solution to meet the dwindling stock of fish either in rivers, haors or in the sea. Shrimp farming is particularly damaging to the tropical mangrove forests, coastal necklaces of dense low-lying trees that nurture marine life, filter water and soften the sea's constant battering of the shoreline. Much of the world's shrimp is raised in ponds gouged out of these thick mangroves. Here, sheltered from the dangers of the open sea, the creatures spend six months living tightly packed -- as many as 500,000 per hectare -- in artificial ponds, before being scooped up, processed and exported. It would be fine if growers could use a pond over and over again. But the population density eventually fosters diseases that can knock out a shrimp population in a matter of days. Pathogens settle into muck of shrimp waste and unconsumed fodder, poisoning a pond against further use.

After a pond has exhausted its usefulness, usually within three to six years, growers move along the coast, destroying mangrove forests and rice fields to make room for more ponds, digging them by the hundreds. Or, when contamination becomes deeply embedded, as happened in Taiwan in the late 1980s, the industry simply crashes and never recovers, leaving kilometers of naked coast, lost fortunes and social disruption. This is now happening in Thailand, the world's biggest producer, prompting big-time Thai shrimp growers to move into Vietnam, Cambodia and India.

Large-scale shrimping hurts people as well as the environment; traditional livelihoods have been endangered when farms have replaced mangroves. Where the forests were once a source of medicines, charcoal and game, there are only ponds patrolled by armed guards hired to prevent local people from poaching shrimp.

To avoid becoming just another environmental headache, aquaculture needs standards. Raising fish species alien to the local habitat should be discouraged, since escapees drive out native fish or infect them with disease. For example, introducing two alien varieties of fish like the Nile perch and tilapia in Africa's lake Victoria has jeopardised the dynamics of this great lake. The invaders have crowded out 350 species of native fish that used to support local fishermen.

The biologically richest stretches of ocean are more disrupted than the richest places on land. Continents still have roadless