



FISH AND FISHERIES

NEWS LETTER OF THE FISHERIES TECHNOCRATS FORUM – CHENNAI

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EFFECT OF CLIMATE CHANGE ON FISHERIES

The recent report by FAO has pointed out that both over-fishing and aquaculture have depleted some species and left others famished and weak. Climate change is expected to add more stress for fish populations, forcing warm-water species further toward the poles, changing marine and freshwater food webs and habitats. Larger fishes like salmon and tuna have already been over-fished and now the smaller fish, which were food of those larger species are under heavy fishing pressure. The availability of small and fast-growing prey fishes such as herring, sardines, squid and krill will be reduced, which in turn those predator fish, seabirds and whales will remain underfed and sometimes they can't reproduce or feed their young ones. Further, these prey fishes have not only consumed by humans, but also they are fed to large and predatory farmed species. The declining of fish stocks will reduce the availability of table fish for human consumption. The question is now whether per capita supplies of fish for human consumption will remain steady or peak in the near future and then start to fall. In the last three decades, aquaculture has grown rapidly, from about 6 percent of fish available for human consumption in 1970 to about 47 percent in 2006. Appropriate aquaculture promoting policies are essential for the steady and sustainable growth of the sector. Climate change is expected to add new problems because prey fishes are particularly sensitive to warm temperatures and prey populations have collapsed when heavy fishing proceeded during previous warm periods. To help reverse the trend, existing fisheries need to set conservative catch limits, avoid fishing in depleted species' breeding grounds and restore the prey fish in the wild to support a comeback of predator fish. With commercially attractive fish like Pacific salmon and blue fin tuna depleted in the wild, fishing fleets turn to prey fish for revenue where in the past they only used these species for subsistence and bait, Oceana said. The UN report was released on the first day of a meeting of the global organization's Committee on Fisheries in Rome.

ANTICIPATED REDUCTION IN DUMPING DUTY ON INDIAN SHRIMP EXPORTS TO U.S.

The Indian seafood industry is placing much hope on the latest move of the United States to cut dumping duty on Indian shrimp imports. According to Seafood Exporters Association of India (SEAI), Cochin, the Third Administrative Review in the U.S. on the anti-dumping duty for Indian shrimp exports to the U.S. has suggested a further rate cut to 0.79 %. Again, further cut is likely to be effective from July 2009 when the final review of the U.S. administration comes into force. Earlier, successive efforts by the Union government, the Marine Products Export Development Authority and SEAI had resulted in the first review bringing it down to 7.22 %, the second review to 1.69 % and the preliminary findings of the third review now bringing it down to 0.79 %. According SEAI, Indian shrimp exporters also stand to gain compared to the exporters from some of the competing countries like Vietnam and the Far East. Shrimp imports from Ecuador will attract an anti-dumping duty of 2.09 %, while it will be 4.51 % for Thailand, 25.76 % for Vietnam and 112.8 % for China.

EFFORT TO SAVE CORALS IN GULF OF MANNAR BIOSPHERE RESERVE, TAMIL NADU

The Suganthi Devadason Marine Research Institute (SDMRI) had been conducting coral reproduction study in branching corals in Gulf of Mannar since 2006 with support from Union Ministry of Environment and Forests. In Gulf of Mannar, about 32 sq. km of reef area was degraded due to various destructive practices over the past three decades. Extensive survey since 2006 revealed that visible eggs were found from January in all *Acropora* coral species and mature gametes were seen in late February and March and thereafter spawning happened in March for four consecutive years, till 2009. The spawning lasts about five to fifteen minutes. The water temperature from 27°C (February) to 30°C (March) increased, as summer

began in Gulf of Mannar, which induced the corals to spawning process. The information on coral reproduction particularly maturation stages and spawning times in Gulf of Mannar will help in framing conservation measures to manage and protect the reefs from compounded threats of direct local stress and climate change.

LARGEST SUN FLOWER SEA STAR



Pycnopodia helianthoides is a large predatory sea star with 15-26 limbs and can grow up to an arm span of 1 m in diameter. It is a quick, efficient hunter, moving at a speed of one meter per minute, using 15,000 tube feet which lie on the undersides of the body. It inhabits sea urchin grounds, which is a favorite food. It also eats clams, snails, abalone, sea cucumbers and other sea stars. It is generally inhabits low sub-tidal and intertidal areas rich in seaweed or kelp and found in the Pacific from Alaska to Southern California.

MASS MORTALITY OF OIL SARDINE AT A RIVER IN PUDUCHERRY

Hundreds of oil sardine fish were found dead in the Ariyankuppam river In Puducherry on 9-4-2009. Officials of the State Fisheries Department who investigated said that oil sardines are purely marine forms and they could have moved in shoals into the river during high tide, penetrated deep into estuary and could have died owing to variation in salinity levels. The mortality of oil sardines due to chemical pollution was ruled out, as the freshwater fishes inhabiting river were all in good health.

PURSE SEINING TUNA

A purse seiner net is used to haul Southern or Antarctic Ocean Giant blue-fin tuna (*Thunnus thynnus*) treasured for sushi from coastal feeding pens. The tuna can grow to 3.7 meters in length, weigh 680 kg and live for 30 years. They once migrated by the millions throughout the Atlantic Basin and the Mediterranean Sea, but are now experiencing significant declines. By the mid-1990s, stocks of southern blue-fin tuna had been fished to between 6 and 12 percent of their original numbers in the South Pacific and Indian Oceans.

NEGATIVE IMPACT OF BOTTOM TRAWLING

Bottom trawling that scrapes the ocean floor often damages habitats by ripping up coral reefs. Now banned in many countries, bottom trawlers also collect large amounts of by-catch that is simply thrown back to sea or left to die. By some estimates, for every 1 kg of edible sea food (fish, shrimp, mollusc, etc.) scooped up by a bottom-trawling net, there are 18 kg of "by-catch" or "by-kill".

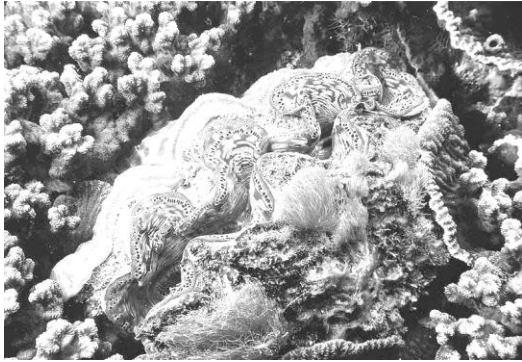
BASKING SHARK WASHED ASHORE AT LONG ISLAND, NEW YORK, US



Generally there will be news on stranding of live/dying/dead whales, dolphins/porpoises/sea cow on the seashore. But it is rare for a dead shark washed ashore. Recently, a 6-metre long/1000kg basking shark (*Cetorhinus maximus*) was found washed ashore at Long Island, New York. The fishery researchers opined that the shark could have died of some illness. Usually they die in the ocean and it is unusual for an ailing basking shark to come ashore. Now, a detailed study is being made to ascertain the cause of its death. Basking sharks are the world's second largest fish, after whale sharks (*Rhyncodon typus*) and can grow up to 10 meters long. Despite their giant mouths, the sharks are not

considered dangerous and feed mainly on plankton. The I.U.C.N (International Union for Conservation of Nature) lists the giant sharks as vulnerable to extinction.

GIANT CLAM

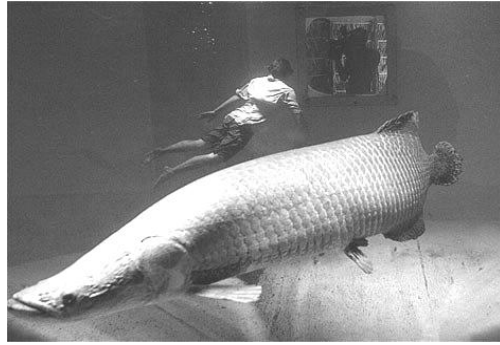


The giant clam (*Tridacna gigas*) live in warm waters of the Indian and South Pacific Oceans and attains a maximum size of 1.2 metre in length/273 kg. This bottom-dwelling bivalve is the largest mollusc on the earth. These giant clams attain their huge sizes by consuming the sugars and proteins produced by the billions of algae that live in their tissues. The attached algae are accessed to sunlight for photosynthesis by keeping their fluted shells open and their multi-colored mantles exposed. They also use a siphon to draw in water to filter and consume passing plankton. The adductor muscle of the giant clam is actually considered a delicacy, and overfishing of the species for food, shells, and the aquarium trade have landed it on I.U.C.N. "vulnerable" list. The lifespan in the wild is estimated at 100 years or more. Once it fastens itself to a spot on a reef, there it is attached for the rest of its life.

LARGEST FRESHWATER ANIMALS-SERIES No. 1



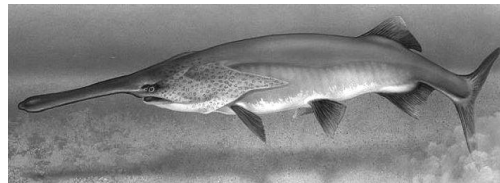
Mekong River cat fish:
Pangasianodon gigas – 2.7 m/293 kg



South American Arapaima fish:
Arapaima gigas – 5 m/450 kg



Giant paddle fish:
Psephurus gladius – 3 m/300 kg



Mississippi Paddle fish:
Polyodon spathula: 2.21 m/91 kg



Alligator Gar fish:
Atractosteus spaptus – 3 m/140 kg



**Freshwater sting ray (*Himantura Chaophraya*):
2 m wide, 2.1 m long (without tail) and 350 kg**



**Deccan mahseer:
Tor khudree – 1 m/45 kg**

CORAL UNDER SEIGE

Coral Reefs are greatly endangered due to pollution, overfishing and global warming. National Oceanic and Atmospheric Administration of US conducted comprehensive assessment study and found that in US territory half of coral reefs are in fair or poor condition, a significant drop from 2005 survey. Another study by Global Marine Species Assessment published recently in Science found that almost one third of coral reefs are threatened with extinction, up from less than 2% a decade ago. As per this study, coral reefs hold more than 25% of the world's marine species and this is leading to permanent loss of biodiversity.

A Marine National monument called Papahanaumokuakea, covering 1,40,000 sq. miles of national park off the north-west coast of Hawaii. This reserve protects 10% of shallow reef habitats in the country. Corals inside the monument are safe from human interference. The harm for corals come from humans through fishing, tourism and even snorkeling. Commercial fishing boats sailing over corals can damage or destroy reefs while overfishing disrupts the delicate ecological balance that allows corals to thrive. Worse may be the practice of hunting for tropical fish that are sold to aquarium hobbyists.

These fish are caught by stunning them with cyanide and the corals are left to deal with the poison. The formation of monument off Hawaii is the only sure way to protect corals from these threats. Human activity far from the oceans can damage corals too. Fertilizer runoff-like the stream of nitrates and phosphates flowing into the Gulf of Mexico can create vast algal blooms that suck all the oxygen out of surrounding waters. Other toxins coming along with runoff poison the corals. A study in Australia found that heavy rains can transport pollutants as far as 80 miles away from the shore line. Greatest threat to the coral is climate change. Healthy coral have a symbiotic relationship with algae, which live inside them and provide energy through photosynthesis. But warmer ocean temperatures stress the corals, causing them to eject their algae tenants. It is not clear why this happens-one cause may be infectious bacteria that thrive in warmer waters..The result is sickly looking white or bleached corals that are vulnerable to disease and mass die-offs like that occurred in hottest 1998 can occur. Increased concentrations of carbon dioxide in the atmosphere leads to more acidic seas which impair the ability of corals to spin their skeletal reefs. To give the corals a fighting chance, creation of reserves like Papahanaumokuakea is a must while we fight climate change.(Sent by Mr. P. Mohanakrishnan, the Forum Member).

NEW EXECUTIVE COUNCIL FOR THE FISHERIES TECHNOCRATS FORUM, CHENNAI FOR 2009-10

At the Eighteenth Annual General Body Meeting of the Fisheries Technocrats Forum conducted on 13-6-2009, the following were elected for the Executive Council during 2009-10.

Chairman	: Mr. V. Venkatesan
Vice-Chairman	: Dr. P. Gandheeswari
Secretary	: Mr. M. Kathirvel
Treasurer	: Mr. K. Rajappan
Member :	Dr. D.B. James
	Dr. G. Jegatheesan
	Mr. V. Ramamoorthy
	Mr. K.D. Sundaramurthy
	Dr. K. Ponnusamy



