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Global warming a big threat

THE greenhouse effect and global warming are no longer vague threats that may or may not affect our grandchildren in the future.

Rising sea temperatures are here, and are affecting Jamaica's already over-stressed coral reefs. At immediate risk are: the fishing industry, the tourist industry, and the stability of Jamaica's beaches and coastline. This is the conclusion of marine scientist Dr. Thomas Goreau after studying the recent phenomenon of widespread coral bleaching along Jamaica's North Coast.

Dr. Goreau told the **Gleaner** that the mass bleaching of corals in 1987 and 1989 was the result of raised sea temperatures. He said that all leading coral experts concur with these findings.

Bleaching of coral is a response to stress, for example, temperature fluctuations, light fluctuation, and pollution. Normally, certain species of algae co-exist with corals in mutual inter-dependence, with the coral supplying a habitat for the algae and the algae providing nutrients for the coral.

In adverse conditions, and for reasons unknown, the transparent coral polyps will expel the coloured algae from their tissues and appear to be "bleached". During the duration of bleaching, the coral is starved, or undernourished and ceases to grow. As the sea cools, recovery is possible. The recovery rate varies, but in at least one case, in Panama in 1982, the bleached coral died.

Cooling effect

Localized bleachings caused by localized stress factors have been observed since 1918, but in 1987 and 1989 when Caribbean sea temperatures rose above 30 degrees Centigrade, the first cases of mass bleaching occurred offshore Jamaica, Curacao, Cayman, Florida, Belize and the Bahamas.

There was no significant bleaching during 1988, a fact that Dr. Goreau attributes to the cooling effect of Hurricane Gilbert. However, bleaching occurred offshore Bermuda and in Jamaica there was some bleaching of reefs down-current of large rivers.

Last year, sea temperatures rose above 30 degrees Centigrade in August and by early October 1989 mass bleaching along Jamaica's North Coast was underway. The epidemic now appears to be on the wane, with most corals slowly regaining their pigmentation.

Dr. Goreau told the **Gleaner** that about 80% of the corals were affected and many species showed areas where pigmentation completely disappeared, leaving only white skeleton or tissue. Areas which bleached in 1987 were again affected and bleaching was observed in new areas as well. One of the major reef-builders — **Monastrea annularis** — appears to be especially vulnerable and slow to recover.

One puzzle that remains to be solved is why mass bleaching appears to be confined to the North Coast, with only localized areas affected on the South Coast.

Goreau, whose father, the late Dr. Thomas Goreau founded the Discovery Bay Marine Laboratory, will continue to monitor the situation but his research is limited by lack of funds and the fact that no historical records of Caribbean sea temperatures exist. He is hoping to attract international funding, through the Environmental Defence Fund to organize "a regional response" to the problem and a regional clearing house for information.

"If we don't stop this, what it means is that in the long run the reefs will be dead", Dr. Goreau told the **Gleaner**.