

Warming oceans could scupper marine food system, scientists say

Rome, Jan 12: Failure to rein in global temperature rises could cause the marine food web to collapse, devastating the livelihoods of tens of millions of people who rely on fisheries for food and income, scientists have warned.

Warming oceans restrict vital energy flows between different species in the marine ecosystem, reducing the amount of food available for bigger animals - mostly fish - at the top of the marine food web, according to a study in the journal PLOS Biology published on Tuesday.

This could have "serious implications" for fish stocks, said Ivan Nagelkerken, a professor of marine ecology at Australia's University of Adelaide and one of the study's authors.

Globally, about 56.5 million people were engaged in fisheries and aquaculture in 2015, according to the latest data from the United Nations' Food and Agriculture Organization (FAO).

In addition, almost a fifth of animal protein consumed by 3.2 billion people in 2015



comes from fish, FAO said.

The Adelaide scientists set up 12 large tanks, each holding 1,800 litres of water, in a temperature-controlled room to replicate complex marine food webs, and test the effects of ocean acidification and warming over six months.

Plant productivity increased under warmer temperatures but this was mainly due to an expansion of bacteria which fish do not eat, Nagelkerken said in a phone interview.

The findings show

that 2015 Paris agreement on curbing global warming must be met "to safeguard our oceans from collapse, loss of biodiversity and less fishery productivity."

Under the landmark agreement, world leaders agreed to limit the rise in average global temperatures to 1.5 to 2 degrees Celsius above pre-industrial times.

The United Nations, however, has warned the world is heading towards a 3-degree increase by 2100.

Recent studies have sounded alarm bells

for oceans and its inhabitants as the earth continues to experience record-breaking heat.

A Jan. 4 paper published in the journal Science said 'dead zones' - where oxygen is too low to support most marine life - more than quadrupled in the past 50 years due to human activities.

Another said high ocean temperatures are harming tropical corals, which are nurseries for fish, almost five times more often than in the 1980s.

Residential biomass burning, open waste burning responsible for highest PM 2.5 exposure: Study

New Delhi, Jan 12: A new study released on Thursday titled "Burden of Disease Attributable to Major Air Pollution Sources in India" has found that residential biomass burning or use of solid fuels inside homes followed by coal combustion contributes to highest PM 2.5 exposure in both cities and villages.

The study by IIT Bombay, US-based Health Effects Institute and Institute for Health Metrics and Evaluation (IHME) also found that unlike many other countries where cities are worst affected, in India PM 2.5 exposure levels are similar in both rural and urban areas.

The study which takes 2015 as the base year attributes nearly 25% of deaths linked with PM 2.5 exposure (26.7 lakh) in 2015 to biomass burning in homes. Surprisingly, these estimates do not even include indoor air pollution exposure from biomass burning.

"Residential biomass burning also impacts outdoor air quality, so the emissions exit the kitchen area and cause high exposures outside," said Chandra Venkataraman, a



scientist from IIT Bombay who led a part of the research study. Even in Delhi, which records one of the highest PM pollution among Indian cities, the largest source of PM 2.5 is residential biomass burning followed by the open burning of trash and biomass according to the study.

Coal combustion emissions from both industries and thermal power plants were responsible for 15.5% deaths attributable to PM 2.5 pollution nationally, about 6.1% were from agricultural burning even though the practice is limited to some northern and central Indian states. Venkataraman added that the deaths linked to PM 2.5 are going increase substantially if aggressive action is not taken to control emissions.

According to the study's analysis of a 2050 scenario with no further air pollution control actions, the health burden would increase to over 73 million healthy years of life lost and over 3.6 million deaths in 2050. However, under an aggressive con-

trol scenario which includes a variety of action like complete LPG cover, shift from kerosene lighting to solar, 70% to 80% non-coal generation, field mulching to replace crop burning, private vehicle share drops to 40% and many others could avoid over 1.2 million annual deaths in 2050 if implemented.

A recent Global Burden of Disease (GBD) report had found that PM 2.5 exposure is a risk factor for various diseases highest among which is ischemic heart disease (IHD) followed by chronic obstructive pulmonary disease (COPD) and stroke. It also estimated that exposure to outdoor air pollution is the third leading risk factor contributing to premature deaths among 79 behavioural, environmental and metabolic causes of mortality that were analysed. This study further builds on the GBD report to estimate source wise contribution to health impacts and PM 2.5 exposure.

The inventories developed by the IIT Bombay team include emissions of

sulphur dioxide (SO2), nitrogen oxides (NOx), PM 2.5, black carbon and others from a multipollutant database for India between 1996-2015. IIT Bombay estimated emissions from each sector including industry, power, transport etc at the district level using government statistics and records like national sample survey (NSSO) and national family health survey (NFHS). The emissions were then projected to 2030 and 2050 under different energy and air pollution control scenarios. Further, PM 2.5 estimates from satellite data and ground monitoring data were used to estimate approximate population exposure by scientists from IHME.

The national level contribution to mortality burden from transport was found to be only 2%. But authors caution that the geographic scale of the grid used for this analysis is large and unlikely to capture variation in traffic-related exposure. "Transport and distributed diesel sources operate in closer proximity to populations..." the study notes.

Bhitarkanika park registers rise in number of winged guests



Kendrapara, Jan 12: The Bhitarkanika National Park in Odisha's Kendrapara district has played host to over one lakh migrant water birds this year.

While 76,268 winter migrant birds had made their way to the national park last year, the latest census findings have put the number of winged guests at 1,12,937, an impressive 48 per cent rise.

The enumerators have for the first time spotted two rare species of birds of central Asian-origin -

mallard and comb duck - at the wetland areas of the park.

That apart, more than 10,000 bar-headed geese, hordes of back-headed godwit, greater crested tern, common shell duck and blue-tailed godwits were also seen at the park.

All these species come under 'rare and threatened' category in the International Union for Conservation of Nature (IUCN) Red Book Data.

"Unable to cope with extreme cold conditions in their original habitat,

the birds fly to these congenial wetland spots," said Divisional Forest Officer, Rajnagar Mangrove (wildlife) Forest Division, Bimal Prasanna Acharya.

The marshy and swampy wetlands here offer a human-interference-free winter habitat for the feathered guests. There is also ample food for the birds here, Acharya said.

"Lack of human interference, ideal climatic condition, cool breeze and the river system have helped this place emerge as a hotspot for the delicate and chirpy winged species," he said.

Other prominent winged visitors to Bhitarkanika include Indian Skimmers, Grey Pelicans and White-backed vultures, lesser adjutant, grater spotted eagles. These birds have been listed under 'endangered' category in IUCN's red book, the forest official added.

Warming puts millions more at risk from river floods: Study



Berlin, Jan 12: Scientists say millions more people around the world are threatened by river floods in coming decades due to climate change.

Researchers in Germany say greater flood defenses are particularly needed in the United States, parts of India and Africa, Indonesia and Central Europe.

River floods are already one of the most widespread and damaging forms of natural disasters around the world.

Using computer simulations, scientists at the Potsdam Institute for Climate Impact Research say the number of people affected by the worst 10 percent of river flooding will increase by up to 156 million in Asia alone by 2040.

The study published Thursday in the journal Science Advances concludes that flood risks will rise regardless of efforts to curb climate change because of greenhouse gases already emitted in past decades.

Centre, Delhi join hands against air pollution: Harsh Vardhan

New Delhi, Jan 12: Union Environment Minister Harsh Vardhan on Friday said that the central government will, along with the Delhi government, launch a two week long joint campaign for clean air in the national capital next month.

The Minister said that a team consisting 70 officials from Union Environment, Forest and Climate Change Ministry and the Delhi government will initiate the joint cam-

paign from February 10 onwards.

Experts from Central Pollution Control Board (CPCB) and Delhi Pollution Control Committee (DPC) along with civic bodies will also join in, he said.

"The campaign seeks to sensitise ground-level functionaries and general public to enforce the habit of environmental protection," he said at a meeting on mitigation of air pollution here.

Harsh Vardhan, who is also an MP

from the capital, said that the teams of officials will have a check list focused on mitigating pollution along with effective measures for solid waste management and prevention of garbage burning.

He said that Resident Welfare Associations (RWAs), shopkeeper associations and the civil society will be encouraged to become a part of these teams and participate in the campaign for mitigation of pollution.

HAPPY RETURNS OF THE DAY

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Warming turning major sea turtle population female: Study

Melbourne, Jan 12: Warming temperatures are turning one of the world's largest sea turtle populations in Australia's Great Barrier Reef almost entirely female, running the risk that the colony may not sustain itself in coming decades, a study has found.

Sand temperatures determine the sex of turtle hatchlings, with warmer temperatures resulting in more females.

During the past two decades, temperatures on islands in Australia's northern Great Barrier Reef have increased to the point "that virtually no male turtles are now being produced from these nesting beaches," said researchers from National Oceanic and Atmospheric Administration (NOAA) Fisheries in the US.

The study published in the journal Current Biology "raises new concerns over the immediate threats of climate change to sea turtle populations".

The results will be important for wildlife managers as they consider strategies to lower incubation temperatures at key rookeries around the world. This may help "boost the ability of local turtle populations to adapt to the changing environment and avoid a population collapse or even extinction".



Although researchers have known for decades that warming temperatures alter the sex of sea turtle offspring, this is the first time they have directly documented the trend in a major wild population.

The study used an innovative combination of endocrinology and genetics to assess the sex of hundreds of turtles across a large foraging ground, revealing the sex ratio of immature and mature turtles from different nesting beaches over many years.

The analysis revealed different sex ratios and trends in two nesting populations in the Great Barrier Reef. Green sea turtles from cooler southern nesting beaches were about 65 to 69 per cent female, testing showed.

Sea turtles from warmer northern beaches leaned even more heavily female,

with 86.8 per cent of adult turtles, 99.8 per cent of sub-adult turtles, and 99.1 per cent of juvenile turtles turning out to be female.

"This has given us an important new window into demographic changes in these populations over the last several decades, which have gone undetected until now," said Michael Jensen, a research biologist at NOAA Fisheries.

"The disconcerting thing is that we can now see how changes in the climate could affect the longevity of this and other sea turtle populations around the world," Jensen said.

Green sea turtles are protected under the Endangered Species Act and listed as endangered on the International Union for the Conservation of Nature's Red List.

The Great Barrier Reef holds some of their largest populations in the world, researchers said.