



PU Nature Club's NEWSLETTER

MAY 2024
VOL 1. ISSUE NO 1



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Dr. K. Sivakumar
Dr. SM. Sundarpandiyam

Managing-Editors

Anuvrinda Sharma
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PROJECT DOLPHIN

PROTECTING INDIA'S AQUATIC TREASURES

Dolphins, some of the animal kingdom's most intelligent and social creatures, are found in a wide range of marine habitats and freshwater rivers and lakes. These aquatic mammals, belonging to the Order Cetacea alongside whales and porpoises, have streamlined bodies, a back fin, and a powerful tail for propulsion. One such fascinating species is the Ganges River Dolphin, endemic to the river systems of South Asia, particularly the Ganges and Brahmaputra rivers in India. Sadly, this unique freshwater dolphin is classified as endangered by the IUCN Red List.

These dolphins play a vital role in the health of their ecosystems, functioning as apex predators alongside gharials, helping to control fish populations and maintain the balance of the aquatic food web. Additionally, dolphins are bio-indicators, meaning their presence or absence can signal the environment's health.

The Ganges River Dolphin, National Aquatic Animal of India, occur in the Ganges and Brahmaputra rivers, faces numerous threats. Pollution from industrial wastes and agricultural runoff poisons the water, while habitat fragmentation caused by dams and barrages disrupts their riverine homes. Excessive water extraction for irrigation and industry reduces water flow, further squeezing the dolphins' habitat. Unsustainable fishing practices, including entanglement in fishing gear, deplete their food source and can directly injure or kill them. Poaching, although uncommon, still exists. Increased boat traffic disrupts their communication and can cause collisions.

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Contact:

8420907541

Aritra Bhattacharya
Convenor
AVANI

avani.natureclub@pondiuni.ac.in

Sand mining along the riverbanks destroys vital breeding and calving grounds. Finally, the looming threat of climate change alters weather patterns, potentially impacting water flow and prey availability.

Recognizing these threats, the Government of India launched Project Dolphin in 2020-21. This ambitious initiative, modelled after the successful Project Tiger, aims to conserve both riverine and oceanic dolphin species in India. Project Dolphin is overseen by the Wildlife Institute of India and operates under the Ministry of Environment, Forest and Climate Change.

Project Dolphin recognizes that the Ganges River ecosystem is a complex web of life, where various species play interconnected roles. Sharing the river with the dolphins are the critically endangered gharials, the longest living crocodilian species, which help maintain a balanced fish population alongside the dolphins. Smooth-coated otters and small-clawed otters, playful semi-aquatic mammals, also rely on a healthy fish population for food. Their presence can be another indicator of a river's health. Furthermore, several freshwater turtles, like the endangered roofed turtle and the black softshell turtle, inhabit the Ganges River and contribute to the overall biodiversity of the ecosystem. Finally, a diverse range of fish species forms the base of the food web in the Ganges River. By protecting the Ganges River Dolphin's habitat, Project Dolphin indirectly safeguards these associated fauna as well.

The project has several key objectives like, minimizing bycatch, habitat conservation to protect and restore critical dolphin habitats by mitigating pollution, managing fishing activities, and ensuring adequate water flow.

Further Intensive research and monitoring to better understand dolphin populations, their distribution, and the threats they face. This will help develop effective conservation strategies; Community engagement through raising awareness about the importance of dolphins and involving local communities in conservation efforts. This can include promoting sustainable fishing practices and fostering a sense of stewardship for these aquatic animals.

Project Dolphin represents a significant step forward in India's efforts to conserve its rich biodiversity. By protecting dolphins, we not only safeguard these amazing creatures but also ensure the health of our rivers and the ecological balance of our aquatic ecosystems.



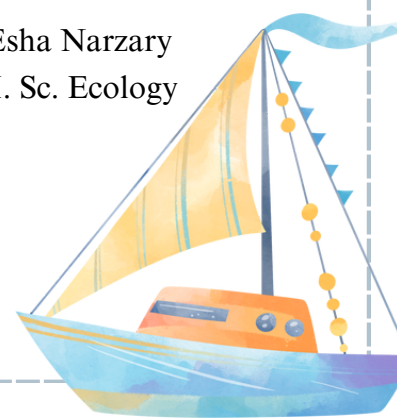
Authors:



Achyutha BN.
M. Sc. Ecology



Esha Narzary
M. Sc. Ecology





THE THAWING BLUE PLANET

A REVIEW ON CLIMATE CHANGE SYNTHESIS REPORT BY IPCC

Our blue planet is thawing at a rate higher than ever. Anthropogenic Greenhouse Effect followed by the massive climate change has emerged as one of the most serious problems of the century. The Climate Change 2023 Synthesis Report by the Intergovernmental Panel on Climate Change estimates the global surface temperature to be 1.07 degree Celsius currently. The global surface temperature has escalated faster since 1970 than any other 50 year period over the last 2000 years. The main driver of climate change is the anthropogenic greenhouse gas emission such as CO₂, CH₄, NO_x etc. These greenhouse gases when emitted, trap the solar radiation and prevent them from escaping back into the space thus raising the global temperature. According to the IPCC, the atmospheric carbon dioxide concentration was 410ppm in 2019 which was higher than at anytime in at least the last 2 million years. Meanwhile the methane and nitrous oxide concentration were higher than at anytime in at least the last 800000 years. These greenhouse gas emissions have increased over years due to unsustainable energy use in a variety of sectors, land use and land use change, lifestyle, pattern of consumption and production varying from region to region between and within countries, and also among individuals. As per the claims of the Climate Change synthesis Report 2023 by IPCC, 79% of the global GHG emission in 2019 came from the energy, industrial, transport and building sector while agriculture, forestry and other land use accounted for 22% of the global emission. The impacts of this global change in climate is not unknown to us. Climate change is already

The impacts of this global change in climate is not unknown to us. Climate change is already taking an enormous toll on the atmosphere, cryosphere, ocean and biosphere. The global mean sea level increased by 0.20 m between 2018. The 5th Assessment Report by IPCC highlighted the evidence of observed changes in extremes such as severe heatwaves, heavy precipitation, tropical cyclones and drought. The frequency of drought and concurrent heatwaves over the world has been higher than any time since the 1950's. A major example is the recent European Heatwave of 2022 where persistent heatwaves affected parts of Europe causing evacuations and heat related death with the highest recorded temperature being 47 degree Celsius at Pinhão, Portugal on 14th July. Climate change has reduced the water and food security substantially across the globe and impacted local communities of Asia, Africa, Central and South America. Climate extremes have also resulted in loss of species from terrestrial, freshwater and ocean ecosystems. Coral reef bleaching is one of the paramount impacts of climate change and its resulting ocean acidification. The impact of the changing climate has also brought in losses and damages to nature and people across the globe. Economic damages from climate change have been observed in climate affected sectors such as agriculture, forestry, fishery, energy and tourism. These in turn have affected the livelihood, income, health and food security of a huge section of humans. According to the Intergovernmental Panel on Climate Change, Global warming is likely to reach a 1.5 degree Celsius between 2030 and 2052 and if such is the scenario then it won't be long when the



global warming reaches 2 degree Celsius too. Climate models project a drastic difference in the regional climate characteristics between present day and global warming of 1.5 degree Celsius leaving alone 2 degree celsius. The differences include increase in the mean temperature in most land and oceans, heavy precipitation, hot extremes and precipitation deficits in some areas. In order to limit the global warming below or at 1.5 degree Celsius, global net anthropogenic Carbon dioxide emissions meet to decline by 45% from 2010 levels by 2030 and consequently reaching net zero emission by 2050. The adaptation and mitigation options that are available today will gradually decline in terms of effectiveness with the increasing global warming. Increased global warming will increase the resulting losses and damages thus we need to act in the present.

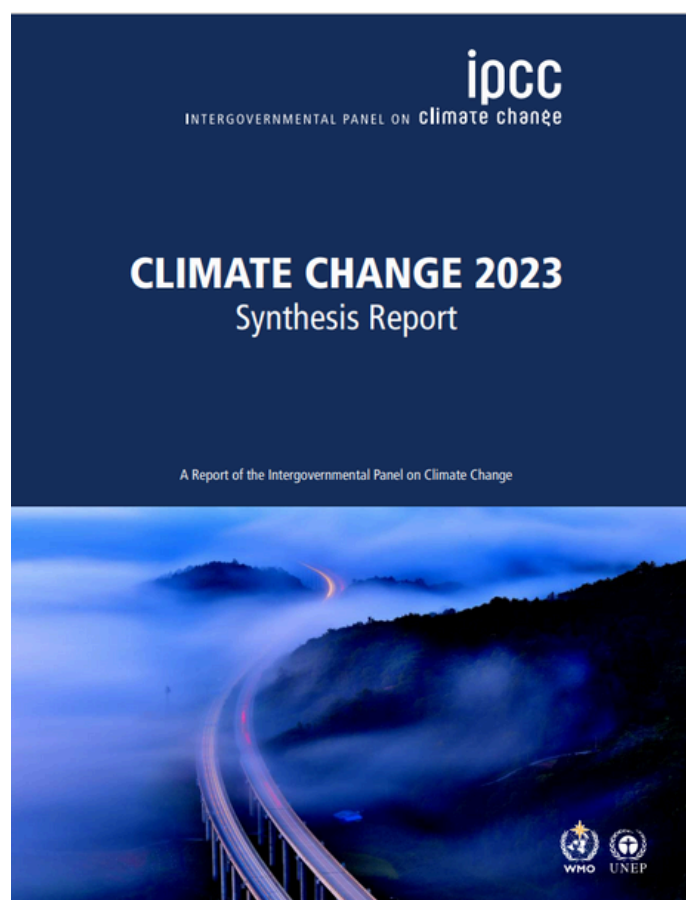
The window of opportunity to enable climate resilient development is narrowing rapidly. Deep, rapid and sustained mitigation of climate change and accelerated implementation of adaptation actions in this decade itself would reduce projected loss and damage for the humans and ecosystems, projecting co benefit in terms of health and air quality side by side. Rapid transitions across all systems and sectors are necessary to achieve emission reduction and secure a sustainable and healthy future for us all. Mitigation and adaptation actions have more synergies than trade offs with the Sustainable Development Goals. Prioritising equity, Climate and social justice, inclusion and transition can help in achieving a climate resilient development. Including small behavioral and lifestyle changes, integrating

climate adaptation into social protection can help in reducing the monstrous impacts of climate change. Effective climate action is enabled by strict political commitment, institutional frameworks, well aligned multilateral governance and improved financial, technological and international cooperation to achieve the same. Mitigating the impacts of climate change require a Herculean amount of effort which is possible only if we act globally as well as locally.

Author:



Tahsin Tinab
M. Sc. Environmental Sciences





INTRODUCTION

Pondicherry University campus, covering an area of almost 800 acres, harbours four native vegetation types – tropical dry evergreen forest, tropical dry evergreen scrub, scrub savanna and thorn forest. Geologically the campus harbours Cuddalore Sandstone formation with prominent hard lateritic caps.

The varied topography of the campus is responsible for high plant diversity. According to the Flora of Pondicherry University Campus, 2010, a total of 537 plant species (among which 499 are flowering while 38 are non-flowering). Flowering plants belonged to 102 families, with almost equal proportions of wild and cultivated ornamental plants. Some of the most diverse plant families of our campus are Euphorbiaceae, Poaceae, Papilionaceae, Rubiaceae, etc.

Fauna of Pondicherry University Campus, 2010, lists 197 species of fauna belonging to 5 major taxonomic groups: butterflies (66 species), amphibians (13 species), reptiles (21 species), birds (80 species) and mammals (17 species). A study conducted in 2015, found 94 species of birds in our campus, taking the total number of bird species recorded in the campus to 126 between the years 1990 and 2015.

AVANI aims to update this data by conducting systematic biodiversity inventories of various taxa. Below we present some of the biological diversity of our campus.

BIRDS



Glossy Ibis
Plegadis falcinellus
eBird ID: S67185124



Blue-faced Malkoha
Phaenicophaeus viridirostris
eBird ID: S48969365



Indian Pitta
Pitta brachyura
eBird ID: S53815057



Shikra
Accipiter badius
eBird ID: S49013346



Jerdon's Bushlark
Mirafra affinis
eBird ID: S50535835



Brahminy Kite
Haliastur indus
eBird ID: S38365223





AMPHIBIANS



Marbled Balloon Frog
Uperodon systoma
AoI M.C: bj874



Common Asian Toad
Duttaphrynus melanostictus
AoI M.C: bh044



Common Indian Tree Frog
Polypedates maculatus
AoI M.C: bh204

REPTILES



Common Indian Krait
Bungarus caeruleus
RoI M.C: bh402



Oriental Rat Snake
Ptyas mucosa
RoI M.C: bk04154

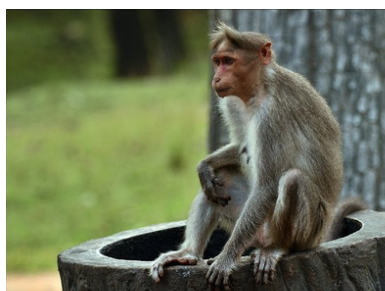


Indian Chamaeleon
Chamaeleo zeylanicus
RoI M.C: bp018

MAMMALS



Indian flying fox
Pteropus giganteus
MoI M.C: bk516



Bonnet Macaque
Macaca radiata
MoI M.C: bh914



Indian hare
Lepus nigricollis
MoI M.C: bh254

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