

IMBeR West Pacific Symposium

CHANGING WEST PACIFIC
OCEAN: SCIENCE AND
SUSTAINABILITY

2021 Online
Event
11/22-25

Dried Small Fish

Ecology, Value Chains
and Nutrition



futurearth
research for global sustainability



Climate change and small pelagic fish in India: Implications for fisheries and nutrition

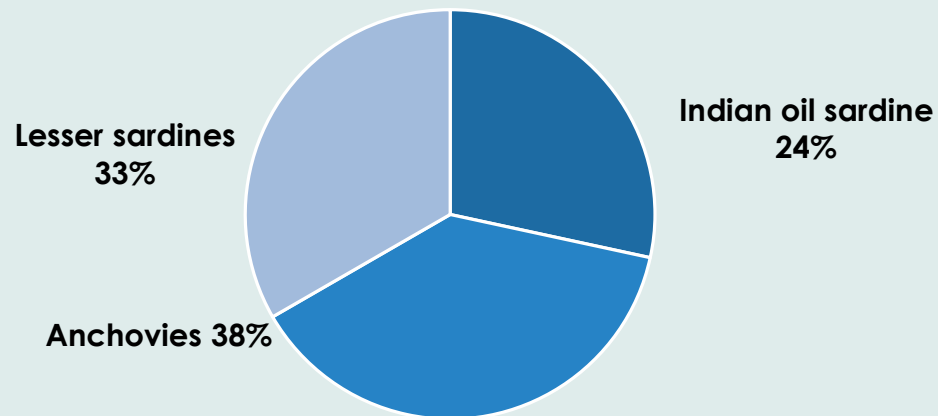


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Small fish, big significance

- Millions of fishers and their families depend on them for livelihood.
- Consumed fresh as well as dried all across India.
- Contributed 13% to India's marine fish production in 2019.



Contribution of different species/groups in the total small pelagic landings in India in 2019

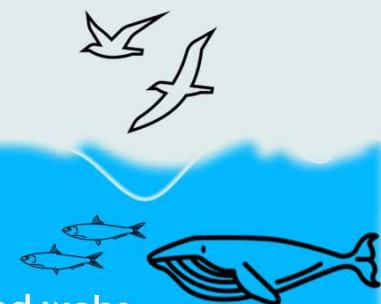
Ecological impact of climate change on small pelagic fish

Increase in sea surface temperature



Jellyfish bloom and increased predation on juveniles

Disturbance to food webs



Disruption of upwelling

Changes in reproduction and recruitment of small pelagic

Change in structure and function of ecosystem

Inefficient nutrient cycling

Changes in distribution, biomass and life history

Increased frequency of ENSO



Small pelagic fish shifting towards northern latitudes

(Map based on Vivekanandan, 2010)

Impact of climate change on small pelagic fisheries, livelihood and food security

Changing utilization patterns

Diversion of fish away from dependent communities

Caught as low value bycatch by bottom trawlers
Used by fishmeal industry → increase in demand

Impact on harvest by small scale fishers

Impact on livelihood, nutritional security



Vertical range extension of anchovies

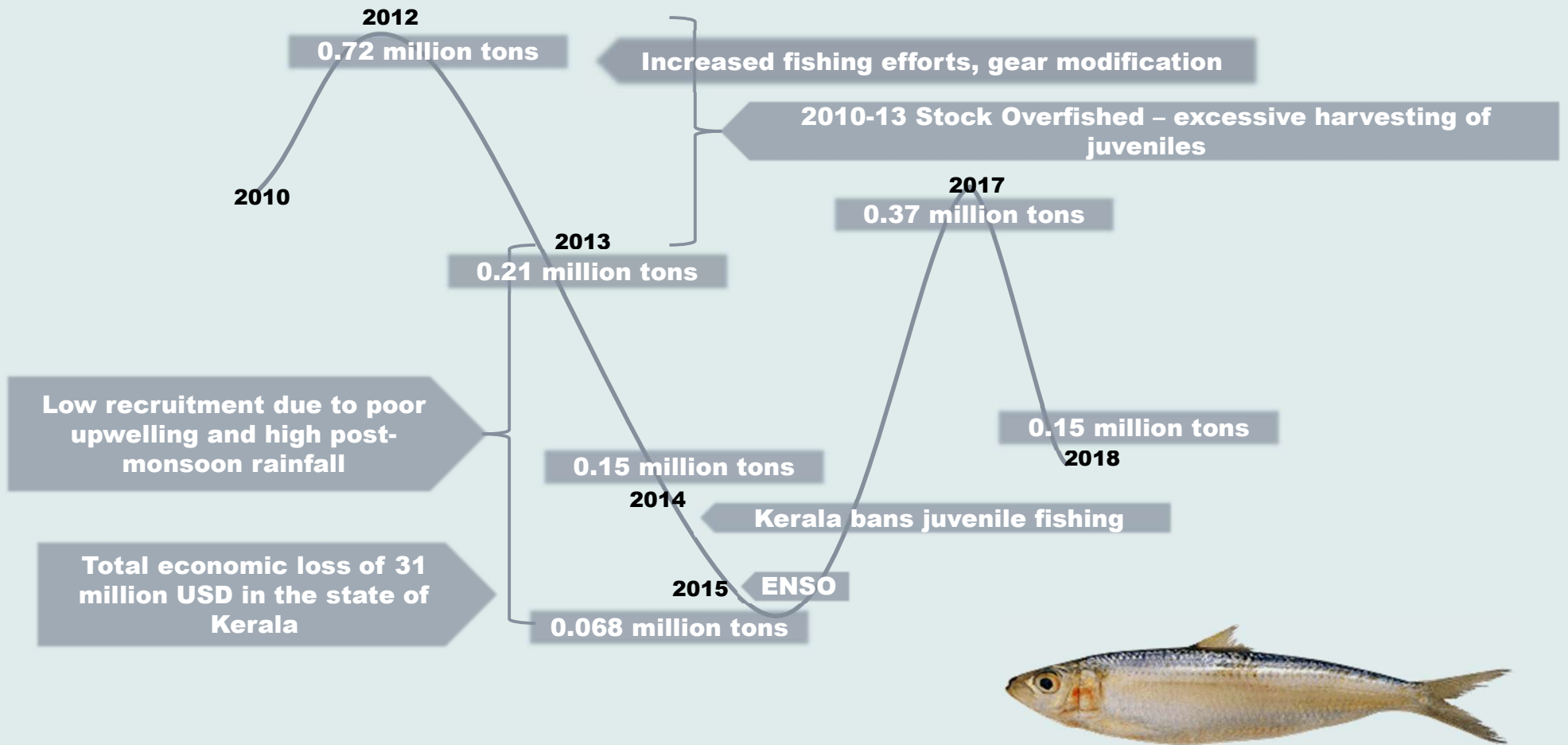
Latitudinal shift



Newly emerging fisheries

Long term and seasonal changes in distribution

Falling the Indian oil sardine way...



*graph not to scale



The way ahead..

- Better understanding of how climate change, rising SST, increasing variability, and other environmental factors can affect biology and ecology of small pelagic fish in the Indian waters.
- Better understanding of resource utilization, value chains, and identifying avenues to make the utilization more beneficial for the dependent communities.
- Interdisciplinary and co-management approaches to manage small pelagic fisheries sustainably.

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Thanks



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