



A Climate Risk Index for Marine Life

For Prelims: Climate Change, Marine Ecosystem, Global Warming, Paris Agreement

For Mains: Climate Risk Index for Marine Life

Why in News?

Recently, a new study was published titled **Climate Risk Index for Marine Life**, which captures the **climate risk for nearly 25,000 marine species** and their ecosystems.

- This new index lays the **groundwork for supporting climate-smart approaches** to managing and conserving [marine life](#).

What are the Findings?

- **Altering Marine Ecosystems:**
 - Warming oceans and climate extremes are **driving species into deeper, more northern and cooler locations, altering their behaviour** and reconfiguring marine ecosystems in radical and unprecedented ways.
- **High Emissions Scenario:**
 - In the high emissions scenario, the global average ocean temperature will increase by 3-5 degrees Celsius by 2100. Under this scenario, **almost 90 % of the 25,000 species are at a “high” or “critical” climate risk**. The average species is at risk across 85 % of its geographic range.
- **Subtropical and Tropical Ecosystem:**
 - The risk is **highest in the subtropical and tropical ecosystems** that tend to be biodiversity hotspots and in **nearshore ecosystems that support 96% of the global fish catch**.
 - Top predators like **sharks and tunas are at significantly higher risk than species further down the [food chain](#)**, like forage fishes. Such predators can have massive effects on ecosystem structure and functioning.
- **Low-Income Nations:**
 - Under **high** emissions, climate risks for fished species such as cod and lobsters are consistently greater within the territories of **low-income nations, where people depend more on fisheries to meet their nutritional needs**.
 - This represents **yet another example of climate inequality** wherein low-income countries that have contributed the least to climate change, and are more aggressively reducing their emissions, **are experiencing its worst impacts while having the lowest capacity to adapt to them**.
- **Low Emissions Scenario:**
 - Under a low emissions scenario, **average ocean temperatures are expected to increase by 1-2 degrees Celsius** by 2100, as per the two degrees Celsius [global warming](#) limit in the [Paris Agreement](#).
 - Under this future, there is a reduced climate risk for virtually all marine life (98.2 %). The

disproportionate risk for ecosystem structure, biodiversity, fisheries and low-income nations **are greatly reduced or eliminated.**

What are the Suggestions?

- Choosing a more sustainable path that prioritizes climate mitigation **will lead to clear benefits for ocean life and people.**
- Cutting emissions is the **most direct approach to reducing climate risks.**
- In addition to reducing emissions, it is imperative to simultaneously find ways **to adapt to a warming climate to protect our oceans.**
- There is a need to **incorporate new methods and adaptation strategies**, develop capacity in under-resourced parts of the world and carefully weigh the pros and cons of adaptation measures.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. What are the consequences of spreading 'Dead Zones' on marine ecosystems? **(2018)**

Source: [DTE](#)

PDF Reference URL: <https://www.drishtiias.com/printpdf/a-climate-risk-index-for-marine-life>

