



Food and Agriculture
Organization of the
United Nations

Adapting to a changing ocean: Management procedures and climate resilience



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THE OCEAN
FOUNDATION

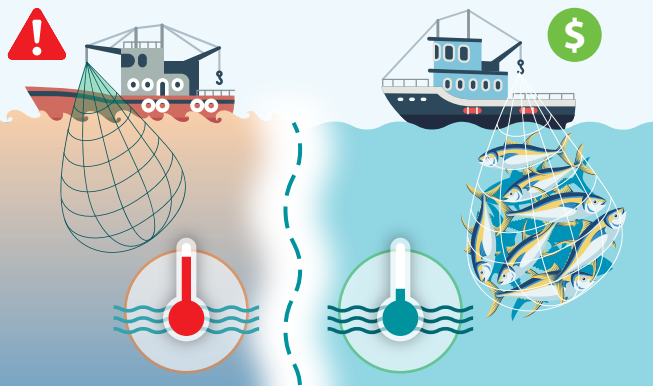
COMMON
OCEANS
PROGRAM

Tuna project

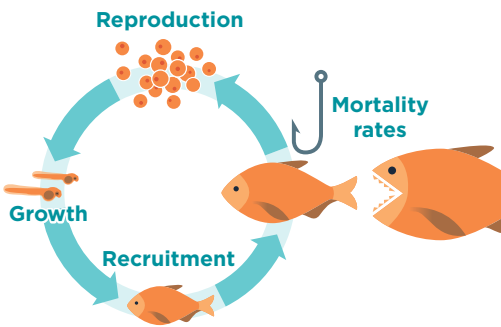
Climate change effects on fisheries



PRODUCTIVITY CHANGES



ELEMENTS OF STOCK PRODUCTIVITY AFFECTED BY CLIMATE



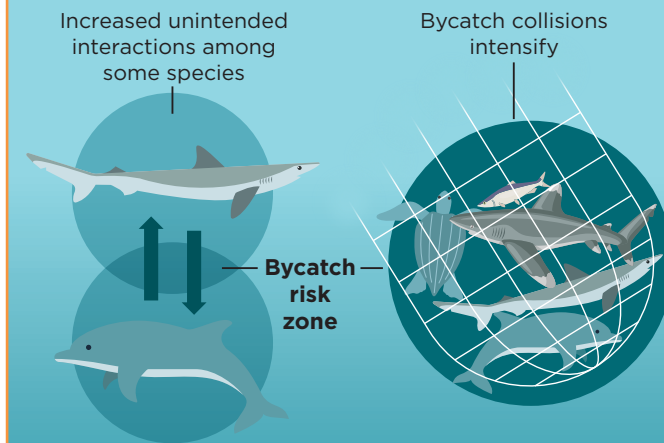
SHIFTING SPECIES RANGES AND MIGRATIONS

Fish cross managerial jurisdictions in search of more favorable environments



ECOSYSTEM AND BYCATCH IMPACTS

Increasingly unfavorable environmental conditions (e.g. low oxygen zones) are compressing available habitat



MIXED OUTCOMES ACROSS SPECIES AND REGIONS

While many stocks face declines or unpredictable shifts due to climate change, others are experiencing improved productivity and stock status

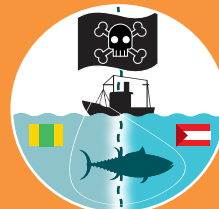
THREATS ASSOCIATED WITH THESE CHANGES



Heightened risk of overexploitation and conflict



Reduced effectiveness of current management frameworks and bodies



Increased risk of noncompliance

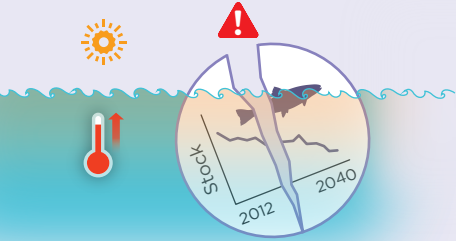


Socioeconomic strain on vulnerable nations and communities

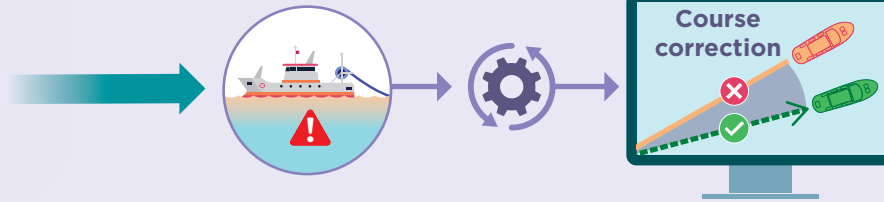
Benefits of climate-ready management procedures

WHY IT MATTERS

Static, traditional management approaches may struggle to keep up due to climate impacts



Climate-ready fisheries managed with **MPs** are designed to be dynamic, forward-looking, and adaptive...

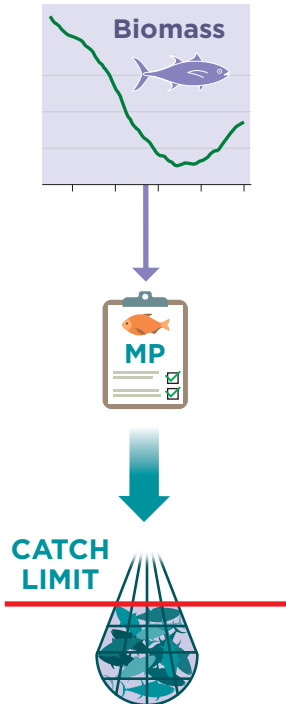


...helping both ecosystems and fishing communities thrive in uncertain conditions.



SUSTAINABILITY

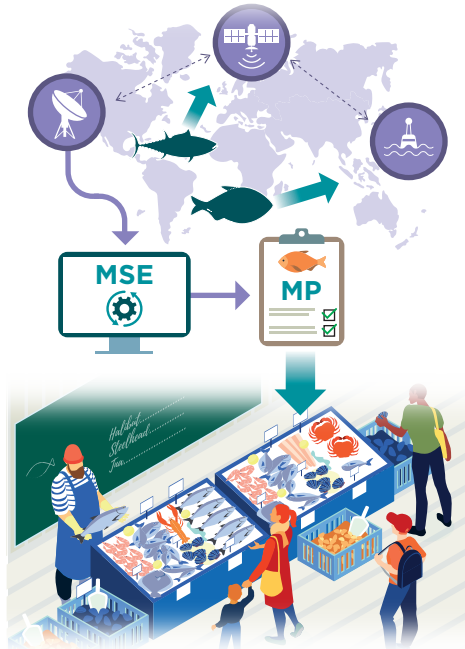
Aligns fishing pressure with recent data on stock health...



...reducing the risk of overfishing.

ECONOMIC STABILITY

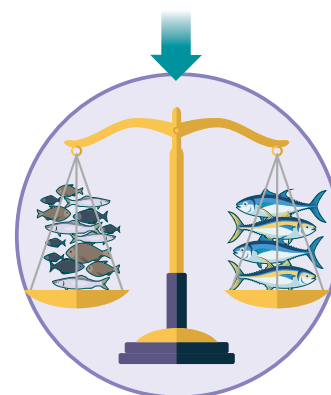
Enables quicker, science-based management adjustments to unexpected stock shifts...



...minimizing disruptions and losses and maintaining a more predictable, stable market supply.

ECOSYSTEM HEALTH

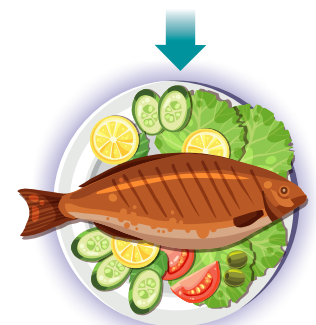
Can account for broader changes in food webs, habitats, and predator-prey dynamics...



...helping to support balanced ecosystems.

COMMUNITY RESILIENCE

Helps vulnerable coastal nations and communities better prepare for and respond to climate impacts...

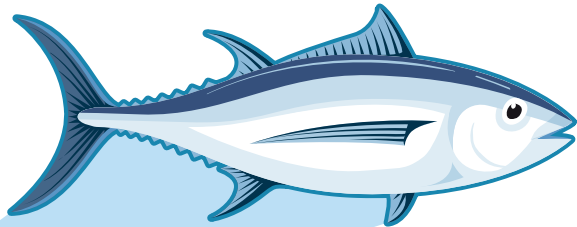


...protecting livelihoods and food security.

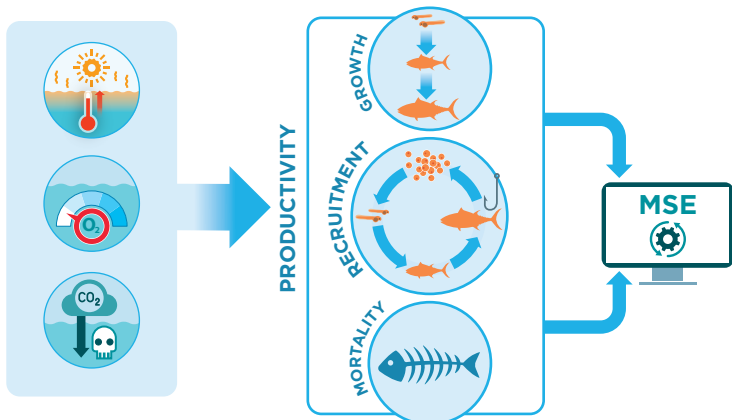
Climate-ready management procedures in action

There are already **MPs** in place that have been designed to account for potential changes in productivity resulting from a warming ocean. Here are two examples:

NORTH PACIFIC ALBACORE

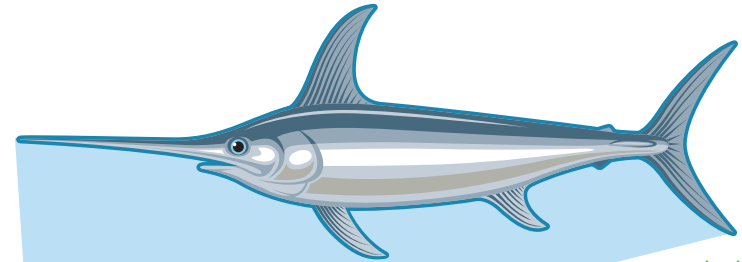


IATTC (Inter-American Tropical Tuna Commission) and **WCPFC** (Western and Central Pacific Fisheries Commission) adopted an **MSE-tested MP** for North Pacific albacore in 2023.

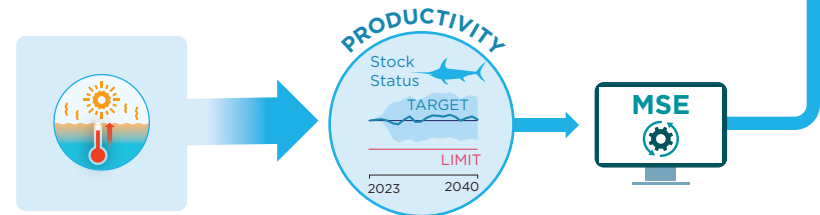


Climate change scenarios were considered in the **MSE** that included changes in recruitment and productivity that could be linked to climate impacts.

NORTH ATLANTIC SWORDFISH



ICCAT (International Commission for the Conservation of Atlantic Tunas) adopted an **MSE-tested MP** for North Atlantic swordfish in 2024.



As part of the **MSE** process, a basic test of robustness to climate change impacts was performed—assessing how the selected **MP** would perform under shifts in stock productivity related to temperature changes.

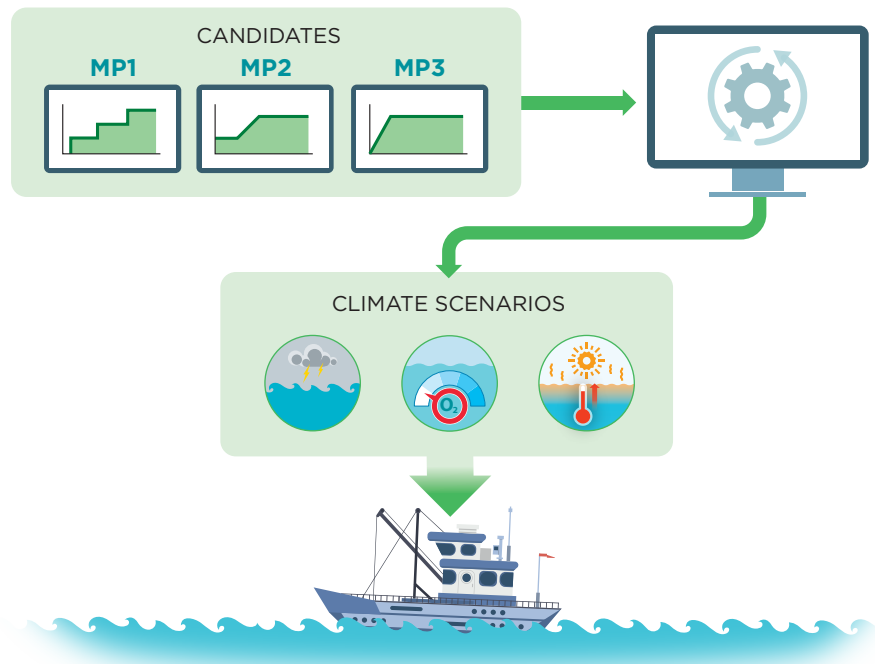
However, the climate tests were preliminary and did not cover an adequate range of possible futures, so more sophisticated testing is now underway.



The path forward: building climate-ready fisheries

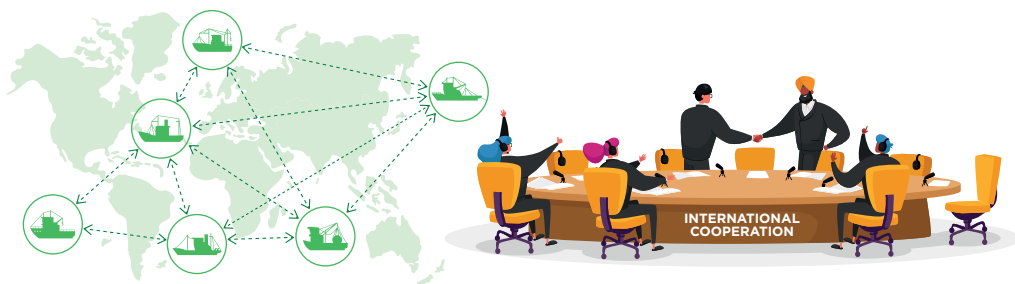
USE MSE TO STRESS-TEST MPs WITH CLIMATE-DRIVEN SCENARIOS

Use **MSE** to rigorously test candidate **MPs** under a range of climate-driven scenarios



STRENGTHEN REGIONAL AND INTERNATIONAL COOPERATION

Collaborate on climate-resilient science and policy



ADOPT CLIMATE-READY MPs TO INSTITUTE ADAPTIVE, TIMELY MANAGEMENT

MPs can detect and respond to changes in fish stock conditions, without adopting new management measures



INVEST IN DATA AND INNOVATION

Help to better understand and detect environmental shifts and their impacts on fisheries resources to design more robust, forward-looking **MPs**



Climate change is reshaping the future of fisheries, but MSE-tested, climate-smart MPs provide a proactive and responsive path forward to maintain sustainability. By planning for uncertainty, responding quickly, and working across borders, we can build resilient systems supporting both ocean ecosystems and fishing communities.