

Sustainable fisheries management in a changing climate

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Key messages

- Healthy fish stocks are essential for economically, socially and environmentally sustainable fisheries. Managing fish stocks in a way that preserves their health and productivity is a win-win-win strategy that can lead to greater benefits for fishers and improvements in food security, enhanced ocean ecosystems and reductions in greenhouse gas (GHG) emissions, as well as benefits for climate adaptation.
- OECD data suggests that fisheries management works. Data collected from 31 countries and territories, published in the [OECD Review of Fisheries 2025](#), states that 81% of assessed fish stocks are healthy.
- Even so, there is room for improvement. Just 59% of these healthy stocks meet productivity targets that would allow fishers to maximise catch volumes and value under sustainability constraints. This highlights the importance of improved fisheries management even for healthy stocks to optimise food production, increase fisher incomes and reduce GHG emissions. And, of course, if 81% of assessed fish stocks are healthy, that still leaves one in five that aren't.
- There is also a need to extend science-based sustainable management to a greater number of fisheries. Indeed, a large number of stocks remain unassessed, in part due to limited assessment capacity. Across countries, the proportion of harvested stocks that are assessed and managed accordingly varies considerably. It is imperative to invest in assessments, and in new low-cost stock assessment techniques for data-poor fisheries, to bridge this gap.
- Climate change presents major challenges for the management of global capture fisheries. Rising ocean temperatures, changes in currents and acidification, and more frequent extreme weather events are having significant and growing impacts on the location and abundance of wild fish stocks, with implications for fishers' livelihoods. This means that the need for science-based fisheries management will only grow in light of climate change. Fisheries managers must first understand how changes in ocean conditions might affect specific fish stocks and fisheries, then translate this knowledge into effective and adaptive policy responses to ensure fish stocks remain healthy and productive.
- National and international fisheries management institutions must be flexible and proactive to manage fisheries sustainably and productively in a changing climate. This includes conducting regular fish stock assessments; adjusting catch limits and national quota allocations to prevent pressure on fish stocks exceeding sustainable levels; and facilitating greater co-operation between scientists, stakeholders and policymakers to help anticipate and counteract climate impacts at the level of individual fisheries.

What's the issue?

Good fisheries management is fundamental to every aspect of fisheries sector performance: economic, social and environmental. Evidence suggests that fisheries management works: well-managed fisheries have been shown to be more sustainable, productive and profitable. Fisheries management helps to protect, preserve and increase the health, productivity and abundance of fish stocks, which play central roles both in global food security and in local economic performance. Increasing the abundance of fish stocks also helps reduce GHG emissions intensity (as less fishing effort is needed per unit of catch) and buffer the impacts of climate change (as healthy stocks are more resilient to changes in Ocean conditions).

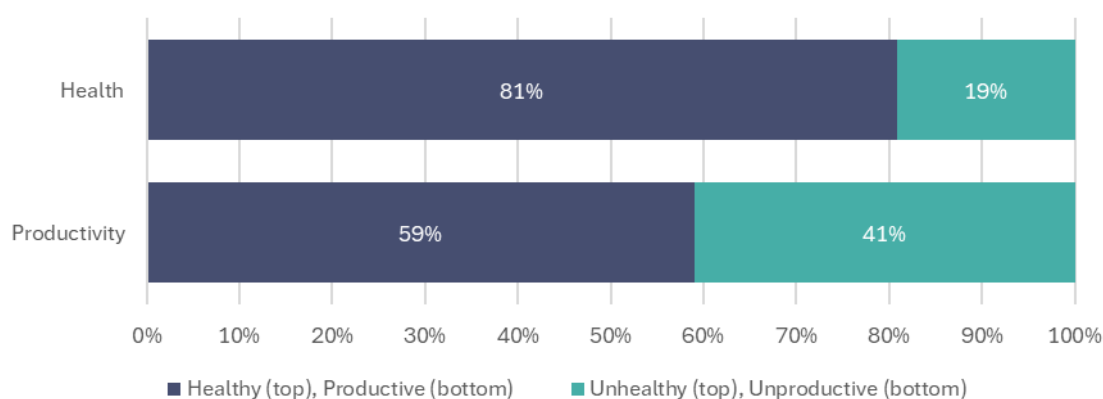
Ineffective fisheries management can lead to overfishing and illegal, unreported and unregulated fishing (IUU) fishing – reducing fish stock abundance below levels that allow for optimal productivity, and, in extreme cases, to levels from which fish stocks may never recover. What's more, IUU fishing complicates stock assessments, which are needed for effective and evidence-based fisheries management, and causes unfair competition for resources and in markets.

Is the job being done?

- Assessed fish stocks are generally healthy. Data collected from 31 countries and territories for the [OECD Review of Fisheries 2025](#) found that 81% of conclusively assessed fish stocks are healthy, suggesting that scientific fisheries management works.
- But many could be more productive. Just 59% of healthy stocks meet productivity targets designed to maximise catch and/or value under sustainability constraints.
- And many valuable stocks remain unassessed. A large number of stocks remain unassessed, in part due to limited assessment capacity. Across countries, the proportion of harvested stocks that are assessed varies considerably. It is imperative to invest in assessments, and in new assessment methods, to bridge this gap.

Fisheries managers' roles are becoming more important and complex due to climate change. Increases in ocean temperatures, changes in currents and more frequent extreme weather events are having significant impacts on wild fish stocks and on fishers' livelihoods around the globe. Management is central to the sector's strategies to adapt and mitigate against the onset of climate change, but fisheries managers are faced with two key challenges: understanding how changes in ocean conditions might affect specific fish stocks and fisheries; then translating this knowledge into effective policy responses to ensure the continued health and productivity of fish stocks while addressing negative socioeconomic impacts.

Figure 1. Health and productivity status of conclusively assessed fish stocks in 2024

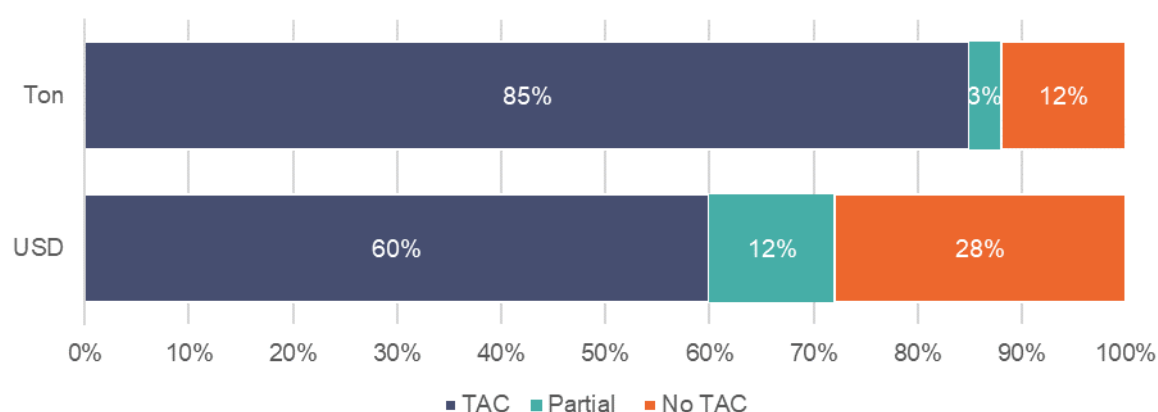


Fisheries management: The good, the bad and the absent

Sustainable fisheries management requires a co-ordinated package of science-based, context-specific tools that aim to limit the way fish are caught (input controls) and the level and type of catch (output controls). Input controls regulate fleet and gear characteristics (e.g. vessel size and power, gear type and configuration), along with how they can be applied (spatial or temporal restrictions). Output controls usually take the form of quotas, typically total allowable catch (TAC) limits capping the total quantity of an individual stock that can be harvested. Individual or community quotas are sometimes used to augment TACs, and they define the conditions under which catch shares can be sold or exchanged (or not). Output controls also include regulations on minimum fish sizes.

More than half of all fish production (60% by value in 2022) from commercially important fisheries comes from species fully subject to TAC limits. However, there is scope for further progress in this area: 28% of fish production value comes from species that are not subject to any catch limit, while the remaining 12% comes from species only partially covered by catch limits.

Figure 2. Proportion of landings from the most commercially valuable species that were covered by total allowable catch limits in 2022



Gear restrictions are both the most commonly used input control and the most used management tool overall. Data collected by the OECD has found gear restrictions used in 82% of stocks of the most valuable species. Area restrictions (58%) and minimum fish sizes (57%) both serve to reduce the impact of fishing on biological processes.

Fisheries management goes beyond setting limits on the activities of fishers. To achieve environmental, social and economic goals, fisheries management must consider the fisheries' socioeconomic context, which means the social and economic well-being of the fishers and their communities and must be developed in conjunction with the relevant stakeholders. Good fisheries management also requires effective monitoring and enforcement to ensure that it isn't undermined by IUU fishing.

Many fisheries remain effectively unmanaged because they are unassessed. Without a scientific assessment, effective fisheries management is challenging because the size of the underlying stock is not known. For one thing, it is impossible to implement an effective TAC for unassessed fish stocks, meaning there is a risk of overfishing that could negatively impact the environmental, economic and social resilience of the sector. Increasing the number of assessments and developing low-cost stock assessment techniques for data-poor regions is a fisheries management priority, especially in developing countries where assessment capacity is low.

How can fisheries management help in a changing climate?

Climate change presents major challenges for global capture fisheries. Fish stocks are expected to decline, with global fisheries' catches forecast to fall by as much as 24% by the end of the century [according to the International Panel on Climate Change](#). But the changes will be uneven: while some higher-latitude regions will see an increase in catch potential, most regions, particularly in the tropics, will see a fall. Fish will also migrate: by 2030, almost one in four transboundary stocks are expected to move, shifting the distribution of fish stocks across maritime borders.

Our understanding of the relationship between the changing climate and marine ecosystems is incomplete. New research is needed to refine our understanding of how changes in ocean conditions may affect specific fish stocks and fisheries. Policymakers and fisheries managers must then take this knowledge and integrate it into management measures in order to ensure fish stocks remain healthy and productive in the face of environmental change – which, in turn, improves resilience to climate change-related mortality events such as marine heatwaves.

Sustainable fisheries management can be a low-cost climate mitigation and adaptation strategy. As well as increasing fisher welfare and preserving ocean health, fisheries management supports strategies designed to adapt to climate and mitigate GHG emissions. Indeed, increasing the abundance of fish stocks also improves the volume and value of catch per unit of fishing effort (CPUE) – so more fish can be caught for the same effort – reducing the sector's GHG emissions intensity and even total emissions where total effort is well capped. In general, the kind of climate adaptation measures that fisheries should look to introduce are largely aligned with general good practice in fisheries management: regular assessment to ensure healthy and resilient fish stocks; regulatory measures that can respond to environmental change; and governance measures to ensure co-operation between jurisdictions.

National and international fisheries management institutions must be flexible, proactive and dynamic if the sector is to address and adapt to the challenges of climate change. This could mean conducting or supporting more regular and comprehensive fish stock assessments in order to aid sustainable fisheries management. It may require adjusting TACs and national quota allocations to prevent pressure on fish stocks exceeding sustainable levels, especially where stocks are shifting across borders. Greater co-operation between scientists, stakeholders and policymakers around the globe would help to anticipate climate impacts and identify strategies to counteract them.

Policymakers must also address potential negative socioeconomic impacts caused by climate change. The decline in catches driven by climate change will affect fishers, the downstream industry and the communities that rely on fishing. And as with fisheries' catches, such impacts won't be evenly distributed: some areas are likely to experience larger declines, while others will see increases. Targeted support programmes can be used to address economic impacts, minimising or mitigating impacts on vulnerable communities (see *How can government spending better support productive and resilient fisheries*).

What can policymakers do?

- **Stocks that are not meeting either health or productivity standards must be rebuilt through investment in management systems.** Increasing the abundance of these stocks is a win-win-win as it will result in improved fisher incomes, more food, and enhanced Ocean ecosystems. Maintaining fish stocks healthy and productive will itself mitigate the GHG emissions from fishing by allowing fishers to expend less energy and cause fewer emissions while catching similar volumes of fish.
- **Fisheries management must be based on accurate and timely scientific information, which means investing in regular and comprehensive fish stock assessments.** Where possible, all commercially important stocks should be assessed regularly and at intervals appropriate to the biology of the species, and these stock assessments should conclusively report against both health and productivity status. Regular stock assessment will become even more important with a changing climate, which calls for the sector to be more responsive and adaptive in its management strategies.
- **Investment is needed in stock assessment science.** New assessment tools are needed for difficult-to-assess stocks – particularly low-cost and low-data methodologies that are applicable to multispecies stock complexes.
- **Domestic and international fisheries management policy must proactively consider climate adaptation strategies.** Indeed, early interventions can go a long way to avert more pronounced climate-driven impacts on fisheries. This requires the early identification of current and potential future issues, but also rapid policy change. By explicitly considering the impacts of climate change in fisheries management, institutions can embed flexibilities to adapt to climate-driven changes to the ecosystems in the management measures, such as rules to adjust allowed catch volumes, or fishing seasons, based on pre-agreed criteria.

Explore further

[OECD Review of Fisheries 2025](#) | [OECD Stock Status Data](#) | [OECD fisheries and aquaculture website](#)

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