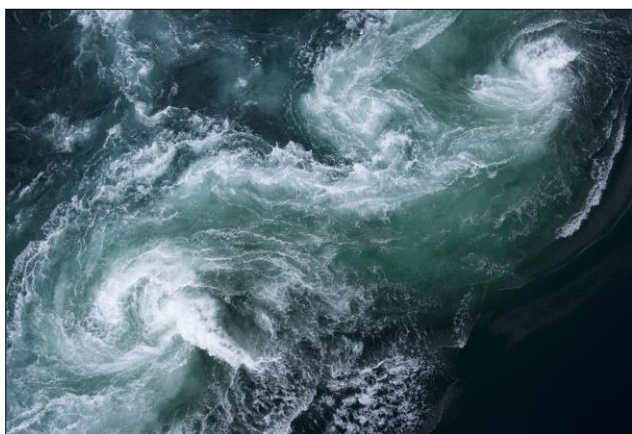


Building resilience to climate change in North East Atlantic fisheries

Securing a sustainable future for fishing in a dynamic, warming ecosystem

Climate-related impacts are creating significant shifts in the range, distribution and productivity of key commercial fish species in the North-East Atlantic region. The International Council for Exploration of the Seas (ICES) recently documented 16 of 21 key commercial species displaying significant changes in distribution, including a dominant northward shift under changing environmental conditions.



The Environmental Defense Fund (EDF) recognise that species' shifts are occurring not just in Europe, but globally. We are therefore working with key fisheries in Asia, South America and Europe to ensure robust fisheries systems are in place to address climate change impacts, including shifts in species' range and distribution.

Existing institutions in the North-East Atlantic region are straining to cope with these challenges. Rigid rules and governance structures make adaptive management difficult to achieve. The recent 'mackerel wars' are a case in point and demonstrate the risk of further conflict if unilateral decision-making presides over the long-term conservation needs of shared stocks. These kinds of threats to sustainable fishing promise to intensify as the impacts of climate change become more acute.

A complicated picture

EDF identified a number of factors converging in the North-East Atlantic region, creating new and complex challenges for fishery

managers, scientists and industry. We set out to understand these challenges further through a two-day workshop that aimed to identify climate change effects on fisheries in the region, as well as highlight possible tools and approaches to move forward. Three key takeaways include:

1. Fish stocks are shifting rapidly. Climate change is affecting the range, distribution, abundance and productivity of key commercial species. While we cannot predict exactly which stocks will rise, fall or relocate, we can paint broad scenarios to help managers plan for different possibilities. A more inclusive and collaborative dialogue is therefore needed among science, industry and policy leaders to improve our collective knowledge and build trust. This will help build support for more adaptive approaches to fisheries management in the region.

“Science, industry and policy leaders need to work together more closely, to improve collective knowledge and build trust”

2. Re-invigorated regional institutions can help to lead change. The existing framework for managing fisheries is not equipped to cope with the current pace of change. However, governance in the region is evolving, spurred by the EU's landing obligation and the UK's planned exit from the EU, providing a window from which to move beyond 'business as usual'. Bilateral and multilateral fisheries agreements will need a fresh approach and should be reviewed and reformed to adopt 'climate-proofing' mechanisms that enable a more flexible, adaptive framework.



3. We can achieve adaptive, flexible fisheries management and governance using what we already know. While climate-proofing fisheries management poses a significant challenge, a number of tools and approaches already exist and can be tailored and applied at a regionally-appropriate level. These include, but are not limited to:

- Seeking improvements to existing quota transfer rules,
- Building in periodic adjustment of quota allocation keys to take into account changes to fish stock ranges,
- Developing effective dispute resolution and arbitration mechanisms both at domestic and international level to deal with conflict, and
- Application and uptake of more holistic ecosystem-based management (EBM) principles to foster a more flexible, adaptive fisheries management framework.

“While climate-proofing fisheries management is challenging, a number of adaptive tools and approaches already exist and can be tailored to regional circumstances”

These headline takeaways are extracted from a more detailed EDF report entitled *Climate-related impacts on fisheries management and governance in the North-East Atlantic*. This publication was further supported by an EDF-commissioned report entitled *Building Resilience in Fisheries Governance in the North East Atlantic*. Both reports can be found on www.edf.org/oceans/united-kingdom

Moving forward under climate change

Climate change has wide-ranging implications for European fisheries, requiring continued action in this area. EDF will continue its research, outreach, and engagement to find like-minded partners, collaborators and funders to support our work in this dynamic and critically important area. Ultimately we aim to seek tailored solutions to climate change effects on fisheries in the region and will prioritise research that furthers our knowledge and ability to make meaningful impact.

Key work areas going forward include:

a) Identifying appropriate tools (as listed above) to adopt through a regional and international context. Tools and approaches should be applied through an adaptive, ecosystem-based framework and supported by uptake of Decision Support Tools (DST) to guide decisions and incorporate risk and uncertainty into the policy-making process. This will help ensure

decisions are durable in the face of significant and inherent uncertainty associated with climate change.

b) Influencing greater uptake of EBM management principles and frameworks to help managers handle unforeseen changes and better calculate decisions that anticipate and mitigate climate-related impacts on fisheries. A suite of EBM-tools, featured in the workshop report, should be explored by managers and scientists to achieve a more resilient, flexible system that is able to respond to the dynamic nature of fisheries.

c) Developing a programme of outreach and engagement that elevates the urgency of climate change impacts on fisheries to national administrations, international forums, and other relevant fisheries institutions. A thorough evaluation of the existing suite of institutions and agreements should be carried out to determine where modifications might occur in current stock-sharing mechanisms, and which tools might be applied to aid a process of reform and/or adjustment in existing agreements. On-going dialogue will be critical and EDF will stimulate further discussion and build consensus around how to construct a more resilient future for Northern European fisheries.

Further climate and fisheries science research must be financially supported and underpinned by collaborative partnerships that can ensure effective uptake and implementation of regionally appropriate climate-proofing solutions.



For more information on EDF Europe's climate and fisheries work, contact **Erin Priddle**, North East Atlantic Fisheries Manager on: Epriddle@edf.org, +44 (0)203 310 5919