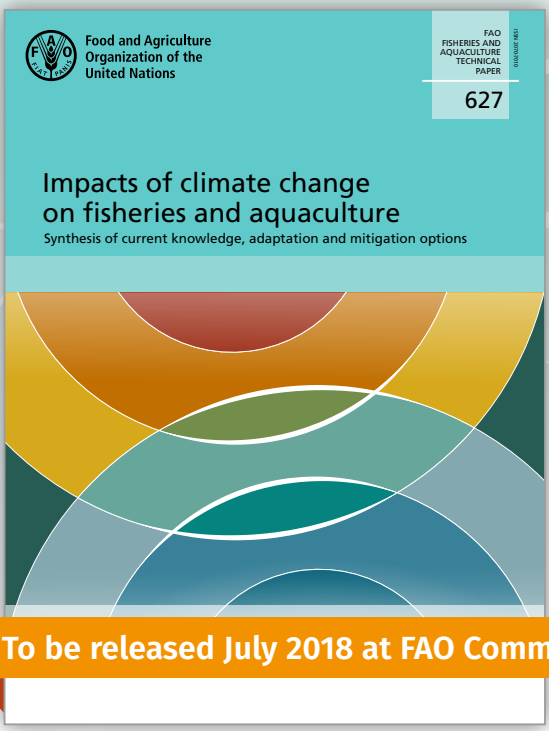
Food and Agriculture Organization of the United Nations

Impacts of climate change on fisheries and aquaculture



A unique overview of the implications of climate change for fisheries and aquaculture, and for the millions of people who depend on these sectors for their livelihoods, this publication maps out solutions for climate change adaptation and mitigation around the globe.

To be released July 2018 at FAO Committee on Fisheries #COFI33

The technical paper **"Impacts of climate change on fisheries and aquaculture - Synthesis of current knowledge, adaptation and mitigation options"** has been prepared by **over 90 scientists** from **over 20 countries** with a view to assisting countries in the development of their National Determined Contributions (NDCs) to the Paris Climate Agreement, the next round of which is to be submitted by 2020, both for adaptation and mitigation actions.

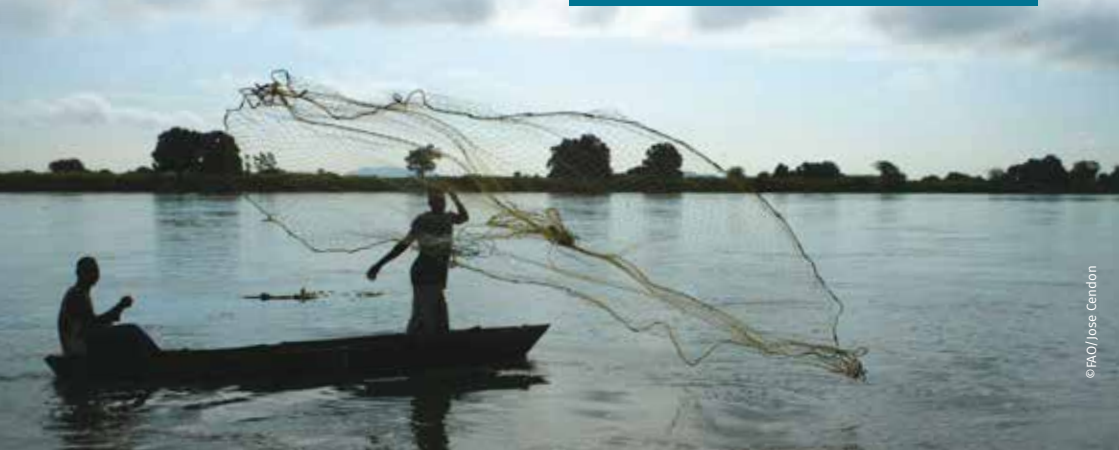
The publication contextualizes the topic of climate change in fisheries and aquaculture in terms of **poverty alleviation** and the implementation of existing policy commitments, such as UN Agenda 2030 and the Paris Climate Agreement, and takes into account **current and expected socio-economic dependencies on the sector**. It includes marine and inland capture fisheries, as well as aquaculture, recognizing that the level of evidence and responses at global, regional and national scales will differ between sub-sectors.

Marine fisheries

Using two different models, a species-based dynamic bioclimate envelope model and a dynamic size-based food-web model, projections of future catch potentials for marine fisheries describe the expected trends by Exclusive Economic Zone. Regional chapters covering eighteen regions provide a finer analysis of marine capture fisheries and climate change implications in terms of ecological impacts, social and economic development, consequences for fisheries management and examples of recommended or already implemented adaptation options.

Inland fisheries

The report highlights that in the competition for scarce water resources the valuable contributions of inland fisheries are frequently unrecognized or under-valued. The sector is also highly vulnerable to climate change because of the low buffering capacity of water bodies. Most food producing inland fisheries are found in some of the poorest, most food insecure countries in the world, which are disproportionately dependent upon inland fisheries. Three chapters focus on this sub-sector and describe the magnitude of current and future stressors in 149 countries and in eight selected river basins.



Aquaculture

Increasingly contributing to the livelihoods, food security and nutrition of millions of people, aquaculture will be key for meeting the growing demand for fish. Climate change is likely to affect the choice of species, the vulnerability of aquaculture systems to weather extremes and the risks posed by disease. Aquaculture is also reliant on a range of ecosystem services, many of which will be affected by climate change. The publication reviews the short- and long-term impacts of climate change on aquaculture, and presents country by country analyses of global vulnerability of the sub-sector.

Extreme events and disasters

The technical paper describes how climate change has altered the frequency, intensity, spatial extent, duration and timing of extreme climate events in the past decades and how it is projected to change in the near future. It explores the damage and loss to the fishery and aquaculture sectors and calls for a shift from reactive disaster management to proactive risk management with convergent disaster risk reduction and adaptation measures, as well as appropriate risk sensitive investments ahead of climate extremes.

Aquatic animal disease and food safety

The potential impacts of climate change on food safety and animal health are often unrecognized, particularly in the rapidly growing aquaculture sector. The publication details how climate change will shape future food safety risk assessments for food safety hazards, as well as the policy- and decision-making. To minimize climate change impacts on production environment, good biosecurity plan (know the species, know the pathogen, know the system) and active engagement and long-term commitment of all relevant stakeholders will be essential.

Adaptation and mitigation

The technical paper provides a toolbox of existing and recommended fisheries and aquaculture risk reduction, adaptation and disaster response, as well as guidance for the development and implementation of sectoral adaptation strategies. The paper also describes how the fisheries and aquaculture sector can contribute to reducing greenhouse gas emissions, giving examples of improved technologies, feed conversion rates, or change in fish farming practices.

Finally, the report is a reminder of the **critical importance of fisheries and aquaculture for millions of people struggling to maintain reasonable livelihoods through the sector.** These are the people who are most vulnerable to the impacts of climate change, and particular attention needs to be given to them while designing adaptation measures if the sector is to continue to contribute to meeting global goals of poverty reduction and food security.

Barange, M., Bahri, T., Beveridge, M., Cochrane, K., Funge-Smith, S., Poulain, F. (Eds.). 2018. *Impacts of climate change on fisheries and aquaculture - Synthesis of current knowledge, adaptation and mitigation options*. Fisheries and Aquaculture Technical Paper. No. 627. Rome, FAO.

Contents

I9604EN/1/05.18