CLIMATE CHANGE AND FISH RESOURCES

Information sources

Addendum to the MRC Technical Workshop on Application of Modelling Tools for Climate Change Impact and Vulnerability Assessment, Bangkok, 8 – 9 September 2009

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Brief: The threat to fisheries and aquaculture from climate change

www.worldfishcenter.org/resource_centre/ClimateChange2.pdf


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POLICY BRIEF

The threat to fisheries and aquaculture from climate change

Key messages

- Significance of fisheries and aquaculture. Fish provide essential nutrition and income to an ever-growing number of people around the world, especially where other food and employment resources are limited. Many fishers and aquaculturists are poor and ill-prepared to adapt to change, making them vulnerable to impacts on fish resources.
- Nature of the climate change threat. Fisheries and aquaculture are threatened by changes in temperature and, in freshwater ecosystems, precipitation. Storms may become more frequent and extreme, imperilling habitats, stocks, infrastructure and livelihoods.
- The need to adapt to climate change. Greater climate variability and uncertainty complicate the task of identifying impact pathways and areas of vulnerability, requiring research to devise and pursue coping strategies and improve the adaptability of fishers and aquaculturists.
- Strategies for coping with climate change. Fish can provide opportunities to adapt to climate change by, for example, integrating aquaculture and agriculture, which can help farmers cope with drought while boosting profits and household nutrition. Fisheries management must move from seeking to maximize yield to increasing adaptive capacity.

The significance of fisheries and aquaculture

Population growth is accompanied by increasing demand for food fish, with direct human consumption of fish reaching an estimated 103 million tons in 2003. Fish is the main source of animal protein for a billion people worldwide. As well as providing a valuable protein complement to the starchy diet common among the global poor, fish is an important source of essential vitamins and fatty acids.

Some 200 million people and their dependants worldwide, most of them in developing countries, live by fishing and aquaculture. Fish provides an important source of cash income for many poor households and is a widely traded food commodity. In addition to stimulating local market economies fish can be an important source of foreign exchange.

Fishing is frequently integral to mixed livelihood strategies, in which people take advantage of seasonal stock availability or resort to fishing when other forms of food production and income generation fall short. Fishing often is related to extreme


Fisheries and Aquaculture in a Changing Climate

Climate change impacts such as more frequent and severe floods and droughts will affect the food and water security of many people. The impact of climate change on aquatic ecosystems, fisheries and aquaculture, however, is not as well known. This policy brief, a joint partnership between several agencies, highlights this issue to ensure that decision-makers and climate change negotiators consider aquatic ecosystems, fisheries and aquaculture at the UNFCCC COP-15 in Copenhagen, December 2009.

The build-up of carbon dioxide and other greenhouse gases in the atmosphere [1] is changing several of the features of the Earth's climate, oceans, coasts and freshwater ecosystems that affect fisheries and aquaculture - air and sea surface temperatures, rainfall, sea level, acidity of the ocean, wind patterns, and the intensity of tropical cyclones.

Climate change is modifying the distribution and productivity of marine and freshwater species and is already affecting biological processes and altering food webs. The consequences for sustainability of aquatic ecosystems, fisheries and aquaculture, and the people that depend on them, are uncertain.

Fishers, fish farmers and coastal inhabitants will bear the full force of these impacts through less stable livelihoods; changes in the availability and quality of fish for food, and rising risks to their health, safety and homes. Many fisheries-dependent communities already live a precarious and vulnerable existence because of poverty, lack of social services and essential infrastructure. The fragility of these communities is further undermined by overexploited fishery resources and degraded ecosystems. The implications of climate change for food security and livelihoods in small island states and many developing countries are profound.

1

Brief: Fisheries and aquaculture in a changing climate

www.worldfishcenter.org/resource_centre/WF_2400.pdf

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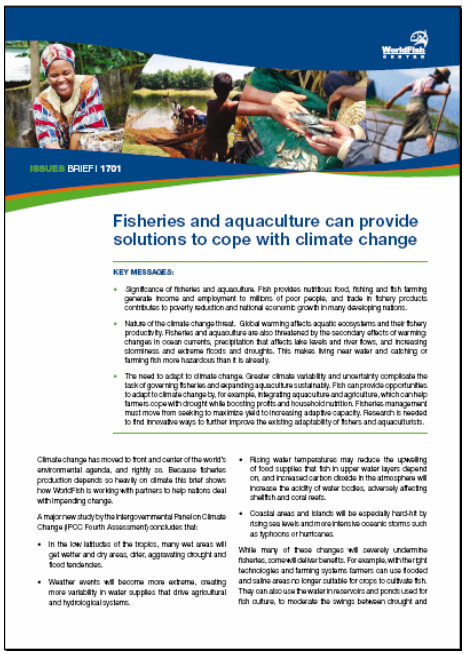
Brief: Climate change: research to meet the challenges facing fisheries and aquaculture

www.worldfishcenter.org/resource_centre/WF_2167.pdf



Brief: Fisheries and aquaculture can provide solutions to cope with climate change

www.worldfishcenter.org/resource_centre/CC-ThreatToFisheries1701.pdf

www.worldfishcenter.org/v2/pubs.html
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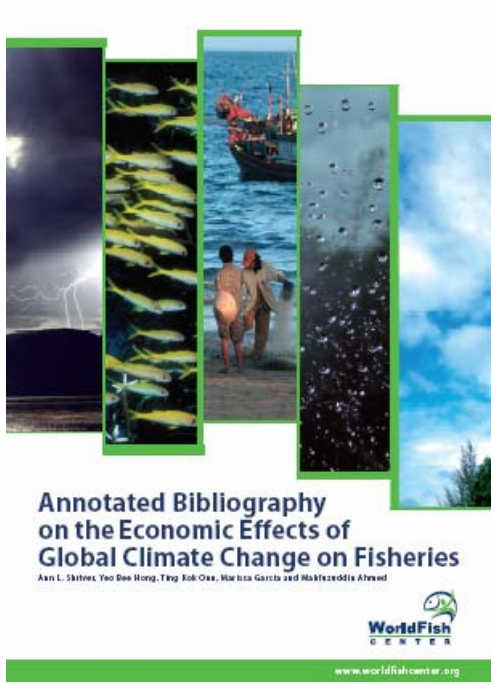
Report: Annotated bibliography on the economic effects of global climate change on fisheries

www.worldfishcentre.org/resource_centre/WF GLobalClimate_FA.pdf



Article: Enhancing the resilience of inland fisheries and aquaculture systems to climate change.

http://www.icrisat.org/Journal/SpecialProject/sp15.pdf

Others resources
(WorldFish contributions)

Article: A place at the table?

(Fisheries, food security and climate change)

www.nature.com/climate/2009/0906/full/climate.2009.52.html


nature REPORTS climate change

Commentary

A place at the table?

Nicholas Dulvy & Edward Allison

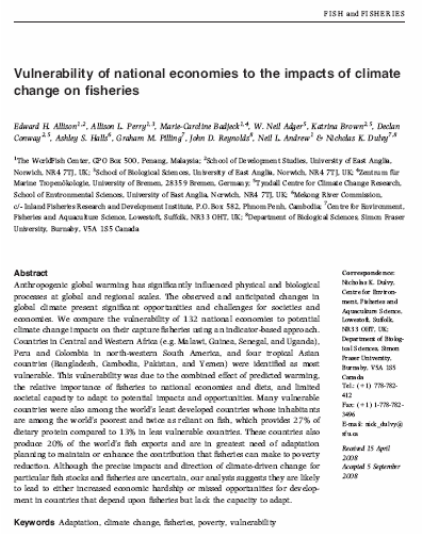
An oft-forgotten source of food security and livelihoods, fisheries must be included in ongoing discussions of how the world's most vulnerable can adapt to climate change.

Increasing uncertainty

Double jeopardy

Figure 1: Unequal vulnerability.

Full figure and legend (40 KB)


FISH and FISHERIES

Vulnerability of national economies to the impacts of climate change on fisheries

Edward H. Allison[1,2], Allison L. Perry[1,3], Marie-Caroline Badjeck[1,4], W. Neil Adger[5], Katrina Brown[2,5], Declan Conway[2,5], Ashley S. Halls[6], Graham M. Pilling[7], John D. Reynolds[8], Neil L. Andrew[9] & Nicholas K. Dulvy[7,8]

Abstract

Keywords Adaptation, climate change, fisheries, poverty, vulnerability

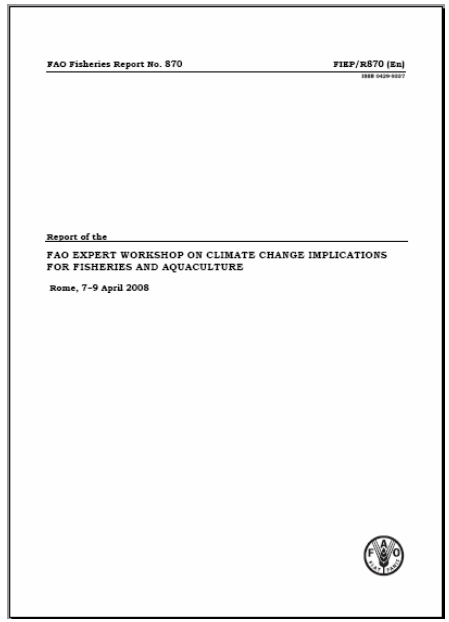
Article: Vulnerability of national economies to the impacts of climate change on fisheries

www3.interscience.wiley.com/journal/121681399/abstract?

Others resources

Report: FAO Expert Group on fisheries and climate change

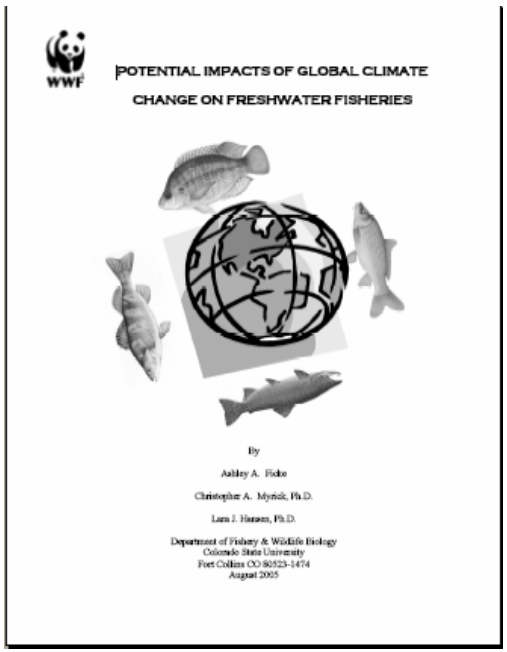
ftp://ftp.fao.org/docrep/fao/010/i0203e/i0203e00.pdf


FAO Fisheries Report No. 870 FIEP/R870 (En)

Report of the

FAO EXPERT WORKSHOP ON CLIMATE CHANGE IMPLICATIONS FOR FISHERIES AND AQUACULTURE

Rome, 7-9 April 2008


POTENTIAL IMPACTS OF GLOBAL CLIMATE CHANGE ON FRESHWATER FISHERIES

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August 2005

Report: Potential impacts of global climate change on freshwater fisheries

http://assets.panda.org/downloads/fwfishreport902nov05.pdf