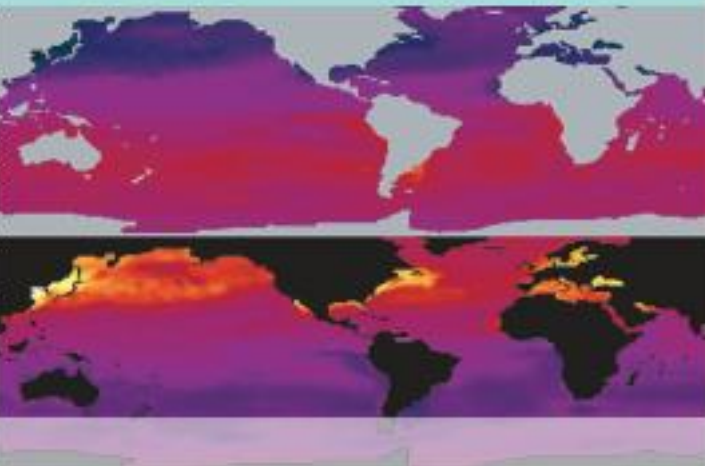


Future climate change and regional fisheries: a collaborative analysis



Cover photo:

Top: Southern hemisphere summer sea surface temperature minus winter

Bottom: Northern hemisphere summer sea surface temperature minus winter

Future climate change and regional fisheries: a collaborative analysis

FAO
FISHERIES
TECHNICAL
PAPER
452

by
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ISBN 92-5-105016-3

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PREPARATION OF THIS DOCUMENT

This document has been prepared as part of the Regular Programme activities of the Marine Resources Service, Fishery Resources Division of FAO, aimed at reviewing and monitoring long-term environmental variability and climate change impacts on marine fisheries. While reviewing and synthesizing the most recent work on climate change and fisheries, this document also includes as Annex I, a list of recommended published material that, while not cited in the document itself, is considered useful reading on the subject matter. A Glossary of most used terms in this field is also included as Annex II.

Several people have contributed to the preparation of this document and the author wishes to express his particular gratitude to those who have most directly collaborated in the production of this review, particularly to Messrs Leonid Klyashtorin and A. Nikolaev, Fisheries Science, VNIROV, Moscow, Russian Federation; James Goodridge, California State Climatologist, (retired), Chico, CA, United States of America, and Joseph Fletcher, Director (retired), National Oceanic and Atmospheric Administration, Office of Oceanic and Atmospheric Research (NOAA, OAR), Sequim, WA, United States of America.

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Sharp, G.D.

Future climate change and regional fisheries: a collaborative analysis.

FAO Fisheries Technical Paper. No. 452. Rome, FAO. 2003. 75p.

ABSTRACT

First, issues of Global Change versus Global Warming are discussed. The larger perspective is presented of earth as a warm, wet planet, that experiences frequent cold periods via climate history graphics of Earth's recent million years of climate variation, from paleoclimate research. The hydrological cycle is described, and its relevance to fisheries is made clear. Climate-related dynamics have had serious consequences in evolution of species, society and fisheries variability. Both production variabilities and changes in vulnerability due to constant dynamics of ocean motion affects are described. The records available for major fisheries are interpreted as we understand them from a century of in-depth research and analysis of various proxies, in particular, bioindicators. The history of climate as it relates to fisheries is addressed. The various spatial and temporal scales that are reflected in fisheries responses are described in an attempt to isolate weather from climate, or other events. Regional ecological responses to climate change are reviewed. Examples are given for the main ocean ecosystems, as defined by seasonal thermal properties. Synchrony and systematic transitions are discussed. Several forecast approaches are described, and their similar conclusions merged to provide a realistic expectation over the next few decades, and beyond. Likely impacts are ranked by fishery system type, and coping measures identified, where they are known, emphasizing the role of humans in habitat protection and maintenance of options.

CONTENTS

	Page
INTRODUCTION.....	1
1. GLOBAL CHANGE VS GLOBAL WARMING – ISSUES.....	2
1.1 The big picture.....	3
1.2 The seasons as a basis for understanding Earth’s variability	6
1.3 Hydrological cycle and climate zones	8
1.4 Paleo-observations and climate shifts	11
1.5 Local challenges	15
2. THE PAST, PRESENT AND FUTURE CLIMATE RELATED TO FISHERIES.....	17
2.1 Ecosystem responses to various scale climate forcing.....	17
2.2 Climate patterns vs weather patterns.....	21
2.3 Historic climatic changes and social and fisheries responses	22
3. REGIONAL ECOLOGICAL RESPONSES TO CLIMATE CHANGE	31
3.1 Long-term productivity changes	31
3.2 Behaviours of particular ocean ecosystems.....	33
3.3 Simultaneity vs systematic transitions	40
3.4 Forecasts – from the past into the future	43
4. SOME EXPECTATIONS	48
5. CONCLUSIONS	51
REFERENCES.....	54
ANNEX I – RECOMMENDED FURTHER READING	65
ANNEX II – GLOSSARY	73