



Second International Workshop

Bridging the Gap between Ocean Acidification Impacts and Economic Valuation

“Ocean acidification impacts on fisheries and aquaculture”

Oceanographic Museum, Principality of Monaco, 11-13 November 2012

April 30, 2012

Workshop Objectives

Vision

The 2nd International Workshop of the Monaco Environment and Economic Group (MEEG) aims to provide policymakers with recommendations to prepare for social and economic impacts from ocean acidification on livelihoods, trade and food supply from ocean resources. The focus of the workshop will be on fisheries and aquaculture, and regional aspects of species vulnerability and socio-economic adaptation. It is a fundamental tenet of the supporters of this workshop that the best available scientific information can be used to make decisions to improve human society and the deteriorated condition of the ocean environment. Without the reversal of the source of the physical phenomenon, namely anthropogenic CO₂ emissions, societal impacts of ocean acidification will require adaptation and forward planning in the ways living ocean resources are harvested and used. Participants in the workshop will assess potential economic impacts and summarize information to assist policy-makers, resource managers and communities in developing decision pathways in response to ocean acidification.

Background

The 1st International Workshop was organised by the International Atomic Energy Agency and Centre Scientifique de Monaco in association with the Principality of Monaco and the Fondation Prince Albert II de Monaco. It provided an opening venue for natural scientists and economists to introduce their perspectives on the topic of ocean acidification and to build solid linkages between these two communities. The outputs of the meeting were a baseline of scientific and economic information, integration of the language and concepts of dissimilar research methodologies, and publication of conclusions and recommendations concerning the anticipated impacts to ecosystems and ecosystem services from ocean acidification. Information arising from the first workshop is available at the following websites:

<http://www.iaea.org/nael/page.php?page=2251>

http://www.centrescientifique.mc/csmuk/informations/2011_12_recommendations.php

Purpose

Although many uncertainties remain, ocean acidification will have important effects on marine ecosystems and coastal economies world-wide. The purpose of this workshop is to provide information on the risk posed by ocean acidification to markets and consumers dependent upon seafood and trade of marine resources, and suggest viable options to mediate impacts on marine harvests and other coastal human activities. Fisheries and aquaculture in oceans and seas will be assessed regionally to assist coastal communities in preparing for future changes to the abundance and distribution of living resources.

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Means

Six multidisciplinary working groups will be formed to identify and assess marine species of high value for human consumption or use. The regional working groups will consist of scientists, economists and other expert participants. The regions will represent combinations of adjacent FAO fishing areas. Key species will be characterised as especially vulnerable or resilient to ocean acidification, and markets that may be greatly impacted will be determined. Relevant factors for comprehensive socio-economic risk assessments for ocean acidification impacts will be identified, including interaction effects with other physical, chemical and human sources of ecological stress. The implications for coastal areas and waters with specific characteristics will be discussed. Working groups will produce reports to be presented by a rapporteur, and the conclusions for different regions will be synthesized into a set of recommendations for policymakers, managers and stakeholders (fishers and coastal communities). Suggestions for future research in biological, ecological, socio-economic evaluation of vulnerability and adaptation to ocean acidification will be outlined.

Informational needs

An urgent need exists to understand short and long term effects of high CO₂ oceans on fish populations and to elaborate adaptive and pro-active management measures. Regional priorities of harvest species important to industrial and artisanal fisheries need to be described. From a management perspective, the changes in catch of varying species and substitutions need be anticipated. Potential losses of key harvested food supplies and impacts to aquaculture production need to be estimated. The downstream effects on food security in terms of broader ocean products trade and more local economy and community conditions will be topics of working group discussions.

Specific Objectives

This workshop has scientific, economic and management objectives. Some specific objectives to be attained by the workshop include:

- Describe the level of consumption and numbers and value of fisheries harvest and export for regional analysis of ocean acidification impacts
- Evaluate the sensitivity or resilience of key species to ocean acidification and the economic value to livelihoods and commerce regionally and globally
- Assess the vulnerability of communities and markets to impacts from ocean acidification
- Describe existing aquaculture industry regionally and the potential for adaptation to ocean acidification impacts
- Initiate risk assessment scoping and impact models for regional marine fisheries

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- Describe different management strategies and human adaptation measures to respond to ocean acidification, *e.g.* community-based management, new types of MPAs, integrated coastal management, coastal monitoring and aquaculture innovation

Workshop Outcomes

The workshop is expected to produce several conclusive outputs in relation to ocean acidification impacts:

1. Policy and management recommendations and possible adaptive responses
2. Identification of future research needs in natural and social sciences
3. A special report of regional priorities for fisheries and aquaculture
4. Collaborations among workshop participants and submission of journal articles