

*Paris Conference***Biodiversity, Science and Governance****Workshop 10: 'Biodiversity: Challenges for Fisheries Management'**

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DEBATES ON THE PRESERVATION of marine biodiversity must take the different perceptions and uses of ecosystems into account. This poses a challenge for fisheries management, as it requires an integration of different domains of scientific knowledge and of traditionally separated sectoral management approaches. The objective of the workshop was to evaluate progress on that integration, and identify opportunities to move integration ahead effectively. Discussions were based on a selection of short presentations on key aspects of marine biodiversity and fisheries management (see list of presentations, below).

The current status and trends in marine biodiversity were assessed, based on existing scientific knowledge. The considerable development of human uses of the oceans has severely altered marine biodiversity. The continued provision of goods and services derived from marine ecosystems is threatened by growing anthropogenic pressure and by the increasing risks of irreversible shifts due to global change. More marine species or populations than generally believed have undergone local, regional or global extinction. In addition, the consequences of human impacts on the poorly known components of marine biodiversity (in particular small organisms and microbes) remain unknown, despite the high role of these components in supporting ecosystem services.

It was agreed that resource over-harvesting by fisheries has significantly contributed to decreasing the resilience of marine ecosystems. Marine biodiversity is also subject to the influence of climate change on the dynamics of marine populations, and to the growing pressures originating from many different sectors of economic development. The impacts of these pressures on marine ecosystems are already high in certain regions, and are increasing in scope and intensity, despite their low visibility.

Institutional efforts for the preservation of marine biodiversity were also considered during the workshop. In response to the degradation of marine biodiversity, there has been an unprecedented institutional effort to establish adequate management and conservation frameworks over the past thirty years, internationally. While emphasis has shifted progressively from general principles and conceptual objectives to operational objectives and implementation, action has remained slow and incomplete. National and

regional initiatives illustrate the effectiveness of reserves and marine protected areas for the preservation of endangered species and biodiversity hot-spots, as well as the possibility for co-managed fisheries to allow for economic development, improved control, and the resolution of conflicts in fisheries. However, experience shows that the improvements are of short duration if the structural problems at stake are not tackled directly (in particular in fisheries, by the allocation of secure fishing rights).

Discussions at the workshop stressed that policies designed to regulate the exploitation of marine ecosystems have failed, globally. The current crises in fisheries exist despite the stated objectives and efforts of fisheries policy, science and management. Therefore, just changing the objectives of fisheries management to feature biodiversity concerns will improve nothing unless the fundamental problems of fisheries unsustainability are fixed. There is, however, a strong imbalance between developing and developed countries in their capacity to face the constraints implied by the preservation of marine biodiversity. While this preservation implies long-term gains, its short-term costs warrant specific attention, and imply the design of adequate compensation and assistance mechanisms, particularly in developing countries.

Discussions during the workshop focused on proposed priority actions in order to make progress, in terms of the integration of sectoral policies, governance, promotion of sustainable harvesting methods, and development of the research basis of ecosystem management policies. These proposed priority actions were presented in more detail in several case studies presented by invited speakers. The full list of presentations during the workshop is given in the accompanying box.

Presentations

Mamy Andriantsoa, Directorate for Fisheries and Fisheries Resources, Republic of Madagascar. "Co-management of the shrimp fishery and protection of biodiversity in Madagascar."

Armando Astudillo, EC DG Fish, Belgium. "Current fishery management tools and the ecosystem approach."

Moctar Ba, Commission sous régionale des Pêches, Sénégal. "The case of the sub-regional fisheries commission (SRFC) of West Africa."

Keith Brander, ICES/GLOBEC, Denmark. "Is climate change moving the goalposts for fisheries management?"

Anthony Charles, Saint Mary's University, Halifax, Canada. "The Big Picture: Fishery Management, Ocean Management and Biodiversity."

Nick Dulvy, CEFAS, Lowestoft Laboratory, UK. "Extinction and Threat in the Sea".

Serge Garcia (chair of the workshop), FAO Fisheries Department, Italy. "Marine fisheries, biodiversity and ecosystems: ultimate challenges and old devils."

François Gauthiez, Directorate for Marine Fisheries and Aquaculture, France. "Biodiversity in the marine fisheries policy: the French experience."

Carlo Heip, Netherlands Institute of Ecology, Netherlands. "Marine Biodiversity: Past and Present Concerns."

Simon Jennings, CEFAS, UK. "From single species to ecosystem-based management."

Pascale Joannot, MNHN & IFRECOR, France. "French initiatives in favour of the protection and sustainable management of coral reef ecosystems."

Brian R. MacKenzie, DIFRES, Denmark. "Anthropogenic Impacts on the Baltic Sea: Problems and Solutions."

Jake Rice, ICES & DFO, Canadian Science Advisory Secretariat, Canada. "Including biodiversity considerations in fisheries management."

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