



**GENERAL FISHERIES COMMISSION FOR
THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES
POUR LA MÉDITERRANÉE**



Committee on Aquaculture (CAQ)
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Key issues towards Guidelines for the sustainable management of coastal lagoons in the Mediterranean and the Black Sea

BACKGROUND

1. During the 6th and 7th Sessions of CAQ (Tirana, Albania, 17–19 December 2008; Rome, Italy, 8-10 March 2011), environmental degradation was recognized to have negatively affected many coastal lagoons in the Mediterranean and the Black Sea due to inadequate management. CAQ thus stressed the importance of interactions between aquaculture and capture fisheries in these fragile ecosystems and motioned for their sustainable management consistent with an integrated coastal zone management.
2. Consequently to the acknowledgment by the Commission at its 33rd Session (Tunis, Tunisia, 23–27 March 2009) of the work of CAQ in addressing the sustainable management of coastal lagoons, the GFCM Secretariat developed the project LaMed-2 “Mediterranean coastal lagoons management: interactions between aquaculture and capture fisheries”, funded by the Italian Ministry of Agriculture and Forestry Policies.
3. Finally, at its 36th Session (Marrakech, Morocco, 14-19 May 2012) the Commission, acting on the advice made on aquaculture management, gave mandate to the Secretariat and to the CAQ to proceed with the preparation of specific guidelines to be presented during the next session on a management plan for Mediterranean coastal lagoons to address the conservation of traditional aquaculture and artisanal capture fisheries, the prevention of any further degradation of coastal lagoons and restoration of the environment.
4. This document proposes a follow up on the activities of the GFCM Secretariat on this topic as reported, *inter alia*, in documents GFCM:CAQ/VIII/2013/2, GFCM:CAQ/VIII/2013/Inf.3, GFCM:CAQ/VIII/2013/Inf.4, GFCM:CAQ/VIII/2013/Inf.5, GFCM:CAQ/VIII/2013/Inf.6 and GFCM:CAQ/VIII/2013/Inf.20.

INTRODUCTION

5. Coastal lagoons are shallow coastal water bodies separated from the sea by a barrier, connected at least intermittently to the sea by one or more restricted inlets and usually shore parallel oriented. As far as the GFCM Area is concerned, coastal lagoons have to be preserved for the benefit of present and future generations for the economic and ecological services they provide.

6. Having considered the peculiar nature of these ecosystems where aquaculture, capture fisheries and environment interact, various elements should be identified to inform the elaboration of a plan, beginning with a set of guidelines, for their sustainable management. It is suggested that for the sustainable management of coastal lagoons in the GFCM Area the following elements are *inter alia* addressed:

- the interactions between aquaculture and capture fisheries;
- the prevention of degradation of coastal lagoons and the conservation of biodiversity;
- the traditional uses of coastal lagoons, namely aquaculture and capture fisheries, and their interactions with other uses of coastal lagoons and activities having an impact on them;
- the conservation of traditional aquaculture and capture fisheries, with specific reference to extensive aquaculture and artisanal capture fisheries, including traditional knowledge of coastal communities;
- the interaction that ichthyophagous seabirds and other non-marine species play in coastal lagoons management; and
- the restoration of the ecosystems associated to coastal lagoons in the GFCM Area.

COASTAL LAGOONS IN THE GFCM AREA: TRAITS, CONSERVATION, RELEVANCE AND RISKS

Traits

7. Coastal lagoons are semi-enclosed water bodies. In the GFCM Area they are ecosystems having, *inter alia*, the following traits:

- i) they are separated from the sea by sandbars crossed by one or more channels, which normally require regular maintenance,
- ii) they are characterized by a great variability in abiotic parameters, high productivity and high rate of sedimentation and relatively shallow waters,
- iii) due to relatively low tides in the Mediterranean and Black Sea, coastal lagoons are little affected by tidal currents; water salinity varies from brackish to hyperhaline according to freshwater input and exchange of marine water with the adjacent open sea, rainfall and evaporation rate.

Conservation

8. As a result of the above traits, the conservation of coastal lagoons in the GFCM Area is linked to a correct hydraulic management, which contributes to the control of the ecological characteristics of the system and to production enhancement. Hydraulic management improves water circulation between the lagoon and the sea and inside the lagoon, the distribution of trophic resources in the lagoon, and fosters the migration of euryhaline species into the lagoons.

9. Coastal lagoons are highly ecological resilient and productive ecosystems with impressive environmental heterogeneity among different lagoons and among various portions of the same lagoon (great number of environmental factors, connectivity of food webs, interfaces with the lagoon watershed and the adjacent sea). Coastal lagoons in the GFCM Area can be regarded as being relevant

also from a historical perspective and as a cultural heritage for coastal lagoon communities concerned. For these communities extensive aquaculture and capture fisheries in particular represent activities of common interest in terms of preservation of traditional knowledge and biodiversity conservation.

Relevance

10. The GFCM area includes roughly 400 coastal lagoons which represent important transitional ecosystems with concrete socio-cultural and socio-economic interests revolving around them. In addition to capture fisheries and aquaculture, different uses may occur of coastal lagoons and the surrounding territory, such as agriculture, urbanization, industrialization and tourism. By specifically addressing aquaculture and capture fisheries in coastal lagoons though, GFCM can greatly contribute to the sustainable management of coastal lagoons within an integrated coastal zone management.

11. As it has been noted in several occasions within the CAQ, and most recently at the LaMed meeting held in Cagliari (Italy) in June 2011, small scale capture fisheries and various forms of extensive aquaculture have a long tradition in coastal lagoons in the GFCM Area. The management of these lagoons was mainly aimed at the exploitation of those euryhaline species migrating into the coastal lagoons from the sea and backwards, in particular with capture systems placed at the communication channels between the lagoon and the open sea, which enabled the selective capture of the different species and, in the more complex systems, of different sizes of the same species. In several coastal lagoons, portions were confined to be managed in order to enhance production, with specific hydraulic management and restocking actions with wild fry.

12. Most coastal lagoons as can be seen today are the results of the interaction of natural dynamics and management by man for centuries. After all, coastal lagoons always had a great importance for local populations, for their high productivity and for their use as shelter for boats. Several Mediterranean and Black Sea coastal lagoons would not have survived without the continuous management by local communities aimed at enhancing fish production or game hunting for instance, thus enabling the conservation of these environments through centuries. This has been highlighted by GFCM within the remit of the LaMed project.

13. Regardless of local traditions and specific management models employed thus far, aquaculture and capture fisheries - but also environmental protection of coastal lagoons in the GFCM Area - have usually received marginal attention whilst at the same time land reclamation and the expansion in activities related to agriculture, urbanization, industry and tourism in coastal lagoons surroundings have seriously impacted these vulnerable ecosystems, sometimes affecting their preservation.

Risks

14. The need for sustainable management of coastal lagoons in the GFCM area is presently in demand owing to, *inter alia*, the following risks:

- the environmental repercussions of human activities on the coastal zones in the GFCM Area, including overexploitation of living marine resources which are found there;
- the negative impacts of several human activities on coastal lagoons;
- the lack of an integrated approach in an attempt to achieve a sustainable management of coastal lagoons, as optimal balance between conservation and use, in particular as far as aquaculture and capture fisheries are concerned:
- loss coastal lagoon biodiversity;
- the decrease in coastal communities;
- potential risks posed by unmanaged coastal lagoons on human health.

SUGGESTED ACTION BY THE CAQ

15. GFCM has already acknowledged the importance of the 1971 Ramsar Convention as the first modern international treaty for cooperation on wetlands and the rational use of resources therein. When it comes to the elements of a plan for the sustainable management of coastal lagoons in the GFCM Area required for an integrated vision of aquaculture and capture fisheries, artisanal fisheries in particular, the importance of other instruments, such as the 1979 Bonn Convention, the “Barcelona system”, the 1995 FAO Code of Conduct and the 2002 Johannesburg Declaration, was also acknowledged. These instruments highlight the role of the management of natural resources as well as of the traditional activities of coastal communities in coastal lagoons and were ratified by several GFCM Members.

16. Consistent with this legal framework, a set of guidelines capable of supporting production through extensive aquaculture and small scale fisheries in the framework of biodiversity conservation and of local knowledge aimed at preserving unaltered the heritage in relation to coastal lagoons for the benefit of future generations should be considered as a viable option to achieve the sustainable management of coastal lagoons in the GFCM Area.

17. More precisely, the CAQ should identify elements that could inform the elaboration of a plan, beginning with a set of guidelines, for the sustainable management of coastal lagoons in the GFCM Area. This action should be launched against the background of international instruments mentioned above and of those priorities, conclusions and recommendations already noted within the remit of the work done by the LaMed project. It is in particular proposed that the set of guidelines for the sustainable management of coastal lagoons in the GFCM Area *inter alia* addresses:

- the interactions between aquaculture and capture fisheries in coastal lagoons in the GFCM Area;
- the traditional aquaculture and artisanal fisheries and the multiple use of coastal lagoons and the integrated coastal zone management;
- the prevention of degradation of coastal lagoons in the GFCM area and the conservation of biodiversity and natural habitats;
- the traditional uses of coastal lagoons, namely aquaculture and capture fisheries, and their interactions with other uses of coastal lagoons and activities having an impact on them and on coastal fisheries communities;
- the conservation of traditional aquaculture and capture fisheries, with specific reference to extensive aquaculture and to artisanal fisheries, including traditional knowledge of coastal communities;
- the interaction that ichthyophagous seabirds and other non-marine species play in coastal lagoons management; and
- the restoration of the ecosystems associated to coastal lagoons in the GFCM Area.

The set of guidelines should inform in the medium term the drafting of a plan for the sustainable management of coastal lagoons in the GFCM Area or of any other action that will be considered appropriate by GFCM Members to follow up on the set of guidelines at the earliest possible convenience.