November 2008

E

GENERAL FISHERIES COMMISSION
FOR THE MEDITERRANEAN

COMMISSION GÉNÉRALE DES PÊCHES
POUR LA MÉDITERRANÉE

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

COMMITTEE ON AQUACULTURE

Sixth Session

Tirana, Albania, 17-19 December 2008

TREND AND ISSUES OF MARINE AND BRACKISH MEDITERRANEAN AQUACULTURE

INTRODUCTION

1. This document describes, in a first part, the main trends in aquaculture production in the Mediterranean and Black seas. The FAO aquaculture production data base have been used, focusing only on main species groups (i.e. fish, mollusc and crustaceans) with special attention to sea bream and sea bass, the two major cultured species. Limitation in data source did not permit to distinguish among the different technologies applied on marine and brackishwater aquaculture, nor, at this stage on production mode (e.g. intensive versus extensive). In addition, the current lack of harmonized common monitoring and reporting standard at country level, did not allow for sound analysis and is therefore not addressed. When using different sources of information, including the SIPAM database, above mentioned data limitations become even more salient.

2. Unless tangible efforts are made to enhance data quality and reporting, it will be difficult to estimate the economic performance of the sector. Nevertheless, some trends on the value of marine aquaculture production are alluded to hereunder.

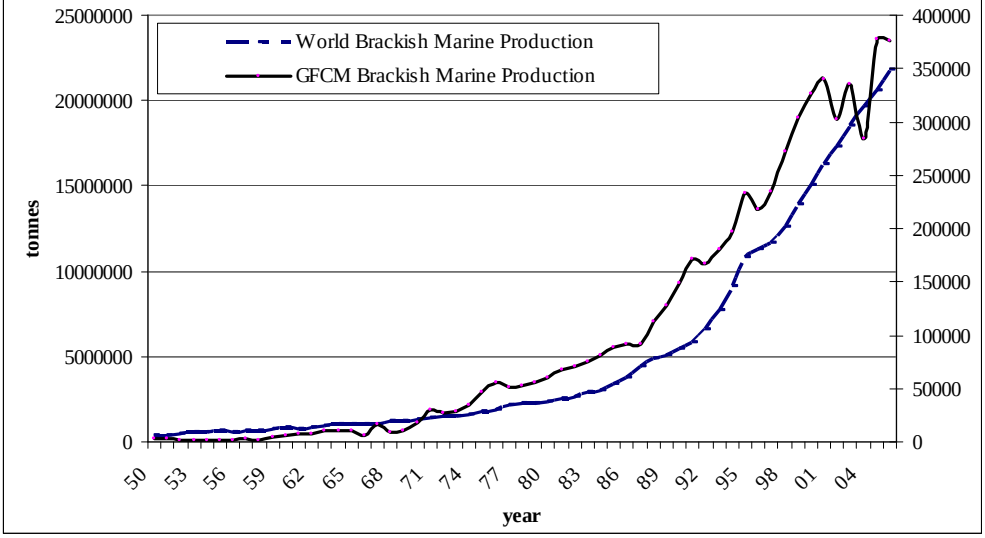
3. A second part of the document recalled selected priority issues as well as emerging one that need to be further discussed to promote a sustainable development of marine and brackishwater aquaculture in the GFCM region.

OVERVIEW OF MARINE AND BRACKISHWATER AQUACULTURE PRODUCTION TRENDS

4. Aquaculture plays a major role in enhancing global fish production and in responding to the rising demand for fishery products. In the Mediterranean and Black Sea, meanwhile the production of capture fisheries has stabilized in the early 90's and many capture fisheries stocks tend to be fully or overexploited, marine aquaculture production continued to grow thus representing a increasing share of the global Mediterranean fisheries production.

5. The same exponential trend of the overall world aquaculture production is closely reflected (Figure1), in the Mediterranean and Black Sea[1]. Indeed, the average annual growth for the period from 1985-2006 for marine and brackishwater aquaculture is estimated at 7.6%. This compares to capture fishery production which was about -0.67 %, during the same period, thereby confirming its stagnating situation.

Fig.1 Brackish / Marine aquaculture production

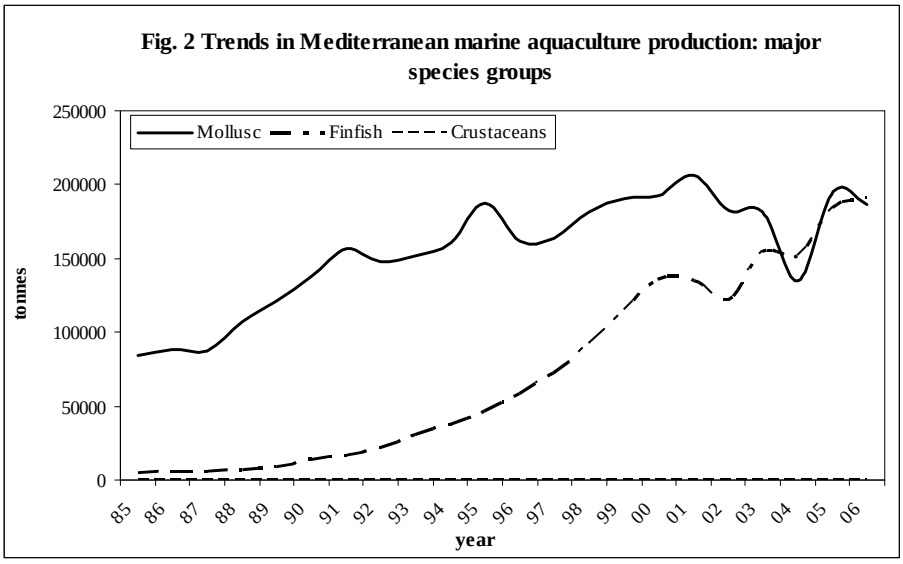


6. In the GFCM area, molluscs culture and farming of finfish species, including bluefin tuna have characterized mariculture in recent years. Total marine and brackishwater aquaculture production, including all categories and species, has increased from 89 959 tonnes in 1985 to 234 446 tonnes in 1995 and thereafter to 377 984 tonnes in 2006.[2] (Fig 2 and Fig.3). Production of brackishwater and marine finfish showed the fastest growth rate from 5 344 tonnes in 1985 to 51730 tonnes in 1995, reaching 191673 tonnes in 2006. This corresponded to an average annual growth rate of 24.9 % for the period 1985-1995 and 14.6% for the period 1996 - 2006. The production of molluscs had the maximum increase during the decade 1985-1995 (from 85 598 tonnes to 187 886 tonnes) with an average annual growth rate of 8.5%. Comparatively, the average annual growth rate for the period 1996-2006 was only 1.3%, translating into a stabilized trend from 185 891 tonnes in 1985 to 184.182 tonnes in 2006. The production of crustaceans and aquatic plants remained limited in quantity terms.

---

1 Source: data analysed from FAO, FISHSTAT, 2006. Due to different allocation in the data system attributed for part of Spain marine aquaculture production and for the Egypt brackish aquaculture production on Mediterranean area, the total GFCM production is underestimated for all the time series.

2 Source: data analyzed from FAO, FISHSTAT, 2006



7. Within the mollusc production, the mussels *Mytilus galloprovincialis* (European mussels) remain the main species representing in 2006, 60.4% of the total with 112 486 tonnes. The Japanese carpet shell (*Ruditapes philippinarum*) represented in turn 30.5% with a production of 56 731 tonnes, while the European oyster (*Ostrea edulis*) ensured 5.23 % of the mollusc production.

8. The production of the two species seabass (*Dicentrarchus labrax*) and gilthead seabream (*Sparus aurata*) is accountable for 92.4 % (respectively the 46.2% and the 46.0%) of finfish production: in 2006. Bluefin tuna, *Thunnus thynnus* was estimated at 9.1% of the production. The rest was covered mainly by the meagre (*Argirosoma regius*), flathed grey mullet (*Mugil cephalus*) and other sparids.

9. The Mediterranean and Black Sea production appeared quire homogeneous in terms of species reared and global trends. Important variations should however be noted at country level, although Egypt, France, Spain, Italy, Turkey and Greece remained the main producing countries.

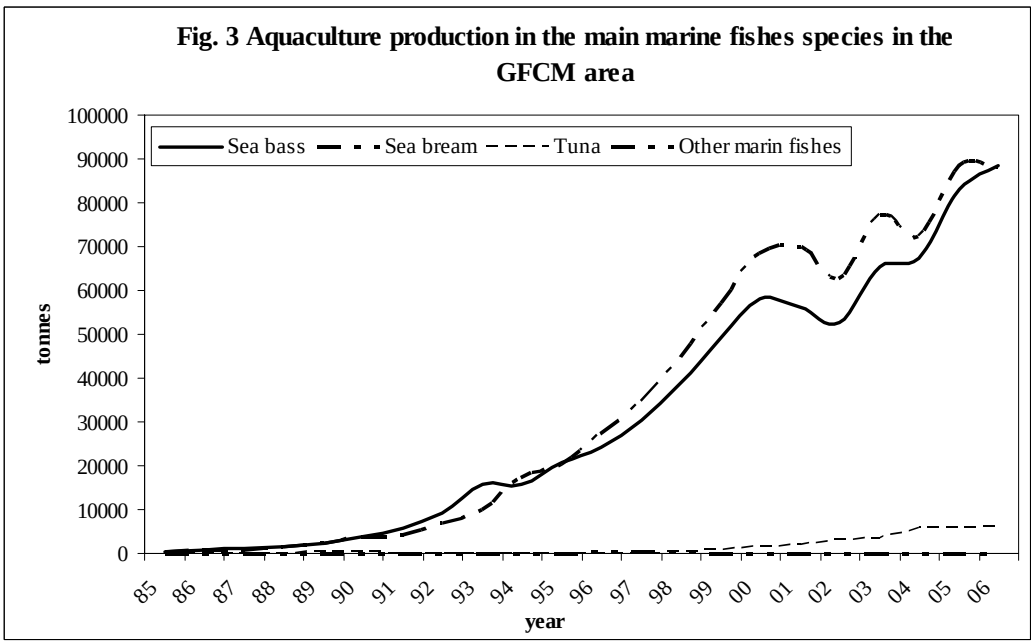
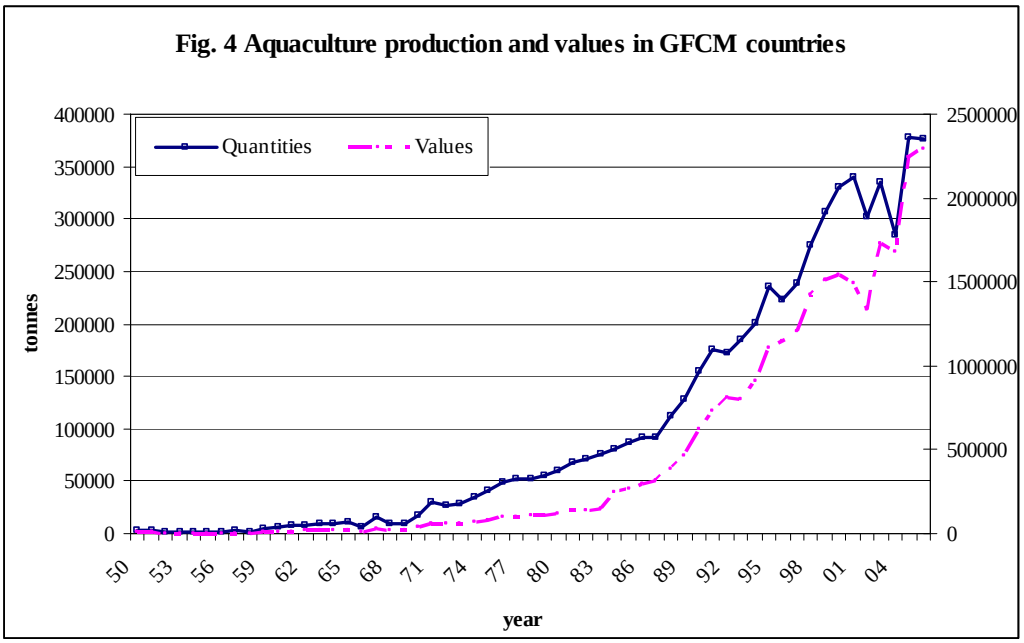


Fig. 4 Aquaculture production and values in GFCM countries



10. Production trends in values closely followed those described above for quantities (Fig.4). In 2001-2002, however, the rapid production growth lead to some unbalanced between the supply and demand with the consequence of forcing prices dropdown, especially for Sea bass and Seabream, which encountered reduced profitability and sometime economic losses for concerned farms. A similar pattern seems to take place presently if the data forecasts for 2008 are confirmed, with possible negative impacts on the overall chain, i.e, feed producers, hatcheries, transports, etc.

11. It should nevertheless be noted that, over the years, many significant changes occurred within the sector to explain the sustained growth in production and value. The evolution showed a better organization of the sector through activities of the producers and producers associations, especially in the northern portion of the Mediterranean. Notably progress were made to better transfer the results of applied research to producers and rearing technologies, at least for some specific species. In particular, improvement in fry production for Sea bass and Sea bream, as well as the expansion of cage culture and the refined fish feed technology, including with better fish health management control and husbandry practices characterized enhanced outputs. New market opportunities together with significant investments from both public and private sources facilitated the expansion of the sector. The increasing of international trading and large market distribution networks have also contributed to creating a new and evolving context for farmed finfish. However, near shore, traditional extensive aquaculture systems remained unchanged. This is the case for example for production from lagoons and estuarine areas. While contributing steadily to the overall production increases, the traditional extensive and/or small-scale family aquaculture systems appear overall less robust, compared to a decade ago.

12. In this rapidly evolving situation, global trends, although satisfactorily, may hide emerging difficulties and will need to be conforted from data and information for each main category of farms and production systems together with a close monitoring of market trends.

SELECTED PENDING AND EMERGING ISSUES

13. The development of marine and brackwish aquaculture in the Mediterranean and the Black Sea continues to be hampered by a lack of reliable data and information for generating sound sector analysis

and identifying sustainable prospects. Issues such as marketing at large, environmental concerns, aquaculture compatibility in the use of coastal areas, applied research cooperation and aquaculture standards remain on the forefront. Among these priorities issues, CAQ has already taken initiatives to tackle some of them, other will need to be addressed, as follows.

- CAQ repeatedly acknowledged that available aquaculture statistics underestimate current production. Efforts should urgently be made to ensure data quality and coverage, harmonized data collection and reporting protocols so as to base measures to sustain the sector on a enhanced scientific ground.
- The availability of marketing information is recognised as priority by producers. The close monitoring of the elasticity of demand and of price trends for the main species and more generally of production costs by producing segments is essential to assess the competivity of the Mediterranean aquaculture versus the other production poles.
- Consumers' awareness of environmental integrity, food quality and safety of aquaculture products tend increasingly to become a precondition for acceptability and growing consumption of Mediterranean products. Quality issues, certification and traceability of aquaculture products are prerequisite to improve the image and public perception of farmed products. Concomitantly, support to the development of biological and organic aquaculture represents an additional opportunity for Mediterranean market.
- The environmental impact of marine aquaculture on the Mediterranean coastal zones, particularly on sensitive habitats, is receiving higher attention and concerns. This calls for harmonized regulatory and monitoring framework, especially in relation to Environmental Impact Assessment procedures and site selection procedures which could favour the development of aquaculture zoning in an ecosystem perspective.
- In the Mediterranean, aquaculture and capture fisheries coexist since centuries with the complementary objective of ensuring the availability of aquatic organisms for direct or indirect human consumption. The interaction between aquaculture and capture fisheries, especially pre-empting potential conflicts and identifying synergy and mutual benefits in the context of integrated Coastal Zone Management needs to be further systematized.
- While marine aquaculture techniques currently offer several culture models and rearing packages, the two main production models applied remain the sea bass and sea bream cages culture system with risks of bottlenecks through increased supply and production costs. Research on new species and new diversification production' models are required to develop new market opportunities, including with support of emerging new technologies, as it might be the case with micro algae culture for substitution of fish oil and fish meal, or the fattening of, for example, meagre and octopus.
- Scientific cooperation and coordination among the Mediterranean research institutions on the different fields should be strengthened, including for capitalizing on efforts made at local level, to generate global regional outputs necessary to face current world competition. Ensuring communication and dissemination of research, from and to farmers and coastal communities appears essential for further development of the sector, especially on the southern arm of the Mediterranean.

SUGESTED ACTION BY THE COMMITTEE

14. The Committee is invited to comment on the availability and quality of data and information and provide guidance on how to establish a sustainable framework at regional level with the view to performing assessment and prospective analysis of the marine and bracksihwater aquaculture sector in the Mediterranean and the Black Sea.

15. The Committee may also wish to consider the pace at which the priorities issues it has identified are addressed by its subsidiary bodies and assess the need to fill some gaps or address new issues.