

MARICULTURE IN CENTRAL AND EASTERN EUROPE AND POSSIBILITIES FOR ITS DEVELOPMENT

Branko Glamuzina

Department of Aquaculture, University of Dubrovnik, Dubrovnik, Croatia

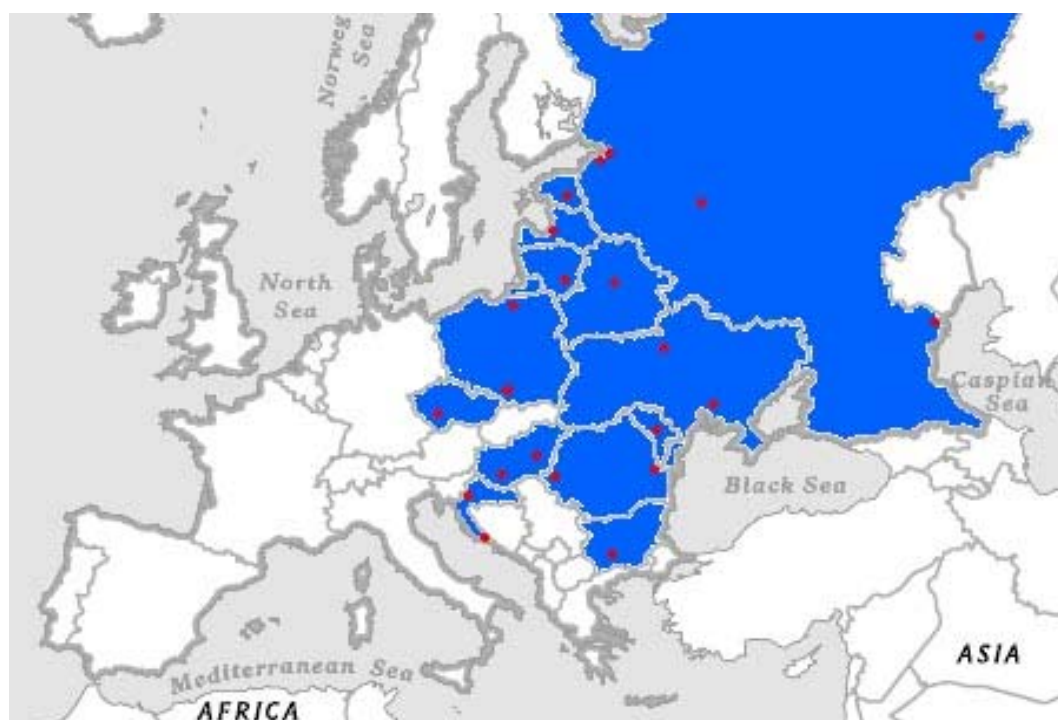
Introduction

Mariculture is culture of organisms in marine and brackish waters, including plants and animals. The countries with marine waters inside the NACEE network are: Estonia, Lithuania and Latvia (Baltic Sea), Croatia, Bosnia-Herzegovina (Adriatic Sea), Bulgaria, Romania, Ukraine (Black Sea) and Russian Federation (Black and Baltic Seas and the Arctic Ocean).

The present leader among these countries is Croatia with 10 000 tonnes of annual production, with diverse products such as sea bass, sea bream, tuna, oyster and mussels. A similar technology exists in Bosnia-Herzegovina, with 100 tonnes of fish production and 15 tonnes of mussel production.

Production of mussels and oysters existed in the former Soviet Union, but due to the low economic performance in the transition period, most of the farms in most successor states are out of production now.

As a part of the NACEE-created cooperation with the Institute of Fisheries of UAAS, a delegation from the University of Dubrovnik visited the Institute and Polytechnic in Kerch and witnessed a huge natural potential for culture of shellfish associated with a significant fund of knowledge among scientific workers. However, despite the fact that there is a chronic lack of funding for scientific work, the enthusiasm of scientists is enormous. Anyway, without significant new investment in modern aquaculture facilities it is difficult to expect any new progress. The rebuilding of the old scientific base near Kerch is a MUST in this new development, and this should be an object of NACEE's project applications for EU funds.



Status of mariculture production in NACEE member countries

According to FAO's NASOs that are currently available only for four NACEE states with access to marine waters:

Croatia: produces 4 000 tonnes of tuna, 4 000 tonnes of sea bass and sea bream, 3 000 tonnes of mussels and 100 tonnes of flat oysters.

Bosnia-Herzegovina: produces 92 tonnes of marine fish and 15 tonnes of molluscs.

Estonia and Poland reported no production in marine waters.

For other countries (Bulgaria, Romania, Ukraine, Russian Federation, Lithuania and Latvia) NASOs are not available. However, it is known that there is no intensive culture of marine fish, such as sea bass and sea bream, in any of these countries. But due to new investments in these countries, delegates should provide us with new information.

A special case is the extensive culture of mullets in Ukraine. According to data of the 2004 report, around 250 tonnes of mullets are produced this way.

Possibilities for development

It is evident that NACEE mariculture should be done in three different areas: Adriatic, Baltic and Black Sea. While the Adriatic is excellent for modern intensive marine cage fish culture, it is hard to believe that a similar technology could be applied commercially in the Baltic or Black seas. But it is also clear that modern shellfish culture could be re-established and started in countries around the Black Sea like Bulgaria and Romania, especially in the light of the new touristic developments. Ukraine and Russian Federation have traditions in cultivation of molluscs, like mussels, flat and Pacific oysters. Anyhow, the present production in the Crimea area, Ukraine, is insignificant, despite the knowledge, plans and available technology and experience. The Black Sea area around Crimea has a good potential for shellfish culture and NACEE could contribute to this new development.

Considering marine fish culture, the situation is more difficult due to the low winter temperatures, ice on the sea surface and no experienced personnel. Although technology could be imported and manpower trained, the natural conditions will never make the culture of warmwater marine species in cages competitive to Mediterranean countries, such as Greece or Turkey.

The only possibility is culture of native species tolerant to lower temperature and other natural conditions such as lower salinity. One of the good candidates that is already object of scientific research is the Black Sea turbot, *Psetta maeotica*. This species is spawned and fingerlings are produced in Romania and Ukraine on an experimental scale.

However, as mariculture in Croatia has long traditions and the present commercial-scale technology, including hatcheries and sea cages as well as marine recirculation systems, is modern and updated, other countries with interest in mariculture can have access to modern technology through cooperation within the NACEE network.

This cooperation and ways of its implementation should be discussed during the meeting in Dubrovnik.

Conclusions

We may say that mariculture in NACEE member states is underdeveloped and the possibilities for development of the sector are under-exploited, both in traditional mariculture states such as Croatia and others like Ukraine or Russian Federation. It is also clear that the future development has significant limitations, including natural conditions, availability of space, coast structure, knowledge of the technology, working manpower and financial issues.

However, space for development exists, but detailed feasibility studies should be prepared for each state, species and technology. NACEE could play a significant role in support of this new development of mariculture.