

VALUABLE PRACTICE: Exploring potential for allocation of offshore aquaculture areas and their integration in MSP

Description

Marine aquaculture is one of the important key sectors for the Blue economy. The recently published study “Access to space and water for marine aquaculture” (European Commission, 2023) identifies although this activity was integrated into MSPs through different types of zones (exclusive or flexible ones), there are needs for improvements in regard to allocation of space and water. Also, the new production models for aquaculture (e.g., offshore aquaculture, seaweed production) and their associated needs regarding space allocation, are not sufficiently considered within the MSPs. As the climate has become more variable, offshore farms have become more common.

Aquaculture (sea and freshwater) in Bulgaria contributes 13% of the fisheries and aquaculture sector production with a total value contribution of EUR 13 million to GVA. Some 1,100 people are employed in this sub-sector. As of 2023, 28 aquaculture farms were registered (coastal and coastal lakes): 20 farms for black mussels, 1 fish cage farm, 1 oysters & black mussels, 1 for rainbow trout, 1 for black mussels & shrimps and 4 for marine worms.

The Bulgarian MSP Plan integrates existing zones with aquaculture farms (within 1 NM) and developed recommendations to reduce their environmental impacts and conflicts with other coastal and maritime uses.

Practice typology

(i) Measures + (iv) zoning

Topics addressed

Main	C. Sustainable sea-food production [C.2 Sustainable aquaculture and shellfish production (C.2.1 Development of marine aquaculture installations; C.2.4 Multi-use of the sea space: combinations including marine aquaculture)].
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Sectors/Activity involved

Aquaculture and fisheries, indirectly, shipping, coastal and maritime tourism; maritime defence, nature protection, landscape protection, scientific research, marine industry.

Stakeholders involved

Consultations with administrative (military, maritime administration) and private stakeholders at national and subnational level on the permission of licensing for aquaculture farms.

Monitoring: At regional and national level the implementation and monitoring is provided by the Executive Agency of Fisheries and Aquaculture to the Ministry of Agriculture, Food and Forests.

Geographical scope

The analysis for this zoning has been applied to internal waters of Bulgaria (1 NM) (Figure 1).

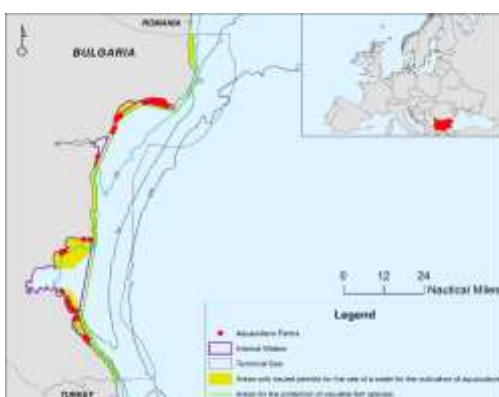


Figure 1. Area for potential location of offshore aquaculture in Bulgaria.

Governance context

There are shared competences in regard to aquaculture sector and farms:

- ✓ The authorisation/licensing for aquaculture farms is regulated by a scheme of the Black Sea Basin Directorate (subnational/regional level) to the Ministry of Environment and Water of Bulgaria (MOEW) (national level) in accordance with "Instruction for identification of waters in water bodies or parts of them for habitat of fish and the areas with coastal waters for the breeding of shellfish organisms according to the order of Ordinance 4/20.10.2000", as well as with the Fisheries and Aquaculture Act (2001) and other regulations.
- ✓ The Ministry of Agriculture, Food and Forestry of Bulgaria through its Executive Agency of Fishery and Aquaculture (EAFA), is the public institution responsible for fisheries and aquaculture sectors and legislation at a national level, also coordinating actions and activities with other ministries, regions and other stakeholders (at national and subnational level).
- ✓ MSP plan does not envisage suitable areas allocated for new onshore or offshore farms, as it is a strategic document, also the offshore farming technology is still under development. The competent MSP authority is the Bulgarian Ministry of Regional Development and Public Works (MRDPW).

The development of marine aquaculture is highly dependent on the good quality of the sea water and the impacts of land-based human pressures. In particular, shellfish farming requires high water quality to minimise food safety risks and associated producer costs (e.g., depuration). Locating marine aquaculture production close to the shore therefore requires a constant monitoring of water quality and a reduction of these pressures. The good ecological and environmental status of sea waters is provided by the provisions of the MSFD and WFD and the national Marine Strategy and Programme of Measures implemented by the Black Sea Basin Directorate (to the MOEW) and fully integrated in the Plan.

How this MSP practice can support the EU Green Deal

The aspect on which this practice mainly supports the EGD is in C. Sustainable sea-food production, C.2 Sustainable aquaculture and shellfish production (C.2.1 Development of marine aquaculture installations and C.2.4 Multi-use of the sea space: combinations including marine aquaculture) by exploring the potential for definition and allocation of new offshore areas for shellfish aquaculture (mostly black mussel) and the way they can be integrated in MSP.

The Plan has Specific objective 2.4. Sustainable development of the Fisheries and Aquaculture sector. It provides general recommendations for sustainable aquaculture development, the keys are:

- ✓ Diversifying fishery and aquaculture production by tapping in economic synergies with tourism, recreational fishing and enhanced environmental services in MPAs;
- ✓ Promoting good aquaculture practices and market expansion;
- ✓ Deepening cooperation among all stakeholders in fisheries and aquaculture sector (FLAGs could play the role of cross-sectoral clusters);
- ✓ Removing abandoned aquaculture facilities against plastic debris.

The onshore areas of Bulgarian maritime space are overcrowded by different human uses, in particular the two large bays of Varna and Burgas and there is higher risk of conflicts with other activities. Inshore waters are also more vulnerable to eutrophication from agricultural run-off and tend to have more dynamic and changeable



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environmental conditions. On the other side, offshore areas are also more stable in terms of changes of salinity, seawater temperature and seawater are clearer. Zones for shipping do not overlap with aquaculture zones, where shellfish farming is mainly carried out. The indirect impact is similar to that on the environment, as farmed shellfish accumulate pollutants during seawater filtration, which can make them unsafe for human consumption. The mussel farms in the Burgas Bay area may be the most affected due to the spatial proximity of the shipping areas.

Challenges/gaps/inconsistencies still to be addressed

- ✓ Challenges: lack of well protected bays, seawater temperature variations, climate change impacts, land-based pollution;
- ✓ Competition for space with coastal tourism, port activities, maritime transport, non-living resources (offshore oil and gas) and fishing;
- ✓ Synergies may exist with offshore wind farms (e.g. multi-use platforms) and mix interactions with coastal tourism.

The scenarios of the Plan for future development of aquaculture are not sufficiently supported with scientific rational and methodology, or for the multi-use opportunities with other sectors. The Plan does not envisage future (reserved) zones for offshore aquaculture that might overlap with newly designated or extended MPAs. The Plan does not provide cumulative impact assessment to its EIA report and these aspects could risk the objectives of the EGD and related policies regarding D. Biodiversity and ecosystem protection and restoration. Currently the existing aquaculture zones overlap with MPAs, as part of the mussel farms fall into Natura 2000. Farms could provide biological treatment through the ability of mussels to filter suspended particles in seawater. However due to production of solid and liquid waste as a result of shellfish production, the two activities are incompatible (this proves once more the need of shifting this activity offshore).

Climate change issues are only generally considered in the MSP Plan and its EIA report, with regards to the potential negative impacts on aquaculture. Also, the EIA is not implemented for marine aquaculture production. Some mitigation actions can include:

- (i) a change in cultivated species (e.g., acidification can be a boost for sea algae production)
- (ii) the identification of new areas for marine aquaculture (e.g., areas with natural protection for farms and structures against extreme events), (in line with B. Climate change adaptation (B.3.2 Identification of areas to be used in future by specific sectors, due to climate change (e.g. fisheries, aquaculture, maritime routes, etc.).

There is a risk of policy inconsistency and conflict due to the diversity in the institutional structure for aquaculture and national MSP. The licensing and permitting of aquaculture generally remain solely in the field of the fisheries sector management and the Black Sea Basin Directorate, both at national and local levels. The Plan integrates the existing aquaculture zones/farms and makes cross-reference among different agencies and jurisdictions, but the degree to which this is guided by the national MSP is not sufficiently clear. In reality the aquaculture zoning remains the responsibility of the aquaculture managing and environmental authorities, and it is still not clear what will be coordinated with the MSP process.

The Ordinance for authorisation/licensing for aquaculture farms is up to date and does not include the permissions for development of offshore aquaculture. This imposes updates of the regulation and policy reforms.

In conclusion, there is a need to move to offshore aquaculture to avoid the crowded coastal and onshore space and to capitalise on more stable, albeit exposed conditions away from the coast. This is likely to bring aquaculture out of local planning into national MSP and present a new set of challenges in terms of coexistence with other offshore activities.

Replicability /Elements which can be capitalised

- ✓ Aquaculture is well considered in the national MSP plan and it is recognised as one of the key blue economy sectors;
- ✓ General consideration for synergies with other sectors can also be capitalised: how co-location opportunities can be maximised; multi-use concept should be encouraged in MSP to provide better visibility on spatial synergies between existing/potential maritime activities;
- ✓ Opportunities exist for aquaculture to share landside facilities and infrastructure (e.g., quay space, bunkering) with other marine economic activities (e.g., aquaculture has potential synergies with offshore energy, capture fisheries, tourism and environmental conservation) to foster the efficient use of maritime and coastal space. These synergies can be highlighted by the identification and promotion of opportunities for flexible co-development / co-location and sharing of common resources and facilities across different sectors;
- ✓ Results from interviews with MSP authority conducted in Task 2.2 showed recommendation on new requirements regarding the aquaculture zones in the revisions of the plan, that may result also in adjusting the national normative regulations to reach the EGD objectives (as pointed above);
- ✓ The aquaculture is still developed in the onshore areas and does not benefit from dedicated areas offshore, rather than is encouraged through multi-use areas. The operationalising of these areas in the Plan implementation is not clear yet;
- ✓ MSP Plan has an essential role in addressing many of these challenges, especially given the expansion of aquaculture offshore will often bring it under national rather than local jurisdiction. This might include:
 - spatial zoning for particular types of aquaculture systems
 - integration of models for wave climate, storm frequency, current and wind speeds that will facilitate the development of offshore aquaculture
 - identification of spatial synergies with other uses for co-development or land-sea access integration (e.g., ports, maintenance trips, etc.).
- ✓ Allocated zones for aquaculture (AZAs). Allocation of space offshore needs to be considered in accordance with the sector's interest (i.e., investors) and the existing or targeted production and markets (local, national or regional scale).