

## PartiSEApate sectoral workshop report

### “Spatial Planning implications of Aquaculture as a new user in the Baltic Sea”

Organiser: The Maritime Institute in Gdańsk

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#### Authors of the report

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#### Goals of the workshop/Main discussion points

Identification of:

- Expectations of sector towards Maritime Spatial Planning;
- Overall development prospects and related spatial targets for aquaculture in the Baltic Sea;
- Specific nature of conflicts / synergies with other sectors and interests in the Baltic Sea;
- Suggestions for future ways of involving sector in MSP development.

For each of the above topics, a list of guiding questions was developed in order to steer the discussion with the sector. These questions should be considered by the planners when preparing and working on their MSPs

#### Participants

In total 42 persons participated in the workshop.

- from BSR:

Denmark	Danish Aquaculture
Sweden	Axel Wenblad (former Head of Swedish Fishery Board)
Finland	Government of Åland (Aquabest), Finnish Game and Fisheries Research Institute (Aquabest / CoExist)
Germany	BioCon Valley e.V. (SUBMARINER), Coastal and Marine Research GmbH, Landesgesellschaft of Mecklenburg-Vorpommern (Aquafima Lead Partner)
Latvia	Ministry of Environment and Regional Development, Ministry of Agriculture (Fishery Department)
Lithuania	none
Estonia	none
Poland	Maritime Offices in Gdynia and Szczecin, University of Gdańsk, Institute of Oceanology PAS, DHI Polska, MIG
Russia	none
Norway	Shellfish Solutions AS

- outside BSR:

DG Mare, University of New Brunswick (Canada)

## 1. Very brief information on what was presented at the workshop

*Chances and opportunities for expanding aquaculture in the BSR: An Overview*

*Integrated Multi-Trophic Aquaculture (IMTA): An overview of the concept, the Canadian experience and its potential for the Baltic Sea Region*

*Practical example of a small-scale sea farming company in Germany specialized on high-value products*

*Prospects of aquaculture growth in the Baltic Sea from the Danish aquaculture industry perspective and its spatial & economic implications*

*Results of the national site selection project for Aquaculture in Finland & comparisons of institutional support structure between Sweden & Finland, results of the COEXIST project*

*Prospects and current European Commission initiatives on Aquaculture, Blue Growth and MSP*

*MSP in the Baltic Sea Region: principles and future developments in relation to aquaculture*

## 2. Expectations of sector towards Maritime Spatial Planning

**Guiding questions (for discussion):**

- *Expectations/fears/hopes of the sector towards MSP. Why MSP is important for them?*
- *Is the sector / topic more of an MSP (spatial planning) or ICZM (management plan) issue?*
- *Is coherent and consistent approach towards MSP between sea and land important for the sector's competitiveness? Why? To what extent? Which areas are most important (metropolises, cities or rural areas)?*
- *How does the sector wish to be consulted by maritime spatial planners? At what stage? What type of representatives? national? regional? Baltic? What should be avoided during consultation?*
- *Would it be helpful to establish joint criteria for MSP at pan-Baltic level for the identification and allocation of space for the given use? What type of areas & zones should be established in order to express best the interest of the sector / topic? What kind of data/information would the sector / topic see as necessary in order to make a knowledge based decision on their concerns for MSP? Which type of data / information is readily available? What kind of knowledge is missing and needs to be developed?*

The aquaculture sector places great hopes towards MSP in view of regaining a voice again ("the forgotten sector") and getting a stronger say again within a fair & overall consideration of spatial allocation.

The countries with no aquaculture (LV, DE, PL) rather expect that during MSP process the sector will be integrated or reflected as it has a future potential. As MSP should be concerned not only with the needs of the existing users/actors, perspectives for aquaculture could be outlined based on natural conditions.

When significant aquaculture areas are designated for development, it is important to take into account transnational aspects and to arrange broad consultations if needed. On the other hand, there is a fear that the transnational consultation takes time and thus the development of the business is slowed down. Therefore conceptual communication and an agreement of potential areas in the Baltic Sea could be beneficial.

When discussing and planning aquaculture in the Baltic Sea region, Russian authorities should be also involved as the country is also having development plans for the sector.

Site selection plans have been developed for Finland (and Sweden??). These are, however, sectoral plans and/or already take it for granted that aquaculture has to take the “left overs” after other users have made their claims. A first attempt has been made to compile criteria for site selection within the AQUABEST project.

It is hoped that a true integrated MSP process, however, would open the discussion for a more fair distribution of space taking into account new knowledge generated by IMTA and related environmental processes.

### 3. Overall development prospects and related spatial targets for aquaculture in the Baltic Sea

#### Guiding questions for discussion:

- *What are the plans for sector development in next seven years i.e. up to 2020?*
- *Are there any targets set for the sector (national and/or pan-Baltic)? In what documents those targets have been specified?*
- *How much space does the given sector need in the coming seven years up to 2020? Can it be estimated? What are the particular characteristics of the space required? Does a scientific support is needed to answer the question on necessary space?*
- *Which ecological and/or economic factors are important for the development of the sector / theme? Which other factors are important for the development of their sector / theme?*
- *What kind of economic role / influence has the sector / topic on the pan-Baltic region, national, regional level?*
- *What governance solutions does the sector perceive as the most important for its future development (levels of governance, needs for new law, institutions, and administration routines in order to ensure development of a given sector in BSR etc.)*
- *Does the sector see a need of having its Pan-Baltic representation?*

In view of decreasing fish resources in the Baltic Sea (and also globally) and of the steady increase of demand for fish for food and fodder, fishing is already not able to supply sustainably the required volume and quality of fish. This means that, probably sooner than later, we will have to turn from fishing (marine hunting culture) to marine farming culture (as it happened long ago on land from hunting and collector culture to agriculture) – i.e. mariculture. This will be a major “revolution” and we must start to think about it now. Apart of the completely new approach and large set of new jobs, it will also have very serious spatial implications. Marine space for these developments, though at this moment very much unknown, should be already reserved. This is of course requires also support from science on a lot of related issues.

The situation with aquaculture sector (e.g. status in development) differs between the countries of the BSR. The sector comprise of several branches (seaweed /algae; mussels and fish), which differ substantially. Most aquaculture sites developed so far are located in territorial (close to the coast) waters while offshore aquaculture is not yet developed. Consequently, there are different levels of expectations towards sector development in different countries around the Baltic Sea.

The present situation and communication for developing the aquaculture is based rather on political will, while an interest of the business representatives varies: in Denmark, Sweden and Finland there is a demand from “old” businesses still existing, who all would like to expand while the interest from potential new

businesses is not observed apart from Sweden where there is an interest for mussel farms; in countries with no aquaculture tradition there is no demand from the business side yet.

Thus, the question about the maritime space needed for aquaculture development in the BSR is premature at the moment (though several small-scale promising examples exist). One should rather ask what type of aquaculture and for which purposes is the most desired for the specific conditions of the Baltic Sea. Due to different chemical and physical properties of the Baltic Sea to that of higher saline oceans, the BS mussel industry is still on pilot level and products for large consumer markets are not yet available. Plans for aquaculture development are dependent on political decisions at the EU and MS's governments' level: having in mind recent initiatives of the Commission (Blue Growth and bio-based economy), one may expect that aquaculture will rapidly develop in Europe, still the Baltic specifics will be a guiding force for actual development in the BSR: fish aquaculture most probably will develop on land (meaning it will be an issue for the ICZM), potential application of IMTA concept in the Baltic conditions would require in depth applied research and feasibility studies ('slow science'), potential 'use' of the BSR aquaculture products (e.g. animal and fish feed, biomass, etc.).

During the last decades the fish aquaculture sector within the BSR has been seriously hampered – with no single new site being allowed in open waters – due to environmental regulations. Also with new IMTA systems now slowly gaining more attention & interest – the problem remains due to “zero” nutrient discharge policy. Even more: EU MSFD requirements are often interpreted in the way that a site should prove a “positive (i.e. minus) impact on environment. The concept of IMTA is also hampered by the fact that nutrients calculations should be “region” specific, i.e. it is not possible to compensate nutrient input from fish farms by nutrient uptake by seaweeds / mussels / other invertebrates exactly from the same farms but from farms in not too distant places (i.e. nutrients from the same region should be recycled). A change in such policy would open the way to a “better selection” of sites taking into account different requirements for a seaweed or mussel cultivation than a fish farm. Fish farms take much less space – the amount of biomass required for seaweed cultivation could be 10 fold that of fish (i.e. if taken for compensation).

In Åland islands, fish farming started off in bad locations such as shallow bays in the archipelago. In 2007, there was a fish farming decree demanding fish farming sites out to the outer archipelago to sites with better water circulation and depth. Now, possibilities to move further offshore for bigger production units are investigated, minimizing the conflicts of interest and local impact of the farms. Åland will develop its own localisation plan, as Åland is not part of the Finnish plan. A plan for potential mussel farming sites where a balance is struck between good water flow through and shelter from pack-ice has already been made.

For Ålandic fish farmers to move their farms to complete offshore areas, a minimum permit allowance would be 1000 ton production annually in order to make it economically feasible. This translates to an area of 200 x 500 metres approximately.

In Denmark, the association of aquaculture farmers has calculated that also in most optimistic scenarios (with aquaculture sites being allowed in general) – while the sector could have gained quite an economic significance, it would still “only” take 1% of space.

In Finland a national plan has been developed for possible sites for (fish) aquaculture within the territorial waters, which is expected to be adopted this summer 2013. These sites are not based on best “geographical” conditions only, but actually take into account already all other sea uses taking the possible “left-overs” (i.e. 500 m buffer zone to each single summer house). Potentially many more sites might otherwise become

suitable. Up till now the objections against allocating space for fish farms have been observed from summer house owners (due to noise) and recreational boaters/water sports (due to need to change a travelling route). The owners of recreation/SPA centres also are against such development opposite to their areas. However, the local people and fishermen are in favour of such sites as it brings/keeps employment in the region. Similar attitudes have been observed also in Canada.

In Denmark also a plan has been developed showing 35 possible additional sites for fish aquaculture. This plan is, however, mainly based on suitability of geographic / natural conditions. The government is now again becoming more interested in aquaculture and is currently building up a centre dedicated to “Blue economy” (incl. aquaculture) based on Bornholm. Due to the difficult regulatory environment, fish farmers have refrained so far to identify “ideal” new sites, but focus attention on expanding or at least maintaining rights for already existing sites – even if they may be sub-optimal in view of natural conditions.

It should be positively noted that in Sweden the introduction of a different approach towards licensing procedures had a substantial growth effect on the sector – despite operating under the same environmental restrictions. Whereas in Finland the sector has to hand in a fully fledged application before it is even considered by the various licensing bodies responsible – Sweden has introduced a “one-stop-shop” system, where administration and industry are jointly working on developing a “project idea” into a real application.

There is no “agreed” target / demand for space so far from the aquaculture sector at pan-Baltic scale. As said above, demands differ substantially depending on the regional/national situation of the sector. Overall it is clear, however, that – in order to be able to work economically – fish farmers also throughout the BSR would require larger fish farm sites allowing for a larger production per farm (company) which in turn would lead to cost savings (economies of scale) in purchase and operation of shipping vessels, distributions chains, etc.

As pointed above, it is quite clear that the large scale production of fish mariculture or mussels (for food) is not expected due to unfavourable natural conditions. Nevertheless samples show (i.e. Germany, Finland => but also evidence was given from Canada) that even aquaculture for food products may be interesting as products can be sold at substantial premium price due their regional appeal.

In case of seaweeds / mussels / other invertebrates cultivation as an environmental remediation measures developments may be significant, provide nutrient payment schemes would be introduced. In such case spatial implications may be of important size and may also open prospects for developing mariculture within offshore wind parks.

During workshop discussion it was proposed to develop a common regulation on environmental standards for aquaculture in the Baltic Sea region, thus if a developer presents a project to public authorities according to these standards and the site is suitable for the activity, there should be no objection to granting the project.

#### **4. Specific nature of conflicts / synergies with other sectors and interests in the Baltic Sea**

##### **Guiding questions:**

- *What are the main conflicts the sectors perceive in relation to its development? Which of these conflicts are of spatial dimension? Are these conflicts with other sectors/with governance system/with financial system? What kind of (spatial) solutions was considered (i.e. buffer zones, temporal zoning, etc.)?*
- *With what other sectors might the synergies be obtained? What are the conditions facilitating co-use of space of the given sector with other sectors.*

- *With which sectors or other representatives would it be important for them to meet in order to foster synergies and/or solve potential conflicts? What are specific topics to be further discussed?*

The following sectors were mentioned for organised dialogues with aquaculture sector: traditional fishery (for spatial allocation as well as for potential use of fishery infrastructure) and tourism (considering of yachting routes, to respect established and potential SPA centres at the coastal regions) . But in general, communication should be with all sea space users which exclude aquaculture as a sector causing negative impact on their activities.

Also it should be noted that “visual” impact of aquaculture sites can be minimised by placing farms underwater. With more such technologies becoming available and financially more cost-efficient, conflicts based on visual impact will markedly decrease.

Tourism is a major factor / stakeholder, with whom aquaculture operations & operators have to get into dialogue; however not necessarily only due to possible “conflicts” (i.e. with summer house owners / sailers / etc.) but also due to possible synergy effects (i.e. local tourism attraction / local food production).

A dialogue with off shore wind farms investors and operator would be necessary in order to further explore the possibility and potential of combination of these two uses. For instance, it was noted by the participants that a combination with off-shore wind farms may not be possible due to needs for maintenance of the wind farm (cable on the bottom - mariculture may limit access to the bottom)

It should be taken into account, that Aquaculture Sites are from a “technical” point of view not permanent installations like i.e. offshore wind parks. So in fact in terms of placement strategy – it is possible to have an aquaculture site somewhere today – but to clear it away in future in case a new “more interesting” use of that sea space may become available.

The MAIN stakeholder with whom it is necessary to get in touch with – however – are environmental protection regulators since – as indicated above – this is currently the main barrier to any kind of expansion of aquaculture sites. It would be beneficial to involve in this dialogue also regulators responsible for economic development (fishery, food sectors) and finance.

## 5. Overall conclusions/key findings

No targets set for mariculture at country level.

So far an approach in allocation of the sea space for mariculture was 'you can take what is left over from other uses'. There is an expectation that this will change e.g. through involvement of the sector in the MSP from the beginning of the process, but also due to current trends in the EU policy (Blue Growth initiative).

Specifics of the natural conditions in the Baltic Sea will be a driving force for the development of the sector (limitation of possible development options). Without clarification of environmental questions ( e.g. impact on environment, possible vs. desired changes in the ecosystem etc.) no drive for aquaculture.

As soon as these questions may be solved more pressure expected to come from industry itself as also fish aquaculture may offer interesting potential for “coastal region development” by offering local / regional high price products.

A need for definition/differentiation of aquaculture sector spatial implication on land and on the sea space.

IMTA technology may provide chances for expansion of fish aquaculture also in Baltic Sea marine water => but specific spatial implications have to be clarified with environmental people first – as currently nutrient calculations based on “same” nutrients, whereas better / more effective places for inorganic nutrient uptake could potentially be located outside of direct fish aquaculture site (regional versus site management).

Attention: seaweeds take more space!

Mariculture for environmental remediation may lead to more spatial pressure in medium term future => but also depends on political decision of whether this is accepted as an environmental remediation measure (understood within a broader integrated coastal zone management approach).