

## Strategic plan report C9: the combination of aquaculture and tourism in Baltic and North Sea area

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### 1. Introduction

Aquaculture and tourism can go hand in hand. Most of us are familiar with artisanal markets in Southern Europe – frequently visited by tourists - where locally produced aquaculture products (e.g. oysters) are sold. Likewise, guided tours along the coast or on water are common practice. If we look at the FLAG projects subsidised by the European Commission<sup>1</sup>, additional links between tourism and aquaculture appear. This includes the development of local ports, of restaurants, of ‘fish days’ and of visitor farms.<sup>2</sup>

This Strategic Plan Report describes a plan for combining aquaculture and tourism in the North Sea/Baltic region. A rough demarcation of the area is given in Figure 1

Figure 1: demarcation



The original concept in the justification report described a form of “Integrated Multi Trophic Aquaculture” (IMTA) that brings together different forms of aquaculture that complement and benefit each other, whilst at the same time providing a more varied and interactive visitor experience for tourists.” This form of aquaculture typically reduces environmental impacts compared with some forms of mono-species aquaculture. This will help promote a more positive public image of the aquaculture industry.

The region has already a fairly small but well established aquaculture sector, but with increasing public awareness in food security and sustainability the industry is looking for ways to promote the least environmentally impacting methods of aquaculture. By inviting and educating the public to see first-hand how aquaculture in the Baltic Sea can produce good quality consumer products with minimal impact on the environment the whole sector can benefit. IMTA may even provide ecosystem services through bio-remediation of other activities.

<sup>1</sup> <https://webgate.ec.europa.eu/fpfis/cms/farnet/fr/tourism-projects-flag-fair-sardinia>

<sup>2</sup> <http://www.nordnorge.com/other-scenic-routes/?News=391>

Producing fish with bivalves and seaweeds at one site would allow the bivalves and seaweeds to feed on and metabolise the waste products from the fish production, therefore limiting the impact of the fish production and providing them with ample food. Seaweeds and bivalves would also be able to extract nutrients from the surrounding water body, particularly at times of year when growth is at its peak. Though some of these products may not be suitable for human consumption they may still have value for biogas plants, protein for animal feeds or fertilisers.

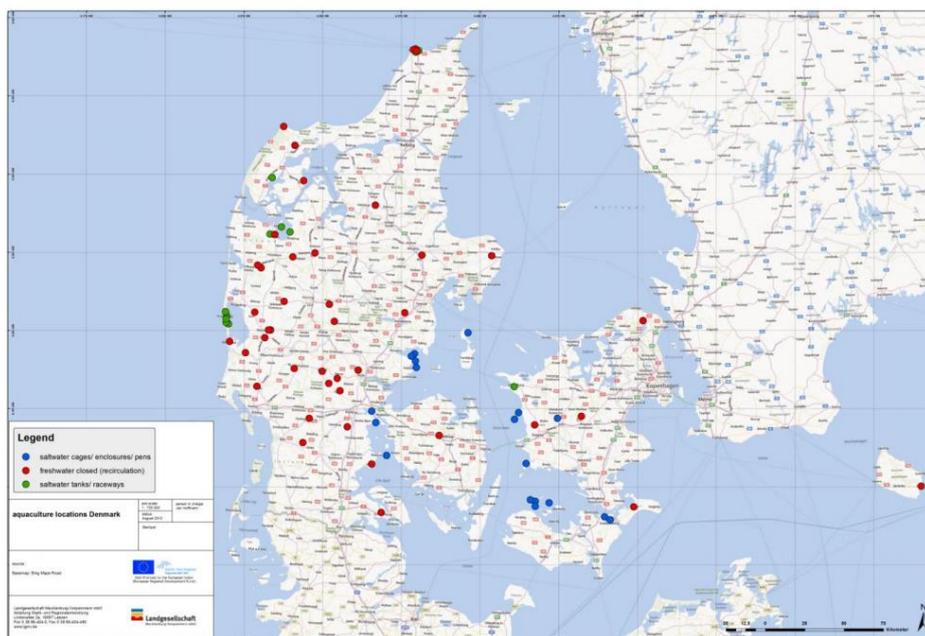
The visitor experience could be enhanced by providing access to all levels of production, interactive visitor exhibits, educational tools and facilities and wider attractions such as food outlets (both restaurant and shop), public aquarium, recreational angling etc. For ease of access a land based coastal centre could offer appropriate visitor facilities with access to shore, boat, cage, platform and marine aquaculture systems.

The combination that we discuss in more detail below entails:

- A onshore visitor centre, describing history and benefits of aquaculture. This can include culinary aspects, e.g. how to cook with seaweed
- Including touristic facilities such as a café, restaurant and shop
- Site-visits to a nearby IMTA-style aquaculture company

Focussing on the Baltic/North sea region, Figure 2 gives an overview of the aquaculture site in Denmark. Given the envisioned combination, a tourism/aquaculture combination require the presence of offshore cages (i.e. the blue dots).

*Figure 2 aquaculture sites in Denmark*



Source: [http://www.aquafima.eu/export/sites/aquafima/documents/WP5/Actual-and-potential-aquaculture-locations-in-the-BSR\\_final-with-maps.pdf](http://www.aquafima.eu/export/sites/aquafima/documents/WP5/Actual-and-potential-aquaculture-locations-in-the-BSR_final-with-maps.pdf)

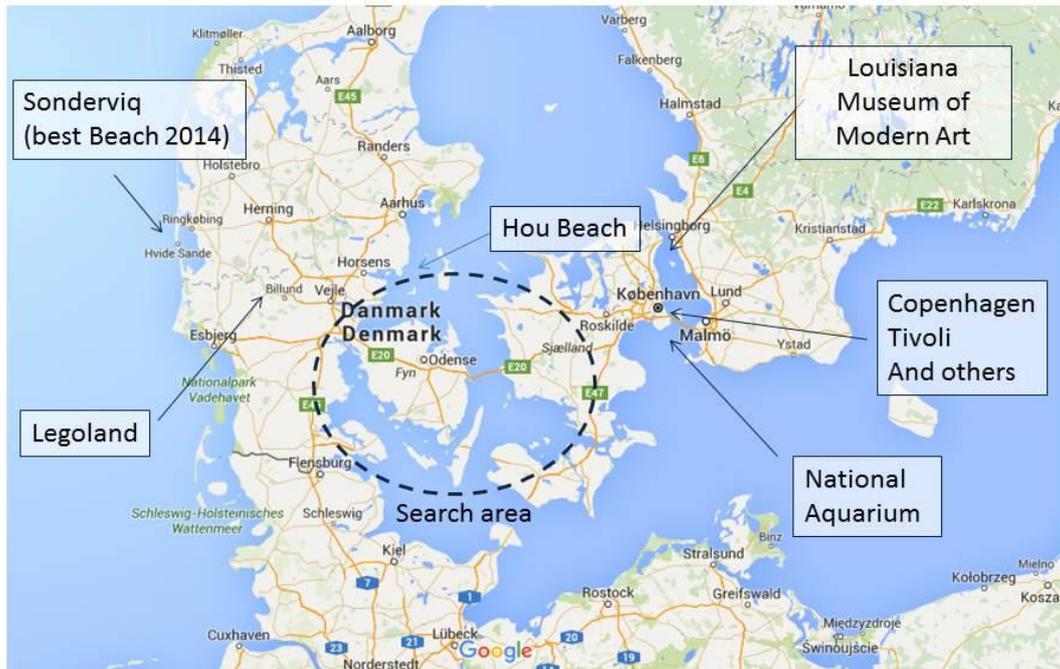
Based on this information, the search area for a combined aquaculture farm and visitor centre can be defined, i.e. the area around the Fyn island (see Figure 3).

## 2. Market analysis

- Sizing

We do not assume that people will go to Denmark *especially for* an aquaculture visitor centre. For that reason, the centre should be located close to other touristic facilities to generate a flow of visitors.

Figure 3 : search area and touristic hotspots



To assess the number of potential visitors, it is noteworthy to look at Statistics Denmark who provides the following data on the number of tourists:

- Hotels: 1.275.201
- Holiday resorts: 385.341
- Camping sites: [not available]
- Youth hostels: 76.290
- Holiday cottages: 1.859.323
- Development drivers

As a pre-condition the site needs to be provide suitable habitat conditions for an IMTA style farm.

### 3. Products

The main product, which is applied in the business case are:

An aquaculture experience to promote aquaculture, and aquaculture products and providing an attractive touristic activity. This is achieved by the development of an offshore floating platform with boat mooring facilities supporting site activities nearby aquaculture sites, including options for live cooking, diving and education facilities. The boat and platform serves as basis for an aquaculture experience.

Value proposition: a profitable touristic center that educates citizens about aquaculture
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#### **4. Customers**

##### *Key customers*

The following three groups of key customers are identified:

1. Visitors to the center: tourists, schools, local residents
2. Aquaculture sectors that can benefit to improve image
3. (Local) government can benefit from knowledge dissemination/societal support for aquaculture
4. Research institutions (Aquaculture student groups, scientists)

##### *Actual activities*

Many countries and regions use aquaculture practices for the development of touristic activities. Several European regions use onshore or near-shore aquaculture practices, mainly in combination with land-based activities, such as restaurants, visual hotspots and processing demonstrations. However, combinations which genuinely integrate (touchable) aquaculture and tourism to a high extent are scarce. Many touristic activities lead to a remote view of aquaculture, where a view from a distance is usually presented, or a boat tour (without real aquaculture experience) is presented. In many occasions gastronomic or seafood consumption is combined with tours.

#### **5. Competition**

Competitors are mainly found in other touristic activities. In typical tourism areas the competition is higher than in others. Regions with a higher abundance of aquaculture activities and a less tourism benefit from the scarcity of competing activities. Intensive tourist regions have a high potential to attract people, however competition with a high offer of competing activities require adequate market strategies and networks to compete with the others.

The key differentiator for combining aquaculture and touristic activities is found in the combination of the aquaculture experience targeted to the client group. Specific diver oriented programs, youth targets, and local targets require specifications in offers.

#### **6. Revenue**

Specific aquaculture experiences (standalone) may operate with 20-40 people on a daily basis at daily rates of typical experiences ranging from 30-150 euro for a tour, depending on the area, activity, scale and quality of the provided service. However, in certain areas the potential may be higher than in others, depending on location specific issues such as; competing activities,

tourism characteristics (age groups, volumes), supporting activities (fisheries and aquaculture activities).

Table 1. Turnover characteristics of an aquaculture – tourist combination in one specific location.

Operating months	Activity days per month	Persons per day	Active days	Price potential per head per day	Total income (euro)	Total passengers
2	30	30	60	80	144.000	1.800
10	10	20	100	60	60.000	1.000

OECD (2014), OECD Competition Assessment Review: Greece, OECD Publishing, <http://dx.doi.org/10.1787/978926420690-en>

Besides the income of vessel operation, the spin-off in terms of seafood consumption should be taken into account, as well as the effects of increased seafood consumption generally by the promotion of the sector. Although this cannot be estimated in exact numbers the spin-off may be significant. The improvement will be seen if a network of aquaculture experience will be developed.

### *Subsidy*

Subsidies may be derived from European programs for the development and promotion of aquaculture activities, and for the development of interregional tourist activities. In this context the instruments FLAG, INTERREG, and EMFF may contribute in the development. The greatest impact would be achieved if a network of aquaculture experience sites was set up in combination with fisheries and aquaculture programs. This would enable better perspectives for viable business cases and therefore improve access to large scale programs.

### *Investor*

The following investors are foreseen for the business cases;

- The aquaculture sector is likely to be investor for the promotion purposes
- Restaurant and hotel chains may facilitate the development of the activities to stimulate recreational offers, and seafood consumption
- Local and regional tourist offices may invest for regional developments
- Regional authorities can invest for promotion and tourist diversification activities. Improve Blue/Green tourism.
- Diving schools and diving organizations may invest for the development of new diving locations and improvement of the variation of offers.

## **7. Strategic Roadmap**

The Strategic Roadmap plan is to demonstrate how the combination could progress through the Technology Readiness Levels (TRL) based on its current status. This is presented through Technology Readiness Levels (TRL) and the (Investment Readiness Level) IRL.

The activities are ready for business plan development and specification. The implementation time may be realistic in less than a year.

TRL	Required to move up	IRL	Required to move up
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5	Local and regional business case development. Establishment of IMTA style aquaculture farm	4	Local and regional business case development. Exclusion of risks of increased visotr

Aquaculture is already well established in the region and to make these types of facilities suitable for tourism activities would take some consideration in trying to promote a safe, positive and enriching visitor experience. Biosecurity would need to be incorporated into the design of the site to try and reduce the risk of external pathogens being brought onto the site.

To make the experience as attractive to tourists as possible would need to be given some careful planning and imaginative design. Though fish are often popular with the public, holding large numbers of a single or relatively few species may not be so appealing or even terribly easy to access. Ways of allowing visitors to see the various aspects of the site easily, even in poor weather, would need to be developed. Other possibilities including visitor centre, pesca/angling – tourism, open-water swimming, sailing, scuba diving etc.

## 8. References

OECD (2014), OECD Competition Assessment Reviews: Greece. OECD Publishing. <http://dx.doi.org/10.1787/9789264206090-en>