

**Aquaculture Forum**  
BREMERHAVEN



**Bremerhaven Declaration**  
on the Future of  
Global Open Ocean Aquaculture



**Part I**

**Preamble and Recommendations**



**Workshop I**

**March 26 – 27, 2012**

**OPEN OCEAN AQUACULTURE DEVELOPMENT**

**From visions to reality: the future of offshore farming**

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# BREMERHAVEN DECLARATION

## on the Future of Global Open Ocean Aquaculture



### PREAMBLE

Workshop I of the Aquaculture Forum Bremerhaven was attended by about 100 participants from 16 countries, representing experts from industry, science, investors, regulators, and consumers. The initial concept for preparing the declaration was conceived at the “Marine Resources and Beyond Conference” held in 2011 and finalized in 2012 during the “International Workshop on Open Ocean Aquaculture”, both held in Bremerhaven, Germany.

The participants of the workshop discussed a number of pertinent issues related to open ocean aquaculture while

- **recognizing** that global food security, human health and overall human welfare are in serious jeopardy since the production of living marine resources for vital human foods cannot be sustained by natural fisheries production even if these resources are properly managed at levels of optimum sustainable yields;
- **realizing** that the gap between seafood supply and demand is increasing at an alarming rate as these are nutrient-dense foods considered extremely important for human health and well-being. On the other hand the development of aquaculture has been remarkable and today provides more than half of all fish destined for human consumption;
- **confirming** that conventional land-based and coastal aquaculture will continue to grow, thereby playing in the future a growing role in quality food supply. However, this much needed development will only delay the widening of the gap in seafood supply and unconventionally new and modern technologies such as offshore farming systems are required to significantly assisting in closing this gap.
- **noting** that the world is too dependent however on aquaculture development and its exports, as aquaculture is threatened by coastal urbanization, industrialization, and water pollution. Weighing these trends we believe that it is urgent that the world develop offshore aquaculture, while complying with the FAO Code of Conduct for Responsible Fisheries and Aquaculture as well as with other environmental regulatory frameworks in support of sustainable aquaculture development;
- **finding** that Offshore aquaculture will require much higher inputs of capital but also needs a new level of cooperation from a wide range of social, technological, economic, and natural resource users;
- **discovering** that over the past decade major advances and new concepts have evolved, and several of them have been successfully tested at the pilot scale level, while others have failed.
- **learning** that these experiments and scale-up trials have led us to believe that offshore aquaculture does have substantial potential to bring global aquaculture production to new levels to meet future human needs;
- **believing** firmly that strategies need to be developed with strong participation of all affected stakeholders interested in the social-ecological design and engineering of innovative offshore aquaculture food systems;
- **recognizing** that the integration of offshore food and energy systems (e.g. aquaculture systems and windfarms; oil and gas) appear to be especially promising, but will require a high level of innovative technology, the use marine spatial planning, and transparent, adaptive management for spatial efficiency and conflict resolution;
- **concluding** also that open ocean aquaculture if intelligently designed can be incorporated into overall cooperative fisheries restoration and management strategies.

Following these discussions the undersigning Workshop participants (which included the core group of the global expertise on the subject) formulated a series of specific recommendations. We call upon national, international, inter-governmental agencies, as well as the industries, potential investors, scientists, regulators and NGOs of the respective countries to strongly support these recommendations with the aim to provide a healthy and environmentally sustainable bio-resource system that can substantially contribute to meet the future demands of our societies. We herewith request immediate action to provide the means and resources for implementing the recommendations listed below.

## RECOMMENDATIONS

### Recommendation 1

Compliance of Open Ocean Aquaculture with the United Nations Convention of the Law of the Sea (UNCLOS) and other global, national, and regional legal requirements is needed.

A legal framework for Open Ocean Aquaculture should have clear standards and thresholds according to best environmental practices and best available technologies while also addressing issues of public trust, ownership, and liabilities.

### Recommendation 2

Planning for Open Ocean Aquaculture for both research as well as for commercial enterprises should, from the start, consider the economies of scale required for its sustainable development in regard to its social and economic viability.

### Recommendation 3

There is an urgent need to address how societal values and policies affect the acceptance, structures, and types of offshore aquaculture.

### Recommendation 4

There is an urgent need to plan for the comprehensive development of land- and water-based infrastructures needed for the technical and logistical support and supply of Open Ocean Aquaculture that incorporates the multi-dimensional interacting factors for successful operations.

### Recommendation 5

Priority should be given to the culture of species well-established in aquaculture (preferably natives) which can provide large quantities of seafood for which aquaculture technologies are known and have the potential to become acclimated to offshore farming conditions.

### Recommendation 6

Organize international research and development platforms involving countries active or intending to initiate Open Ocean Aquaculture development projects.

### Recommendation 7

Investigate whether the cultivated species can provide high value marine products other than foods which can also be simultaneously obtained thereby contributing substantially to the economic viability of offshore operations.

### Recommendation 8

Create education and training networks to provide the required multidisciplinary and interdisciplinary expertise for safe and professional operations of Open Ocean Aquaculture systems.

### Recommendation 9

Utilization of Open Ocean Aquaculture systems as potential environmental quality monitoring stations should be promoted as part of the international ocean observing systems networks.

Bremerhaven, March 27, 2012

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Contributions to the Bremerhaven Declaration on “Open Ocean Aquaculture Development” were received from Members of the Programme Committee, Session Chairs and speakers as well as from Workshop participants who presented their views during the Panel discussion on day two of the workshop.

These views were accommodated as much as possible by the Editorial Committee (Rosenthal, Costa-Pierce, Krause, Buck). Those participants who offered support to the views expressed in this Declaration are listed at the end of Part II of the Declaration.

# 2012 2013

Business and science for a sustainable European aquaculture

## Aquaculture Forum

BREMERHAVEN

### WORKSHOP STRUCTURE AND CONTENT

The workshop series 2012–2013 of the „Aquaculture Forum Bremerhaven“ includes three additional events as announced on this page. These workshops will bring together speakers and participants from industry, science and administration.

Several keynote lectures relevant to each of the central themes plus a series of contributed papers will be included in the programmes. A social evening event will provide ample opportunity for participants to exchange views and discuss future concepts. An extended Panel discussion on day two will provide ample opportunity to debate the future of aquaculture in Europe, addressing obstacles and opportunities in view of the globalized and highly competitive markets.

The outcome of the Panel discussions will be reflected in jointly formulated specific recommendations which will be published and distributed to industry, European agencies as well as regional and national authorities for further considerations.

The organizers will provide space for poster presentation for companies (including small exhibits).

Workshop III

February 18–19, 2013

### FINFISH NUTRITION AND AQUACULTURE TECHNOLOGY AT THE CROSSROADS

# 3

The future of fish nutrition; high versus low tech systems or integrated aquaculture?

With the expansion of the industry it is obvious that fishmeal replacement is a must. New protein sources may not be the prime concern but marine fats are to meet the demanded quality and provide the required level of unsaturated fatty acids. What are the future solutions? Further, the trend towards intensification will continue and water will be at the premium in most resource systems. Recycling of water is one issue but integrated recycling systems where wastes become valuable resources, providing options for optimizing the utility of natural resources (water, nutrients, energy).

Visits to experimental facilities and to commercial producers can be organized (optional)

Workshop II

October 15–16, 2012

### AQUACULTURE PRODUCT QUALITY AND CONSUMER DEMANDS

# 2

The Djungel of Labelism: Do we need to label the labellers?

Product quality control and consumer safety is of prime interest to society. During the pioneering phase (last century) modern aquaculture has seen little standardization of production processes. With increasing consumers awareness for quality and safety, national and regional regulations evolved often in parallel but with little standardization across production systems and jurisdictions. Also, enforcement of regulations was initially limited, offering little transparency, thereby failing to build consumer confidence. A new market for certification evolved to respond to the consumer demand.

The workshop will receive keynote presentations from the certification industries and regulatory authorities, to learn from experiences of producers with such labelism. Additionally, the processing industry will express their views on how to cope with the variety of labelling procedures. Numerous labelling philosophies and procedures have evolved and continue to appear with good intention, however, with little coordination, sometimes even with competing objectives. Develop many new codes and certificates may create a DJUNGEL of labelling options that confuses rather than convinces the consumer while making monitoring and enforcement measures less transparent for all involved.

An excursion to one of the largest processing plants in Germany can be organized (optional)

Workshop IV

September 23–24, 2013

### DEVELOPMENTAL TRENDS AND DIVERSIFICATION IN EUROPEAN AQUACULTURE

# 4

New species and/or new products from established aquaculture species?

The rapid growth of the industry in several parts of the world has been based on a limited number of species. Several new species are now in production, the names of which were largely unknown by the consumers 10 years ago. Can we expect this trend to continue? Should we try to investigate in option to diversify aquaculture through the development of culture know-how for new species?

Alternatively, should we diversify products derived from a limited number of species for which our knowledge on reproduction, growth, nutrition, and health is well established? Does future aquaculture produce only for the food market or will aquaculture species become increasingly the bioreactors to extract additionally high-priced substances needed by others than the food markets? Will freshwater or marine species dominate the future mass production systems?

The workshop will focus on these and related issues.