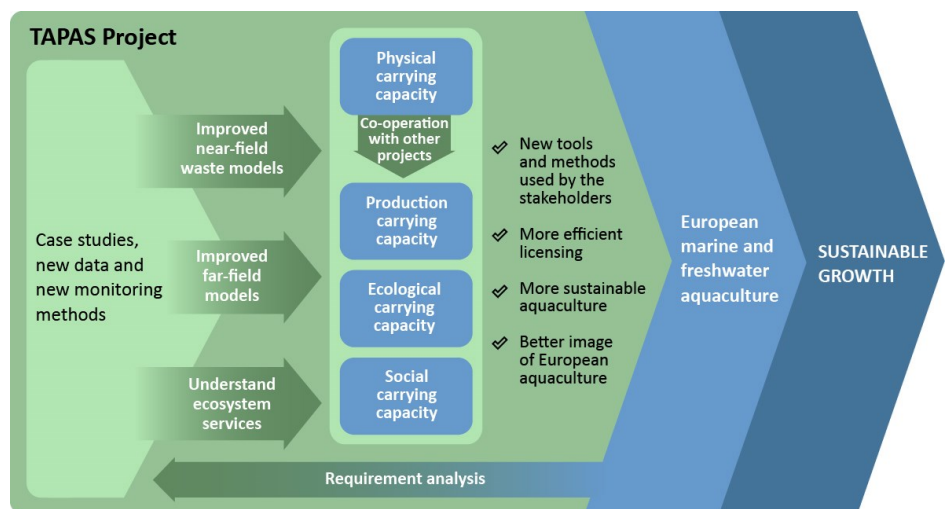


The **TOOLS FOR ASSESSMENT AND PLANNING OF AQUACULTURE SUSTAINABILITY (TAPAS)** project is a four year EU Horizon 2020 collaborative research project, which began in March 2016. It aims to promote and consolidate the environmental sustainability of European aquaculture by developing tools, approaches and frameworks for monitoring and management of aquaculture sites. These will be the core of a TAPAS-Smart toolkit.

MAIN ACTIVITIES in 2016

- ✓ Kick off the project in March
- ✓ Requirement analysis
- ✓ Stakeholder involvement
- ✓ Evaluation of existing Environmental models
- ✓ Consolidation of case studies

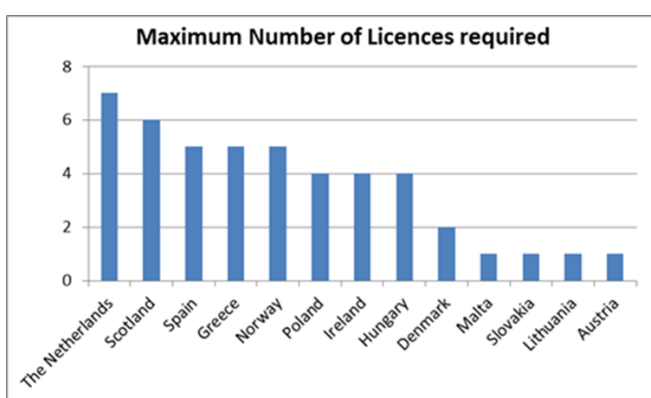


The inception meeting of the TAPAS project was held in Stirling, Scotland between April 20th—22nd, 2016. Before the meeting all WP leader partners prepared a detailed implementation plan for the first project period and these were discussed. The project management structures and internal rules for reporting also were approved during the meeting. The planned activities of the first 6 months also were carefully reviewed and adjusted if it was needed.

REQUIREMENT ANALYSIS

Partners are implementing a questionnaire survey amongst producers, legislators, authorities, and environmental NGOs. The first results of the survey shows:

- The complex nature of aquaculture legislation is a major issue.
- The administrative burden is heaviest on SME's.
- Need to deal with environmental planning and compliance thresholds at a regional or local level;
- Much work to be done on identifying thresholds & management tools to simplify the process.



EVALUATION OF MODELS

One of the core activity of the TAPAS project is to develop and improve various Environmental Models.

Regarding the models used for **Environmental Risk Assessment** TAPAS prepared an overview of the veterinary medicines and other potentially toxic substances used in EU aquaculture, and the environmental standards and regulatory procedures available for their ERA. We have described the state-of-the-art on the development of models capable of assessing the fate, dispersal, exposure, ecological effects and associated ecotoxicological risks of veterinary medicines applied in aquaculture production. A critical evaluation was made of the chemical exposure assessments and the fitness for purpose of the modelling outcomes, paying special attention to the protection goals set for the regulatory ERA of veterinary medicines.

In another study a series of presently employed and adapted **Ecological Models** were compared to illustrate the most appropriate near field modelling procedures for marine and freshwater aquaculture sustainability throughout Europe, based on carrying capacity and site selection. This critical evaluation is the first stage of that process and provides the foundation for further work within the TAPAS project.

STAKEHOLDER INVOLVEMENT

TAPAS partners organised a successful stakeholder workshop at the end of September as part of the Aquaculture Europe 2016 conference, which is one of the major events of the European aquaculture industry. The main aim of the TAPAS workshop was to inform aquaculture operators, organisations, regulators, policy makers and scientists about the project in general, discuss any issues and potential “bottlenecks” in European aquaculture legislation and deliberate on ecosystem services provided by aquaculture and its public perception. The event was an integral part of the TAPAS stakeholder involvement process to collaborate on issues that limit the development of Europe’s aquaculture sector. Presentations and small discussion groups allowed the participants to discuss key issues regarding aquaculture’s role in food security, what is considered as acceptable aquaculture impacts, and bottleneck for aquaculture. The small discussion, or “break-out” groups, allowed the TAPAS consortium members to record findings, mediate discussions and prepare a summary of the key opinions and issues raised.



The TAPAS project was introduced to aquaculture industry representatives and scientists at the Aquaculture Europe 2016 conference in Edinburgh.



CASE STUDIES

During their last meeting in Brussels on 10th of November 2016 TAPAS partners agreed about the most appropriate case study sites and research plans in each previously selected region.

Marine sites

United Kingdom: Mussel farming in the Lyme Bay and the Western Channel in the Atlantic region

Greece: Marine cage fish farming zones on the mainland and Crete in the Eastern Mediterranean

Malta: Sea bream cages and IMTA system in the Central Mediterranean

Spain: Fish farming in the area of Murcia in the Western Mediterranean

France: Oyster farms in the Loire estuary on the Atlantic coast

Ireland: Multiple aquaculture sites in Clew Bay with diverse aquaculture activities in the Atlantic region

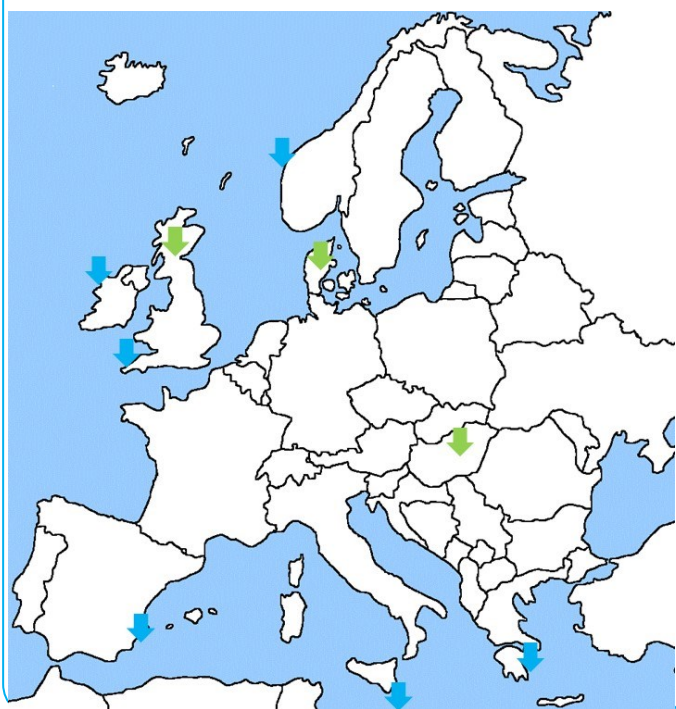
Norway: Offshore type of Atlantic salmon farming in Hardangerfjorden on the western Norwegian coast in the North sea

Freshwater sites

Denmark: Land based trout farm converted to partly and 95% recirculation farms from flow-through farms

Hungary: Extensive fish ponds producing using the polyculture technology to produce mainly common carp

United Kingdom: Salmonid cage farms in different types of freshwater lakes (lochs) in Scotland.



INTRODUCTION OF TAPAS PARTNERS

The TAPAS project is implemented in collaboration of a diverse group of partners. Each newsletter issue will introduce two partners to give an overview of the wide knowledge and expertise background of the research.

UNIVERSITY of STIRLING  The TAPAS project coordinator is the **Institute of Aquaculture (IoA)** of the

University of Stirling, which is the top rated aquaculture research and training department in the UK and the leading international centre in its field. The IoA works closely with its stakeholders in policy, practice and industry to facilitate and enhance the relevance and impact of its research. The international excellence of the University's research was recognised in the most recent Research Excellence Framework (REF 2014), where Stirling improved its ranking as one of the top research-led universities in the UK. It is a EU designated Large Scale Facility and regularly provides advice to the Scottish Government. It was a major contributor to the SEERAD "Strategic Framework for Scottish Aquaculture" and the EU "Strategy for the sustainable development of European Aquaculture". IoA works with all sectors of the aquaculture industry and is part of the Marine Alliance for Science & Technology for Scotland. UOS also lead WP5 on Near-field Modelling and participate in other WPs.



The **AquaBioTech Group (ABTG)** is an independent aquaculture, fisheries and environmental testing / research, consulting, development, and training company. The ABTG operates globally with clients and projects in over fifty countries and

has its own independent, biosecure and fully licensed wet-laboratories and aquaculture research and training facilities that are based in Malta. ABTG has a strong background in commercial research for aquaculture companies and has been involved in a number of EU research projects in different areas. ABT leads WP9 on dissemination and outreach activities and will also participate in other WPs. The company will carry out a central Mediterranean aquaculture case study to provide data for various WPs. ABT's role is also essential to provide up to date information about the industry and participate in tasks aimed to survey industry needs. Being a consultancy company, ABT will help to implement a very effective dissemination and outreach project element, ensuring the uptake of project results by the industry.



AQUACULTURE IN TAPAS CASE STUDY COUNTRIES: HUNGARY

The aquaculture in Hungary is dominated by the production of carp in ponds using the polyculture technology (bighead and silver carp as well as wels, pike-perch and pike are also produced). Every year 25000 hectare of fish ponds are used which are usually multifunctional due to their semi-extensive characteristics. Therefore in addition to fish production, their role in protecting the environment and the nature is significant as they contribute to the pre-



serving of water habitats, primarily bird habitats and providing food for birds. Although the production loss caused by birds eating their "revenue" is partly compensated, this situation still often generates

Species	Production in tonnes In 2015 (including all stocks)
Common carp	15238
Silver and Bighead carp	3565
Pike-perch, pike and wels	362
African catfish	3354
Sturgeons	280
Rainbow trout	61

conflicts of interests between aquaculture producers and nature conservation experts.

Furthermore, many producers designed and implemented nature trails within their areas to show off water habitats and fish pond areas in particular. These establishments have been developed mostly with funding support from the European Union. Beside of the pond aquaculture, intensive systems are also used in Hungary to produce African catfish in geothermal water, sturgeons and rainbow trout mainly in flow-through and recirculation systems.

In TAPAS project the impacts of the ponds on natural ecosystems will be investigated as well as the ecosystem services provided by the extensive pond aquaculture. These results will help the industry to develop new environmental monitoring methods as well as to improve the regulatory framework of aquaculture. The Hungarian fish farming sector also will use the results of other freshwater TAPAS case studies to renew and develop the recent aquaculture technologies.

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