FEAS Aquaculture:
Update on current aquaculture projects

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FEAS – Aquaculture Team

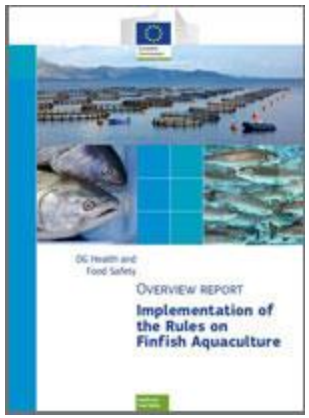
Aquaculture in the EU

EU aquaculture – no significant increase in production over the last two decades

- 1.4M tonnes, €5B

Co-ordinated EU Aquaculture Policy: reform of the CFP, published strategic guidelines (2013)

- Reduce administrative burdens
- Improve access to space/water
- Increase competitiveness
- Exploit competitive advantages (quality)



EU Aquaculture: Open Method of Co-ordination

Aquaculture Advisory Council

Aquaculture Technical Seminars

Multiannual National Plans – 24 action points in the Irish plan

- Foster knowledge, innovation and technology transfer
- Support best husbandry & disease management
- Applied research & collaborations
- Study on integrated multi-trophic aquaculture

Newport Strategy: national infrastructure & cluster expertise

Linking MI Oranmore, MI Newport and Lehanagh Pool
(since 2016 *ca.* €0.5M)

- Update facilities and infrastructure
- Renew licenses
- Service contract and appropriate staffing
- Develop a range of research and innovation collaborations:
  - Parc na Mara
  - Udaras
  - NUIG/GMIT
  - BIM
- Secure collaborative research funding
  - EU
  - EI
  - EMFF

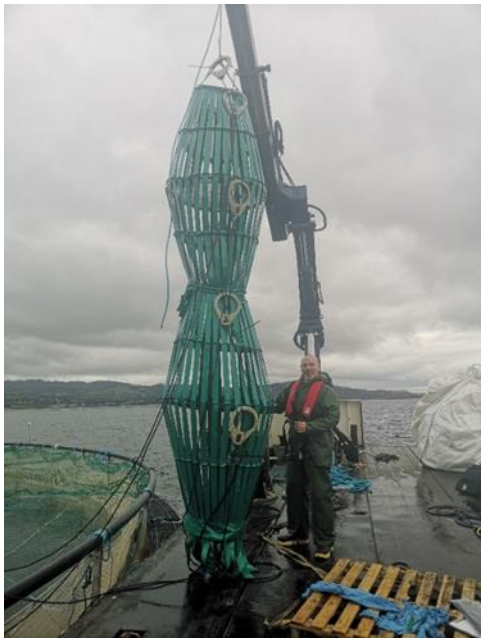




Lehanagh Pool

Located in Beirtreach Bui Bay

- 20 hectares
- Multi-species research site: Atlantic salmon, lumpfish, cod, seaweed, European lobster, bivalves
- Daily management undertaken by Clear Seas Aqua



Marine Institute
Foras na Mara

MI Newport: Recirculating Aquaculture System (RAS)

- 8 x 5.6m3 tanks
- 3 tonnes

Marine Institute

TAPAS

Tools for Assessment and Planning of Aquaculture Sustainability

Tools for Assessment and Planning of Aquaculture Sustainability

- 4 year study to investigate the current limits to aquaculture, the social interactions, and more effective management of aquaculture
- Create cost efficient management tools and practices for the aquaculture sector across Europe
- To support transparent & efficient licensing, enhancing environment sustainability, food production & employment
- Propose new, flexible approaches working to common standards
- Develop the TAPAS Toolbox

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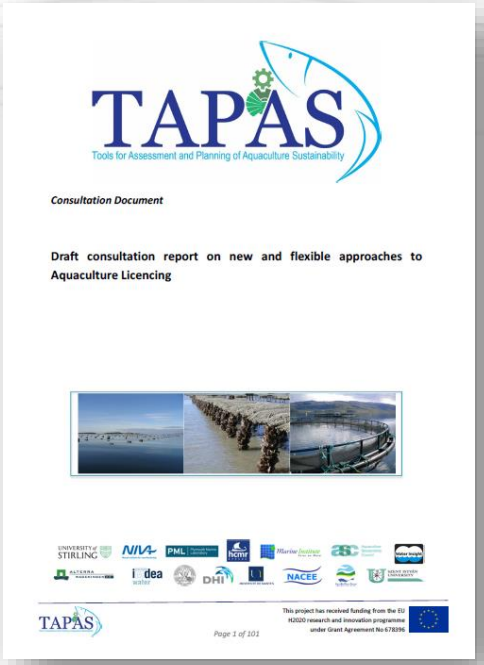
Stakeholder Consultation - recommendations

- Develop a modern **electronic licensing system**
- Provide **clear guidance** for quantifying impact and balancing risk
- Develop and improve **tools and environmental models**; site identification, site optimisation and carrying capacity.
- Carry out **real time**, inexpensive, **risk focused monitoring**
- **Level the playing field** for costs of applying for licences and EIS
- **Streamline aquaculture legislation**; flexibility, assess license term, trial licence
- **Harmonise implementation** of EU regulations; reducing the variation, harmonising of EIA procedures.
- Encourage implementation of National Plans and amended EIA Directive across jurisdictions to **help simplify processes and administration**.
- Designate **strategic national aquaculture zones** where risk assessments, capacity and impact studies are carried out on an 'area' basis.
- Develop local scale**, producer lead, communication platforms** to facilitate dispute resolution and enhance cooperation.
- Develop **public communication platforms** to make monitoring information publicly available.



Target neutraceutical technologies for a smarter and sustainable Irish aquaculture industry

HYDROfish

- Transforming low value by-catch fish species into a high value nutraceutical product for aqua-feeds.
- Fish protein hydrolysate is based on pelagic fishery by-catch where waste by-products are processed into a fish hydrolysate to mitigate the dependency on fishmeal & plant ingredients in commercial fish diets
- HydroFish: links MI Newport and Lehanagh Pool

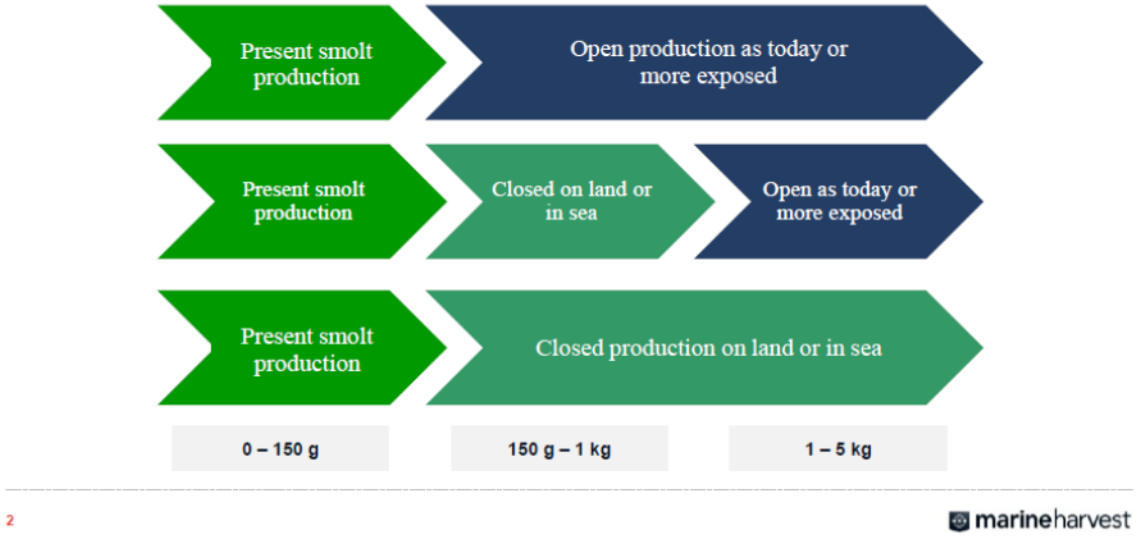
ENTERPRISE IRELAND
where innovation means business

DISRUPTIVE TECHNOLOGIES
INNOVATION FUND




SALMSON smolt: optimising smolt production in RAS

- The global fin-fish farming industry has begun to develop technology for producing large smolts and targets reducing grow-out time at sea to one year
- Ireland must find a way to compete



Co-funded by the European Maritime and Fisheries Fund
Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara
Ireland's European Structural and Investment Funds Programmes 2014-2020
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BIM Ireland's Seafood Development Agency
Marine Institute Foras na Mara




SALMSON smolt: optimising smolt production in RAS

Main objectives of the *SA**L**MSON* **smolt** project

- Utilise the potential benefits of **R**ecirculating **A**quaculture **S**ystems (RAS); to increase the overall size of salmon smolts produced in Ireland: 150 – 300 g.
- Lead to the production of a more robust smolt – transfer to sea site and monitor.
- Increasing the production capacity of hatcheries and sea sites; minimising carbon impact
- Reduction in the time spent at sea will also address a number of other environmental concerns such as disease and sea lice

Co-funded by the European Maritime and Fisheries Fund
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IMPAQT:

IMPAQT

Intelligent Management System for Integrated Multi-trophic Aquaculture

- The high level ambition of IMPAQT project is to drive a paradigm shift in the EU Industry - paving the way to both a more environmentally friendly and more efficient/higher yielding Industry.
- IMPAQT proposes an intelligent management platform for IMTA.

- IMPAQT will develop and deploy novel sensors and data sources, together with smart systems required for long term autonomous monitoring in the field.
- An advanced IMTA model will be provided which yields spatially explicit information on how the different farm components interact with the environment on the scale of an ecosystem and that can be used for planning decisions by both farmers and regulators.
- Six IMTA sites – Ireland (Lehanagh Pool; Keywater Fisheries); UK, Netherlands, Turkey, China.

Co-funded by the Horizon 2020 programme of the European Union



IMPAQT:

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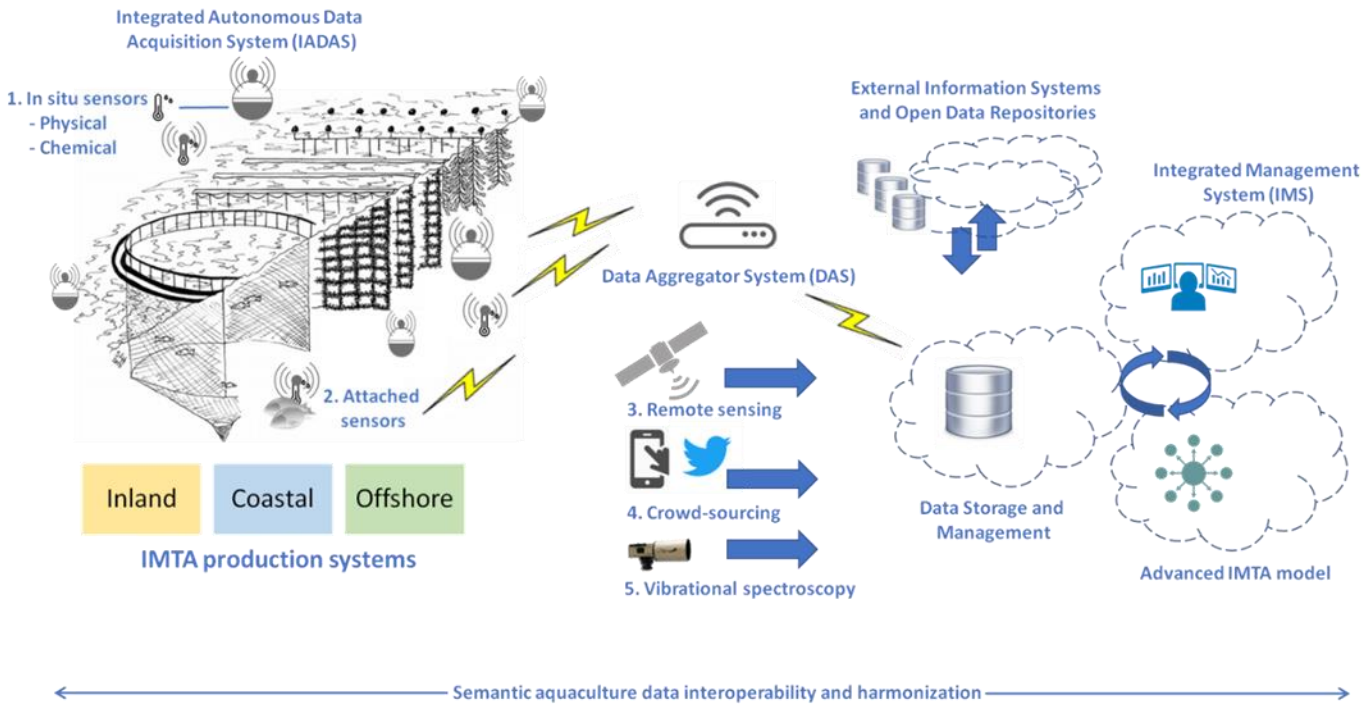
Intelligent Management System for Integrated Multi-trophic Aquaculture



- Objective of IMPAQT is to develop and validate IMTA
  - Multi-purpose (inland, coastal, offshore)
  - Multi-sensing (sensors, new technologies)
  - Multi-functional (advanced monitoring, modelling, data, decision making)

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5G HEART:

5G Health, Aquaculture & Transport Validation Trials:

- Implement and test 5G-powered solutions, to explore future 5G features and quantify anticipated performances beyond the trials and showcases defined for the each vertical trial.
- Aquaculture trials currently in development
- Two sites at present: Greece & Norway; Ireland currently used as a non-5G site for comparison (link with IMPAQT)

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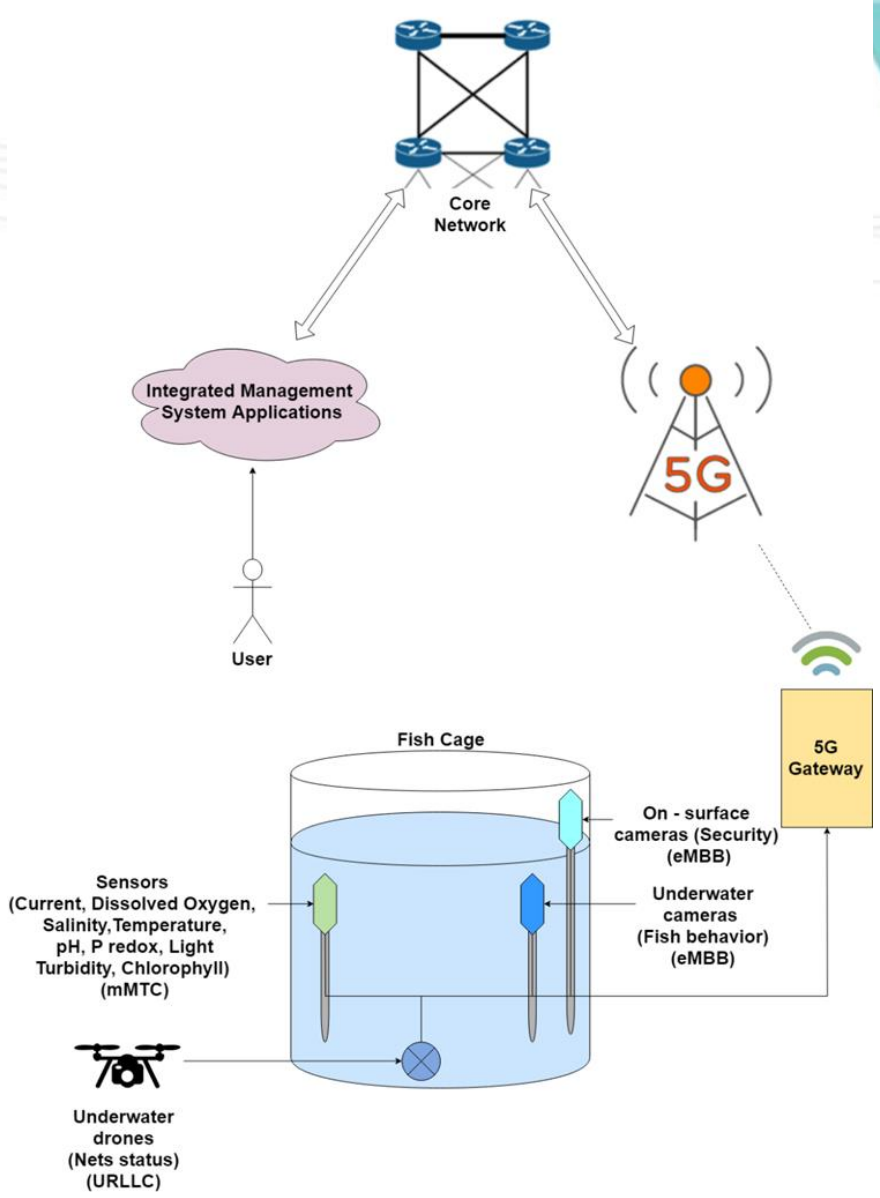

- Multi-parameter monitoring
- Security
- Fish monitoring
- Infrastructure monitoring
- Autonomous functionality

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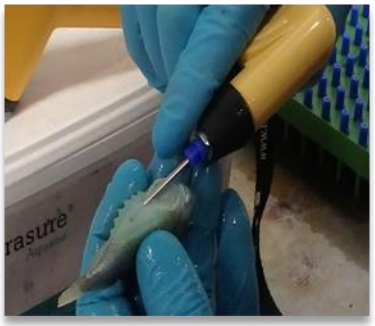
Cleaner Fish Research

PIT Tagging



A PIT (Passive Integrated Transponder) Tagging evaluation on small lumpfish

Movement/ Biomass

Tagged lumpfish were deployed amongst salmon + antennae

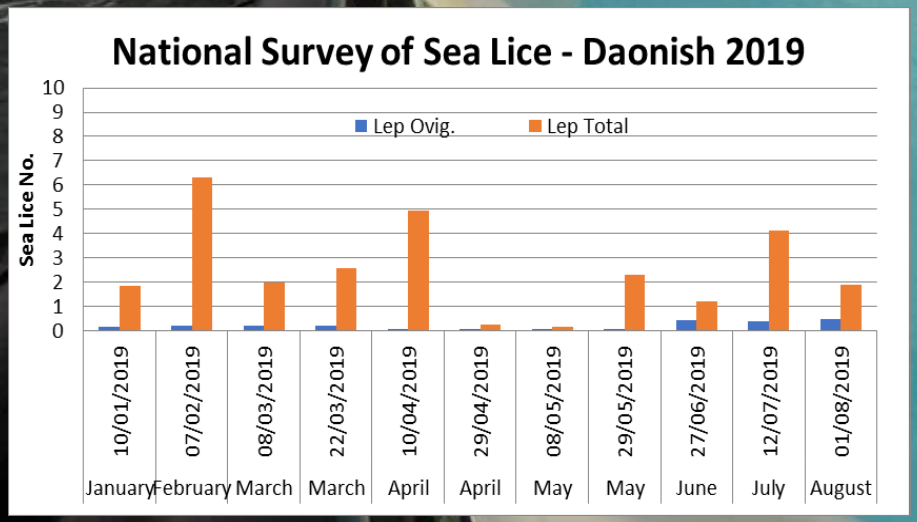
Welfare

Operational Welfare Indicators (OWIs) for Lumpfish

BIM Ireland's Seafood Development Agency

Marine Institute

Sea lice management: nano-filtered hypo-saline water



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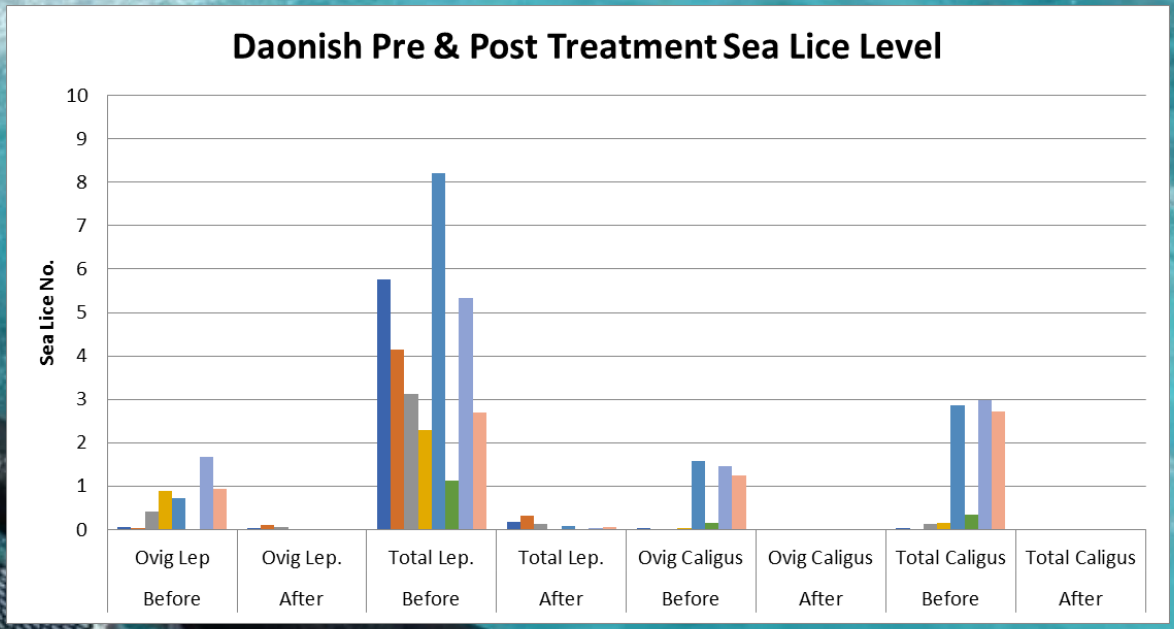

Thank you for your attention.