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Intelligent Fish feeding through Integration of ENabling technologies and Circular principle

Grant Agreement (GA) No: 818036

D6.9:

Overview on stakeholder engagement actions

- Policy-makers -

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1 Executive Summary

Aquaculture in Europe is regulated by different directives and strategic plans. iFishIENCi aims to contribute to implementation of ongoing regulations such as the Multiannual National Strategic Plan for the development of aquaculture activities, the Water Framework Directive by reducing freshwater use and discharge (nutrient and suspended solid discharge) of EU aquaculture, the Marine Strategy Framework Directive and the Blue Growth Strategy.

In order to do so, it was of utmost importance to identify and engage policy makers all along the project according to Responsible Research and Innovation (RRI) principles. The methodology of engagement actions relied on engaging stakeholders at events, with Digital Interactions and with Virtual Platforms and to Demonstrate iFishIENCi systems to answer the needs of the stakeholders at the European and international levels. In addition, we aimed for a worldwide know-how transfer of iFishIENCi technology innovations in the long-term.

2 Introduction

The overall goal of the iFishIENCi project was to provide new intelligent feeding technologies to support ambitious, but sustainable growth for the European aquaculture industry. In order to do this, cutting-edge research was combined with a holistic understanding of how these new technologies interact with society and stakeholders in terms of economy, politics, social welfare, animal welfare and ethics. iFishIENCi specifically aimed to engage with Policy makers during the innovation process.

The current deliverable D6.9 describes the actions iFishIENCi followed in order to engage specifically with Policy makers.

2.1 Identification of relevant Policy makers

In order to engage with policy makers, iFishIENCi first had to identify **relevant EU and national public authorities** and regulators as well as **appropriate dissemination intermediaries** such as marine/maritime clusters, research centres, etc. having strong established exchange with regulators.

A first focus for the mapping was set on the countries of the consortium beneficiaries (i.e. Malta, Norway, Denmark, Spain, Greece, Hungary, Germany and France), but for optimal geographical coverage, the members of the iFishIENCi Advisory Board acted as relays to reach out to local policy makers in countries without an iFishIENCi partner (Netherlands, UK, USA). Following international strategy developed by the International Cooperation Champion and in line with the comments received during the 18th month project review, policy makers were identified in a second step internationally in key marine aquaculture country such as Scotland, Ireland, Turkey Australia, Canada, Chile, China, Iceland, India, New Zealand, the Philippines, South Africa and Brazil (Bankes, 2016; Krause, 2015; Osmundsen, 2017).

2.2 Formulation of tailor made messages for Policy makers

The next step was the development of -tailor-made messages for the Policy makers by reviewing the European “Blue Growth” political objectives in light of the proposed technology development of the iFishIENCi project. Specific attention was given to the strategic vision for sustainable aquaculture production and consumption in the European Union: blue farming in the European Green Deal (European Commission, 2021) and the Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030 (COM (2021) 236).

iFishIENCi also published a series of three reports on Regulatory Framework and Requirements (Shrestha, 2020; Hávardsson, 2021 and Shrestha, 2023) to identify and assess the legal framework, the responsible farming standards and certification schemes as well as the ethical, environmental, and H&S requirements linked with the fish farming industry and the nutrition and breeding especially in the European aquaculture.

2.3 Implementation of Multi-angled engagement strategy

iFishIENCi concentrated on identifying the agenda of public authorities in order to be able to deliver the iFishIENCi message according to policy makers’ agenda and therefore to increase possible impact and uptake.

Then iFishIENCi implemented a series of dissemination and engagement activities towards policy makers from EU and countries of the iFishIENCi partners and advisory board members.

2.4 Application of Responsible Research and Innovation

All activities of engagement of policy makers were performed in close collaboration with the 5 iFishIENCi Champions in charge of transversal focus on Responsible Research and Innovation (RRI), Innovation, International Cooperation, Valorisation & Circularity as well as Policy, with iFishIENCi task on Identification and assessment of Legal, responsible farming standards, certification schemes, Ethical, Environmental, and H&S Requirements (Task 4.6.) and according to RRI outreach principles as defined in iFishIENCi Responsible Research & Innovation (RRI) Inreach Framework (Dankel, 2022).

RRI is a cross-cutting approach that includes a plurality of disciplinary and non-disciplinary perspectives of how science, technology and innovations can work together with society to produce sustainable and fair outcomes. Anticipation, public engagement, reflexivity and responsiveness are central concepts for successful RRI interventions. In RRI activities, academic experts, innovation users, stakeholders and local experts engage in discussions regarding the creation and deployment of future innovations. The overall goal for RRI actions is to heighten the quality of research and innovations through open science and participatory processes.

RRI “inreach” explicitly identifies aspects of responsible research and innovation, including issues of the philosophy of science, in each work package. Task 6.3, Task 6.4 and Task 6.5 lift these issues onto a larger communication platform in the public engagement and outreach tasks of iFishIENCi. RRI-Inreach synergies will be identified in annual RRI workshops at the annual meetings of the iFishIENCi consortium and used in the communication and dissemination Tasks 6.2–6.6. Since the responsibility of applying the RRI-Inreach framework has been spread across the work packages, each individual work package and task leaders will gain competency and experience in RRI therefore increasing the future impact and possibilities of effective and responsible aquaculture innovations.

3 Mapping and identifying stakeholders

An extensive Stakeholder Identification/Mapping covering stakeholders from the aquaculture sector, policy makers and consumers was implemented through coordinated work of tasks Engaging with the Aquaculture sector (task 6.3), Engaging with Policy makers (task 6.4) and Engaging with Consumers (task 6.5). All iFishIENCi project partners contributed to mapping local, national and international Stakeholders and Public authorities they have been or are in contact with. Respective lists of stakeholders were presented in D6.5 and in current D6.9.

3.1 Public authorities and regulators

Around Europe, various public authorities govern and administrate at different levels all aspects linked to aquaculture such as breeding, fish feed, animal health and welfare, environmental requirements, digitalisation, fish and seafood processing and much more.

3.1.1 European Public Authorities

Table 1 *List of European public authorities identified*

Stakeholder	Description	Website
EMODnet - European Marine Observation and Data Network	aims to observe the sea, process the data according to international standards and make that information freely available as interoperable data layers and data products	https://www.emodnet.eu/
EUMOFA- European Market Observatory for Fisheries and Aquaculture Products	online tool developed by the European Commission to enhance market intelligence and to contribute to transparency and efficiency of the market for fishery and aquaculture products	www.ec.europa.eu/fisheries/cfp/market/market_observatory_en
STECF – Scientific, technical and Economic Committee for Fisheries	group of scientific experts nominated by the European Commission	www.ec.europa.eu/fisheries/partners/stecf_en
Commissioner Mariya Gabriel	Commissioner in charge of Innovation, Research, Culture, Education and Youth	www.ec.europa.eu/commission/commissioners/2019-2024/gabriel_en
Commissioner Stella Kyriakides	Commissioner in charge of Health and Food Safety	www.ec.europa.eu/commission/commissioners/2019-2024/kyriakides_en
Commissioner Virginijus Sinkevičius	Commissioner in charge of Environment, Oceans and Fisheries	www.ec.europa.eu/commission/commissioners/2019-2024/sinkevicius_en
CoR - Committee of the Regions	EU's Assembly of Regional and Local Representatives	https://cor.europa.eu/en
Council of the European Union	legislative body of the European Union	www.consilium.europa.eu
DG Climate	Commission Directorate General for Climate Action	https://ec.europa.eu/clima/index_en
DG Connect	Commission Directorate General for Communications Networks, Content and Technology	https://ec.europa.eu/info/departments/communications-networks-content-and-technology_en
DG ENV	Commission Directorate General for Environment	www.ec.europa.eu/dgs/environment
DG Mare	Commission Directorate General for Maritime Affairs and Fisheries	www.ec.europa.eu/knowledge4policy/node/6652_de
DG RTD	Directorate General for Research and Innovation	www.ec.europa.eu/knowledge4policy/organisation/dg-rtd-dg-research-innovation_en
ENVI Committee	European Parliament Committee on Environment, Public Health and Food safety	www.europarl.europa.eu/committees/en/envi
European Commission	executive branch of the European Union	www.ec.europa.eu
European Parliament	legislative body of the European Union	www.europarl.europa.eu
Executive Vice-President Margrethe Vestager	Commissioner in charge of the Strategy "A Europe Fit for the Digital Age"	www.ec.europa.eu/commission/commissioners/2019-2024/vestager_en
PECH Committee	European Parliament Committee on Fisheries	www.europarl.europa.eu/committees/en/pech

3.1.2 National Public Authorities

***Table 2** List of National public authorities identified*

Stakeholder	Description	Country	Website
Folketingets Udvalg for Fødevarer, Landbrug og Fiskeri	The Danish parliament's committee on food, agriculture and fisheries	Denmark	https://www.ft.dk/da/udvalg/tidligere-udvalg/flf
Miljø-og Fødevareministeriet	Ministry of Food, Agriculture and Fisheries	Denmark	www.mfvm.dk
Ministère de l'agriculture et de l'alimentation	Ministry of Agriculture and Food	France	www.agriculture.gouv.fr/french-ministry-agriculture-and-food
République française	French Republic	France	www.elysee.fr
BfN- Bundesamt für Naturschutz	Federal Agency for Nature Conservation	Germany	www.bfn.de
BMEL- Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz	Federal Ministry of Food and Agriculture	Germany	www.bmel.de/DE/Wald-Fischerei/05_Fischerei/D-Fischerei/_Texte/Aquakultur.html
Bundesrat	German Federal Council	Germany	www.bundesrat.de
Deutscher Bundestag	German federal parliament	Germany	www.bundestag.de
SRU -Sachverständigenrat für Umweltfragen	German Advisory Council on the Environment	Germany	www.umweltrat.de
Υπουργείο Αγροτικής Ανάπτυξης και Τροφίμων	Ministry of Rural Development & Food	Greece	www.minagric.gr
Agrárminisztérium	Ministry of Agriculture of Hungary	Hungary	www.kormany.hu/en/ministry-of-agriculture
Ministry for Agriculture, Fisheries and Animal Rights	Department of Fisheries and Aquaculture	Malta	www.agriculture.gov.mt
Ministerie van Landbouw, Natuur en Voedselkwaliteit	Ministry of Agriculture, Nature and Food Quality	Netherlands	www.government.nl/ministries/ministry-of-agriculture-nature-and-food-quality
Nærings- og handelsdepartementet	Ministry of Trade, Industry and Fisheries	Norway	www.regjeringen.no/en/dep/nfd/organisation/Departments/department-of-fisheries-and-aquaculture-/id706781/
Norwegian Government	Department for Aquaculture	Norway	www.regjeringen.no
Ministerio de Agricultura, Pesca y Alimentación	Ministry of Agriculture, Fisheries and Food	Spain	www.mapa.gob.es
Ministerio para la Transición Ecológica	Ministry of Environment	Spain	www.miteco.gob.es
JNCC - Joint Nature Conservation Committee	public body advising the UK Government on nature conservation	UK	www.jncc.gov.uk
UK Government	Department for Environment, Food & Rural Affairs	UK	www.gov.uk
UK House of Lords	upper house of the Parliament of the United Kingdom	UK	www.parliament.uk/lords
The Scottish Government - Marine Scotland	responsible for the integrated management of Scotland's seas and in charge of the Scotland's National Marine Plan	Scotland	https://www.gov.scot/publications/scotlands-national-marine-plan/pages/19/
Crown Estate Scotland	manages land and property owned by the Monarch in right of the Crown	Scotland	https://www.crownestatescotland.com/what-we-do/marine/asset/aquaculture
Food Standards Scotland	food standard authority	Scotland	https://www.foodstandards.gov.scot/
Scottish Environment Protection Agency	Scottish Environment Protection Agency	Scotland	https://www.sepa.org.uk/
Aquaculture and Foreshore Management Division of the Department of Agriculture, Food and the Marine	division providing aquaculture licenses	Ireland	https://www.agriculture.gov.ie/seafood/aquacultureforeshoremanagement/aquaculturelicensing/
Department of Communications, Marine and Natural Resources (DCMNR)	responsible for the delivery of policies and programmes	Ireland	https://www.dccae.gov.ie/en-ie/Pages/default.aspx
Central Fisheries Board (CFB)	Central Fisheries Board (CFB)	Ireland	https://fishinginireland.info/

Stakeholder	Description	Country	Website
Irish Sea Fisheries Board (BIM)	Support and enable an increase in value creation of a sustainable Irish seafood sector across the supply chain, from catch to consumer	Ireland	http://www.bim.ie/
Republic Of Turkey Ministry Of Agriculture And Forestry General Directorate Of Fisheries And Aquaculture	General Directorate Of Fisheries And Aquaculture	Turkey	https://www.tarimorman.gov.tr/BSGM/Sayfalar/EN/AnaSayfa.aspx
Department of Agriculture and Water Resources	developped national aquaculture strategy	Australia	https://www.agriculture.gov.au/fisheries/aquaculture/national-aquaculture-strategy
Australian Fisheries Management Authority	Australian Fisheries Management Authority	Australia	https://www.afma.gov.au/
Fisheries and Oceans Canada	Ministry of Fishery	Canada	https://www.dfo-mpo.gc.ca/index-eng.htm
Environment and Climate Change Canada	Ministry of Environment	Canada	https://www.canada.ca/en/environment-climate-change.html
Health Canada	Ministry of Health	Canada	https://www.hc-sc.gc.ca/
Agriculture and Agri-Food Canada	Ministry of Agriculture	Canada	https://www.agr.gc.ca/
SERNAPESCA - Servicio Nacional de Pesca y Acuicultura	Ministry of Fisheries and Aquaculture	Chile	www.sernapesca.cl
SIMA Austral - Sistema Integrado de Manejo de la Acuicultura	Integrated Aquaculture Management System	Chile	https://research.csiro.au/sima-austral/es/inicio/
Bureau of Fisheries -Ministry of Agriculture	Ministry of Fisheries	China	http://english.moa.gov.cn/
Government of Iceland - Ministry of industries and innovation	Ministry of Fisheries	Iceland	https://www.government.is/topics/business-and-industry/fisheries-in-iceland/aquaculture/
Coastal Aquacultur Authority	Coastal Aquaculture Authority	India	http://www.caa.gov.in/
The Marine Products Export Development Authority	The Marine Products Export Development Authority	India	https://mpeda.gov.in/MPEDA/regulation_on_aquaculture.php#
Fisheries New Zealand - Ministry of Primary Industries	Ministry of Fisheries	New Zealand	https://www.mpi.govt.nz/law-and-policy/legal-overviews/aquaculture/
New Zealand Conservation Authority	New Zealand Conservation Authority	New Zealand	https://www.doc.govt.nz/
Fisheries New Zealand	Ministry of Fisheries	New Zealand	https://www.mpi.govt.nz/fisheriesnz
Ministry for the Environment	Ministry for the Environment	New Zealand	https://www.mfe.govt.nz/
Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development	Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development	The Philipines	http://www.pcaarrd.dost.gov.ph/home/portal/
Department of Environment, Forestry and Fisheries (DEFF)	Department of Environment, Forestry and Fisheries (DEFF)	South Africa	https://www.environment.gov.za/
Secretaria Especial da Aquicultura e Pesca (SEAP)	Special Secretariat of Aquaculture and Fisheries	Brazil	https://www.gov.br/agricultura/pt-br/assuntos/aquicultura-e-pesca

3.1.3 Local Public Authorities

Table 3 *List of Local public authorities identified*

Stakeholder	Description	Country	Website
Conseil général Finistère	Local Council Finistère	France	www.finistere.fr
Conseil général Morbihan	Local council Morbihan	France	www.morbihan.fr
Département de l'Hérault	Local Council Hérault	France	www.herault.fr
Normandie	Administrative region Normandie	France	www.normandie.fr
Nouvelle Aquitaine	Administrative region Nouvelle Aquitaine	France	www.nouvelle-aquitaine.fr
Pays de la Loire	Administrative region Pays de Loire	France	www.paysdelaloire.fr
Région Bretagne	Administrative region Bretagne	France	www.bretagne.bzh
Région Guadeloupe	Administrative region Guadeloupe	France	www.regionguadeloupe.fr

Stakeholder	Description	Country	Website
Région Réunion	Administrative région Réunion	France	www.regionreunion.com
Aktivregion Ostseeküste e.V.	Association for an active Baltic coast region	Germany	www.aktivregion-ostseekueste.de
Gobierno de Canarias	Regional Government of Canary Island	Spain	www.gobiernodecanarias.org
Gobierno Vasco	Regional government of Basque country	Spain	www.euskadi.eus/gobierno-vasco
Junta de Andalucía	Regional Government of Andalusia	Spain	www.juntadeandalucia.es/
Xunta de Galicia	Regional Government of Galicia	Spain	www.xunta.gal
XRAQ - Xarxa de Referència d'R+D+I en Aqüicultura de la Generalitat de Catalunya	Reference research network in aquaculture of the Generalitat of Catalonia	Spain	http://www.xraq.cat/
Aberdeen Council	North East Scotland Fisheries Development Partnership (NESFDP)	UK	www.aberdeenshire.gov.uk/business/support-and-advice/industry-sectors/north-east-scotland-fisheries-development-partnership-nesfdp/
Comhairle nan Eilean Siar	Western Isles Council	UK	www.cne-siar.gov.uk
Cornwall Sea Fisheries District	Cornwall inshore fisheries and conservation authority	UK	www.cornwall-ifca.gov.uk
COSLA - Convention of Scottish Local Authorities	Environment and Economy Team	UK	www.cosla.gov.uk
Eastern Sea Fisheries Joint Committee	Eastern inshore fisheries and conservation authority	UK	www.eastern-ifca.gov.uk/
Highland Council	Aquaculture and marine fish-farming	UK	www.highland.gov.uk
Kent & Essex Sea Fisheries Committee	Sea Fisheries Committee	UK	www.kentandessex-sfc.co.uk/
NIFCA - Northumberland Inshore Fisheries & Conservation Authority	Inshore Fisheries & Conservation Authority	UK	www.nifca.gov.uk
Scottish Government	Marine Scotland Directorate	UK	www.gov.scot
Southern Sea Fisheries District	Inshore Fisheries & Conservation Authority	UK	www.southern-ifca.gov.uk
UK - Environment Agency	Centre for Environment Fisheries and Aquaculture Science	UK	www.gov.uk/government/organisations/environment-agency
Welsh Assembly Government	Marine and fisheries	UK	www.gov.wales

3.1.4 International Public authorities

Table 4 *List of International public authorities identified*

Stakeholder	Description	Country	Website
MR-FJLS - Nordic Council of Ministers for Fisheries, Aquaculture, Agriculture, Food and Forestry	promotes the sustainable use of nature and genetic resources	Denmark	www.norden.org/en/organisation/nordic-council-ministers-fisheries-aquaculture-agriculture-food-and-forestry-mr-fjls
HELCOM - Baltic Marine Environment Protection Commission – also known as the Helsinki Commission	intergovernmental organization consisting of Denmark, Estonia, the European Union, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden	Finland	www.helcom.fi
UN Environment-MAP	United Nations Environment Programme - Mediterranean Action Plan for the Barcelona Convention	Greece	www.web.unep.org/unepmap
Aquaculture Branch - Fisheries and Aquaculture Department	Food and Agriculture Organisation of the United Nations	International	http://www.fao.org/fishery-aquaculture/en/
UNDOALOS - UN Division for Ocean Affairs and the Law of the Sea	Supporting the implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development	International	www.un.org/Depts/los/index.htm

Stakeholder	Description	Country	Website
FAO - Food and Agriculture Organization / Aquaculture	promotes sustainable aquaculture development	Italy	http://www.fao.org/aquaculture/en/
GFCM - General Fisheries Commission for the Mediterranean	regional fisheries management organization of FAO to ensure the conservation and the sustainable use of living marine resources as well as the sustainable development of aquaculture in the Mediterranean and in the Black Sea	Italy	www.fao.org/gfcm
Ministerial Conference on fisheries cooperation among African States bordering the Atlantic Ocean	creation of interprofessional fisheries network	Marocco	www.comhafat.org
UfM - Union for the Mediterranean	aims to enhance regional cooperation, dialogue and the implementation of concrete projects and initiatives with tangible impact on citizens	Spain	www.ufmsecretariat.org
Commission on the Protection of the Black Sea Against Pollution	implements the provisions of the Convention and the Black Sea Strategic Action Plan	Turkey	www.blacksea-commission.org
The World Bank			https://www.worldbank.org/en/topic/environment/brief/sustainable-aquaculture

3.1.5 Public Innovation Programs

During the last two to three decades, policy makers increasingly became concerned about the role of innovation for economic performance and, more recently, for the solution of arising challenges such as climate challenge. The view that policy may have a role in supporting innovation has become widespread, and the term innovation policy has become commonly used (Edler, 2017; Pelkmans, 2014). Considering the influence of Innovation on policy, iFishIENCi identified and engaged European and National Innovation Programs as important stakeholders.

Table 5 *List of public innovation programs identified*

Stakeholder	Description	Country	Website
BELSPO - Belgian Science Policy Office	Federal Public Planning Service Science Policy	Belgium	www.belspo.be/belspo
FNRS - Fonds National de la Recherche Scientifique	National Fund for Scientific Research	Belgium	www.frs-fnrs.be
FWO - Fonds voor Wetenschappelijk Onderzoek - Vlaanderen	Research Foundation - Flanders	Belgium	www.fwo.be
H2020	EU Research and Innovation programme	Belgium	https://ec.europa.eu/programmes/horizon2020/en
JPI Oceans - Joint Programming Initiative Healthy and Productive Seas and Oceans	intergovernmental platform, aiming to invest in marine and maritime research	Belgium	www.jpi-oceans.eu
ZIM - Zentrales Innovationsprogramm Mittelstand	Funding programme of the Federal Ministry for Economic Affairs and Energy to foster innovative capacity of SMEs	Germany	www.zim.de
Innovation Norway	Norwegian Government's most important instrument for innovation and development of Norwegian enterprises and industry	Norway	www.innovasjonnorge.no/

3.2 Dissemination intermediaries

In order to reach the policy makers more efficiently, iFishIENCi engaged with various dissemination intermediaries, who have existing exchanges and dialogues with local, national and European policy makers. The Dissemination intermediaries are stakeholders of the aquaculture sector and are therefore described here but listed in D6.4 and D6.5 respectively.

3.2.1 Advisory Councils (ACs)

The overall objective of the ACs is to work towards integrated and sustainable management of fisheries resources, based on the ecosystem approach and the precautionary principle.

***Table 6** List of Advisory Councils*

Stakeholder	Country	Website
AAC - Aquaculture Advisory Council	Belgium	www.aac-europe.org
BSAC - Baltic Sea Advisory Council	Denmark	www.bsac.dk
BlSAC - Black Sea Advisory Council	Bulgaria	www.blsaceu.eu
LDAC - Long Distance Advisory Council	Spain	www.ldac.eu
MAC - Market Advisory Council	Belgium	www.marketac.eu
MEDAC - Mediterranean Advisory Council	Italy	www.en.med-ac.eu
NSAC - North Sea Advisory Council	The Netherlands	www.nsrac.org
NWWAC - North Western Waters Advisory Council	Ireland	www.nwwac.org
SWWAC - South Western Waters Advisory Council	France	www.cc-sud.eu
Pelagic Advisory Council	The Netherlands	www.pelagic-ac.org/

3.2.2 Marine/Maritime clusters

Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions fields that compete but also cooperate. Clustering brings business people together and catalyses value-added innovation. In Marine/Maritime Clusters, the core sectors are often comprised of ports, shipping companies, seafood, and offshore industries. Related industries in the cluster depend upon the area's focus for growth and activity (Hansen, et al., 2018).

***Table 7** List of Marine/Maritime clusters (as presented as well in D6.4 and D6.5)*

Stakeholder	Description	Country	Website
Marine Cluster Bulgaria	Sustainable development of the Bulgarian maritime economy through partnerships and joint actions of all stakeholders	Bulgaria	www.marinecluster.com/en/
Marine cluster Bulgaria	Sustainable development of the Bulgarian maritime economy	Bulgaria	www.marinecluster.com/en/
Ocean Networks Canada	Data collection on physical, chemical, biological, and geological aspects of the ocean	Canada	www.oceannetworks.ca
OceansAdvance	Companies, institutions, and organizations dedicated to ocean and marine-related technology, education, training, research and development, promotion, delivery and application	Canada	www.oceansadvance.net/about-us/
Eurofish	International Organisation, contributing to the development of fisheries and aquaculture in Europe	Denmark	www.eurofish.dk
EU science Hub – Fisheries and Aquaculture	European Commission's science and knowledge service	EU	www.ec.europa.eu/jrc/en/research-topic/fisheries-and-aquaculture?search
Pôles "Mer Bretagne" (ouest)	Marine cluster	France	www.pole-mer-bretagne-atlantique.com
Poles Mer Province Alpes-Côtes d'Azur (PACA, Sud)	Marine cluster	France	www.polemermediterranee.com
BluEco Net	German-Brazilian Aquaculture Cluster	Germany	www.blueconet.com/
Iceland Ocean Cluster	create value by connecting entrepreneurs, businesses and knowledge in the marine industries	Iceland	www.sjavarklasinn.is
Federazione Del Mare	Italian maritime cluster	Italy	www.federazionedelmare.it
Mare FVG	Maritime Technology Cluster	Italy	www.marefvg.it
Dutch Fish Marketing Board	Marketing Board	Netherlands	www.dutchfish.nl
Rotterdam cluster	Port Authority cluster	Netherlands	www.portofrotterdam.com/en/port-authority/about-the-port-authority/the-port-authority-in-society/port-vision-2030/europes
Cluster Maritimo	Spanish Maritime Cluster	Spain	www.clustermaritimo.es

Marine cluster	Marine cluster	Sweden	www.kth.se/water/research/marine
IMarEST	International society promoting the scientific development of marine engineering, science and technology,	UK	www.imarest.org
Seafish	Support to UK seafood industry (fishermen, processors, wholesales, food service, retailers and consumers)	UK	www.seafish.org
Marine Technology society	International society promoting awareness, understanding, and the advancement and application of marine technology	USA	www.mtsociety.org
CPMR North Sea Commission	Commissions of the Conference of Peripheral Maritime Regions (CPMR)		www.cpmr-northsea.org
European Cluster Collaboration Platform	Cluster platform		www.clustercollaboration.eu
Nordic Co-operation	Promotes the Nordic region as the most sustainable and integrated region in the world (Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland and Åland)		www.norden.org/en/information/about-working-group-fisheries-ag-fisk
Cluster Acuiplus	Devoted to the promotion and development of sustainable aquaculture	Spain	https://www.acuiplus.org/
AquaVitae project	New species, processes and products contributing to increased production and improved sustainability in emerging low trophic, and existing low and high trophic aquaculture value chains in the Atlantic	Norway	https://aquavitaeproject.eu/

3.2.3 Research Organisations

Research organisation have many possibilities to communicate advice towards regulators and in that sense, they are important intermediaries to reach the policy makers.

Table 8 *List of Research Organisations (as presented as well in D6.4 and D6.5)*

Stakeholder	Category	Country	Website
APC - Advance Planning-Consulting	Consulting	Greece	www.apc.gr
Viqon Water Solutions	Consulting	Netherlands	https://www.viqon.com/
Joint Research Centre Brussels	Joint Research Centre (JRC)	Belgium	www.ec.europa.eu/jrc/en/about/jrc-site/brussels
Joint Research Centre Geel	JRC	Belgium	www.ec.europa.eu/jrc/en/about/jrc-site/geel
Joint Research Centre Karlsruhe	JRC	Germany	www.ec.europa.eu/jrc/en/about/jrc-site/karlsruhe
Joint Research Centre Ispra	JRC	Italy	www.ec.europa.eu/jrc/en/about/jrc-site/ispra
Joint Research Centre Petten	JRC	Netherlands	www.ec.europa.eu/jrc/en/about/jrc-site/petten
Joint Research Centre Seville	JRC	Spain	www.ec.europa.eu/jrc/en/about/jrc-site/seville
IRB - Institut Ruđer Bošković	Research Centre	Croatia	www.irb.hr
IZOR - Institute of Oceanography and Fisheries	Research Centre	Croatia	www.izor.hr
LUKE - Natural Resources Institute Finland (Aquaculture)	Research Centre	Finland	https://www.luke.fi/en/natural-resources/fish-and-the-fishing-industry/aquaculture
CEVA - Algae Technology and Innovation Centre	Research Centre	France	https://www.ceva-algues.com/en/
CNRS - Centre National de la Recherche Scientifique (Institut écologie et environnement)	Research Centre	France	www.cnrs.fr
IFREMER - Institut Francais de Recherche pour l'Exploitation de la Mer (Aquaculture)	Research Centre	France	https://aquaculture.ifremer.fr/
Nouvelles Vagues - Business and Research Organization	Research Centre	France	http://pfinouvellesvagues.com/?lang=en
Alfred- Wegener- Institut Helmholtz- Zentrum für Polar- und Meeresforschung (AWI)	Research Centre	Germany	https://www.awi.de/
GEOMAR - Helmholtz-Zentrum für Ozeanforschung Kiel	Research Centre	Germany	www.geomar.de
GMA - Gesellschaft für Marine Aquakultur - Technological Platform	Research Centre	Germany	www.gma-buesum.de
Leibniz Centre for Tropical Marine Research (ZMT) GmbH	Research Centre	Germany	https://www.leibniz-zmt.de/en
Thünen Institute (Institute für Fischereiökologie)	Research Centre	Germany	https://www.thuenen.de/de/fi/
HCMR - Hellenic Centre for Marine Research	Research Centre	Greece	www.hcmr.gr

Stakeholder	Category	Country	Website
Aquatt - Business and Research Organization	Research Centre	Ireland	http://www.aquatt.ie/services
Marine Institute	Research Centre	Ireland	www.marine.ie
Marine Institute (Aquaculture)	Research Centre	Ireland	https://www.marine.ie/Home/site-area/areas-activity/aquaculture/aquaculture
OGS - National Institute of Oceanography and Experimental Geophysics	Research Centre	Italy	www.inogs.it
SZN - Anton Dohrn Marine Station	Research Centre	Italy	www.szn.it
European Fisheries and Aquaculture Research Organisations - Association composed of the Directors of the main European Research Institutes involved in Fisheries and Aquaculture research	Research Centre	Netherlands	www.efaro.eu
NIOZ - Royal Netherlands Institute for Sea Research	Research Centre	Netherlands	www.nioz.nl
Pro-Sea Foundation - Centre of expertise initiating, developing and conducting courses on marine awareness and sustainability to professionals working with or at the ocean	Research Centre	Netherlands	www.prosea.info
Havforskningsinstituttet (HI) - Institute of Marine Research	Research Centre	Norway	www.hi.no
Institute of Marine Research	Research Centre	Norway	http://www.imr.no/en
NOFIMA	Research Centre	Norway	https://nofima.no/en/research/capture-based-aquaculture/
Nowergian VETERINAERINSTITUT - research-based knowledge and contingency support in the fields of animal health, fish health and food safety	Research Centre	Norway	https://www.vetinst.no/en
NTNU AMOS - Centre for Autonomous Marine Operations and Systems	Research Centre	Norway	www.ntnu.edu/amos
SINTEF Fisheries and Aquaculture	Research Centre	Norway	www.sintef.no/en/ocean/aquaculture/#/
IO-PAN - Institute of Oceanology of the Polish Academy of Sciences	Research Centre	Poland	www.iopan.gda.pl
CIIMAR - Interdisciplinary Centre of Marine and Environmental Research - Biology, Aquaculture and Seafood Quality	Research Centre	Portugal	https://www2.ciimar.up.pt/research.php?research_line=1
CIMAR - Centre of Marine and Environmental Research	Research Centre	Portugal	www2.ciimar.up.pt
FCT - Science and Technology Foundation	Research Centre	Portugal	www.fct.pt
AZTI Tecnalia (Sustainable Fisheries Management)	Research Centre	Spain	https://www.azti.es/
CETMAR - Technological Centre of the Sea	Research Centre	Spain	www.cetmar.org
IEO - Institute Espanol de Oceanografia	Research Centre	Spain	http://www.ieo.es/en/acerca-del-ieo
Spanish Institute of Oceanography	Research Centre	Spain	www.ieo.es
PTEPA - Technological Platform for Fisheries and Aquaculture	Research Centre	Spain	www.ptepa.es
TÜBITAK - Scientific and Technological Research Council of Turkey	Research Centre	Turkey	www.tubitak.gov.tr
NOC - National Oceanography Centre	Research Centre	UK	www.noc.ac.uk
The Conservation Fund Freshwater Institute - Science & innovation - state-of-the-art RAS technology	Research Centre	USA	https://www.conservationfund.org/our-work/freshwater-institute
Ryan Institute for Marine, Environmental and Energy Research	Research Centre		www.nuigalway.ie/ryaninstitute/
Inagro vzw	Research Centre Feed	Belgium	https://www.inagro.be/inagro_en
APEXAGRI SAS	Research Centre Feed	France	http://www.apexagri.com/
INRA Agronomics Research Institute	Research Centre Feed	France	http://www.inra.fr/
ETA - Estonian Academy of Sciences	Research Community	Estonia	www.akadeemia.ee
Blue Growth Community - contributing to the sustainable socio-economic development of the Mediterranean area through innovative investments in the Blue economy	Research Community	France	www.blue-growth.interreg-med.eu/
KDM - German Marine Research Consortium	Research Community	Germany	www.deutsche-meeresforschung.de
Blue Med Community Portal - Research and Innovation for Blue jobs and growth in the Mediterranean Area	Research Community	Italy	www.bluemed-initiative.eu/bluemed-community-portal/
CNR - National Research Council	Research Community	Italy	www.cnr.it

Stakeholder	Category	Country	Website
CoNISMa - National Inter-University Consortium for Marine Sciences	Research Community	Italy	www.conisma.it
The Research Council of Norway	Research Community	Norway	www.forskningsradet.no
MASTS - Marine Alliance for Science and Technology Scotland	Research Community	UK	www.masts.ac.uk
NERC - Natural Environment Research Council	Research Community	UK	www.nerc.ukri.org
University of Ghent (Aqua UGent) - research for Sustainable Aquaculture	University	Belgium	http://www.aqua.ugent.be/
DTU - Technical University of Denmark - DTU Aqua - National Institute of Aquatic Resources	University	Denmark	www.aqua.dtu.dk
University of Helsinki - Fisheries and Environmental Management Group	University	Finland	www.helsinki.fi/en/researchgroups/fisheries-and-environmental-management
UM - Marine Universities of France	University	France	www.universites-marines.fr
Christian-Albrechts-Universität zu Kiel - Team Marine Aquaculture	University	Germany	www.tierzucht.uni-kiel.de/de/team/marine-aquakultur
University of Applied Sciences in Bremerhaven	University	Germany	www.hs-bremerhaven.de
SZIU - Department of Aquaculture	University	Hungary	http://halt.mkk.szie.hu/index.php?page=Introduction&nyelv=en
Universita degli Studi di Udine - Dipartimento di Scienze agroalimentari, ambientali e animali	University	Italy	https://www.uniud.it/en/uniud-international?set_language=en&set_language=en
Università di Bologna - Department of Veterinary Medical Sciences	University	Italy	www.unibo.it/it
Ghent University - Department of Animal Sciences and aquatic ecology	University	Netherlands	https://www.ugent.be/bw/asae/en/research/aquaculture
Wageningen University - Aquaculture and Fisheries group	University	Netherlands	https://www.wur.nl/en/Research-Results/Chair-groups/Animal-Sciences/Aquaculture-and-Fisheries.htm
NMUC - Norwegian Marine University Consortium	University	Norway	www.nmu.marint.info
Nord University - Faculty of Biosciences and Aquaculture	University	Norway	https://www.nord.no/en/about/faculties-and-centres/faculty-of-biosciences-and-aquaculture
NTNU - Norwegian university of science and technology - NTNU Oceans	University	Norway	https://www.ntnu.edu/
UIT - The Artic University of Norway - International Fisheries Management	University	Norway	https://en.uit.no/startsida
Universidad de Alicante - Department of Marine Science and Applied Biology	University	Spain	www.ua.es
Universidad del Pais Basco	University	Spain	https://www.ehu.eus/en/web/guest/en-home
University of Las Palmas de Gran Canaria - ECOAQUA - Institute of Aquaculture and Sustainable Marine Ecosystems	University	Spain	http://www.ecoaqua.ulpgc.es/en
University of Gothenburg	University	Sweden	www.gu.se
KTH Royal Institute of Technology - WaterCentre	University	Sweden	https://www.kth.se/water
Swedish University of Agricultural Sciences - SLU Aqua - Department of Aquatic Resources	University	Sweden	https://www.slu.se/en/departments/aquatic-resources1/
Swedish University of Agricultural Sciences - SLU Aquaculture	University	Sweden	https://www.slu.se/en/Collaborative-Centres-and-Projects/slu-aquaculture/
Istanbul University - Fisheries Faculty	University	Turkey	www.subilimleri.istanbul.edu.tr/en/
Stirling University Institute of Aquaculture	University	UK	https://www.stir.ac.uk/about/faculties/natural-sciences/aquaculture/
CTAQUA - Technological Centre of aquaculture	Research Centre	Spain	https://www.cetaqua.com

3.2.4 Sectorial Stakeholders Organisations

Stakeholder Organisations link all companies and/or associations within a specific sector to exchange expertise and lessons learned, for business development and for lobbying (DG Mare, 2008).

Table 9 *List of Sectorial Organisations (as presented as well in D6.4 and D6.5)*

Stakeholder	Description	Category	Country	Website
Österreichischen Verband für Fischereiwirtschaft und Aquakultur	Austrian Lake Fisheries and Aquaculture Association	Aquaculture Association	Austria	https://www.dachverband-aquakultur.at/%C3%BCber-uns+2500++2634766
AIPCE-CEP	EU Fish Processors and Traders Association & European Federation of National Organizations of Importers and Exporters of Fish	Fish Processors Association	Belgium	www.aipce-cep.org

Stakeholder	Description	Category	Country	Website
College des Producteurs	fishfarmer (http://filagri.be/aquaculture/)	Aquaculture Association	Belgium	http://www.collegedesproducteurs.be/site/index.php/les-filieres
Copa cogeca	European farmers union and European agri-cooperatives union	Aquaculture Association	Belgium	www.copa-cogeca.eu
EAS	European Aquaculture Society	Aquaculture Association	Belgium	https://www.aquaeas.eu/
EuroCoop – European Community of Consumer Cooperatives	promotion of the interests of consumer co-operatives and their consumer-members.	Consumer Association	Belgium	www.eurocoop.coop
European Association of Fish Producers Organisations		Fish Processors Association	Belgium	www.eapo.com
European Forum of Farm Animal Breeders		Aquaculture Association	Belgium	http://www.effab.info/about-effab.html
europêche	Association of national organizations of fishing enterprises in the European Union	Fisher Association	Belgium	www.europeche.chil.me
FEAP	Federation of European Aquaculture Producers	Aquaculture Association	Belgium	www.feap.info
Federation Europeene des Fabricants d'Aliments Composees (FEFAC)		Feed Producers Association	Belgium	https://www.fefac.eu/
FEG - Fisheries Experts Group of the European Bureau for Conservation and Development	aims to foster the sustainable use of fisheries and promote the conservation of related marine ecosystems	Fisher Association	Belgium	www.ebcd.org/feg
International Platform of Insects for Food and Feed (IPIFF)		Feed Producers Association	Belgium	https://ipiff.org/
Croatian Aquaculture Association		Aquaculture Association	Croatia	
Cyprus Mariculture Association	fishfarmers	Aquaculture Association	Cyprus	https://www.maritec-x.eu/en/members-area/directory/619/cyprus-mariculture-association/
Danish Society for a Living Sea		Aquaculture Association	Denmark	http://gl.levendehav.dk/uk/uk2.htm
Dansk Aqvakultur	fish, seafood, seaweed, feed	Aquaculture Association	Denmark	https://www.danskakvakultur.dk/
Danske Havne	Danish Ports Association	Fisher Association	Denmark	www.danskehavne.dk
EUFishmeal	Euopean Fishmeal and Fish Oil producers	Feed Producers Association	Denmark	https://effop.org/
EUROFISH	International Organization	Aquaculture Association	Denmark	http://www.eurofish.dk/about-eurofish/what-is-eurofish
Estonian Fishing Association		Fisher Association	Estonia	www.estofish.ee
Faroese Fish Farmers Association		Aquaculture Association	Faroe Island	https://www.industry.fo/international-edition/branch-associations/the-faroese-fish-farmers-association
Suomen kalankasvatus	fishfarmer	Aquaculture Association	Finnland	https://www.kalankasvatus.fi/
CIPA - Comité Interprofessionnel des Produits de l'Aquaculture	Interprofessional Committee for Aquaculture Products	Aquaculture Association	France	www.poisson-aquaculture.fr
CNPMEM - Comité national des pêches maritimes et des élevages marins	Union of professionals in fishing and marine farming sector	Aquaculture Association	France	https://www.comite-peches.fr/
Collectif Pêche et Développement	Association promoting fish and aquaculture development	Aquaculture Association	France	www.peche-dev.org
Comité national de la Conchyliculture (CNC)	National shellfish farming committee	Aquaculture Association	France	http://coquillages.com/
Comite Regional de la Conchyliculture Arcachon-Aquitaine	Regional shellfish farming committee	Aquaculture Association	France	http://huitres-arcachon-capferret.fr/a-propos/le-comite-regional/
Comité Régional de la Conchyliculture Bretagne-Nord	Regional shellfish farming committee	Aquaculture Association	France	http://www.coquillages-de-bretagne.com/catalog/index.php
Comité Regional de la Conchyliculture Bretagne-Sud	Regional shellfish farming committee	Aquaculture Association	France	http://www.huitres-de-bretagne.com/

Stakeholder	Description	Category	Country	Website
Comité Regional de la Conchyliculture de Mediterranee	Regional shellfish farming committee	Aquaculture Association	France	http://www.crc-mediterranee.com/
Comité Regional de la Conchyliculture de Poitou-Charentes	Regional shellfish farming committee	Aquaculture Association	France	http://www.src-poitoucharentes.com/nous-contacter
Comité Régional de la Conchyliculture des Pays de la Loire	Regional shellfish farming committee	Aquaculture Association	France	https://www.crc-pays-de-loire.fr/
Comité Regional de la Conchyliculture Normandie - Mer du Nord	Regional shellfish farming committee	Aquaculture Association	France	http://www.huitres-normandie.com/
European Mollusc Producers' Association		Aquaculture Association	France	http://www.bivalife.eu/Collaborative-european-project-BIVALIFE/Bivalife-Consortium/List-of-partners/EMPA
Eurothon	European Tropical Tuna Fishing, Processing and trade Committee	Aquaculture Association	France	www.vps745238.ovh.net
Groupement des Mytiliculteurs sur Bouchots	Regional mussel farming committee	Aquaculture Association	France	http://www.moulesdebouchot.fr/decouvrir/gmb/
Groupement Qualité Huîtres Marennes Oléron	Regional shellfish farming committee	Aquaculture Association	France	https://www.huitresmarennesoleron.info/contact.html
ORTHONGEL - Organisation des producteurs de thon congelé et surgelé	organisation of producers of frozen tuna	Fish Processors Association	France	www.orthongel.fr
Syndicat National des Employeurs de la Conchyliculture (S.N.E.C.)	National Union of Shellfish Employers	Aquaculture Association	France	https://snec-france.fr/
Bundesverband Aquakultur	National Aquaculture Association	Aquaculture Association	Germany	https://www.bundesverband-aquakultur.de/
Fischereischutzverband Schleswig-Holstein	Fisheries association	Fisher Association	Germany	www.fischereischutzverband.de
VDBA - Verband der Deutschen Binnenfischerei und Aquakultur e.V.	Association of German inland fisheries and Aquaculture	Aquaculture Association	Germany	https://www.vdba.org/
Verband der deutschen Fischindustie	Association of the Germany Seafood Industry	Aquaculture Association	Germany	https://www.fischverband.de/index.html
Federation of Greek Maricultures		Aquaculture Association	Greece	www.fgm.com.gr
HAPO	Aquaculture and fisheries	Aquaculture Association	Greece	https://fishfromgreece.com/about/
UGS - Union of Greek Shipowners		Fisher Association	Greece	www.ugs.gr
MA-HAL Hungarian inter-branch organisation	Aquaculture and fisheries	Aquaculture Association	Hungary	http://new.magyarhal.hu/English
National Angling Association	its responsibility is the handling of natural water bodies in Hungary	Angling association	Hungary	https://horgaszjegy.hu/
Network of Aquaculture Centers in Central and Eastern Europe (NACEE)	good connections to Russian speaking countries as well	Aquaculture Association	Hungary	https://www.nacee.eu/en/
Félag Íslenskra fiskmjölsframleiðenda	Fishmeal	Feed Producers Association	Iceland	https://www.fif.is/
Landssamband Fiskeldisstodva - The Icelandic Aquaculture Association (TIAA)	Aquaculture	Aquaculture Association	Iceland	http://www.lf.is/en/map-of-icelandic-aquaculture/
Irish Farmers' Association, Aquaculture Section		Aquaculture Association	Ireland	https://www.ifa.ie/sectors/aquaculture/
Irish Fish Producers Organisation		Fish Processors Association	Ireland	www.ifpo.ie
AMA -Associazione Mediterranea Acquacoltori	Fishfarmer	Aquaculture Association	Italy	http://www.a-m-a.it/
API - Associazione Piscicoltori Italiani	Italian Fish Farmers Association	Aquaculture Association	Italy	http://www.api-online.it/index.cfm/it/
Assalzoo	feed	Feed Producers Association	Italy	https://www.assalzoo.it/
Federazione Agricola Alimentare Ambientale Industriale Italiana (FAI CISL)	Italian Industrial Environmental Food Agriculture Federation	Aquaculture Association	Italy	https://www.faicisl.it/
PO Mosselcultuur	Mussel producers association	Aquaculture Association	Netherlands	https://www.mosselen.nl/de/muschel-info/mzis/
SjomatNorge	Norwegian Seafood Federation	Aquaculture Association	Norway	https://sjomatnorge.no/norwegian-seafood-federation/
Polish Trout Breeders Association		Aquaculture Association	Poland	http://sprl.pl/information-about-sprl/aktualnosci

Stakeholder	Description	Category	Country	Website
AAPCS - Associação de Armadores de Pesca do Centro e Sul	Ship owner association	Fisher Association	Portugal	www.cabazdopeixe.pt
AAPF - Associação de Armadores de Pesca da Fuzeta	Ship owner association	Fisher Association	Portugal	www.aapf.pt
AAPSACV - Associação de Armadores de Pesca Artesanal e do Cerco do Sudoeste Alentejano e Costa Vicentina	Ship owner association	Fisher Association	Portugal	www.secretatradicao.pt
ArtesanalPesca	fishing operators' cooperative	Fisher Association	Portugal	www.artesanalpesca.pt
Vianapesca	Fisher cooperative	Fisher Association	Portugal	www.vianapescaop.pt
ROMFISH National Fish Farmers Association		Aquaculture Association	Romania	https://www.romfish.ro/
Acuiplus	A group of people, companies and entities related to the Aquaculture sector	Aquaculture Association	Spain	https://www.acuiplus.org/en/el-cluster/
ARVI - Cooperativa de Armadores de Pesca del Puerto de Vigo	Fishing Vessels' Owners' Cooperative of the Port of Vigo	Fisher Association	Spain	www.arvi.org/
Asociación Empresarial de Acuicultura de España (APROMAR)	Business Association of Aquaculture of Spain	Aquaculture Association	Spain	http://www.apromar.es/
Associació Catalana d'Aqüicultura (ACA)	Aquaculture association	Aquaculture Association	Spain	http://agricultura.gencat.cat/ca/detalls/Article/ACA_Associacio_catalana_aquicultura
Cepesca – Confederacíon Española de Pesca	Confederation of Fisheries	Fisher Association	Spain	www.cepesca.es
Confraria de Pescadors de Barcelona	Fishermen's Brotherhood	Fisher Association	Spain	www.cpbarna.com
Consello Regulador do Mexillón de Galicia	Regulatory Council of the Mussel of Galicia	Aquaculture Association	Spain	https://www.mexillondegalicia.org/home/
Federación de Productores de Moluscos de Delta	Federation of Mollusc Producers from the Ebre Delta	Aquaculture Association	Spain	https://www.fepromodel.com/
Federación Gallega de Cofradías de Pescadores	Federation of Fishermen's Guilds	Fisher Association	Spain	www.confrariasgalicia.org
Federación Nacional de Cofradías de Pescadores		Fisher Association	Spain	www.fncp.eu
OPAGAC - Organización de Productores de Atún Congelado	organisation of producers of frozen tuna	Aquaculture Association	Spain	www.opagac.org
Spanish National Federation of Regional Associations of Fish and Frozen Products retailers (FEDEPESCA)		Aquaculture Association	Spain	http://fedepesca.org/
De Recirkulerande Vattenbrukarna Sverige Ekonomisk Förening PO (RECIRKFISK)	The Recirculating Aquaculture Sweden Economic Association	Aquaculture Association	Sweden	http://www.recirkfisk.se/
International federation of organic agriculture movements european uninon regional group	The IFOAM EU Group is an independent regional group within IFOAM	Agriculture Association	Sweden	https://www.ifoam-eu.org/
VSF	fishfarmer	Aquaculture Association	Switzerland	http://www.association-aquaculture.ch/index.php/fr/
NEVEVI	Aquaculture	Aquaculture Association	The Netherlands	https://www.nevevi.nl/
SUYMERBIR		Aquaculture Association	Turkey	http://suymerbir.org.tr/
BTA (Brittish trout Association)	Fishfarming	Aquaculture Association	UK	https://britishtrout.co.uk/
Cornish Fish Producers Organisation		Fish Processors Association	UK	www.cfpo.org.uk
Food and Drink Federation		Food Association	UK	www.fdf.org.uk
Global Salmon Initiative (GSI)	Aquaculture	Aquaculture Association	UK	https://globalsalmoninitiative.org/en/
IFFO The Marine Ingredients Organisation		Feed Producers Association	UK	https://www.iffo.net/
NFFO - National Federation of Fishermen's Organisations		Fisher Association	UK	www.nffo.org.uk

Stakeholder	Description	Category	Country	Website
Scottish Fishermen's Federation		Fisher Association	UK	www.sff.co.uk
Scottish Salmon Producer Organisation LTD		Aquaculture Association	UK	https://www.scottishsalmon.co.uk/
Scottish Salmon Producers'Organisation		Aquaculture Association	UK	www.scottishsalmon.co.uk
Shellfish Association of Great Britain		Aquaculture Association	UK	www.shellfish.org.uk
South West Handline Fishermen's Association		Fisher Association	UK	www.linecaught.org
SPFA - Scottish Pelagic Fishermen's Association		Fisher Association	UK	www.scottishpelagic.co.uk
SWFPA - Scottish White Fish Producers Association		Fish Processors Association	UK	www.swfpa.com
SWFPO - South Western Fish Producers Organisation		Fish Processors Association	UK	www.swfpo.org
The NAA	National Aquaculture Association	Aquaculture Association	USA	www.thenaa.net

3.2.5 Non-Governmental Organizations (NGOs)

NGOs perform a variety of service and humanitarian functions, such as bringing citizen concerns to Governments, advocating and monitoring policies and encouraging political participation through provision of information[1]. NGOs seek to achieve large-scale change promoted indirectly through influence of the political system; in that sense, all NGOs aiming for environmental and animal protection are interesting intermediaries for iFishiENCi to reach policy makers.

Table 10 *List of NGOs (as presented as well in D6.4 and D6.5)*

Stakeholder	Description	Category	Country	Website
Compassion in World Farming	campaigns to strengthen legislation and enforcement on farm animal welfare	Animal Protection	Belgium	https://www.ciwf.eu/
Eurogroup for Animals	aims to improve the protection of animals	Animal Protection	Belgium	www.eurogroupforanimals.org
Humane Society International	aims to promote the human-animal bond, protect street animals, support farm animal welfare, stop wildlife abuse, eliminate painful animal testing, respond to natural disasters and confront cruelty to animals in all of its forms	Animal Protection	Belgium	www.hsi.org
IFAW – International Fund for Animal Welfare	Animal Welfare	Animal Protection	Germany	www.ifaw.org
Dutch society for the Protection of Animals	Animal Protection	Animal Protection	Netherlands	www.dierenbescherming.nl
Stichting Vissenbeschermin	Fish Protection Foundation	Animal Protection	Netherlands	http://www.vissenbescherming.nl/organisatie/
Compassion in World Farming	aims to place farm animal welfare at the heart of the food industry	Animal Protection	UK	www.compassioninfoodbusiness.com
Fishcount.org.uk	aims to increase awareness of the welfare issues in fish farming	Animal Protection	UK	www.fishcount.org.uk
Food and Water Europe	champions healthy food and clean water for all	Environmental protection	Belgium	www.foodandwatereurope.org
WWF	aims to stop the degradation of the planet's natural environment	Environmental protection	Belgium	www.wwf.eu
Coastwatch Europe	protection and sustainable use of coastal resources, and informed public participation in environmental planning and management	Environmental protection	Ireland	https://coastwatch.org/europe/about/
Environmental Pillar of Social Partnership	creates and promotes policies that advance sustainable development	Environmental protection	Ireland	www.environmentalpillar.ie

[1] http://www.ngo.org/ngoinfo/define.html

Stakeholder	Description	Category	Country	Website
Greenpeace	fighting for environmental justice	Environmental protection	Netherlands	www.greenpeace.org/international/
Ecological Association EKO-UNIA	Nature and biodiversity protection	Environmental protection	Poland	www.eko-unia.org.pl
Ecologistas en Acción	ecologist group	Environmental protection	Spain	https://www.ecologistasenaccion.org/
Swedish Society for Nature Conservation	Nature Conservation	Environmental protection	Sweden	www.naturskyddsforeningen.se
IUCN - International Union for Conservation of Nature	Nature Conservation	Environmental protection	Switzerland	www.iucn.org
ECOCERT	Certification	Fish Labelling	France	www.ecocert.fr
Aquaculture Stewardship Council ASC	certification and labelling programme for responsible aquaculture	Fish Labelling	Netherlands	https://www.asc-aqua.org/
MSC - Marine Stewardship Council	label applied to wild fish or seafood certified to a science-based set of requirements for sustainable fishing	Fish Labelling	UK	www.msc.org
Funding Fish	international funders collaborative	Grant Programme	UK	www.fundingfish.eu
Pew Charitable Trusts	serve the public interest by improving public policy, informing the public, and invigorating civic life	Grant Programme	USA	www.pewtrusts.org
Seas at Risk	Environmental NGOs from across Europe that promotes ambitious policies for marine protection at European and international level	Marine conservation	Belgium	www.seas-at-risk.org
Finnish Association for Nature Conservation	environmental protection and nature conservation	Marine conservation	Finland	www.sll.fi
MedPAN - Network of Marine Protected Area Managers in the Mediterranean	aims to promote, through a partnership approach, the sustainability and operation of a network of Marine Protected Areas in the Mediterranean	Marine conservation	France	www.medpan.org
Deepwave	Protection of the oceans	Marine conservation	Germany	www.deepwave.org
Project Blue Sea	ocean conservation	Marine conservation	Germany	www.projectbluesea.de
Irish Seal Sanctuary	marine wildlife rescue NGO	Marine conservation	Ireland	www.ien.ie/irish-seal-sanctuary
Irish Wildlife Trust	aims to conserve wildlife and the habitats they depend on	Marine conservation	Ireland	www.iwt.ie
Sciaena - Marine Sciences and Cooperation Association	ocean conservation	Marine conservation	Portugal	www.sciaena.org
Ocean Sentry	works as a wide awareness program, dialogue and respect for marine environment and those who inhabit it.	Marine conservation	Spain	www.oceansentry.org
Baltic Sea 2020	aims to improve the environmental condition in the Baltic Sea	Marine conservation	sweden	www.balticsea2020.org
Coalition Clean Baltic	aims to promote the protection and improvement of the environment and natural resources of the Baltic Sea Area	Marine conservation	Sweden	www.ccb.se
Fair-fish	establishing a database of all ethological findings of various fish species in the wild and in aquaculture	Marine conservation	Switzerland	www.fair-fish.net
IUCN-Med	International Union for Conservation of Nature - Centre for Mediterranean Cooperation	Marine conservation	Switzerland	www.iucn.org/regions/mediterranean
OceanCare	marine wildlife protection	Marine conservation	Switzerland	www.oceancare.org
ClientEarth	fighting against climate change and to protect nature and the environment	Marine conservation	UK	www.clientearth.org
MCS - Marine Conservation Society	charity for the protection of seas, shores and wildlife	Marine conservation	UK	www.mcsuk.org
Oceana	ocean conservation	Marine conservation	USA	www.oceana.org
Journal of Insects as Food and Feed	Journal	Publication	France	https://www.wageningenacademic.com/loi/jiff

Stakeholder	Description	Category	Country	Website
L'Encre de Mer	Magazine for artisanal fishermen	Publication	France	www.l-encre-de-mer.fr
Revue de l'Alimentation Animale	Magazine	Publication	France	http://www.revue-alimentation-animale.fr/
Fisch Magazin	Magazine of the Aquaculture and Seafood Industry	Publication	Germany	https://www.fischmagazin.de/
CFFA – Coallition for Fair Fisheries Arrangements	advocates at European institution level so that the voice of artisanal fishing communities in third countries is heard	Sustainable Seafood Sector	Belgium	www.cffacape.org
Women in the Seafood Industry	highlight women's contribution to the seafood industry, to raise awareness of gender issues and to promote professional equality between men and women in the seafood industry	Sustainable Seafood Sector	France	https://wsi-asso.org/
Good fish foundation	aims to accelerate the transition to a sustainable seafood sector	Sustainable Seafood Sector	Netherlands	http://goodfish.guide/
ICSF - International Collective in Support of Fishworkers	works towards the establishment of equitable, gender-just,self-reliant and sustainable fisheries, particularly in the small-scale, artisanal sector	Sustainable Seafood Sector	Netherlands	www.icsf.net
PONG Pesac - Plataforma de Organizações Não Governamentais Portuguesas sobre a Pesca	aims to promote the sustainable exploitation of fisheries resources in all their aspects, ecological, social and economic, with a view to the conservation of marine ecosystems	Sustainable Seafood Sector	Portugal	www.pongpesca.wordpress.com
Mediterranean Blue Economy Stakeholder Platform	regional networking platform for sharing knowledge and for supporting the development of the blue economy	Sustainable Seafood Sector	Spain	www.medblueconomyplatform.org
EMB - European Marine Board	think tank in marine science policy	Think-Tank	Belgium	www.marineboard.eu
IIEA - Institute of International and European Affairs	international affairs think tank	Think-Tank	Ireland	www.iiea.com
The Coastal and Marine Union (EUCC)	think-tank in the field of marine management and maritime planning	Think-Tank	Netherlands	www.marine-team.eucc-d.de/

4 Engagement of Policy and Regulation stakeholders at events

iFishIENCi participated in public events organized by the European Commission, sectorial association and projects' cluster events. Through participation iFishIENCi aimed to present project progress and collect feedback/input from participating stakeholders in order to follow reflective and responsive development RRI strategy and to engage Policy makers. Various of the listed events are described in more details in the report on Overview on stakeholder engagement actions – Aquaculture sector (D6.5).

4.1 XVII National Aquaculture Congress, Cartagena, Spain, 2019

The Spanish aquaculture society (Sociedad Española de Acuicultura) organised the XVII National Aquaculture Congress from 7th to 10th of May 2019. iFishIENCi project partner LEITAT contributed with 1 oral presentation in front of 1200 people.

https://www.observatorio-acuicultura.es/comunicacion/agenda/xvii-congreso-nacional-de-acuicultura

4.2 AGRIAQUA'19 workshop at the Global IoT Summit (GIoTS), Aarhus, Denmark, 2019

The IEEE ComSoc IoT Emerging Technologies Initiative (IoT ETI) organised the Global IoT Summit (GIoTS) from 17th to 21st of June 2019. iFishIENCi project partner BIOCEANOR and EGM contributed with 1 oral presentation in front of 40 people.

https://globaliotsummit.org/giots-2019-aarhus/

4.3 Aqua Nor 2019, Trondheim, Norway, 2019

The Aqua Nor 2019 was organised from 20th to 23rd August 2019. iFishIENCi project partners ABT, NCE seafood, NORCE and AAR contributed with 3 oral presentations in front of 100 people.

https://aquanor.no/en/

4.4 National conference on harvesting and cultivation of micro- & macro-algae, Oslo, Norway, 2019

The Norwegian seafood federation (Sjømat Norge) organised the National conference on harvesting and cultivation of micro- and macroalgae on 3rd October 2019. iFishIENCi project partner NORCE contributed with 1 oral presentation in front of 100 people.

https://sjomatnorge.no/konferanse-om-hausting-og-dyrking-av-alger/

4.5 Aquaculture Europe 2019, Berlin, Germany, 2019

The European aquaculture society (eas) organised the Aquaculture Europe 2019 conference from 7th to 10th October 2019. iFishIENCi project partners ABT, NORCE, AAR, SZIU, HCMR and NCE contributed with 5 oral presentations in front of 150 people. iFishIENCi organised a joint session with sister projects.

https://www.aquaeas.eu/uncategorised/402-welcome-to-aquaculture-europe-2019

4.6 9th International Fisheries Symposium, Kuala Lumpur, Malaysia, 2019

ASEAN-Fischeries Education Network organised the 9th International Fisheries Symposium "A New Horizon in Fisheries and Aquaculture Through Education, Research and Innovation" from 18th to 21st November 2019. iFishIENCi project partner ABT contributed with an oral presentation in Session 11 about Aquaculture systems and Management.

http://irep.iium.edu.my/76460/20/Book_of_Abstracts.pdf

4.7 AlgaEurope 2019, Paris, France, 2019

EABA - European Algae Biomass Association and DLG Benelux organised the AlgaEurope 2019 conference from 3rd to 5th of December 2019. iFishIENCi project partner NORCE contributed with an oral presentation in front of 500 people.

https://algaeurope.org/

4.8 Focus Fish, Bremerhaven, Germany, 2020

ttz Bremerhaven organised the Focus Fish international conference from 21st to 22nd January 2020. iFishIENCi project partner TTZ contributed with an oral presentation in front of 30 people.

https://www.openagrar.de/servlets/MCRFileNodeServlet/openagrar_derivate_00026734/Focus_Fish_Program_ttz.pdf

4.9 fish international, Bremen, Germany, 2020

The fish international fish fair was organised from 9th to 11th February 2020. iFishIENCi project partner TTZ contributed with an oral presentation.

https://fishinternational.de/de/

4.10 55th Croatian and 15th International Symposium on Agriculture, Vodice, Croatia, 2020

University of Zagreb and Josip Juraj Strossmayer University organised the 55th Croatian and 15th International Symposium on Agriculture from 16th to 21st February 2020. iFishIENCi project partner MATE contributed with an oral presentation.

https://www.cabdirect.org/cabdirect/abstract/20203248124

4.11 Global Forum for Innovations in Agriculture, Abu Dhabi, United Arab Emirates, 2020

The Global Forum for Innovations in Agriculture was organised from 9th to 10th March 2020. iFishIENCi project partner ABT contributed with an oral presentation in the aquaculture area for the award of Best aquaculture innovation.

https://www.adnec.ae/en/eventlisting/global-forum-in-innovations-in-agriculture-2020

4.12 Aquaculture Europe 2020, online, 2021

The European aquaculture society (eas) organised the Aquaculture Europe 2020 conference online from 12th to 15th April 2021. iFishIENCi project partners LEITAT and HCMR contributed with 2 oral presentations.

https://aquaeas.org/Meeting/AE2020

4.13 Aqua Nor 2021, Trondheim, Norway, 2021

The Aqua Nor 2021 was organised in hybride from 24th to 27th August 2021. iFishIENCi project partner AAR, ABT and BIOCEANOR contributed with networking activities and project poster.

https://aquanor.no/en/

4.14 Aquaculture Europe 2021, Funchal, Portugal, 2021

The European aquaculture society (eas) organised the Aquaculture Europe 2021 conference from 4th to 7th October 2021. iFishIENCi project partners ABT, EGM, HCMR and MATE contributed with 3 oral presentations and 1 project posters in front of 1400 people.

https://aquaeas.org/Meeting/AE2021

4.15 IoT solutions world congress, Barcelona, Spain, 2022

The IoT solutions world congress was organised hybrid from 10th to 12th May 2022. iFishIENCi project partner EGM contributed with oral presentation.

https://www.iotsworldcongress.com/

4.16 Malta AgriFair 2022

The Ministry for Agriculture, Fisheries and Animal Rights organised the Malta AgriFair 2022 from 20th to 22nd May 2022. iFishIENCi project partner ABT contributed with 1 oral presentation.

https://agrifair.gov.mt/. This was an opportunity to connect the project with the Maltese ministry and demonstrate the sustainability and digitalisation innovations under developmnent.

4.17 AquaFarm 2022, Pordenone, Italy, 2022

The AquaFarm 2022 was organised from 25th to 27th May 2022. iFishIENCi project partners AAR and EGM contributed with 2 oral presentations.

https://www.fierapordenone.it/eventi/aquafarm-2022/

4.18 ISFNF 2022, Sorrento, Italy, 2022

The XX International Symposium on Fish Nutrition and Feeding Towards Precision Fish Nutrition and Feeding (ISFNF) was organised from 5th to 9th June 2022. iFishIENCi project partner ABT contributed with poster presentation.

https://www.isfnf2022.org

4.19 Nordic Algae Symposium 2022, Turku, Finnland, 2022

The BioCity Turku research programme SmartBio organised the Nordic Algae Symposium 2022 from 8th to 10th June 2023. iFishIENCi project partner NORCE contributed with oral presentation.

https://biocityturku.fi/events/nordic-algae-symposium-2022/

4.20 20th Biennial Conference of the International Institute of Fisheries Economics and Trade, Vigo, Spain, 2022

International Institute of Fisheries Economics and Trade (IIFET) organised the 20th Biennial Conference of the International Institute of Fisheries Economics and Trade from 18th to 22nd July 2022. iFishIENCi project partners LEITAT and MATE contributed with 2 poster presentations on circularity assessment.

https://worldfishcenter.org/events/20th-biennial-conference-international-institute-fisheries-economics-and-trade-iifet

4.21 18th International Symposium on Microbial Ecology, Lausanne, Switzerland, 2022

18th International Symposium on Microbial Ecology (ISME18) was organised from 14th to 19th August 2022. iFishIENCi project partner LEITAT contributed with poster presentation: "Greater Amberjacks (Seriola drumerili) microbiome modulation and welfare as consequence of climate change warming simulation in iFishIENCi project".

https://isme18.isme-microbes.org/

4.22 Smart Agri Hubs synergy days, Lisbon, Portugal, 2022

The Smart AgriHubs project organised its final event from 26th to 28th September 2022. iFishIENCi project partners ABT, EGM and NORCE contributed with a pitch on the project innovations, highlighting synergistic research including use of sensor detection, digital twin and IoT for farm/Aquafarm monitoring and management, and waste valorisation and circularity developments. In attendance was 20 synergistic project representatives who collaborated on the session and

document "Policy recommendations by the projects", and from the policy arena Janusz Wojciechowski, EU Commissioner for Agriculture; Helena Rodrigues, Project Officer, DG CNET, European Commission; Doris Marquardt, Programme Officer, DG AGRI, European Commission; and Willem Jonker, CEO EIT Digital. Moreover, iFishIENCi organised a workshop on "From Blue to green".

https://smartagrihubs.h5mag.com/final_event_2022/home

4.23 Aquaculture Europe 2022, Rimini, Italy, 2022

The European aquaculture society (eas) organised the Aquaculture Europe 2022 conference from 27th to 30th September 2022. iFishIENCi project partners MATE, ABT, HCMR, OXYGUARD and LEITAT contributed with 5 oral presentations in front of 80-90 people.

https://aquaeas.org/Meeting/AE2022

4.24 Laotian-Vietnamese-Hungarian Forum, Vientiane, Laos, November 2022

During the Laotian-Vietnamese-Hungarian Forum in Vientiane on 14th and 15th November 2022, János Szakáli of Vitafort held a presentation about the work and results of the iFishIENCi project. This was a high-level event attended by Deputy Director of Department of Livestock and Fisheries of the Laotian Agricultural Ministry and the Vice Dean at the Faculty of Fisheries, Head Department of Aquatic Environment and fish diseases, of the Vietnam National University of Agriculture.

iFishIENCi used this opportunity to demonstrate the current work of the project in Laos and to increase the impact of the iFishIENCi innovations on an international scale, particularly in the growing aquaculture markets of Laos and Vietnam. Thematic presentations on Fish value chain development, Production of sustainable fish feed using alternative protein sources, and Tilapia diseases and prevention strategies were also featured by other participants.

There has been aquaculture collaboration between Hungary and Asian countries especially Laos and Vietnam within the framework of inter-regional collaboration between Europe and Asia. The workshop can contribute to strengthen inter-regional collaboration for the benefit of participating countries and the concerned regions.

https://ifishienci.eu/2022/11/17/laotian-vietnamese-hungarian-forum-14-15th-of-november-2022-vientiane/

On the second day (15th November 2022) participants travelled to Namhoum to get to know a well-functioning tilapia fry production joint venture. Here was the site where feeding trials were carried out as part of the iFishIENCi developments and also where the organoleptic research tastings were held.

https://ifishienci.eu/2022/11/20/field-visit-to-the-aquatic-development-company-at-namhoum/

4.25 3rd Rostock Ocean Convention, Rostock, Germany, 2022

The 3rd Rostock Ocean Convention (OceanCon22) was organised from 16th to 17th November 2022. iFishIENCi project partner AAR contributed with 1 oral presentation.

https://www.rostock-business.com/events/veranstaltungsdetails/rostock-ocean-convention/

4.26 XVIII National Aquaculture Congress, Cádiz, Spain, 2022

The XVIII National Aquaculture Congress was organised from 21st to 24th November 2022. iFishIENCi project partner LEITAT contributed with 1 oral presentation.

https://eventos.cdti.es/ES/CNA_CDTIFEMP

4.27 World Aquaculture Singapore, 2022

The World Aquaculture Society organised the World Aquaculture Singapore 2022 conference from 29th November to 2nd December 2022. iFishIENCi project partners ABT and OXYGUARD contributed with 1 oral presentation.

https://www.was.org/meeting/code/WA2020

4.28 Final Conference of FutureEUAqua project, Bari, Italy, 2023

The sister project FutureEUAqua organised its final conference on 20th April 2023. iFishIENCi project partner ABT contributed with 1 oral presentation.

https://futureeuaqua.eu/index.php/2022/12/28/final-conference/

4.29 International aquaculture conference: Salt- and Freshwater Aquaculture in Europe – Sustainable Seafood for the Future, Bucharest, Romania, 2023

Eurofish and the National Agency for Fisheries and Aquaculture (NAFA) organised the International aquaculture conference Salt- and Freshwater Aquaculture in Europe – Sustainable Seafood for the future from 23rd to 24th May 2023. iFishIENCi project partner BAJCSHAL contributed with 1 oral presentation.

https://eurofish.dk/events/2023-05-aquaculture-ro/

5 Engagement of Stakeholders with Digital Interactions

The involvement of multi-stakeholder communities (producers, users groups, developer communities, policy makers and end users) was the cornerstone of the project as the project aimed at creating an open dialogue engaging them. **iFishIENCi built on the project dissemination strategy** described in D6.2 to engage with policy makers **through digital interactions** to gain their participation and valuable feedback and to maximize international visibility. The communication strategy informed targeted audiences about the project existence, its research benefits and project results.

In order to cope with COVID-19 pandemic, iFishIENCi decided to develop a virtual action plan to enable real-time interaction and engagement with policy makers mostly in the form of **Webinars.** iFishIENCi concentrated on digital interactions and implementation of a multi-dimensional digital approach:

- **Generalised marketing** of the project activities via selected media and dissemination channels (project Website, social media),
- **Targeted discussion** of specific activities and outcomes to identified target groups (Workshops/Webinars) advertised, reported and discussed on the project Website and social media
- **Specific dissemination of project and co-creation activities results** through webinars, events organisation, participation and networks

The webinars aimed to present progress along the project and collect feedback from stakeholders about possible improvements or aspects needing to be considered and provide insight to implement the successive iteration of project development, tests and assessment. The Webinars were co-organised with identified dissemination intermediaries and/or in collaboration with H2020 funded projects. The webinars were recorded and are available on the project website.

5.1 Horizon4Aquaculture event Webinars, June 2021

Confirmed by the European Commission in their strategic guidelines for EU aquaculture 2021-2030, and understood by initiatives working to achieve eco-intensification, preserve biodiversity, and develop better practices and technologies, Aquaculture is paving the way to be both a more environmentally friendly and more efficient industry.

Sharing this goal, the EU H2020 funded projects GAIN, iFishIENCi and IMPAQT launched **Horizon4Aquaculture**, a three-day online event to work together in 3 key aspects: **Policy and Regulation**, **Circularity**, and **Precision Aquaculture**.

Horizon4Aquaculture invited researchers, aquaculture farmers, policymakers, national and pan-national aquaculture development organizations to join the conversation and contribute to the present and future of the sector. https://ifishienci.eu/horizon4aquaculture/

5.1.1 Challenges & Opportunities for Aquaculture – POLICY and MARKET, 15th June 2021

The Horizon4Aquaculture event started, with a session dedicated to discussing policies, practices, and regulations, analyzing gaps and opportunities along the entire value chain of aquaculture production, from pre-production to the consumer market.

iFishIENCi contributed with 3 presentations from Marie Shrestha (TTZ), Björgolfur Hávardsson (NCE) and Anneli Rost (TTZ) in front of 89 attendees (182 registrations).

https://ifishienci.eu/challenges-and-opportunities-for-aquaculture-policy-and-market/

Watch the recording of the session:

https://www.youtube.com/playlist?list=PLs5U_CeoM3nuqdEk8Hql6kmGJ3xMIpIR5

5.1.2 Progress towards Circular Aquaculture, 22nd June 2021

On the 22nd of June, the debate focused on "Progress towards Circular Aquaculture", bringing together experts in circular economy and aquaculture to share knowledge and views on what circularity means in aquaculture, how it should be addressed and measured, and how it can become part of the business for aquaculture producers.

iFishIENCi contributed with 2 presentations from Dorothy J. Dankel (UiB) and Inma Sánchez Cantero (LEITAT) in front of 77 attendees (214 registrations).

https://ifishienci.eu/progress-towards-circular-aquaculture/

Watch the recording of the session:

https://www.youtube.com/playlist?list=PLQUazqgZMvm46vCM1oaHMoyJEHaLECin2

5.1.3 Precision aquaculture in the blue economy, 29th June 2021

Finally, the 29th of June highlighted "Precision Aquaculture in the Blue Economy", its demands and impacts regarding sustainability, cost-efficiency, and consumer confidence. This session included a **Demo Day** to explore the latest innovative technologies developed by GAIN, iFishIENCi and IMPAQT, and see how they contribute to solve problems and optimize aquaculture production.

iFishIENCi contributed with 6 presentations from Dominique Durand (NORCE), Frank Le Gall (EGM), Joseph A. De Prisco (ABT), Jesper Heldbo (OyxyGuard), Nikos Papandroulakis (HCMR) and Michele Gallo (ABT)in front of 77 attendees (231 registrations).

https://ifishienci.eu/precision-aquaculture-in-the-blue-economy/

Watch the recording of the session:

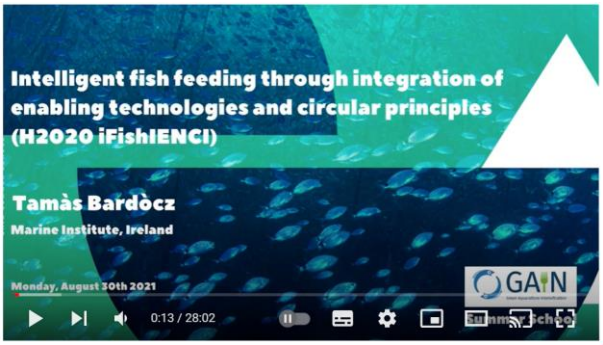
https://www.youtube.com/playlist?list=PLy5FOfKjsECzTXxmaYYOQBgEY9YBMHSJV

5.2 GAIN project – online Summer School – Ecological transition in aquaculture, August- September 2021

The GAIN Summer School was organized in the framework of the GAIN project, with the purpose to share project results and lessons learnt with motivated young researchers and operators, eager to contribute to the ecological transition of the aquaculture sector.

The GAIN Summer School provided key concepts and tools concerning: **precision aquaculture, circular economy, sustainability assessment, policies and markets**. Students got an up-to-date knowledge of key ideas in these areas and then were led through innovations, thus discovering how the main challenges in aquaculture field can be dealt with by adopting the GAIN approach to the ecological intensification of this sector.

Talks delivered by GAIN experts has been complemented by contributions from other EU projects, focused on aquaculture ecological transition, and worldwide recognized authorities. Students have been engaged in demonstration sessions, using virtual tools and encouraged to interact within focus group. https://www.epcsrl.eu/gain-summer-school/



Watch the recording of the session on Intelligent Fish Feeding (H2020 iFishIENCi) by Tamás Bardocz from ABT:

https://www.youtube.com/watch?v=hagZGWH7Su4&t=1s

5.3 On The Horizon project – online Webinar, September 2021

This event was the first in a series aiming to disseminate specific aquaculture project outputs from the EU Horizon Framework programmes and demonstrating support for key objectives including the Strategic Guidelines for competitive and sustainable aquaculture in the EU, the Blue Economy, the European Green Deal and Farm 2 Fork Strategies.

The forum was organised online on the **29th of September 2021** with the support of the Federation of European Aquaculture Producers.

https://eatip.eu/inaugural-on-the-horizon-online-webinar/

Watch the recording of the session on Genetic breeding approach to increase efficiency, cost reduction and sustainability by Juliana Kobolák from MATE:

https://www.youtube.com/watch?v=Wa-AWZ8Yip8&list=PLDhDEq9GPrZTE07u_nQ1xYG5OyJBWwbIs&index=7

5.4 GAIN project – online conference – Good Fish – Good Food – Drive the transformation towards sustainable food for all, October 2021

October 16th is the international #WorldFoodDay.

The GAIN project has decided to celebrate this day by organizing an international online conference to discuss about sustainability and innovation in and for the food sector.

How can we really achieve fair, healthy and environmentally-friendly food systems? What does it means sustainability from farm (and sea) to fork? Are we ready for a change in our production and consumption habits?

We discussed with an international panel of experts from different sectors and expertise, creating a bridge between GAIN project experience and other important initiatives going on at local and EU level.

https://www.epcsrl.eu/good-fish-good-food/

Watch the recording of the session on Urban and Policy dimension in Food System transformation (with focus on aquaculture and iFishIENCi) by **Marie Shrestha** from TTZ:

https://www.youtube.com/watch?v=jWyEbdpa9_4

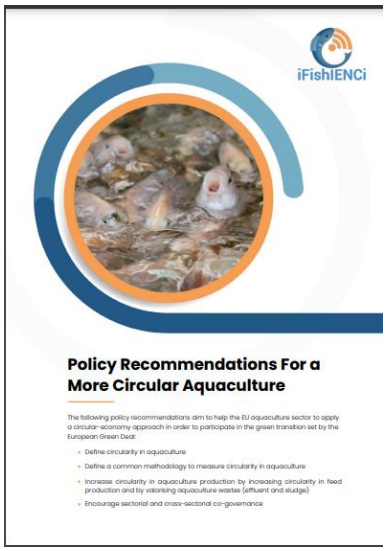
5.5 Aquaculture Going Circular – online Webinar, November 2021

On November 9th 2021, Participants joined iFishIENCi for an informative and collaborative event, discussing Circularity with high-level thinkers, circular economy experts, and leading aquaculture experts.

- How do we understand circularity within the aquaculture framework?
- How can circularity become part of daily business for the aquaculture industry?
- Who are the existing key actors, and what can we learn from their experiences?
- What policy messages are needed to ensure these actions are supported by regulators, officials, and the European Commission to make aquaculture more circular?

https://ifishienci.eu/media/events/aquaculture-going-circular/

Through this discussion, **iFishIENCi developed comprehensive recommendations to policy makers** at EU level.



https://ifishienci.eu/wp-content/uploads/2022/03/IfishcIENCi_Policydoc_Jan-2022Final..pdf

Watch the recording of the Aquaculture Going Circular event:

https://www.youtube.com/watch?v=3Tt1mIA3jcc&t=324s

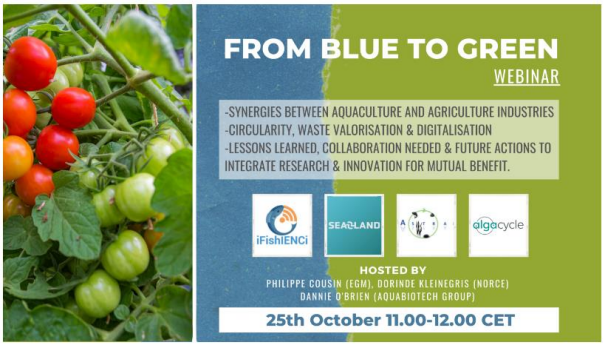
5.6 From Blue to Green – Webinar, October 2022

iFishIENCi Project co-organised the webinar "From Blue to Green" aquaculture innovation and synergies with agriculture on 25th October 2022.

Exploring synergies and lessons to be learned for the benefit of Green & Blue industries, this short and interactive workshop presented relevant synergies between the aquaculture and agriculture industries. Researchers from 4 projects working in the areas of circularity, waste valorisation and digitalisation in aquaculture under a "Blue to Green" theme presented important lessons for both industries and demonstrate the need for collaboration to integrate research and innovation in these areas for mutual benefit.

https://ifishienci.eu/media/events/from-blue-to-green-aquaculture-innovation-and-synergies-with-agriculture/

Presented by ASTRAL Project, ALGACYCLE, iFishIENCi and SEA2LAND, this workshop was developed and first delivered in the context of the SmartAgriHubs final event and is now available to a wider audience online!



iFishIENCi contributed with 1 oral presentation by NORCE.

Watch the recording of the Webinar:

https://www.youtube.com/watch?v=TBGCLFNTDrU&t=2s

5.7 From data interoperability to data spaces in the aquaculture domain – online Workshop, February 2023

This joint workshop from H2020 projects ASTRAL & iFishIENCi was organised on 28th February 2023 to discuss the relevance of data space for the aquaculture domain.

Data spaces bring together relevant data infrastructures and governance frameworks in order to facilitate data pooling and sharing to ultimately harness the value of data for the benefit of the European economy and society.

Aquaculture is among the fastest growing food production systems in the world and is strongly anchored in the blue-green economy. Interoperability and trust of data exchanges between the involved stakeholders across the complete aquaculture lifecycle is expected to boost the potential value of data for all the involved stakeholders. While technical solutions exist, they need to be made explicit and at the same time, governance rules for stakeholders' involvement need to be discussed.

Several on-going initiatives were presented, and a panel discussion explored the paths toward creation of an EU dataspace for aquaculture.

https://ifishienci.eu/from-data-interoperability-to-data-spaces-in-the-aquaculture-domain/

iFishIENCi contributed with 1 oral presentation.

Watch the recording of the session:

https://www.youtube.com/watch?v=Uz7sx6lLZyY&t=406s

5.8 iFishIENCi Aquaculture 4.0 Final Event – hybrid, June 2023

The future of digital aquaculture is here, and it's more exciting and rapidly evolving than ever before, holding immense promise for the future of food production and sustainability.

At the iFishIENCi **Aquaculture 4.0** Final Event, iFishIENCi invited seasoned producers, tech enthusiasts, or simply curious about the future of sustainable food to join in **Bergen, Norway and online, on 21st and 22nd June 2023 the** showcase of iFishIENCi's latest technology advancements in digital twin and IoT for feeding efficiency through behavior analysis and precision monitoring. Dedicated round tables generated detailed insights on new circular value chains, Waste2Value concepts, and how policy and regulation, including the EU Taxonomy, will shape future investment flows in the industry.

Complimentary workshops were organised for :

- advanced technical discussion of the use and demonstration of the iBOSS real-time monitoring, decision making, and response management for optimized production
- the regulatory framework for valorization of aquaculture sludge and waste water, waste capture, processing and use for producing aquafeed ingredients
- assessment of circular aquaculture value chains
- opportunities for the aquaculture industry in the EU framework program for research and innovation, future project ideation and funding opportunities

Attendees experienced short engaging presentations and panel discussions to discover how iFishIENCi technologies will enable fish farmers to improve efficiency, reduce waste, and enhance sustainability, while strengthening trust, and thus investment, in the industry. They also discovered the challenges and opportunities explored, heard feedback from innovative operational demos, and from plan for future collaboration and innovation, the key to unlocking the full potential of digital aquaculture.

https://ifishienci.eu/final-event/

Watch the recording of the final event:

https://www.youtube.com/@HiFishIENCi/videos

5.8.1 Policy Roundtable – Aquaculture 4.0 EU Taxonomy and the Green deal

Goal

The goal of the Policy Roundtable was to share expert advice and bring together key stakeholders to engage in a conversation on pathways to address the environmental, socioeconomic and governance challenges to the sustainable development of aquaculture sector in Europe considering circularity, enabling technologies and new feed.

Specific objectives

1. Introduce selected iFishIENCi project findings on environmental sustainability, socioeconomics and policy frameworks, relevant to the ambition set in the European Green Deal, the Farm to Fork strategy and the Strategic guidelines for a more sustainable and competitive EU aquaculture.
2. Exchange viewpoints and experiences on EU taxonomy challenges relevant to emerging and established aquaculture sector and their associated value chains.
3. Discuss actions needed to accelerate a transition towards the diversification and sustainable development of aquaculture value chains in Europe.

Participants to the Policy Roundtable

- Moderator: Björgólfur Hávarðsson MSc, Innovation manager at NCE Seafood Innovation (Norway)

1. Tamás Bardócz, R&D and Innovation Director at AquaBioTech Group (Malta) and coordinator of the H2020 iFishIENCi project
2. Lisbeth Jess Plesner, Dansk Akvakultur, Denmark
3. Silje Sveen Senior Quality Manager, Benchmark Genetics. Norway.

The audience was around 25 persons on site and 15 persons online.

Elements discussed during the Roundtable

- According to the Farm2Fork strategy, we need to redesign existing Food systems. The EU Green deal is very challenging for companies, but also offers opportunities. For example in Hungary, major retailers like LIDL/ALDI already reduce the amount and quantity of swine products in shops, opening space for aquaculture products for example.
- The EU aquaculture sector is already implementing many actions in line with the UN Sustainable Development Goals (SDGs) in order to be more sustainable.

- The EU Taxonomy is a classification according to sustainability performance of companies. The EU taxonomy aims to direct sustainable investment by helping investors to decide on which projects to invest. If applied to aquaculture it could help investment in general, since specifically the aquaculture sector needs large investments.
- The aquaculture companies already report various sustainability indicators on large base, but with huge variations, since no template or standards exist. Standards are needed to share knowledge and best practise, and be transparent. Transparency is very important. However, the application of new standards needs time to implement.
- Is there already reporting need towards agriculture/logistics sectors that are related with the aquaculture sector (feed supply, transport of products)? The taxonomy can show how aquaculture cooperates with other sectors.
- Is EU industry capable of meeting sustainability targets? Many companies are going for certification (mainly global GAP) and use it as dragging for improvement every day, but it is very time and resource consuming in the beginning to put in place. The risk that big companies get better position than smaller companies do in term of better reporting/documentation, leading to better investment exists.
- Consumer trust is also an important aspect for the aquaculture sector. It is important to have labels/standards to inform the consumers about the sustainability of the aquaculture products.

Watch the recording of the Policy roundtable:

https://www.youtube.com/watch?v=hhYbpEk5nXY

6 Demonstration of iFishIENCi systems to answer the needs of the Policy Makers

As stated in D4.12 - Report on regulatory framework and requirements – 1st version (Shrestha, 2020), iFishIENCi aims to **contribute to implementation of ongoing Regulations** such as:

- Multiannual National Strategic Plan for the development of aquaculture activities by
  (1) Boosting current competitive advantages of European aquaculture,
  (2) High quality and high environmental standard products,
  (3) Provide regulatory/policy scientific/technical solutions to reduce red tape in industry
  (4) Bring to the world market
- Water Framework Directive by reducing freshwater use and discharge (nutrient and suspended solid discharge) of EU aquaculture through:
  (1) Reduce feed waste through smart feeding and valorisation in open systems
  (2) Accompany the development of low-through systems
  (3) Promoting the recirculating aquaculture systems
- Marine Strategy Framework Directive by
  (1) Early results and prompt dissemination to local authorities to support decision making regarding national plans for Marine Spatial Planning
  (2) Reduce conflict of interest between coastal activities by reducing the environmental footprint of the industry
- Blue Growth Strategy through
  (1) More productive and environment-friendly coastal aquaculture production systems
  (2) More sustainable feed ingredients from algae to resolve a major bottleneck to aquaculture expansion and create new markets for marine biotechnology

Therefore, iFishIENCi **proved to policy makers the need of Integration of Enabling technologies and Circular principles for fish feeding** based on the Results of **demonstration in operational environment** and the **Sustainability and Circularity Assessments.** Moreover, iFishIENCi will put special effort on showing how the co-creation process led to adjustment of the project development to reflect better the needs of legislators and society.

6.1 iFishIENCi virtual SMART RAS demonstration with African catfish, 5th December 2022

iFishIENCi invited to see the scale up of the project innovations, seeing SmartRAS in action at AquaBioTech Group Innovia Research Facility, where feed trials were underway with feeds containing Candida yeast meal, produced especially as a fishmeal replacement protein source by NORCE for the project. African catfish werte specially selected as part of the MATE selective breeding program for their utilisation of alternative protein feeds in flow through systems in Hungary. The resulting selected fish were compared to non-selected African catfish in the AquaBioTech Group precision Recirculating Aquaculture Systems to demonstrate the applicability to other production methods.

Watch the recording of the session:

https://www.youtube.com/watch?v=q_cHU7QehJ0

6.2 iFishIENCi Land-based ponds demonstration, Hungary, 18th January 2023

Partner BAJCSHAL, with support of MATE, opened their farm in Hungary for a demonstration for land based ponds and flow through- which featured the testing of newly selected African catfish (Clarias gariepinus) lines on pilot feeds for African catfish. Participating Hungarian producers and other invited stakeholders were given the opportunity to see the iFishIENCi Demonstration in action.

https://ifishienci.eu/media/events/

6.3 iFishIENCi farmer training and demonstration, at 12th Fishing and Angling professional conference in Gödöllő, Hungary, 26-27th January 2023

Hungarian aquaculture farmers attending the 12th Fishing and Angling Professional Conference in Gödöllő, Hungary, organised by the Institute of Aquaculture and Environmental Safety (AKI), Hungarian University of Agriculture and Life Sciences (MATE), College of Fishing and Angling, Foundation for the Development of Fish Sciences and Hungarian National Fishing Association, had the opportunity to attend the iFishIENCi Farmer Training Program.

This event also involved partners Lars Ebbeson (NORCE Norwegian Research Center), Nikos Papandroulakis (Hellenic Center for Marine Research HCMR), Tamás Bardócz (AquaBioTech Group), Balázs Kovács (MATE-AKI), Varju-Katona Milán (Bajcshal), and Márton Orbán (Vitafort) as presenters and trainers.

Topics presented included:

- The examination of feed additives and potential raw materials in the iFishIENCi project and in other R&D programs,
- Innovative developments in cage aquaculture of sea bream and sea bass in Greece,
- The importance of digitization in Norwegian salmon farming,
- Opportunities of the circular economy in aquaculture based on the results of the iFishIENCi project,
- African catfish selection breeding program within the iFishIENCi project, and
- Results achieved by the iFishIENCi project at BAJCSHAL Kft.

https://szakmainap.e-lapozo.hu/lapozhato/

6.4 iFishIENCi SMART RAS demonstration with Salmon, Malta, 24th May 2023

Nine local and international aquaculture stakeholders from industry and education with interests in recirculating aquaculture systems (RAS) were present onsite at AquaBioTech Group in Malta on 24th May for the technical presentation, workshop and the tour to see SmartRAS technologies in action. Participants observed how the technologies of iFishIENCi can be utilized in a research RAS facility for husbandry of Atlantic salmon including:

- iBOSS (including behavioural modelling): control of automatic feeding in a pilot RAS facility.
- FishMET: prediction of growth rates of salmon based on feed consumption and water temperature in pilot RAS facility.
- SmartRAS: state of the art technology in RAS that can be used as pilot scale systems for research.
- Use of these technologies to grow salmon in Malta for research purposes.

This Event was hosted by Demonstration in Operational Environments work leader Freya Robinson and through virtual presentation featured technical presentations from Sergei Budaev and Ivar RØnnestad (University of Bergen) on the Fish Met Model and its development and application in RAS

and Nicolas Prost (Bioceanor) on the latest developments of iBOSS. Luc Gasser (EGM) explained in detail how the fish feeding behavior monitoring in RAS at the demo was carried out, and how this can be used to automate the feeding based on behaviour, and Giovanni Marco Cussimano (AquaBioTech Group) explained how the iFishIENCi technological tools were thus used to carry our feeding experiments on Atlantic salmon at the facility. Participants then went in to the wet lab facilities of AquaBioTech Group to observe the Smart monitoring and control systems in action and to view how these are linked to the data clouds needed to analyse feeding behaviour and control the feeding for optimal efficiency.

https://ifishienci.eu/smartras-demonstration-event/

7 Policy briefs

However, as policy makers do not normally attend workshops at major events or webinars and in order to maximise engagement, iFishIENCi developed short-targeted recommendations and disseminate them to identified relevant stakeholders.

7.1 Policy Recommendations For a More Circular Aquaculture

As stated in the Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030, "the EU aquaculture sector, like other sectors of the EU economy, has to participate in the green transition set by the European Green Deal. This sector has a particular role to play in contributing to the transition to sustainable food systems, but also to the development of the bioeconomy and the circular economy". Traditional aquaculture technologies, like polyculture pond production of fish, as well as new production methods, like Integrated Multi Trophic Aquaculture (IMTA) approach and Recirculating Aquaculture Systems (RAS), already integrate principles of circular economy. The improvement of these technologies and the increased circularity in predominant aquaculture production systems (open-cages), in which waste collection is challenging, might increase the compatibility between sustainable aquaculture and environmental protection. Considering the need to discuss and identify ways forward in which circularity can be developed within production in a practical, efficient and economically sound way, the H2020 iFishIENCi project organised the "Aquaculture Going Circular" event in November 2021. The outcome of this event led to the co-creation of policy recommendations (Balsells et al., 2022) to ensure regulators, officials, and the European Commission can support actions to make aquaculture more circular.

iFishIENCi Policy recommendations to help the EU aquaculture sector to apply a circular-economy approach in order to participate in the green transition set by the European Green Deal:

- **Define circularity in aquaculture**
- **Define a common methodology to measure circularity in aquaculture**
- **Increase circularity in aquaculture production**
  - **by increasing circularity in feed production and**
  - **by valorising aquaculture wastes (effluent and sludge)**
- **Encourage sectorial and cross-sectorial co-governance**

Apart from sending the iFishIENCi Policy recommendations directly to representatives from the European Commission as listed below, iFishIENCi published the Policy recommendations on Zenodo (https://zenodo.org/record/6641752) and promoted the publication through the project social media channels as well as through the social media channels of endorsing contributors.

Table 11 *List of representatives of the European Commission that directly received the iFishIENCi Policy Recommendations in February 2022*

iFishIENCi Policy Recommendations For a More Circular Aquaculture addressed to European Commission, Christos Economou, DG MARE, Director, A Maritime Policy and Blue Economy
Copies addressed to: REA - Maria José Amaral, iFishIENCi H2020 project officer DG MARE. A1 - Maritime Innovation, Marine Knowledge and Investment: Magdalena Andreea Strachinescu Olteanu, Head of Unit

DG MARE. A1 - Maritime Innovation, Marine Knowledge and Investment: Rodrigo Ataide Dias, Policy Officer - Maritime Policy - Research and Innovation
DG MARE. A2 - Blue Economy Sectors, Aquaculture and Maritime Spatial Planning: Felix Leinemann, Head of Unit
DG MARE. A2 - Blue Economy Sectors, Aquaculture and Maritime Spatial Planning: Lorella de la Cruz Iglesias, Deputy Head of Unit
DG MARE. A2 - Blue Economy Sectors, Aquaculture and Maritime Spatial Planning: Birgit van Tongelen, Senior Expert Aquaculture
DG MARE. A2 - Blue Economy Sectors, Aquaculture and Maritime Spatial Planning: Maris Stulgis, Policy Officer - Maritime Policy - Blue Growth and Innovation
DG MARE. A3 - Sea basin strategies, Maritime Regional Cooperation and Maritime Security: Christos Economou, Head of Unit
DG JRC.D2 - Water and Marine Resources: Jann Martinsohn, Head of Unit
DG RTD. B4 - Healthy Oceans & Seas: Elisabetta Balzi, Head of Unit
DG RTD. B4 - Healthy Oceans & Seas: Nikos Zampoukas, Policy Officer - Research and innovation for fisheries and aquaculture
DG ENV.B1 – Circular Economy, Sustainable Production & Consumption: Emmanuelle Maire, Head of Unit
DG ENV.B1 – Circular Economy, Sustainable Production & Consumption: Raluca Ionescu, Team Leader - Environmental Footprint
DG ENV.C2 - Marine Environment & Clean Water Services: Fabio Pirotta, Team Leader - Policy assistance / Marine Protection
DG ENV.C2 - Marine Environment & Clean Water Services: Laurent Markovic, Policy Officer - Marine Protection
DG AGRI.B4 – Organics: Patrizie Pitton, Policy Officer - Organic Farming / Internal Policy and Regulation

Table 12 *List of Contributors endorsing the iFishIENCi Policy Recommendations For a More Circular Aquaculture*

H2020 AquaIMPACT[2]
H2020 AquaVitae[3]
H2020 ASTRAL[4]
H2020 FutureEUAqua[5]
H2020 GAIN[6]

[2] AquaIMPACT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 818367.
[3] AquaVitae project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 818173.
[4] ASTRAL project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 863034.
[5] FutureEUAqua project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 817737.
[6] GAIN project project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773330.

H2020 IMPAQT[7]
H2020 NewTechAqua[8]
Evagoras Isaias, IsaiaSEA.com
Mohammad Nadjib, INVENDO
Abderrahim Ouaach, Polydisciplinary Faculty of Larache, Abdelmalek Essaadi University
Tamara Rubilar, CESIMAR-CCT CENPATCONICET
Koukaras Konstantinos
Benoît Wuatelet, Blue Economy Team leader – SwitchMed, Department of Environment, United Nations Industrial Development Organization
Anwarullah Khan
Luis Poersch, Federal University of Rio Grande, Institute of Oceanography

Note: iFishIENCi was initially planning to prepare a policy brief on new sustainable marine feeds and feed ingredients, but this topic was integrated in the Policy Recommendations For a More Circular Aquaculture.

7.2 Policy brief From Data interoperability to Data spaces in the Aquaculture sector

Following the developments in IoT/Ai technology integration in iFishIENCi (WP2) and the online Workshop "From data interoperability to data spaces in the aquaculture domain" organised in February 2023, iFishIENCi started to prepare a Policy brief to address the need to integrate Internet of Things (IoT) and Artificial Intelligence (AI) based solutions in aquaculture monitoring and feeding technology.

Interoperability refers to the functionality of information systems to exchange data and to enable sharing of information. Data interoperability allows data to be unified and used together, despite being in diverse formats and from different locations.

Organizations in different domains can exchange data based on a common contextual information management layer:

- Technical interoperability: solves the technical problems of connection between 2 systems
- Syntactic interoperability: resolves data encoding and formatting ("shape") issues
- Semantic interoperability: resolves issues with understanding the meaning of data ("the substance")

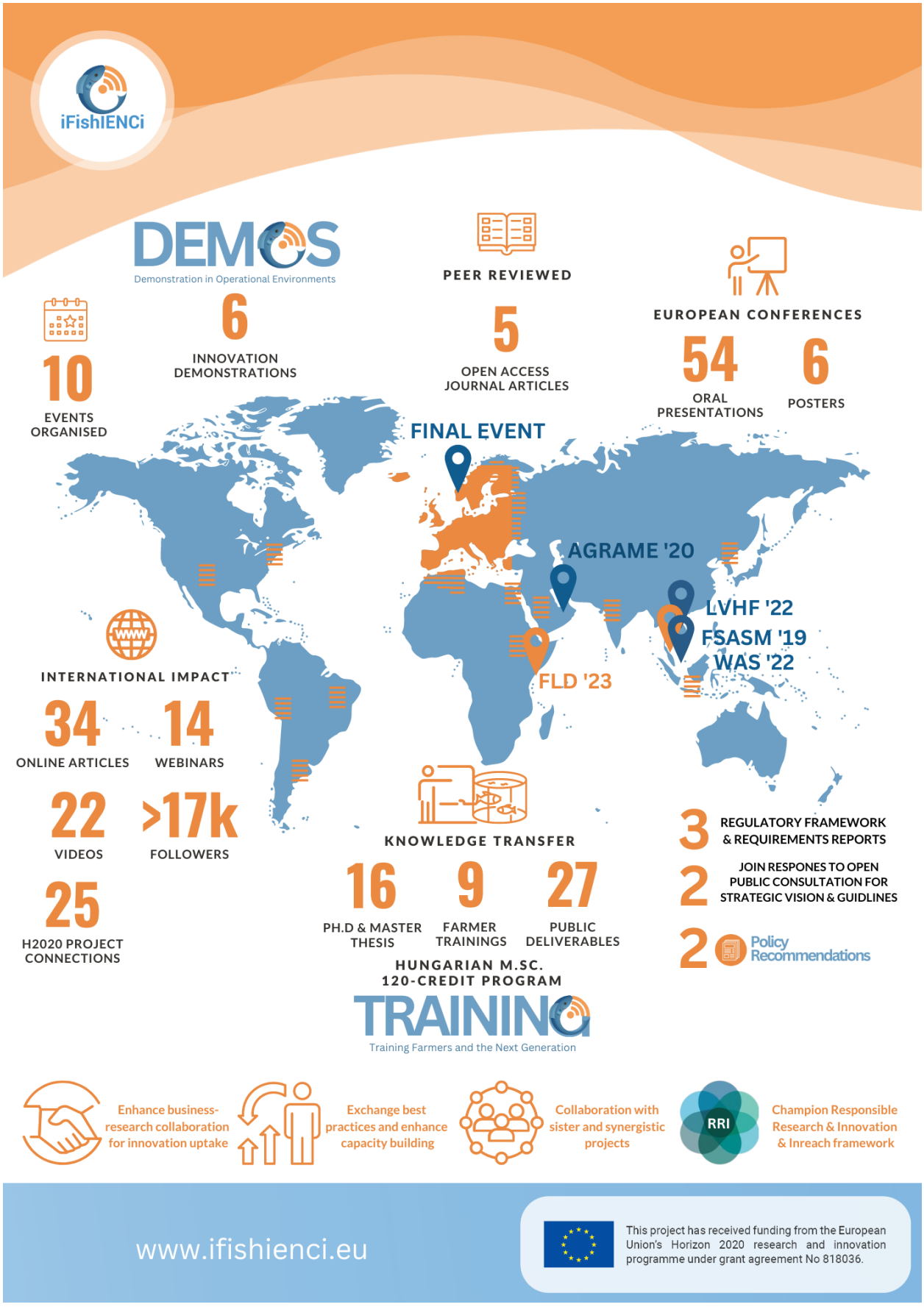
[7] IMPAQT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774109.
[8] NewTechAqua project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862658

8 International aspects of the engagement (Worldwide know-how transfer of iFishIENCi)

As stated already, a first focus for the mapping of policy makers was set on the countries of the consortium beneficiaries. However, engagement of policy makers at international level was followed along activities of the International Cooperation Champion and existing contacts with FAO, Aquaculture Stewardship Council ASC, the Hungarian ministry and Laos through the project Advisory Board Members.

This effort was pursued as a part of exploitation in WP5, with the objective of maximising take-over of iFishIENCi breakthrough products, transfer of technology towards EU as well as less- favoured countries and training.

9 Engagement in Numbers



10 Conclusion

In order to engage with policy makers, iFishIENCi combined various approaches and put a lot of effort on illustrating to what extend the co-creation process enabled to achieve project results leading to new impulses for both the policy makers and for the iFishIENCi consortium and technology developers.

Moreover, IFishIENCi considered the link between consumer acceptance and policy-making process. What influence has the consumer acceptance on policy-making process? And vice-versa: Policy makers are also consumers: how to increase their understanding of the technology products in iFishIENCi and how does this affect their acceptance of the products?

Finally, regarding the regulatory framework, iFishIENCi considered what fish farmers want to optimise. Are they seeking for new/optimised standards? And should the feed regulation and use of algae and fungi consider organic component? These are all relevant questions that will aid in our engagement of policy makers to support our understandings of how iFishIENCi innovation products will affect policy and regulations and vice versa.

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