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Deliverable report for

GAIN

Green Aquaculture Intensification in Europe

Grant Agreement Number 773330

Deliverable D6.7
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WP: 6 - Dissemination, Exploitation, and Communication

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1.Executive summary

Dissemination and exploitation of project results are an important part of GAIN project in order to achieve the largest possible impact. The GAIN consortium committed to maximize the impact of the results and has planned and executed a full range of activities to achieve maximum dissemination of the project. This includes a realistic, active disclosure of results to a broad range of stakeholders. In accordance with this vision, the Exploitation of GAIN's outcomes is expected to expand beyond the project's life-cycle, and outside Europe as it contributes to the aquaculture sector innovation and sustainability. This is achieved by testing/demonstrating products, results or recommendations to distinct stakeholders in order to maximize the impact of GAIN.

The GAIN consortium has made a very significant dissemination effort reflected in a total of 196 entries on dissemination activities, including 108 presences (most with oral presentations) in presential/online meetings/conferences/seminars to disseminate project results, and a total of 52 peer-reviewed publications. The GAIN consortium has also been involved in the organization of 2 major events to disseminate its results and key legacy messages, the online workshop **Horizon 4 Aquaculture**, and the GAIN online Conference **Good Fish Good Food**. GAIN has published 5 project newsletters.

GAIN producted total of 26 exploitable results, with direct and indirect impacts and value for different target stakeholders. Seven of these results have already reached the market (TRLs 8 and 9), while 13 others have reached TRLs 5 to 7.

We believe GAIN is leaving a legacy of results that can support the sustainable ecological and economic intensification of European aquaculture, through:
1) the **adoption of precision aquaculture measures** such as using sensors, big data analysis through AI-based deep learning algorithms, and dynamic modelling;
2) a **more circular use of resources** including through the use of aquaculture side-streams, not only in empowering a new generation of aquafeed formulations, but also in and other applications such as pet foods, soil fertilizers and biofiltration materials;
3) **provide guidelines and recommendations** to farmers, managers, and policy-makers and other stakeholders, based on science and facts.
4) paving the ground for the **set-up of a nutrient credit system** based on ecosystem services brought by **bivalve farming** in coastal areas.

Thus, the GAIN project expects to foster sustainable development of aquaculture in Europe and build trust and capacity in collaborative marine research processes among diverse stakeholders, communities, scientists and decision makers. This can improve European market potential and competitiveness by enhancing ethical and sustainable seafood, which consumers demand.

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2.Introduction

Green Aquaculture Intensification in Europe (GAIN) is designed to support the ecological intensification of aquaculture in the European Union (EU) and the European Economic Area (EEA), by developing and validating innovative production tools and knowledge to end-use and market level as well as increasing production and competitiveness of the industry, while ensuring sustainability and compliance with EU regulations on food safety and environment. GAIN is a transdisciplinary project that involves the integration of scientific and technical innovations, new policies and economic instruments, as well as the mitigation of social constraints.

Dissemination and exploitation of GAIN project results are an important part of GAIN project in order to achieve the largest possible impact. The GAIN consortium committed to maximize the impact of the results and has planned and executed a full range of activities to achieve maximum dissemination of the project. This includes a realistic, active disclosure of results to a broad range of stakeholders. In accordance with this vision, the Exploitation of GAIN's outcomes is expected to expand beyond the project's life-cycle, and outside Europe as it contributes to the aquaculture sector innovation and sustainability. This is achieved by testing/demonstrating products, results or recommendations to distinct stakeholders in order to maximize the impact of GAIN.

The description of the dissemination plan (section 3) starts with a brief discussion of the core components (3.2) and objectives (3.3) as well as the project's target audiences (3.4). A major component of the project's dissemination strategy is a targeted set of fine-tuned, modern dissemination tools (section 4).

All partners engaged in dissemination activities. The dissemination strategy is based on the expertise and experience of all partners, taking advantage of the balanced composition of the consortium between academia and the private sector to reach the relevant audiences.
This deliverable builds on D 6.4 -Intermediate Plan for the Exploitation and Dissemination, and is the final Plan for the Exploitation and Dissemination of Results (PEDR) of GAIN project. Initial planned dissemination activities, as well as the exploitation of results, evolved during the project's life cycle. The COVID19 pandemic was obviously a major constrain, and the Intermediate plan for exploitation and dissemination had to be extensively adapted, in particular in what concerns dissemination activities, and with a very strong focus on online events. The results obtained from month 1 to month 42 are presented, and the exploitation and dissemination activities still to be taken are outlined.

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3.Dissemination Plan

3.1 Overall strategy

The dissemination, exploitation, and communication work package (WP6) is strongly related to all other work packages and collects input from different tasks, depending on the actual project phase. Project goals, ideas, and results were communicated to all interested, relevant audiences from project start onwards through different, modern dissemination channels and tools.

The GAIN strategy contained build-in flexibility in order to deal with potential rapid change in dissemination platforms, which was very much needed with the pandemic situation. To be effective and efficient, the dissemination strategy included:

- Use of different dissemination tools on the same platform such as written text, graphs, illustrations, web-based tools, apps, oral presentations, leaflets, brochures etc.
- Recognition of the need of the audiences by using appropriate language and information levels.
- Interaction with other relevant projects and initiatives.

3.2 Core components

GAIN contains three core components in preparing and implementing a strategy for dissemination and exploitation of results:

1. What – key results
2. Who – stakeholder
3. How – dissemination tools

3.3 Dissemination Objectives

The GAIN project dissemination objectives are:

- To engage with the key stakeholder groups – (i) industry, insurance, and investors; (ii) Policy-makers; (iii) Research community, and share its progress and results through appropriate dissemination tools and language (in terms of different languages and appropriate expression);
- To disseminate and transfer the GAIN knowledge, activities, methods, and products;

Research results were reviewed within GAIN, and the data management plan follows the FAIR approach: Findability, Accessibility, Interoperability, Reusability (see 2.6).

In order to reach a wide range of audiences, the principle of 'AIDA', which stands for: Attention, Interest, Desire (or decision), Action, was followed. AIDA is widely adopted in modern-day marketing and promotion. The concept of AIDA was adapted to the purpose of GAIN (Fig. 1).

Attention refers to inform a wider public about the GAIN project by means of place or personalization of information. Dissemination tools can be: videos, leaflets, brochures, posters, and forms of social media.

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Interest describes the part of dissemination where an audience already aware of the project is made curious of the project in detail. This can be done by dissemination material, such as websites, newsletters, and videos, or by conference talks, publications, and posters.

Desire means to turn the project into something which is not only relevant to the targeted audiences but also to keep them interested in it during the project progress. This includes updates on social media, websites, updated videos, and newsletters, as well as participation in conferences.

Action means leading the audiences to take action and to make use of the project results. This includes influencing policy making, providing ready products and apps as well as final information via social media, websites, updated videos and newsletters, as well as at conferences.

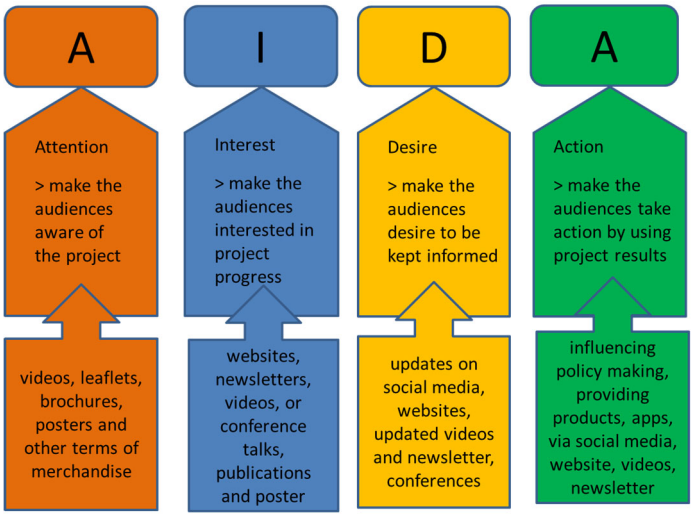

Fig. 1 AIDA concept for GAIN

3.4 Target audiences

The legacy of GAIN will depend on the uptake of innovations by stakeholder groups. These have, to some extent, affected the project decisions and outcomes in different ways. To maximize the project impact, it was therefore important to identify and classify targeted audiences and stakeholders to select the right dissemination tools and then foster the two-way transfer of knowledge, involving feedback from stakeholders, so to monitor and improve the effects of GAIN. The Consortium has identified a set of target groups, covering a wide range of potential users and stakeholders. These stakeholders have provided valuable feedback on the project (Fig.2) and introduced challenging requirements that were considered, having a major impact on the project's sustainable development. The described target audiences will also be used for exploitation issues (section 6.2).

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Fig. 2 GAIN dissemination and exploitation feedback loop. Please note: That "Citizens and Public primarily refers to "Communication" but interacts with dissemination/exploitation as well.

3.4.1 Public authorities:

A wide group encompassing local and regional authorities, ministries, parliaments and Public Administrations at national and international level:

- National Policy Makers in Member States: national ministries, governmental agencies as well as regional and local policy makers were informed about the project from the initial awareness phase (8 months) onwards;

3.4.2 Business community:

This group comprises industry, insurances, investors, SMEs, seafood producers (farmers), retailers, wholesale agents, feed producers, food processing industry, and other supporting industry/services. As diverse as this group are the dissemination tools (see section 4.) for it to inform about the project and to engage this important stakeholder group in GAIN activities, in order to facilitate a two-way transfer of knowledge.

3.4.3 Academia:

This group comprises researchers of institutes and universities, as well as other EU-funded projects of a similar topic. Dissemination activities for this group mainly include scientific publications, presentations on conferences and science events, as well as newsletters and reports.

3.4.4 Specialized Media:

For the technical media, mainly professional readership magazines/websites (print, and online, press releases regarding events, workshops, and publications were prepared regularly.

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3.5 Dissemination rules and publication policy

3.5.1 General principles

In GAIN, the Consortium Agreement (CA) establishes a legal framework and provide clear regulations for issues within the consortium related to the work, IP-Ownership, Access Rights to Background and Results and any other matters of the consortium's interest. In particular, the CA will include explicit agreements concerning IP ownership, access rights to any Background and Results for the execution of the project and the protection of intellectual property rights (IPRs) and confidential information. To ensure a smooth execution of the project, in the Consortium Agreement the project partners will grant each other and their affiliated companies, royalty-free Access Rights to their Background and Results for the execution of the project. This will allow the researchers the ability to execute the project to the best of their ability, without being hindered by administrative issues. The Consortium Agreement will define further details concerning the Access Rights for Exploitation to Background and Results. For dissemination activities, we will follow the principle of Intellectual Property (IP) Rights, ensure proper references, and follow transparent procedures.

3.5.2 Authorship and acknowledgement guidelines

Authorship on publications will be based on academic standards and practice. All investigators and contributors to a publication will be acknowledged, in compliance with recognized standards concerning publication and authorship, including the most recent "Recommendations for the Conduct, Reporting, Editing and Publications of Scholarly Work in Medical Journals" developed by the International Committee of Medical Journal Editors (ICMJE).
Unless the Commission requests or agrees otherwise or unless it is impossible, any dissemination of results (in any form, including electronic) must:

(a) display the EU logo and
(b) include the following text:
"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773330".

Any Dissemination activities must indicate the contribution made by each of the Parties to the conduct of the research being reported and to the funding of the research by the European Union. To that end the publishing Party(ies) shall ensure the following statement is included in any publications relating to the Project:
"The research leading to these results has received funding from the European Union's HORIZON 2020 Framework Programme under GRANT AGREEMENT NO. 773330."
Any dissemination of results must indicate that it reflects only the author's view and that the Commission is not responsible for any use that may be made of the information it contains.

3.5.3 Open Access to published results

Each Party is responsible for the fulfilment of the requirements in the Grant Agreement regarding Open Access publications involving that Party. If two or more Parties are publishing together they shall agree about the costs for the fulfilment of the requirements in the Grant Agreement before they publish.

3.5.4 Prior notice obligation

During the Project and for a period of 1 year after the end of the Project, the dissemination of own Results by one or several Parties including but not restricted to publications and presentations, shall be

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governed by the procedure of Article 29.1 of the Grant Agreement subject to the following provisions. Prior notice of any planned publication shall be given to the other Parties at least 45 calendar days before the publication. Any objection to the planned publication shall be made following the Grant Agreement in writing to the Coordinator and the Party or Parties proposing the dissemination within 30 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted.

3.6 Data management plan

The Data Management Plan (DMP) is developed to guarantee and promote information flow within the GAIN project and also externally. The DMP involves protocols for data standards. The responsibility for data lies with each partner, while the coordinator ensures that all named data managers and partners, are following the GAIN DMP, notwithstanding the responsibility of each partner in following National and EU legislative data protection procedures. As part of the exploitation strategy, we will work with end-users to identify what datasets can readily be made publicly available and seek appropriate consent during the data collection phase. Non-commercially sensitive data, including all data related to scientific publications, will be made available in an open research data repository. Our DMP aims to address data curation (based on standardization and indexing) and data preservation considerations (by depositing final datasets in replicated online open-access repositories such as ZENODO). When uploading data to the web, a protocol for unique and persistent identifiers, using DOI was established (OpenAIRE+ and ZENODO e-infrastructures). Data have been or will be archived in perennial repositories in order to make data publicly available as soon as possible.

GAIN is part of the Horizon 2020 Open Research Data Pilot, and for each (external and/or internal) resource type and related software, the DMP will consider the following aspects, based on the FAIR (Wilkinson et al., 2016)* approach (Table 1). Following the terms of reference of the H2020 Data Pilot, a detailed DMP based on these aspects are defined in GAIN Deliverable D7.3. The range of data being collected, generated, and used as part of the project are described; data typology and volume are presented together with the utility both towards the GAIN project and for the wider scientific community. A detailed description of open-access procedures is provided in D7.3 together with an assessment of the data sets that can be made open either partially or in totality. A final decision on providing any particular data set as open data will be documented in a future revision of that Deliverable.

Moreover, in the GAIN project, large sets of heterogeneous data were generated, including quantitative, qualitative, and fuzzy data. When suitable, data can be integrated with marine and terrestrial Earth Observation data downloaded from public portals such as Copernicus.

In order to guarantee data access and use, GAIN created a mutual cloud-based data management and services platform that offers unified access to relevant information (including

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in situ sensor data, relevant public data, model hindcasts, nowcasts, and forecasts, and farm operations data).

Table 1. The FAIR (Findable, Accessible, Interoperable, Reusable) approach of the GAIN Data Management Plan (DMP).

FAIR element	Detail*	GAIN DMP
Findability	F1. (meta)data are assigned a globally unique and persistent identifier F2. data are described with rich metadata (defined by R1 below) F3. metadata clearly and explicitly include the identifier of the data it describes F4. (meta)data are registered or indexed in a searchable resource	Review projected GAIN data types and assign appropriate metadata classifications; apply the Digital Object Identifier (DOI) standard for assignment to data and metadata as appropriate
Accessibility	A1. (meta)data are retrievable by their identifier using a standardized communications protocol A1.1 the protocol is open, free, and universally implementable A1.2 the protocol allows for an authentication and authorization procedure, where necessary A2. metadata are accessible, even when the data are no longer available	Information Management System (IMS) data, i.e. derived from sensors, will have its own standardized communications protocol, with built-in security authentication. IBM has extensive experience in this area. Other types of data and metadata will be accessible using industry-standard protocols such as JSON
Interoperability	I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation. I2. (meta)data use vocabularies that follow FAIR principles I3. (meta)data include qualified references to other (meta)data	GAIN will meet specific knowledge representation and vocabulary standards, e.g. standards for data annotation and data exchange, and combinations of datasets from different origins. GAIN will draw on the state-of-the-art in this area.
Re-Usability	R1. meta(data) are richly described with a plurality of accurate and relevant attributes R1.1. (meta)data are released with a clear and accessible data usage license R1.2. (meta)data are associated with detailed provenance R1.3. (meta)data meet domain-relevant community standards	GAIN will apply industry-standard ontology principles, to ensure adequate formal naming and definition of entities, making metadata as useful as possible. There is a substantial body of information on the current computer science approaches to this topic, and we will review and select the best options in our DMP

*Wilkinson, M. D., M. Dumontier, I. J. Aalbersberg, G. Appleton, M. Axton, A. Baak, N. Blomberg, et al. 2016. The FAIR Guiding Principles for scientific data management and stewardship. Scientific Data 3 (1): 160018. doi:10.1038/sdata.2016.18. http://dx.doi.org/10.1038/sdata.2016.18.

3.7 Dissemination and stakeholder engagement time line

All dissemination activities are planned according to each stage of the project. The most significant dissemination actions with the greatest impact will take place as soon as final research results will be presented and GAIN enters the exploitation phase. The different phases of the timeline partly overlap, as dissemination and stakeholder engagement are dynamic processes and success will be continuously monitored throughout the project in order to reproduce it. Thus, dissemination activities and tools will be constantly adapted to changes in outreach and visibility during the project.

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Table 2. The dissemination activities are planned according to the following time line:

Phase	I.								II.										IV.										VI.											
									III.														V.																			
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Year	2018								2019										2020										2021											

Initial awareness phase (month 0-8): during this phase, social media activities were fostered and the project was presented to the different target audiences using tools such as website, newsletter, Twitter, Facebook, leaflets, press releases, as well as events and conference presentations. The communication kit including project logo, project presentation, project poster, project leaflet, and templates for project documents was designed and made available to all partners.

I. **Interaction with stakeholders (month 8-18):** in the second phase, the interaction with and the involvement of stakeholders was the focus of dissemination activities. Dissemination tools included leaflets, videos, and invitations to panels, workshops, interviews, questionnaires, and focus groups.

II. **Validation in science (month 10-24):** during this phase, first results were analyzed and interpreted. This phase overlaps with phase II and IV.

III. **Feedback to stakeholders (month 18-30):** preliminary findings were presented to different target audiences. All dissemination tools (see 3.) were continuously updated with new results. Two-way-communication and transfer of knowledge was be supported by deliverables such as reports, videos, and posts in web-sites, blogs and social media.

IV. **Collate findings across different sectors conclusively (24-34 month):** as soon as first results were available, findings were analyzed in conclusive manner across different sectors in order to reach the highest impact of project results.

V. **Conclusive summary and final phase (30-42 month):** Final results were summarized and disseminated to all target audiences using the different dissemination channels identified for each group. The final dissemination and exploitation plan was produced. The results will be available long after the project end (see section 6.).

3.8 Disseminating GAIN results and achievements at different geographical levels

3.8.1 Setting up local dissemination & communication plans

Besides the general dissemination plan outlined in detail in this document, project partners developed “local dissemination plans” and nominated a dedicated person responsible for plan implementation and monitoring on local/regional level. They are asked to report regularly

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(twice a year) to the overall project dissemination plan manager. In order to support the GAIN project partners in choosing the right dissemination tools and times for the different target audiences, and collect the information, the GAIN Comunication, Dissemination and Exploitation template has been designed that served as basis (see Annex 6.1).

Furthermore, local /regional dissemination activities include:

- Putting a link on partner websites to www.unive.it/gainh2020_eu and https://gain2020.blog
- Identifying local media and approach them with press releases
- Continuosly Identify national events where GAIN should be presented
- Identifying regional/local publication opportunities
- Informing national stakeholders according to the 'timeline and tools' (Annex 6.1)
- Sending a list of relevant events for publication on the GAIN website
- Following GAIN on social media and actively disseminate GAIN news

3.8.2 National activities

Dissemination activities on the national level was also the main responsibility of the project partners and include:

- Identifying national events where GAIN should be presented such as conferences, seminars, or workshops.
- Identifying national media and approach them with press releases for articles in national newspapers and magazines for both the general public and public authority professionals

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4. GAIN dissemination tools

4.1 Project visual identity

Although not a dissemination tool, the project logo allows for an easy identification of GAIN documents, results and outputs, boosting dissemination tools and activities. It is available in different formats (.jpg, .png, .tiff, .eps) allowing the print and web material. The Logo was designed by LLE.

4.2 Project website

The project's website at **www.unive.it/gainh2020_eu** is next to the GAIN Blog (see 3.3) the main point for information on the objectives, methods and results of GAIN.
The website was structured as follows:

- Homepage: The homepage is until today focused on the objectives of GAIN and the Consortium. First, a key visual including the project name and statement of the vision of the project is design to keep the visitor interested. This is followed by a short introduction of the consortium. At the bottom of the homepage, contact details are given, twitter and facebook link are included and a link to the GAIN blog is presented. Content elements were to the website continuously throughout the project, pointing directly to important website content, such as key deliverables or videos.
- About: Second in the menu rider on top of the homepage is the 'About' site. Background, objectives and the expected impact of GAIN are described here. Furthermore, the management structure of the project including work packages is listed.
- Partners: the next rider in the menu presents the partners of the GAIN project
- News: the fourth rider in the menu shows all news, press releases etc. regarding the project. This has been updated regularly.

In general, the GAIN website has been updated continuously throughout the project and its structure is flexible, as new pages were added and existing ones renamed or removed when necessary. The website is maintained by the project's manager at Ca' Foscari University of Venice.

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www.unive.it/gainh2020_eu

4.3 Project blog

A Gain Blog was launched at https://gain2020.blog in order to provide videos and short notices on the GAIN development and results. All project partners will contribute blog entries and news were presented regularly. As this is mostly a communication tool, more details are provided in GAIN Deliverable 6.10-Summary of GAIN communication activities.

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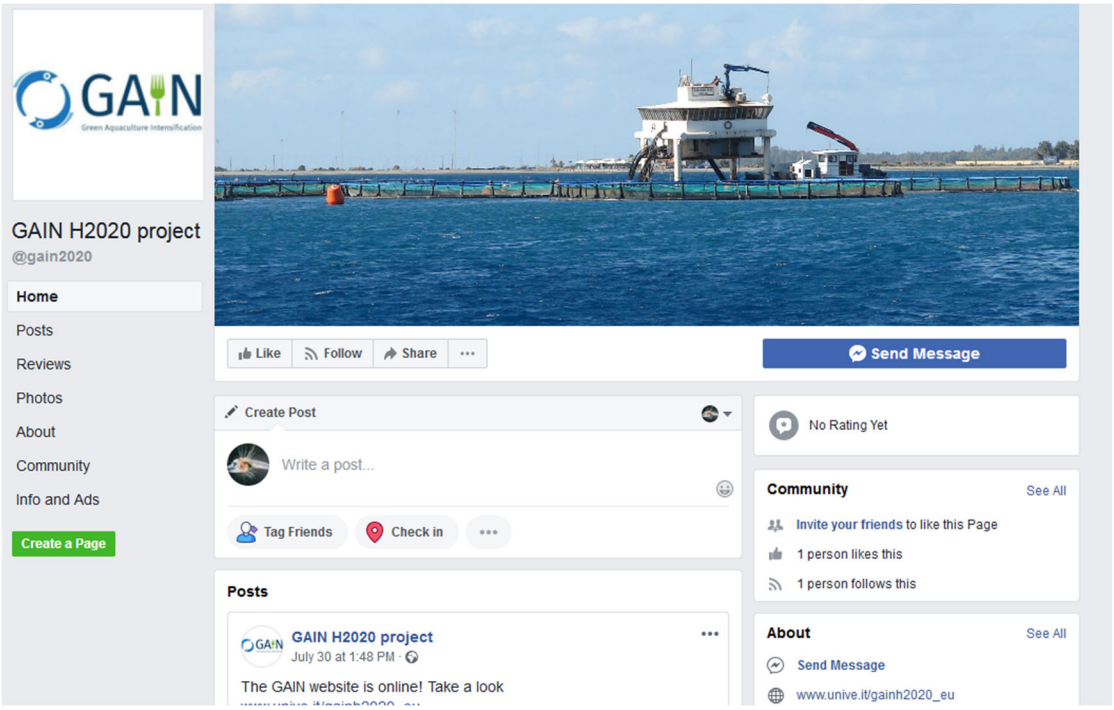
4.4 Web 2.0 - Social Media strategy

Social media is one of the most important tools for dissemination for the audiences of millennials and younger people. The Social networks provide numerous tools for dissemination that are used with different objectives and varying degrees of success. Thus, our plan contains built-in flexibility and includes monitoring the success of social media dissemination tools, by likes, followers, retweets, etc., in order to deal with potential rapid change in dissemination platforms and to reproduce the success. Furthermore, a two-way social media communication was envisaged.

Concrete measures for social networking channels include:
The Gain facebook site was launched in June 2018 at https://www.facebook.com/gain2020 and is updated regularly. It will contain many visual elements and links to videos etc.



https://www.facebook.com/gain2020

The project is also present on twitter at https://twitter.com/gain2020, and Instagram at GAIN2020@greenaquaculture2020. As social media are mostly communication tools, more details are provided in GAIN Deliverable 6.10-Summary of GAIN communication activities.

A set of six short videos was produced to inform about objectives, activities and results of GAIN (see Table 2). Complementary videos were produced by partners, communicating specific results. These include one video to promote a GAIN project product being already commercialized, six videos covering the presentations at the GAIN online Conference Good Fish Good Food, and 5 videos covering the sessions at the online workshop Horizon 4 Aquaculture, co- organized by GAIN. All videos were posted on YouTube , and in other social media platforms when suitable. Further videos are listed in GAIN Deliverable 6.10-Summary of GAIN communication activities.

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Table 2. Videos published in GAIN H2020 Green Aquaculture YouTube channel, with a strong dissemination focus.

Video group	Video Title	Reporting partner	Key Target audience	Other Target audience	Date
GAIN objectives and main outcomes	GAIN Project: Introduction	SPAROS	All types	-	Nov-20
	"Precision fish farming: where are we up to now?"	UNIVE	Fish farms	NGO's & other stakeholders	Nov-21
	Valorisation of shellfish regulatory services	CSIC	Fish farms	NGO's & other stakeholders	Nov-21
	Valorisation of aquaculture side streams	CSIC	Fish farms	NGO's & other stakeholders	Nov-21
	Novel feeds for eco-efficient Aquaculture	SPAROS	Fish farms	NGO's & other stakeholders	Nov-21
	GAIN Project:Final achievements and results	SPAROS	Fish farms	NGO's & other stakeholders	Nov-21
Horizon 4 Aquaculture	Horizon 4 Aquaculture: Session 1. Project overviews	UNIVE	Fish farms	Policy-makers	Sep-21
	Horizon 4 Aquaculture: Session 2. Pre-production	UNIVE	Fish farms	Policy-makers	Sep-21
	Horizon 4 Aquaculture: Session 3. Production	UNIVE	Fish farms	Policy-makers	Sep-21
	Horizon 4 Aquaculture: Session 4. Post Production	UNIVE	Fish farms	Policy-makers	Sep-21
	Horizon 4 Aquaculture: Session 5. Markets and consumption	UNIVE	Fish farms	Policy-makers	Sep-21
Precision farming series	GAIN Project: Introduction to Precision Aquaculture	IBM	Fish farms	Other aquaculture stakeholders	Sep-21
	GAIN Project: Precision Trout	UoS	Fish farms	Other aquaculture stakeholders	Sep-21
	GAIN Project: Precision Sea Bass	UoS	Fish farms	Other aquaculture stakeholders	Sep-21
	GAIN Project: Precision Salmon	UoS	Fish farms	Other aquaculture stakeholders	Sep-21

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Video group	Video Title	Reporting partner	Key Target audience	Other Target audience	Date
Product promotion	Youtube video explaining innovative technology for drying of fish sludge	WAISTER	Fish farms	Other Supporting Industry	Oct-21
GAIN Good Fish Good Food Workshop	GAIN Good Fish Good Food - Christine Mauracher - Sustainable food consumption: trends and tensions	LLE	Fish farms	Consumers, policy-makers and other stakeholders	Oct-21
	GAIN Good Fish Good Food - Joao G. Ferreira - The Good Fish app	LLE	Fish farms	Consumers, policy-makers and other stakeholders	Oct-21
	GAIN Good Fish Good Food - Marie Shrestha - Urban and Policy dimension in food system transformation	LLE	Fish farms	Consumers, policy-makers and other stakeholders	Oct-21
	GAIN Good Fish Good Food - Stefano Polato - Bringing sustainability to the table: what we can do	LLE	Fish farms	Consumers, policy-makers and other stakeholders	Oct-21
	GAIN online Conference "Good Fish Good Food" - Panel Discussion	LLE	Fish farms	Consumers, policy-makers and other stakeholders	Oct-21
	GAIN online conference "Good Fish Good Food" - Welcome and Event Introduction	LLE	Fish farms	Consumers, policy-makers and other stakeholders	Oct-21

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4.5 Academic publications

All project partners were encouraged to publish research results in peer-reviewed, high-ranked academic journals. The aim to reach a high number of collaborative research articles in peer-reviewed journals was achieved, so to disseminate results and make them available to the academic community for further refinement. A total of 52 peer-reviewed publications fro GAIN are expected, of which 24 are already published and online, and 7 already submited (see Table 3).

Table 3. Academic publications already published or planned by the GAIN project.

Title	Journal	Year	WP
Valorization of aquaculture by-products of salmonids to produce enzymatic hydrolysates: Process optimization, chemical characterization and evaluation of bioactives.	Marine Drugs	2019	1
An integrated framework that combines machine learning and numerical models to improve wave-condition forecasts	Journal of Marine Systems	2019	1
Ensemble model aggregation using a computationally lightweight machine-learning model to forecast ocean waves	Journal of Marine Systems	2019	1
Precision Aquaculture	IEEE Internet of Things Magazine	2019	1
Drag coefficient parameter estimation for aquaculture systems	Environmental Fluid Mechanics	2019	1
Statistical and machine learning ensemble modelling to forecast sea surface temperature	Journal of Marine Systems	2019	1
Oceanographic processes control dissolved oxygen variability at a commercial Atlantic salmon farm: Application of a real-time sensor network	Aquaculture	2020	1
Biotechnological valorization of food marine wastes: Microbial productions on peptones obtained from aquaculture by-products	Biomolecules	2020	1
By-products of aquaculture turbot (Scophthalmus maxima) as substrate for the production of fish protein hydrolysates and biological activities	Biomolecules	2020	1
The Cross-talk Between Intestinal Microbiota and Host Gene Expression in Juveniles of Gilthead Sea Bream (Sparus aurata). Insights in Fish Feeds for Increased Circularity and Resource Utilization	Frontiers in Physiology	2021	1
Production and physicochemical characterization of gelatins and collagen hydrolysates from turbot skins wastes generated by aquaculture activities	Polymers	2021	1
Determining the effects of environmental events on cultured Atlantic salmon behavior using 3-dimensional acoustic telemetry.	Frontiers in Animal Science	2021	1

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Title	Journal	Year	WP
A bioenergetic model to address carbon sequestration potential of shellfish farming : example from Ruditapes philippinarum in the Venice lagoon.	ICES journal marine sciences	2021	1
Estimating oxygen consumption of rainbow trout (Oncorhynchus mykiss) in a raceway: a Precision Fish Farming approach.	Aquacultural Engineering	2021	1
From feed to fork – Life Cycle Assessment on an Italian rainbow trout (Oncorhynchus mykiss) supply chain	Journal of Cleaner Production	2021	1
Selenium enrichment in the marine microalga Nannochloropsis oceanica	Algal Research	2021	1
Nutritional Characterisation of European Aquaculture Processing By-Products to Facilitate Strategic Utilisation	Frontiers in Sustainable Food Systems	2021	2
Characterization of gelatin and hydrolysates from valorization of farmed salmon skin by-products	Marine Drugs	2021	2
Biogenic calcium phosphate from fish discards and by-products	Applied Sciences	2021	2
Harnessing the diversity of small-scale actors is key to the future of aquatic food system	Nature food	2021	2
Global Seafood Trade: Insights in Sustainability Messaging and Claims of the Major Producing and Consuming Regions	Sustainability	2021	3
Opportunities and limitations for the introduction of circular economy principles in EU aquaculture based on the regulatory framework	Journal of Industrial Ecology	2021	3
Ecological sustainability of aquafeed: an emergy assessment of novel or underexploited ingredients	Journal of Cleaner Production	2021	4
Effect of ammonium formate washing on the elemental composition determination in Nannochloropsis oceanica	Bioresource technology	2021	4
Informed Choice: the Role of Knowledge in the Acceptance of Aquaculture in Germany	Aquaculture	In preparation	1
Effect of diets of plant and animal protein sources and substitution level on growth and feed performance and nutritional status of market size turbot in RAS	Frontiers	In preparation	1
Gelatin from skin by-products of seabream, seabass and rainbow trout reared in aquaculture	International Journal of Molecular Science	In preparation	1
A novel fish meal-free diet formulation supports proper growth in gilthead sea bream (Sparus aurata) with a reshape of tissue-specific gene expression patterns and gut microbiota, and without worsening intestinal parasite susceptibility	Aquaculture	Submitted	1
The effects of oxygen supplementation on farmed Atlantic salmon (Salmo salar) behavior using acoustic telemetry.	Aquaculture Engineering	Submitted	1
Data driven insight into fish behaviour and their use for precision aquaculture		In preparation	1

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Title	Journal	Year	WP
Data driven interrogation of operational welfare indices in salmon		In preparation	1
Using machine learning to forecast environmental closures at Shellfish sites		In preparation	1
Scalable hyper-local forecasting of environmental ocean variables		In preparation	1
A spatio-temporal LSTM network to forecast environmental conditions		In preparation	1
An integrated model for aquaculture production, pathogen interaction, and environmental effects	Aquaculture	In preparation	1
Assessment of novel formulations to support eco-intensification of Atlantic farming using known and new molecular biomarkers		In preparation	1
Novel fish meal-free diet formulations supports proper growth in Atlantic Salmon without negative effects on imune and oxidative status biomarkers.		In preparation	1
Emerging feed ingredients affect growth performance, flesh quality and immune status of rainbow-trout (Oncorhynchus mykiss).		In preparation	1
Data assimilation as a key step towards the implementation of an efficient management of dissolved oxygen in land-based aquaculture	Computers and electronics in Agriculture	In preparation	1
Data assimilation: a key step towards the implementation of an efficient management of dissolved oxygen in land-based aquaculture	Aquaculture	Submitted	1
From a monetary and environmental cost to resource: Life-Cycle Assessment of circular innovation options for the valorisation of fish farm by-products		In preparation	1
Microbiota-gut-brain cross-talk in common carp (Cyprinus carpio L.) under eco-intensification in RAS		In preparation	1
Tightening the cycle. Assessment of key performance indicators for wintering of common carp (Cyprinus carpio L.) in RAS		In preparation	1
UTILISATION OF KHV-INDUCED MORTALITIES OF COMMON CARP (CYPRINUS CARPIO L.) BY SILAGING PROCESS – A STEP TOWARDS CIRCULARITY IN FRESHWATER AQUACULTURE		In preparation	2
How does the scientific knowledge influence the buying criteria/purchasing behaviour of seafood	Sustainability	Submitted	3
Sustainable feed ingredients for adult seabass (Dichentrarchus labrax) in RAS and the importance for growth and welfare parameters	Aquaculture	In preparation	1
Oxygenation effects on temperature and oxygen at a commercial Atlantic salmon farm.	Aquaculture Engineering	Submitted	1
Limitations and opportunities for sustainable aquaculture under circular economy perspective in the EU: a regulation-focused review	Journal of Industrial Ecology	Submitted	3

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Title	Journal	Year	WP
Innovative options for the reuse and valorisation of aquaculture sludge and fish mortalities: sustainability evaluation through Life-Cycle Assessment.	Journal of Cleaner Production	Submitted	3
Evaluation of growth performance, oxidative stress and immune response in gilthead seabream fed with novel feed formulations	Frontiers in Physiology	In preparation	4
Fish as feed: Using economic allocation to quantify the Fish In : Fish Out ratio of major fed aquaculture specie	Aquaculture	In preparation	4
Towards the circular economy: quantification of aquaculture by-product volumes from aquaculture processing in Europe	Frontiers in Sustainable Food Systems	In preparation	4

Moreover, GAIN increased its dissemination scope by academic thesis works, including 7 PhD thesis largely based on the project activites, as well as 4 BSc and 1 MSc thesis.

4.6 Non-academic publications

Non-academic publications will be freely available on the project's website and developed for targeted stakeholders and a broad readership.

4.6.1 Project leaflet

The 2-page leaflet provides a brief overview of the GAIN project, including the approach and its main objectives. A map provides a visual overview of the locations of the GAIN consortium.

The leaflet also includes additional information about project partners, and contacts for getting up to date information concerning project activities and results. It was distributed at the joint World and European Aquaculture Societies Conference in Montpellier (France) at the end of August 2018 and in several other occasions, and often used in its digital version for partners to promote GAIN.

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4.6.2 Newsletters

GAIN newletters were issued periodically, send to subscribers as eNewsletter and presented on the project website so to provide:

- Project-related news (e.g. launch and meetings)
- Updates of the project's progress

The eNewsletter addresses target stakeholder groups and end-users (internal partners, industrial, scientific, standardization organizations, project beneficiaries) in a style and language appropriate to them and for a broad readership. Subscription to this newsletter was open to everyone. A mailing list using mailchimp™ and fully compliant with EU´s GDPR was created. Selected issues were also printed for distribution at events.

Five issues of the GAIN Newsletter were released focusing on project ambitions and activities (see Table 4).

Table 4. Published GAIN newsletters.

Nr	Focus	Target audience (key) (please select):	Date
1	GAIN Objectives, Eco-intensification framework, and partner presentation	Fish farms, NGOs, Policy-makers, Scientific community	Oct-19
2	GAIN case study with sensors and policy and markets for European aquaculture	Policy-makers, Fish farms, NGO's, Sensors & automation value chain	Oct-19
3	GAIN social acceptance studies, and Big data approach	Fish farms, NGOs, Policy-makers, Scientific community	Mar-20
4	Novel feeds to support eco-intensification of aquaculture	Fish farms, NGOs, Policy-makers, Scientific community, Aquafeed value chain	Jun-20
5	GAIN key findings and recommendations, for improved policies that support eco-efficient aquaculture	Fish farms, NGOs, Policy-makers, Scientific community, supporting industries (feed, sensors, etc)	Nov-21

4.6.3 Project presentation slides

A set of presentation slides and poster templates was developed in order to support representatives of GAIN to introduce the project to third parties i.e. on events and conferences.

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4.6.4 Deliverables / Reports

All public deliverables will be published on the GAIN website.

Table 5. Public deliverables on the GAIN website

Deliverable number	Title	Available
D1.7	Report on the assessment of eco-efficient feed	November 2021
D1.8	Information Management System: final release	October 2021
D2.5	Eco-efficient solutions for reusing aquaculture side streams	May 2021
D2.6	Eco-efficient disposal of aquaculture mortalities	October 2021
D2.8	Valorisation of shellfish by-products	March 2021
D2.9	Report & white paper on framework for a nutrient credit trading policy for Europe, integrating shellfish producers	July 2021
D3.6	Twelve 'Voices from the water' videos	November 2021
D3.8	Report on sustainability messaging at International Seafood Exhibitions	November 2021
D4.2	Report on value chain analysis	November 2021
D4.3	EISI sustainability approach, and results and analysis	November 2021
D4.4	Report on the application of LCA	May 2021
D4.5	B2C and B2B apps for smartphones and tablets	November 2021
D4.6	Report and white paper for policy-makers with key findings and recommendations	November 2021
D5.1	On-line courses and supporting information	November 2021
D5.2	Report on online professional training courses	October 2021
D5.3	GAIN Summer School: classes and student feedbacks	October 2021
D6.5	Business to business web-based platform	November 2021
D6.6	Industry focused website built on AquaSense engine, with a rich UI/UX	October 2021
D6.7	Final plan for the exploitation and dissemination	November 2021

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Deliverable number	Title	Available
D6.8	Evaluation of the Affiliate Farm Programme and legacy exploitation plan	November 2021
D6.9	Report of the valorisation of secondary products in the aquaculture and biobased industries.	November 2021
D6.10	Summary of GAIN communication activities	November 2021
D7.5	GAIN Open Data Archive	November 2021

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4.7 Events

4.7.1 International expert conferences and workshops

GAIN participants have been at AQUA 2018 in Montpellier France, where the project was introduced. After that GAIN has been present in 45 other events, with a total of 100 oral presentations and 9 posters, disseminating project results. Moreover, GAIN team was present in 12 conferences/tradeshows participating in round-tables, organizing/chairing sessions, displaying at tradeshows boots, and/or networking. In terms of geographical dimension, 49 of these event participations had global impact, 37 European level impact, and 28 local/national/regional. Events of international dimension prioritized by GAIN are shown in Table 6, with a strong emphasis in the European Aquaculture Society annual conference & tradeshow, where 50% of the presentations were given.

Table 6. Events of international dimension prioritized by GAIN.

Event name	Date	Location	Nr presentations	
			Oral	Poster
Aquaculture 2018	Aug-18	Montpellier, France	1	-
World Aquaculture 2019	Mar-19	New Orleans US	3	-
Seafood expo 2019	May-19	Brussels, Belgium	-	-
Aquaculture Europe 2019	Oct-19	Berlin, Germany	11	1
LACQUA19 - Latin American & Caribbean Aquaculture	Nov-19	San José, Costa Rica	1	-
Aquaculture Europe 2020	Apr-21	ONLINE event	8	2
Aquaculture Europe 2021	Oct-21	Funchal, Portugal	26	4
Goodfish meeting	Oct-21	ONLINE event	1	-
WAS 2022	Feb-22	San diego, US	*	*
Seafood expo 2022	Apr-22	Brussels, Belgium	*	*
Aquaculture Europe 2022	Sep-22	Rimini, Italy	*	*
World Aquaculture Singapore 2022	Nov-22	Singapore	*	*
WAS 2023	Feb-23	New Orleans,US	*	*

* Future event.

4.7.2 Events organized or co-organized by GAIN

The GAIN consortium has ben involved in the organization of 2 major events to disseminate its results and key legacy messages:

1) An online workshop **Horizon 4 Aquaculture**, co- organized by GAIN, together with two other EU H2020 funded projects, iFishIENCi and IMPAQT, a three-day online event — 15th, 22nd and 29th June — focusing in 3 key aspects: Policy and Regulation, Circularity, and Precision Aquaculture.
2) The GAIN online Conference **Good Fish Good Food**, organized by GAIN on October 16th, the international World Food Day, aimed at the aquaculture industry, consumer associations, policy makers and other stakeholders in the seafood sector.

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Moreover, there were three events organized under the belt of GAIN´s WP5 - Professional Development, that are major contributions for GAIN dissemination scope. Two training courses that promoted and enhance the implementation of the newest sustainable technologies developed and investigated under GAIN from a circular economy perspective. The course **Capture and valorisation of aquaculture side-streams** was organized by Salten Havbrukspark and Waister, Norway, and the course **Novel aquafeeds** by Sparos, Portugal. Target groups were decision-makers and professionals from industry, public administration, and research, but also interested students. In addition, the **GAIN Summerschool**, aimed at students, young researchers, and technical staff at the aquaculture industry, further disseminated GAIN results and eco-efficiency framework.

5. Exploitation activities

The outcomes of GAIN will make the aquaculture industry more eco-efficient, and help consumers in Europe and elsewhere to understand the true value of quality production from European waters. We will provide guidelines for sustainable ecological and economic intensification of European aquaculture and disseminate and exploit these findings and recommendations to farmers, managers, and policy-makers. We envisage a delivery of products tailor-made for industry, policy makers, and the public.

Thus, the GAIN project expects to foster sustainable development of aquaculture in Europe and build trust and capacity in collaborative marine research processes among diverse stakeholders, communities, scientists and decision makers. This can improve European market potential and competitiveness by enhancing ethical and sustainable seafood, which consumers demand.

5.1 Exploitation Plan and Management

The Exploitation Plan (EP) aims to multiply the impact of the GAIN project results and prepare the transition towards industrial and commercial application in order to fully reach the expected impact. The EP also defines the actions to be undertaken in order to secure the dissemination and exploitation of project outcomes beyond the project itself.

The EP (D6.6) will reflect and was built up as a result of sound analysis of the market trends (D3.1, D3.2), potential users (D3.5, D3.7, D4.1) and financial sustainability (D3.5, D4.2). A value chain and market analysis was also performed in order to find the needs of the customers and the competitive situation (D4.2, UoS).

The existence of the website beyond the project life guarantees that training courses, user tool kits and other information are available to stakeholders and end users hereafter. Moreover, the online courses are available through an independent platform, The Open University (https://www.open.edu/openlearncreate/course/index.php?categoryid=502).

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The legacy exploitation plan (D6.6) at the end of project (see table 2) ensures further use of project results and the continued impact of GAIN. In GAIN we worked hard to make sure that the different types of exploitable results (data, tool kits, publications, app, technologies, reports) are clearly identified and their direct and indirect impact and value for the diverse stakeholders are taken account of. The risks and potential barriers for exploitation are recognized and met with relevant actions.

5.2 Target audiences

The target groups are identical to those described in Chapter 2.4 for "Dissemination".

5.3 Planned exploitation

Project partners have identified in Annex 1 (GAIN CDE and Stakeholders database.xlsx) a total of 26 exploitable results (see Table 7). The direct and indirect impacts and value of these results for the target stakeholders is diverse, as seen in this table. Seven of these results have already reached the market (TRLs 8 and 9), while 13 others have reached TRLs 5 to 7.

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Table 7. GAIN exploitable results.

Title	Purpose	Target audience	TRL*	Expected valorization beyond project	GAIN WP	GAIN Task	Partners involved
GoodFish	B2C Platform to connect consumers to aquaculture products	General Public	9	Expanded usage through adoption by supermarket chains, restaurants, and online fish retailers	6	4.4 and 6.4	LLE, GAIN partners and AFP
Super Heated Steam Dryer for fish sludge	transforming fish sludge into bio-fertiliser	All fish farming companies, Other Supporting Industry	9	Distributor agreement for Chile settled; First sales with installation of Waister 60 system for drying of fish sludge at Salmones Antártica, and Waister 40 at Compañia Salmonifera Dalcahue and Nova Austral. Marketing efforts in Norway, Sweden, Denmark, Finland, and Scotland underway.	2	2.1	WAISTER
AquaPET	Market study for use of secondary and by-products from fish farming in the pet food industry	Pet food industry	8-9	Investment by the private sector in commercial production of PHHP products from bass and bream	6	6.4	LLE
White paper on a nutrient credit trading policy for Europe, integrating shellfish farmers	White paper for policy makers, outlining a framework for the development of a nutrient credit trading system in EU, integrating shellfish farmers	Policy-makers	8	EC analysis and potential recommendation to relevant Member-States to consider including as a complementary strategy for reaching GES under the WFD and MSFD	2	2.4 and 6.4	AFBI, LLE, NOAA
AquaSense	Platform coupling sensors and models for production, sustainability, and economics	Aquaculture industry	8	Expanded usage through the GAIN AFP	6	4.5 and 6.4	LLE, GAIN partners and AFP
WAPU-TECH AS	Commercializing filter-dryer	All fish farming companies	8	System prototype demonstrated in Helgeland Smolt (salmon hatchery) in Norway, system is now complete and qualified. Wapu-tech AS aims to produce and to distribute the S3 filter dryer.	2	2.1	SHP

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Title	Purpose	Target audience	TRL*	Expected valorization beyond project	GAIN WP	GAIN Task	Partners involved
Super Heated Steam Dryer for fish mortalities	transforming fish mortalities into bio-fertiliser or feed-stuff or biogas	Other Supporting Industry	8	Installation of Waister 15 for drying of mortalities at Adriatic Farming in Croatia. Marketing efforts in Norway, Sweden, Denmark, Finland, and Scotland underway.	2	2.1	WAISTER
Low cost sensors for temperature plus dashboard for Industry use	Aid with husbandry management decisions	Small/ Medium Scale Fish/Shellfish Producers	7	AFBI are working with a local company to expand the use of the dashboard to deliver low cost sensor information to stakeholders.	1	1.3	AFBI
The use of empty shells in the mashing process to maximise extraction yield	valorising empty shells to improve beer-brewing efficiency	Shellfish farmers, Other Supporting Industry	7	The use of empty Ostrea edulis shells in the mashing and clarification of beer is out with AFBI direct control, however shells are being used and the beer making process and it is commercially available.	2	2.3	AFBI
Information Management System	Cloud platform that delivers services for the optimization of finfish and shellfish farm management	All fish farming companies	7	Being used on a pilot demonstrator study with WittayaAqua. In discussion with other potential clients	1	1.4	IBM, several others
SailFish	B2B mobile and desktop app to connect ends or near-ends of the supply chain (producers-buyers) to reduce market stickiness and lower costs	Aquaculture industry	7	Expanded usage through the GAIN AFP	6	4.4 and 6.4	LLE, GAIN partners and AFP
macroalgae feed components and nutraceuticals	Commercializing macroalgae products	Aquafeed value chain	7	Production procedures have been established and the resulting feed product was successfully tested. SHP is about to patent the product and aims	2	2.1	SHP

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Title	Purpose	Target audience	TRL*	Expected valorization beyond project	GAIN WP	GAIN Task	Partners involved
				to produce macroalgae as feed supplement.			
New heart rate sensors	Fish health and welfare	Large Fish Farming Companies	6	Used to determine levels of stress in farmed salmon to optimize, feeding, stocking, harvest, and health treatments	1	1.3	DAL
Data driven management of salmon farms	A framework that interrogates environmental and operational data (e.g. hydroacoustic sensor data, fish welfare indices) using autoAI models	Finfish farm companies	6	Discussion in progress with Seafood Innovation Cluster about applying to Aquacloud data	1	1.4	IBM, several others
Framework to forecast shellfish site closures using machine learning	A machine learning model that combines information on historical closures of shellfish site (due to harmful toxin events) and environmental data to allow early forecasting	Shellfish farm companies	6	Discussion with Oceano Fresco about applying for their farm	1	1.4	IBM, SGM
AquaPRIME	Provide in situ data to be used for modelling, coupled with environmental driver data	Aquaculture industry	6	Expanded usage through the GAIN Affiliate Farm Programme (AFP)	6	4.5 and 6.4	LLE, GAIN partners and AFP
AQUARADAR	Node of the IMS designed for optimizing feeding and oxygen supply, based on real time data assimilation and dynamic modelling of fish metabolism.	Aquaculture industry	6	Expanded usage through the GAIN AFP	1,6	1.3 and 6.4	UNIVE, FEM
Validation of biocompounds produced from aquaculture wastes by industry	Report about the validation of biocompounds obtained from aquaculture wastes for industry/end-users utilization	All aquaculture companies, Other	5		2	2.2	CSIC

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Title	Purpose	Target audience	TRL*	Expected valorization beyond project	GAIN WP	GAIN Task	Partners involved
		Supporting Industry					
The use of empty shells as a growth substrate for valuable macroalgae seedlings	Valorising empty shells and improve macroalgae seedling production	Shellfish farmers, Other Supporting Industry	5	Porphyra purpurea conchocelis were successfully grown in empty shells at industrial pilot scale. PolarAlge AS, a local seaweed company investigates the effectivity of these shells for conchocpore production.	2	2.3	SHP, ANFACO
Novel formulations for aquafeeds with focus n eco-intensification	The novel formulations will be available to the industry, for direct application, or as models to pursue further R&D effort. The later will also be applicable to the researcher's community.	Aquafeed value chain, Scientific community	5	A training workshop was organized with several European aquafeed producers present, where the novel formulations and their impact on fish performance was presented. These formulations are now expected to be adapted for practical application & further R&D efforts by these companies	1	1.2	SPAROS, several others
White paper on policy/legislation change to encourage eco-intensification	This document aims to provide a view on the position of aquaculture in a context of rising of the circular economy in the EU.	Policy makers at EU and national level, Aquaculture Advisory Council, EATIP.	NA	Potential recommendations for policy changes which could promote aquaculture ecological intensification by enhancing circularity.	3	3.1	ANFACO, UoS
Moving towards regional circular economy production of food, including aquaponics	Development of regionality of food production; concept stage of strategy development of regionalisation including feed production	Policy-makers, Retailers	NA		3	3.4	AWI
Report and white paper for policy-makers with key findings and	Summarizing GAIN main key findings and valorization pathways, in relation to the EU strategy for the	Policy makers at EU and national level,	NA	Potential recommendations for policy changes which could promote aquaculture ecological intensification	4	4.6	UNIVE

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Title	Purpose	Target audience	TRL*	Expected valorization beyond project	GAIN WP	GAIN Task	Partners involved
recommendations	development of aquaculture in the next decade and the Green New Deal, providing policy makers suggestions for fostering the ecological intensification of EU aquaculture.	Aquaculture Advisory Council, EATIP.		by enhancing circularity, digitalization, feed sustainability. Allocation of EMFAF to eco-intensification innovations.			
GAIN Summer School	To present GAIN results with respect to four key areas, namely precision aquaculture, circular economy, sustainability assessment, value chain analysis&policies.	Postgraduates, PhD students, Post-doc, young researchers	NA	Talks were video recorded and can be freely accessed, thus contributing to the disseminate the legacy of GAIN	5	5.3	UNIVE, all partners
EISI use by SSPO, AquaScot, Waitrose	Provide benchmarks for assessing the ecological intensification of supply chains. Integrating social responsibility, economic resilience and welfare assessments.	All fish farming companies, retailers, NGOs	NA	Expansion to supply chains other than Atlantic salmon. Potential use in Product Environmental Footprint assessment. Baseline models for industry assessments.	4	4.3	UoS, UNIVE
On-line training courses	To disseminate GAIN vision of aquaculture ecological intensification and provide an overview of the state-of-the-art in fish nutrition, aquaculture circularity, precision aquaculture, tools for sustainability assessment	Aquafarming operators.	NA	The courses are freely available and can be accessed after the project conclusion.	5	5.1	UoS, UNIVE, CSIC, IBM, SPAROS

* - at end of project

NA – Not applicable due to the non-technological nature of the Exploitable result.

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List of Annexes

Annex 1 – Excel file “GAIN CDE and Stakeholders database.xlsx”.

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