Optimisation of digital catch monitoring and reporting in European Fisheries

D1.1: Initial Project Management Handbook

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Document Information

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Contributors	Els Torreele (EV ILVO		
Reviewer(s)	Tzeni Antoniou (FSH)		

[1] *Please consult the Grant Agreement: R: Document, report; DEM: Demonstrator, pilot, prototype, plan designs; DEC: Websites, patents filing, press & media actions, videos, etc.; DATA: Data sets, microdata, etc; DMP: Data management plan; ETHICS: Deliverables related to ethics issues; SECURITY: Deliverables related to security issues; OTHER: Software, technical diagram, algorithms, models, etc.*

[2] *Please consult the Grant Agreement: PU – Public, fully open, e.g. web (Deliverables flagged as public will be automatically published in CORDIS project's page); SEN – Sensitive, limited under the conditions of the Grant Agreement; Classified R-UE/EU-R – EU RESTRICTED under the Commission Decision No2015/444; Classified C-UE/EU-C - EU CONFIDENTIAL under the Commission Decision No2015/444; Classified S-UE/EU-S – EU SECRET under the Commission Decision No2015/444*

Document History

Version	Changes	Date	Contributor
0.1	Initial project management handbook	30/04/2024	Jade Maes (EV ILVO), Els Toreele (EV ILVO), Tzeni Antoniou (FSH)

OptiFish Consortium

No.	Participant organization name	Short name	Country
1	EIGEN VERMOGEN VAN HET INSTITUUT VOOR LANDBOUW- EN VISSERIJONDERZOEK	EV ILVO	BE
2	FUNDACION AZTI - AZTI FUNDAZIOA	AZTI	ES
3	BENCO BALTIC DOO ZA SAVJETOVANJE IUSLUGE	BENCO	HR
4	DANMARKS TEKNISKE UNIVERSITET	DTU	DK
5	FOODSCALE HUB GREECE ASSOCIATION FOR ENTREPREUNERSHIP AND INNOVATION ASTIKI MI KERDOSKOPIKI ETAIREIA	FSH	EL
6	SCIO IKE	SCiO	EL
7	STICHTING WAGENINGEN RESEARCH	WR	NL
8	UNIVERSITY OF CUKUROVA	UC	TR
9	FISKERIDIREKTORATET	NDF	NO
10	SINTEF OCEAN AS	SO	NO
11	ELECTRONIC FISH INFORMATION CENTRE EUROPE B.V	EFICE	NL
12	JUSTERVESENET	JV	NO
13	VCU ROBOTICS B.V.	VCUR	NL
13.1	VCU TCD B.V.	VCU	NL
14	WAGENINGEN UNIVERSITY	WU	NL
15	ANCHOR LAB KS	ANCHOR	DK
16	DANMARKS PELAGISKE PRODUCENTORGANISATION FORENING	DPPO	DK
17	ZUNIBAL SL	ZUN	ES
18	DANMARKS FISKERIFORENING PRODUCENTORGANISATION	DFPO	DK

Executive Summary

The OptiFish Project Handbook presents the main rules and approaches for intra-project coordination. It is designed as a useful reference tool to be used by the partners when they need information about how the project work is organised, including the governance (decision authority levels), roles and responsibilities, input/output dependencies between tasks, timelines and deliverables, reporting, monitoring and control of project execution.

The document also describes the processes to be implemented by all partners for quality control and risk management.

Finally, a large proportion of the document is dedicated to setting up efficient communications between the 19 OptiFish partners to foster collaboration as the recognised important factor for successful project delivery. A detailed description and guidance for the use of the collaborative workspace is also included to help partners to easily navigate through the project information and documentation.

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Glossary of terms and acronyms used

Acronym/Term	Description
AI	Artificial Intelligence
CA	Consortium Agreement
CFP	Common Fisheries Policy
CS	Case Study
D	Deliverable
D&C	Dissemination and communication
DMP	Data Management Plan
DoA	Description of the Action
DPO	Data protection officer
EAB	External Advisory Board
EC	European Commission
EM	Electronic Monitoring
FAIR	Findable, Accessible, Interoperable, and Reusable
GA	General Agreement
GAss	General Assembly
GDPR	General Data Protection Regulation
KPI	Key Performance Indicators
M	Month
MS	Microsoft
OEI	Other Ethics Issues
OTH	Other
PC	Project Coordinator
PC	Project Coordinator
PM	Project Manager
PO	Project Officer
PSC	Project Steering Committee
PU	Public
R	Report
R&D	Research & Development
R&I	Research & Innovation

Acronym/Term	Description
ToC	Table of Content
VM	Means of Verification
WP	Work Package
WPL	Work Package Leaders
AI	Artificial Intelligence
CA	Consortium Agreement
CFP	Common Fisheries Policy
CS	Case Study
D	Deliverable
D&C	Dissemination and communication
DMP	Data Management Plan
DoA	Description of the Action
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GAss	General Assembly
GDPR	General Data Protection Regulation
KPI	Key Performance Indicators

Introduction

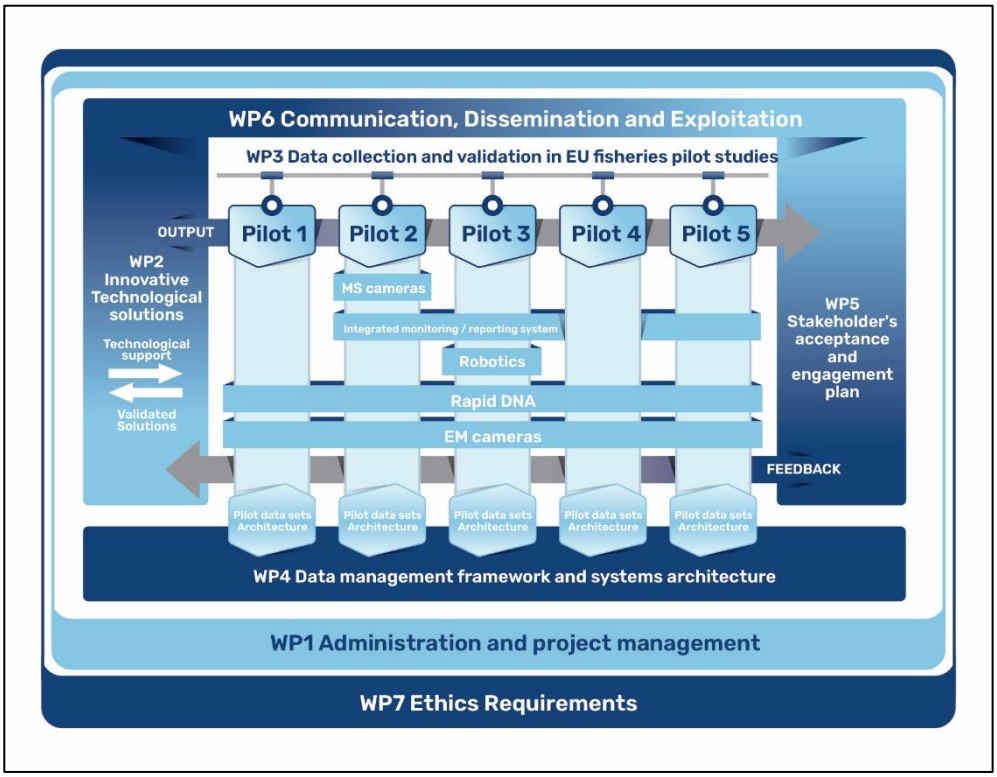
Main aims of OptiFish

OptiFish will strive to provide technological solutions that will simultaneously improve the sustainability of fisher's operations, enhance control processes and strengthen society's trust in their products. OptiFish will develop, test and recommend a set of innovative technologies and tools supported by artificial intelligence (AI) to provide the management, the fishing sector and the scientist with data on catch volumes, catch compositions and the fishing environment. The goal is to unlock the full potential of technologies such as electronic and genetic monitoring for automated species recognition based on AI and computer vision to reduce discards, unreported landings and unreported fishing activities, ultimately establishing a fisheries control and enforcement system fit for the digital age. The technologies are not enough alone, it is also critical to consider the combination of technologies and the integration of computer vision models, the wide range of data sources and their subsequent formats, while also addressing stakeholders needs and acceptance. This goal cannot be achieved by a single project, which is why the aim of OptiFish is to lay a solid foundation for full technological development from which other projects and initiatives can be built. The project will place a strong focus on species recognition in different fisheries equipped with distinctly different catch handling facilities and in different European sea basins. To ensure that these innovations are relevant to fisheries management, OptiFish has participation from the Norwegian Directorate of Fisheries, and has received written support from the European Fisheries Control Agency (EFCA), the Basque, Danish and Belgian Fisheries authorities.

igure 1: OptiFish overview

Specifically, to realise the work programme, OptiFish will:

- Establish a comprehensive overview of the current state-of-play of the required methods, tools and systems, at fleet level, or an effective and economically sustainable European fisheries monitoring and control system;
- Develop a GDPR compliant control and enforcement system that identifies and reports regulation violations through automated catch reporting and monitorization of fishing activities to prevent practices such as discarding;
- Develop a fishing decision support system enabling fishers to optimize their fishing operations and secure a sustainable extraction of marine biological resource;
- Increase stakeholders' understanding and acceptance of a digital fisheries monitoring and control system;
- Recommend strategies for the implementation of the innovative solutions developed and tested in OptiFish.



'igure 2: Overview of the work packages included in OptiFish, each delineating its own impacts and objectives.

To reach its goals OptiFish is divided into 7 WPs (Figure 2) with different goals, tasks and deliverables. This document is originating from WP1 "Administration and Project Management". **The objective of this deliverable is to develop a high-quality project management framework with all administrative, financial, and strategic aspects. Additionally, it aims to coordinate risk management and quality assurance, monitoring, and assessment to ensure the envisioned OptiFish progress and results. Furthermore, it aims to guarantee sound data management and application of ethical principles.**

From OptiFish outputs and their impact

The consortium will work collectively to go beyond the state-of-the-art in relation to 1) Automatic species recognition and artificial intelligence, 2) Assessment of fish health and quality, 3) System architecture and Data Management Frameworks, 4) and Strategies for effective implementation. The following section will list the expected results and impacts from the OptiFish project.

1) ER1| Onboard catch reporting, monitoring and health assessment technologies
   ➔ AI-based models for catch compositions, DNA sampling schemes and best practices, Robotic sorting system and multispectral bands for effective use of multispectral cameras for health and quality assessment.
2) ER2| Requirements and standards
   ➔ Technology requirements (blue paper), gold standard training data sets, control agreement template on the implementation of AI-based catch monitoring systems, and standardisation requirements.
3) ER3| Operations enhancing tools
   ➔ Fishers' decision support tool, OptiFish data platform and authorities' reporting system.
4) ER4| Engaged and informed end-users
   ➔ Multi-actor co-creation labs and OptiFish academy.
5) ER5| Business Innovations
   ➔ Develop a go-to-market strategy and business models for onboard technologies

Scientific effects: Established Gold-standard datasets and DNA sampling schemes as industry norms by 2035. OptiFish results widely referenced in research publications. Increased adoption of AI and DNA-based technologies among EU fishers.

Economic/Technological effects: Stimulated innovation with new companies entering the AI for fisheries market. Improved operational efficiency with universal adoption of automatic catch reporting schemes. Increased investment in fisheries Research and Innovation.

Societal effects: Facilitated international agreements for AI-based catch monitoring systems. Enhanced regulations and surveillance through standardized performance requirements across EU and North East Atlantic coastal states.

Project Governance

OptiFish Governance overview

The OptiFish governance represents the project decision making process structure, designed to enable the successful delivery of the project, both in terms of scientific quality of outputs as well as achieving its objectives and contractual obligations. It is designed to support straightforward levels for decision making, including issues and conflict resolution if/when they arise. The project governance structure outlined below provides clear procedures for decision making and accountability. Furthermore, roles and responsibilities related to the governance are defined including transparent communication and information dissemination both intra-project and with REA.

The governance structure is tailored to meet the OptiFish projects specifics. The consortium of 19 partners requires a multi-level communication system with continuous monitoring, to provide quick and efficient project guidance, communication and decision making. Furthermore, it will reduce the risks of silo working due to participation of partners in specific technical/scientific areas of the project.

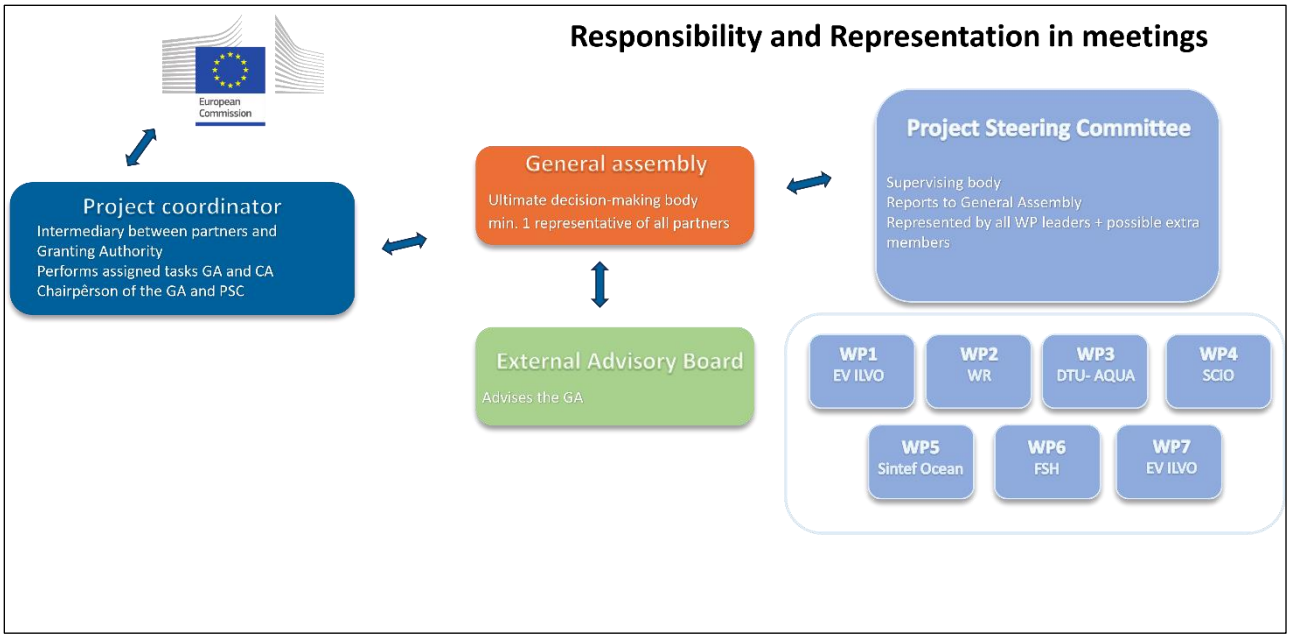


Figure 3: OptiFish Consortium bodies' responsibility, reporting and representation.

According to the OptiFish Consortium Agreement (CA), the organisational structure of the Consortium consist of the following bodies, depicted in Figure 3:

- *General Assembly* (GAss)
- *Project Steering Committee* (PSC)
- *Project Coordinator* (PC)
- *External Advisory Board* (EAB)

The tasks and the decisions they make are described in Figure 4.

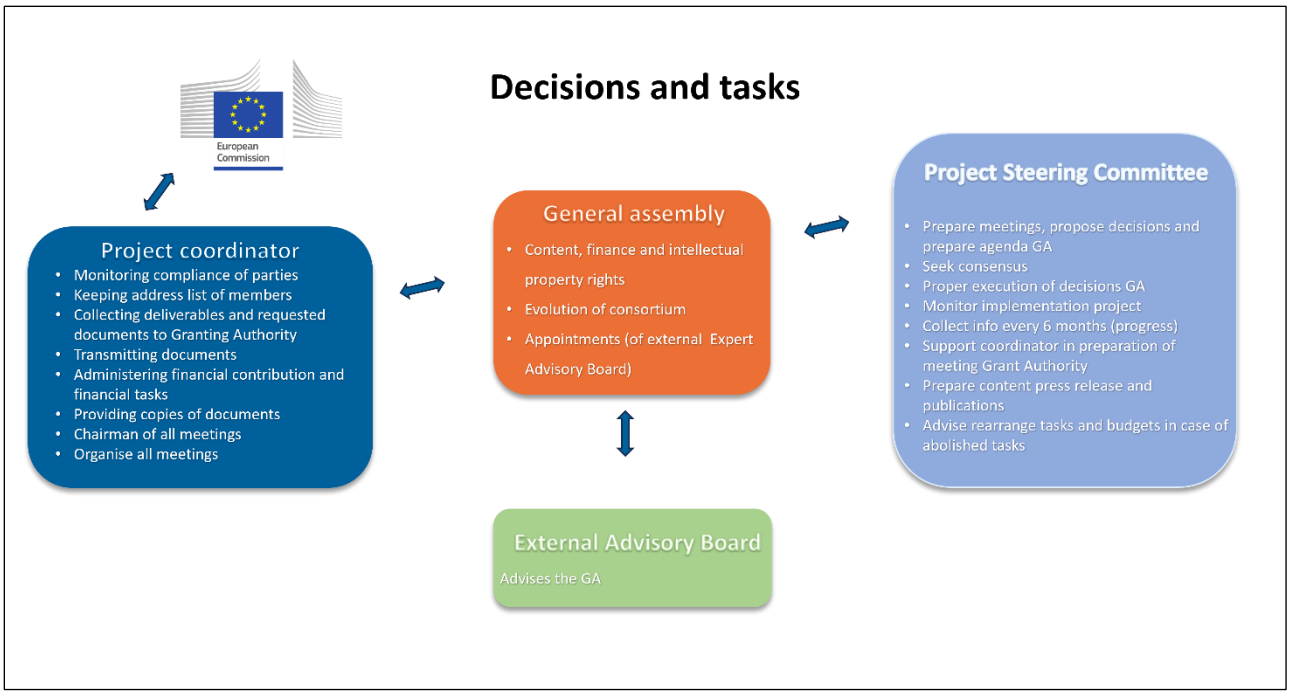


Figure 4: OptiFish consortium bodies' decision making and tasks.

○ General Assembly

The project General Assembly is the **ultimate decision-making body** of the OptiFish Consortium. It is composed by at least one representative of each OptiFish Partner. The General Assembly is chaired by the Project Coordinator (PC) and meets every 6 months (physically or online). The meeting dates will be included in the project calendar (Figure 8) to provide transparency as well as opportunity for partners to join.

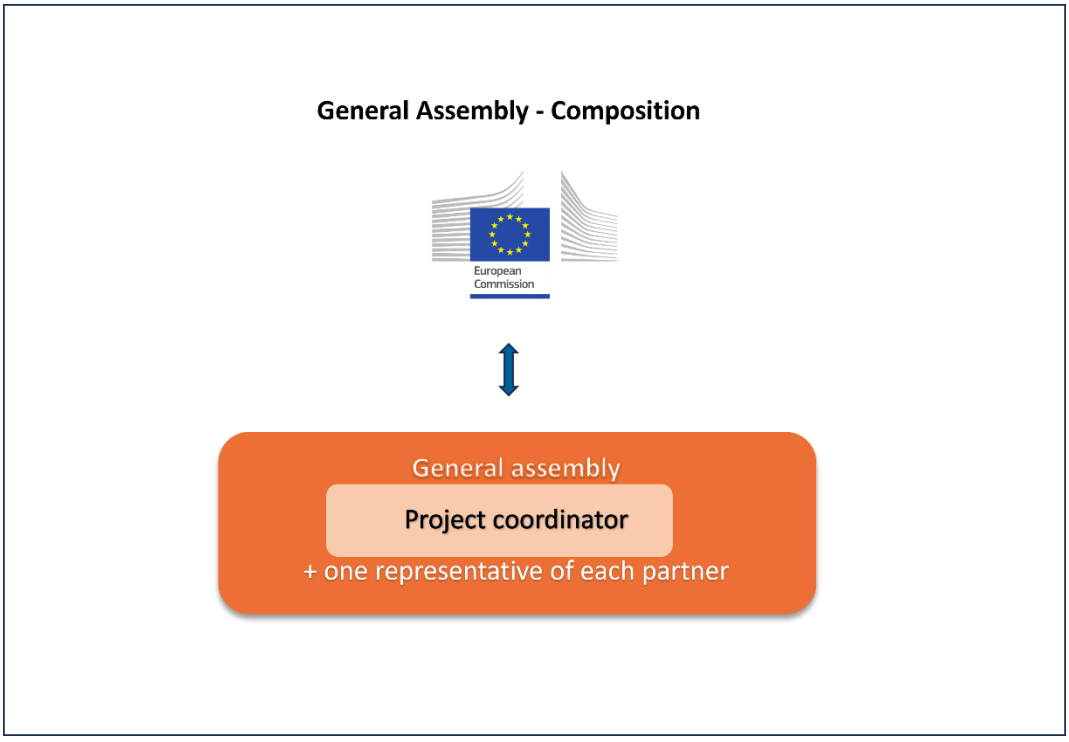


Figure 5: Composition of OptiFish General Assembly.

The General Assembly has the sole authority to make decisions regarding changes in the project plan, content, finances and intellectual property rights. All proposals for changes in Annexes of the Grant Agreement (GA) have to be approved by the General Assembly prior to submission for approval by REA.

Any decisions with regards to modifications to the Consortium Agreement (CA), as well as ones regarding the evolution of the OptiFish Consortium, should be made by the General Assembly.

○ Project Steering Committee

The Project Steering Committee (PSC) is the **supervisory body for the project execution** and is responsible for the day-to-day management of OptiFish. It reports to and is accountable to the General Assembly.

The PSC consists of the Project Coordinator (PC) and only one representative from each party who is WP leader. It can be enlarged with representatives of other parties for specific agenda items. The PC shall chair all meetings of the PSC, unless decided otherwise by a majority of two-thirds. Minutes of the PSC meetings, once accepted, shall be sent by the PC to the GAss members for information. The PC delivers the agenda + an appointment for every meeting, which is set to take place every six months. The composition of the PSC and the contacts of its members is given in **Fout! Verwijzingsbron niet gevonden.**.

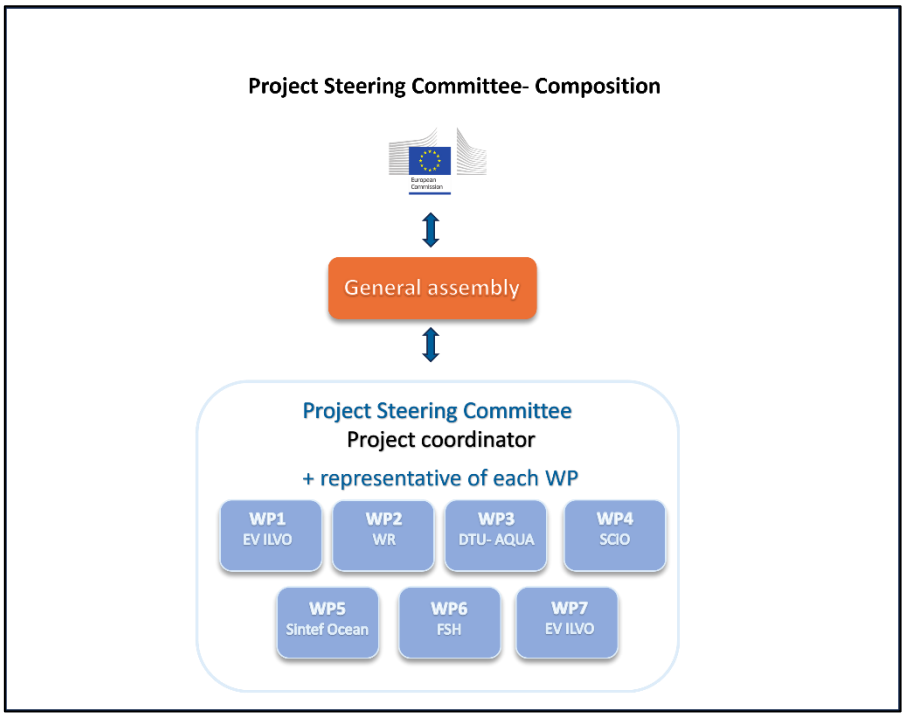


Figure 6: Composition of the OptiFish' Project Steering Committee.

○ Project Coordinator

The Project Coordinator (PC), Els Torreele in OptiFish, is the intermediary between the parties and the Granting Authority and performs all tasks assigned to it as described in the Grant Agreement and in the Consortium Agreement.

The Project Coordinator is supported by 2 scientific team members and the Project Manager (PM), Jade Maes.

Table 1: Project Coordinator, Project Manager and administrators.

	
Els Torreele Project Coordinator els.torreele@ilvo.vlaanderen.be	Jade Maes Project Manager jade.maes @ilvo.vlaanderen.be
	
Herman Verstuyft Administration herman.verstuyft@ilvo.vlaanderen.be	Cathy Plasman Administration cathy.plasman@ilvo.vlaanderen.be

○ External Advisory Board

The External Advisory Board (EAB) is appointed by the GAss. Its **role** as described in the CA is to "assist and facilitate the decisions made by the General Assembly". The role and composition are also discussed in the GA:
"An external advisory board will be formed to provide technical advice, feedback on objectives and timelines and help maintain alignment with EU regulation and policies. The EAB will offer impartial scientific advice, support the PSC and advise the consortium on social, environmental, technological, legal and economic factors that may influence the scientific and innovation management of OptiFish. It will be chaired by one of its members, elected upon the EAB's first meeting in M1. The EAB comprises a gender-balanced group of external advisors representing experts in a variety of fields."

During the proposal development, the following organisations have provided letters of support, confirming their interest to participate in OptiFish in a quality of **EAB member**:

Table 2: Members of the external Advisory Board

Name	Details
European Fisheries Control Agency (EFCA)	A European Union Agency aiming to promote the highest common standards for control, inspection and surveillance under the CFP. Its primary role is to organize coordination and cooperation between national control and inspection activities so that the rules of the CFP are respected and applied effectively.
Basque Department of Fisheries and Aquaculture	Oversees and manages activities related to fishing and aquaculture in the Basque region.
Danish Fisheries Authority	An agency under the Ministry of Food, Agriculture and Fisheries and comprises a central part with departments in both Copenhagen and Southern Jutland as well as a regional fisheries control. Support growth through a green transition in fisheries by providing funds for the development of sustainable fisheries and aquaculture though the European Fisheries Fund. They also perform inspections to ensure the fish stocks in Danish waters are sustained and that fishing does not take place in specially protected areas with vulnerable nature or stocks of fish.
Belgian Fisheries Authority	Deals with the development, implementation, control and evaluation of all matters in the field of agriculture, horticulture, fisheries and the countryside. The agency works in close cooperation with the Minister of Agriculture. They contribute to the development of future-oriented fisheries policies

New members can be appointed through a PSC decision providing there are no objections of any partner.

○ WP leads

The role of the WP leads is to guarantee a successful and timely achievement of the project objectives. The partners participating in each WP were chosen for their specific expertise, knowhow and research, innovation and business interests, thus creating the ideal mix of technical competence and research and innovation capabilities. (More information about each WP is provided in Annex 1)

Table 3: Project Steering Group members

WP	Partner	WP Lead	Contact
Project Coordinator	EVILVO	Els Torreele	Els.torreele@ilvo.vlaanderen.be
WP1	EV ILVO	Els Torreele	Els.torreele@ilvo.vlaanderen.be
WP2	WR	Angelo Mencarelli	Angelo.mencarelli@wur.nl
WP3	DTU-AQUA	Jordan Feekings	jpfe@aqua.dtu.dk
WP4	SCiO	Antonis Koukourikos	antonis@scio.systems
WP5	Sintef Ocean	Rachel Tiller	Rachel.tiller@sintef.no
WP6	FSH	Tzeni Antoniou	tzeni@foodscalehub.com
WP7	EVILVO	Els Torreele	Els.torreele@ilvo.vlaanderen.be

These contacts should be updated by the partners in the contact list on Teams in case of changes.

Project Management Plan

Monitoring and control of project work

The OptiFish Project Management Plan incorporates:

- the project monitoring and control system, ensuring the project scope will be delivered within the timelines of the project,
- the budget allocated to the partners and with the expected quality so that the project objectives are achieved.

List of WORK PACKAGES

The objectives of OptiFish will be pursued by the consortium through the implementation of a work plan, consisting of eight work packages (WP) spanning a 4 year period (48 months).

Table 4: List of work packages and deliverables.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverable No(s)
WP1	Project management and Coordination	1 – EV ILVO	39.75	1	48	D1.1-D1.6
WP2	Innovative Technological Solutions	7 – WR	156.5	1	48	D2.1-D2.4
WP3	Data Collection and Validation in EU Fisheries Pilot Studies	4 – DTU-AQUA	102	8	48	D3.1-D3.3
WP4	Data management framework and system architectures	6 – SciO	120.50	1	48	D4.1-D4.5
WP5	Stakeholder acceptance and engagement plan	10 – Sintef Ocean	68.5	1	48	D5.1-D5.4
WP6	Communication, Dissemination and Exploitation	5 – FSH	76.75	1	48	D6.1-D6.10
WP7	Ethics requirements	1 – EVILVO	0	1	48	D7.1-D7.10

List of DELIVERABLES

The output of OptiFish's efforts is translated in pre-identified important moments in the project: deliverables.

Table 5: Overview of the deliverables according the OptiFish Grant Agreement commitments.

Deliverable (number)	Deliverable name	WP	Short name of lead	Type	Diss. level	Delivery date	Quality reviewer
D1.1	Initial Project Management Handbook	1	1-EV ILVO	R	PU	3	FSH
D1.2	Midterm Project Management Handbook	1	1-EV ILVO	R	PU	24	FSH
D1.3	Final Project Management Handbook	1	1-EV ILVO	R	PU	36	
D1.4	Initial Data Management Plan	1	1-EV ILVO	DMP	SEN	6	SO
D1.5	Midterm Data Management Plan	1	1-EV ILVO	DMP	SEN	24	SO
D1.6	Final Data Management Plan	1	1-EV ILVO	DMP	SEN	48	
D2.1	Blue paper: Requirement standards	2	1-EV ILVO	R	PU	12	WR
D2.2	First Report on technologies	2	4- DTU	R	PU	24	VCU
D2.3	Onboard demonstration of SingleFish	2	13.1- VCU	R	PU	48	
D2.4	Final Report on technologies	2	4- DTU	R	PU	42	
D3.1	Initial Work Plan for testing and validation	3	4- DTU	R	PU	12	SCiO
D3.2	Second Work Plan for testing and validation	3	4- DTU	R	PU	40	
D3.3	Final Work Plan for testing and validation	3	4- DTU	R	PU	48	
D4.1	Requirements specification and system architecture	4	6- SCiO	R	PU	18	DTU
D4.2	OptiFish Data Platform	4	6- SCiO	OTHER	PU	36	
D4.3	Illegal and Unreported Activities Identification System	4	2- AZTI	DEM	PU	40	
D4.4	Authorities Monitoring Support Systems	4	11- EFICE	DEM	PU	42	
D4.5	Optimised fishing decision Support Systems	4	1- EV ILVO	DEM	PU	42	
D5.1	Workshop methodology - protocol for case area leaders	5	10- SO	R	PU	12	WR
D5.2	First Capacity building program	5	5- FSH	R	PU	30	
D5.3	Control Agreement Template	5	9- NDF	R	PU	46	
D5.4	Final Capacity building program	5	5- FSH	R	PU	48	
D6.1	Initial Dissemination, Communication and Exploitation (DEC) Plan	6	5 - FSH	R	PU	6	EV ILVO

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Deliverable (number)	Deliverable name	WP	Short name of lead	Type	Diss. level	Delivery date	Quality reviewer
D6.2	First Business models and go-to market strategy	6	5 - FSH	R	PU	19	WR
D6.3	First Sustainability plan and IPR management strategy	6	5 - FSH	R	PU	8	EV ILVO
D6.4	Update Dissemination, Communication and Exploitation (DEC) Plan	6	5 - FSH	R	PU	18	SO
D6.5	Final Dissemination, Communication and Exploitation (DEC) Plan	6	5 - FSH	R	PU	46	
D6.6	Updated Business models and go-to market strategy	6	5 - FSH	R	PU	34	
D6.7	Final Business models and go-to market strategy	6	5 - FSH	R	PU	44	
D6.8	Second Sustainability plan and IPR management strategy	6	5 - FSH	R	PU	30	
D6.9	Final Sustainability plan and IPR management strategy	6	5 - FSH	R	PU	42	
D6.10	Develop policy brief for policy makers	6	5 - FSH	R	PU	48	
D7.1	H - Requirement No. 1	7	1- EV ILVO	ETHICS	SEN	1	Intern ILVO/WR
D7.2	POPD - Requirement No. 2	7	1- EV ILVO	ETHICS	SEN	2	Intern ILVO/WR
D7.3	NEC - Requirement No. 3	7	1- EV ILVO	ETHICS	SEN	1	Intern ILVO/WR
D7.4	EPQ - Requirement No. 4	7	1- EV ILVO	ETHICS	SEN	1	Intern ILVO/WR
D7.5	AI - Requirement No. 5	7	1- EV ILVO	ETHICS	SEN	4	DTU
D7.6	OEI - Requirement No. 6	7	1- EV ILVO	ETHICS	SEN	1	Intern ILVO/WR
D7.7	NEC - AI - POPD - H - OEI - RequirementNo. 8	7	1- EV ILVO	ETHICS	SEN	1	Intern ILVO/WR
D7.8	POPD - NEC - AI - H - OEI - RequirementNo. 9	7	1- EV ILVO	ETHICS	SEN	18	SO
D7.9	POPD - H - AI - NEC - OEI - RequirementNo. 10	7	1- EV ILVO	ETHICS	SEN	36	
D7.10	H - POPD - OEI - NEC - AI - RequirementNo. 11	7	1- EV ILVO	ETHICS	SEN	48	

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List of MILESTONES

The milestones set for OptiFish project provide a useful tool for monitoring the project progress vs pre-identified important moments in the project.

Table 6: List of milestones

Milestone No	Milestone name	Word Package No	Lead Beneficiary	Means of Verification	Due Date (month)
MS01	Kick-off event	WP1,2,3,4,5	1- EV ILVO	Meeting agenda, minutes, press release	M01
MS02	Project Management Handbook ready	WP1	1- EV ILVO	Submission of D1.1	M03
MS03	Project's visual identity and communication strategy, and DMP	WP6, 1	5- FSH	Submission of D6.1, D1.2	M06
MS04	Start data collection on board pilot vessels	WP3	4- DTU	Data collection templates	M08
MS05	Gold standard test set, and evaluation metrics developed	WP2,3,4	7- WR	Platform storage datasets accessible for users of datasets	M12
MS06	Data Platform Architecture ready	WP2,3,4	6- SCiO	Platform online/accessible	M18
MS07	1st round of MALS complete	WP5	5- FSH	List of participants, recorded findings	M18
MS08	Onshore demonstrator of mechanical species identification system	WP2	7- WR	Demonstrator plans, reporting, photos, videos	M30
MS09	Start testing and validation of technologies and OptiFish platform	WP2,3,4	10- SO	List of vessels active in pilot cases, recordings of first trials.	M36
MS10	First version of support systems ready for testing	WP4	6- SCiO	Systems online and accessible	M36
MS11	Go-to-market strategy validated	WP6	5- FSH	Submission of D6.2	M48

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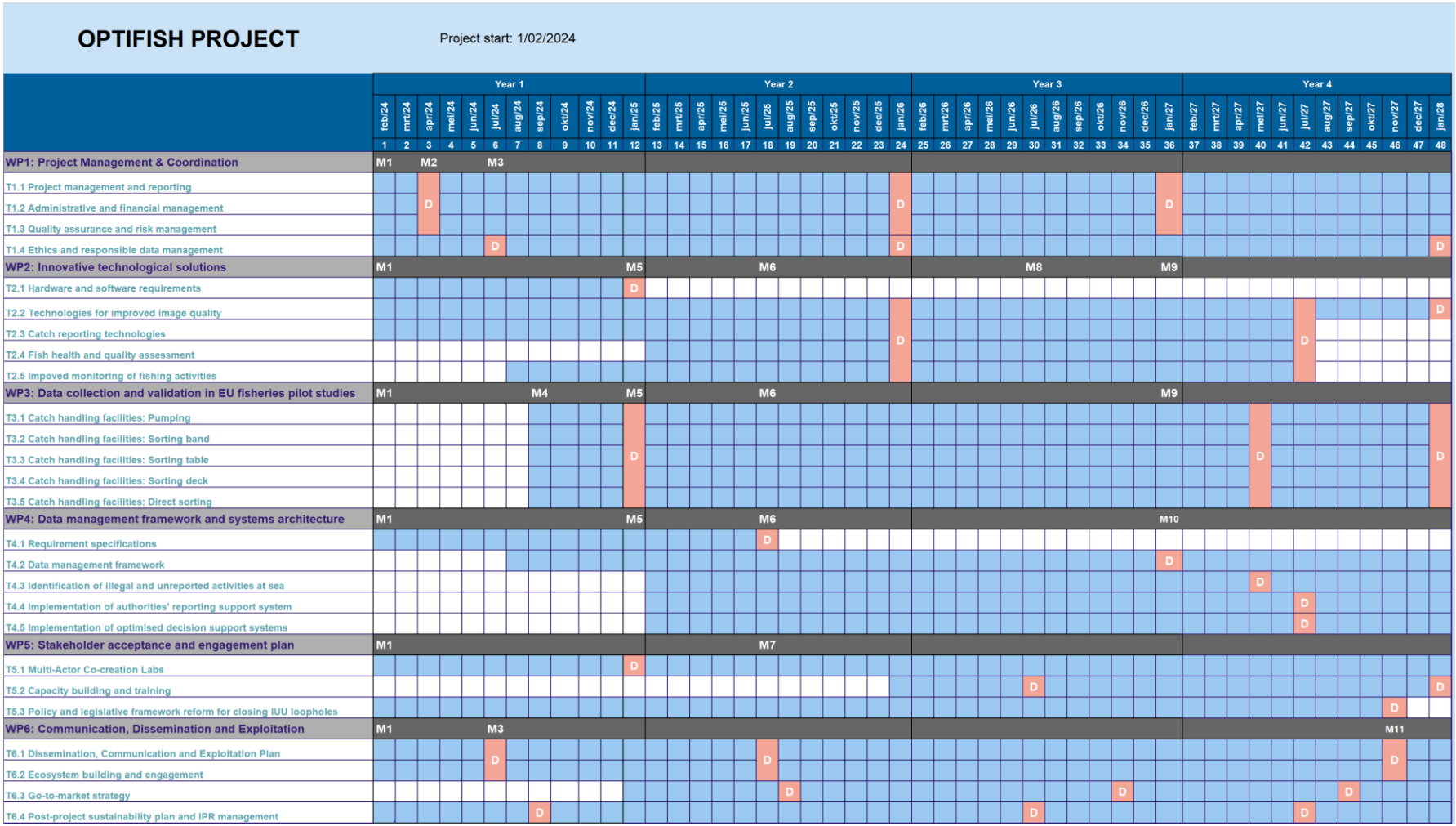
GANTT Chart

The GANTT Chart maps the timing of the different work packages, specified with their tasks, milestones and the deliverables.



'igure 7: OptiFish' GANTT chart

Periodic progress monitoring

The periodic progress monitoring will be organised on the following levels:

- WP level
- Project level
- Reporting to EC
- Reporting communication and dissemination activities

The project calendar gives an overview of all the meetings with tentative dates organised to secure progress monitoring.

							Year 1												Year 2												Year 3												Year 4											
							feb/24	mrt/24	apr/24	mei/24	jun/24	jul/24	aug/24	sep/24	okt/24	nov/24	dec/24	jan/25	feb/25	mrt/25	apr/25	mei/25	jun/25	jul/25	aug/25	sep/25	okt/25	nov/25	dec/25	jan/26	feb/26	mrt/26	apr/26	mei/26	jun/26	jul/26	aug/26	sep/26	okt/26	nov/26	dec/26	jan/27	feb/27	mrt/27	apr/27	mei/27	jun/27	jul/27	aug/27	sep/27	okt/27	nov/27	dec/27	jan/28
Format	Date	Meeting	Location	Start	end	Duration	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	43	44	45	46	47	48
Physical	18/04/2024	Kick-off meeting	Oostende,Belgium	8h30	16h30	two days																																																	
Physical	19/04/2024	Kick-off meeting		9h00	14h15																																																	
Physical	beginning of new qu	Internal meeting within ILVO-team	Oostende, Belgium	10h	12h00	2h																																																	
Digital	16/05/2024	WP2 and WP3 meeting	Microsoft Teams	8h30	12h00	3,5h																																																	
Physical	TBD	Annual meeting	Thessaloniki, Greece	TBD	TBD	two days																																																
Digital	TBD	WP2 meeting	Microsoft Teams																																																	
Digital	TBD	WP3 meeting	Microsoft Teams																																																	
Digital	TBD	WP4 meeting	Microsoft Teams																																																	
Digital	TBD	WP5 meeting	Microsoft Teams																																																	
Digital	TBD	WP6 meeting	Microsoft Teams																																																	
Digital	TBD	General Assembly meeting	Microsoft Teams																																																	
Physical	june/july 2024	WP5: train-the trainer session	DTU, ILVO, WR, AZTI	TBD	TBD	one day																																																

Figure 8: Project calendar: will be updated

▪ WP level

The WP Leads will organise periodic WP operational meetings during which they will review the progress of the work done vs the plan, the plan for the following period, the deliverables status, risks and issues. The WP Leads should keep the PM informed about the operational WP meetings by inviting the PM as an optional guest, in order to add the meetings to the project calendar.

The WP periodic meeting dates will be included in the project calendar (Figure 8) to provide transparency as well as opportunity for partners to join. The meetings attendees need, as a minimum, to be representatives from the partners who deliver work in the ongoing period.

▪ Project level

The regular project progress review is included in the agenda of the PSC meetings. During those meetings the WP leads present the progress achieved in the current reporting period, provide the plan for the following period and inform about the status of the deliverables.

Any updates of the *OptiFish critical risks and risk management strategy* (see Table 9) are also discussed, as well as collaboration between the work packages.

If there are any deviations from the plan, the WP lead flags this to the PC and provides a recovery plan which will steer the work back into the baseline plan framework. Should this not be possible, a change of the plan has to be evaluated by the PSC and then proposed for approval by the GAss as per CA requirements. If the change of plan is approved by the GAss, this will trigger a GA amendment procedure.

▪ Reporting to EC

The internal project reporting cycle will be according to the EC reporting periods and using the template of the project periodic reporting due at M18 (period 1-18), and M36 (period 19-36) and M48 (period 37-48). The PC shall contact the REA PO 3 months before the end of the 1st RP (Report Process) and 6 months before the end of the 2nd RP in order to set up the modalities of the review process/review meeting.

● The technical report

The content for the **technical report** is the activities, the achievements and deviations to the DoA (Description of the Action).

At the end of each reporting period, the PC will provide the WP Leads with the template (accessible at TEAMS under General – Project templates), guidelines and deadlines. The WP Leads will collect input from the delivery partners in the respective WP about their contribution in the current reporting period, will aggregate the information and will submit it to the PC.

Any deviation to the DoA must be described as follows:

- Why the deviation took place
- What has changed
- Why and how it will not affect the further implementation and achievements of results, outcomes and impact.

For ‘larger’ deviations to the DoA, inform us as soon as possible, so we can inform the PO. Possibly, a GA amendment must be applied for.

General rules of thumb:

- Changes in budget allocation, e.g. transfer between WPs, don’t require a GA amendment.

- Short extension of the deadline of a deliverable, doesn't need a GA amendment. Deadline extension in the first reporting period is not advised.

Nonetheless inform the PM, so she can confirm this with the PC and the PO.

The financial report

The content for the **financial report** is the progress of expenses for staff and direct costs.

In due time, the partners and everyone included as contact person on the portal will be prompted to start preparing the financial report. Guidelines and templates will be provided. If there is a need, the financial project experts of ILVO can organise a webinar to explain and reply to questions and queries. Contact the PM if you have any questions regarding this.

	Estimated eligible[1] costs (per budget category)										Estimated EU contribution[2]			
	Direct costs								Indirect costs	Total costs	EU contribution to eligible costs			Maximum grant amount[6]
	A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories	E. Indirect costs[3]		Funding rate %[4]	Maximum EU contribution[5]	Requested EU contribution	
	A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons		A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	D.2 Internally invoiced goods and services	E. Indirect costs					
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs[7]	Actual costs	Actual costs	Actual costs	Actual costs	Unit costs (usual accounting practices)	Flat-rate costs[8]					
	a1	a2	a3	b	c1	c2	c3	d2	e = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3)	f = a + b + c + d + e	U	g = f * U%	h	m
1 - EV ILVO	666 500.00	0.00	0.00	0.00	18 000.00	6 000.00	42 750.00	0.00	183 312.50	916 562.50	100	916 562.50	916 562.50	916 562.50
2 - AZTI	252 104.00	0.00	0.00	0.00	9 000.00	0.00	21 000.00	0.00	70 526.00	352 630.00	100	352 630.00	352 630.00	352 630.00
3 - BENCO	70 000.00	0.00	0.00	0.00	3 000.00	0.00	25 000.00	0.00	24 500.00	122 500.00	70	85 750.00	85 750.00	85 750.00
4 - DTU	500 000.00	0.00	0.00	0.00	21 000.00	34 000.00	5 000.00	0.00	140 000.00	700 000.00	100	700 000.00	700 000.00	700 000.00
5 - FSH	260 000.00	0.00	0.00	0.00	23 250.00	0.00	36 300.00	0.00	79 887.50	399 437.50	100	399 437.50	399 437.50	399 437.50
6 - SCiO	348 000.00	0.00	0.00	0.00	7 500.00	12 000.00	0.00	0.00	91 875.00	459 375.00	70	321 562.50	321 562.50	321 562.50
7 - WR	0.00	360 000.00	0.00	0.00	15 000.00	20 000.00	10 000.00	0.00	101 250.00	506 250.00	100	506 250.00	506 250.00	506 250.00
8 - UC	54 000.00	0.00	0.00	0.00	15 000.00	15 000.00	20 000.00	0.00	26 000.00	130 000.00	100	130 000.00	130 000.00	130 000.00
9 - NDF	81 000.00	0.00	0.00	0.00	16 500.00	0.00	2 500.00	0.00	25 000.00	125 000.00	100	125 000.00	125 000.00	125 000.00
10 - SO	327 700.00	0.00	0.00	0.00	30 000.00	0.00	0.00	0.00	89 425.00	447 125.00	100	447 125.00	447 125.00	447 125.00
11 - EFICE	88 000.00	0.00	0.00	190 000.00	6 500.00	25 000.00	0.00	0.00	29 875.00	339 375.00	70	237 562.50	237 562.50	237 562.50
12 - JV	85 500.00	0.00	0.00	0.00	15 000.00	0.00	0.00	0.00	25 125.00	125 625.00	100	125 625.00	125 625.00	125 625.00
13 - VCUR	0.00	0.00	222 499.06	0.00	6 000.94	69 000.00	30 000.00	0.00	81 875.00	409 375.00	70	286 562.50	286 562.50	286 562.50
13.1 - VCU	15 000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3 750.00	18 750.00	70	13 125.00	13 125.00	13 125.00
14 - WU	0.00	87 400.00	0.00	0.00	6 750.00	5 000.00	0.00	0.00	24 787.50	123 937.50	100	123 937.50	123 937.50	123 937.50
15 - ANCHOR	55 500.00	0.00	0.00	0.00	4 500.00	0.00	0.00	0.00	15 000.00	75 000.00	70	52 500.00	52 500.00	52 500.00
16 - DPPO	40 400.00	0.00	0.00	0.00	7 500.00	0.00	0.00	0.00	11 975.00	59 875.00	70	41 912.50	41 912.50	41 912.50
17 - ZUN	51 700.00	0.00	0.00	0.00	4 500.00	0.00	0.00	0.00	14 050.00	70 250.00	70	49 175.00	49 175.00	49 175.00
18 - DFPO	40 308.00	0.00	0.00	0.00	6 000.00	0.00	0.00	0.00	11 577.00	57 885.00	100	57 885.00	57 885.00	57 885.00
Σ consortium	2 935 712.00	447 400.00	222 499.06	190 000.00	215 000.94	186 000.00	192 550.00	0.00	1 049 790.50	5 438 952.50		4 972 602.50	4 972 602.50	4 972 602.50

Figure 9: OptiFish total budget allocation. Annex 2 of GA

To facilitate the financial reporting, keep records of everything you want to claim costs for:

- Receipts of any expenses (flights, hotels, restaurants, catering, meeting venues, transport, …)
- Personnel costs (timesheets, …)
- Proofs that events, for which you want to claim costs for, took place (invitations, programme, attendance list, minutes, … - both events you organised yourself and events organised by others that you attended)

The evidence must be verifiable, auditable and available. It must be correctly archived – for at least 5 years after the balance is paid (3 years for grants up to 60.000 EUR) or longer if there are ongoing procedures (such as audits, investigations or litigation). In this case, the evidence must be kept until they end. In principle, the documents should be kept in the format in which they were received or created. This means that:

- Documents received or created in paper form should be kept in paper form
- Documents received or created in electronically form should be kept in their electronic format. Hard copies of original electronic documents are not required.

The coordinator will review and finalise the report and submit it through the EC Portal.

Table 7: Overview of the Person months per participant and per work package.

Staff effort per participant *Grant Preparation (Work Packages - Effort sceen)*								
Participant	**WP1**	**WP2**	**WP3**	**WP4**	**WP5**	**WP6**	**WP7**	**Total Person-Months**
1- EV ILVO	13.00	17.00	18.00	20.00	12.00	6.00		**86.00**
2- AZTI	3.00	10.00	9.00	16.00	2.00	2.00		**42.00**
3- BENCO	0.50	7.00	4.00	2.00		0.50		**14.00**
4- DTU	3.00	24.00	14.00	4.00	2.00	3.00		**50.00**
5- FSH	1.00				16.00	48.00		**65.00**
6- SCiO	3.00	10.00	12.00	48.00	8.00	6.00		**87.00**
7- WR	1.00	26.00	12.00	4.00	4.00	1.00		**48.00**
8- UC	4.00	5.00	16.00			2.00		**27.00**
9- NDF	1.00	1.00		3.00	3.00	1.00		**9.00**
10- SO	4.00	5.00			17.00	3.00		**29.00**
11- EFICE	0.50		1.00	6.50	1.00	1.00		**10.00**
12- JV	1.00	0.50		7.00		1.00		**9.50**
13- VCUR	0.50	3.00						**3.50**
13.1- VCU	1.00	35.50	8.00					**44.50**
14- WU	0.75	10.00				0.75		**11.50**
15- ANCHOR	0.50	2.00	2.00	2.00		0.50		**7.00**
16- DPPO	0.50		3.00		0.50			**4.00**
17- ZUN	1.00		1.00	7.00	1.00	1.00		**11.00**
18- DFPO	0.50	0.50	2.00	1.00	2.00			**6.00**
Total Person-Months	**39.75**	**156.50**	**102.00**	**120.50**	**68.50**	**76.75**	**0.00**	**564.00**

After each reporting period, a review meeting takes place, after which we may have to revise deliverables.

▪ Reporting communication and dissemination activities

• Internal rules:

- **Always refer to the GA** for checking person month allocation, deadlines, deliverables, milestones, …
- For **internal document sharing** we use Microsoft Teams; it is GDPR proof and allows higher protection of sensitive data.
- Use Teams to share messages, organise meetings or to chat
- For important messages use email
- When sending emails, insert "OptiFish" as first word in the subject heading
- Share all communication regarding scientific coordination with Els and Jade
- Share all communication regarding management, administration, finance, deviations to the DoA, organisation with Els, Jade, Herman and Cathy

The coordinator will always sent messages by email regarding:

- Project Steering Committee meetings
- General Assembly meetings
- Continuous and periodic reporting
- Coming deadlines

• Reporting

Partners should continuously report their dissemination and communication activities as they happen. When reporting the dissemination and communication activities to FSH, WP06 Dissemination and exploitation Lead, all the partners should use the dedicated Excel spreadsheets OptiFish – D&C Planning" and "OptiFish – D&C Reporting" accessible from the General teams folder, in subfolder "WP6 Communication, Dissemination and exploitation".

These sheets allow all partners to document and monitor their activities, helping FSH keep track of the progress against the OptiFish project KPIs

The partners can submit activities within the specific categories which are defined in OptiFish Grant Agreement and for which we have specific KPI targets:

Table 8: OptiFish Dissemination Strategy

Dissemination KPIs		
KPIs	**GA target**	**Explanation**
D1- Technical publications		
D1.1 – Articles in industry magazines	>12	Refer to publications that are not in peer-reviewed journals, but are of interest to industry stakeholders. This can include contributions to blog posts, position papers, catalogues in industry based magazines or sites such.
D1.2 – Blue papers	1	1. T2.1: A blue paper outlining the min. requirements of each technologies in relation to the pilot studies and wider application will be published, including (but not limited to) observation scenes; camera specifications; speed of processing images and DNA extracts; specifications related to sensor fusion, sensor hierarchy and sensor communication that allow sanity check, hardware/software redundancy, and anti-tampering alarm. This is also a deliverable, that is the responsible

		of task leader EV ILVO. Contributions may be requested from: WR, DTU, AZTI, ANCHOR, UC, NDF, JV).
	1	2. T4.1 will produce a blue paper with min. requirements for the data management framework and each of the system architectures. SCiO is the WP leader but may request contributions from task participants (AZTI, EV ILVO, WR, NDF, JV, EFICE, DTU, ANCHOR, BENCO).
D2 - Scientific publications		
D2.1 – Peer reviewed academic publications	8	Peer-reviewed open access, academic publications at least 8 of which need to be in fisheries or marine biology journals (SO. KPI 2.1).
D2.2 – Conferences/ workshop presentations	>20	Present project results at conferences or workshops. This can also include academic poster presentations.
D2.3 – OpenAIRE datasets	>5	FSH will create a Zenodo community for OptiFish, where partners will be able to deposit all datasets following the guidelines for FAIR data. Zenodo is suggested and supported by the OpenAIRE infrastructure. OpenAIRE's platform, EXPLORE, ensures easy access and harmonization of the project's data.
D3 - Capacity building		
D3.1 – Webinars	>10	Webinars include any online event intended for larger audiences and focus on disseminating information, sharing expertise, or showcasing products and services. Partners may be responsible for organizing and/or presenting material.
D3.2 – Workshops	>10	Workshops refer to interactive sessions designed to provide participants with practical skills, knowledge, and experiences. They typically involve a smaller group of attendees and focus on active participation, group discussions, and collaborative activities. Partners may be responsible for organizing and/or presenting material.
D3.3 – Live events	>4	Live events maybe be any type of training, demonstration, that happens in person. Partners may be responsible for organizing and/or presenting material. Dates of these events will be posted on the OptiFish Academy and when possible recordings will be made available.
D3.4 – Training manuals	>5	Documents providing information to better understand and use the technologies
D3.5 - Games	>1	Gamification of information to be shared with fishers.
D4 – Ecosystem expansion		
D4.1 - Participation in fairs/exhibitions	>10	Fairs and exhibitions are targeting primarily non-academic stakeholders. Participation means to have an active project presence (e.g. booth/stand, demo, brochure distribution, panelist etc.)

D4.2 - Community outreach presentations	>8	Community outreach refers to activities that target civilians, students, rural fishing communities, environmental organizations/agencies (e.g. festivals, local events, school presentations etc.)
D4.3 - Joint activities with other EU projects	>10	Any activity that actively involves both OptiFish and another project. For example, presenting at each other's meetings, hosting a joint panel discussion/session live or a webinar, joint publications.
D4.4 - Representation in working groups	>10	This means joining a working group or presenting the project and its results at their meetings.
D4.5 - Representation in alliances	>3	This means joining an alliance or presenting the project and its results at their meetings.
D4.6 - Present results at >3 ICES expert working group meetings	>6	This refers to either joining a working group, attending a working group meeting to share results, or presenting at an expert working group workshop.
D4.7 - Joint meetings with relevant projects at Annual science ICES conference	4	Can include a shared point, a shared presentation or any other relevant activity where OptiFish and other relevant EU projects are working together to present their projects and/or results during the Annual Sciences ICES conference
D5 – Policy Contribution		
D5.1 - Manuscript on global and multi-level governance of technological innovations	1	Summary of the findings of Sub-task 5.3.2
D5.2 - Creation of dedicated working groups (WP5)	1	1. NDF will form a working group of multidisciplinary fisheries experts (e.g. legal disciplines, AI, economics, biology, management and metrology); to outline a Template for a control agreement on the implementation of AI-based catch-monitoring systems under development in OptiFish. (T5.4).
	1	2. EV ILVO will organize a working group that builds on the results of the MALs and focus on the workshop participants from the stakeholder group of commercial fisheries.(T5.1.3). Support may be requested form DTU as partner of the sub-task, as well has SO, leader of T5.1

The communication activities have a broader outreach than dissemination and exploitation activities, spanning beyond the identified key players, to reach the general public. The targets are listed below:

Table 9: OptiFish Communication Strategy

Communication KPIs		
KPIs	**GA target**	**Explanation**
C1 – Branding and material		
C1.1 – Brandbook and logo	1	The brandbook presents the project's guidelines for maintaining a coherent, professional visual identity. The high quality logo will be shared with all partners.

C1.2 – Brochures	>4	FSH is responsible for creating the brochures, although partners may be requested to provide input or to validate content. Partners may also request the creation of a brochure with specific information.
C1.3 – Banners	>5	FSH is responsible for creating the roll up banner template, but may request input or validation from partners.
C1.4 – Translation of banners	8	Partners are expected to translate the content of the banner. FSH will create the translated versions .
C1.5 – Other promotional material	4	FSH will create promotional material with input from partners. E.g. posters of different dimensions.
C2 - Website		
C2.1 – Website	1	FSH will create and manage the website. Partners are expected to provide information and updates.
C2.2 – Blog posts for the OptiFish website	>50	Partners are expected to contribute content for brief, easily digestible updates on the project, their organization, their results or other topics of interest. FSH will format the posts and upload them to the drive.
C2.3 – Project videos/ animations	>10	These include an overall project video featuring footage onboard fishing vessels and a series of animations explaining the project's technologies
C3 – Social media		
C3.1 – Social media channels	6	FSH will create and manage the social media channels, with the exception of research gate (which must be done by a university). Partners are expected to provide FSH with updates (in the reporting form/via email) and reposting on their organizations' accounts.
C3.2 - Hashtags	3-5	FSH will create 3 project hashtags that are expected to be use along with #HorizonEurope, #ResearchImpact for all OptiFish posts.
C4 – Interactive e-newsletter		
C4.1 – Biannual issues of the e-newsletter	8	
C5 – Multiplier campaign		
C5.1 – Press releases	8	Press releases refer to short descriptions of the project/its key activities and/or key results to be shared with media outlets. Partners are expected to contribute to press release content and to share with local/regional/national/international media outlets.
C5.2 – Press release translations	8	Agreed upon partners are expected to translate the press releases to their national languages.
C5.3 – TV/ Radio interviews	>5	TV/radio interviews with local/regional/national media, providing reference or discussion about the project and/or its results.
C5.4 – Videos with success stories	>6	These videos should feature the fishers of the pilot studies.
C5.5 – Podcast episodes	10	FSH will be responsible for organizing and producing the podcasts. Partners may be expected to provide interviews, or help connect with stakeholders (e.g. fishers from the pilots).

For FSH to maintain an overview of the progress we kindly ask you to submit any activities you do continuously.

Quality Management Plan

Quality Assurance Procedure

The WP leaders should ensure the timely delivery of the respective WP outputs that meet the quality expectations. They should review with the Lead Beneficiaries the status of each output/deliverable during the WP operational meetings and the WP Lead should report that during the PSC meeting WP review.

Figure 10: OptiFish Quality assurance process steps

The following procedure is applicable for all project deliverables. Please note that for the deliverables due to be submitted prior M6, the timings for the steps in the process will be individually defined together with the Lead Beneficiary.

Deliverable structure ready

The latest 3 Months after the task where the respective deliverable originates, the Lead beneficiary produces a deliverable structure (ToC = Table of Content), that is consistent with the requirements in the Grant Agreement, using the OptiFish Deliverable Template (found under the General folder on the OptiFish Teams). By that time, the Lead beneficiary can also complete the introductory document sections. For each Deliverable, we recommend strongly to define the deliverable's own (quality) plan that describes the specific stages against which the deliverable will be reviewed to ensure the timely and quality output.

At this stage, the project coordinator suggests a suitable partner as a Quality Reviewer and obtain their agreement to fulfil the role. These quality reviewers are indicated in the table with the Deliverables under section 3.3 (Figure 5). When changes are necessary, the project manager needs to be informed and will update the list of deliverables and the OptiFish quality plan with this information.

ToC approved

The Lead beneficiary suggests what contributions/collaboration will be required by the respective delivery partners in the WP and agrees that with them. The Lead beneficiary reviews the structure of the deliverable, the deliverable plan and the agreed contributions by other partners with the WP Lead and the Quality Reviewer. This step has to be completed the latest 3 months after the start of the task in which the deliverable originates.

Deliverable implementation plan monitoring

The deliverable quality and implementation plan as created in step 1 is reviewed regularly during the WP operational meetings, with the Lead beneficiary reporting to the WP Lead the current status of the work vs what was planned. The dates for the identified "gates" in the plan are used to ensure the timely delivery of the work and to facilitate the work planning, especially in the case of multiple partners involved and long period of delivery.

The Lead Beneficiary should be in touch with the Quality Reviewer throughout the delivery production and consult if necessary. The Lead Beneficiary should inform the Quality Reviewer and the WP Lead if there are changes in the gate dates, so the Quality Reviewer can plan their time accordingly. The WP Lead informs the PC about any updates in the deliverables' quality and implementation plans.

In case that there is a risk of delay in delivery that will impact the deliverable due date, the Lead Beneficiary informs the WP Lead and the PC as soon as possible, providing a motivation for the delay. This information will be shared with the Project Officer and included in the periodic reporting.

▪ Deliverable ready for internal quality review

The deliverable content should be ready for internal quality review 1 month ahead of the deliverable due date. At that moment of time the Lead beneficiary submits it for review to the designated Quality Reviewer.

The Quality Reviewer checks the deliverable against the following quality criteria:

- **Relevance:** the output contributes to the project objectives achievement.
- **Compliance with GA requirements:** the output content reflects all the requirements for it described in Part A of the GA.
- **Good editorial quality**:
  - the deliverable structure is straightforward.
  - the language is suitable for the target audience.
  - there are no spelling and grammar mistakes.
  - when using information from other sources, correct citations are used and the EC requirements for referencing are followed.
  - the document looks good – the OptiFish templates are used, the images are of good quality.
  - the copyright for images from external sources is clearly stated in the image caption and permissions for using the images has been obtained.

The Quality Reviewer provides the Lead beneficiary with comments of how the quality of the document can be improved should there be a need for that.

▪ Quality review complete

The Lead Beneficiary addresses the comments from the Quality Reviewer and ensures the latter accepts the way they are addressed.

The Lead Beneficiary submits the quality approved deliverable to the PM, ready to be uploaded in the EC portal in PDF format, one week prior the formal deliverable due date.

▪ Deliverable ready for submission

The PM uploads the PDF version of the deliverable in the EC portal and notifies the Lead Beneficiary and the WP lead of the successful upload.

The PM copies the final version of the deliverable to the folder in the OptiFish Teams area General – Deliverables – final versions channel.

Risk Management Plan

The OptiFish Consortium recognises the need of a robust risk management procedure to ensure the successful delivery of the project by avoiding or reducing possible negative impacts on the work and maximising the opportunities which could make the work more efficient and effective. In the table below (Table 10), the risks included in the Grant Agreement are mentioned. An actual risk management plan will be developed and included in the updated project management handbook (D1.2).

Table 10: OptiFish critical risks and risk management strategy.

Risk number	Risk Identification	WP	Proposed Mitigation Measures (Risk response and control)
1	Delays and inadequate interactions between WPs and tasks	WP1,2,3,4,5	Regular meetings, KPIs and internal reporting will be used to track progress and maintain accountability. Early indications of issues/delays will be acted upon and corrective actions will be implemented to minimise impact. without significant impact solutions will be developed to minimise impact on other tasks and WPs
2	Underperforming partner or Partner leaving the project	WP1,2,3,4,5, 6	Partners have successfully collaborated in previous /ongoing projects. Flexible management structure will allow quick shifts of resources if needed
3	Budget inappropriately assigned	WP1,2,3,4,5, 6	Budget will be redistributed if necessary by renegotiating the value-for-money with partners to achieve a fair output vs payment
4	Technologies and system architecture aren't ready on time	WP3, WP4, WP2	The partners have defined the timing based on their extensive experience but will also maintain extensive communication between WPs to stay aligned.
5	Architecture fails to incorporate emerging modules and technologies, is not scalable	WP4	Early and continuous tests of the integration mechanisms of the platform will provide timely feedback for reconsidering architectural design aspects. If required, an updated version of the architecture specification will be produced
6	Insufficient storage and computation resources for the foreseen analytical processes	WP4	Compute optimization techniques and hybrid architectures (cloud/on-prem) will be examined and incorporated in the architectural design

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Risk number	Risk Identification	WP	Proposed Mitigation Measures (Risk response and control)
7	Delays acquiring onboard training data	WP3, WP2	Public data sets can be used to start developing methodologies
8	Vessels are reluctant to accept a pilot study due to conflict in timing	WP3	Continuous communication and planning with pilot studies and flexibility to adapt to their availability.
9	Resistance of fishers to participate in trials and share data with authorities	WP5, WP3, WP4	Producer's associations are included in the consortium and fisheries with strong existing relationships have been identified for pilot studies to minimise resistance. A dedicated task in WP5 is dedicated to discussing data sharing with industry and we have close collaboration across Europe with managers with access to data they are willing to share
10	Low engagement with MALs	WP5	We already have extensive contacts with commercial fishers, ICES and RFMOs as well as fisheries experts independently, and in some cases have already discussed participation extensively with them. The individual members of the MAL will be contacted by SO together with a local partner in question, to set up a personal connection for the MALs.
11	Used data model(s) result in suboptimal FAIR compliance for accessing and sharing content	WP4	Intensification of engagement from external platforms and users to ensure that OptiFish resources are described in accordance with their expectations
12	Failure to promote the developed technologies to the fishing industry, fisheries managers, and stock assessment scientists across the EU	WP5	One of our partners is the NDF, and we have included management and control agencies from all over Europe in the project, including EFCA, who has provided a letter of support. NDF leads a task with managers in WP5 as well.
13	Business models fail to exploit market opportunities	WP6	The go-to-market strategy will use feedback and experience from fishers, and industry stakeholders to avoid pitfalls and ensure effective exploitation
14	Conflicts over ownership	WP6	IPR management will be the continuous responsibility of T61.4 to ensure appropriate protection of results.
15	Performance of automatic catch monitoring and reporting is not accurate	WP2	Even if the system's accuracy is lower than human assessment it can still be beneficial because every fish can be expected. Shortcomings will be investigated and form the basis for further study for future improvement.

Co-funded by the European Union

INTERNAL Communication Plan

The internal communication plan contains information about the management of the internal communication between the partners during the delivery of the project to support a smooth and flawless collaboration between the OptiFish delivering organisations.

Collaborative workspace – OptiFish Project MS Teams Area

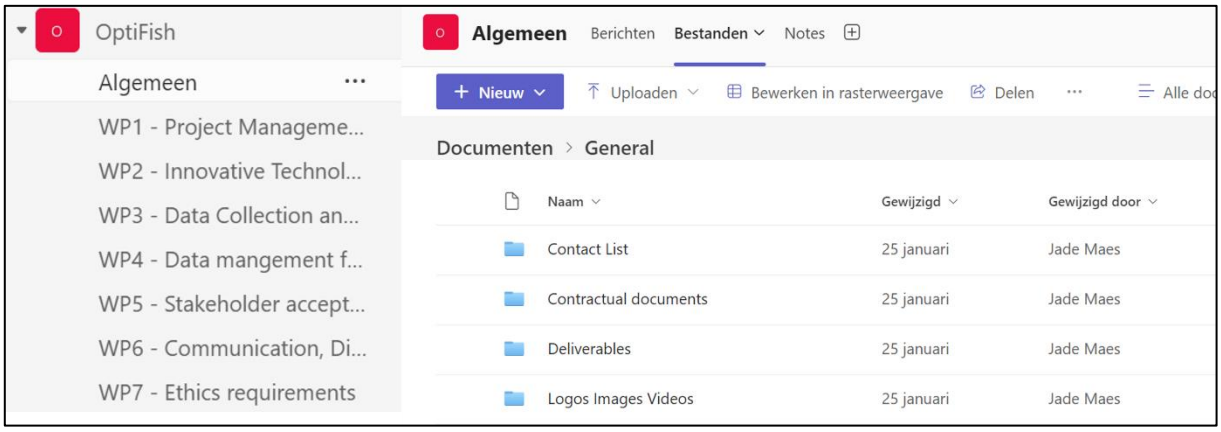

Figure 11: OptiFish project Microsoft Teams area

Main principles of organisation

The PM has set up a collaborative workspace for the OptiFish Consortium in MS Teams. Each partner has been provided with access to the project Teams area and can actively contribute to the communication and content generation. The PM has set the channel structure of the OptiFish project Teams area. Should a partner need a new channel to be created, he/she needs to request that from the PM.

Changes to the members of the OptiFish project Teams area are made only by the PM on request by the respective partner. This includes adding new members and deleting members.

When a new member is added, the respective person receives an email invitation to join the OptiFish project Team and a link.

***Note:** If you or any of your colleagues experience issues with logging in the OptiFish project Teams area, please inform the PM immediately!*

The project Teams members can edit, download and upload documents, directly in the Teams area, either using the web interface or through the desktop application. Multiple members can work on the same document simultaneously, making the collaborative working easier and more efficient and bridging the gaps between the geographically dispersed partners.

Additionally, the Teams members can create posts, comments/respond on posts in the individual channels. The posts will be visible to all Teams members. When there is a new post in a channel, the channel name font changes to **bold**. However, no specific notification about the post will be sent to the Team members. In order to increase the visibility to the post, the members can mention another member (using ***@[member user name]***) or use Tags ***@[tag name]***. In this case, the mentioned members only will

receive notification in their Activity tab on the left of the application screen. The rest of the Team members will only see that there is a new message (channel name in bold), but no notification in their Activity tab.

The PM has created a tag for each member to attribute him to the respective partner. In this case, for example, if one wants to notify all the ILVO team members, they should mention ***@ILVO*** in the respective post. When this is done, the members with tag ILVO will receive notification in their Activity tab in the MS Teams application (Figure 12)

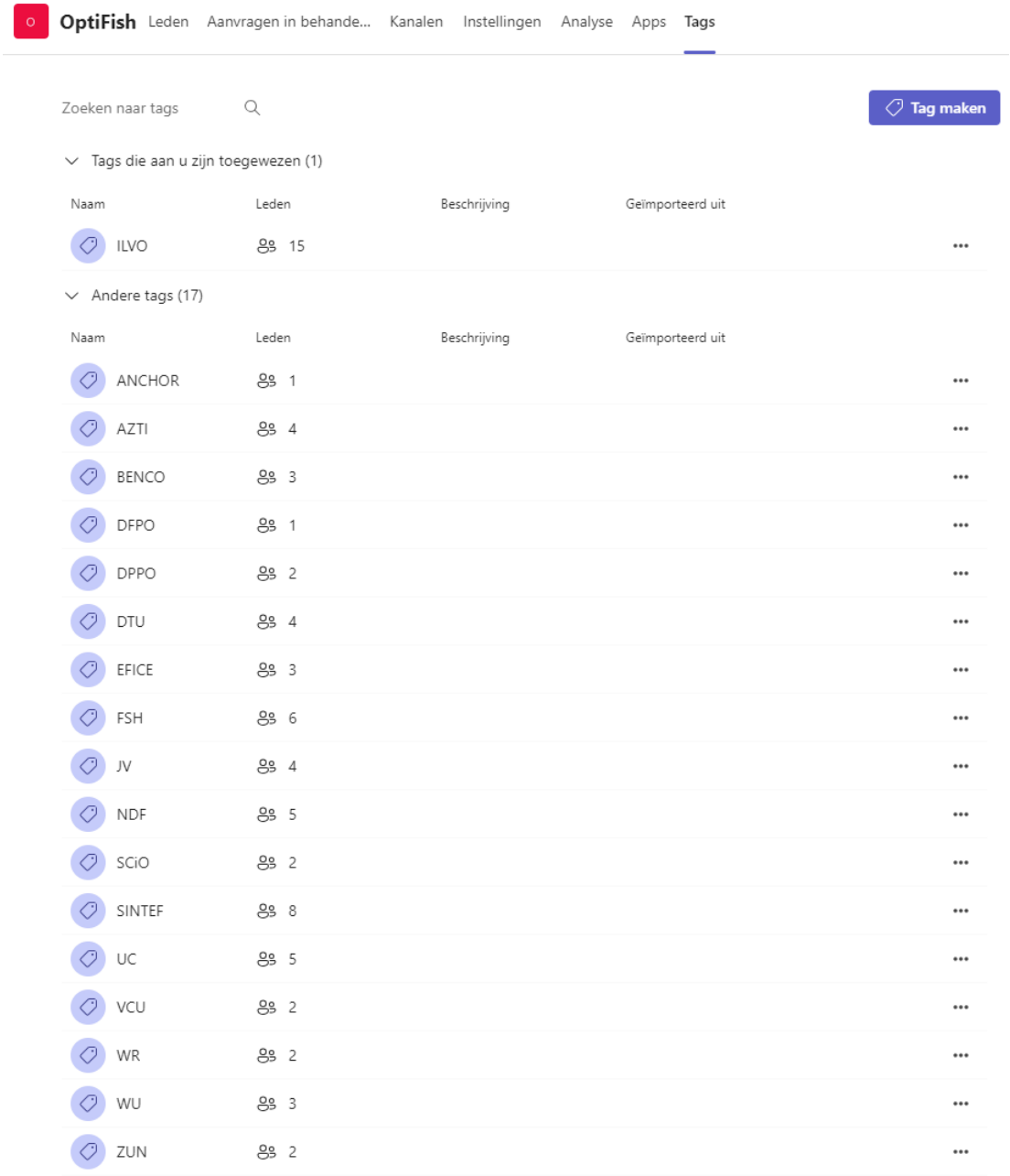

Figure 12: OptiFish Tema view: list of assigned tags.

- **Communication channels**

Channels are dedicated sections within a team to keep conversations organised by specific topics. The channels are the places where conversations happen and where the work actually gets done.

The OptiFish project Teams area is composed of 8 channels, based on the project work organisation and the audience for the specific information, published in the respective channel. All of the OptiFish project Teams channels are open for all Teams members, i.e. all partners have access to the information provided, the files located in the respective channel and can participate in the discussions to the respective channel chat. The organisational structure of the channels and their intended purpose, primary audience and access level are provided in the following table.

Table 11: Overview OptiFish: communication channels.

Channel Name	Description	Intended primary audience	Access rights
General	Tabs for the OptiFish contact list; Contractual documents (GA, CA); Deliverables; Project templates; Logos, Images and Videos; Meetings; Periodic reporting and the Project plan.	All Teams members	All Teams members
WP1 – Project management and Coordination	Collaborative workspace for delivering of the respective WP. All WP deliverables, shared documents, meeting related files, planning information and posts related to WP should be included here.	Partners delivering the respective WP, partners collaborating with the respective WP.	All Teams members
WP2 – Innovative Technological Solutions			
WP3 – Data Collection and Validation in EU Fisheries Pilot Studies			
WP4 – Data management framework and system architecture			
WP5 – Stakeholder acceptance and engagement plan			
WP6 – Communication, Dissemination and Exploitation			
WP07 – Ethics Requirements			

The documentation and communication for the individual work packages is located in the respective WP channel.

▪ File repository structure

The WP lead has the responsibility to maintain the WP channel and WP documentation up to date. The WP lead should create a file structure that includes subfolders for:

- Deliverables – the WP final versions of the deliverables should be stored here, in Word (or another editable format) and PDF.
- Meetings and Minutes – agendas, presentations, recording, minutes, attendance lists for the meeting organised in relation to the delivery of the WP.
- Tasks – work in progress documents/deliverables, task planning information etc.

*Note: The use of the **Deliverables** and **Meetings and Minutes** subfolders is mandatory! They provide the PC and the rest of the team with visibility on the project progress and the completed deliverables.*

The PM will copy the completed deliverables in the General channel, where there is a dedicated folder for the final version of the deliverables for the entire project.

The **General** file folder has the following structure:

- Contact list – an Excel file, containing the current information about the OptiFish partners contact details. For more information, please see section *Contact list and maintenance*.
- Contractual documents: Contains the Project Proposal and GA
- Deliverables – final versions: contains the final version of the uploaded deliverables
- Logos images videos: contains different sorts of logos, images and videos
- Meetings: contains subfolders for each meeting held
  - ➔ Each subfolder includes an attendance List – agenda - meeting minutes - presentations used during meeting - practical info – photos
- Periodic reporting: documents and webinars to support the members on executing the technical and financial reporting will be stored here.
- OptiFish project plan: an Excel file containing the list of deliverables, the WP and deliverables, the milestones, the GANTT chart and the project calendar on separate tabs.
- Project templates: contains templates for PPT, deliverables, …

○ Contact list and maintenance

The project contact list is stored in the project Teams area:

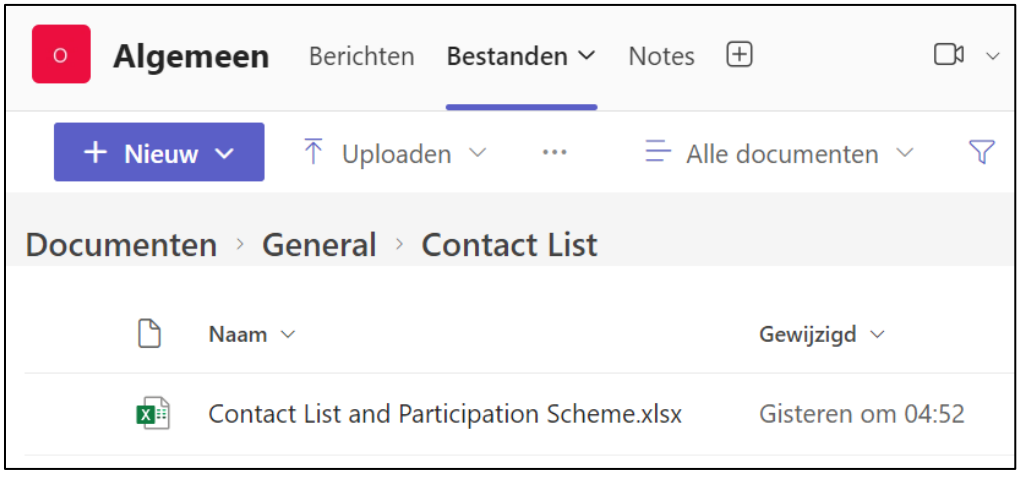

Figure 13: OptiFish Teams: location of the contact list.

It provides the following information:

- Sheet **Consortium**: a complete list of partners, country, main role in the project, and social media
- Sheet **WPs- detailed**: an overview of the Work Packages, the WP lead and the different tasks involved in each WP
- Sheet **Milestones** and sheet **Deliverables**: overview of the different milestones and deliverables related to the different WPs.
- Sheet **DPO's:** Overview of the Data protection Officers
- Sheet **contact list**: all members from each partner involved in the OptiFish project (updated frequently)

Note: *The contact list contains* ***personal information****: Names, business email addresses (and telephone numbers) of individuals. Please use the contact list in compliance with the* ***GDPR*** *requirements. Do not provide access to this document to staff that are not involved in OptiFish delivery and do not need to have access to it. Do not include contact details of individuals who have not provided you with a written statement that they would like to be involved in communication regarding OptiFish delivery. Please, refer to the DMP for more information.*

Annex 1

Detailed Work Package descriptions

WP number	WP1	Start month	M1	End month	M48	Lead beneficiary	EV ILVO
WP title	Project Management and Coordination						
Partners involved	All partners						

Objectives

- Develop a high-quality project management framework with all administrative, financial, and strategic aspects.
- Coordinate risk management and quality assurance, monitoring, and assessment to ensure the envisioned OptiFish progress and results
- To guarantee sound data management and application of ethical principles

Description of work

T1.1 Project management and reporting (M01-M48) [Leader EV ILVO/FSH - all partners]
Task 1.1 will develop the Project Management Handbook (PMH) to cover all aspects of project management, organisational structure, operating procedures and management, including guidelines for activity planning, submission of deliverables and periodic progress reports, annual reporting to the Commission and midterm reviews. The project coordinator (PC) will act as the point of contact for partners and the EC. The PC will be supported in this role by a dedicated project manager (PM, located at EV ILVO) and the management support office. This task will also manage the establishment of an external advisory board of key scientific experts in the field of fisheries, electronic monitoring, and European fisheries policy including EFCA, Basque, Danish and Belgian Fisheries Authorities, who will review the project plan and provide feedback on the project objectives and timeline. They will also provide advice on technical aspects of the project, and guidance on how to ensure that the project complies with relevant European regulations and policies.
T1.2 Administrative and financial management (M1-M48) [Leader (EV ILVO) - all partners]
T1.2 will establish and implement the necessary mechanisms and structures for administrative coordination and financial management of the project, including: meetings, cost, time and scope management, financial audits, technical and financial reporting. These specifics will also be included in the PMH. .
T1.3 Quality assurance and risk management (M1-M48) [Leader EV ILVO - all partners]
This task will monitor all the project activities for quality assurance and risk management which will be assessed
regularly throughout the project and extensively described in the PMH. Project process monitoring will involve the review of reports, results and careful comparisons to planned outputs. Mitigation measures, such as adjustments and potential re-assessments of activities will be made to ensure project objectives are met. The risk management methodology consists of four steps: a) Risk identification, b) Risk quantification c) Risk response and d) Risk control and reporting; and will be elaborate upon in the PMH. Careful monitoring will ensure that proactive measures can be taken to mitigate risks early.
T1.4 Ethics and responsible data management (M1-M48) [Leader EV ILVO - all partners]
T1.3 will create the Data Management Plan (DMP) to outline i)types of data and their size; (ii) how research data will be collected, processed or generated; (ii) methodologies and standards for findability, accessibility and interoperability; (iii) whether and how data will be shared and made open; and (iv) how data will be curated and preserved during and after the project. The DMP will be released by M06 and revised during the project, ensuring that OptiFish activities are compliant with the HE Open Access policy, the FAIR data principles, GDPR etc.

Deliverables:

D1.1 Initial Project Management Handbook (EV ILVO)
D1.2 Midterm Project Management Handbook (EV ILVO)
D1.3 Final Project Management Handbook (EV ILVO)
D1.4 Initial Data Management Plan (EV ILVO)

D1.5 Midterm Data Management Plan (EV ILVO) **D1.6** Final Data Management Plan (EV ILVO)

WP number	**WP2**	**Start month**	M1	**End month**	M48	**Lead beneficiary**	WR
WP title	**Innovative Technological Solutions**						
Partners involved	WR, DTU, AZTI, ANCHOR, UC, EV ILVO, NCF, JV, VCU, DFPO, BENCO, SO						

Objectives

- Specify hardware and software requirements for EM systems
- Develop, improve catch reporting technologies and catch monitoring capabilities to prevent catch tampering
- Develop an understanding of catch quality (fish health and quality)

Description of work

T2.1: Hardware and software requirements (M1-M12) [Leader **(**EV ILVO**)** - WR, DTU, AZTI, ANCHOR, UC]

Sub-task T2.1.1: Reviewing state-of-the-art technologies (M1-M3) [Leader (DTU) - WR, EV ILVO, UC, AZTI]

This sub-task will conduct an extensive review of the ever-changing state-of-play of the fisheries monitoring and control technologies. This will help situate the project within the landscape of emerging technologies and effectively respond to the ongoing changes in fleet segments happening and anticipate to continue across the EU.

Sub-task T2.1.2: Requirement specifications: Technologies (M2-M12) [Leader (EV ILVO) - WR, DTU, UC, NDF, JV]

In sub-task T2.1.2, requirement specifications for each of the different technologies developed in WP2 and their associated pilot studies, WP3, are defined and are closely linked to requirement specifications of the data management framework and system architectures (T4.1). A blue paper outlining the minimum requirements of each technologies in relation to the pilot studies and wider application will be published, including (but not limited to) observation scenes (e.g., camera placements and distance to catch items/activities);camera specifications (e.g., image resolution and number of cameras); speed of processing images and DNA extracts (e.g. real-time or near real-time).; specifications related to sensor fusion, sensor hierarchy and sensor communication that allow sanity check, hardware/software redundancy, and anti-tampering alarm.

T2.2: Technologies for improved image quality (M1-M48) [Leader (VCUR) - DTU, DFPO, WR, VCU]

To deal with the occlusions that severely impacts the accuracy of automatic catch monitoring, task T2.2 will develop a mechatronic/robotic system to improve the visibility of the catch for EM-based species identification (T2.3.2). The EM camera must be able to perform accurate detections. This feature will improve species identification and length measurement performance and enable accurate identification of individual catch items that fall under the landing obligation. The mechanical system will be developed and tested in the mid-scale demersal trawler (T3.3), equipped with a sorting table.

T2.3: Catch reporting technologies (M1-M42) [Leader (DTU) - WR, WU, AZTI, EV ILVO, UC, BENCO, DFPO, ANCHOR, SO, JV, NDF, VCU]

Sub-task T2.3.1: Collection of gold-standard datasets. (M1-M24) [Leader (DTU) - UC, EV ILVO, WR].

Large and varied datasets are key to effectively train AI systems and to properly validate and test their performance. Therefore, this subtask will establish gold-standard datasets from EM cameras and mobile phones. Here, different fleets and areas across Europe will be covered as well as different scenarios (e.g.species, catch densities, level of occlusion) and catch densities, level of occlusion regulations. The standard datasets will be collected in collaboration with the pilot studies (WP3). The continuously increasing number and volume of datasets will be key to improve species recognition and length measurement algorithms and as such this task will deliver a gold-standard validation dataset and develop evaluation metrics to calculate performance indicators for the developed technologies and to monitor

progress in the project. The evaluation metrics should provide the expected ranges of accuracy of the developed methods.

Sub-task T2.3.2: EM-based species identification and sizing (M7-M42) [Leader (WR) - WU, BENCO, DTU, EV ILVO, UC]

In sub-task T2.3.2, deep neural networks (DNN) will be developed and trained to estimate catch compositions from video footage, including species identification, counts and length measurements. Established methods to improve the generalisation of the networks will be applied to better deal with the large variation in catch composition and the limited amount of available training data. These include Generative Adversarial Networks for domain adaptation[1] and self-supervised learning for unsupervised pre-training[2]. To optimise the performance of the DNNs, EM video footage representing all types of fisheries and geographic areas investigated in T2.1 and the pilots (WP3)) will be used as training data. A method will be developed that selects the relevant training data to optimise performance for a specific vessel. These models will be trained, validated, and tested on the datasets collected in subtask T2.3.1, reflecting the diversity of EU fisheries.

Sub-task T2.3.3: Rapid DNA-based species identification (M7-M42) [Leader (DTU) - EV ILVO, AZTI]

In sub-task T2.2.3, methodologies for high-resolution species identification and biomass quantification using rapid DNA assays will be developed and tested. The sub-task includes the design and development of optimal sampling schemes to attain accurate catch compositions as well as further investigation into the operationalisation of rapid DNA assays for biomass prediction. This task also includes optimal sampling schemes to infer tampering of catch composition (e.g. detection of PET species in the catch). In some use cases, such as in pelagic fisheries, where sampling can be a challenge, given the size of catches, the rapid DNA assays can be supplemented and benchmarked with AI-enabled species identification using EM cameras, as described in sub-task T2.3.2. Pilot studies will be conducted by all partners (WP3, task T3.2).

T2.4 Fish health and quality assessment (M13-M42) [Leader (WR) - AZTI, DTU, BENCO]

Sub-task T2.4.1: Multispectral cameras (M13-M42) [Leader (WR) - BENCO]

In sub-task T2.4.1, multispectral cameras will be used as an innovative and cost-effective approach to assess the health and quality of whole and processed catch items (e.g. fillets and offal). The information collected can help detect blood accumulation, skin damage, volatile and non-volatile compounds related to deterioration, bacteria, visible parasites, presence of skin reactions due to illness, general freshness, and survivability of discarded fish. Onshore tests with hyperspectral cameras will be performed to select the correct spectral bands for the multispectral cameras. Furthermore, a pilot study will be conducted in the North Sea on a large-scale demersal trawler (T3.2) to validate the spectral bands.

Sub-task T2.4.2: Rapid DNA-based fish health assessment (M13-M42) [Leader (AZTI) - DTU]

In sub-task T2.3.3, rapid DNA will be used for monitoring the biomass of fish stocks to support stock level assessments and detection of PET species in the catch and for the detection of wild-life diseases such as parasites. The objective is to develop robust practices which can be implemented across fishing fleets. It is a natural extension to sub-task T2.3.3, which can provide information crucial for future fisheries management policies. Pilot studies will be conducted in the North Sea on a large-scale demersal trawler and Bay of Biscay vessels (T3.2).

T2.5 Improved monitoring of fishing activities (M7-M42) [Leader (WR) - DTU, ANCHOR, EV ILVO, SO]

The EM camera systems used for automatic species recognition in Task 2.3 are optimised to inspect the catch and are not designed to provide a full overview of processing activities on board fishing vessels. Therefore, task T2.5 will improve catch monitoring by including EM video footage from a series of cameras placed around a fishing vessel to detect fishing activities that indicate tampering with the catch. Methods will be developed that monitor the incoming/outgoing fish streams, and that detect human activity[3]. By fusing this data with the catch-recording system, and other real-time sensors onboard (e.g. hydraulic pressure sensors or winch rotation sensors), any attempt to tamper with the catches onboard the fishing vessel (e.g. by blocking the field-of-view or by sorting and discarding unwanted catch items prior to the catch entering the catch cameras field-of-view) will be detected. Pilot studies will be conducted on a large-scale demersal trawler in the North Sea (T3.2) and on a small-scale demersal trawler in the Mediterranean Sea (T3.4).

Deliverables:

D2.1 Blue paper: Requirement standards (EV ILVO)
D2.2 first Report on technologies (DTU)
D2.3 Onboard demonstration of SingleFish (VCU)
D2.4 Final Report on technologies (DTU)

WP number	WP3	Start month	M8	End month	M48	Lead beneficiary	DTU
WP title	Data Collection and Validation in EU Fisheries Pilot Studies						
Partners involved	DPPO, ANCHOR, EV ILVO, AZTI, BENCO, VCU, DFPO, EFICE, DTU, WR, ZUN						

Objectives

- Collect data for the development work undertaken in WP2 and WP4.
- Test and validate the different technologies and system architectures developed in WP2 and WP4 under real conditions in different types of fisheries throughout Europe.

Description of work

T3.1. Catch handling facilities: Pumping (M8-M48) [Leader (DTU) - DPPO]

In task T3.1, a methodology for catch composition estimation onboard a pelagic fishing vessel based on EM cameras monitoring catch items (T2.3.2) and eDNA (T2.3.3) will be developed and tested. Pelagic vessels distinguish themselves with regards to their catches in terms of species and volume, which is reflected in both vessel layouts and catch handling processes. This task will focus on small pelagic species (e.g. herring, mackerel, horse mackerel and blue whiting) being pumped and stored in water tanks onboard pelagic trawlers. Due to vessel layouts and catch handling processes, EM cameras for monitoring of catch items are unable to capture all individuals, requiring a different validation approach than other types of fisheries. As such, the data streams from these EM cameras will be scaled to total catch volumes and benchmarked against eDNA in terms of their accuracy in catch composition estimation for the species present in the North Sea as well as their cost-benefits (WP5). The data collected in T3.1 will serve as input to the fisheries monitoring and control system developed in T4.4.

T3.2. Catch handling facilities: Sorting band (M8-M48) [Leader (WR) - ANCHOR, EV ILVO, AZTI, BENCO]

In task T3.2, a methodology for assessment of fish health and quality based on multispectral cameras (T2.4.1) and eDNA (T2.4.2) will be developed and tested. Rapid DNA will primarily be used for detection of wild-life diseases such as parasites, whereas the multispectral cameras will serve multiple purposes as described in T2.4.1. In addition, task T3.2 will integrate EM cameras for monitoring catch items (T2.3.2) placed in close proximity to the sorting band with additional EM cameras around the fishing vessel overlooking fishing activities to prevent any tampering with the catches as elaborated in T2.5. The fusion of these technologies will be tested on board a vessel in the Belgian demersal fishery for flatfish. This system will serve as an input to the identification of illegal and unreported activities at sea (T4.3) and a fisheries monitoring and control system (T4.4) ensuring that all suspicious "events" are observed and reported. Furthermore, task T3.2 will integrate EM cameras for monitoring catch items (T2.3.2) into VISTools (T4.5) to enable fishermen to receive real-time monitoring of their catches in the wheelhouse as part of this fishing decision support system (T4.5). This information can be used to optimise fisheries o e.g. remaining quota levels based on catches to ensure optimal fishing operations and sustainable management of marine biological resources (integration with VISTools - T4.5)

T3.3. Catch handling facilities: Sorting table (M8-48) [Leader (DTU) – VCU, ANCHOR, DFPO, EFICE]

In task T3.3, a mechanical catch handling system will be developed and tested to see how the field-of-view and consequently the performance on the EM cameras monitoring the catch items improves in accuracy with respect to species identification and length measurement. Task 3.3 will also integrate this EM data on catch compositions (incl. length distributions) with Logbook data to secure an enhanced reporting system at the benefit of both fishermen and authorities (T4.4).

T3.4. Catch handling facilities: Sorting deck (M8-M48) [Leader (UC) - DTU, WR]

In task 3.4, algorithms for catch composition estimation will be developed using EM data collected onboard a commercial fishing vessel in the Mediterranean demersal trawl fishery, including species recognition for vulnerable species (PETS) in the Black Sea (T2.3.2). In addition, Masking algorithms will also be developed to comply with GDPR regulations (T2.5, T4.1) and the overall system will be tested for proof-of-concept to ensure that all "events" identified as suspicious are observed and reported to ensure compliance.

T3.5. Catch handling facilities: Direct sorting (M8-M48) [Leader (AZTI) - ZUN]

Task 3.5 addresses catch, discards and PET bycatch composition estimation onboard artisanal fishing vessels. Most of these vessels are under 12m making the use of EM systems to document catches potentially an economically and technically infeasible solution. Hence, the focus of this task is to develop and test the trust-based self-reporting system developed in EveryFish used to provide catch composition reports (T4.4). The outcome of such a reporting system can provide new insights into a fishery that is currently characterised by its lack of catch documentation The requirements and implications of such a trust-based self-reporting system are assessed in WP5. In addition, for those vessels of a size of which an EM system can be reasonably implemented, this task will test their feasibility (incl. PET species) as the catch is sorting during gear retrieval.

Deliverables:

D3.1 Initial Work Plan for testing and validation (DTU)
D3.2 Second Work Plan for testing and validation (DTU)
D3.3 **F**inal Work Plan for testing and validation (DTU)

WP number	WP4	Start month	M1	End month	M48	Lead beneficiary	SCiO
WP title	Data management framework and system architectures						
Partners Involved	AZTI, EV ILVO, WR, NDF, JV, EFICE, DTU, ANCHOR, BENCO, SCiO, ZUN, DFPO						

Objectives

- Identify the data exchange and communication needs required to integrate all data producing or collecting sources as appropriate
- Develop the architectural design and infrastructure for data processing, fusion, analysis and exposure
- Design and implement the architectural needed for authorities monitoring and industry decision support tools

Description of work

T4.1 Requirements specification: Data management framework and system architectures (M1-M18) [Leader (SCiO) - AZTI, EV ILVO, WR, NDF, JV, EFICE, DTU, ANCHOR, BENCO]

Task T4.1 will map end user's needs to understand individual data needs and structures. This will serve as a direct input to the requirements specification for the data management framework (T4.2) and each of the system architectures ~~)~~ developed in WP4(T4.3-4.5). The data management framework is a data storage system from which data is extracted into each of the system architectures. The requirement specifications in T4.1 will produce a blue paper with minimum requirements for the data management framework and each of the system architectures, given the data needs of OptiFish as derived from the data collection modalities foreseen in WP3. ~~.~~ Examples include, but are not limited to: requirements related to libraries, modules and programmatic interfaces, for managing, processing and distributing data; requirements related to representation schemes, nomenclature and metadata accompanying the data; performance requirements and connectivity limitations.

In addition, data standards will be established taking into account the current legal and users practices/needs, incl. GDPR and the guidelines/directives for FAIR data, as well as agreed upon standards, testing methods and routines for AI-based catch composition technologies, to ensure consistent results in use. Furthermore, it will consider other principles to facilitate the willingness and acceptance of the industry (e.g. TRUST and CARE principles to deal with anonymization, security, integrity and ownership needs), as well as interoperability/alignment with FLUX and potentially additional industry-specific or generic standards. The requirement specifications and data standards will be established in synergy with the requirement specifications for the technologies in sub-task T2.1.2, and in close dialog with stakeholders (WP5), with the intention to influence the setting of harmonised standards across European fisheries in regard to identification of illegal and unreported activities at sea (T4.3), fisheries control and enforcement (T4.4) and for improved decision support (T4.5)

T4.2 Data management framework (M7-M48) [Leader (SCiO) - WR, EV ILVO, BENCO]

In task T4.2, the data management framework feeding data into the system architectures will be developed. Digital components such as libraries, modules and programmatic interfaces, for ingesting WP3-produced and external data and managing, processing and distributing them ~~data~~, will be developed in alignment with the requirement specifications from sub-task T2.1.2, T4.1 and collective user needs. The data management framework will consider data governance structures, and considerations pertaining to data quality, data integration, and data security to develop a single data depository available for all systems and end users, under the specified access and authorisation rules.

T4.3 Identification of illegal and unreported activities at sea (M13-M48) [Leader (AZTI) - SCiO, EV ILVO, WR]

A vessel's position can be reported using a number of systems, for example Automatic Identification Systems (AIS), Vessel Monitoring Systems (VMS), and Remote Electronic Monitoring Systems (REM) or detected through SAR images. However, such single systems could be subject to reliability (e.g. the signal being jammed or deliberately spoofed) and manipulation issues (e.g. deliberately turned off or reducing transmission strength to cover up illegal or unreported activities). This task will utilise a range of positioning data to cross check vessel's positioning, and where anomalous dropouts are detected, utilise satellite radar imagery from the Copernicus Network's Maritime Surveillance Service to determine the cause of dropouts

in combination with technologies from WP2 and the outputs of T3.2. The results of this task could support the improvement of the allocation of resources of control and enforcement at sea.

T4.4 Implementation of authorities reporting systems (M13-M48) [Leader (EFICE) - SCiO, AZTI, WR, ZUN]

Task 4.4 will expand the scope of existing catch reporting systems (e.g. e-logbooks, logbooks, port samplings) by integrating the catch composition data from computer vision and rapid DNA-based assays, vessel sensor data, and other sources of data (e.g. satellite data from Copernicus) from WP2 and T4.2. The system will be compared, integrated and harmonised with current systems to enable automated catch reporting and ensure compliance with authorities' needs (e.g. taking potential errors into account, for example, species classification or length measurements). The likelihood and impact of these false positives (e.g. in potential illegal fishing activities) will be considered in the implementation of the systems.

T4.5 Implementation of optimised fishing decision support systems (M13-M48) [Leader (EV ILVO) - EFICE, DFPO]

The new data streams generated in OptiFish will not only benefit enforcement but can enrich vessel owners and fishers with better insights into their fishery. Task T4.5 will develop decision support tools (DSTs) that allow fishers to optimise their fishing operations by; (1) Providing near-real time geo-spatial information on vessel **catches and discards** from EM (up to haul level); (2) Providing overviews of gross revenue and cost from fuel consumption (fishing and steaming); (3) Providing an overview of quota consumption. The DSTs will integrate the EM datastreams from WP2 into existing support tools, including VISTools Analytics (EV ILVO) and the Catching Data platform (EFICE). The required data will be produced by the technologies presented in WP2 and tested in T3.2. To make the decision support tool usable, access to industry data is required from additional sensors including GPS, towing force (or equivalent) to enable the correct coupling of hauls and locations to sensor data. The access to this data will be requested through WP5. This way the industry is provided with tools to reduce the potential discards while they might realise the usefulness of the monitoring for their own optimal fishing operations and increase their acceptance of OptiFish systems

Deliverables:

D4.1 Requirements specification and system architecture (SCiO)
D4.2 OptiFish Data Platform (SciO)
D4.3 Illegal and Unreported Activities Identification System (AZTI)
D4.4 Authorities Monitoring Support Systems (EFICE)
D4.5 Optimised fishing decision Support Systems (EV ILVO)

WP number	WP5	Start month	M1	End month	M48	Lead beneficiary	SO
WP title	Stakeholder acceptance and engagement plan						
Partners Involved	EFICE, VCU, BENCO, WR, UC, AZTI, DTU, ZUN, DFPO, DPPO, EV ILVO, FSH, JV, SO,						

Objectives

- Engage stakeholders to co-produce knowledge and best practice scenarios for industry uptake and effective implementation in the sector.
- Increase industry awareness of the ecological role of technological innovations for data collection for biodiversity protection.
- Ensure industry collaboration for developing guidelines for GDPR under different use-case scenarios

Description of work

T5.1 Multi-Actor Co-creation Labs (MALs) (M1–M48), [Leader: (SO), Partners involved: EV ILVO, DTU, FSH, WR, UC, AZTI, DFPO, DPPO]

Sub-task T5.1.1: Train-the-trainer (M1-6) [Leader (SO)]: SO will develop the methodology and teach the local case area leaders how to facilitate and co-create knowledge together with stakeholders during the MALs in a consistent manner to enable cross-case compatibility. The partners will first engage in a stakeholder mapping session, including arenas for best avoidance of stakeholder fatigue (such as ICES working groups both social and technical), inviting stakeholders, facilitating the workshops (T5.1.2) and will work with SO afterwards to interpret the results.

Sub-task T5.1.2: Stakeholder workshops (M12-48) [Leader (SO)]: Two iterative rounds of workshops will be organised between M12-18 and M30-36 to e assess socio-economic and practical vulnerabilities considered by stakeholders, and how ethical and financial considerations (cost-benefit analysis), as well as perceptions of top-down governance in the given case areas affect willingness to take up and effectuate automatic management and control mechanisms proposed. Systems Thinking and Fuzzy Cognitive Mapping (Section 1.2.1) will be applied to quantify perceptions and create future scenarios for policy.

Sub-task T5.1.3: Working group on trust and data sharing (M12-48) [Leader (EV ILVO) - DTU]*:* This sub-task will organise working groups that build on the results of the MALs and focus on the workshop participants from the stakeholder group of commercial fisheries. Sharing high resolution data on fishing activities is perceived by many fishers as a threat to their privacy (images of people on board), trade-secrets (preferred fishing grounds and insight in catches) and as a further restriction on their work. Fishers need a sense of control and ownership of the data they generate and how these will be used by others afterwards. We therefore focus on increasing participation and acceptance of OptiFish solutions in the fishery sector by; (i) setting up local working groups based on the vessel groups defined in WP 3, (ii) discussing the perceived limits of data sharing and identifying win-win situations between fishers and potential end users (using the results from T4.5) and (iii) formulating data sharing agreements with participating fishers that clearly define the way the data will be used within the OptiFish project. We will use the ICES working groups and related activities as arenas for these working groups.

T5.2 Capacity building and training (M24-48), [Leader: (FSH) - Partners involved: EFICE, VCU, BENCO, WR, UC, AZTI, DTU, ZUN, DFPO, DPPO]. This task will develop the **OptiFish Academy**; a multi-channel capacity building program connected to the website and designed to provide training and information for different stakeholders, drawing on the results from all work packages including; (i) data sharing agreements and protocols surrounding the technologies (WP2) and systems (WP4) that ensure fishers have control over the data they share (T5.1.3); (ii) technological tools and how to use them effectively; (iii) cost-benefit analysis, and economic projections demonstrating the potential outcomes and benefits of engaging with various OptiFish solutions (WP6); (iv) business models (T6.3), and pathways for the feasible integration of technologies targeting control/member states/policy (T5.3). We will use webinars, videos, documents and live presentations to reach a broad audience in collaboration with WP6). Feedback from T5.1 and the experience of fishers involved in the pilot studies will also be used to enhance the training manuals for the given technologies. Training protocols will be developed in collaboration with commercial fishers with formats of these will be determined in collaboration with end users and WP6 and task 5.1 work. This could be commercial fishers and policy makers and others, but could be e-learning platforms, webinars,

interactive games (social media or similar), workshops (online or live) or manuals, or a combination thereof.

T5.3 Policy and legislative framework reform for closing IUU loopholes (M1-46), [Leader (NDF), Partners involved: DTU, SO, AZTI, EV ILVO, UC, DFPO, DPPO, JV]

Sub-task T5.3.1: EU level management (M1-48) [Leader (NDF)]. NDF will form a working group of multidisciplinary fisheries experts (e.g. legal disciplines, AI, economics, biology, management and metrology); to outline a Template for a control agreement on the implementation of AI-based catch-monitoring systems under development in OptiFish. The template will include e.g. considerations of performance standards and testing methods defined in task 4.1, AI ethics, the combined use of AI-based catch monitoring systems and conventional MCS measures and measurements for regulations of AI technology providers. The purpose of the Template is to have investigated several of the important topics that will need to be addressed during future multilateral fisheries consultations for development of regulations on implementation of AI-based catch monitoring systems. The group's investigations, leading to the Template of a control agreement, will limit the amount of time spent for consultations to reach a multilateral agreement on the matter in the future, linking this work to T4.1 and implementation of project results into a broader global context of closing loopholes for IUU fishing practices. We will offer to present the results thereof in relevant bilateral and multilateral settings in collaboration with WP6.

Sub-task T5.3.2: International cooperation (M1-48) [Leader (SO) - NDF]; duration M01–M48): We will follow international fisheries agreements in selected RFMOs and FSA meetings, or relevant bilateral and multilateral settings, throughout the project period. We will present OptiFish and follow negotiations to code narratives of delegates when they have statements around automatic catch registration issues. We will also link in with global biodiversity multilateral environmental agreements for developments that affect technological developments, like CBD and BBNJ conference of parties.

Deliverables:

D5.1 Workshop methodology - protocol for case area leaders (SO)
D5.2 First Capacity building program (FSH)
D5.3 Control Agreement Template (NDF)
D5.4 Final Capacity building program (FSH)

WP number	WP6	Start month	M1	End month	M48	Lead beneficiary	FSH
WP title	Dissemination, Communication and Exploitation						
Partners involved	All partners						

Objectives

- Design and execute an effective, tailormade dissemination, communication, and exploitation plan
- Define IPR management within an extensive sustainability plan for the long-term use/re-use of project results
- Develop and promote inclusive business models and a sound go-to-market strategy

Description of work

T6.1 Dissemination, Exploitation and Communication Plan (M01-48) [Leader (FSH) - ALL partners)]
The dissemination exploitation and communication (DEC) plan is the foundation for creating far reaching, lasting impact and will establish the activities, protocols and channels that will be implemented and monitored across the project. The initial plan will be delivered by M6 based upon the preliminary strategy defined in Section 2. This plan will outline: (i) target stakeholders, with key messages and narratives tailored to each group's needs identified by WP5; (ii) dissemination activities and communication channels; (iii) KPIs committed by partners to monitor progress (iv) protocols for activating synergies with other projects and initiatives; (v) pathways for exploiting Key Exploitable Results (KERs) including problems to be addressed, target audience, value propositions and risks with mitigation measures. This set of concrete exploitation actions will be expanded upon in T6.4.

T6.2 Ecosystem building and engagement (M01-M48) [Leader (FSH) - ALL partners)]
Task 6.2 will implement the DEC plan to form an open, expanding, and sustainable ecosystem of stakeholders to share the benefits and opportunities presented by the project and its results. An iterative approach, using stakeholder feedback (WP5) and ongoing monitoring will ensure DEC actions are effective and reflect the changing needs and conditions of the ecosystem. Partner's existing networks (e.g. ICES) will form the basis for expanding the ecosystem and together with specific joint activities and synergies (co-publications, links on website/social media, event participation - ICES annual event) that will be organised with relevant projects and initiatives (e.g. ILIAD). OptiFish's presence at a diverse array of events (e.g., conferences, trade fairs) will provide opportunities to demonstrate results to local fishers, technology providers, and consumers and as well as connect with leading international researchers, control agencies and policy makers. The OptiFish ambassador program will feature success stories and videos with pilot study fishers, using technologies onboard their vessels.

T6.3 Go-to-market strategy (M12-M48) [Leader (FSH) – ANCHOR, ZUN, EFICE, SCiO]
This task will apply market analysis and modelling tools (e.g. SWOT, PESTELE, BM Canvas) to develop inclusive, feedback-driven business models that simultaneously address the needs of fishers, technology providers, and investigate pathways to improve their accessibility by fishers. The task will also create an effective go-to-market strategy for the project's catch enumeration technologies (EM, rapid-DNA), robotic sorting, fish health and quality assessment tools (hyperspectral cameras, rapid DNA) and catch monitoring solutions. Concrete steps and considerations for bringing solutions to market will integrate the needs and financial hesitations of fishers (WP5) and the practical and functional differences of the different fishery sectors (T2.1) as well as extensive market forecasts, customer profiling and assessments of the competitive landscapes.

T6.4 Post-project sustainability plan and IPR management (M1-M48) [Leader (FSH) -All partners]
T6.4 will utilise feedback from stakeholders (WP5) and pilot studies (WP3) as the starting point for a strong post-project sustainability plan to ensure the use/reuse of results during and beyond the project's duration. Partners will complete full characterizations of their results, and based upon the type of exploitation (e.g., commercial, non-commercial), custom pathways with concrete actions for their exploitation will be defined. A detailed IPR management strategy including foreground identification, result ownership, access rights, will guarantee the protection of all intangible assets. We will also have two internal IPR workshops with on-going monitoring of IPR developments throughout the project period.

Deliverables:

D6.1 Initial Dissemination, Communication and Exploitation (DEC) Plan (FSH)
D6.2 First Business models and go-to market strategy (FSH)

D6.3	First Sustainability plan and IPR management strategy (FSH)
D6.4	Update Dissemination, Communication and Exploitation (DEC) Plan (FSH)
D6.5	Final Dissemination, Communication and Exploitation (DEC) Plan (FSH)
D6.6	Updated Business models and go-to market strategy (FSH)
D6.7	Final Business models and go-to market strategy (FSH)
D6.8	Second Sustainability plan and IPRmanagement strategy (FSH)
D6.9	Final Sustainability plan and IPRmanagement strategy 5 (FSH)
D6.10	Develop policy brief for policy makers (FSH)

WP number	WP7	Start month	M1	End month	M48	Lead beneficiary	EV-ILVO
WP title	Ethics requirement						
Partners involved	All partners						

Objectives:

The objective is to ensure compliance with the 'ethics requirements' set out in this work package.

Description of work:

This work package sets out the 'ethics requirements' that the project must comply with.

Deliverables:

D7.1 H - Requirement No. 1 (EV-ILVO)
D7.2 POPD - Requirement No. 2 (EV-ILVO)
D7.3 NEC - Requirement No. 3 (EV-ILVO)
D7.4 EPQ - Requirement No. 4 (EV-ILVO)
D7.5 AI - Requirement No. 5 (EV-ILVO)
D7.6 OEI - Requirement No. 6 (EV-ILVO)
D7.7 NEC - AI - POPD - H - OEI – Requirement No. 8 (EV-ILVO)
D7.8 POPD - NEC - AI - H - OEI – Requirement No. 9 (EV-ILVO)
D7.9 POPD - H - AI - NEC - OEI – Requirement No. 10 (EV-ILVO)
D7.10 H - POPD - OEI - NEC - AI – Requirement No. 11 (EV-ILVO)

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