



Mid-term assessment of the implementation of the ‘Strategic guidelines for EU aquaculture’ and the ‘Multi-annual National Strategic Plans’ for aquaculture

Final Report

European Maritime, Aquaculture and Fisheries Fund (EMFAF)



Written by Tim Huntington (Poseidon Aquatic Resource Management Europe Ltd) on behalf of the EU Aquaculture Assistance Mechanism
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Contact: CINEA EMFAF CONTRACTS

E-mail: cinea-emfaf-contracts@ec.europa.eu

*European Commission
B-1049 Brussels
BELGIUM*

Implementing the EU Aquaculture Assistance Mechanism

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Abbreviations and acronyms used

AAC	Aquaculture Advisory Council
AAM	Aquaculture Assistance Mechanism
AC	Advisory Council
ADA	Areas Suitable for Development of Aquaculture
ADS	Agrupaciones de Defensa Sanitaria
AECM	European Association of Guarantee Institutions
AHL	Animal Health Law
AI	artificial intelligence
AMA	aquaculture management areas
AODA	Areas of Organised Development for Aquaculture
APA	Aquaculture Production Areas
APROMAR	The Spanish Aquaculture Business Association
ASC	Aquaculture Stewardship Council
AZA	allocated zones for aquaculture
BMar	Balcão Eletrónico do Mar (Electronic Counter of the Sea)
BMEL	The Federal Ministry of Food and Agriculture
BTSF	Better Training for Safer Food initiative
CAP	climate adaptation plan
CAQ	Scientific Committee for Aquaculture
C-Faarer	Community-driven Farming for the Atlantic and Arctic sea basins through REgeneRative aquaculture
CFP	Common Fisheries Policy
CGP	Codes of Good Practice
CINEA	European Climate, Infrastructure and Environment Executive Agency
CMO	Common Market Organisation (for fisheries and aquaculture products)
COM	European Commission
Cool Blue Baltic	COmmunity Ocean farms and Local Business cLUstErs in the BALTIC sea
Cool Blue	COmmunity Ocean farms and Local Business cLUstErs
CR	common result (indicator)
DG MARE	Directorate-General for Maritime Affairs and Fisheries
DG REGIO	Directorate-General for Regional and Urban Policy
DGRM	Directorate-General for Natural Resources, Safety and Maritime Services
DIA	Environmental Impact Declaration
DLG	German Agricultural Society
DSF	Documents Stratégiques de Façade

DVFA	Danish Veterinary and Food Administration
EAA	ecosystem approach to aquaculture
EAFP	European Association of Fish Pathologists
EAFRD	European Agricultural Fund for Rural Development
EATIP	European Aquaculture Technology and Innovation Platform
EBIT	Earnings Before Interest and Taxes
EC	European Commission
ECA	European Court of Auditors
EER	Electronic Environmental Register
EFAS	European Fisheries and Aquaculture Statistics
EFSI	European Fund for Strategic Investments
EIA	Environmental Impact Assessment
EIC	European Innovation Council
EIF	European Investment Fund
EIFAAC	European Inland Fisheries and Aquaculture Advisory Commission of the FAO
EMFAF	European Maritime, Fisheries and Aquaculture Fund
EMFF	European Maritime and Fisheries Fund
EPR	extended producer responsibility
ERDF	European Regional Development Fund
ETA	Environmental Terms Approvals
EU	European Union
EUMAP	EU Multi-annual programme
EUMOFA	European Union Market Observatory for Fisheries and Aquaculture Products
EUR	Euro (€)
EURCAW-Aqua	EU Reference Centre for the welfare of aquatic animals
EWG	Expert Working Group
FAMENET	Fisheries and Aquaculture Monitoring, Evaluation and Local Support Network
FAO	Food and Agriculture Organisation
FAQ	Frequently Asked Questions
FEAMPA	European Maritime, Fisheries, and Aquaculture Fund
FEAP	Federation of European Aquaculture Producers
FEI	Future Expectation Index
FEPAM	Fundação Estadual de Proteção Ambiental
FLAG	Fisheries Local Action Group
FMAP	Federation of Maltese Aquaculture Producers
FORMAR	Centro de Formação das Pescas e do Mar

FTE	full time equivalent
GDS	sanitary defence groups
GFCM	General Fisheries Commission for the Mediterranean and the Black Sea
GHG	greenhouse gas
GIS	geographical information system
GSA	Guidelines to Sustainable Aquaculture (FAO)
GVA	Gross Value Added
HAPO	Hellenic Aquaculture Producers Organisation
HORECA	hotel / restaurant / catering
HRZZ	Croatian Science Foundation
ICPE	Installations Classées pour la Protection de l'Environnement
IFA	Irish Farmer's Association
IHN	infectious haematopoietic necrosis
IMTA	integrated multi-trophic aquaculture
IZS	Institutes of Experimental Zooprophyllactic
k	thousand
KTO	Knowledge Transfer Office
LCA	life cycle assessment
LDLA	Lieux de Développement de l'Aquaculture
LR	Label Rouge
mln	million
MAC	Market Advisory Council
MAP	Mediterranean Action Plan
MAPA	Ministerio de Agricultura, Pesca y Alimentación (Spain)
MASAF	Ministry of Agriculture, Food Sovereignty and Forests (Italy)
MFO	multi-farm operations
MNSP	Multi-Annual National Strategic Plans for Aquaculture
MOCAA	Modélisation de la Capacité d'Assimilation de l'environnement pour une Aquaculture durable
MOOC	Massive Open Online Course
MS	Member State
MSFD	Marine Strategy Framework Directive
MSP	Maritime Spatial Planning
NGO	non-governmental organisations
OECD	Organisation for Economic Co-operation and Development
OMC	Open Method of Coordination
OP	Operational programme

PANEMMI	Panhellenic Association of Small Medium Fish Farmers
PDO	protected designation of origin
PEF	product environmental footprint
PGI	Protected Geographical Indication (IGP in Italian, French and Spanish)
PMP	production and marketing plan
PNACC	National Climate Change Adaptation Plan (France)
PNACC*	National Adaptation Plan to Climate Change (Spain)
PO	Producer organisation
POEM	Maritime Spatial Plan (Planes de Ordenación del Espacio Marítimo)
PP	Poljoprivredno poduzeće
PRF	Port Reception Facilities
PSOEM	Plano de Situação do Ordenamento do Espaço Marítimo Nacional
PTEPA	Plataforma Tecnológica Española de la Pesca y la Acuicultura
PVA	Environmental Surveillance Plan
RAS	recirculating aquaculture systems
RBMP	River Basin Management Plan
ROI	Return on Investment
RRF	Recovery and Resilience Fund
SCAR	Standing Committee on Agriculture Research
SDS	Schémas de structures
SEA	strategic environmental assessment
SIQO	Signes Officiels de Qualité et d'Origine
SME	small and medium-sized enterprises
SO	Specific Objective
SPED	Strategic Plan for Environment and Development
SRDAM	Schéma régional de développement de l'aquaculture marine
SSF-A	Special Spatial Framework for Aquaculture
STECF	Scientific Technical and Economic Committee for Fisheries
SUP	single use plastic
SWD	Staff Working Document
t	tonnes
TAIEX	Technical Assistance and Information Exchange
TSG	traditional speciality guaranteed
UNE	Spanish Association for Standardisation
UP	Union Priority

VDFF	Verband Deutscher Fischereiverwaltungsbeamter und Fischereiwissenschaftler
VHS	viral haemorrhagic septicaemia
WFD	Water Framework Directive
WG	Working Groups
ZAPAC	Zonas de Alto Potencial para la Acuicultura
ZIA	Zonas de Interés para Acuicultura
ZICM	Zonas de Interés para Cultivos Marinos

Executive Summary

This mid-term assessment reviews the implementation of the *Strategic Guidelines for a more sustainable and competitive EU aquaculture (2021–2030)*. It examines both (i) progress in developing the recommended actions and (ii) the efficiency of these actions in achieving the objectives, while identifying areas where adaptation is needed.

Progress in Developing Recommended Actions

Following the publication of the strategic guidelines in 2021, the **European Commission** has taken substantial steps in supporting their implementation. The Commission has established the Aquaculture Assistance Mechanism (AAM) and launched a framework contract on scientific advice on aquaculture to support its efforts in implementing the guidelines. With the support of the AAM, they have set up an online knowledge base and have issued several documents aimed at providing concrete good practices on different aspects relevant to the sustainable growth of aquaculture. In particular, the Commission has published five Staff Working Documents addressing important obstacles to the sustainable growth of the sector, notably regulatory and administrative complexity and planning and access to space, as well as emerging challenges, such as climate change adaptation and energy transition. The Commission provides for these documents both online training and publicly available e-learning modules. The Commission has also launched the EU Algae Initiative (2022), aiming at increasing the sustainable production, safe consumption and innovative use of algae in the EU. The Commission has supported many projects related to aquaculture under different funding programmes, such as EMFF and EMFAF, Horizon Europe and Interreg. Innovative start-ups related to aquaculture have been supported by the BlueInvest platform. EMFAF funding has underpinned innovation and skills in the sector. Finally, the Commission has launched an EU-wide campaign on the benefits of EU aquaculture.

Overall, the Commission – both directly and indirectly e.g. via the AAM, – has been a key facilitator for Member States' authorities, industry and other relevant actors in realising the potential of the sector. The actions described above are important pre-cursors to enabling change. However, change on the ground requires determined action by the relevant actors, notably competent national authorities, to materialize.

At **Member State level**, Multiannual National Strategic Plans (MNSPs) have generally aligned with the Strategic Guidelines, as confirmed by the European Court of Auditors. Some progress has been recorded in the implementation of these MNSP, notably:

- **Spatial planning:** designation of zones suitable for marine aquaculture in several Member States, though with limited translation into new sites; freshwater aquaculture remains less integrated in spatial planning.
- **Legal and administrative reforms:** partial streamlining of licensing, but overall procedures remain complex and lengthy, mainly due to a lack of

institutional integration. The MS survey indicated that new licences have decreased overall, where applications fell from 1 071 (2016–2020) to 715 (2021–2023) (–33%). Renewals of existing licences increased overall, with applications rising from 451 (2016–2020) to 602 (2021–2023) (+33%). Combined (new + renewals) licensing applications rose from 1 017 (2016–2020) to 1 116 (2021–2023) (+9.7%).

- **Green transition:** more than half of MS have introduced measures to improve environmental performance, animal welfare and for the decarbonisation of the sector. However, the uptake of renewable energy and circular economy practices is still emerging.
- **Climate:** some MS have taken measures related to the adaptation of the sector to climate change (e.g. studies, guidance), but more structured plans are required.
- **Social acceptance:** several MS launched communication campaigns and/or disseminated the EU-wide communication campaign launched by the Commission. Several MS have also launched stakeholder involvement initiatives, and aquaculture tourism; traceability initiatives are expanding under the revised Control Regulation.
- **Knowledge & innovation:** MS have funded innovation and training programmes on aquaculture.

The AAC has provided active input to Commission's implementation work, notably the SWDs. They note the limitations inherent to an umbrella organisation across a geographically and institutionally diverse sector, requiring further clarity and direction as to who implements AAC recommendations and the role which the Commission, the Member States and the farmer associations play. The Commission has noted that the AAC had to play a greater role in disseminating among producers and other actors the knowledge and documents gathered as part of the implementation of the Strategic Guidelines (e.g. SWDs). The AAC has recently started this work of dissemination (with a webinar on the document on good husbandry practices) and plans to continue it in the years to come.

Efficiency of Actions in Achieving Objectives

Despite notable progress in terms of implementing actions, **overall impact on the ground remains modest**. Key findings include:

- **Growth & competitiveness:** According to the latest statistics (2023) and commentary (e.g. ECA, 2023), the stagnation of EU aquaculture has not been reversed yet. Productivity has declined in both labour and capital terms. Some diversification (macroalgae, crustaceans, RAS, IMTA, novel finfish species) is visible, but scale is limited.
- **Green transition:** Environmental and animal welfare measures are advancing as these become mainstreamed into sector planning and governance. In terms of uptake of low-trophic aquaculture, the bivalve sector is declining (~2% annually) due to climate and environmental

pressures. The uptake of renewable energy and low-impact practices remains patchy.

- **Social acceptance:** communication campaigns and traceability schemes are positive, but “social licence to operate” is still fragile, especially in multi-use coastal zones where tourism in particular is important, despite the introduction of maritime spatial planning.
- **Knowledge & innovation:** progress in training and innovation uptake is clear but has not translated yet into boosting sector's performance.

Funding by MS has been significant: ~€210 million in EMFAF commitments under shared management (2021-24), with emphasis on resilience/diversification (35%) and green transition (43%). However, there has been limited funding on animal health and welfare, and climate adaptation, two areas central to long-term resilience.

Overall conclusion

The policy direction for EU aquaculture has stayed pretty consistent since the initial set of 'Strategic Guidelines for the sustainable development of EU aquaculture' (April 2013), Art. 34 in the revised CFP (December 2013) and the revised 'Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030' (May 2021).

These revised Strategic Guidelines have provided a clear and updated framework and mobilised substantial EU and national action. However, **progress is uneven, and efficiency limited by persistent structural and other barriers**, notably access to space and water, licensing complexity, social acceptance, and slow uptake of innovation. Given that most MS adopted their MNSP over 2022-2023 and the recent adoption of several initiatives, it is difficult to assess their potential for bringing change to the sector at this stage.

To meet 2030 objectives, actions must be adapted to:

- accelerate the streamlining of licensing procedures and local-scale spatial planning that dedicates space to aquaculture,
- Adopt strategies for the sector to adapt to climate change impact, including the necessary funding of actions,
- increase funding on animal health and welfare,
- scale up the adoption of renewable energy and of circular economy practices, and
- strengthen dissemination and uptake of Commission/AAM documents on good practices among other relevant Member State authorities (including at regional and local level) and aquaculture producers.

Without addressing these systemic obstacles, the sector risks continued stagnation despite generally strong policy support. It is also noted that despite the consistent policy direction mentioned above, many of the original fundamental issues - such as the administrative complexity in licensing as well as the allocation of space to aquaculture – continue to inhibit growth.

1. Background and Introduction

1.1. Background

Aquaculture is a shared European Union (EU) competence. However, the competence on aquaculture is largely exercised by the EU Member States (MS). Whilst only few pieces of EU legislation are directly focused on the management of EU aquaculture, there is a wide range of regulations related to food safety, animal health, organic production, markets, introduction of alien and locally absent species, among others.

The sustainable development of aquaculture in the EU is supported through the **Common Fisheries Policy** (CFP) since 2013.

The CFP Regulation established the objective of the sustainable development of EU aquaculture and a method of strategic policy coordination to reach this objective (Article 34). This method is based on: (1) *strategic guidelines* adopted by the European Commission; (2) the adoption by EU Member States of *Multi-Annual National Strategic Plans for Aquaculture* (MNSP) for aquaculture on the basis of those strategic guidelines; and (3) the *exchange among EU Member States of good practices* on the implementation of their MNSP, facilitated by the European Commission. Moreover, support for aquaculture by MS under the EMFF (now EMFAF) must be in line with their respective MNSP.

The 2021 strategic guidelines were the result of more than one year of close consultations with EU Member States experts and the Aquaculture Advisory Council. They also take into consideration the results of a public consultation on the challenges and opportunities of EU aquaculture. These guidelines aim at offering a shared vision for the further development of aquaculture in the EU in a way that contributes to the EU green growth strategy as defined in the European Green Deal. They set four horizontal objectives:

1. Building resilience and competitiveness
2. Participating in the green transition
3. Ensuring social acceptance and information to the consumer
4. Increasing knowledge and innovation.

In order to achieve each of these objectives, the strategic guidelines identify a number of areas where further work is required. For each of those areas, they provide some general recommendations. The annex to the strategic guidelines also defines specific actions under each of these areas for three actors: the Commission, EU Member States and the Aquaculture Advisory Council (AAC).

The assessment contained in this document is organised around each of the four strategic objectives described above and each of the different areas for work defined under each of these objectives. For each of these areas, the recommendations and actions defined in the strategic guidelines are taken into consideration.

Overleaf, there is a non-exhaustive **summary of recommendations under each area of work of the strategic guidelines**.

Strategic Objective 1: Building resilience and competitiveness

Access to space and water: *The guidelines acknowledge that providing access to space and water to aquaculture continues to be a key area to work.*

Key recommendations: coordinated spatial planning and designation of areas suitable for aquaculture based on clear and transparent criteria, considering the conditions required by each type of aquaculture and area, and with the involvement of stakeholders.

Regulatory and administrative framework: *The guidelines note that there is still room for improvement in terms of making regulations on aquaculture clearer and decreasing unnecessary burden in licensing and other relevant procedures for the development of aquaculture activities.*

Key recommendations: streamlining legislation and regulation on aquaculture, ensuring coordination of different relevant authorities and involvement of stakeholders, facilitating the licensing process by setting up a one-stop shop system, or providing for longer-term licensing with regular monitoring and sanctions for non-compliance.

Animal and public health: *The guidelines note that disease continues to be a challenge for aquaculture.*

Key recommendations: more work on early detection, prevention and control of diseases, good husbandry practices tailored to different species, and filling research gaps.

Climate change: *The guidelines acknowledge that climate change and its impact is already a reality for the aquaculture sector. They also note that some types of aquaculture can contribute to the mitigation of the impact of climate change.*

Key recommendations: the adoption of sectoral climate adaptation plans for aquaculture, reduction of energy consumption and carbon emissions, and the promotion of aquaculture which can provide climate impact mitigation services (e.g. preservation of ecosystems such as wetlands or ponds that mitigate impact of coastal erosion or floods).

Producer and market organisations: *The strategic guidelines recognise the importance of producer and market organisations as a very useful tool for collective action and to integrate actors across the value chain but note that they are not sufficiently exploited.*

Key recommendations: continue supporting the sector to establish recognised Producer Organisations and inter-branch organisations.

Control: *The strategic guidelines note the importance of adequate traceability of aquaculture products in the EU market to ensure the competitiveness of the EU aquaculture sector, and more particularly a fair competition in the market with other products.*

Key recommendations: The strategic guidelines refer to the proposal to review the EU Fisheries Control Regulation, extending the traceability obligation to all aquaculture products.

Diversification and adding value: *The strategic guidelines note that EU aquaculture remains highly concentrated not only in terms of Member States (4 MS are responsible for close to 70% of EU aquaculture production), but also in terms of species farmed and production methods. It also notes the need to work on new value-added products from aquaculture.*

Key recommendations: to support further diversification, notably to low-impact species and production methods, to develop innovative ready-to-use products that are more attractive to younger generations of consumers, and to use different tools, such as quality labels or geographical indications and promoting “local” to “differentiate” EU aquaculture products from their competitors.

Strategic Objective 2: Participating in the green transition

Environmental performance: *While recognising that different pieces of EU and national legislation establish the conditions for aquaculture activities to take place without any significant harm to ecosystems or biodiversity, the strategic guidelines note that there is still margin for increasing the environmental performance of aquaculture in the EU and thereby ensure that it participates in the green transition. These guidelines note that the increase in the environmental performance of EU aquaculture can be achieved by: (i) ensuring that environmental legislation is applied and its objectives are met; (ii) further mitigating the impact of aquaculture; and (iii) promoting aquaculture with lower environmental impact and aquaculture that provides ecosystem services.*

Key recommendations: implement good practices on a number of areas listed in the strategic guidelines, including, among others, sustainable feed, use of veterinary products and other substances, environmental monitoring, management practices including risk strategies to mitigate impact, marine litter, waste management, circular economy approach, aquaculture systems with lower environmental impact and offering environmental services, or genetic resources; promote organic aquaculture and low-impact aquaculture, as well as aquaculture offering environmental services.

Animal welfare: *A better performance in terms of **animal welfare** of EU aquaculture is also considered part of the contribution of this activity to the green transition. The strategic guidelines acknowledge that further work and research is necessary in this area.*

Key recommendations: the development of good practices on fish welfare and fish welfare indicators, the development of the necessary knowledge and skills among producers, and filling gaps in research and innovation.

Strategic Objective 3: Ensuring social acceptance and information to the consumer

Communicating on EU aquaculture: *The strategic guidelines stress the importance for the growth of aquaculture in the EU of communicating to EU citizens and consumers on the conditions that EU aquaculture must respect to ensure its sustainability, as well as on its benefits.*

Key recommendations: Use of a mix of different tools, including: labelling, information campaigns about the EU aquaculture sector, clarifying the scientific basis of the debate on the impacts of aquaculture activities in the EU, further opening the sector to the public, ensuring close and early engagement of authorities and industry with stakeholders' groups, use of branding and quality labels; and promoting the value of EU aquaculture as 'local and fresh' with short food circuits.

Integration of aquaculture activities in local communities: *The strategic guidelines emphasise the need to ensure social acceptance of aquaculture activities to expand (so called "social license to operate").*

Key recommendations: ensuring transparency and the early involvement of relevant local stakeholders in aquaculture development plans, seeking synergies between aquaculture and other existing economic activities, and creating local value chains.

Data and monitoring: *The strategic guidelines consider data and monitoring not only a necessary tool to assess the performance of the sector, but also to keep the trust of the citizen and the consumer in the benefits of this activity.*

Key recommendations: to streamline and better coordinate the different reporting obligations under EU legislation, and to extend their scope beyond socio-economic aspects (covering also environmental indicators) and marine aquaculture.

Strategic Objective 4: Increasing knowledge and innovation

The strategic guidelines note that this objective is critical for increasing the competitiveness, resilience and sustainability of EU aquaculture. However, knowledge and innovation must match the needs of the aquaculture producers and be applied in the sector

Key recommendations: cooperation among public authorities, industry, and research and academia, ensuring synergies between different research and innovation programmes, ensuring the dissemination of knowledge and innovation, promoting investment on innovation in aquaculture, and skills development for producers.

1.2. Objective of this mid-term assessment

The 2021 Strategic Guidelines envisage a mid-term assessment of their implementation. According to these guidelines: *“The Commission will undertake, not later than four years after the publication of this Communication, an assessment of: (i) the progress made in developing the recommended actions in the annex; and (ii) the efficiency of these actions in helping achieve the objectives laid down in these new Strategic Guidelines, with the possibility of adapting actions accordingly”*.

This mid-term assessment will also inform the evaluation of the CFP. In particular, this report will contribute to the evaluation of the provisions of the CFP Regulation on aquaculture, notably Article 34.

According to the European Ocean Pact ⁽¹⁾, the Commission will propose “(t)he establishment of an EU Initiative on Sustainable Aquaculture, involving Member States’ authorities, representatives of the sector, other interest groups, research and innovation institutions, business accelerators, and financial institutions. It will enhance cooperation through setting targets and defining actions, including the development of projects aimed at multi-use of maritime space. This report could also inform the work in the context of this future initiative.

1.3. Scope and structure

This document aims to assess the implementation of the strategic guidelines adopted by the Commission in 2021, which replace the strategic guidelines first adopted in 2013 following the entry into force of the current CFP Regulation.

This report, which has been prepared by the EU Aquaculture Assistance Mechanism, (AAM) assesses:

1. Progress in the implementation of the recommendations and actions laid down in the Strategic Guidelines by the Commission, EU Member States and the AAC.
2. Progress made by EU Member States in the implementation of actions included in their MNSP.
3. The financial support provided by the EU and EU Member States for the implementation of the Strategic Guidelines and national strategic plans.
4. How efficient implemented actions and financial support provided have been in helping to achieve the objectives of the Strategic Guidelines.

In the light of the results of this assessment, this report draws some conclusions and recommendations on the future implementation of the Strategic Guidelines. The assessment is largely structured around the four horizontal objectives of the Strategic Guidelines (hereafter Strategic Objective) and the various topics covered therein (see **Section 1.1** above).

(1) Communication from the Commission to the European Parliament, the Council, the European Economic and Social committee and the Committee of the Regions The European Ocean Pact adopted on 5.6.2025 (COM (2025) 281 final).

1.4. Methodology

This mid-term assessment was undertaken by the AAM with the assistance of the Commission, the AAC and Member States' aquaculture managing authorities. The key elements of the methodology are as follows:

1. **Survey of the Member State aquaculture managing authorities**, hereafter referred to as the 'MS survey'. Launched in July 2024, this comprehensive questionnaire (see **Annex I**) covered a wide array of subjects including:
 - a. Quantitative information on production and employment over (i) a baseline period of 2016 – 2020 and the 'post-guidelines' period of 2021 onwards (see **Section 2**).
 - b. A series of questions on: (i) the evolution of the aquaculture sector; (ii) progress indicators organised around each of the objectives and areas covered in the Strategic Guidelines; (iii) other actions implemented under the MNSPs; and (iv) other actions supported by EU or national funding.

26 MS responded (Luxembourg which has limited aquaculture, did not), with the last responses received in early February 2025. These were compiled into a database, and the MS responses assessed against the four Strategic Guidelines' objectives and topics covered. These responses are summarised in **Section 0** and provided in detail in **Annex II**. Please note the 'Yes / No' responses are provided in chart form in **Annex III**. As noted in the text below, the response to the qualitative data request was patchy, with (i) significant variations in detail between different MS and (ii) limited data provided for 2023 and beyond. This made the analysis of this data particularly challenging.

2. **Discussions and submissions from the Commission and the AAC**. Various meetings were held with the Directorate-General for Maritime Affairs and Fisheries (DG MARE) and the European Climate, Infrastructure and Environment Executive Agency (CINEA), as well as the AAC. Submissions of information on action related to the implementation of the recommendations and actions in the strategic guidelines were elicited from the Commission and the AAC.
3. **Assessment of operational and financial data on support to aquaculture under EMFF / EMFAF Operational Programmes and other EU funding**
INFOSYS data on EMFF & EMFAF were provided by the FAMENET Support Unit. CINEA provided information on funding provided through direct management under EMFF and EMFAF, under Horizon 2020 and Horizon Europe and Life 2027 programmes, and the Directorate-General for Regional and Urban Policy (DG REGIO) provided information on Interreg funding relevant to aquaculture. *Direct funding* via calls for proposals is examined separately in **Section 3.1** on the actions implemented by the Commission.
4. A **Stakeholders event** on the Mid-term assessment of the implementation of the 'Strategic Guidelines on EU aquaculture'. This was held on 25 March 2025, with the individual elements of the first draft of the assessment being presented to stakeholders and time allowed for their discussion. Following this, a **short**

survey was launched by the Commission to interested stakeholders to get further feedback on the draft. 21 responses (12 Member States and nine members of the Aquaculture Advisory Council) were received by the closing date of 16 May 2025 and integrated into the subsequent version of the assessment. Comments from the AAC itself were received on 30 May 2025 in a formal document providing 's recommendation on the draft report on the mid-term assessment of the Strategic Guidelines for EU Aquaculture and the Multiannual Strategic Plans (AAC, 2025).

5. The **second draft report** was **presented to the technical seminar of Member States' experts and the AAC** on 17 June 2025. Based on feedback from the event, as well as subsequent submissions from some Member States and the AAC, this **final report** was delivered to the Commission on 30 September 2025 and presented **to the technical seminar of Member States' experts and the AAC** on 7 October 2025. Following final editing it was published on the AAM website on 30 October 2025.

2. Evolution of the EU aquaculture sector

2.1. Production

2.1.1. Overview

With an annual production of almost 1,05 million tonnes (t) in 2023 (Eurostat), the EU is ranked the tenth biggest aquaculture producer in the world, with a value of EUR 4,8 billion. This is a decrease of -1,7% per annum from 2014 to 2023 in volume and an increase of 3,4% per annum in value, although much of this growth occurred in the 2015 – 2017 period (Eurostat, 2025). There is insufficient information to estimate the growth over the 2021 – 2024 period, with production and employment data only available up to 2022 (STECF, 2024).

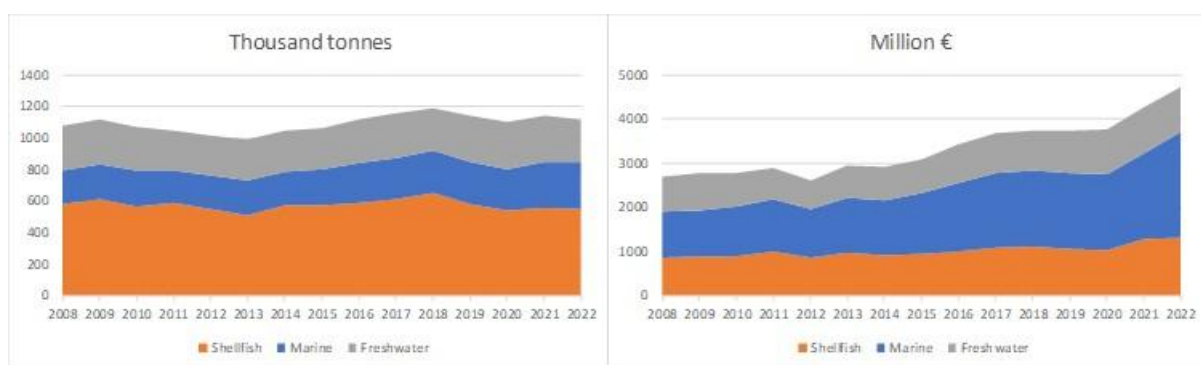


Figure 1: Aquaculture production in the EU (2008 – 2022)

Source: FAO data (2024), elaborated in STECF (2024)

EU aquaculture is based on relatively few species and is dominated by mussels (37% by volume) and trout (15%), see figure below. However, the production of bivalves has declined by 2% per annum over the past ten years (see figure overleaf). The recent increase in value is mainly due to the increased production in high value products such as trout, salmon, seabass and the ranching of blue fin tuna, combined with strengthening prices for key species such as seabream, oysters, clams and seaweed (EUMOFA, 2023).

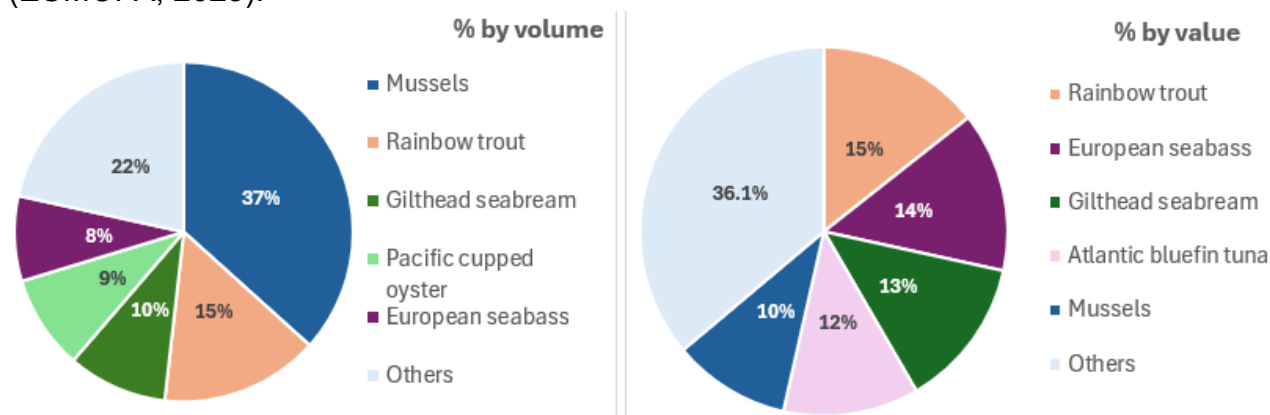


Figure 2: Main species produced in the EU-27 aquaculture (2022)

Source: FAO FishStatJ database (FAO, 2025)

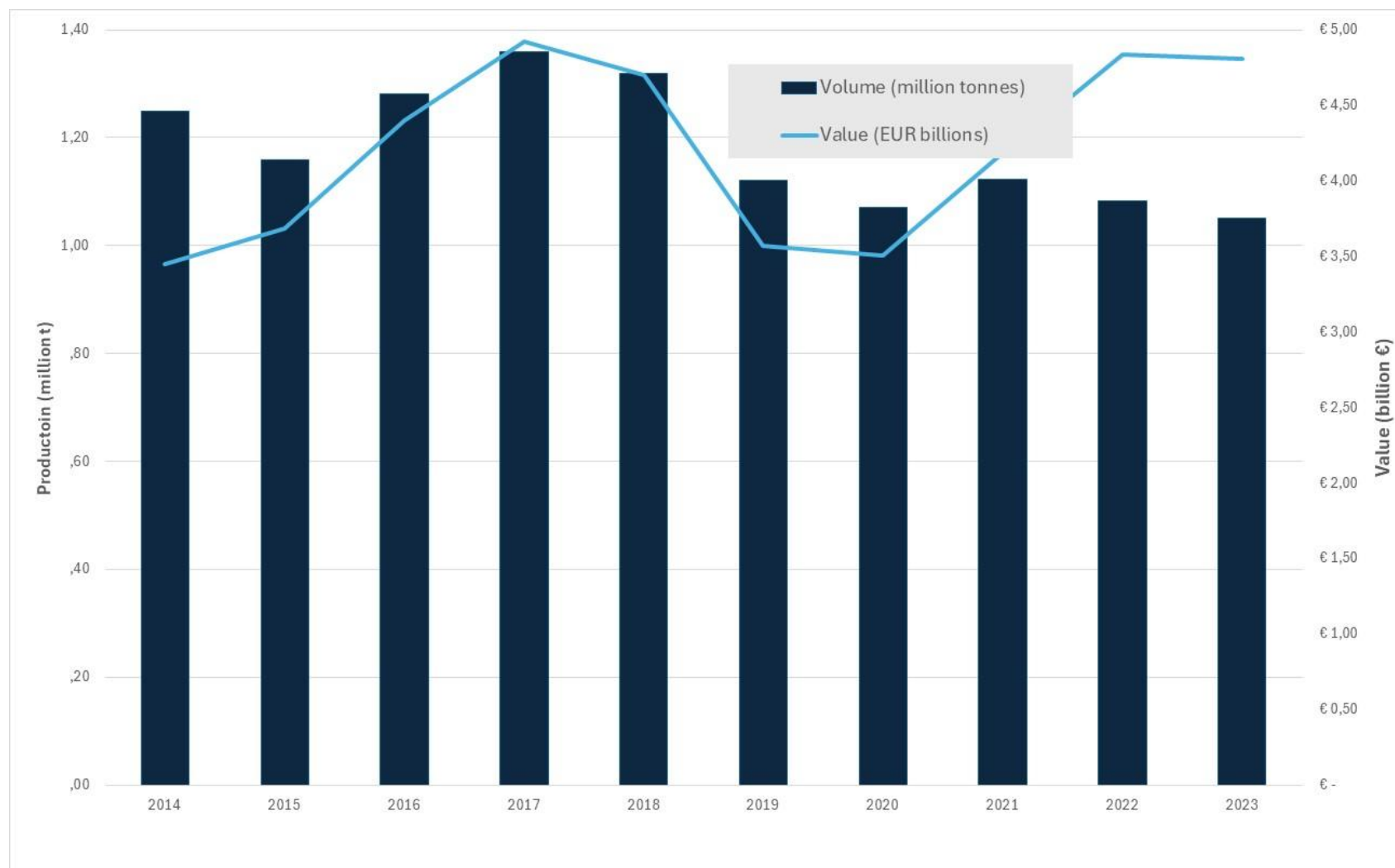


Figure 3: EU production by volume (million t and value (billion EUR (€)) per annum, 2014 - 2023

Source: Eurostat online data code: [fish_aq2a](#), downloaded September 2025.

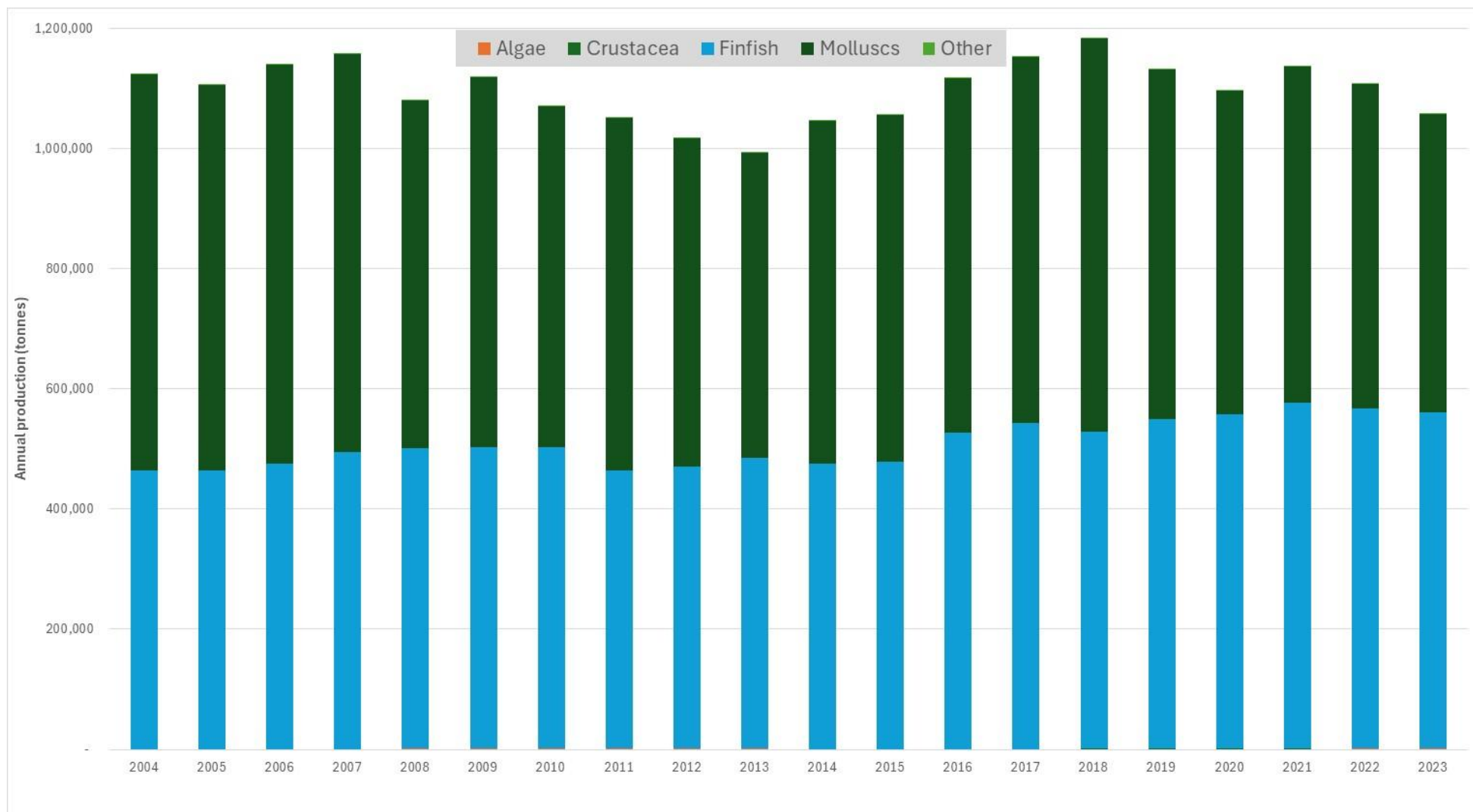


Figure 4: EU production by species type (t per annum, 2014 - 2023)

Source: FAO FishStat J (downloaded June 2025).

EU aquaculture production is mainly concentrated in four countries: Spain (23%), France (18%), Greece (13%) and Italy (12%). These four countries account for 67% of the total EU aquaculture production volume. The EU represents 0,86% of the world aquaculture production in volume and 1,6% in value.

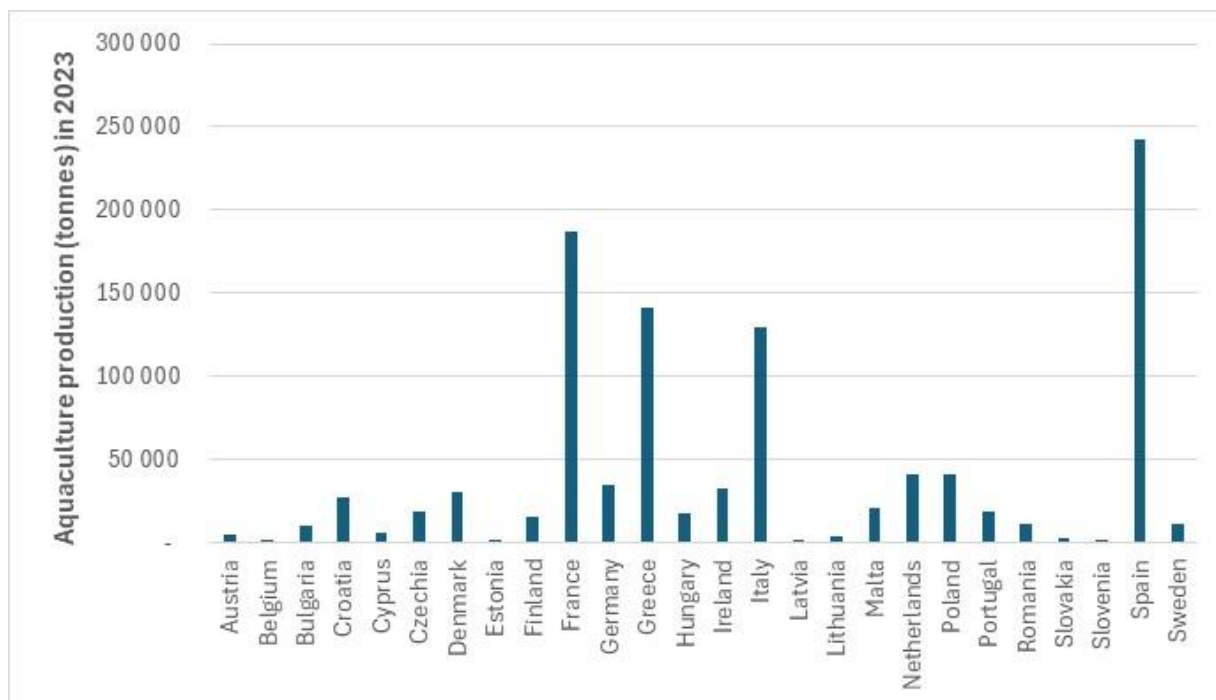


Figure 5: Aquaculture production (in t) by EU Member State in 2023

Source: Eurostat online data code: [fish_aq2a](#), downloaded September 2025

When examining the change in the average production volume between the baseline period (2016 – 2020) and the post-guidelines period to date (2021 – 2023), overall production has not materially changed (post-guidelines production is 99% of the average baseline figure, see **Table 1** overleaf).

However, looking at the figures for the individual species groups shows a different story. There has been a 290% growth in algal farming production, a relatively small (c. 0,1% of total EU production by weight) and novel farming sector and a 162% change in crustacean farming, again a minor (c. 0,1%) part of EU aquaculture production. However the most startling change is the reduction in mollusc production, which is now 89% of the 2016 – 2020 baseline value. In particular mussel (*Mytilus* spp.) production has declined to 88% of their baseline production volume due to a combination of climate change, pollution, water quality degradation, predation pressure and economic pressures (Avdelas *et al*, 2021).

In addition to the growth in algae and crustacea mentioned above, this loss in mollusc production has been partially compensated by a small rise in finfish production (105% of the 2016 - 2020 baseline period).

Table 1: Change in production from baseline years (2016 – 2020) and post-guidelines (2021 – 2023)

Species group / year	Baseline						Post-guidelines				Change from baseline
	2016	2017	2018	2019	2020	Avg	2021	2022	2023	Avg	
Algae	363	306	629	649	613	512	729	1 476	1 475	1 227	240%
Crustacea	373	354	422	425	513	418	637	706	684	676	162%
Finfish	525 866	542 615	527 772	548 128	556 195	540 115	576 610	564 916	558 615	566 714	105%
Molluscs	591 102	610 360	654 467	583 592	538 600	595 624	558 855	540 979	497 493	532 443	89%
Other	288	289	412	386	386	352	395	435	475	435	123%
Total	1 117 993	1 153 925	1 183 703	1 133 180	1 096 306	1 137 021	1 140 827	1 138 207	1 129 108	1 128 294	99%

Source: FAO FishStat J (downloaded June 2025).

2.1.2. *Detail*

In preparation for this mid-term assessment, the Commission, with the assistance of the AAM, sent a detailed questionnaire to each MS, asking for aquaculture production (volume and value) statistics for a baseline period (2016 – 2020) and a 'post-guidelines' period between 2021 and 2023. The 26 responses were highly variable, both in terms of detail and coverage (some included 2023 data (n=14), others not (n=12), see **Table 2**).

With only two full years of data (2021 & 2022), it is difficult to determine any trends in either production or value, especially as this period coincided with the height of the COVID pandemic. In terms of *production*, there seems to be a decline from the baseline (2016 – 2020) average of 1,05 million t to 0,96 million t in 2016, an decline of around 5% per annum over the three years 2021 – 2023. However, as noted above, data reported for 2021 and 2022 coincide with the pandemic. Therefore, it is difficult to measure how much of that decrease is attributed to the impact of the pandemic or other factors.

In terms of value the results are more encouraging, increasing from an average of EUR 3,3 billion over the 2016 - 2020 baseline to EUR 4,6 billion in 2022, which is an annual increase of around 7.5% over 2021 – 2023, although these nominal figures have not been adjusted for inflation.

Table 2: Baseline (2016 – 2020) and post-guidelines (2021-2023) aquaculture production and value

Member State	Baseline (2016 - 2020)		Post introduction of the 2021 Strategic Guidelines (2021 - 2023)					
	Average annual production (t)	Average annual value (EUR million)	2021		2022		2023	
			Production (t)	Value (EUR million)	Production (t)	Value (EUR million)	Production (t)	Value (EUR million)
Austria	4 042	26	4 920	35	4 719	38	5 170	44
Belgium	105	1	223	1	243	1		
Bulgaria	13 529	3	12 972	35	9 005	30	9 928	40
Croatia	19 257	583	27 920	167	27	177	26 824	203
Cyprus	7 335	38	7 862	45	7 594	47	5 699	39
Czechia	21		20		19			
Denmark	39 324	127	40 689	128	37 923	137	33 370	129
Estonia	957	3	849	4	801	4		
Finland	4 735	71	14 399	73	1, 281	101	15 169	93
France	196 757	99	153 934	604	146 529	608		
Germany	35 539	120	32 586	148	26 498	148		
Greece	129 937	498	144 830	724	142 052	925	151 502	873
Hungary	17 702	35	27 503	40	27 478	55	25 337	62
Ireland	37 977	162	39 384	164	39 963	159		
Italy	141 098	447	140 032	549	130 272	555		
Latvia	745	2	902	3	870	3	784	3
Lithuania	4 121	12	5 135	16	4 858	21	4 257	19
Malta	16 464	192	16 410	210	18 050	320		
Netherlands		59		74		57		
Poland	38 564	84	39 609	124	42 201	146	40 666	174
Portugal	12 421	92	17 561	158	18 688	169		
Romania	12 536	33	11 714	46	11 211	49		
Slovak Republic	2 019	4	2 539	6	2 974	8	3 002	8
Slovenia	1 860	5	1 692	6	1 453	5	1 139	6
Spain	300 527	598	276 914	652	272 985	808		
Sweden	14 343	53	16 197	64	12 743	70	12 608	55
TOTAL	1 051 914	3 347	1 042 652	4 074	959 156	4 641	Insufficient data	

Source: MS survey.

2.2. Employment

2.2.1. Overview

From an employment perspective, the social importance of the aquaculture sector is not always reflected in the contribution to the total EU aquaculture production. Thus, shellfish (mainly bivalve molluscs) production employs more labour compared to the marine finfish and freshwater production. The shellfish sector mainly consists of small family-owned businesses and has a large social importance for some regions in the EU. The total number of enterprises in the EU aquaculture sector is around 13 855, taking into account the EU countries not reporting data. This number has fluctuated around 14 000, within a range of a few hundred enterprises, since 2008, and it is decreasing (STECF, 2025).

Taking into account the estimates for the Member States not reporting data, the EU 27 aquaculture sector directly employed around 72 798 persons in 2022.

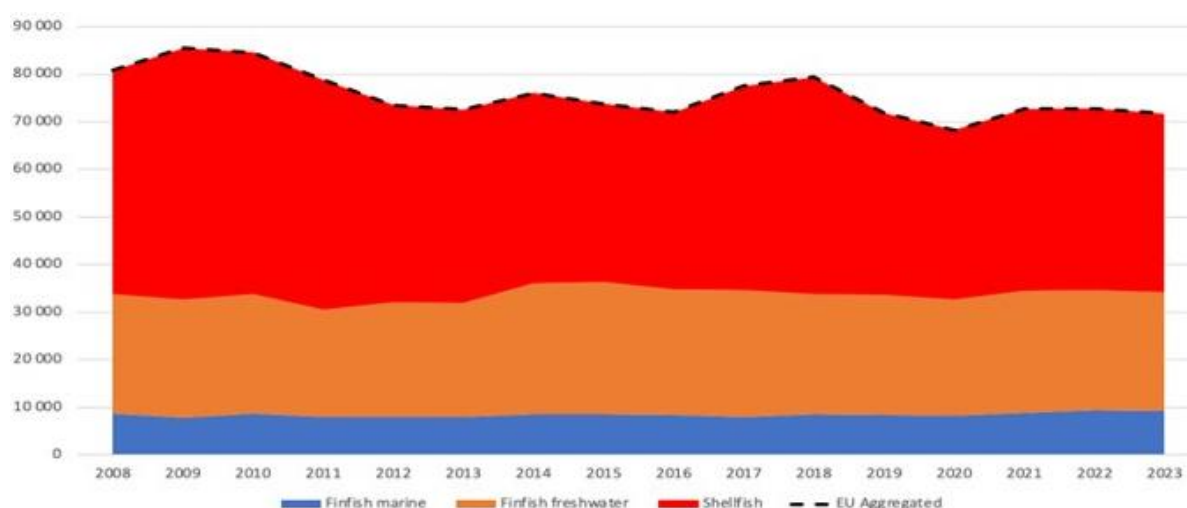


Figure 6: Numbers of employees in the MS aquaculture sector: 2008-2022

Source: EU MS data submission (DCF, EUMAP), Eurostat, FAO and EWG estimations 2024 (STECF, 2025).

The shellfish sector employs 52% of the employees in the sector, freshwater finfish production employs 35% and marine finfish production 13% of the persons employed in the EU aquaculture. The most recent STECF 'nowcast' estimate for 2023 indicates a decrease of approximately 1% to 71 756 employees. Looking at the full-time equivalents (FTEs) of the data collected under EUMAP, there has been an increase of 9% from the 33 452 FTEs reported in 2021 to the 36 847 FTEs reported in 2022.

2.2.2. Detail

The MS survey also asked for data on employment, but the responses were highly variable in terms of detail and coverage and not comparable. The OECD data in **Table 3** shows the 2016 – 2020 baseline and the latest 2021 data on employment. This suggests a small (1,8%) decline in total employment from the baseline to 2021, which is similar to the Nowcast in the STECF 2024 economic report (STECF, 2025).

Table 3: Baseline (2016 – 2020) and post-guidelines (2021) aquaculture employment in EU aquaculture

Member State	Baseline (2016 - 2020) average			Post introduction of the 2021 Strategic Guidelines (2021)								
				Total			Full Time			Part Time		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Austria	2 405	256	78	2 526			526			400		
Belgium	143	110	33	143	110	33						
Czechia	1 479	1 243	236	1 401	1 178	223	1 401	1 178	223	1 839		
Denmark	494	436	58	492	422	70	418	363	55	74	59	15
Estonia	100	65	35	95	61	34	95	61	34			
Finland	1 042	844	198	828	670	158	388	314	74	440	356	84
France	18 662	13 294	5 904	21 692	14 217	7 475	9 847	7 525	2 322	1 401	830	571
Germany	4 639	1 258	776	4 360	1 342	785	3 506	889	384	854	453	401
Greece	4 278			3 871			3 444			427		
Hungary	2 423	1 973	347	2 208	1 753	340	1 269	1 068	201	193	147	46
Ireland	1 929	1 762	162	1 943	1 756	187	782	721	61	439	374	65
Italy	6 156	2 086	225	6 766	1 976	175	5 538	883	40	1 228	1 093	135
Latvia				307	208	99	101	78	23	150	91	59
Lithuania	441	338	103	423	319	104	387	300	87	35	18	17
Malta	370			395			365			30		
Netherlands	239			226								
Poland	6 234			6 405			4 566			1 839		
Portugal	1 969	1 562	407	2 150	1 727	423						
Slovak	831	745	86	934	844	90	127	112	15	11	10	1
Slovenia	198			187			101			86		
Spain	16 032	11 929	4 103	11 364	8 351	3 013	10 419	7 735	2 684	945	616	329
Sweden	445	350	95	531	405	126						
Total	70 509	38 251	12 846	69 247	35 339	13 335	41 879	20 049	6 203	10 391	4 047	1 723

Source: OECD [Data Explorer](#).

2.3. Evaluating the economic sustainability of the EU aquaculture sector

This section of the mid-term assessment is taken directly from the 2024 STECF Economic Report on EU Aquaculture (STECF 24-14) (STECF, 2025). Data included in this section only include DCF EUMAP data from 2017 to 2022. If countries have not provided data for all years for the calculation of the economic indicators, they are excluded from the dataset, in order to get the most coherent comparison of the indicators over time.

Between 2017 and 2022, the EU aquaculture industry shows a generally positive trend in Gross Value Added (GVA) and Earnings Before Interest and Taxes (EBIT), with GVA increasing by 10%, however EBIT declined by 3%. The GVA and EBIT are especially making a strong recovery in 2021 and 2022, suggesting resilience and growth potential within the industry, contributing positively to its economic sustainability.

The decline in Return on Investment (ROI), falling by from 10% in 2017 to 8% in 2022, could raise concerns about the profitability. However, ROI is quite stable over the years, signalling a robust industry where the revenue and earnings are growing, and the return relative to invested capital is stable. Additionally, while the Future Expectation Index (FEI) has decreased by 4%, nevertheless it is almost at the same level from 2017 to 2022. The negative sign on most of the indicators could reflect a cautious outlook among industry players, potentially influenced by market uncertainties or increased operational costs.

Productivity indicators also present challenges. Labour productivity decreased by 8%, and capital productivity declined by 12%, indicating a reduced efficiency in generating output from both labour and capital. This reduction in productivity could affect long-term sustainability if not addressed, as it implies a need for either increased investments in technology and workforce skills or more efficient capital allocation.

While the EU aquaculture industry shows growth in GVA, declines in EBIT, ROI, FEI, and productivity metrics suggest that improvements in efficiency and investment strategy may be necessary to ensure sustainable economic performance in the long run. Addressing these challenges could strengthen the industry's long-term stability and profitability (**Table 4**).

Table 4: Sustainable economic indicators of EU total aquaculture: 2017-2022

Total aquaculture	2017	2018	2019	2020	2021	2022	2017-22
GVA (EUR million)	1 487	1 431	1 411	1 414	1 589	1 633	10%
EBIT (EUR million)	538	423	364	428	556	522	-3%
ROI (%)	10%	7%	6%	7%	8%	8%	-22%
FEI (%)	3%	4%	2%	2%	3%	3%	-4%
Labour productivity (EUR '000)	52	51	47	50	51	48	-8%
Capital productivity (%)	27%	25%	22%	22%	23%	24%	-12%

*Excluded due to partly missing data: Poland, Hungary, and Czechia.

Source: Own elaboration from EU Member States DCF data submission.

3. Progress on the implementation of the Strategic Guidelines

3.1. The European Commission

The European Commission started the implementation of the Strategic Guidelines immediately after the adoption of the Commission Communication ⁽²⁾, with a **stakeholders'** event organised on 27 May 2021 on EU aquaculture and the development and publication of a **user-friendly brochure** ⁽³⁾ on this topic in all official languages in December 2021.

The Directorate-General for Maritime Affairs and Fisheries (DG MARE) established an **inter-service group on EU aquaculture policy** in 2021, including all Commission services and agencies dealing with matters related to the implementation of the Strategic Guidelines.

The Commission has continued its **close cooperation with EU Member States experts on aquaculture** after the adoption of the Strategic Guidelines in the context of the Open Method of Coordination (OMC) ⁽⁴⁾. Consultation on the implementation of different actions has led to the organisation of two to three meetings of Member States' experts per year and dedicated thematic workshops.

In the context of its collaboration with the **AAC**, the Commission has held meetings to coordinate actions related to the implementation of the Strategic Guidelines. The AAC has also been closely consulted on the implementation actions of the European Commission, notably the preparation of documents building on the recommendations of the Strategic Guidelines on different areas (see **Section 3.2.6**). More recently, DG MARE has agreed to hold two annual meetings with the AAC Executive Committee, as well as to allow the participation of the AAC in the technical seminar of Member States' aquaculture experts to present its work once a year.

The European Commission set up the EU **Aquaculture Assistance Mechanism** (AAM) ⁽⁵⁾ in June 2022 to support the implementation of the Strategic Guidelines. This mechanism is funded under the part of the European Maritime Fisheries and Aquaculture Fund (EMFAF) managed directly by the Commission. The contract ended in June 2024, but a new contract has been signed in June 2024 until June 2026.

The main tasks of the AAM are the following:

- Developing and updating a **Knowledge Base**. This database contains up-to-date knowledge relevant to the sustainable development of aquaculture in the EU from a variety of reliable and recognised sources, including the results of EU-funded projects.

⁽²⁾ https://ec.europa.eu/eurostat/databrowser/view/FISH_AQ2A/default/table?lang=en

⁽³⁾ <https://op.europa.eu/en/publication-detail/-/publication/e8bd0eb1-093a-11ec-b5d3-01aa75ed71a1>

⁽⁴⁾ Art. 34 CFP

⁽⁵⁾ <https://aquaculture.ec.europa.eu/>

- Developing and maintaining an **EU aquaculture website**. The website is available from March 2023 and has been developed overtime. This website provides, among others, access to the knowledge base, a registered-users platform and a Q&A section. Registered users receive a newsletter with latest developments on aquaculture every 2 months.
- Providing **technical expertise** to the Commission to implement the actions recommended in the Strategic Guidelines, including developing **documents and training**.
- The AAM has also provided support to the Commission in the conduct of this mid-term assessment.

The Commission has provided advice to EU Member States during the preparation of their **MNSPs**. All Member States have adopted such plans, including, for the first time, Luxembourg. Moreover, the Commission has provided advice on, reviewed and approved Member States' support to aquaculture under their programmes for the European Maritime Fisheries and Aquaculture Fund (**EMFAF 2021-2027**).

In 2023, the Commission established a **Framework contract on scientific advice on aquaculture** to support the implementation of the Strategic Guidelines and EU legislation with scientific information. The Commission has launched three studies under this contract.

The Commission has adopted **five Staff Working Documents (SWD)** which have been prepared with the support of the AAM. These documents aim at supporting competent authorities in EU Member States and the aquaculture sector to implement the Strategic Guidelines. They are published in the EU aquaculture website section on "Key documents" ⁽⁶⁾. They have been prepared in full consultation with EU Member States experts and the AAC, as well as other actors bilaterally and in the context of dedicated workshops. These documents also take into consideration the results of EU-funded research and innovation projects.

For the two first SWD, published in April 2024, the AAM has delivered **online training** to authorities in Member States and developed publicly available e-learning modules. The Commission has also delivered the first session of online training on the SWD on adaptation to climate change in June 2025, with the second session planned for early 2026. The first online training on the document on "access to space and water for freshwater and land-based aquaculture" was held in October 2025 and a second training session is planned for March 2026. The online trainings on the SWD on "Energy Transition in the EU" are scheduled for November 2025 and early 2026. The e-learning module for the SWD on climate change adaptation has already been made available online ⁽⁷⁾ and the e-learning modules for the SWD on Energy Transition in the EU aquaculture sector and for the SWD on "access to space and water for freshwater and land-based aquaculture" are being finalised.

⁽⁶⁾ <https://aquaculture.ec.europa.eu/key-documents/regulatory-and-administrative-procedures>

⁽⁷⁾ [Implementing Strategic Guidelines: Climate-Change Adaptation in the EU Aquaculture Sector | EU Aquaculture Assistance Mechanism](#).

The Commission has also supported the implementation of the Strategic Guidelines with **funding** under **EMFAF** (totalling EUR 6 108 billion) directly managed by the Commission ⁽⁸⁾, but also under other funds and platforms such as **Horizon Europe**, **LIFE**, **BlueInvest**, or the **European Innovation Council (EIC)**.

Work is ongoing on the **evaluation of the Common Fisheries Policy (CFP) Regulation**, which covers all aspects for the Regulation, including its provisions on aquaculture. This evaluation is looking at its functioning and impact of the Regulation and providing answers to the five key evaluation criteria: efficiency, effectiveness, relevance, coherence and EU added value. A call for evidence took place in summer 2024 (87 responses), followed by an open public consultation in spring 2025 (362 responses). The Commission is now in the process of collecting the quantitative and qualitative data that will underpin the evaluation. The Commission aims to finalise and to present the results of the evaluation of the CFP Regulation in spring 2026.

The results of the evaluation will feed into the long-term **vision for a resilient, competitive and sustainable fisheries and aquaculture sector with a 2040 perspective**.

The **European Ocean Pact** adopted by the European Commission in June 2025⁶ recognises the importance of aquaculture to ensure food supply and food security in the EU. In particular, it proposes the following actions:

1. The establishment of an **EU initiative on Sustainable Aquaculture**, involving Member States' authorities, representatives of the sector, other interest groups, research and innovation institutions, business accelerators, and financial institutions. This initiative will enhance cooperation through setting targets and defining actions, including the development of projects aimed at multi-use of maritime space.
2. To **scale up European algae production**, including through the new Bioeconomy Strategy to be adopted by the end of 2025, the launch of a **Blue Bioeconomy Innovation initiative by 2027** and setting voluntary targets for the growth of algae production in the EU.
3. A dedicated policy initiative on addressing the issue of **Non-Indigenous Species (NIS)** threatening fisheries and aquaculture, including opportunities for making use of these species in cases where those species are too spread already.
4. A **guidance document on managing predators**, in the framework of the implementation of the Strategic Aquaculture Guidelines.
5. The evaluation of the **CMO Regulation** to assess the effectiveness of the current labelling rules, including the scope of the products covered, their origin, and the channels through which they are sold, such as supermarkets, fishmongers and restaurants.

⁽⁸⁾ A complete overview of projects directly funded through EMFF and EMFAF since May 2021 is included in Table 5 on page 41

6. An **EU-wide campaign in 2027** on the benefits and the value added of EU-produced and sustainable “**Aquatic food**”, and
7. Support to the **social dimension** of the fisheries and aquaculture sectors.

Progress has also been made in the context of **international and regional cooperation**. The EU was instrumental to the agreement on **FAO Guidelines for Sustainable Aquaculture** ⁽⁹⁾, adopted by the FAO Committee on Fisheries in July 2024. Furthermore, the EU is supporting the FAO to promote and raise awareness of these Guidelines globally with, *inter alia*, a series of workshops in the different FAO regions. In the context of **the United Nations Mediterranean Action Plan** (MAP), in December 2023, a Regional plan on aquaculture management was adopted in the framework of Article 15 of the Land-Based Sources and Activities Protocol of the Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution. This plan seeks to reduce pollution from aquaculture by establishing relevant regulatory and institutional frameworks, and several measures that contribute to sustainable aquaculture, reduction of plastics, and good environmental practices.

The international arena is increasingly recognising aquaculture for its potential to enhance food security and drive economic growth. This is reflected in **EU bilateral agreements and/or dialogues** where the sector has featured prominently, including with countries such as, the Faroe Islands, Iceland, India, and the United States. Furthermore, both **the G7 and G20** have highlighted aquaculture's strategic relevance. In addition, the EU has been an active supporter within the OECD of its new initiative to develop an “**Aquaculture Support Estimate**”, a tool designed to classify and characterise aquaculture support policies across OECD members.

The Commission has signed a contribution agreement between DG MARE and the European Inland Fisheries and Aquaculture Advisory Commission (EIFAAC) of the FAO on “*Developing Europe-wide management advice to protect vulnerable and endangered fish species from unsustainable predation by cormorants*”. This work will end in December 2025. The Commission has provided comments to the draft framework towards a Cormorant Management Plan (CMP) that EIFAAC prepared after widely consulting stakeholders.

In terms of development cooperation, the European Commission, through its Directorate-General for International Partnerships (DG INTPA), includes aquaculture actions within their regional Ocean programmes (e.g. West Africa Sustainable Ocean Programme). In addition, the European Commission has partnered with FAO to support selected aquaculture value chains in African, Caribbean, and Pacific countries through projects like Fish4ACP and the New Aquatic Food Value Chains (NAVAC) project, which builds on the lessons learned from Fish4ACP. The Commission also supports BlueInvest Africa, which connects entrepreneurs and investors to boost sustainable blue economy projects, including aquaculture.

⁽⁹⁾ <https://www.fao.org/guidelines-sustainable-aquaculture/en>

The General Fisheries Commission for the Mediterranean and the Black Sea (GFCM) adopted in 2021 a **GFCM 2030 Strategy** ⁽¹⁰⁾ which counts with the support of the EU. Target 3 of this Strategy ('Aquaculture - a sustainable and resilient sector growing to its full potential') defines concrete outcomes and actions in the development of the aquaculture sector in the region. The EU is participating in the work to implement this strategy through its participation in the GFCM Scientific Committee for Aquaculture (CAQ) and in the General Commission. In December 2024, the GFCM organised a high-level meeting to discuss and reflect about the past and future of aquaculture. The EU had a very active role in this conference.

Furthermore, enlargement offers a strategic opportunity to promote sustainable aquaculture development in candidate countries and reinforce regional cooperation under the GFCM. In this context, the EU organised a **Technical Assistance and Information Exchange (TAIEX)⁹ workshop** in June 2023 on sustainable aquaculture for Ukraine, Moldova and Georgia highlighting its crucial role in food security. The event gathered over 200 participants, including officials, academia, and private sector representatives, discussed strategies for a more sustainable and resilient aquaculture sector in the region. While the EU aquaculture acquis is **narrow but demanding**, none of the candidate countries currently meet its requirements. Nevertheless, half of them have already adopted a multiannual strategic plan for aquaculture, which provide a solid basis for further alignment.

Work on sustainable aquaculture has also progressed in the context of **sea basin and macro-regional strategies**. In the context of the Common Maritime Agenda for the Black Sea and the WestMed Initiative, technical groups on the topic have been activated to stimulate best practices and information sharing, as well as joint project support among country experts.

This document describes in more detail below the actions implemented by the Commission under each of the areas identified in the Strategic Guidelines.

3.1.1. Strategic Objective 1: Building resilience and competitiveness

3.1.1.1. Space and water

With the support of the AAM and the Maritime Spatial Planning Assistance Mechanism, the Commission prepared and published in April 2024 a **SWD on access to space and water for marine aquaculture** ⁽¹¹⁾. The AAM provided online training to competent authorities in EU Member States on 24 and 31 May 2024 and on the 3 and 10 June 2024. This Commission SWD provides guidance to authorities and policymakers in Member States for the allocation of marine space to aquaculture activities. An e-learning module of this document is available ⁽¹²⁾. With the support of the AAM, the Commission published a **SWD on access to space and water for**

⁽¹⁰⁾ <https://www.fao.org/gfcm/2030strategy/en/>

⁽¹¹⁾ <https://aquaculture.ec.europa.eu/key-documents/access-space>

⁽¹²⁾ <https://aquaculture.ec.europa.eu/key-documents/access-space/planning-space-and-access-water-marine-aquaculture>

freshwater aquaculture and land-based aquaculture in December 2024 ⁽¹³⁾. The first online training on this SWD took place in the second half of October 2025 and a second training is scheduled for March 2026. An e-learning module is being finalised.

3.1.1.2. Regulatory and administrative framework

With the support of the AAM, the Commission prepared and published in April 2024 a **SWD on the regulatory and administrative framework of EU aquaculture** ⁽¹⁴⁾. The AAM provided online training to competent authorities in EU Member States on the 12 and 19 April 2024 and on the 7 and 14 June 2024. This Commission SWD consolidates existing good practices on the regulatory framework and administrative procedures related to aquaculture and illustrates them with concrete examples from Member States and non-EU countries. An e-learning module of this document is available ⁽¹⁵⁾.

3.1.1.3. Animal health and public health

The AAM prepared and published on the EU aquaculture website a **document on good husbandry practices for aquaculture** ⁽¹⁶⁾. The scope of this document is being expanded with the addition of three more species-specific factsheets, notably on sole, turbot and meagre. The updated document will be published on the EU aquaculture website in November 2025. Whilst broadly welcomed, some NGO stakeholders consider these good husbandry practices lack legal weight and sufficient specificity.

The Commission has provided in the context of the **Better Training for Safer Food** (BTSF) initiative a long series of comprehensive **training** on the EU Animal Health Law (AHL), including on animal health rules relevant for aquatic and aquaculture animals. The training started in January 2021 and consisted in five 3-day remote seminars and one remote conference. ⁽¹⁷⁾ From the second part of 2021 a new series of workshops on the Animal Health Law started. Initially as remote 4-day training sessions followed by 4-day face-to-face training sessions from June 2022 until December 2024 with the physical presence of tutors and participants¹⁶. In that context four training sessions were dedicated entirely to animal health rules relevant for aquatic and aquaculture animals (1 remote session in January 2022 and three face-to-face sessions in September 2022, December 2023 and in January 2024).

⁽¹³⁾ <https://aquaculture.ec.europa.eu/key-documents/access-space-and-water-freshwater-and-land-based-aquaculture>

⁽¹⁴⁾ https://aquaculture.ec.europa.eu/system/files/2024-04/SWD_2024_Regulatory%20and%20administrative%20aquaculture.pdf

⁽¹⁵⁾ <https://aquaculture.ec.europa.eu/key-documents/regulatory-and-administrative-procedures/implementing-strategic-guidelines-eu-aquaculture-regulatory-and-administrative-framework>

⁽¹⁶⁾ <https://aquaculture.ec.europa.eu/key-documents/good-husbandry-practices>

⁽¹⁷⁾ https://food.ec.europa.eu/animals/animal-health/animal-health-law/btsf-training-events_en

The Commission has launched the **EU Partnership on animal health and welfare** under Horizon Europe in January 2024, which also covers projects on aquatic animal health. For example, there were projects on gaining knowledge on important infectious pathogens in rainbow trout and Atlantic salmon, mapping and characterization of pathogens in RAS, patho-biomes in gill and skin complex infections in Salmonidae, developing alternative therapeutic approaches against major aquaculture pathogens, assessing efficacy of novel compounds against diseases in rainbow trout, and advancing veterinary vaccine development in fish. Other projects will start in late 2025 and early 2026 on the following topics: (1) advancing diagnostic and vaccine-like solutions for Mediterranean aquaculture pathogens; (2) development of immunological tools to evaluate vaccine protection in key European farmed fish species; (3) microbiomes to ensure rainbow trout health and welfare, (4) Immunity stimulation by oral administration of encapsulated autologous vaccine against *Lactococcus garvieae* in sea bream and sea bass.

Under **Horizon Europe**, other projects on the health of aquatic animals were launched, such as Cure4Aqua, Ignition and NeoGiANT. Two of those projects relate to the reduction of the use of antibiotics. The project "NeoGiant", which started in September 2022 relates to grape-based products to reduce antibiotic use in farmed animals including aquaculture. The project "Cure4Aqua" started in September 2022 and will develop innovative bio-based alternatives for antibiotics.

3.1.1.4. Climate-change adaptation and mitigation

With the support of the AAM, the Commission prepared and published in December 2024 a **SWD on climate change adaptation of aquaculture**. A first session of online training was organised over 2-4 June 2025. A second session of the online training is planned for early 2026. An e-learning module is already available online.

Under the Framework contract for scientific advice on aquaculture, the Commission launched in January 2024 a study on the ***Assessment of ecosystem services of bivalve mollusc farming and fish farming in ponds and wetlands, and challenges and opportunities in promoting those benefits***. This study also covers climate-related benefits. The objective of the study is to identify and analyse scientific evidence on the nature and magnitude of the ecosystem services offered by these types of aquaculture. It assesses potential for growth of these types of aquaculture, identifies current challenges and develops recommendations to address them. It will also present opportunities to promote these types of aquaculture. The final report is currently being finalised.

Two **Horizon Europe** projects on minimising climate impact on aquaculture started in May 2025 (OCCAM¹⁸) and in July 2025 (ActFast¹⁹).

3.1.1.5. Producer and market organisation

There are currently 34 Professional Organisations in EU Member States that cover aquaculture producers ⁽¹⁸⁾. Seven of those POs were recognised after the publication of the Strategic Guidelines (one in Denmark and four in Italy). There are currently no transnational aquaculture producer organisations.

Two workshops on POs have been organised since the adoption of the Strategic Guidelines: one in April 2024 organised by the Spanish administration (MAPA), with the participation of the sector and DG MARE, with a focus on “cofradías”, and one organised by the Market Advisory Council (MAC) and the South West Waters Advisory Council on 28 January 2025 gathering POs (including aquaculture POs), national administrations and DG MARE. DG MARE continues to provide guidance to the sector on request (be it through the MAC or bilateral meetings).

The implementation report from the Commission on the Common Market Organisation for fisheries and aquaculture products (CMO) adopted in February 2023 did not find fundamental issues or gaps in the CMO Regulation. However, it pointed to some shortcomings and potential areas for improvement in the areas of consumer information and labelling, and rules for producer organisations (POs). A study on the CMO Regulation identifies possible avenues for the improvement of the provisions on professional organisations and their implementation ⁽¹⁹⁾. Its findings and recommendations will inform the ongoing evaluation of the CFP Regulation, including the provisions of the CMO Regulation.

3.1.1.6. Control

The Control Regulation has covered since 2009 fresh and frozen non-imported aquaculture products. In the revised Control Regulation that entered into force in January 2024, processed and imported aquaculture products are also covered for traceability. In the context of the implementation of the revised Control Regulation, a draft delegated act on traceability of fresh and frozen products (including aquaculture products and algae) is being discussed.

The Commission has launched on 5 May 2025, through CINEA, a study on traceability requirements and systems for prepared and preserved fishery and aquaculture products. The study will take 18 months and will provide the basis for identifying the minimum traceability requirements for lots of prepared and preserved fishery and aquaculture products and the adequate systems, including digital, to transmit that minimum traceability information within all the supply chain of fishery and aquaculture products. Its results should be available by November 2026, so that it could feed in the preparatory work to draft the delegated acts for traceability of prepared and preserved fishery and aquaculture products and of algae in due time for their implementation by

⁽¹⁸⁾ See list of professional organisations on https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets_en

⁽¹⁹⁾ [Common Market Organisation \(CMO\) provisions on professional organisations and consumer information - Publications Office of the EU](#)

10 January 2029. Some EU-funded projects address the traceability of aquaculture products, including Sea2See ⁽²⁰⁾ or THEROS ⁽²¹⁾.

3.1.1.7. Diversification and adding value

The **EU Algae Initiative** ⁽²²⁾ adopted by the Commission on 15 November 2022 established a strategic framework for the sustainable production, safe consumption and innovative use of algae in the EU. This initiative sets forth 23 targeted policy actions to foster a sustainable, regenerative, and innovative algae sector. These actions focus on expanding market opportunities, refining governance frameworks, raising awareness and promoting research, innovation, and data collection. The Commission established the European Algae Stakeholder platform (EU4Algae) ⁽²³⁾ to support the implementation of these actions. This multi-stakeholder platform aims at unlocking the immense potential of algae-based solutions. EU4Algae connects more than 1 200 registered members and has been instrumental in implementing many of the actions. An EU4Algae booklet summarizes main achievements, milestones delivered during the first contract 2022-2024 and outlines future directions²⁵.

According to the European Ocean Pact, the Commission will propose “to scale up European algae production, including through the new Bioeconomy Strategy to be adopted by the end of 2025, the launch of a Blue Bioeconomy Innovation initiative by 2027 and setting voluntary targets for the growth of algae production in the EU”. Implementation of these actions is under preparation.

The Commission has funded under **Horizon 2020 and Horizon Europe** several research and innovation projects on low trophic aquaculture which can contribute to diversification of aquaculture production towards lower-trophic species: AquaVitae ⁽²⁴⁾, NewTechAqua ⁽²⁵⁾, OLAMUR ⁽²⁶⁾, and ULTFARMS ⁽²⁷⁾. An The EMFAF-funded study on “Scaling-up EU cultivation of shellfish and algae” started in July 2024 and should be finalised before the end of 2025. The Commission has also funded several projects related to integrated multi-trophic aquaculture (IMTA): Astral ⁽²⁸⁾, IMPAQT ⁽²⁹⁾, BlueBoost ⁽³⁰⁾ and SeaMark ⁽³¹⁾.

⁽²⁰⁾ <https://sea2see.eu/>

⁽²¹⁾ <https://theros-project.eu/t>. This project includes a pilot in Spain on traceability of Galician mussels' production.

⁽²²⁾ https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6899

⁽²³⁾ https://maritime-forum.ec.europa.eu/theme/blue-economy-and-fisheries/blue-economy/eu4algae_en

⁽²⁴⁾ <https://aquavitaeproject.eu/>

⁽²⁵⁾ <https://www.newtechaqua.eu/>

⁽²⁶⁾ <https://olamur.eu/>

⁽²⁷⁾ <https://ultfarms.eu/>

⁽²⁸⁾ <https://www.astral-project.eu/>

⁽²⁹⁾ <https://cordis.europa.eu/project/id/774109>

⁽³⁰⁾ <https://www.blueboost.eu/>

⁽³¹⁾ <https://seamark.eu/>

Moreover, a call under Horizon Europe on diversification of aquaculture with special emphasis on low-trophic aquaculture was launched and offers are currently under evaluation ⁽³²⁾.

Regarding “**adding value**”, MUSSELPPO ⁽³³⁾ a project funded by the European Maritime and Fisheries Fund (EMFF) - addressed new technologies for mussel processing. The projects FunSea ⁽³⁴⁾ and BIOVAL ⁽³⁵⁾ recently started under the Horizon Europe Partnership on Sustainable Blue Economy.

Regarding geographical indications, since 2021 ten new PDOs / PGIs / TSGs covering aquaculture products were registered. Eight cover exclusively aquaculture products, while two cover processed products of different species which could be wild caught or farmed.

3.1.2. Strategic Objective 2: Participating in the Green Transition

3.1.2.1. Environmental performance

With the support of the AAM, the Commission is finalising a **document on environmental performance of aquaculture**. This document includes a description of EU legislation applicable to environmental aspects of aquaculture, good practices on the different topics identified in the Strategic Guidelines as requiring further work, and indicators of environmental performance.

The Commission requested to the Scientific, Technical and Economic Committee for Fisheries (STECF) two reports which contributed to the preparatory work on this. The report STECF 20-05 on *Criteria and indicators to incorporate sustainability aspects for seafood products in the marketing standards under the Common Market Organisation* ⁽³⁶⁾ provided an analysis of sustainability aspects for fishery and aquaculture products that could be addressed through marketing standards and proposed a methodology for measuring and communicating these sustainability aspects along the supply chain.

The Report STECF- 22-13 on *Review of proposed sustainability criteria / indicators for aquaculture* ⁽³⁷⁾ focused on aquaculture in order to elaborate further on (1) developing a globally usable categorisation of production system types according to the classification systems of the multiannual programme of the EU data collection framework and the FAO; (2) defining animal welfare criteria and indicators; (3) defining good practices in terms of governance and regulatory requirements to mitigate risks for each production type and criteria; and (4) integrating the elements defined in Tasks

⁽³²⁾ [Diversifying aquaculture production with emphasis on low-trophic species | EU Aquaculture Assistance Mechanism](#)

⁽³³⁾ <https://aquaculture.ec.europa.eu/knowledge-base/projects/demonstration-iot-40-mussel-processing-system-advanced-seafood-canning>

⁽³⁴⁾ [Functional processing of cultivated seaweeds for novel food products | Bluepartnership](#).

⁽³⁵⁾ [2nd call abstracts v02.pdf](#).

⁽³⁶⁾ <https://publications.jrc.ec.europa.eu/repository/handle/JRC124927>

⁽³⁷⁾ <https://publications.jrc.ec.europa.eu/repository/handle/JRC132139>

1 to 3 into a scoring system based on information on species, production system type and country of origin.

In relation to the recommendation to promote low trophic aquaculture and aquaculture offering environmental and climate services, under the new Framework contract for scientific advice on aquaculture, the Commission launched in January 2024 a study on the ***Assessment of the ecosystem services of bivalve mollusc farming and fish farming in ponds and wetlands, and challenges and opportunities in promoting those benefits*** (see above).

In September 2025, **FAMENET** (Fisheries and Aquaculture Monitoring, Evaluation and Local Support Network) produced a report on request of the Commission regarding the incentives that EU Member States provide to producers to engage in aquaculture activities which provide environmental and climate mitigation services.

The study on **"Scaling up cultivation of shellfish and algae"** funded under EMFAF was launched in July 2024 and will be finalised before the end of 2025. This study is a follow-up of the 2 following studies:

- The study **"Algae, shellfish and nutrients"** ⁽³⁸⁾, has assessed the potential of waters of EU Member States to farm more algae and shellfish based on the oceanographic conditions and nutrient availability. This study has delivered useful databases allowing growth to be calculated as a function of these parameters and digital maps showing the potential of waters of EU Member States for cultivation of different species of algae and shellfish. It attempted to consider the impact of uptake of nutrients in one place on nutrient concentrations elsewhere. Results were only considered preliminary and a more refined way of simulating the nutrient balance was needed ⁽³⁹⁾.
- The study **"Algae and climate"** ⁽⁴⁰⁾ focused on algae and provided complementary information – regarding the potential production costs and the extent to which the production could contribute to feed for farm animals.

The study has begun releasing initial modelling results, including maps and scenarios using Copernicus and EMODnet data to explore how much low-trophic aquaculture (shellfish and & algae) could be developed (e.g. in offshore wind farm areas), the nutrient impacts of such development, and potential socio-economic outcomes. A stakeholder workshop was held in June 2025 to present those early findings and gather feedback on improving forecasting, data gaps, and policy/application of regenerative ocean farming and algae innovation. Models developed under this work,

⁽³⁸⁾ https://maritime-forum.ec.europa.eu/contents/study-indicates-nutrient-availability-not-constraint-expanding-non-fed-aquaculture_en

⁽³⁹⁾ It did not consider areas where cultivation was prohibited or unfeasible because of local opposition or incompatibility with other uses of the sea. It did not consider limitations owing to contaminants or pollutants.

⁽⁴⁰⁾ <https://op.europa.eu/en/publication-detail/-/publication/0b532125-2241-11ee-94cb-01aa75ed71a1/language-en>

can be integrated into the European Digital Twin Ocean, making them available to more users and inviting others to improve or expand them.

Three projects aimed at promoting the reorientation of local blue economy actors towards **regenerative aquaculture** are ongoing:

- The Horizon Europe call on local-community business models and regenerative ocean farming with a budget of EUR 3 million resulted in two projects: COmmunity Ocean farms and Local Business cLUstErs (Cool Blue) ⁽⁴¹⁾ and Community-driven Farming for the Atlantic and Arctic sea basins through REgeneRative aquaculture (C-Faarer) ⁽⁴²⁾.
- The EMFAF Flagship for the Baltic Sea, with a budget of EUR 600 000 with the objective of reorientating fishers to ocean regeneration activities generated the project "COmmunity Ocean farms and Local Business cLUstErs in the BALTIC sea" (Cool Blue Baltic) ⁽⁴³⁾.

These three projects have created a collaborative Cool Blue Future website ⁽⁴⁴⁾ that, among other things, has elaborated a Manifesto of regenerative ocean farming ⁽⁴⁵⁾ featuring nine main advantages for planet and people from the activity and inviting stakeholders to join manifesto with a pledge ⁽⁴⁶⁾.

Within Euronews Ocean Series ⁽⁴⁷⁾, an episode was released in May 2024 about the potential and opportunities of reorienting fishers to regenerative ocean farmers.

Following the call for proposals under EMFAF for smart specialisation and regenerative ocean farming, launched in September 2024, four projects have started to create innovation hubs off the Mediterranean and Atlantic coasts, scale up sustainable algae farming and develop new algae products in Europe. The call focused on two key areas: 1) fostering Smart Specialisation Partnerships across EU sea basins; and 2) demonstrating the feasibility and environmental benefits of regenerative ocean farming. Three projects are mainly focusing on sustainable algae farming: ALT.A.HUB ⁽⁴⁸⁾, OCEAN GARDENS ⁽⁴⁹⁾, and SEAGROW ⁽⁵⁰⁾.

⁽⁴¹⁾ <https://coolbluefuture.org/>

⁽⁴²⁾ <https://www.c-faarer.eu/>

⁽⁴³⁾ <https://submariner-network.eu/cool-blue-baltic/>

⁽⁴⁴⁾ <https://coolbluefuture.org/>

⁽⁴⁵⁾ https://coolbluefuture.org/wp-content/uploads/2024/06/Manifest_EN.pdf

⁽⁴⁶⁾ <https://coolbluefuture.org/pledges/>

⁽⁴⁷⁾ <https://www.euronews.com/green/green-series/ocean>

⁽⁴⁸⁾ See [EU Funding & Tenders Portal](#). This project aims to address the main bottlenecks in the European value-chain of algae production. The assumption is that European land-based algae aquaculture can be accelerated by relying on specific hubs that offer shared infrastructure, equipment, services and knowledge about the regulatory framework.

⁽⁴⁹⁾ See [EU Funding & Tenders Portal](#). Using innovative floating structures, the project will demonstrate large-scale, environmentally responsible cultivation of native seaweed species.

⁽⁵⁰⁾ See [EU Funding & Tenders Portal](#). This project seeks to demonstrate how large-scale regenerative ocean farming can work as a viable business model delivering measurable ecosystem benefits.

Regarding the promotion of **organic aquaculture**, the Commission has taken several actions since 2021. In March 2021 the Commission adopted the “EU Organic action plan” that includes a specific section on organic aquaculture. As part of the implementation of this plan, the Commission published a working document on “Issues impacting the development of organic aquaculture” ⁽⁵¹⁾ was prepared in August 2023 and is published on the EU aquaculture website ⁽⁵²⁾.

The Commission requested to the EU Market Observatory for Fisheries and Aquaculture (EUMOFA) a study on "Organic aquaculture in the EU", which was published in May 2022 ⁽⁵³⁾.

Since 1 January 2022 Regulation (EU) 2018/848 ⁽⁵⁴⁾ of the European Parliament and of the Council of 30 May 2018 is applicable laying down the rules on organic production and labelling of organic products, including aquaculture products. Further detailed provisions on organic aquaculture are laid down by Commission Implementing Regulation (EU) 2020/464 ⁽⁵⁵⁾ and external inputs that may be used in organic production are listed in Regulation 2021/1165 ⁽⁵⁶⁾. With respect to aquaculture, there have been some relevant new entries regarding possible use of sodium nitrate and carbon dioxide in closed systems of algae production and the use of single cell proteins from *Trichoderma viride* and *Aspergillus oryzae*, products from *bacillus subtilis* rich in protein, as feed materials to be used in organic production. The Expert Group for Technical advice on Organic Production (EGTOP) is examining new feed materials to be used in organic aquaculture.

The organic document “frequently asked questions” was further updated, including questions on organic aquaculture ⁽⁵⁷⁾. The EU aquaculture website includes a dedicated page on organic aquaculture where you can find an infographic on organic aquaculture and the abovementioned working document ⁽⁵⁸⁾.

An important Horizon Europe project is ongoing: “OrganicTargets4EU” on “Transformation scenarios for boosting organic farming and organic aquaculture towards the Farm-to-Fork targets” ⁽⁵⁹⁾, and two new other Horizon Europe projects “on selective breeding for organic aquaculture have started in 2025: the project on selective breeding programmes for organic aquaculture “EUAqua.Org”⁵⁵ started on 1 January 2025, and the project SelectOrganic on selective breeding programs for boosting organic fish ⁽⁶⁰⁾ started on 1 September 2025.

⁽⁵¹⁾ [wd-issues-on-organic-aquaculture-082023_en.pdf](#).

⁽⁵²⁾ <https://aquaculture.ec.europa.eu/about/aquaculture-types>

⁽⁵³⁾ https://eumofa.eu/documents/20178/432372/Organic+aquaculture+in+the+EU_final+report_ONLINE.pdf

⁽⁵⁴⁾ <https://eur-lex.europa.eu/eli/reg/2018/848/oj/eng>

⁽⁵⁵⁾ https://eur-lex.europa.eu/eli/reg_impl/2020/464/oj/eng

⁽⁵⁶⁾ https://eur-lex.europa.eu/eli/reg_impl/2021/1165/oj/eng

⁽⁵⁷⁾ https://agriculture.ec.europa.eu/farming/organic-farming/organics-glance_en

⁽⁵⁸⁾ <https://aquaculture.ec.europa.eu/about/aquaculture-types#organic-aquaculture>

⁽⁵⁹⁾ <https://cordis.europa.eu/project/id/101060368/results>

⁽⁶⁰⁾ [Development of selective breeding programs for boosting organic fish farming in Europe - Nofima](#)

Regarding the **management or predators**, as mentioned above, the Commission has provided support to the European Inland Fisheries and Aquaculture Advisory Commission of the FAO (EIFAAC) through a Contribution agreement (EMFAF work programme 2024-2025) to work on the project *Developing Europe-wide management advice to protect vulnerable and endangered fish species from unsustainable predation by cormorants*. This has resulted in an overview report on the status of cormorant predation of fish, conflicts, and experiences with management of cormorant populations in EIFAAC member countries. A European conference was organized to produce management advice for reducing the impact of cormorant predation on fish, fisheries and aquaculture. A draft Framework for a European-wide cormorant management plan has been prepared and the network of researchers, managers and other stakeholders on cormorant issues was strengthened. The Commission organised on 28 October 2025 a meeting of the Expert group on the Birds and Habitats Directives on a Structured dialogue on managing cormorant conflicts. In the context of the implementation of the Ocean Pact, the Commission will start soon working with the AAM on a document on the management of predators (see above).

Regarding **energy efficiency and use of renewable energy** with the support of the AAM the Commission prepared and published a SWD in December 2024 on *the energy transition of the EU aquaculture sector*. This SWD will provide the basis for further work on the implementation of the Energy Transition initiative and a roadmap with recommendations, including actions and targets, expected in 2026. Under the Framework contract for scientific advice on aquaculture, the Commission has launched a study on "EU aquaculture: GHG Reduction Costs and Pathways to Net Zero by 2050". The study aims to develop evidence-based recommendations for actionable pathways to achieve climate neutrality in the EU aquaculture sector. It focuses on identifying cost-effective and technologically practical strategies for significant emissions reductions, with milestones set for 2030, 2040, and 2050. The study was launched in mid-May 2025, and results will be published end of December 2025. On 15th of September 2025, a validation workshop was held with experts in the Energy Transition Partnership from the Inland and Offshore Aquaculture Support Groups, along with other aquaculture specialists. The workshop provided valuable feedback essential for validating and adjusting the ongoing work. The final results of the study will be used for the upcoming roadmap on energy transition in EU fisheries and aquaculture to be published by the Commission in of 2026.

With respect to **waste and circular economy** in aquaculture, the Commission has funded projects such as IFishIENCi⁽⁶¹⁾, CIRCALGAE⁽⁶²⁾, LOCALITY⁽⁶³⁾ AQUA PHOENIX⁽⁶⁴⁾, SAFE⁽⁶⁵⁾, AWARE, BIOVAL and SEAalgae Power.

⁽⁶¹⁾ <https://cordis.europa.eu/project/id/818036>

⁽⁶²⁾ <https://cordis.europa.eu/project/id/101060607>

⁽⁶³⁾ <https://cordis.europa.eu/project/id/101112884>

⁽⁶⁴⁾ <https://aquaphoenix.eu/>

⁽⁶⁵⁾ [SmartAqua4FuturE - SAFE | SAFE | Project | Fact Sheet | HORIZON | CORDIS | European Commission.](#)

Within the Euronews Ocean Series ⁽⁶⁶⁾, an episode on circular blue economy, including a project on the use of shells from oyster farming to produce sustainable concrete was released in May 2025 ⁽⁶⁷⁾.

A document with further examples of good practices in the use of side-streams products from aquaculture is under preparation by the AAM. The EU Blue Bioeconomy Innovation Initiative (to be set by end of 2027 according to the European Ocean Pact) will further promote the use of underexploited aquatic biomass and circularity of aquaculture in the EU.

As explained further below, a Smart Specialisation Strategy on Smart Circular Aquaculture has been established in 2023 under the EU Interreg programme ⁽⁶⁸⁾. The objective of this Partnership is to promote zero-carbon, low-impact, circular aquaculture through innovation and technology transfer between research, academia, and industry. The Commission launched a call for proposals in September 2024, funded with EUR 5,7 million by EMFAF, for smart specialisation and regenerative ocean farming.

Since 2021 the European Commission has launched several initiatives and measures to address and tackle **marine litter**, including from aquaculture activities. The EMFF-funded Aqua-Lit⁷¹ project – whose genesis was stimulated by the EU Strategy for Plastics in a Circular Economy⁷² (2018) – developed a marine litter toolbox that has been the basis for much of the EU action on the subject since.

Stemming from the Single-Use Plastics Directive ⁽⁶⁹⁾, - which is now undergoing an evaluation, the European Commission requested in 2021 the European Standardisation Organisations to develop a series of standards on a circular design of fishing and aquaculture gear and equipment, to prepare for their recycling, re-use and management at the end-of-life. The standards were finalised and published in November 2024, which marks a significant milestone in advancing circularity in the fisheries and aquaculture sector ⁽⁷⁰⁾. These standards provide not only a comprehensive framework for the design, recycling, reuse, and management of fishing and aquaculture gear, but by focusing on circular principles, such as reducing waste, using sustainable materials, and facilitating the recycling process, they aim to reduce the environmental impact of fishing and aquaculture activities, and prevent and mitigate their contribution to marine pollution.

⁽⁶⁶⁾ <https://www.euronews.com/green/green-series/ocean>

⁽⁶⁷⁾ https://oceans-and-fisheries.ec.europa.eu/news/euronews-ocean-season-7-episode-4-circular-blue-economy-2025-05-02_en?pk_source=ec_newsroom&pk_medium=email&pk_campaign=MARE+Newsletter

⁽⁶⁸⁾ https://ec.europa.eu/regional_policy/policy/communities-and-networks/s3-community-of-practice/partnership_circular_smart_aquaculture_en

⁽⁶⁹⁾ <https://eur-lex.europa.eu/eli/dir/2019/904/oj/eng>

⁽⁷⁰⁾ <https://www.cencenelec.eu/news-events/news/2025/eninthespotlight/2025-01-16-en-17988-fishing-gear/>

The EU supports research and innovation that develop new technologies for marine litter prevention. Under Horizon Europe for example, more than 30 projects with a total of around EUR 120M are addressing plastic pollution, including under the EU Mission Restore our Ocean and Waters objective to prevent and eliminate pollution, litter and microplastics. More projects are expected to be funded in the future. These efforts align with the EU's goal of achieving a climate-neutral and environmentally resilient future by fostering a transition to a more circular economy that values resource efficiency and ocean health.

3.1.2.2. Animal welfare

The document on "**Good husbandry practices for aquaculture**" (see above) covers also animal welfare aspects. The "**EU Partnership on animal health and welfare**" (see above) launched in January 2024 covers also projects for aquatic animal welfare, covering issues such as priority pathogens in shellfish or welfare of crustaceans.

In January 2024, the Commission established the new **EU Reference Centre for the welfare of aquatic animals** (EURCAW-Aqua)⁽⁷¹⁾. In September 2024, the AAM started working on a general **code of good practices on fish welfare and fish welfare indicators**. This was published in October 2025⁽⁷²⁾. This document will be complemented with species-specific good practices and indicators developed by the EURCAW-Aqua. The Work Programme 2025-2027 of EURCAW-Aqua has been published⁽⁷³⁾.

In March 2025, a **study on animal welfare indicators** has started. This study that aims to achieve consensus with all stakeholders concerned on a set of animal welfare indicators for a selection of species on farm, during transport and at slaughter. Rainbow trout, European sea bass, gilthead seabream and common carp are included in the study.

Non-governmental organisations (NGOs) have noted that climate change has implications for animal welfare needs, which must be reflected in relevant actions.

⁽⁷¹⁾ <https://www.eurcaw-aqua.eu/>

⁽⁷²⁾ <https://op.europa.eu/en/publication-detail/-/publication/d33f9cb6-ae30-11f0-89c6-01aa75ed71a1/language-en>

⁽⁷³⁾ [Part-B-EURCAW-Aqua-2025-2027-rev2-2.pdf](#).

3.1.3. Strategic Objective 3: Ensuring social acceptance and information to the consumer

3.1.3.1. Communicating on EU aquaculture

With the view of increasing the knowledge of the public on the benefits of aquaculture and the way aquaculture is managed in the EU, the Commission published a brochure entitled '*A new strategic vision for sustainable aquaculture production and consumption in the European Union: blue farming in the European Green Deal*' in all official languages in 2021 and requested Member States and the AAC to ensure further dissemination ⁽⁷⁴⁾. The Commission also organised on 27 May 2021 a high-level conference with a broad range of stakeholders to promote the Strategic Guidelines and EU aquaculture, entitled *Blue farming in the European Green deal: a vision for sustainable aquaculture production and consumption in the EU*. This conference was web-streamed, and the recording remained available for 2 years.

On 22 September 2022, the Commission co-organised with the Committee of the Regions a conference entitled *Sustainable blue economy and aquaculture in EU regions*. The objective of this conference was to raise awareness and interest from EU regions on the sustainable development of aquaculture and the Strategic Guidelines.

To clarify the scientific basis of the debate on the impact of aquaculture activities in the EU, the Commission requested to an external contractor a study on *State-of-the-art scientific information on the impact of aquaculture activities in the EU*, which was published in December 2021.

The Commission has been working on the development of an **EU-wide campaign on EU aquaculture**. This campaign was launched on 25 March 2025 at an event held in Brussels. The campaign aims to increase awareness and support for EU aquaculture, showing how it contributes to sustainable food production, reinforces food security, and supports local economies. This campaign is available in all EU languages except Gaelic. Under the rallying title "EU aquaculture. We work for you with passion", it showcases the dedication of aquaculture producers and their commitment to sustainable aquaculture and high-quality products. The campaign focuses on nine aquaculture species: mussels, trout, clams, sea bream, oysters, carp, salmon, meagre, and seaweed. A diverse array of campaign assets has been developed, including video testimonials from EU aquaculture ambassadors representing various species and farming techniques, engaging social media content, and an influencer-led exploration of aquaculture sites in several Member States. A targeted social media campaign, along with a dedicated website, supported the dissemination efforts. Activities in Member States have also been organised as Member States have been invited to amplify this campaign by producing localised content, engaging with national media, recruiting influencers, organising public events, and using available templates for additional advertising. The Commission is planning the launch of a second social media campaign.

⁽⁷⁴⁾ <https://op.europa.eu/en/publication-detail/-/publication/e8bd0eb1-093a-11ec-b5d3-01aa75ed71a1>

Before the launch of the EU aquaculture campaign, the Commission campaign '*Taste the ocean*'⁽⁷⁵⁾ had featured some EU aquaculture products. Moreover, in the context of its collaboration with EURONEWS, a number of episodes of their OCEAN series featured aquaculture-related topics, promoting traditional and emerging types of aquaculture and their role in providing food, jobs, environmental benefits and innovative solutions.

The AAM have also provided a number of communication materials such as a brochure on the AAM translated into four EU languages, several infographics on the AAM itself, the EU aquaculture sector, organic aquaculture, the EU algae sector, shellfish aquaculture, marine and freshwater finfish and on the relevant data in support of the aquaculture sector available in EMODNet. The AAM has also produced two videos (on the AAM and on the Open Method of Coordination). All these communication materials are published on the EU aquaculture website.

There are various Horizon Europe initiatives to **develop business and consumer-facing information and awareness-building tools**. This includes the VeriFish project⁽⁷⁶⁾ that is developing a pilot smartphone application (app) on the sustainability and nutritional values of farmed (and wild) fish, as well as Mr. Goodfish 3.0, which aims to raise awareness for responsible consumption of sea, freshwater and aquaculture products by upgrading and expanding the Mr. Goodfish app⁽⁷⁷⁾.

The **study on the CMO Regulation** (see above) covers **consumer information** provisions and their implementation. The study will inform the ongoing evaluation of the CFP Regulation, including the provisions of the CMO Regulation.

On **integration of aquaculture in the local communities**, some elements were covered in the SWD on regulatory and administrative framework for aquaculture. This document highlights the importance of consultation in aquaculture decisions such as legislation and licensing, stressing that to be effective it should, among other things, actively integrate local stakeholders in the decision-making process.

Strengthening this dimension is particularly relevant considering the broader policy framework under the Ocean Pact, which places islands and coastal communities at the centre of local economic development and resilience building. Following the Pact, the Commission will come forward with a new strategy for EU islands and coastal communities to be delivered in 2026. The initiative will capture opportunities for fostering local economic development and strengthening resilience in island and coastal communities. It will, amongst other actions, promote income diversification, climate change adaptation and regenerative and restoration activities. The strategy will leverage the potential of coastal communities to advance sustainability, resilience, and competitiveness across the EU.

⁽⁷⁵⁾ https://oceans-and-fisheries.ec.europa.eu/news/launch-new-season-tastetheocean-campaign-2023-09-18_en

⁽⁷⁶⁾ <https://verifish.info/>

⁽⁷⁷⁾ <https://www.mrgoodfish.com/en/accueil-3/application-mr-goodfish/>

3.1.3.2. Data and monitoring

The implementation of EU multi-annual plan of the **data protection framework** adopted in April 2021 is ongoing.

A draft proposal for a **Regulation on the European Fisheries and Aquaculture Statistics (EFAS)** has been prepared and provides a comprehensive new legal framework that will also encompass the current Regulation 762/2008 (aquaculture) ⁽⁷⁸⁾. The draft proposal is expected to rationalise and harmonise data collection and to tackle new political directives such as “organic” production and the “regional” dimension as well as to continue improving the data quality. This proposal is currently being discussed with Member States. The Commission expects that the new EFAS regulation provides additional information such as statistics at regional level and on area covered by aquaculture operations.

The 2022 **STECF economic report on aquaculture** was enriched with a special chapter on energy costs for aquaculture operations, and the 2024 report also contains, for the first time a special chapter on economic sustainability indicators for the sector (STECF, 2023).

The AAC (AAC, 2025) has pointed at some weaknesses in the current aquaculture datasets, such as the inability to extract segmented data from Eurostat, the lack of data collection on organic aquaculture and clearer, more harmonised definitions (such as for ‘recirculation systems’), as well as ensuring adequate standardisation across Eurostat, EUFOMA and STECF evaluation methods and indicators.

The Framework Contract for scientific advice on aquaculture (see above) also aims at filling the gaps on data collection where necessary.

The AAM is currently working on a **document mapping the reporting obligations** at EU and MS level on aquaculture related to the implementation of EU legislation.

⁽⁷⁸⁾ <https://eur-lex.europa.eu/eli/reg/2008/762/oj/eng>

3.1.4. Strategic Objective 4: Increasing knowledge and innovation

As part of the EU aquaculture website, a **Knowledge Base** has been set up compiling, among other information relevant for aquaculture development, EU funded research projects on aquaculture and their results. A **Portfolio Analysis** of Horizon 2020 aquaculture projects supporting the implementation of the Strategic Guidelines was developed in 2022 ⁽⁷⁹⁾.

In the context of the Interreg programme, a new **S3 partnership** on Circular Smart Aquaculture ⁽⁸⁰⁾ has been established by France, Belgium, Spain and Norway in 2023, under a new S3 thematic platform on Sustainable Blue Economy. The objective of this Partnership is to promote zero-carbon, low-impact, circular aquaculture through innovation and technology transfer between research, academia, and industry. The Partnership expanded its network in 2024 to new members from Ireland, Portugal, Germany, Italy, Malta and Hungary. It will continue to expand its network and build a portfolio of projects close to market and support technology and innovation transfer. It was noted by EATIP that whilst this very important opportunity for the aquaculture sector in terms of research and innovation and knowledge transfer, there are significant challenges to be overcome for it to work, including the need to better align MS and Regions with Blue Economy / Aquaculture smart specialisation strategies.

The EU has supported several projects under **Horizon Europe** on aquaculture (e.g. SAFE ⁽⁸¹⁾, AWARE ⁽⁸²⁾, Cure4Aqua ⁽⁸³⁾, Ignition ⁽⁸⁴⁾, etc.), see **Section 4.3**. The **EU Partnership on the Sustainable Blue Economy** ⁽⁸⁵⁾ has also supported several projects on aquaculture (e.g. AQUABALANCE ⁽⁸⁶⁾, AquaUP ⁽⁸⁷⁾, SHELLFISH BOOST ⁽⁸⁸⁾, etc). Finally, more aquaculture projects have been funded under **EMFAF** (e.g. Cool Blue Baltic, BOUTCAR ⁽⁸⁹⁾, BlueAquaEdu ⁽⁹⁰⁾, etc.), see **Section 4.2**.

⁽⁷⁹⁾ <https://op.europa.eu/en/publication-detail/-/publication/5014b638-63d2-11ed-92ed-01aa75ed71a1/language-en> .

⁽⁸⁰⁾ https://ec.europa.eu/regional_policy/policy/communities-and-networks/s3-community-of-practice/partnership_circular_smart_aquaculture_en.

⁽⁸¹⁾ <https://projectsafe.eu/>

⁽⁸²⁾ <https://www.aware-eu.eu/>

⁽⁸³⁾ <https://cure4aqua-project.eu/>

⁽⁸⁴⁾ <https://ignition-project.eu/>

⁽⁸⁵⁾ <https://www.bluepartnership.eu/>

⁽⁸⁶⁾ <https://bluepartnership.eu/projects/balancing-economic-environmental-and-social-sustainability-european-aquaculture-industry>

⁽⁸⁷⁾ <https://bluepartnership.eu/projects/aquafeed-upgraded-enhancing-immune-function-seaweed-modified-functional-compounds>

⁽⁸⁸⁾ <https://bluepartnership.eu/projects/boosting-resilience-european-shellfish-production-against-climate-change-related>

⁽⁸⁹⁾ <https://boutcar.eu/>

⁽⁹⁰⁾ <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/999999999/project/101124699/program/43392145/details>

In order to facilitate **access to EU funding**, the AAM prepared and published a document on "Funding opportunities available for aquaculture" ⁽⁹¹⁾.

Regarding support to **skills** development, eight new projects were selected following an EMFAF "Blue careers for a sustainable blue economy" call and kicked off their work in September 2023. Four projects specifically target the aquaculture and blue biotechnology sectors: BlueAquaEdu, BOUTCAR, BlueBioTechpreneurs ⁽⁹²⁾, and NextBlueGeneration ⁽⁹³⁾. Other projects (EUR 2,4 million) will contribute to the development of the next generation of blue skills and provide opportunities for attractive maritime careers, including for aquaculture. Under Horizon Europe projects like NewTechAqua and FutureEUAqua ⁽⁹⁴⁾, organised training programmes have been provided on the necessary skills for a sustainable, resilient, and innovative European Aquaculture. The 'Study to Support and Design Skills Development in the Blue Economy' was launched in July 2024 and ended in June 2025.

Investment on sustainable aquaculture has also been promoted by BlueInvest ⁽⁹⁵⁾, as aquaculture is one of the ten priority sectors the programme targets. The potential of aquaculture has been highlighted in the Investor Report ⁽⁹⁶⁾ published in 2023 and further underscored in the 2024 update ⁽⁹⁷⁾, which reveals that aquaculture is rapidly becoming one of the most dynamic sectors of the Blue Economy in terms of investment activity.

The InvestEU Blue Economy instrument, with a thematic contribution from EMFAF for the period 2021-2027 and implemented by the European Investment Fund (EIF) under the **InvestEU** programme ⁽⁹⁸⁾, provides dedicated funding to blue economy sectors, including aquaculture, through intermediated investments. As of October 2025, among the intermediary funds onboarded, **Blue Revolution** ⁽⁹⁹⁾, a EUR 80 million early-stage venture capital fund with an InvestEU contribution of EUR 20 million, is specifically focused on sustainable aquaculture. Several other funds also include aquaculture within their broader investment strategies.

⁽⁹¹⁾ <https://aquaculture.ec.europa.eu/funding?f%5B0%5D=status%3Aongoing>

⁽⁹²⁾ <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/999999999/project/101124697/program/43392145/details>

⁽⁹³⁾ <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/999999999/project/101124924/program/43392145/details>

⁽⁹⁴⁾ <https://futureeuaqua.eu/>

⁽⁹⁵⁾ https://maritime-forum.ec.europa.eu/theme/investments/blueinvest_en

⁽⁹⁶⁾ https://oceans-and-fisheries.ec.europa.eu/news/blueinvest-new-investor-report-features-ocean-investment-opportunities-sustainable-blue-economy-2023-03-09_en

⁽⁹⁷⁾ https://oceans-and-fisheries.ec.europa.eu/news/investments-blue-economy-are-increasing-2024-04-03_en

⁽⁹⁸⁾ https://investeu.europa.eu/investeu-programme_en

⁽⁹⁹⁾ <https://www.eif.org/InvestEU/news/2024/eif-supports-blue-revolution-fund-in-boosting-sustainable-aquaculture-investments-backed-by-the-investeu-programme.htm>

Launched in 2020, the **BlueInvest Pilot Fund**, supported by the European Fund for Strategic Investments (EFSI) and managed by the EIF, has expanded its portfolio of beneficiaries in the aquaculture sector, for instance through the **Ocean 14** intermediary fund⁽¹⁰⁰⁾. The BlueInvest Community⁽¹⁰¹⁾ currently includes 341 companies providing solutions for aquaculture and 98 aquaculture projects featured in the BlueInvest Project Pipeline⁽¹⁰²⁾, which showcase innovative solutions to investors. The platform also connects 229 investors and 265 stakeholders with an interest in the aquaculture sector. Since 2019, the BlueInvest platform has provided **investment readiness and fundraising support** to 412 innovative small and medium-sized enterprises (SMEs) and start-ups in the blue economy, with aquaculture representing around 20% of the programme's beneficiaries. Through BlueInvest, 12 aquaculture projects have successfully secured private funding for their innovations (e.g., BiOceanOr's successful fundraising with BlueInvest's support¹⁰³). BlueInvest further fosters investment in aquaculture by organising **thematic events** such as the May 2023 e-pitching session on aquaculture & blue food. The platform has also hosted sessions alongside major industry events like Aquaculture Europe and prominently features aquaculture at its annual BlueInvest Day, including its 'Ocean Bioresources' innovation award category.

The **European Investment Bank** (EIB) commissioned a report on *Unlocking the potential of the seaweed and bivalve industries*⁽¹⁰⁴⁾, showing the increasing interest in low-trophic aquaculture.

3.1.5. Member State dissemination among aquaculture producers of the actions taken by the Commission

In the April / May 2025 follow-up survey, MS respondents were asked to describe how they disseminate Commission products e.g. SWD, website entries, etc.). The main mechanisms included regular meetings and document dissemination with producer organisations and associations, as well as their translation into MS languages and publication on national information platforms.

3.1.6. EMFAF projects funded under direct funding

Around EUR 17,8 million has been funded directly through the EMFAF (see table overleaf).

⁽¹⁰⁰⁾ [*Ocean 14 Capital completes €80m first close of €150m inaugural impact fund with high-profile investors*](#).

⁽¹⁰¹⁾ <https://blueinvest-community.converve.io/>

⁽¹⁰²⁾ https://blueinvest-community.converve.io/pipeline_front.html

⁽¹⁰³⁾ https://oceans-and-fisheries.ec.europa.eu/news/bioceanor-revolutionising-aquaculture-ai-and-blueinvest-2024-05-03_en

⁽¹⁰⁴⁾ [*Financing opportunities for the European Investment Bank in support of sustainable seaweed and bivalve sectors in the EU, and criteria to ensure their sustainability | EU Aquaculture Assistance Mechanism*](#).

Table 5: EMFAF projects funded under direct funding

Proposal	Acronym	EU Budget	Proposal Title
101124699	BlueAquaEdu	€ 997,932.00	Blue Career Centre for Aquaculture Education supported by a gamification approach and distance learning platform
101124475	COOL BLUE BALTIC	€ 599,937.00	COmmunity Ocean farms and Local Business cLUstErs in the BALTIC sea
101124841	BOUTCAR	€ 772,037.00	Blue jobs through blue careers
101124697	BlueBioTechpreneurs	€ 919,945.00	BlueBioTechpreneurs - Unlocking Transversal and Entrepreneurial Skills for the Blue Bioeconomy
101081314	MSP-GREEN	€ 1,546,791.00	Maritime Spatial Planning as enabler of the European Green Deal
101038453	SEAFOOD ALGTERNATIVE	€ 1,986,052.00	Fish substitute from algae to preserve marine wildlife and develop algaculture
101077600	AquaWind	€ 1,066,517.00	Innovative multi-use prototype combining offshore renewable energy and aquaculture in the Atlantic Basin
101038541	AquaPekilo	€ 1,175,181.00	Replacing soy with Pekilo protein in aquafeed
101112278	WINBLUE	€ 1,249,891.00	Empowering Women and Mainstreaming Gender Equality in the Blue Economy
101038311	KELP-EU	€ 2,158,800.00	An innovative, sector-leading seaweed biorefinery - enabling the European blue circular economy
101038333	ULVA FARM	€ 846,688.00	Large scale sea cultivation of green seaweed
101038250	ALGAENAUTS	€ 951,185.00	Eco-friendly and sustainable new family of biopesticides based on microalgae via circular economy approach
101241462	ATLA.HUB	€ 1,578,076.00	Atlantic Hubs to boost Marine Algae Land-based Aquaculture and Biotechnology
101241416	SEAGROW	€ 999,419.00	Seaweed in Ecosystem Enhancing Aquaculture for Growth and Sustainability.
101241437	OCEAN GARDENS	€ 994,771.00	Ocean Gardens: a scalable and modular approach to open-ocean seaweed aquafarming
		€ 17,843,222.00	

Source: CINEA (unpublished)

3.2. EU Member States

Since the shared competence on the management of aquaculture is exercised largely by the Member States (MS), the implementation of the MNSP is of essence to achieve the objectives of the strategic guidelines. An audit by the European Court of Auditors in 2023 ⁽¹⁰⁵⁾ found that *“the content of these documents (MNSP and EMFAF programmes) generally met the EU requirements and, overall, was consistent with the Commissions Strategic Guidelines”*.

This section of the assessment examines the progress made by EU Member States in implementing the strategic guidelines and their MNSP. The information behind this assessment is mainly derived from a specific survey to Member States, but is also informed by further bilateral correspondence, the review of MNSP, Technical Seminar discussions and desk research.

A detailed analysis of the MS responses to the survey is provided in **Annex II**, with the respondent 'yes / no' charts in **Annex III**. This section provides a concise assessment of the progress made and examines any gaps across the spectrum of the guidelines.

3.2.1. Strategic Objective 1: Building resilience & competitiveness

3.2.1.1. Access to space and water

This area of the guidelines covers two different aspects: firstly, the allocation of space to aquaculture in an increasingly busy maritime and inland environment ⁽¹⁰⁶⁾, and secondly, ensuring that aquaculture has access to sufficient good quality water to grow sustainably.

With the deadline for completing national MSPs of 31 March 2021, 19 of the 25 MS responding to the survey have specifically included the planning of aquaculture areas (see Chart 1 in Annex III) in their Marine Spatial Plans (MSPs).

Overall, while marine aquaculture spatial planning is well-established across most countries, according to the responses to the survey, freshwater aquaculture remains less defined, with planning efforts varying widely ⁽¹⁰⁷⁾.

Many nations are working toward integrating aquaculture into broader environmental and economic strategies, ensuring sustainable development and regulatory clarity. There are also attempts to allocate space to aquaculture within the large areas dedicated to offshore wind development, such as in the North Sea.

⁽¹⁰⁵⁾ See <https://www.eca.europa.eu/en/publications/sr-2023-25>

⁽¹⁰⁶⁾ The Maritime Spatial Planning Directive (2014/89/EU) is key here, requiring all MS develop their own MSP plans which are expected to include aquaculture - <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0089>

⁽¹⁰⁷⁾ 19 of the MS responded that their MSP integrates planning for aquaculture areas, whereas 10 responded that their inland spatial planning integrates planning for aquaculture. 13 responded that there are areas allocated to aquaculture, whereas only six responded that there were aquaculture management areas in the MS.

The recommendation in the strategic guidelines that MS '**Designate areas suitable for aquaculture**' appears to have widescale adoption, especially by the larger marine aquaculture producers farming both sub-tidal waters and inter-tidal areas. Spain has designated 35 zones of interest for aquaculture, including *Zonas de Interés para Cultivos Marinos* (Areas of Interest for Marine Farming, n=5) and *Zonas de Interés para Acuicultura* (Areas of Interest for Aquaculture, n=30), based on technical, environmental, and administrative criteria. MSP is viewed as an important precursor to moving production offshore away from crowded inshore waters. Portugal has integrated its 2008 Aquaculture Production Areas (APAs) into national maritime spatial planning, designating 22,1 km² for bivalve and finfish farming.

However, while the designation of specific zones for aquaculture is an important step, its practical effectiveness in creating new aquaculture enterprises or sites has been limited. According to the European Court of Auditors' Special Report 25/2023 ⁽¹⁰⁸⁾, despite improvements in the EU's strategic framework for aquaculture, significant obstacles remain, such as complex administrative procedures and a lack of integration with environmental policies, which hinder the sector's expansion. In the Netherlands, aquaculture spatial planning has been established since 1950, with producer associations playing a strong role in their designation. In Croatia, marine aquaculture planning is highly developed, with Allocated Zones for Aquaculture (AZAs) first introduced in 2003. In Greece, the establishment of Areas of Organised Development for Aquaculture (AODA) has not contributed significantly to the establishment of new aquaculture activities, as only 8 out of 25 applications have been approved. However, the designation of AODAs will trigger major changes in capacity expansion and relocation of existing units; It will also establish designated production clusters operating under transparent and unambiguous rules, provide business certainty, improve management, simplify licensing and increase production. Spatial planning for freshwater aquaculture in Croatia lags behind, often due to the complexity of multiple jurisdictions and requirements for water use but will be addressed by a forthcoming byelaw under the Aquaculture Law. Other MS have integrated aquaculture zones into broader maritime strategies.

Ten of the MS respondents stated (see Chart 5) that they had developed reference methods and other tools for the **planning and monitoring of the allocation of space for aquaculture**, both marine and inland. This includes the use of strategic environmental assessment (SEA), allied with geographical information systems (GIS) and other modelling tools (e.g. the MIKE hydraulic models¹⁰⁹) to ensure conformity with environmental objectives and regulations.

MS action on the topic of 'access to space and water' has very much focused on both ensuring the space for aquaculture within increasingly competitive maritime and terrestrial areas, rather than access to adequate and good quality water.. Austria has a pilot project (AquaNovum) to GIS analyse areas suitable for salmonid culture, including water availability and quality.

⁽¹⁰⁸⁾ <https://www.eca.europa.eu/en/publications?ref=SR-2023-25>

⁽¹⁰⁹⁾ Developed by DHI in Denmark see <https://www.dhigroup.com/technologies/mikepoweredbydhi>

Summary: MS progress in 'Access to space and water'

- Around three-quarters of MS have included aquaculture areas in their national MSPs.
- But space for freshwater aquaculture is less well defined, with only 38% of MS integrating aquaculture areas into their inland spatial planning.
- Only around 23% of MS have designated 'aquaculture management areas'.
- The majority of MS (60%) require an SEA to allocate space to aquaculture. About 40% have done so since the beginning of 2021.
- Likewise, around 40% of MS have developed reference methods or other tools for planning and monitoring relevant for allocation of space for aquaculture.
- Progress in increasing and ensuring access to good quality water is less evident and not reflected in the MS survey results.

3.2.1.2. Regulatory and administrative framework

All but two of the 26 MS respondents stated that they have done (n=15, see Chart 8) or will shortly be doing (n=16, see Chart 9) **reviews of their legislative, regulatory or institutional frameworks for aquaculture**. However, the extent and relevance of those reviews varies among MS. While some MS are drafting new aquaculture-specific acts or laws, others are looking at improving specific legislation on different aspects relevant for aquaculture, generally in line with the recommendations of the Strategic Guidelines.

Comparing data from 2016 - 2020 to 2021-2023, **the time required for processing aquaculture licenses** has increased in some MS e.g. in Denmark. Other MS say the processing times have remained stable, neither increasing or decreasing.

Comparing the **number of aquaculture licenses issued** between 2016 - 2020 and 2021-2023, trends vary across countries, with some seeing a significant increase while others experienced a decline. Portugal showed the most notable increase, jumping from 110 licenses in 2019-2020 to 290 in 2021-2023. Estonia also saw growth. Conversely, Croatia saw a sharp decline from 70 licenses in 2016 - 2020 to just seven in 2021-2023. It is noted that the number of licenses is not always a good indicator of growth in production, as modern RAS facilities can concentrate a high level of production under a single licence. Overall the number of new licences decreased overall. Across the 14 countries that provided usable counts for both periods, applications fell from 1,071 (2016–2020) to 715 (2021–2023) (–33%). Only Germany, Lithuania and Portugal showed increases; nine countries showed decreases; two were unchanged.

Comparing the number of **aquaculture license renewals** between 2016 - 2020 and 2021-2023, the trends show mixed patterns across MS, with some increasing renewals while others saw a decline or remained stable. Looking across all the MS that responded in full (n=10), applications rose from 451 (2016–2020) to 602 (2021–2023) (+33%). Increases were reported for Cyprus, Finland, Ireland and Portugal; four decreased; two were unchanged. In terms of both new and renewed licenses combined, total applications rose from 1 017 to 1 116 (+9.7%).

21 of the MS responded (Chart 10) that there were **minimum / maximum periods of duration of a licence for an aquaculture site / farm**. The duration of aquaculture licenses varies widely across countries, from 10 – 25 years (Portugal), up to 50 or more years, for example in Austria, Croatia and Estonia. In some cases – such as where a site is in a Natura 2000 area – licenses might be short (e.g. 5 years, as in Cyprus). 18 MS said they had different licensing requirements for different types of farms / production systems / species (Chart 12).

All but two of the MS responded (Chart 11) that they **require environmental impact assessment (EIA for the licensing of aquaculture farms)**. 12 said they had established standard / reference environmental assessment methodologies for applicants for an aquaculture licence (Chart 13).

12 of the 25 MS responded (Chart 14) that there was a **system that allows them to share data among relevant public authorities to facilitate the management of the licensing process**. In several MS, the licensing process for aquaculture is managed through various platforms or centralised systems, e.g. in Portugal, the BMar platform⁽¹¹⁰⁾ serves as a one-stop-shop for all licensing procedures. Similarly, 14 of the MS responded (Chart 15) that there was a **system that allows them to share data with the public** to facilitate the work of applicants for a licence and provide transparency on licensing. In several MS, the transparency and public access to aquaculture licensing processes are key components.

Feedback from MS and the AAM suggests that the administrative burden is increasingly complex, partially due to the scope and nature of EU legislation and its relationship with Member State legislation (aquaculture is not an exclusive EU competence).

At the Commission's request, the AAM is currently mapping the reporting requirements for EU aquaculture resulting from the implementation of EU legislation.

Summary: MS progress in 'Regulatory and administrative framework'

- 58% of MS have conducted a review of their legislative, regulatory or institutional framework for aquaculture since the beginning of 2021, with all but one of the remaining MS planning to do so in the future. However, the extent of this review varies very much from one MS to the other.
- 65% of MS have taken steps to coordinate regulatory and administrative systems no aquaculture, as well as digitalising the aquaculture licensing processes.
- The MS survey indicated that new licences have decreased overall, where applications fell from 1 071 (2016–2020) to 715 (2021–2023) (–33%). Renewals of existing licences increased overall, with applications rising from 451 (2016–2020) to 602 (2021–2023) (+33%). Combined (new + renewals) licensing applications rose from 1 017 (2016–2020) to 1 116 (2021–2023) (+9.7%).
- But comparing data from 2016 - 2020 to 2021-2023, the time required for processing aquaculture licenses has increased in some MS.
- All coastal MSs have minimum / maximum periods in the duration of aquaculture licences. Only four, predominantly land-locked states, have open-term licenses.
- All but two MS require EIA for the licensing of aquaculture farms. Just under half MS have a standardised EIA methodology for aquaculture.
- 54% of MS have capability to share aquaculture licensing data with the public.

⁽¹¹⁰⁾ <https://www.dgrm.pt/en/web/guest/bmar>

3.2.1.3. Animal health and public health

One of the key areas of MS involvement in this area under the Strategic Guidelines is the **improved capacity of the MS competent authorities in disease surveillance**. At least 16 MS have conducted training on this subject since 2021 (Chart 22) and introduced more structured surveillance programmes as a result. Again, 16 MS have conducted **training on good husbandry practices** since 2021 (Chart 23), including in AHL.

16 MS responded that they had been involved in **research and innovation projects and / or other funded measures on aquatic animal health** since 1 January 2021 (Chart 17), mainly funded by EMFAF and Horizon 2020 (see **Section 4**). These covered a variety of related subjects, including fish health and welfare, new vaccine development, biosecurity and IMTA. Ten of the MS responded (Chart 24) that there had been **research and innovation projects and / or other funded measures on public health issues** linked to aquaculture since January 2021. These covered issues such as monitoring contaminants and studying biotoxin accumulation, zoonotic parasites and antibiotic resistance.

15 MS responded (Chart 19) that they had produced **codes of good practices (e.g. good husbandry practices) regarding farmed aquatic animal health**, although much of these pre-date 2021. 13 of the MS responded (Chart 21) that there had been **disease prevention measures or programmes for aquaculture** since January 2021 (e.g. vaccination campaigns) and appear to be making some progress in this direction. Estonia has been designated by the European Commission as one of two countries being viral haemorrhagic septicaemia (VHS) and infectious haematopoietic necrosis (IHN) disease-free in 2024. Denmark initiated an EU-approved eradication program for VHS in marine waters and declared its waters free of the disease in 2023, also implementing a national surveillance program for IHN.

Summary: MS progress in 'Animal health and public health'

- Over 60% of MS have provided training to their Competent Authorities on aquatic disease surveillance since 1 January 2021, resulting in more structured surveillance programmes.
- 62% of MS also provided training to their aquaculture producers on good husbandry practices since 1 January 2021, contributing to a higher level of care across the EU.
- Around 38% of MS have developed research and innovation projects and / or other funded measures on public health issues linked to aquaculture since 1 January 2021.
- Nearly 60% of MS have developed codes of good practices (e.g. for good husbandry) to improve farmed aquatic animal health related to aquaculture.

3.2.1.4. Climate-change adaptation and mitigation

In terms of adaptation of aquaculture to the impact of climate change, all the MS responding to the survey except five stated (Chart 25) that they had **applied measures, programmes, funded projects and / or investments to help adapt their aquaculture sector to climate change** since January 2021. Overall, while some MS had early-stage adaptation efforts before 2021, structured funding and targeted strategies for aquaculture climate resilience have significantly expanded since then. Austria, for instance, is studying the effects of climate change on oxygen availability

for both carp and salmonids. Due to its high vulnerability to climate variability (e.g. heatwaves, water scarcity), Italy has used EU guidance for risk mapping and adaptation strategy development and has supported policy dialogue between central and regional authorities. However, they note that the lack of species- and site-specific adaptation scenarios makes its application at the farm level more challenging. Aquaculture is also included in the national Climate Change Adaptation Strategy.

With respect to mitigation of climate change impact, 15 of the MS stated (Chart 26) that, since January 2021, there had been **measures, programmes, funded projects or investments that would support the decarbonisation of the aquaculture sector**. The EMFAF and related initiatives under the EU's decarbonisation efforts (see Energy Transition initiative above) are actively supporting the transition of aquaculture to more sustainable and energy-efficient practices through several MS initiatives. Through measures like "Productive Investments in Aquaculture" (Measure II.2), aquaculture farmers are encouraged to adopt renewable energy sources, such as photovoltaic power panels, and improve energy efficiency.

Summary: MS progress in 'Climate-change adaptation and mitigation'

- Over 80% of MS have applied measures, programmes and / or funded projects or investments to adapt the aquaculture sector to climate change since 1 January 2021.
- Prior to 2021, aquaculture climate change adaptation measures were less structured and less widely implemented, with only a few MS adopting targeted strategies.
- 58% of MS have applied measures, programmes and / or funded projects or investments to support the decarbonisation of the aquaculture sector since 1 January 2021
- The main approaches to decarbonisation are via the adoption of renewable energy, mainly through solar, but with some wind, hydro and biomass energy generation. Data on uptake is limited.

3.2.1.5. Producer and market organisation

Producer organisations (POs) have proven essential for enabling collective action, in particular for small-scale producers. Formal POs can be developed under the Common Market Organisation (CMO) Regulation (originally 1379/2013⁽¹¹¹⁾ and now 2021/2117⁽¹¹²⁾). Uptake up to early 2021 was slow, with only around 32 aquaculture POs recognised and no transnational organisation. It is also noted that whilst support for PO production and marketing plans (PMPs) was mandatory under the EMFF, support under the new EMFAF is on a voluntary basis.

15 of the MS who responded (Chart 28) stated that that **new POs had been created since January 2021**, including Croatia (shellfish farmers), Portugal (sea bass & sea bream farmers), Romania (salmonids), Latvia (trout farmers), Lithuania (common carp) and Hungary (African catfish), demonstrating considerable diversity across the EU. Italy notes the need for POs but recognises that the sector still faces challenges in achieving higher levels of organisation and making the most of production and marketing plans, particularly among small-scale producers.

⁽¹¹¹⁾ <https://eur-lex.europa.eu/eli/reg/2013/1379/oj>

⁽¹¹²⁾ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2021.435.01.0262.01.ENG

As evidenced by the AAC's wide membership (see **Section 3.2.6** on page 57), there are a large number of regional or sub-sectoral professional organisations other than POs across the EU, such as the 'Mariculture Cluster' that operates under the Croatian Chamber of Economy and includes tuna, white fish, and shellfish farmers, representing about 90% of all mariculture farmers in the country. Another, rather different inter-branch-type organisation is the AlgeCenter Danmark in Denmark, a network focusing on seaweed and algae, involving producers, technology developers, universities, and retailers.

Summary: MS progress in 'Producer and market organisation'

- Around 65% of MS have established aquaculture producer organisations and / or inter-branch organisations linked to aquaculture. These represent a wide spectrum of species and production systems across the EU.
- Nearly 60% of MS reported that new aquaculture POs and / or inter-branch organisations linked to aquaculture had been created or are under consideration since January 2021.
- Around 42% of MS have a wide array of other forms of professional organisations of aquaculture producers other than POs and other actors in the aquaculture value chain, such as maritime clusters, regional producer organisations, species-specific associations, etc.

3.2.1.6. Control

The Fisheries Control Regulation (2023) ⁽¹¹³⁾ extends the traceability obligations to all aquaculture products, including processed products and products imported from non-EU countries ⁽¹¹⁴⁾. This improved traceability will apply as of 10 January 2026 and will help ensure a level playing field on the EU market.

15 MS responded (Chart 30) that there have public or industry initiatives to provide better traceability of aquaculture products, reflecting a strong commitment to improving traceability of aquaculture products. It is likely that much of the effort in improving traceability of aquaculture products is driven by the new Fisheries Control Regulation. However, traceability also remains a key concern of retailers, who drive much of the private sector investment in this area e.g. Aquaculture Stewardship Council (ASC) and Global G.A.P. third-party farm and chain of custody certification. According to the MS survey respondents, some retailers have their own traceability initiatives including PRO TRACE FISCH by METRO ⁽¹¹⁵⁾, fTRACE by EDEKA ⁽¹¹⁶⁾, and the ALDI Transparenz Code ⁽¹¹⁷⁾ among others.

⁽¹¹³⁾ Regulation (EU) 2023/2842 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202302842

⁽¹¹⁴⁾ Note there are two exceptions: (a) prepared and preserved foods will not have this obligation until January 2029, following the negotiation and publication of a delegated act defining the traceability criteria to be applied to these products; and (b) algae, which were currently mandatory in traceability, will lose this obligation from January 2026 to January 2029, where the provisions of the aforementioned delegated act must be applied (although without prior study).

⁽¹¹⁵⁾ https://www.metro.de/nachhaltigkeit/lieferkette-rueckverfolgbarkeit/pro-trace?msockid=03477e7dab8b629b1b886c38aa6b6303&itm_pm=cookie_consent_accept_button

⁽¹¹⁶⁾ https://osapiens.com/de/wp-content/uploads/sites/2/2024/03/Case_Study_Edeka_Download_English.pdf

⁽¹¹⁷⁾ <https://transparenz.aldi-nord.de/>

Most of the actions adopted by the public sector actions are designed to enhance private sector initiatives and ensure they are coherent with the new control regulation. This includes ensuring digital traceability of aquaculture products from their primary production units (Croatia and Spain ⁽¹¹⁸⁾, and planned by Hungary) and are sometimes linked to 'quality labels, such as France's 'Quality Charter – Aquaculture of Our Regions' and the 'Poisson d'Aquaculture Français' ⁽¹¹⁹⁾ label.

Summary: MS progress in 'Control'

- In over half (56%) of MS, public or private initiatives have been developed to enhance the traceability of aquaculture products. 9 MS have developed such initiatives since 1 January 2021.
- According to the MS survey responses, the majority of these are industry initiatives, often framed under national or EU wide (e.g. the revised Control Regulation) traceability frameworks.

3.2.1.7. Diversification and adding value

The Strategic Guidelines seek to address the reliance of EU aquaculture production on only a few species (see **Section 2.1**) by encouraging diversification to new species, including towards low trophic species. They also aim to encourage producers and processors to add value to aquaculture products, strengthening the overall resilience of the value chain.

Ten MS reported that they had introduced new production systems since January 2021. This was mainly the introduction of recirculating aquaculture systems (RAS), both in marine and freshwater production. There was also a significant rise in the interest in IMTA, especially in France. The other main area of system development has been in the grow-out of macroalgae.

In terms of species, there does seem to be some move to farm species other than those most traditionally farmed in the EU (mussels, oysters, trout, sea bass and sea bream). Given the lack of sufficient data over the period since the guidelines were introduced, this is difficult to quantify, but the replies to the MS survey indicated that there are a number of novel high value finfish species being farmed in the EU; e.g. meagre (*Argyrosomus regius*), Senegal sole (*Solea senegalensis*), and Wels catfish (*Silurus glanis*). There also seems to be more interest in extensive e.g. subsistence-fed or non-fed species such as the bighead carp (*Hypophthalmichthys nobilis*) and grass carp (*Hypophthalmichthys nobilis*), which are often reared in polyculture. Macroalgae is also starting to be farmed at scale, e.g. the sugar kelp (*Saccharina latissimi*).

⁽¹¹⁸⁾ The National Programme for the Control of the Traceability of Fishery and Aquaculture Products is a public initiative coordinated by the General Secretariat for Fisheries (Ministry of Agriculture, Fisheries and Food). It establishes a traceability control system covering the entire marketing chain, from the first sale to retail, including transport.

⁽¹¹⁹⁾ <https://www.poisson-aquaculture.fr/marque-france/#:~:text=Choisir%20la%20marque%20%C2%AB%20Poisson%20d%E2%80%99Aquaculture%20Fran%C3%A7ais%20AE%20%C2%BB,n%C3%A9%20%C3%A9lev%C3%A9%20abattu%20transform%C3%A9%20et%20conditionn%C3%A9%20en%20France.>

Eurogroup for Animals notes the need to ensure that diversification must not be at the expense of animal welfare needs and assurance. Animal welfare NGOs also encourage diversification into lower-trophic species, rather than higher level and more sentient species.

Summary: MS progress in 'Diversification and adding value'

- Around 40% of MS have introduced new aquaculture production systems since 1 January 2021. This includes partial or full recirculated aquaculture (RAS), IMTA and macroalgae grow-out systems.
- Even if no sufficient homogenous data were provided to estimate the extent to which new species are being introduced, there does seem to be increased interest in high value finfish species as well as different macroalgae.
- The MS survey did not cover post-harvest diversification / added value e.g. via processing or aquaculture product development.

3.2.2. *Strategic Objective 2: Participating in the Green Transition*

3.2.2.1. Environmental performance

21 MS stated they have **developed environmental strategies** that included the aquaculture sector and its integration into key areas such as River Basin Management Plans (RBMPs, under the Water Framework Directive (WFD)⁽¹²⁰⁾, setting environmental targets and attaining good environmental status (under the Marine Strategy Framework Directive (MSFD)⁽¹²¹⁾). Examples include the Austrian Biodiversity Strategy 2030+ and Italy's National Strategy for Biodiversity by 2030. One stakeholder consulted noted that more structural integration of aquaculture into RBMPs, etc., would be beneficial.

16 MS stated (Chart 34) they have developed and funded measures, programmes, projects or investments to further mitigate the **environmental impact of aquaculture**. Encouragingly 'Environmental services' accounted for 21% of EMFAF funds committed by Member States to date, and 17% by number of operations, the largest proportion for a single topic (see **Section 4.2.1** for more details). Poland, in particular, was by far the largest recipient of EMFAF funding aimed at improving environmental performance. These measures and initiatives are being implemented at sector level e.g., ensuring that aquaculture recognises the sensitivity of the areas allocated to aquaculture development in the MSP or is being applied more locally e.g., using EIAs and mitigation plans for specific aquaculture investments. In ten MS, strategic environmental assessments (SEAs) were conducted in relation to the allocation of space to aquaculture (Chart 7).

Ten MS reported (Chart 35) to have used EU funding to promote the use of more **sustainable feed for fed aquaculture**. For instance, Croatia is promoting the development of sustainable feed, including reducing reliance on fishmeal and fish oil. Another approach by MS has been investigating and promoting the use of alternative

⁽¹²⁰⁾ <https://www.eea.europa.eu/en/analysis/maps-and-charts/water-framework-directive-rbmp>

⁽¹²¹⁾ https://research-and-innovation.ec.europa.eu/research-area/environment/oceans-and-seas/eu-marine-strategy-framework-directive_en

feed ingredients such as insect proteins and algae, through both EU-funded research (see **Section 4.3**) and innovative action by private aquafeed companies. For instance, Austria is examining the use of new protein sources (e.g. duckweed and flour beetle larvae) in aquafeeds.

Another interesting area of innovation combined with environmental management is the control and, in some cases, the controlled **use of alien and locally absent species** in aquaculture ⁽¹²²⁾, given the potential impact of escapees on the trophic and genetical structure of the external environment. This is being driven by a number of factors, such as (i) the need to diversify food production, (ii) to compete against third country imports of non-native species and (iii) to adapt to some aspects of climate change, such as sea temperature rise. This has led a number of MS to investigate hatchery and grow-out systems that provide adequate biosecurity safeguards for the commercial aquaculture of these species, including genetic manipulation e.g., the use of sterile triploid animals or enclosed recirculation systems. Responding to Regulation (EC) No 708/2007 on alien and locally absent species, a number of MS have developed national legislation to manage and control the spread of invasive species and supported its implementation through awareness and training.

With respect to the recommendation in the strategic guidelines to promote further **low trophic aquaculture** to increase the overall environmental performance of EU aquaculture, there are no data to support a quantitative analysis of change in the ratio of high trophic (e.g., fed finfish) and low trophic aquaculture production in the EU since 2021. However, there is a move in the EU towards (i) deeper-water, more technologically advanced bivalve mollusc farming (e.g., on New Zealand-type continuous longlines) and (ii) large-scale longline and grid systems for macroalgae such as sugar kelp (Heasman *et al*, 2024). While several Member States are showing interest in the potential of IMTA, as demonstrated by a recent 'SUSTAMARE' study funded through the EU Mission Ocean in Croatia, it remains difficult to apply commercially due to the different spatial and biomass scales needed for the various cropping components. IMTA is not limited to marine waters, but is also widely used in freshwater e.g., Hungary practices IMTA principles in carp-based polyculture farms, where the diverse feeding habits of fish species help recycle nutrients efficiently.

The data on **organic aquaculture production** across several EU countries reveals a mix of trends and varying levels of reporting. Croatia has shown significant growth in organic aquaculture, with production rising from 445 t in 2021 to 1 500 t in 2023, while in Spain there has been a decrease from 4 891 t in 2021 to 4 307 t in 2023. Data on organic production in the EU is insufficient to determine detailed trends. Several MS, including Finland, Cyprus, Slovakia, and Czechia, reported in the survey that they had little or no organic aquaculture production, with some MS are calling for improved transparency and recognition of environmentally friendly practices in aquaculture management other than formal organic certification.

⁽¹²²⁾ See Regulation (EC) No 708/2007 on the use of alien and locally absent species in aquaculture (<https://eur-lex.europa.eu/eli/reg/2007/708/oj/eng>) and Regulation (EU) 1143/2014 on invasive species (<https://eur-lex.europa.eu/eli/reg/2014/1143/oj/eng>).

It was noted by one NGO that the environmental impact of aquaculture cannot be fully addressed without considering welfare-related issues, such as overstocking, poor water quality, and species unsuited to farming. These conditions drive both environmental degradation and animal suffering (Aquatic Life Institute, [pers. comm., April 2025]).

All the MS, with the exception of Estonia and Sweden, reported (Chart 36) that they had aquaculture **farms located in protected areas**. Many farms are located within Natura 2000 sites. There is some evidence from the replies by MS to the survey that some countries are using such areas to develop low intensity, low trophic aquaculture that utilises the natural capital and ecosystem services of wetlands and other sensitive habitats. This seems particularly applicable in inland aquaculture in wetland areas, where pond farming has been traditionally part of the landscape, often utilising polyculture to maximise trophic efficiency.

There has been an increasing interest by MS in addressing **marine litter from aquaculture** over recent years. While the subject of marine litter was not included in the MS survey, two relatively recent (2019) Directives have implications for the use of plastics and other persistent materials in aquaculture at MS level, these being (i) the Directive on Single Use Plastics or 'SUP Directive' on the reduction of the impact of certain plastic products on the environment and (ii) the Directive on Port Reception Facilities (PRF) for the delivery of waste from ships (the PRF Directive) ⁽¹²³⁾. These have been transposed into Member State law, including the need to introduce extended producer responsibility (EPR) schemes by the end of 2024. In terms of actions funded under the EMFAF on marine litter, a detailed investigation into EMFAF funding on marine litter is conducted by the FAMENET Support Unit.

Finally, in terms of **monitoring environmental performance**, 13 MS have established environmental performance indicators for aquaculture (Chart 38), although only nine MS report (Chart 39) that any model or reference environmental monitoring plan have been developed.

Summary: MS progress in 'Environmental performance'

- Over 80% of MS have environmental strategies (e.g. river basin management plans) that include aquaculture. Over 90% of MS have aquaculture located in protected areas.
- Around 62% of MS have implemented measures, programmes, funded projects and / or investments to further mitigate the environmental impact of aquaculture since 1 January 2021.
- In terms of specific approaches to reduce the environmental impact of aquaculture:
 - 38% of MS have promoted the use of more sustainable aquafeeds since 1 January 2021.
 - 73% have extensive or semi-extensive low impact aquaculture in ponds and wetlands.
 - Under half (46%) of MS have introduced measures, programmes, funded projects or investments on the introduction of alien species in aquaculture since 1 January 2021.
 - In terms of low impact aquaculture, around half the EU production is low trophic by volume, a proportion that is likely to rise e.g. with macroalgae production.
 - However, the 2023 production of molluscs is 6% less than over the 2016-2020 baseline average, with much higher reductions reported from some parts of the Mediterranean over 2024 & 2025.
- Half of the MS have established environmental performance indicators for the environmental assessment and monitoring of aquaculture activities. 35% have model / reference environmental monitoring plans for aquaculture activities in place.

⁽¹²³⁾ <https://eur-lex.europa.eu/eli/dir/2019/883/oj/eng>

3.2.2.2. Animal welfare

Under half of MS respondents (11 MS) included farmed aquatic animal welfare in their **national animal welfare strategies**. One NGO stakeholder has called for these to be backed up by a harmonised, EU-wide legislative framework (Compassion in Farming, pers., comm., April 2025). A recommendation of the 2021 Strategic Guidelines is the development of **Codes of Good Practice (CGP) on fish welfare**. 15 MS have developed CGPs (Chart 42), with producer organisations being a key driver for this approach. These CGPs often focus on particular aquaculture sub-sectors, mostly on finfish species. In addition to the CGPs, there has also been a roll-out of practical tools and training on fish welfare to date, both before and after the introduction of the strategic guidelines.

There is some MS interest in rolling out **species-specific and auditable fish-welfare standards** throughout the production chain. In 11 MS some form of fish welfare standard has been adopted to date (Chart 41). However, the survey results indicate that these are fairly limited in scope (e.g. covering only a low number of species) and lack structured common indicators. Therefore, more efforts are needed to develop indicators for assessing the welfare of farmed aquatic animals and to integrate these into national strategic plans.

In terms of **promoting research and innovation on animal welfare**, 16 MS reported (Chart 44) that there had been measures, programmes, funded projects or investments applied to improve animal welfare of farmed aquatic animals since 1 January 2021 (e.g. research and innovation projects, funding of measures on the welfare of farmed aquatic animals, and training to aquaculture producers on good practices). These have been driven by the SCAR-Fish SWG ⁽¹²⁴⁾, and include an array of projects, including *in situ* fish welfare monitoring systems amongst others. One stakeholder suggested that animal welfare should be considered a cross-cutting issue across all the initiatives in the scope of the strategic guidelines (IFA, pers. comm., April 2025).

Summary: MS progress in 'Animal welfare'

- 42% of MS include farmed aquatic animals in their national animal welfare strategies.
- The majority (58%) of MS have developed good practices to ensure the welfare of farmed aquatic animals. However, only 31% have developed indicators for assessing their welfare.
- Over half (62%) of MS have implemented measures, programmes, funded projects or investments to improve the welfare of farmed aquatic animals since 1 January 2021.

⁽¹²⁴⁾ Standing Committee on Agriculture Research (SCAR) – Strategic Working Group (SWG) on fish see <https://www.scar-europe.org/fish-mission-and-aims>

3.2.3. Strategic Objective 3: Ensuring social acceptance and information to the consumer

3.2.3.1. Communicating on EU aquaculture

With respect to the recommended tools to improve the communication on EU aquaculture of the consumers and citizens, 15 MS reported in their replies to the MS survey (Chart 45) that they had **conducted information / communication campaigns on aquaculture** via a variety of media channels e.g. TV, social media and websites, focusing on educating the public about the nutritional benefits of seafood and promoting sustainable, local aquaculture. Some were generic campaigns focusing on 'fish', whilst others focused exclusively on farmed aquatic foods. These are generally focused on adult consumers, although some MS have included educational outreach programmes aimed at children.

A slightly larger number of MS – 17 - reported (Chart 46) that public or private initiatives had been adopted to **provide information on aquaculture products to the consumer** (e.g. codes of conduct (i.e. on providing product information to consumers), traceability, information to HORECA) and have taken steps to improve transparency and consumer awareness regarding aquaculture products. These include educational campaigns, labelling guidelines and blockchain technology, to ensure the traceability and sustainability of aquatic food. 10 MS have also developed, since 1 January 2021, quality schemes or labels applicable to aquaculture products (Chart 47), such as the French "French Aquaculture Fish" label in 2024, focusing on traceability and good practices in fish farming.

One communication tool is the use of geographical indications for aquaculture products. 9 MS reported (Chart 48) geographical indications had been granted since 1 January 2021, including Croatia (oysters and mussels), France (caviar and oysters), Hungary (fish from Lake Balaton) and Germany (Aischgründer carp). Since France replied to the survey, a new geographical indication has been granted to rainbow trout farmed in Nouvelle Aquitaine.

Seven MS reported (Chart 49) the development since 1 January 2021 of **digital tools** involving aquaculture products, including online platforms and smartphone applications for direct-to-consumer sales. These are designed to shorten and to make the supply chain more efficient.

Summary: MS progress in 'Communicating on EU aquaculture'

- Over half (58%) of MS have developed or launched information / communication campaigns on aquaculture since 1 January 2021, mainly focusing on (i) the sustainability and (ii) the nutritional benefits of eating farmed fish.
- The majority (65%) of MS have conducted public or private initiatives to provide information on aquaculture products to consumers (e.g. codes of conduct, traceability, information to HORECA).
- 38% of MS have introduced quality schemes or labels, and 36% have granted 'Geographical Indications' to aquaculture products since 1 January 2021.
- Just over a quarter (27%) of MS have developed short-supply circuits (e.g. direct sales) since 2021.

3.2.3.2. Integration in local communities

16 MS reported (Chart 50) that there had been measures / initiatives to **involve local stakeholders in the planning and development of aquaculture activities**, via Fisheries Local Action Groups (FLAGs), local spatial planning or other initiatives, including public consultation exercises (both online and in person).

19 MS reported (Chart 51) measures / initiatives **to foster synergies between aquaculture and other activities** (e.g. fisheries, tourism, processing, etc.). Again, maritime spatial planning has been a useful tool to integrate the activities of different maritime economic activities, including aquaculture, into the wider blue economy. In particular, 'aquaculture tourism' has emerged in both the Atlantic and Mediterranean coasts of the EU, combining on-water experiences (e.g. sea tours and fishing), 'seafood' cuisine and the sale of aquaculture products with other local tourism and hospitality offerings. In freshwater, Austria has 'CarpTrails', with guided e-bike tours to experience nature and culinary experiences in carp pond farming areas.

Summary: MS progress in 'Integration in local communities'

- Well over half (62%) of MS have developed measures / initiatives to involve local stakeholders in the planning and development of aquaculture activities, often via FLAGs or through the MSP processes.
- Nearly three-quarters (73%) of MS have developed measures / initiatives to foster synergies between aquaculture and other activities, especially with fishing and tourism, often linked via HORECA initiatives.

3.2.3.3. Data and monitoring

All of the MS except Belgium reported (Chart 52) that they had **compulsory data reporting requirements on aquaculture**. There are increasing levels of on-line reporting, which also contain socio-economic and environmental data. Otherwise, MS referred to reporting to Eurostat and FAO.

In a small number - seven – of MS (Chart 53) producers provide additional environmental information to national authorities and the public, including on the number and nature of escapees and the use of veterinary medicines.

All MS, except Belgium, Greece, Italy and Sweden reported (Chart 54) that **data collected on aquaculture activities were publicly available**. This is usually published via online statistics platforms or via websites operated by the managing authorities. In particular, Italy noted its action 'Coordination, Systematisation, and Management of Data Collection in the Aquaculture Sector' that aims to further optimise data collection in Italian aquaculture to improve the quality of statistical processing and ensure timely transmission across various platforms (EUROSTAT, SIPAM- GFCM, and FAO-FishStat).

Summary: MS progress in 'Data and monitoring'

- Almost all (96%) MS reported that they had compulsory data reporting requirements on aquaculture, increasingly via online digital systems.
- The majority (81%) of MS make aquaculture data available to the public e.g. via the internet.
- A small proportion (27%) of MS have voluntary systems to report other environmental data, including on escapees, and the use of veterinary medicines.

3.2.4. *Strategic Objective 4: Increasing knowledge and innovation*

15 MS responded (Chart 55) that they had **frameworks / platforms for cooperation on research and innovation** to bring together different stakeholders. In most instances these are linked to national science and technology platforms that are already integrated into the Horizon and other EU research funding programmes where they participate in cross-Europe consortia. Other countries also have platforms, such as France's cooperation platform AQUIMER⁽¹²⁵⁾, which promote collaboration between industry, research institutions, and public authorities.

In terms of funding of innovation, the EMFAF is also an important source of funding. For instance, Finland's innovation activities are facilitated under the EMFAF program, which involves all aquaculture stakeholders across the aquaculture value chain in research and development.

19 MS stated that their aquaculture actors were involved in research and innovation in collaboration with other such actors in other MS, often funded by Interreg and Horizon Europe. Seven MS responded (Chart 57) that there were actors involved in research and innovation that were part of a **smart specialisation strategy**⁽¹²⁶⁾ under the EU's Smart Specialisation Strategy (S3) framework linked to aquaculture activities. The AdriaAquaNet⁽¹²⁷⁾ project, under the Interreg Italy-Croatia Program, is a regional example of this approach, aiming to enhance feed efficiency and minimise environmental effects.

20 of the MS responded (Chart 58) that information on research and innovation projects that was publicly funded and related to aquaculture (and the results) were publicly available. Croatia's Smart Specialisation Strategy (S3) which supports sustainable aquaculture innovations and the aforementioned Croatia / Italy AdriaAquaNet programme, are examples. 18 MS responded (Chart 59) that there are mechanisms to ensure that the results of research and innovation projects are made available to the sector to facilitate their utilisation. For example, Croatia employs initiatives such as the Croatian Science Foundation (HRZZ)⁽¹²⁸⁾, OpenAIRE⁽¹²⁹⁾, Knowledge Transfer Offices (KTOs), and conferences to facilitate the sharing of research findings, ensuring that the aquaculture sector can benefit from the latest advancements.

20 of the MS responded (Chart 60) that there were **specific curricula or training courses related to aquaculture activities**, with 11 MS stating this has been developed since 2021. Across the MS, there is now a diverse range of education and training programs support individuals pursuing careers in aquaculture, catering to different levels from basic vocational training to advanced degrees. Some MS, such

⁽¹²⁵⁾ <https://www.poleaquimer.com/>

⁽¹²⁶⁾ Smart Specialisation Strategy (S3): Place-based, innovation-driven economic transformation agendas in the regions and MS of the EU (see [Cohen, 2019](#)).

⁽¹²⁷⁾ <https://programming14-20.italy-croatia.eu/web/adriaquanet>

⁽¹²⁸⁾ <https://hrzz.hr/en/>

⁽¹²⁹⁾ <https://www.openaire.eu/>

as Croatia, provide a continuous education program that addresses strategic issues in aquaculture development, ecological sustainability, and food safety, incorporating lectures, workshops, and consultations. 11 MS stated that they have life-long training initiatives / programmes for aquaculture producers available in their country.

22 of the MS responded (Chart 64) that there were **mechanisms in place to support the upscaling, commercialisation and uptake of innovation in the aquaculture sector**. Croatia, for example, has allocated around EUR 300 000 under its EMFAF Programme for advisory services to assist aquaculture producers in adopting new technologies.

Summary: MS progress in 'Increasing knowledge and innovation'

- Over half (58%) of MS have a framework / platform for supporting national collaboration between different actors in aquaculture research and innovation. In 74% of MS, research has included other MS.
- Less than one-third (27%) of MS link aquaculture to national smart specialisation strategies.
- Nearly 80% of MS make the results of public-funded research & innovation projects available to the public. Just under 70% of MS have systems to ensure that the results of research and innovation projects are made available to the sector in order to facilitate their uptake.
- 85% of MS have mechanisms to support the upscaling, commercialisation and uptake of innovation in the aquaculture sector.
- Likewise, nearly 80% of MS have specific training related to aquaculture. At least 40% of MS have established these since 1 January 2021.
- 42% of MS have established life-long training initiatives / programmes for aquaculture producers, of which 19% of MS have established these since 1 January 2021.

3.2.5. *Transversal: Funding*

The Strategic Guidelines provide also recommendations and propose actions in terms of the use of public funding. In particular, they call on EU MS to coordinate the planning, commitments and expenditure on aquaculture under different funds under the Multiannual Financial Framework, ensuring coherence, synergies and complementarity between them.

It is evident that the **EMFAF remains the mainstay for MS public funding for aquaculture in the EU**, despite of the efforts by the Commission to promote the use of other available programmes (see above on document on funding opportunities). Just under half of MS that replied to the survey (n=13, see Chart 65) stated that they also use **other EU funds**, including funding from, and participation in, the following:

- European Regional Development Fund
- Interreg
- Horizon Europe
- Recovery and Resilience Fund (RRF)

Otherwise, MS said they use national state subsidies, especially for innovation and sustainability, as well as aquaculture business modernisation.

Only a third (n=7) said they had a mechanism at MS level to facilitate synergies in the use of different funding opportunities for aquaculture projects (see Chart 66).

The majority (n=23, see Chart 67) state that they **provide public access to information regarding aquaculture projects funded through EU and national schemes**, ensuring transparency and promoting awareness. Portugal, Spain, and Finland make information about funded projects available through specific websites and publications. Spain provides details of the Pleamar Program ⁽¹³⁰⁾, co-financed by EMFAF. France also ensures transparency by publishing a list of funded projects every six months, which includes project objectives and beneficiary details. Other countries, such as Lithuania, Cyprus, and Germany, make project information accessible on dedicated websites, while Sweden and Denmark also ensure that EMFAF-funded projects are publicly disclosed.

All but one MS (Slovakia) have a mechanism to facilitate access by individual aquaculture stakeholders to funding (Chart 68).

Summary: MS progress in 'Financing'

- Over half (52%) of MS support aquaculture under EU funds other than EMFAF (e.g. EAFRD, ERDF, etc.).
- Less than a third of MS have any mechanism to facilitate synergies in the use of different funding opportunities for aquaculture projects.
- All but one MS (96%) of MS have a mechanism to facilitate access by individual aquaculture stakeholders to funding.

3.2.6. *Transversal: Dissemination*

MS, as indicated in the annex to the Strategic Guidelines, have an important role to play in the promotion and dissemination of the documents of the Commission gathering good practices to address different challenges to the sustainable growth of EU aquaculture. The information gathered for the preparation of this report does not allow to assess how MS have worked on this dissemination. The Commission considers that more efforts need to be done in this respect, since there are very few examples of MS that have provided translations of those documents into their official languages in order to facilitate dissemination among the sector or other relevant actors, or organised any training sessions.

3.3. Aquaculture Advisory Council (AAC)

Created in 2016, the AAC ⁽¹³¹⁾ is one of several advisory councils set up to support implementation of the CFP Regulation (EU) No 1380/2013 ⁽¹³²⁾. The objective of the AAC is to contribute to the development of sustainable aquaculture in the EU, including food supplies, security and employment, by promoting a balanced representation of all stakeholders in the field of aquaculture and by organising the dialogue among such stakeholders ⁽¹³³⁾.

⁽¹³⁰⁾ <https://www.programapleamar.es/>

⁽¹³¹⁾ <https://aac-europe.org/en/>

⁽¹³²⁾ <https://eur-lex.europa.eu/eli/reg/2013/1380/oj/eng>

⁽¹³³⁾ <https://aac-europe.org/wp-content/uploads/2024/02/AAC-Statutes-2024.pdf>

The AAC currently has 52 member organisations from 15 MS and represents both 'sector organisations' ⁽¹³⁴⁾ from the EU aquaculture itself (c. 60% of the stakeholder representation ⁽¹³⁵⁾), including producers, feed suppliers, veterinarians and producer organisations) as well as 'other interest groups' (c. 40% of the stakeholder representation, including currently environmental and animal welfare organisations).

It has three Working Groups (WGs), for 'Finfish', 'Shellfish' and 'Horizontal issues' and around 22 active Focus Groups. As a body of EU interest, the AAC receives a European Commission Grant contributing to 80% of its annual budget, while membership fees and Member States contributions make for the remaining 20%. In 2022-2023, the AAC has received contributions from a total of 8 Member States.

Exchanges with the Commission mainly occur in the context of periodical bilateral meetings with the Aquaculture and blue bioeconomy team in DG MARE, the participation of Commission experts in meetings of AAC working groups, and consultations of the Commission to the AAC in relation to work on different documents which are part of the implementation of the Strategic Guidelines. As indicated in the background to this document, the AAC worked closely with DG MARE in the context of the preparation of the Strategic guidelines before their adoption in 2021.

3.3.1. AAC role in implementing the Strategic Guidelines

3.3.1.1. Work planning

The AAC agrees annual 'strategic plans' from the 1st of November to 31st October each year. In the four annual work plans reviewed ⁽¹³⁶⁾, the implementation of the Strategic Guidelines is the primary long-term work priority, where the AAC fulfils specific tasks related to the guidelines (see table overleaf).

⁽¹³⁴⁾ For latest definitions of 'sector organisations' and 'other interest groups', see <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R0204>

⁽¹³⁵⁾ In terms of allotment of seats to the General Assembly and the Executive Committee

⁽¹³⁶⁾ 2021-2022, 2022-2023, 2023-2024 and 2024-2025 (https://aac-europe.org/wp-content/uploads/2024/12/2.-AAC-Strategic-Plan_2024-2025.pdf)

Table 6: AAC annual work plans and tasks related to the 2021 Strategic Guidelines

Work plan	Tasks related to the Strategic Guidelines
2021 - 2022	None specified, but refers to the tasks that have been attributed to it by the Annex of the Strategic Guidelines
2022 – 2023	• To provide input to the DG MARE Aquaculture and blue bioeconomy team whenever requested at different stages of the preparation of the guidance documents foreseen in the annex of the Strategic Guidelines; • To continue its participation (via a designated representative) in the Task Force for the preparation of the EU-wide communication campaign on aquaculture, and to support and ensure the broad dissemination by members of this campaign; • To launch an internal reflection on how best to disseminate information towards the EU aquaculture producers such as Good practices and Guidance.
2023 – 2024	• As 2022 - 2023
2024 - 2025	• To provide input to the DG MARE Aquaculture and blue bioeconomy team whenever requested at different stages of the preparation of the Guidance Documents foreseen in the annex of the Strategic Guidelines; • To constantly aim at improving the dissemination of information towards the EU aquaculture stakeholders, such as Good practices and Guidance. • To disseminate among Members the EU Aquaculture website and invite them to join as registered users. • To propose, where relevant, information to be included in the Knowledge base of this website. • To support the work on the mid-term assessment of the implementation of the Strategic Guidelines due in 2025. • To contribute to studies ongoing or planned (e.g. study on the assessment of environmental benefits of aquaculture and future study on feed).

The AAC's annual strategic plans provide a facility for on-going, *ad hoc* advice to DG MARE, as well as focusing on specific topics. The reference to the implementation of the strategic guidelines was fairly generic. However, the most recent strategic plan (November 2024 – October 2025) is more specific, including among other tasks providing support to this mid-term assessment. It should be noted that the other long-term priorities ⁽¹³⁷⁾ covered by the AAC strategic plans are also highly relevant to supporting the 2021 Strategic Guidelines. All in all, the AAC annual strategic plans are strongly aligned to these guidelines. However, despite the current bi-annual meetings between the AAC and DG MARE, the AAC notes that better coordination between the Commission, the MS, the national aquaculture producer organisations and the AAC would improve further the alignment of work on the implementation of the strategic guidelines.

⁽¹³⁷⁾ II Resilience/competitiveness of EU aquaculture; III Green Transition, IV Social acceptance / consumer information; and V. Knowledge / innovation

3.3.2. *Activities undertaken by the AAC to support the implementation of the Strategic Guidelines*

From May 2021 to December 2024, the AAC has published 53 **recommendations** ⁽¹³⁸⁾. While not always linked directly to the implementation of the strategic guidelines, these recommendations respond to a wide variety of topics relevant to the sustainable development of EU aquaculture. These have been summarised in **Table 7** on page 62, which shows the link of these recommendations to the four Strategic Objectives and 13 topics of the Strategic Guidelines. These recommendations are generally aimed at both the Commission and Member States and are designed to be both constructive and informative. These recommendations are rigorously assessed by the Commission, who will usually provide a formal response ⁽¹³⁹⁾ in the required two months, both providing their views on the recommendations and identifying how they will or have responded. The MS are also encouraged to respond and sometimes do ⁽¹⁴⁰⁾, either on an individual or joint basis.

There have been some encouraging follow up actions by the Commission that can be linked to AAC or Joint Advisory Council (AC) recommendations, such as the setting up of a reference centre for the welfare of aquatic animals, work towards the valorisation of fish sludge, or the introduction of an annual survey to EU Member States as a means to ensure a regular monitoring of the impact of current EU aquaculture instruments.

The AAC has also sent four **letters** to the Commission on specific topics:

1. AAC meeting on the Strategic Guidelines implementation (June 2021): AAC members ranked actions in order of priority for implementation. This was a core basis for the AAC's focus going forward.
2. Guidance documents on marine spatial planning and good practises on administrative procedures (June 2022): inputs from individual members to the drafting by the AAM of guidance documents on access to marine space and the regulatory and administrative framework of EU aquaculture.
3. AAC response to Guidance Documents (October 2024). Advice on how best the AAC responds to the Commission Guidance Document .
4. Guidance document on Environmental Performance (December 2024): detailed AAC advice on the draft guidance document on environmental performance prepared by the AAM, including identifying environmental indicators.

The AAC has also published four detailed research **reports** since May 2021, all relevant to the Strategic Guidelines, which have also influenced the recommendations discussed above:

- Guidance document on Fish Health Management to the attention of fish farmers in the light of climate change (Dec, 2024).

⁽¹³⁸⁾ https://aac-europe.org/en/recommendations/recommendations_sub/

⁽¹³⁹⁾ <https://aac-europe.org/en/recommendations/european-commission-answers/>

⁽¹⁴⁰⁾ <https://aac-europe.org/en/recommendations/member-states-answers/>

- Using ethology to improve farmed fish welfare & production (Jun, 2023).
- European Aquaculture: Climate Change Adaptation & Mitigation (Oct, 2022).
- Aquatic Debris from European Aquaculture (Oct, 2021).

The AAC have been particularly active in the **animal welfare** space, with at least 10 recommendations published on this subject to date (see Table overleaf). The AAC proposes (i) the introduction of binding EU animal welfare standards for farmed aquatic animals by including aquatic animals in the scope of the forthcoming modernisation of the Kept Animals regulation (Council Directive 98/58/EC of 20 July 1998), the Slaughter regulation (Council Directive 93/119/EC of 22 December 1993) and/or the upcoming Ocean Pact initiatives, including the EU Initiative on Sustainable Aquaculture and the Ocean Act, and (ii) the introduction of targets on the update of animal welfare practices amongst other recommendations (AAC, 2025b).

The AAC has also participated in the 'taskforce' guiding the preparation of the EU **communication campaign on aquaculture** ⁽¹⁴¹⁾. The AAC has also been regularly consulted by DG MARE and the AAM in the context of the preparation of documents that are part of the implementation of the strategic guidelines (see Commission SWD mentioned above). Discussions with the AAC show that they recognise the keystone role they play in liaising with the EU aquaculture supply chain. At the same time, they note the limitations inherent to an umbrella organisation across a geographically and institutionally diverse sector. This means that it is important to be clear as to who implements AAC recommendations and the role which the Commission, the MS managing authorities and the national farmer associations play in this.

It is important to note that the annex to the strategic guidelines gives the AAC a key role in terms of '**dissemination**' of documents, good practices and other relevant tools. While the AAC has played a very important role in the preparation of those documents and good practices (with their input and participation in dedicated workshops organised by DG MARE), the information provided does not allow to assess how efficient the AAC has been in its role of "dissemination". However, the AAC has recently started organising webinars to disseminate among producers and other actors the documents adopted by the AAC and the Commission. A first webinar on Good Husbandry Practices was organised on 30 September and gathered around 130 participants. The AAC is planning to hold 2 to 3 webinars of this type in the future on other documents which are part of the implementation of the Strategic Guidelines.

The AAC have been strongly engaged in this assessment and in May 2025 published 'Recommendations on the draft report on the mid-term assessment of the Strategic Guidelines for EU Aquaculture and the Multiannual Strategic Plans' (AAC, 2025a). This was followed by the 'AAC Recommendation on the second draft report on the mid-term assessment of the Strategic Guidelines for EU Aquaculture and the Multiannual Strategic Plans AAC 2025-06' (AAC, 2025b)

⁽¹⁴¹⁾ Relaunched in March 2025 - <https://ec.europa.eu/newsroom/cinea/items/862488/>

Table 7: AAC outputs related to the 2021 Strategic Guidelines (up to and including September 2025)

Strategic Guidelines objective	Strategic Guidelines topics	Relevant AAC outputs
1. Building resilience and competitiveness (n=22)	1.1 Space and water (n=3)	AAC Recommendation on the Marine Action Plan, Nature Restoration Law and Mapping Shellfish Dredging (Aug, 2024) AAC Recommendation on the impact of the Action Plan's Bottom Trawling Ban on Shellfish Farming (Jun, 2023) AAC Recommendations on the coherence of zones concerning shellfish farming (Dec, 2021)
	1.2 Regulatory & administrative framework (n=8)	AAC Recommendation for a Vision for Aquaculture in 2040 (Sept, 2025) AAC Recommendation on the evaluation of the Common Fisheries Policy (May, 2025) AAC Recommendation for an Aquaculture Policy Reform (Jul, 2024) AAC Recommendation on the European Union Marine Strategy Framework Directive (Apr, 2024) AAC Framework Recommendation for an Aquaculture Policy Reform (Feb, 2024) AAC recommendations on EMFAF for 2021-2027 (Nov, 2022) AAC Recommendation on the CITES (Aug, 2021) AAC Recommendation on the EU Taxonomy Regulation and EU aquaculture (Jun, 2021)
	1.3 Animal health & public health (n=5)	AAC Recommendation on the biosecurity of shellfish hatcheries and nurseries (Oct, 2024) AAC Recommendation on the Norovirus crises, the final stages of the negotiations of the Urban Wastewater Treatment Directive and the Water Resilience Initiative (Sept, 2024) AAC Recommendation on the risks of bivalve mollusc pathogen emergence in connection with climate change (Sep, 2022) AAC Recommendation on Anticipating Noroviral Contamination through the Use of Antidiarrhoeals (Jan, 2022) AAC Recommendation on the differential food safety characteristics of farmed fish (Sep, 2021)
	1.4 Climate-change adaptation & mitigation (n=3)	AAC Recommendation on the decarbonisation of finfish farming facilities (Jun, 2023) AAC Recommendations for Climate Change Adaptation and Mitigation in Aquaculture (May, 2023) AAC Recommendation on carbon sequestration by molluscs (Apr, 2022)
	1.5 Producer and market organisation (n=3)	AAC Recommendation on the Definition and Realities of Small-Scale Aquaculture (Dec, 2022) AAC Recommendation in relation to rising production costs (Apr, 2022) AAC Recommendation on the Role of Producers' Organisations in the Sustainable Development of Aquaculture (Dec, 2021)
	1.6 Control (n=1)	AAC Recommendation on achieving greater sustainability standards of imported aquaculture products and a level-playing field (Dec, 2021)
	1.7 Diversification and adding value (n=1)	Joint-AC Advice on valorisation of fisheries and aquaculture by-products

Strategic Guidelines objective	Strategic Guidelines topics	Relevant AAC outputs
2. Participating in the Green Transition (n=18)	2.1 Environmental performance (n=11)	AAC Recommendation on the draft guidance document on environmental performance in EU aquaculture (July, 2025) AAC Recommendation on Promoting Low-trophic Aquaculture and Low-Impact Aquaculture (Oct, 2024) AAC Recommendation on Organic Aquaculture (Jul, 2023) AAC Recommendation on shellfish farming as a nitrogen sink (Jul, 2023) AAC Recommendation on Ecosystem Services (Jun, 2021) AAC Recommendation on the circularity of fish feed (Jul, 2023) AAC Recommendation on the predation by birds in relation with shellfish farming (Apr, 2022) AAC Recommendation on the legal classification of farmed fish waste as manure (Apr, 2022) AAC Recommendation on Freshwater Aquaculture and Wildlife (Mar, 2022) AAC Recommendation on the EU Biodiversity Strategy for 2030 (Jul, 2021) AAC Recommendation on the Farm to Fork Strategy (May, 2021)
	2.2 Animal welfare (n=10)	AAC Recommendation on the draft factsheets on Good Husbandry Practices for Turbot, Senegalese Sole and Meagre (Sept 2025) AAC Recommendation on the draft Code of good practices on fish welfare and fish welfare indicators (Sept, 2025) AAC Recommendation on Molluscan Welfare (Nov, 2024) AAC Recommendation on Priorities for EURCAW-Aqua (Aug, 2024) AAC Code of Good Practices on Fish Welfare among Aquaculture Producers (Jul, 2024) AAC Recommendation on using ethology, an understanding of fish behaviour, to improve fish welfare and production (Oct, 2023) AAC Recommendation on Fish Health Good Management Practices (Oct, 2023) AAC Recommendation on Good husbandry practices in shellfish farming (Oct, 2023) AAC Recommendation for the setting up of a Fish Welfare Reference Centre (Mar, 2022) AAC Recommendation on Fish Welfare in Live Fish Transport (Mar, 2022)
3. Ensuring social acceptance and information to the consumer (n=7)	3.1 Communicating on EU aquaculture (n=4)	AAC Recommendation on consumer information on fishery & aquaculture products, particularly in the context of the HORECA Sector (Oct 2024) AAC Recommendation on Promoting the involvement of young professionals in aquaculture (Oct, 2023) AAC Recommendation on EU Aquaculture Values (Dec, 2021) AAC Recommendation on the position of aquaculture in EU agricultural promotion policy (Sep, 2021)
	3.2 Integration in local communities (n=0)	

Strategic Guidelines objective	Strategic Guidelines topics	Relevant AAC outputs
	3.3 Data and monitoring (n=3)	AAC Recommendation on the request by DG MARE of technical studies on aquaculture (Apr, 2024) AAC Recommendations for STECF Reports on the Economic Performance of the EU's Aquaculture Sector (Jun, 2022) AAC Recommendation on COVID-19 Impacts and Responses (Feb, 2022)
4. Increasing knowledge and innovation (n=7)	4. Increasing knowledge & innovation (n=7)	Recommendation on the Recovery of Eel Stock (Sept, 2024) AAC-MAC Recommendations for the inclusion of indicators of economic sustainability (in the STECF's EU economic report on the aquaculture sector) (Jul, 2023) AAC Recommendations on Aquaculture definitions (Jul, 2022) AAC Recommendation on the Product Environmental Footprint Category Rules (PEFCR) (Mar, 2022) AAC Recommendations on the CFP / CMO targeted consultations (Mar, 2022) AAC Recommendation on Aquatic Debris from European Aquaculture (Mar, 2022) AAC's contribution to the Consultation on the improvements to the functioning of Advisory Councils (Sep, 2021)

4. Financial support to the implementation of the Strategic Guidelines

The third main output of this mid-term assessment is the assessment of the financial support provided by the EU and EU Member States for the implementation of the Strategic Guidelines and national strategic plans. **Section 3.1** above already describes, as part of the implementing actions by the Commission, projects directly managed by the Commission under different EU funding programmes, notably but not exclusively in relation to support to research and innovation. This section will focus on the EU funding managed by EU MS, and, notably, the following:

1. The **European Maritime and Fisheries Fund (EMFF)**. Based on Regulation (EU) No 508/2014 on the European Maritime and Fisheries Fund ⁽¹⁴²⁾. Although replaced in 2021 by the EMFAF (see next), funding continued into the middle of 2024 and therefore is considered to have supported the implementation of the Strategic Guidelines.
2. The **European Maritime, Fisheries and Aquaculture Fund (EMFAF)**. Based on Regulation (EU) No 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund ⁽¹⁴³⁾. The first awards were made in December 2021, with low levels of expenditure in 2022 and peaking in 2023.

Sub-section 4.3 below (Other funds) provides an overview of financial support under other EU funds, including Horizon 2020, Horizon Europe, Life 2027 and Interreg.

4.1. European Maritime and Fisheries Fund (EMFF)

The EMFF had an overall budget of EUR 6,4 billion ⁽¹⁴⁴⁾ over the 2014 – 2020 period, although was amended in 2020 to provide COVID-19 pandemic temporary measures ⁽¹⁴⁵⁾ and again in 2022 for measures to alleviate the consequences of Russia's war of aggression against Ukraine ⁽¹⁴⁶⁾.

Of the c. EUR 5,6 billion managed by the MS, around 15% was spent on aquaculture under Union Priority (UP) UP2 (see table overleaf), with an average of 18% of total EMFF allocation per MS. Spain had the largest share of EMFF (18.8% of the total)

⁽¹⁴²⁾ <https://eur-lex.europa.eu/EN/legal-content/summary/european-maritime-and-fisheries-fund-2014-2020.html>

⁽¹⁴³⁾ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R1139>

⁽¹⁴⁴⁾ 11% was directly managed by the Commission to support EU-wide objectives in maritime and coastal affairs and 89% was indirectly managed by the Member States by means of operational programmes - https://oceans-and-fisheries.ec.europa.eu/funding/european-maritime-and-fisheries-fund-emff_en#:~:text=The%20EMFF%20is%20the%20fund%20for%20the%20EU%27s,of%20%E2%82%AC6%20400%20million%20for%20the%20period%202014-2020.

⁽¹⁴⁵⁾ Delegated Regulation (EU) 2020/560 - <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32020R0560>

⁽¹⁴⁶⁾ Amending Regulation (EU) 2022/1278 - <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32022R1278>

and spent the highest proportion of its share (14.9% of the national budget) on aquaculture. Poland had 9.5% of the total and spent the second highest proportion of national share (12.4%) on aquaculture. France has a slightly higher allocation (10.5% of the total) than Poland and the third highest expenditure (11.8%) on aquaculture.

Table 8: EMFF funding budget and allocation to aquaculture under UP2

Member State	Total EMFF allocation		EMFF spend (UP2)	% of total MS allocation	% of MS spend
	EUR	%	EUR		
AT	€ 6,965,000	0.1%	€ 4,130,092	59%	0.5%
BE	€ 41,746,051	0.7%	€ 3,051,369	7%	0.4%
BG	€ 80,823,727	1.4%	€ 11,185,842	14%	1.4%
CY	€ 39,715,209	0.7%	€ 4,071,144	10%	0.5%
CZ	€ 31,108,015	0.6%	€ 22,759,970	73%	2.8%
DE	€ 219,596,276	3.9%	€ 53,576,916	24%	6.5%
DK	€ 208,355,420	3.7%	€ 13,885,852	7%	1.7%
EE	€ 100,970,418	1.8%	€ 4,753,857	5%	0.6%
EL	€ 379,745,523	6.8%	€ 70,350,820	19%	8.6%
ES	€ 1,057,143,957	18.8%	€ 122,088,177	12%	14.9%
FI	€ 74,393,168	1.3%	€ 13,396,520	18%	1.6%
FR	€ 587,980,173	10.5%	€ 96,858,698	16%	11.8%
HR	€ 252,643,138	4.5%	€ 41,963,062	17%	5.1%
HU	€ 38,412,223	0.7%	€ 13,748,237	36%	1.7%
IE	€ 147,601,979	2.6%	€ 15,038,503	10%	1.8%
IT	€ 537,262,559	9.6%	€ 49,567,156	9%	6.0%
LT	€ 63,432,222	1.1%	€ 13,682,383	22%	1.7%
LV	€ 139,833,742	2.5%	€ 13,548,633	10%	1.7%
MT	€ 22,627,422	0.4%	€ 950,010	4%	0.1%
NL	€ 101,523,244	1.8%	€ 4,647,740	5%	0.6%
PL	€ 531,219,456	9.5%	€ 101,316,235	19%	12.4%
PT	€ 392,485,464	7.0%	€ 59,332,126	15%	7.2%
RO	€ 168,421,371	3.0%	€ 58,253,807	35%	7.1%
SE	€ 120,156,004	2.1%	€ 7,915,358	7%	1.0%
SI	€ 21,777,441	0.4%	€ 2,066,367	9%	0.3%
SK	€ 7,736,596	0.1%	€ 1,488,314	19%	0.2%
UK	€ 243,139,437	4.3%	€ 16,497,530	7%	2.0%
Total / Avg.	€ 5,616,815,235	100%	€ 820,124,720	18%	100%

For the purposes of this assessment, as the measures under the different Articles in the EMFF Regulation preceded the 2021 Strategic Guidelines, those measures have been linked to specific objectives and areas across the strategic guidelines (see **Table 9**). However, it has not always been possible to establish a direct correlation between measures defined in the EMFF Regulation and the different objectives and areas covered in the strategic guidelines. Therefore the results below are indicative rather than absolute.

Table 9: Mapping of EMFF Regulation Articles relating to aquaculture in relation to objectives and areas in the 2021 Strategic Guidelines

EMFF Art. No.	Title in the EMFF Regulation	2021 Strategic Guidelines objective	2021 Strategic Guidelines area
Art. 47	Innovation	4. Increasing knowledge and innovation	4. Increasing knowledge and innovation
Art. 48 (1)a-d & f-h	Productive investments (diversification)	1. Building resilience and competitiveness	1.7 Diversification and adding value
Art. 48 (1) e, i & j	Productive investments (resource use)	2. Participating in the Green Transition	2.1 Environmental performance
Art. 48 (1) k	Productive investments (energy efficiency)	2. Participating in the Green Transition	2.1 Environmental performance
Art. 49	Management, relief and advisory services for aquaculture farms	1. Building resilience and competitiveness	Not definable
Art. 50	Promotion of human capital and networking	4. Increasing knowledge and innovation	4. Increasing knowledge and innovation
Art. 51	Increasing the potential of aquaculture sites	1. Building resilience and competitiveness	1.7 Diversification and adding value
Art. 52	Encouraging new aquaculture farmers practising sustainable aquaculture	4. Increasing knowledge and innovation	4. Increasing knowledge and innovation
Art. 53	Conversion to eco-management and audit schemes and organic aquaculture	2. Participating in the Green Transition	2.1 Environmental performance
Art. 54	Aquaculture providing environmental services	2. Participating in the Green Transition	2.1 Environmental performance
Art. 55	Public health measures	1. Building resilience and competitiveness	1.3 Animal health and public health
Art. 56	Animal health and welfare measures	2. Participating in the Green Transition	1.3. Animal health and public health 2.2 Animal welfare
Art. 57	Aquaculture stock insurance	1. Building resilience and competitiveness	Not definable

The following assessment uses this mapping to examine the nature of EMFF aquaculture-related expenditure since the adoption of the Strategic Guidelines. For the purposes of this analysis, projects approved from July 2021 onwards are taken into consideration. The data source is the INFOSYS EMFF / EMFAF funding database from a data extraction kindly conducted by the FAMENET Support Unit. This included all operations funded through EMFF articles 47 – 57 e.g. under Chapter II: Sustainable Development of Aquaculture.

4.1.1. Expenditure by type of operation

Table 10 below shows the EMFF expenditure (in EUR (€)) against the mapped objectives and areas of the Strategic Guidelines.

Table 10: Estimated EMFF support (EUR (€)) and number of operations funded in support of the Strategic Guidelines objective and topic and EMFF Regulation Article title (June 2021 – December 2023)

Strategic Guidelines Objective / Topic / Art. Title	EMFF expenditure	No. of operations
1. Building resilience and competitiveness	€ 162 524 876	3 458
1.3 Animal health and public health	€ 39 676 601	1 619
Public health measures	€ 39 676 601	1 619
1.7 Diversification and adding value	€ 119 312 638	1 759
Increasing the potential of aquaculture sites	€ 3 395 446	33
Productive investments (diversification)	€ 115 917 192	1 726
Not definable	€ 3 535 636	80
Aquaculture stock insurance	€ 1 438 599	55
Management, relief and advisory services	€ 2 097 037	25
2. Participating in the Green Transition	€ 24 877 667	591
2.1 Environmental performance	€ 17 081 162	401
Aquaculture providing environmental services	€ 10 791 921	235
Productive investments (energy efficiency)	€ 1 588 820	111
Productive investments (resource use)	€ 4 700 422	55
2.2 Animal welfare	€ 7 796 506	190
Animal health and welfare measures	€ 7 796 506	190
4. Increasing knowledge and innovation	€ 14 011 901	204
4. Increasing knowledge and innovation	€ 14 011 901	204
Encouraging new aquaculture farmers	€ 257 431	11
Innovation	€ 12 624 275	128
Promotion of human capital and networking	€ 1 130 195	65
Grand Total	€ 201 414 445	4 253

Source: INFOSYS, supplied by the FAMENET Support Unit.

Key takeaways from this include:

1. The third objective - *Ensuring social acceptance and information to the consumer* – does not seem to be as such covered by the EMFF eligible measures of support to aquaculture (see mapping above in Table 9).
2. The important areas under the objective of *Building resilience and competitiveness* that relate to *access to space* and *regulatory and administrative framework* and *adaptation to climate change* do not seem to correlate to any eligible measure under EMFF.
3. Around 81% of funding by value and in terms of numbers of operations are under Strategic Objective 1 - *Building resilience and competitiveness*. The

majority (59% of total EMFF expenditure) are under Topic 1.7 *Diversification and adding value*, with almost all coming under the description *Productive investments (diversification)* Article (48 (1)a-d & f-h). The small balance is under the *Increasing the potential of aquaculture sites* Article (51).

4. The other significant expenditure of EMFF funding on aquaculture was for *Public health measures* under Topic 1.3 *Animal health and public health*. Although this accounted of only 20% of the total funding to aquaculture over this time period, it represented a much larger 38% of all the operations supported in terms of numbers.
5. One Article title (47) *Innovation* under the Strategic Objective 4 *Increasing knowledge and innovation* accounted for 7% of EMFF financial expenditure and 5% of the number of operations.
6. The other topics were less well supported, with <5% of funding each.

4.1.2. *Expenditure by Member State*

Looking at the distribution of EMFF support to each Member State, **Table 11** shows EMFF support (in millions of EUR) against the mapped objectives and areas of the Strategic Guidelines.

Key takeaways from this include:

1. **Spain** had spent the largest share per EU MS (34%) of total EMFF support on aquaculture over the period (June 2021 – December 2023). This was mainly (83% of the Spanish funding of aquaculture) for *Productive investments (diversification)* under Strategic Objective 1 - *Building resilience and competitiveness*. Some of the awards were very large, with one beneficiary receiving around EUR 35 million over three operations.
2. Other main patterns in expenditure included:
 - a. **Greece's** expenditure on aquaculture accounts for 15% of the total EMFF support provided by EU MS to aquaculture. Like Spain, the largest support (63% of the Greek funding of aquaculture) was for *Productive investments (diversification)* under the 1.7 *Diversification and adding value* topic in Strategic Objective 1 - *Building resilience and competitiveness*. The majority (37%) of the remaining funding was for Public health measures under the same Strategic Objective 1.
 - b. **Italy's** share of the total EMFF support spent on aquaculture was 8,8%, while **France's** share was 9,9% and **Croatia's** 7,7%. These countries followed a similar pattern in funding to the above MS; e.g. mainly on '*Productive investments (diversification)*', although a substantial proportion (24%) of Croatia's EMFF funding was also for *Aquaculture providing environmental services* under topic 2.1 *Environmental performance* in Strategic Objective 2 *Participating in the Green Transition*.

Finally, it should be noted that the European Court of Auditors (ECA) report from 2023 on EU aquaculture policy ⁽¹⁴⁷⁾ concluded that the three-fold increase in fund allocation over the EMFF 2014 – 2020 period compared to the EFF 2007-2013 period was made without the Commission and Member States properly demonstrating the need for such a large increase. According to this report, the increase of the funding available was not properly justified, inadequately monitored and implementation was driven by absorption targets rather than contribution to the policy objectives. The report recommended to:

- support MS in addressing the obstacles to a sustainable development of EU aquaculture;
- improve the targeting of EU funds; and
- enhance the monitoring of EU funding's performance and of environmental sustainability.

FAMENET is currently conducting an 'Ancillary Task' to support the Commission to implement Recommendation 2 (b) from the ECA report mentioned above to "assess whether Member States have used selective criteria when choosing projects to be funded and based on this assessment, share best practice on how to make better use of the EMFAF as a tool to achieve the objectives of EU aquaculture policy and of the multiannual national strategic plans for aquaculture." This will assist in funding decisions made at the Member State level to demonstrate alignment with the EMFAF's sustainability objectives, and specifically the Strategic Aquaculture Guidelines.

⁽¹⁴⁷⁾ Special report 25/2023: EU aquaculture policy - <https://www.eca.europa.eu/en/publications/sr-2023-25>

Table 11: Estimated EMFF support (EUR (€)) (expenditure) in support of the Strategic Guidelines objective and topic and EMFF Regulation Article title by Member State (June 2021 – December 2023)

Strategic Guidelines Objective / Topic / Art. Title	EMFF expenditure (EUR million)																								Grand	
	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LV	NL	PL	PT	RO	SI	SK	UK	Total
1. Building resilience and competitiveness	0.03	0.22	1.03	0.47	3.74	2.67	0.00	0.09	62.69	0.98	17.75	29.36	10.57	1.79	0.66	14.59	1.11	0.00	0.00	5.45	5.77	2.50	0.44	0.11	0.50	162.52
1.3 Animal health and public health	0.00	0.00	0.49	0.00	1.37	0.00	0.00	0.00	3.66	0.00	7.93	14.81	3.93	0.00	0.00	6.96	0.00	0.00	0.00	0.03	0.00	0.40	0.00	0.00	0.09	39.68
Public health measures	0.00	0.00	0.49	0.00	1.37	0.00	0.00	0.00	3.66	0.00	7.93	14.81	3.93	0.00	0.00	6.96	0.00	0.00	0.00	0.03	0.00	0.40	0.00	0.00	0.09	39.68
1.7 Diversification and adding value	0.03	0.22	0.53	0.47	2.37	2.67	0.00	0.09	58.94	0.97	9.81	14.55	5.50	1.79	0.13	6.41	1.11	0.00	0.00	5.42	5.24	2.10	0.44	0.11	0.41	119.31
Increasing the potential of aquaculture sites	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.66	0.01	1.28	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.16	3.40	
Productive investments (diversification)	0.03	0.22	0.53	0.47	2.37	2.66	0.00	0.09	58.28	0.96	8.53	14.55	5.50	1.79	0.13	5.77	1.11	0.00	0.00	5.42	5.24	1.47	0.44	0.11	0.25	115.92
Not definable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.00	0.00	1.14	0.00	0.53	1.22	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	3.54
Aquaculture stock insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
Management, relief and advisory services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.00	0.00	0.01	0.00	0.53	0.91	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	2.10
2. Participating in the Green Transition	0.00	0.00	0.00	0.00	0.20	3.61	2.21	0.33	1.78	0.01	0.42	0.00	4.74	0.00	0.00	1.88	2.99	0.00	0.00	1.08	4.86	0.03	0.74	0.00	0.00	24.88
2.1 Environmental performance	0.00	0.00	0.00	0.00	0.20	3.61	2.21	0.33	1.33	0.00	0.42	0.00	4.74	0.00	0.00	0.63	1.78	0.00	0.00	1.08	0.00	0.03	0.74	0.00	0.00	17.08
Aquaculture providing environmental services	0.00	0.00	0.00	0.00	0.00	2.62	0.00	0.00	1.18	0.00	0.00	0.00	4.74	0.00	0.00	0.63	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.79
Productive investments (energy efficiency)	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.15	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.67	0.00	0.03	0.00	0.00	0.00	1.59
Productive investments (resource use)	0.00	0.00	0.00	0.00	0.20	0.54	2.21	0.33	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.74	0.00	0.00	4.70
2.2 Animal welfare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.01	0.00	0.00	0.00	0.00	0.00	1.26	1.21	0.00	0.00	0.00	4.86	0.00	0.00	0.00	0.00	7.80
Animal health and welfare measures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.01	0.00	0.00	0.00	0.00	0.00	1.26	1.21	0.00	0.00	0.00	4.86	0.00	0.00	0.00	0.00	7.80
4. Increasing knowledge and innovation	0.00	0.00	0.00	0.00	0.00	2.92	0.00	0.00	4.66	0.00	1.76	0.00	0.21	0.05	0.12	1.22	0.00	0.00	0.00	2.34	0.31	0.00	0.00	0.00	0.43	14.01
4. Increasing knowledge and innovation	0.00	0.00	0.00	0.00	0.00	2.92	0.00	0.00	4.66	0.00	1.76	0.00	0.21	0.05	0.12	1.22	0.00	0.00	0.00	2.34	0.31	0.00	0.00	0.00	0.43	14.01
Encouraging new aquaculture farmers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.05	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
Innovation	0.00	0.00	0.00	0.00	0.00	2.91	0.00	0.00	4.58	0.00	0.91	0.00	0.21	0.00	0.06	0.87	0.00	0.00	0.00	2.34	0.31	0.00	0.00	0.00	0.43	12.62
Promotion of human capital and networking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.85	0.00	0.00	0.00	0.05	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
Grand Total	0.03	0.22	1.03	0.47	3.94	9.20	2.21	0.43	69.14	0.99	19.92	29.36	15.51	1.84	0.78	17.69	4.10	0.00	0.00	8.86	10.95	2.53	1.18	0.11	0.93	201.41

Source: INFOSYS, supplied by the FAMENET Support Unit.

4.2. European Maritime, Fisheries and Aquaculture Fund (EMFAF)

The EMFAF is established in Regulation (EU) 2021/1139 of 7 July 2021⁽¹⁴⁸⁾ establishing the European Maritime, Fisheries and Aquaculture Fund and amending Regulation (EU) 2017/100 and runs from 2021 to 2027. It has a total budget of EUR 6,108 billion, of which EUR 5,311 billion is under shared management through national programmes co-financed by the EU budget and EU countries (see table below) and EUR 797 million is provided directly by the Commission through direct management. Under shared management, each country receives the same percentage of the fund's budget as during the previous period, 2014-2020.

Table 12: EMFAF total allocation and commitments (under shared management) to aquaculture (SO 2.1) by Member State (by 31 December 2024)

Member State	Total EMFAF allocation		EMFAF committed (2.1)	% of total MS allocation	% of MS spend
	EUR	%	EUR		
Austria	€ 6,718,094	0.1%	€ 2,109,637	31%	1.0%
Belgium	€ 40,266,171	0.7%	€ 918,689	2%	0.4%
Bulgaria	€ 84,944,698	1.4%		0%	0.0%
Cyprus	€ 38,307,322	0.6%		0%	0.0%
Czechia	€ 30,005,249	0.5%	€ 7,566,780	25%	3.6%
Germany	€ 211,811,682	3.5%	€ 9,096,448	4%	4.3%
Denmark	€ 200,969,309	3.3%	€ 7,655,097	4%	3.6%
Estonia	€ 97,391,060	1.6%	€ 990,500	1%	0.5%
Greece	€ 363,746,026	6.0%		0%	0.0%
Spain	€ 1,120,441,924	18.3%	€ 13,921,171	1%	6.6%
Finland	€ 71,755,962	1.2%	€ 5,129,479	7%	2.4%
France	€ 567,136,526	9.3%	€ 23,046,643	4%	10.9%
Croatia	€ 243,687,047	4.0%	€ 2,611,215	1%	1.2%
Hungary	€ 37,710,346	0.6%		0%	0.0%
Ireland	€ 142,369,552	2.3%		0%	0.0%
Italy	€ 518,216,830	8.5%	€ 7,143,271	1%	3.4%
Lithuania	€ 61,183,577	1.0%	€ 3,813,915	6%	1.8%
Latvia	€ 134,876,696	2.2%	€ 9,542,869	7%	4.5%
Malta	€ 21,825,290	0.4%	€ 1,078,935	5%	0.5%
Netherlands	€ 97,924,288	1.6%	€ 3,674,033	4%	1.7%
Poland	€ 512,387,953	8.4%	€ 71,804,467	14%	34.1%
Portugal	€ 392,572,022	6.4%	€ 36,027,195	9%	17.1%
Romania	€ 162,450,905	2.7%		0%	0.0%
Sweden	€ 115,896,525	1.9%	€ 4,404,038	4%	2.1%
Slovenia	€ 23,929,641	0.4%	€ 126,000	1%	0.1%
Slovakia	€ 15,225,428	0.2%		0%	0.0%
DG-MARE	€ 797,000,000	13.0%		0%	0.0%
Total / Avg.	€ 6,110,750,123	100%	€ 210,660,379	5%	100%

Source: INFOSYS, supplied by the FAMENET Support Unit.

⁽¹⁴⁸⁾ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2021.247.01.0001.01.ENG

As with the EMFF, Member State (shared management) expenditure is planned and budgeted through their EMFAF programmes, which include aquaculture. Therefore, each MS must decide on the distribution of the funding attributed to them between the different specific objectives. According to the EMFAF Regulation, support to aquaculture elements under the MS funding programme must be consistent with its MNSP. In its review of the draft EMFAF MS programmes, the Commission ensured that they were in line with the relevant MNSP. Given these MNSPs are generally based on the 2021 Strategic Guidelines, the national programme expenditure should therefore be coherent with the guidelines.

As with the EMFF analysis, this analysis of EMFAF support to aquaculture used data held in the INFOSYS database. It covers commitments related to aquaculture under SO 2.1 and 2.2. The INFOSYS field categorisation does not refer to the objectives or areas in the Strategic guidelines so, as with the EMFF analysis, the 'Type of operation' in the INFOSYS database had to be linked to those objectives and areas (see below). Again, the correlation between the type of operation and the objectives and topics in the strategic guidelines is not always clear and conclusions therefrom are merely indicative. This analysis covers EMFAF operations committed ⁽¹⁴⁹⁾ from December 2021 to December 2024.

Table 13: Mapping of the EMFAF types of operation in the INFOSYS database according to the objectives and areas in the 2021 Strategic Guidelines

2021 Strategic guidelines Objective / Topic		EMFAF Type of operation	
SG Objective	SG Topic	No.	Description
1. Building resilience and competitiveness	1.2 Regulatory and administrative framework	62	Assistance under Direct Management
	1.3 Animal health and public health	53	Food quality and hygiene safety
	1.4 Climate-change adaptation and mitigation		None directly linked.
	1.5 Producer and market organisation	08	Preparation and implementation of production and marketing plans by POs
		09	Marketing activities
	1.7 Diversification and adding value	06	First acquisition of a fishing vessel
		11	Investments to support business development
		32	Productive investments for sustainable aquaculture
		54	Investments in safety equipment
		55	Investments in working conditions
	Not definable	31	Compensation
2. Participating in the Green Transition	2.1 Environmental performance	27	Environmental services
		41	Reduction and prevention of pollution/contamination
		42	Water usage and water quality improvements
		01	Investment in reduction of energy use and energy efficiency
		02	Investment in renewable energy systems
		65	Other (environmental)
	2.2 Animal welfare	52	Investment in animal welfare
3. Ensuring social acceptance and information	3.1 Communicating on EU aquaculture	16	Awareness raising, communication to the wider public
	3.2 Integration in local communities	15	Events
	3.3 Data and monitoring	46	Data collection
4. Increasing knowledge and innovation	4. Increasing knowledge and innovation	10	Advisory services
		14	Training to improve skills and develop human capital
		17	Capacity building
		19	Development of process innovation
		20	Development of product innovation
		21	Studies and research
		22	Knowledge sharing
		56	Pilot projects
		60	Preparatory actions

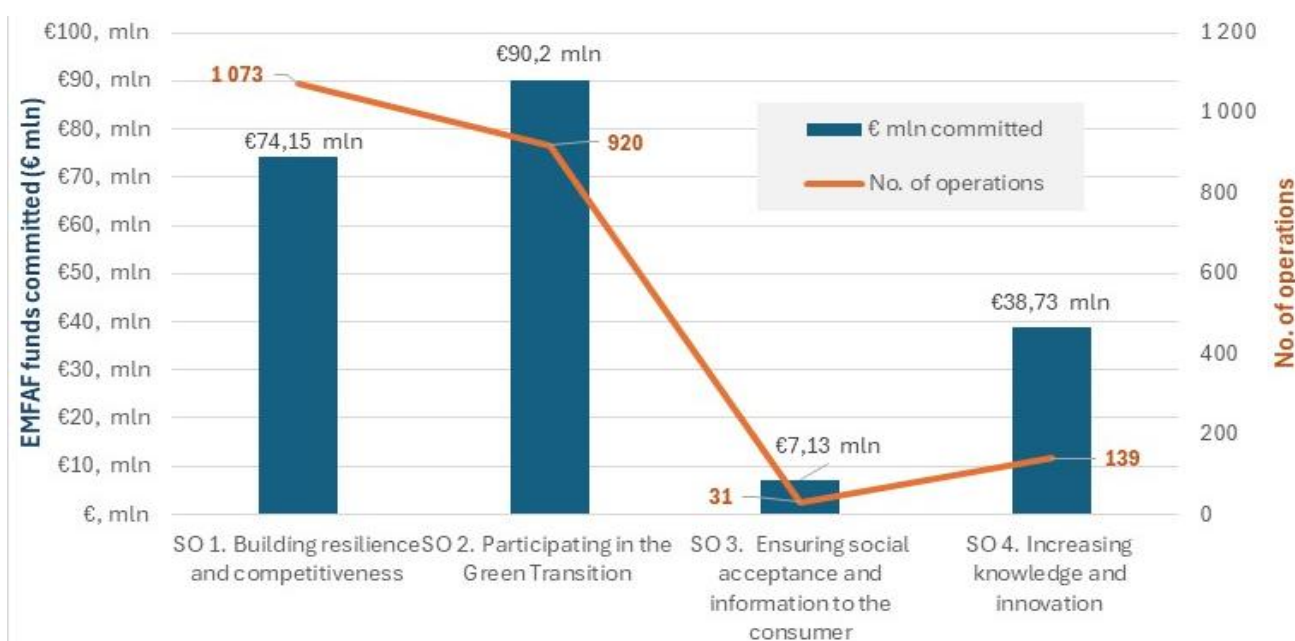
⁽¹⁴⁹⁾ Unlike the EMFF analysis, which used EMFF 'actual' expenditure, the EMFAF analysis uses EMFAF 'committed' expenditure. This is because the fund is at a relatively early stage of implementation with little accountable spend to date. In this case committed funds provide a more complete picture.

4.2.1. Commitments by type of operation

Looking at EMFAF commitments (EUR) and number of operations by Strategic Guidelines Objective, Type and EMFAF operation (Table 14), around 2 163 aquaculture-related operations have been supported from December 2021 to December 2024, with a total commitment of EUR 210 million.

1. Overall, the funding commitments against the four Objectives of the strategic guidelines are as follows (and the figure below):
 1. **Building resilience and competitiveness:** 35% of funding and 50% of number of operations.
 2. **Participating in the Green Transition:** 43% of funding and 43% of number of operations.
 3. **Ensuring social acceptance and information to the consumer:** 3% of funding and 1% of number of operations.
 4. **Increasing knowledge and innovation:** 18% of funding and 6% of number of operations.

Figure 7: EMFAF funding commitments (EUR (€) million (mln) & no. of operations) mapped against the four Strategic Guidelines Objectives



Source: INFOSYS, supplied by the FAMENET Support Unit.

Key takeaways from this assessment are:

1. *Environmental services* accounted for 33% of EMFAF funds committed by EU MS to date to support aquaculture and 38% by number of operations. This is linked to the Strategic Objective 2 *Participating in the Green Transition*, and in particular topic 2.1 *Environmental performance*. Two other areas under this topic - *Investment in renewable energy systems* (5%) and *Investment in reduction of energy use and energy efficiency* (4%) - were also significant areas for investment.

2. The second highest funded operation was *Productive investments for sustainable aquaculture* with 20% of funds committed and, notably, 34% of all the operations by number. This is linked to the objective of the strategic guidelines *Building resilience and competitiveness*, in particular topic 1.7 *Diversification and adding value*. It was noted that without EMFAF funding into productive investment, some farms might have stopped their operations.
3. Other types of operation linked to the objective *Building resilience and competitiveness* make up much of the rest, included *Marketing activities* (6% by value) under the 1.5 *Producer and market organisation*.
4. Under the objective *Increasing knowledge and innovation*, *Studies and research* (6% by value) is also important.

It is notable that the EMFAF commitments by EU MS provide little or no funding to the following topics in the 2021 Strategic Guidelines:

1.1 *Space and water*: this is likely because measures e.g. designating areas suitable for aquaculture, tend to be competence of the competent MS authorities, not of the private sector.

1.3 *Animal health and food hygiene*: around EUR 630 000 or 1% of aquaculture funding was allocated to this type of operation. This is considered rather low, given the need for better husbandry practices in EU aquaculture, as indicated in the strategic guidelines.

1.4 *Climate-change adaptation and mitigation*: the MS responsibilities for implementing the Strategic Guidelines in this area is mainly for (i) development of climate adaptation plans (CAPs), (ii) supporting training on climate adaptation and resilience for people working in the aquaculture sector and (iii) support climate mitigation in the aquaculture sector. None of the EMFAF operation types (see **Table 13**) link directly to climate change issues. Climate Adaptation Plans are funded under higher-level EU and national programmes rather than the EMFAF, and that training and climate change adaptation are considered under the Strategic Guidelines Objective 2 *Participating in the Green Transition*, rather than the under this *Climate-change adaptation and mitigation* topic.

1.6 *Control*: no funded projects were linked to this topic. There is considerable potential for the EMFAF funding of better traceability and the role of artificial intelligence (AI) in making the EU aquaculture value chain more transparent.

2.2 *Animal welfare*: although around EUR 1,3 million or 1% of aquaculture funding was allocated to this type of operation. This is considered rather low, especially given increasing consumer and NGO interest in fish welfare.

3.2 *Integration into local communities*: whilst some events (mainly aquaculture conferences) were funded, the levels involved were low (c. EUR 636 000), given the strong focus on the strategic guidelines on the need to increase the social acceptance of aquaculture.

3.3 *Data monitoring*: comes under direct management of the EMFAF.

Table 14: EMFAF commitments (EUR (€)) and number of operations by Strategic Guidelines Objective and topic and Type of EMFAF operation

Strategic Guidelines Objective / Topic / Art. Title	EMFAF support committed (€)	No. of operations
1. Building resilience and competitiveness	€ 74 151 277	1,073
1.2 Regulatory and administrative framework	€ 1 210 030	1
Assistance under Direct Management	€ 1 210 030	1
1.3 Animal health and public health	€ 741 662	20
Food quality and hygiene safety	€ 741 662	20
1.5 Producer and market organisation	€ 16 213 277	53
Marketing activities	€ 13 149 428	39
Preparation and implementation of production and marketing plan	€ 3 063 849	14
1.7 Diversification and adding value	€ 54 318 216	897
First acquisition of a fishing vessel	€ 210 000	1
Investments in safety equipment	€ 236 390	9
Investments in working conditions	€ 2 203 769	98
Investments to support business development	€ 10 308 582	58
Productive investments for sustainable aquaculture	€ 41 359 476	731
Not definable	€ 1 668 093	102
Compensation	€ 1 668 093	102
2. Participating in the Green Transition	€ 90 198 137	920
2.1 Environmental performance	€ 88 850 172	881
Environmental services	€ 69 846 307	829
Investment in reduction of energy use and energy efficiency	€ 7 782 957	15
Investment in renewable energy systems	€ 10 151 298	18
Reduction and prevention of pollution/contamination	€ 29 741	2
Water usage and water quality improvements	€ 410 938	10
Other (environmental)	€ 628 932	7
2.2 Animal welfare	€ 1 347 965	39
Investment in animal welfare	€ 1 347 965	39
3. Ensuring social acceptance and information to the consumer	€ 7 131 066	31
3.1 Communicating on EU aquaculture	€ 6 154 420	22
Awareness raising, communication to the wider public	€ 6 154 420	22
3.2 Integration in local communities	€ 636 073	5
Events	€ 636 073	5
3.3 Data and monitoring	€ 340 573	4
Data collection	€ 340 573	4
4. Increasing knowledge and innovation	€ 38 729 587	139
Advisory services	€ 1 998 805	6
Capacity building	€ 342 321	4
Development of process innovation	€ 6 032 477	21
Development of product innovation	€ 8 157 958	24
Knowledge sharing	€ 557 831	9
Pilot projects	€ 1 352 474	9
Preparatory actions	€ 46 084	2
Studies and research	€ 12 842 656	44
Training to improve skills and develop human capital	€ 7 398 981	20
Grand Total	€ 210 210 067	2,163

INFOSYS, supplied by the FAMENET Support Unit.

4.2.2. Commitments by Member State

Looking at the distribution of EMFAF support, **Table 15** shows EMFAF commitments by each Member State (in millions of EUR) against the objectives and topics of the Strategic Guidelines. The key takeaways from this analysis are:

1. **Poland** has committed the most EMFAF funding to aquaculture, with around 38% of the total funding. This was mostly (27% of the total) for *Environmental services*, under the 2.1 *Environmental performance* in the Objective of the Strategic guidelines *Participating in the Green Transition*. Note that Poland was by the far the biggest recipient of funding under these topics.
2. **Portugal** committed the second largest amount of its total EMFAF funding to aquaculture with around 15% of the total funding. Most of the budget committed was for *Investment in renewable energy systems* (4% by value) and *reduction of energy use and energy efficiency* (3% by value), both under topic 2.1 *Environmental performance*. *Marketing activities* (3% by value) under the 1.5 *Producer and market organisation* is also significant.
3. The rest of the funding is spread around the other Member States, with **France** (8%), **Germany** (7%), **Denmark** (4%) and **Latvia** (5%) and being the MS that committed the largest amounts on aquaculture. Funding levels are low (i.e. <5% of the total), except for (i) 6% for *Environmental services* in Latvia, and 6% again for *Studies and research* under Strategic Objective 4 *Increasing knowledge and innovation* in Denmark.

The dominance of Poland in EMFAF commitments to aquaculture to date (and mostly over the July – December 2024 period), and to a lesser extent Portugal in the use of EMFAF financial support to aquaculture is interesting, especially compared to the previous EMFF period where Spain (27%), Greece (15%) and Italy (11%) dominated (see **Section 4.1.2** above), which mirrored production levels across the EU over this earlier period. It is also notable that the Polish and Portuguese allocations were to a very limited number of operation types, rather than being spread across the different topics in the Strategic Guidelines.

4.2.3. Commitment by EMFAF Specific Objective

The vast majority (89,5%) of EMFAF commitments on aquaculture have been via EMFAF Specific Objective 2.1 (Promoting sustainable aquaculture activities). Other EMFAF SOs with commitments on aquaculture (% of total to date) include (see Table overleaf).

- 1.1.2: Operations supported under Articles 17 and 19 (0,1%)
- 1.5: Promoting a level-playing field for fishery and aquaculture products from the outermost regions (1,5%)
- 2.2: Promoting marketing, quality and added value of fishery and aquaculture products, as well as processing of those products (9,5%)
- 3.1: Enabling a sustainable blue economy and fostering the sustainable development of fishing and aquaculture communities (0,2%)
- 5.3: Technical assistance - Direct Indirect (0,6%).

Table 15: Estimated EMFAF support (EUR (€) millions) committed to support the Strategic Guidelines objective / topic and EMFAF Regulation Article title by Member State

Strategic Guidelines Objective / Topic / Operation type	EMFAF support (EUR million)																					Grand Total
	AT	BE	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	IT	LT	LV	MT	NL	PL	PT	SE	SI	
1. Building resilience and competitiveness	1.40	0.00	0.19	6.75	3.63	0.35	0.07	0.94	8.27	3.66	9.86	0.62	3.07	3.40	3.95	0.52	1.40	14.90	8.43	1.53	0.00	72.94
1.3 Animal health and public health	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
Food quality and hygiene safety	-	-	-	-	-	-	-	-	-	0.00	0.04	0.08	-	0.63	-	-	-	-	-	-	-	0.74
1.5 Producer and market organisation	0.06	0.00	0.00	0.00	0.23	0.35	0.07	0.00	1.48	0.00	1.34	0.01	0.00	0.28	0.00	0.00	0.00	5.70	6.63	0.06	0.00	16.21
Marketing activities	0.06	-	-	-	0.22	-	-	-	0.11	-	1.17	0.01	-	-	-	-	-	4.90	6.63	0.05	-	13.15
Preparation and implementation of production and marketing pla	-	-	-	-	0.01	0.35	0.07	-	1.37	-	0.17	-	-	0.28	-	-	-	0.80	-	0.01	-	3.06
1.7 Diversification and adding value	1.35	0.00	0.00	6.13	2.96	0.00	0.00	0.94	6.79	3.66	8.48	0.54	3.07	2.48	3.79	0.52	1.40	9.20	1.54	1.47	0.00	54.32
First acquisition of a fishing vessel	-	-	-	-	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21
Investments in safety equipment	-	-	-	0.20	0.01	-	-	-	-	0.03	-	0.00	-	-	-	-	-	-	-	-	-	0.24
Investments in working conditions	0.04	-	-	0.82	0.30	-	-	-	-	0.06	0.89	0.04	-	-	0.06	-	-	-	-	-	-	2.20
Investments to support business development	-	-	-	-	0.26	-	-	-	-	0.79	0.12	-	-	-	-	-	-	7.60	1.54	-	-	10.31
Productive investments for sustainable aquaculture	1.31	-	-	5.11	2.18	-	-	0.94	6.79	2.78	7.48	0.50	3.07	2.48	3.73	0.52	1.40	1.60	-	1.47	-	41.36
Not definable	0.00	0.00	0.19	0.62	0.43	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.26	0.00	0.00	1.67
Compensation	-	-	0.19	0.62	0.43	-	-	-	-	-	0.01	-	-	-	0.16	-	-	-	0.26	-	-	1.67
2. Participating in the Green Transition	0.16	0.00	0.00	0.36	5.11	1.29	0.00	0.00	0.48	0.32	0.66	1.99	0.12	0.69	6.10	0.00	0.00	57.26	15.36	0.30	0.00	90.20
2.1 Environmental performance	0.16	0.00	0.00	0.00	5.10	1.29	0.00	0.00	0.34	0.26	0.66	1.99	0.12	0.20	6.10	0.00	0.00	57.26	15.36	0.02	0.00	88.85
Environmental services	0.14	-	-	-	4.77	-	-	-	-	0.01	-	1.89	-	0.00	5.78	-	-	57.26	-	-	-	69.85
Investment in reduction of energy use and energy efficiency	-	-	-	-	0.01	0.70	-	-	-	-	0.45	0.01	-	-	-	-	-	-	6.61	-	-	7.78
Investment in renewable energy systems	-	-	-	-	0.30	0.37	-	-	-	0.24	0.21	0.05	-	0.20	0.03	-	-	-	8.75	-	-	10.15
Reduction and prevention of pollution/contamination	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	0.02	-	0.03
Water usage and water quality improvements	0.02	-	-	-	0.01	0.21	-	-	0.04	0.00	-	-	0.12	-	-	-	-	-	-	-	-	0.41
Other (environmental)	-	-	-	-	-	-	-	-	0.30	-	-	0.05	-	-	0.28	-	-	-	-	-	-	0.63
2.2 Animal welfare	0.00	0.00	0.00	0.36	0.01	0.00	0.00	0.00	0.14	0.07	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.28	0.00	1.35
Investment in animal welfare	-	-	-	0.36	0.01	-	-	-	0.14	0.07	-	-	-	0.49	-	-	-	-	-	0.28	-	1.35
3. Ensuring social acceptance and information to the consumer	0.00	0.00	0.00	0.39	0.01	0.00	0.99	0.00	0.00	0.00	2.21	0.61	0.00	0.00	0.00	0.56	0.00	1.57	0.00	0.79	0.00	7.13
3.1 Communicating on EU aquaculture	0.00	0.00	0.00	0.03	0.00	0.00	0.99	0.00	0.00	0.00	2.21	0.00	0.00	0.00	0.00	0.56	0.00	1.57	0.00	0.79	0.00	6.15
Awareness raising, communication to the wider public	-	-	-	0.03	-	-	0.99	-	-	-	2.21	-	-	-	-	0.56	-	1.57	-	0.79	-	6.15
3.2 Integration in local communities	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
Events	-	-	-	0.02	0.01	-	-	-	-	-	-	0.61	-	-	-	-	-	-	-	-	-	0.64
3.3 Data and monitoring	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34
Data collection	-	-	-	0.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.34
4. Increasing knowledge and innovation	0.10	0.89	0.00	0.60	4.99	6.36	0.00	0.00	0.87	1.25	4.01	0.00	3.96	0.00	0.12	0.00	0.00	5.40	8.24	1.80	0.13	38.73
4. Increasing knowledge and innovation	0.10	0.89	0.00	0.60	4.99	6.36	0.00	0.00	0.87	1.25	4.01	0.00	3.96	0.00	0.12	0.00	0.00	5.40	8.24	1.80	0.13	38.73
Advisory services	-	0.06	-	-	-	-	-	-	0.22	-	-	-	-	-	-	-	-	-	1.71	-	-	2.00
Capacity building	-	-	-	-	0.01	-	-	-	-	-	0.28	-	-	-	-	-	-	-	-	-	0.05	0.34
Development of process innovation	-	-	-	0.48	1.50	-	-	-	-	0.91	0.11	-	-	-	0.10	-	-	-	2.94	-	-	6.03
Development of product innovation	-	-	-	0.12	2.50	-	-	-	0.51	0.02	0.04	-	-	-	-	-	-	-	3.58	1.37	-	8.16
Knowledge sharing	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.42	-	0.56
Pilot projects	-	0.44	-	-	-	0.84	-	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-	1.35
Preparatory actions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	0.04	0.05
Studies and research	0.05	0.24	-	-	0.81	5.52	-	-	0.14	0.30	3.59	-	2.16	-	-	-	-	-	-	-	0.04	12.84
Training to improve skills and develop human capital	0.06	0.14	-	-	0.04	-	-	-	-	0.01	-	-	1.73	-	0.02	-	-	5.40	-	0.00	-	7.40
Grand Total	1.67	0.89	0.19	8.10	13.73	8.00	1.06	0.94	9.63	5.23	16.75	3.22	7.14	4.08	10.16	1.08	1.40	79.13	32.03	4.42	0.13	209.00

INFOSYS, supplied by the FAMENET Support Unit.

Table 16: EMFAF commitments to aquaculture by EMFAF Specific Objective

Strategic Guidelines Objective / Topic / Art. Title	EMFAF Specific Objective						
	1.1.2	1.5	2.1	2.2	3.1	5.3	Grand Total
1. Building resilience and competitiveness	€ 210,000	€ 268,669	€ 61,178,002	€ 11,284,576		€ 1,210,030	€ 74,151,277
1.2 Regulatory and administrative framework						€ 1,210,030	€ 1,210,030
Assistance under Direct Management						€ 1,210,030	€ 1,210,030
1.3 Animal health and public health			€ 741,662				€ 741,662
Food quality and hygiene safety			€ 741,662				€ 741,662
1.5 Producer and market organisation			€ 6,703,271	€ 9,510,006			€ 16,213,277
Marketing activities			€ 6,693,448	€ 6,455,980			€ 13,149,428
Preparation and implementation of PMPs by POs			€ 9,823	€ 3,054,026			€ 3,063,849
1.7 Diversification and adding value	€ 210,000		€ 52,678,159	€ 1,430,057			€ 54,318,216
First acquisition of a fishing vessel	€ 210,000						€ 210,000
Investments in safety equipment			€ 236,390				€ 236,390
Investments in working conditions			€ 2,201,164	€ 2,604			€ 2,203,769
Investments to support business development			€ 10,259,081	€ 49,501			€ 10,308,582
Productive investments for sustainable aquaculture			€ 39,981,523	€ 1,377,952			€ 41,359,476
Not definable		€ 268,669	€ 1,054,910	€ 344,513			€ 1,668,093
Compensation		€ 268,669	€ 1,054,910	€ 344,513			€ 1,668,093
2. Participating in the Green Transition			€ 89,691,080	€ 211,676	€ 295,381		€ 90,198,137
2.1 Environmental performance			€ 88,343,116	€ 211,676	€ 295,381		€ 88,850,172
Environmental services			€ 69,846,307				€ 69,846,307
Investment in reduction of energy use and energy efficiency			€ 7,571,281	€ 211,676			€ 7,782,957
Investment in renewable energy systems			€ 10,151,298				€ 10,151,298
Other (environmental)			€ 333,551		€ 295,381		€ 628,932
Reduction and prevention of pollution/contamination			€ 29,741				€ 29,741
Water usage and water quality improvements			€ 410,938				€ 410,938
2.2 Animal welfare			€ 1,347,965				€ 1,347,965
Investment in animal welfare			€ 1,347,965				€ 1,347,965
3. Ensuring social acceptance and information to the consumer			€ 2,736,710	€ 4,049,481	€ 4,302		€ 6,790,493
3.1 Communicating on EU aquaculture			€ 2,727,171	€ 3,422,947	€ 4,302		€ 6,154,420
Awareness raising, communication to the wider public			€ 2,727,171	€ 3,422,947	€ 4,302		€ 6,154,420
3.2 Integration in local communities			€ 9,539	€ 626,534			€ 636,073
Events			€ 9,539	€ 626,534			€ 636,073
4. Increasing knowledge and innovation			€ 34,214,107	€ 4,324,923	€ 98,829		€ 38,637,859
Advisory services			€ 1,998,805				€ 1,998,805
Capacity building			€ 62,321	€ 280,000			€ 342,321
Development of process innovation			€ 4,534,514	€ 1,497,963			€ 6,032,477
Development of product innovation			€ 5,591,832	€ 2,542,010	€ 24,116		€ 8,157,958
Knowledge sharing			€ 557,831				€ 557,831
Pilot projects			€ 1,352,474				€ 1,352,474
Preparatory actions			€ 42,000		€ 4,084		€ 46,084
Studies and research			€ 12,767,078	€ 4,950	€ 70,629		€ 12,842,656
Training to improve skills and develop human capital			€ 7,307,253				€ 7,307,253
Grand Total	€ 210,000	€ 268,669	€ 187,819,899	€ 19,870,656	€ 398,512	€ 1,210,030	€ 209,777,766
%	0.1%	0.1%	89.5%	9.5%	0.2%	0.6%	100%

4.3. Other EU funds

Other EU funding programmes are also available to support aquaculture. This section analyses projects under Horizon (including both Horizon 2020 and Horizon Europe), LIFE 2027 and Interreg launched since May 2021. It is important to note that while Horizon and LIFE2027 are directly managed by the Commission, Interreg, like other programmes under the European Regional and Development Fund (ERDF) is under shared management.

The basis of this analysis is data provided by CINEA and DG REGIO. While **Section 3.1** above describes several projects funded under the programmes mentioned above, this section examines how projects launched under these programmes relate to the different objectives and topics in the strategic guidelines (see summary in **Table 17** overleaf).

This analysis suggests that nearly half (44%) of the funding under these Horizon focused on supporting 'Participation in the Green Transition, in particular 'Environmental performance' (40%). Some of the projects funded are large projects, such as the EUR 9 million Horizon Europe project on 'Innovative solutions to reduce AQUaculture emissions and valorise sludge through PHOsphorus and NItrogen eXtraction' (AQUAPHOENIX). Another important area is 'Diversification and adding value' which had six projects worth around EUR 26 million, many of which were focused on developing algal culture.

Others included the VeriFish and Mr. Goodfish projects that will assist in 'Communicating on EU aquaculture'. The other notable set of projects (four, with around EUR 31 million) assist with 'Increasing knowledge and innovation' and again involve algae or other innovative research:

- Transforming microalgae cultivation to boost aquaculture (EUR 2,5 million).
- LOCALITY - Nature-positive aLgae-based fOod, agriCulture, AquacuLture and textile producTs made in North and Baltic Sea ecosYstems (EUR 9,8 million).
- CoE MARBLE, which establishes a Centre of Excellence in Maritime Robotics and Technologies for Sustainable Blue Economy (EUR 15 million), which includes smart mussel farming.
- Sea TecHub, which creates a Croatia-Cyprus Excellence Hub on Eco-Innovative Technologies for Healthy and Productive Seas (EUR 5 million), including the aquaculture sector.
- The INTERREG VI-B project CIRCANETS that examined end of life fishing and aquaculture gear in the Baltic Sea (EUR 1,5 million, of which EUR 0,62 million was EU funding).

Table 17: EU expenditure from H2020, Horizon, LIFE2027 & Interreg since May 2021 related to the 2021 Strategic Guidelines

Funding source / Strategic Guidelines Objective / Topic	Requested grant (€)	No. of operations
H2020	€ 14 864 080	9
1. Building resilience and competitiveness	€ 10 966 363	5
1.2 Regulatory and administrative framework	€ 2 999 788	1
1.3 Animal health and public health	€ 7 966 575	4
2. Participating in the Green Transition	€ 3 897 717	4
2.1 Environmental performance	€ 3 525 438	2
2.2 Animal welfare	€ 372 279	2
HORIZON	€ 237 790 029	74
1. Building resilience and competitiveness	€ 55 106 779	30
1.1 Space and water	€ 8 685 541	3
1.3 Animal health and public health	€ 18 309 486	18
1.4 Climate-change adaptation and mitigation	€ 2 125 048	3
1.7 Diversification and adding value	€ 25 986 704	6
2. Participating in the Green Transition	€ 104 490 615	32
2.1 Environmental performance	€ 94 806 718	27
2.2 Animal welfare	€ 9 683 897	5
3. Ensuring social acceptance & information to the consumer	€ 47 193 589	8
3.1 Communicating on EU aquaculture	€ 23 973 908	4
3.2 Integration in local communities	€ 10 590 772	2
3.3 Data and monitoring	€ 12 628 909	2
4. Increasing knowledge and innovation	€ 30 999 046	4
4. Increasing knowledge and innovation	€ 30 999 046	4
LIFE2027	€ 16 085 197	4
1. Building resilience and competitiveness	€ 5 881 662	1
1.7 Diversification and adding value	€ 5 881 662	1
2. Participating in the Green Transition	€ 10 203 535	3
2.1 Environmental performance	€ 10 203 535	3
INTERREG	€ 2 797 045	13
1. Building resilience and competitiveness	€ 1 154 806	6
1.1 Space and water	€ 751 126	3
1.5 Producer and market organisation	€ 126 605	1
1.6 Control	€ 129 280	1
1.7 Diversification and adding value	€ 147 796	1
2. Participating in the Green Transition	€ 1 085 064	4
2.1 Environmental performance	€ 1 085 064	4
3. Ensuring social acceptance & information to the consumer	€ 510 000	1
3.3 Data and monitoring	€ 510 000	1
4. Increasing knowledge and innovation	€ 47 175	2
4. Increasing knowledge and innovation	€ 47 175	2
Grand Total	€ 271 536 351	100

Source: CINEA

5. Assessment of the effectiveness of the implemented action and financial support per objective

The assessment in this section is mostly based on the information provided about the implementing action by Member States, since the management of aquaculture is a competence largely exercised at Member State level. While **Section 3.1** refers to actions implemented by the Commission, most of these actions will only become effective if they are translated in implementing actions at Member State level (e.g. the designation of areas suitable for aquaculture in accordance with recommendations and good practices from the SWD published by the Commission). Since some SWD adopted by the Commission are relatively recent, it is too early to assess whether they are efficient in supporting action by MS in the different areas addressed.

It is evident that the **long-term stagnation in aquaculture growth still persists in the EU**. This is maybe partially due to the impacts of the COVID pandemic on global supply chains but is also likely to be linked to the regulatory issues mentioned below e.g. the slow speed in aquaculture licensing, as well as problems with social license to operate in some locations. This said, in terms of value, the results are more encouraging, increasing from an average EUR 3,3 billion over the 2016 - 2020 baseline to 4,6 billion in 2022, which is an annual increase of around 7,5% over 2021 – 2023. There are also encouraging signs in terms of new species being farmed, the great interest in upscaling macroalgae production and the increasing resolution in local scale MSP for aquaculture.

5.1. Objective 1: Building resilience and competitiveness

With the timely finalisation of many MS maritime spatial plans in the year or so before the 2021 Strategic Guidelines were introduced, together with the start of the EMFAF funding period the same year, the integration of aquaculture into spatial planning (notably MSP) has been an important part of MS Operational Programmes and MNSPs. This has helped ensure that **spatial planning of aquaculture – especially the designation of areas suitable for aquaculture**, has been increasingly adopted across the EU. Although this is a considerable step forward, this has had a steep learning curve and there still a lot of work to be done, including in terms of providing more detailed planning at local level, as well as installing cross-sectoral planning and monitoring tools. Furthermore, spatial planning has not always led to an increase of aquaculture sites or operations.

Continuing efforts under the 2013 Strategic Guidelines, MS have further **strengthened their legislative, regulatory and institutional frameworks**, including some introducing new aquaculture laws. An example related to the previous topic is Ireland's introduction of their AQUAMIS system⁽¹⁵⁰⁾ in 2022 that integrates aquaculture licensing, MSP and cross-sectoral integration. This said, **there is a**

⁽¹⁵⁰⁾ <https://dafm-maps.marine.ie/aquaculture-viewer/>

worrying lack of improvement in the efficiency of aquaculture licensing across the EU, with processing times staying the same or increasing in many cases.

It is evident that the MS have made progress in introducing more structured **disease surveillance programmes** over the past 3,5 years, which has been backed up by training, the introduction of **good practices** and **targeted research and innovation**, with around EUR 22 million in Horizon funding. However, it is also acknowledged that disease is an ever-changing situation due to the pervasive effects of climate change, and there are some real challenges yet to be addressed e.g. on bivalve mollusc farming.

On the subject of **climate change**, the sector is starting to take into consideration the need to adapt to climate change and mitigate its impacts, especially rising sea temperature and the availability of fresh water. Much of this is still at the planning stage, and EMFAF expenditure on the issue appears patchy, with only Portugal spending considerable sums on reducing energy use, although Poland has shown initiative in introducing partial recirculation to freshwater aquaculture.

A number of **new aquaculture POs had been created** since January 2021, although the actual total number is unknown. It does seem as though the network of informal producer associations has also developed, especially as marine algae farming is starting to develop at scale.

The updated Fisheries Control Regulation (2023) seems to stimulate initiatives improving traceability in aquaculture through both public and private approaches. This said, much of the industry relies on voluntary chain of custody systems required by third party environment certification, mainly driven by multiple retailers.

In terms of the financial support provided, it is too early to quantify the impacts of EMFAF funding on the sector. **Table 18** on page 85 shows the baseline and indicative results against the INFOSYS common result (CR) indicators, which demonstrates the intended incremental change resulting from EMFAF funding. The key expected results for this Strategic Objective are:

1. New production capacity (CR01) is expected to double from around 16 000 t to 46 000 t per year in assisted operations.
2. Equally important, it is predicted there will be a 590-fold increase in terms of aquaculture production maintained (CR02).
3. 76 businesses will have a higher turnover as a result of EMFAF funding (CR04).
4. 178 new jobs will be created (CR06) and 25 maintained (CR07).
5. 369 entities will be benefitting from promotion & information activities CR16).
6. 103 entities will have improved their resource efficiency in production and / or processing (CR17).

It is accepted that these are indicative results only and that the actual impact will only become apparent in the ex-post EMFAF evaluation after the programme's completion in 2027.

5.2. Strategic Objective 2: Participating in the Green Transition

It is difficult to assess the effectiveness of measures implemented by MS in increasing the environmental performance of EU aquaculture on the basis of data obtained. In terms of funding, it is interesting to note that 'environmental services' accounted for 21% of EMFAF funds for Strategic Objective 2.1. committed by Member States to July 2024, and 17% by number of operations, the largest proportion for a single topic (see **Section 4.2.1** for more details).

Low trophic aquaculture e.g., of molluscs and seaweeds is being encouraged at policy level due to its low carbon footprint and potential for providing ecosystem services, especially if combined in IMTA systems. There has been a particular focus on the development of seaweed farming e.g. via the EU Algae Initiative. There has been some interest in **expanding organic aquaculture production**, especially in Croatia and Spain, but otherwise new uptake since 2021 has been limited, possibly due to the economic challenges involved, given the rising costs of organic production.

Interest in **improving fish welfare** has been notable since 2021 and can be attributed in part to the new Strategic Guidelines, as well as increasing research and public interest in the subject. This has included the development of codes of good practice and the development of species-specific and auditable fish-welfare standards, although the uptake of the latter has been slow and limited to only a small number of MS. There has also been EMFAF funded research to identify animal welfare problems relevant to EU aquaculture conditions (e.g. by the Technical University of Denmark), including on how fish welfare can be assessed and monitored. However, as noted by some stakeholders, there is still work to do e.g. in terms of harmonisation across MS, as well as integrating welfare issues into other areas of aquaculture management, such as climate change adaptation.

The table overleaf shows the baseline and indicative results against the INFOSYS CR indicators of measures related to this Objective. The key results for this objective are:

1. It is predicted there will be 3 904 t per annum of aquaculture production maintained (CR02), mainly linked to animal welfare.
2. 44 businesses will have a higher turnover as a result of EMFAF (CR04).
3. There will be 1 000 persons benefiting from operations, mainly in animal welfare (CR08).
4. There will be 215 km² addressed by operations contributing to a good environmental status, protecting, conserving, and restoring biodiversity and ecosystems (CR09.1).
5. There will be 50 actions contributing to a good environmental status, including nature restoration, conservation, protection of ecosystems, biodiversity, animal health and welfare (CR10).
6. 48 entities will have improved their resource efficiency in production and / or processing (CR17).

Table 18: EMFAF outputs

CR 1 - CR 10

Strategic Guidelines Objective / Topic	CR01		CR02		CR03		CR04		CR06		CR07		CR08		CR09.1		CR10	
	New production capacity (t p.a.)		Aquaculture production maintained (t/p.a.)		Businesses created (no. entities)		Businesses with higher turnover (no. entities)		Jobs created (no. persons)		Jobs maintained (no. persons)		Persons benefitting (no. persons)		Area (km ²) addressed by operation		Actions (no.) contributing to GES, etc	
1. Building resilience and competitiveness	16 300	46 737	360	212 468	0	15	0	76	0	178	0	25	0	1 768			0	174
1.2 Regulatory and administrative framework													0	1 000			0	1
1.3 Animal health and public health	2	5							0	1			0	5			0	74
1.4 Climate-change adaptation and mitigation	1 438	4 489	0	1					0	20			0	24			0	11
1.5 Producer and market organisation	452	730					0	10	0	5	0	6	0	43				
1.7 Diversification and adding value	14 408	41 513	360	212 467	0	15	0	66	0	152	0	19	0	696			0	88
2. Participating in the Green Transition	143	471	0	3 904	0	1	0	44	0	8	0	0	0	1 016	0	215	0	50
2.1 Environmental performance	143	221	0	2			0	4	0	8	0	0	0	16	0	215	0	40
2.2 Animal welfare	0	250	0	3 902	0	1	0	40					0	1 000			0	10
3. Ensuring social acceptance & info' to the consumer													0	60				
3.1 Communicating on EU aquaculture													0	60				
3.2 Integration in local communities																		
3.3 Data and monitoring																		
4. Increasing knowledge and innovation	16 300	17 822	0	326	0	9	0	10	0	17	0	40	0	1 524			1	64
4. Increasing knowledge and innovation	16 300	17 822	0	326	0	9	0	10	0	17	0	40	0	1 524			1	64
Grand Total	32 743	65 030	360	216 698	0	25	0	130	0	203	0	65	0	4 368	0	215	1	288

Continued (CR 11 - CR 22)

Strategic Guidelines Objective / Topic	CR11		CR13		CR14		CR16		CR17		CR19		CR21		CR22	
	Entities increasing social sustainability (no. of entities)		Cooperation activities between stakeholders (no. of actions)		Innovations enabled (no. of new products, services, etc.)		Entities benefitting from promotion & information activities (no. of entities)		Entities (no.) improving resource efficiency in production &/or processing		Actions (no.) to improve governance capacity		Datasets and advice (no.) made available		Usage of data and information platforms (no. of page views)	
1. Building resilience and competitiveness	0	2	0	1	0	17	0	369	0	103			0	33	0	100
1.2 Regulatory and administrative framework			0	1									0	30	0	100
1.3 Animal health and public health									0	1						
1.4 Climate-change adaptation and mitigation					0	8			0	13						
1.5 Producer and market organisation	0	2			0	4	0	368	0	2			0	1		
1.7 Diversification and adding value					0	5	0	1	0	87			0	2		
2. Participating in the Green Transition			0	10	0	2			0	48						
2.1 Environmental performance									0	8						
2.2 Animal welfare			0	10	0	2			0	40						
3. Ensuring social acceptance & info' to the consumer							0	694			0	1	0	26		
3.1 Communicating on EU aquaculture							0	349					0	21		
3.2 Integration in local communities							0	345					0	1		
3.3 Data and monitoring											0	1	0	4		
4. Increasing knowledge and innovation	0	4	0	100	0	143	0	155	0	9	0	1	0	24	0	500
4. Increasing knowledge and innovation	0	4	0	100	0	143	0	155	0	9	0	1	0	24	0	500
Grand Total	0	6	0	111	0	162	0	1 218	0	160	0	2	0	83	0	600

Source: MS survey

5.3. Strategic Objective 3: Ensuring social acceptance and information to the consumer

Whilst there has been some effort to **conduct information / communication campaigns on aquaculture** via a variety of media, perhaps the biggest impact will come through national and EU-wide initiatives to provide information on aquaculture products to the consumer. Eight MS have developed quality schemes or labels applicable to aquaculture products since 2021 and various Horizon Europe initiatives (e.g. VeriFish and Mr. Goodfish 3.0) have recently started to **develop business and consumer information and awareness-building tools**.

12 MS reported that there had been measures / initiatives to **involve local stakeholders in the planning and development of aquaculture activities**, both via FLAGs, local spatial planning or other initiatives. 15 MS have also reported measures / initiatives **to foster synergies between aquaculture and other activities**. In particular there has been the emergence of 'aquaculture tourism' in both the Atlantic and Mediterranean coasts of the EU.

Table 18 above shows the baseline and indicative results against the INFOSYS CR indicators. The key results for this objective are:

1. 60 persons benefiting from operations, mainly in communicating on EU aquaculture (CR08).
2. 694 entries have benefited from promotion & information activities (CR16).
3. 26 datasets / advice service provided to funded operations (CR21).

5.4. Strategic Objective 4: Increasing knowledge and innovation

Around half the MS responded that they had **frameworks / platforms for cooperation on research and innovation to bring together different stakeholders**. In most instances these are linked to national science and technology platforms that are already participating in consortia under Horizon2020 or Horizon Europe, and other EU research funding programmes. The EMFAF is also an important source of funding for research and innovation.

Most MS now have specific **curricula or training courses related to aquaculture activities**, some of which have been developed since 2021. Across the MS, there is now a diverse range of education and training programs that support individuals pursuing careers in aquaculture, catering to different levels from basic vocational training to advanced degrees.

Various countries reported that they are utilising the EMFAF and national funding programs to support the **adoption of innovative technologies in aquaculture**. Croatia, for example, has allocated around EUR 300 000 under its EMFAF Programme for advisory services to assist aquaculture producers in adopting new technologies.

Table 18 above shows the baseline and indicative results against the INFOSYS CR indicators. The key results for this Strategic Objective are:

1. New production capacity (CR01) is expected to increase from 16 300 to 17 822 t per year in assisted operations.
2. It is predicted there will be 326 t per annum of aquaculture production maintained (CR02).
3. 1 524 persons benefiting from operations (CR08).
4. 63 more actions contributing to a good environmental status, including nature restoration, conservation, protection of ecosystems, biodiversity, animal health and welfare (CR10).
5. 100 additional cooperation activities between stakeholders (CR13).
6. 143 innovations enabled as a result of EMFAF funding (CR14).
7. 1 218 entities benefitting from promotion and information activities (CR16)
8. 9 entities will have improved their resource efficiency in production and / or processing (CR17).

6. Conclusions

Conclusions under this final section relate to two different areas:

1. **Progress** made by the Commission, Member States and the AAC in implementing the actions recommended in the Strategic Guidelines; and
2. **Efficiency of actions implemented so far** in helping achieve the objectives of the Strategic Guidelines.

6.1. Progress

6.1.1. *The European Commission*

In terms of **progress** in the implementation of the actions under the Strategic Guidelines, the **Commission** has taken significant steps, including:

- Establishing the **EU Aquaculture Assistance Mechanism (AAM)** in 2022. The AAM provides support to the Commission in the implementation of the Strategic Guidelines and manages an EU aquaculture website and knowledge base providing relevant information on sustainable aquaculture development.
- The adoption of five **SWD**, the organisation of online training and the development of supporting e-learning modules. A SWD on environmental performance of EU aquaculture is expected before the end of 2025.
- The establishment of a **Framework contract on scientific advice on aquaculture** to support the implementation of the Strategic Guidelines and EU legislation with scientific information, with three studies launched to date.
- The launch of the **EU Algae Initiative** in 2022 and measures to implement it
- **The publication by the AAM of different documents** that address important issues such as good husbandry practices, funding opportunities for aquaculture, and general good practices and indicators on the welfare of farmed fish ⁽¹⁵¹⁾. Other documents are under preparation regarding reporting obligations on aquaculture linked to the implementation of EU legislation, challenges to bivalve mollusc farming, or a circular economy approach to aquaculture.
- Contributing to various regional and **international initiatives**, notably the adoption of the FAO's Guidelines to Sustainable Aquaculture (GSA) in 2024 ⁽¹⁵²⁾.
- **Funding research and innovation**, especially through Horizon2020 and Horizon Europe, Interreg, the European Fund for Strategic Investments (EFSI) e.g. the BlueInvest Pilot Fund and others.

⁽¹⁵¹⁾ <https://op.europa.eu/en/publication-detail/-/publication/d33f9cb6-ae30-11f0-89c6-01aa75ed71a1/language-en>

⁽¹⁵²⁾ <https://openknowledge.fao.org/server/api/core/bitstreams/b87a56eb-749d-4e76-b952-413708c021e0/content>

Overall, the Commission – both directly and indirectly e.g. via the AAM and others – is a key facilitator in realising the potential of the sector. The actions described above are important pre-cursors to enabling change. While it is largely EU Member States that regulate and manage aquaculture activities, it is clear that the OMC approach in general, and the Strategic Guidelines in particular, provide an important common framework for development. This is partially driven by the linkages with funding through the EMFAF, but the 2021 Strategic Guidelines – in which the MS were key participants – remain relevant to current and evolving issues and provide a genuine direction to tackle these, e.g. climate change.

6.1.2. Member States

Regarding **progress made by EU Member States** in implementing the Strategic Guidelines, it is worth noting that an audit by the European Court of Auditors (ECA) in 2023 ⁽¹⁵³⁾ found that *“the content of these documents (MNSPs and EMFAF programmes) generally met the EU requirements and, overall, was consistent with the Commission’s Strategic Guidelines”*.

Overall, MS have made some progress towards the implementation of the strategic guidelines. However, progress seems insufficient in terms of addressing some long-standing obstacles such as access to space and complex regulatory and administrative procedures, especially given the prominence given to these issues in the original 2013 guidelines and Art. 34 of the reformed CFP published later the same year.

Based on the MS survey results, as well as other evidence examined in this study, progress in implementing the Strategic Guidelines by EU Member States can be summarised as follows:

- The **MNSPs** provide a useful mechanism to help Member States to align their own national aquaculture priorities with a wider EU-level framework, as well as to help prioritise EMFAF and national funding against these. At this mid-term point, these need to be reviewed in the light of emerging needs as well national program monitoring and evaluation results, and work plans for the remaining programming period adapted to these. Some stakeholders have called for the inclusion of more specific production targets and timelines in future multi-annual sector plans.
- **Access to space and water.** Some progress has been made in providing access to space to marine aquaculture. Some MS have designated space for the sector in their MSP and have even designated specific zones for aquaculture, although in most cases aquaculture is expected to co-exist with other higher priority activities. There are still challenges in terms of better stakeholder involvement in MSP processes and a more forward-looking approach to adapting to climate change, moving aquaculture offshore, or the growth of macroalgae in crowded EU seas. Moreover, the use of

⁽¹⁵³⁾ <https://www.eca.europa.eu/en/publications/sr-2023-25>

“aquaculture management areas” remains limited, and more efforts are necessary across MS to develop reference methods or other tools for planning and monitoring of space for aquaculture. While the designation of specific zones for aquaculture is an important step to facilitate access to space for the sector, its practical effectiveness in creating new aquaculture enterprises or sites has been limited. While marine aquaculture spatial planning is well-established across most Member States, according to the responses to the survey, freshwater aquaculture remains less defined, with planning efforts varying widely and few MS integrating aquaculture areas into their inland spatial planning. Since access to good quality water was not sufficiently covered in the survey to MS and the AAC, no conclusions can be drawn on this. This issue should be addressed in the next yearly survey to MS.

The long-standing issue of complexity of **regulatory framework and administrative burden** is slowly being addressed, with some Member States introducing legislation focusing on aquaculture. However, the extent of this review varies very much from one MS to the other. Unfortunately, overall, progress is not translated into the improvement in the efficiency of aquaculture licensing across much of the EU. The MS survey indicated that the number of new licences have decreased overall, where applications fell from 1 071 (2016–2020) to 715 (2021–2023) (–33%). Renewals of existing licences increased overall, with applications rising from 451 (2016–2020) to 602 (2021–2023) (+33%). Combined (new + renewals) licensing applications rose from 1 017 (2016–2020) to 1 116 (2021–2023) (+9.7%). Around half the MS now have systems that allow them to share data among relevant public authorities to facilitate the management of the licensing process. Comparing data from 2016 - 2020 to 2021-2023, the time required for processing aquaculture licenses has increased in some MS e.g. in Denmark. Other MS say the processing times have remained stable, neither increasing or decreasing.

- Regarding actions to adapt to or mitigate the impact of **climate change**, MS have produced several studies and guidance documents. Whilst 21 MS have now adopted measures, programmes, or funded projects to adapt the aquaculture sector to climate change, no structured adaptation plans have been adopted. This may require some considered regulatory adaptability e.g. allowing the farming of new species as environmental conditions change, adjusting space allocation. There has been, however, an expansion in the number and scope of on-farm adaptation / mitigation approaches via EMFAF funding.
- Progress has been made in the establishment of **producer organisations** in many MS. More than half of MS reported that new aquaculture POs and / or inter-branch organisations linked to aquaculture had been created or are under consideration since January 2021.

- With respect to the **energy transition**, over half of MS have applied measures, programmes and / or funded projects or investments to support the decarbonisation of the aquaculture sector. While the main approach to decarbonisation is the adoption of renewable energy, data on the uptake of renewable energy over the programming period is limited.
- The updated Fisheries Control Regulation (2023) has assisted stimulate initiatives to provide better **traceability** of aquaculture products, reflecting a strong commitment to improving traceability in aquaculture through both public and private approaches. This said, much of the industry relies on voluntary chain of custody systems, mainly driven by multiple retailers, as well as national approaches.
- Regarding actions to increase **environmental performance**, the majority of MS have environmental strategies that include aquaculture, and more than half have implemented measures to further mitigate the environmental impact of aquaculture since 2021. Only few MS have, however, model / reference environmental monitoring plans for aquaculture activities in place.
- Regarding the promotion of **low-impact and low trophic aquaculture** there has been mixed success. The farming of marine algae has potential for – and is showing signs of - major growth, although there are still regulatory, spatial and market challenges ahead. The farming of marine bivalves, whilst a large and long-standing component of EU aquaculture production, is struggling with multiple challenges and production volumes have been declining at a rate of around 1,7% per annum (2014 – 2023). This suggests a renewed focus on making this sector more resilient to these challenges is needed, as well as innovating and adapting to new production methods (e.g. those resilient to climate change and predation) and markets.
- This period has also seen the recognition that **animal welfare** is both an ethical issue as well as one increasingly important to consumers. Over half of MS have implemented measures to improve the welfare of farmed aquatic animals since 2021. More than half MS have developed good practices on animal welfare. A few MS have developed indicators for assessing the welfare of farmed aquatic animals. However, these good practices and indicators need to be harmonised and extended both in scale and geography across the EU, possibly supported by legislation at EU level. More MS need to include farmed aquatic animals in their national animal welfare strategies.
- In terms of ensuring the **social licence to operate aquaculture**, over half of MS have developed communication campaigns or public or private initiatives to provide information on aquaculture products to consumers. Around half of MSs have adopted measures to involve local stakeholders in the planning and development of aquaculture activities, although this needs to be developed further at local planning level.
- Regarding **data collection**, the vast majority of MS have compulsory data reporting requirements on aquaculture, increasingly via online digital systems,

and make aquaculture data available to the public e.g. via the internet. However, only a small proportion of MS have voluntary systems to report environmental data, including on escapees, and the use of veterinary medicines.

- Regarding the objective of **increasing knowledge and innovation** in the sector, overall MS have made progress in ensuring collaboration between different actors, including the aquaculture sector, supporting the upscaling, commercialisation and uptake of innovation in the aquaculture sector and, notably, developing specific training related to aquaculture. However, few MS link aquaculture to national smart specialisation strategies.
- Regarding funding to support aquaculture, MS should make greater efforts to support aquaculture under EU funds other than EMFAF and facilitate synergies in the use of different funding opportunities for aquaculture projects.
- Finally, whilst most MS support their aquaculture sectors in terms of administrative effort and national funding, there are concerns about the lack of sufficient political attention to this sector in policy making when compared to traditional sectors such as capture fisheries or agriculture, as well as novel sectors such as renewable energy development.

6.1.3. Aquaculture Advisory Council (AAC)

With respect to the **progress made by the AAC** in the implementation of the Strategic Guidelines, the AAC annual strategic plan is now closely aligned with the implementation of the Strategic Guidelines. Two biannual meetings with the Commission further ensure the planning and relevance of the work of the AAC for the implementation of these guidelines. However, the AAC considers that closer cooperation and a more dynamic procedural approach is required to maximise their effectiveness. The AAC has provided timely input in the context of the preparation of different documents, including Commission SWD. The AAC has produced four research reports and over 50 recommendations on topics relevant to the Strategic Guidelines. The work of the AAC so far has focused on providing timely input to documents developed by the AAM and the Commission and provide relevant recommendations to the Commission and MS.

However, in the future, it is necessary to do more efforts in disseminating the content of different documents and tools made available as part of the implementation of the Strategic Guidelines (e.g. the EU aquaculture website, SWD and other documents on relevant aspects) among aquaculture producers and other interest groups. The webinar on Good Husbandry Practices organised by the AAC on 30 September 2025 is a good sign in this direction.

6.2. Efficiency

In terms of the efficiency in achieving the growth of EU aquaculture as a more competitive, resilient and environmentally performance sector of the actions implemented so far by the three different actors referred to above, the lack of data on the sector after 2023 does not allow us to reach clear conclusions.

Data available shows that there has not been any increase in production volume or employment, but these data mostly date back to 2023 and refers to a period where the Covid pandemic and the war in Ukraine have had an impact on the industry. Whilst there are signs of interest in low-trophic species, notably macroalgae production, diversification towards low-trophic and low-impact aquaculture has not materialised. There has been a decline in the production of bivalve molluscs, which make up almost half of EU production, mainly due to environmental and climate factors, and to a lesser degree economic factors.

Overall, the sector's productivity has not been materially improved by the high level of effort and funding it has received to date. This said, it is still relatively early days in terms of the implementation of the strategic guidelines and MNSP, and it has to be acknowledged that there are considerable headwinds against which the sector has been battling e.g. COVID, the economic fall-out from the war in Ukraine and the gathering impacts of climate change, especially on the bivalve sector.

Overall, despite of the significant steps taken by the Commission and progress made by MS in the implementation of different aspects of the strategic guidelines, there is still insufficient progress in two long-standing obstacles to the sustainable growth of aquaculture in the EU: (i) access to space and water, and (2) the complex and long licensing procedures. Moreover, further efforts need to be made by Member States and the AAC to disseminate and put into practice the work done by the Commission and the AAM to support the implementation of the strategic guidelines, notably the Commission SWD. It remains to be seen whether the Commission SWD, which provide recommendations, good practices and concrete case studies on these topics, will support progress in achieving the objectives of the Strategic Guidelines. This will depend upon the political will of Member States to allocate the necessary resources to aquaculture in a period when there are many competing needs in the EU.

Annex I: Member State Survey Questionnaire

Aquaculture Assistance Mechanism

Survey on 'Monitoring of progress of implementation of the Strategic Guidelines on EU aquaculture'

Introduction

Purpose

Ensure a regular **monitoring of progress and impact** of the implementation of the Commission Strategic Guidelines (Strategic Guidelines) and the EU Member States Multi-Annual National Strategic Plans for Aquaculture (MNSPs).

The survey is addressing **relevant public authorities and services** responsible for different aspects of aquaculture sector development in Member States.

Each Member State should identify a **contact point** for this monitoring system (including a back-up), who would be responsible for compiling the replies to the questionnaire obtained from different authorities and services of that Member State into a single reply.

Description of monitoring progress

This monitoring shall take the form of an **annual survey** to EU Member States on a number of defined **progress indicators** and, where relevant, on the basis of **baseline indicators**.

In the **first annual survey**, where relevant, **baseline indicators** will be the average in the 5-year reference period of 2016 to 2020. Where available, Member States will have to provide baseline indicators considering this reference period (more details on this will be provided for each indicator). For other questions, the baseline will be the situation before 1 January 2021.

The survey will consist in a series of **questions** on: (I) the evolution of the aquaculture sector; (II) progress indicators organised around each of the objectives and areas covered in the Strategic Guidelines; (III) other actions implemented under the MNSPs; (IV) other actions supported by EU or national funding. Most of the questions are based on the recommendations and proposed actions on different areas contained in the Strategic Guidelines.

Each question will define the progress indicator (how it should be measured, what variables should be used or if it is a Yes or No response indicator) as well as the baseline indicator where relevant. Questions are designed to ensure, to the greatest extent possible, homogeneous, and comparable replies on the measuring of progress indicators. Please make sure to include the reference to the source of information provided in your replies whenever relevant.

Whenever a specific action has been the **result of the implementation of the current MNSP** of the Member State replying to the question, this has to be specified in the reply. Other actions in the MNSP implemented and not covered by the previous questions should be described under **Section III**. Whenever actions involve **the use of EMFF / EMFAF or other EU funding**, a reference to this should also be included in the reply.

To the extent that a MNSP or EMFAF programme has defined progress indicators, relevant information can be taken into consideration in the replies to the survey.

The replies to this survey will be compiled by the EU Aquaculture Assistance Mechanism (AAM), which will prepare a report on its results. The AAM might contact the person responsible for compiling the information for the MS concerned for follow-up questions to clarify the replies provided, when necessary.

The survey will be open until **31 October 2024**.

Thank you in advance for your cooperation. Your support is very much appreciated.

No personal or commercial data will be collected or shared, and the results will be analysed at both MS and aggregated level.

Preliminary questions

Please indicate the EU Member State you represent.

Please indicate the name of the organisation / institution you represent.

Please indicate your role within your organisation / institution.

Section I. Evolution of the aquaculture sector in your Member State

1. Volume and value of aquaculture production

Please provide statistics of the total volume (t) and value (EUR) of aquaculture production per year since 1 January 2021 until the year for which the latest statistics are available.

Please provide also as baseline the average volumes and value of aquaculture production in the period of 2016-2020.

Please disaggregate these statistics by segment (marine, freshwater and land-based aquaculture), species and production technique.

2. Employment

Please provide the latest statistics of employment in the aquaculture sector in your Member State (both FTE and part time).

Please provide also as baseline indicator the average number of jobs in the aquaculture sector in the period of 2016-2020.

Please disaggregate these statistics by segment (marine, freshwater and land-based aquaculture).

3. Industry structure

Please provide the latest statistics on the number of establishments and companies in the aquaculture sector (primary production) in your Member State.

Please provide also the average number of establishments / companies in the aquaculture sector in the baseline period of 2016-2020.

Please disaggregate these statistics by segment (marine, freshwater and land-based aquaculture) and by size (large, SMEs, micro enterprises).

Section II. Implementation of the Strategic Guidelines and MNSPs

A. Building resilience and competitiveness

1. Access to space and water

Integration of aquaculture in national marine and inland planning

Does your Member State's marine spatial planning integrate planning for aquaculture areas?

YES / NO. If YES, please provide details on when and how this was done.

Does your Member State's inland spatial planning integrate planning for aquaculture areas?

YES / NO. If YES, please provide details on when and how this was done.

Areas designated as suitable for aquaculture (Allocated Zones for Aquaculture)

Are there in your Member States any areas allocated to aquaculture?

YES / NO. If YES:

- Please provide information on number of areas, surface covered, species, conditions for development, and other relevant data.
- Please provide as baseline indicator areas allocated to aquaculture existing before 1 January 2021.

Aquaculture Management Areas

Are there any Aquaculture Management Areas (designated by public authorities or the result of private initiatives) in your Member State?

YES / NO. If YES:

- Please describe geographical scope of each of these areas and other relevant elements (whether it is a public or private initiative, type of "collective management" involving farms in the area, etc.)
- Please provide as baseline indicator Aquaculture Management Areas existing before 1 January 2021.

Development of reference methods/tools for planning and monitoring

Have reference methods or other tools for planning and monitoring relevant for allocation of space for aquaculture been developed in your Member State?

YES / NO. If YES,

- Please briefly describe the type of method(s) / tool(s) (e.g. GIS, modelling, method for calculating carrying capacity) and its / their use / accessibility.
- Please provide as baseline indicator the methods / tools available before 1 January 2021.

Requirement of strategic impact assessments for aquaculture plans / AZAs

Does the allocation of space for aquaculture, either by spatial planning, special aquaculture plans or AZAs, require a strategic impact assessment (SEA) in your Member State?

YES / NO. If YES, please explain where this requirement is laid down and how this requirement is applied.

Have there been any SEAs conducted in your Member State in relation to the allocation of space to aquaculture activities since 1 January 2021?

YES / NO. If Yes,

- Please explain how many SEAs have been conducted and for which type of aquaculture plan.
- Please provide as baseline indicator the number of SEAs conducted before 1 January 2021.

2. Regulatory and administrative framework

Reviews of legislative, regulatory and / or institutional framework for aquaculture

Have there been any reviews of the legislative, regulatory or institutional framework for aquaculture since 1 of January 2021?

YES / NO. If yes, please describe.

Are there any such reviews planned in the near future?

YES / NO. If yes, please describe.

Time for processing applications for a new licence and for the renewal of an existing licence

Please provide the average time for processing a licence application and an application for the renewal of a licence, respectively, during the period 2021-2023.

Please provide as baseline indicator the average time for processing a licensing application and an application for renewal of a licence during the baseline period (2016-2020).

New licences for aquaculture farms or renewal of licences

Please provide for the period 2016 - 2020 and the period 2021-2023 the following information:

	2016-2020	2021-2023
Number of applications for new licences		
Number of applications for renewal of existing licences		
Number of new licences granted		
Number of renewals of existing licences granted		

Duration of licences

Are there any minimum / maximum periods of duration of a licence for an aquaculture site / farm in your Member State?

YES / NO. If yes,

- Please describe which is(are) the period(s) and where it / they is / are laid down.
- Please provide as baseline indicator the situation before 1 January 2021.

Environmental impact assessment

Is environmental impact assessment required for the licensing of aquaculture farms in your Member State?

YES / NO. If Yes,

- Where is this requirement laid down?
- Please provide as baseline indicator the situation before 1 January 2021.

Are there different types of requirements for different types of farms / production systems / species?

YES / NO. If Yes, please provide more details.

Model Environmental Assessment methodology for applicants for a licence

Is there a standard / reference environmental assessment methodology for applicants for an aquaculture licence in your Member State?

YES / NO. If yes,

- Please describe.
- Please provide as baseline indicator the situation before 1 January 2021.

Data sharing systems

Is there any system that allows to share data among relevant public authorities to facilitate the management of the licensing process?

YES / NO. If Yes,

- Please provide more details.
- Please provide as baseline indicator the situation before 1 January 2021.

Is there any system that allows to share data with the public to facilitate the work of applicants for a licence and provide transparency on licensing?

YES / NO. If Yes,

- Please provide more details.
- Please provide as baseline indicator the situation before 1 January 2021.

Other coordination and coherence efforts

Has any other measure / action been taken to ensure a more coherent and coordinated regulatory and administrative approach to aquaculture? (e.g. guidance to different authorities involved in aquaculture development / licensing, a coordination system among different responsible public authorities, coordination with stakeholders).

YES / NO. If Yes,

- Please provide more details.

- Please provide as baseline indicator the situation before 1 January 2021.

Digitalisation of licensing procedure and other procedures relevant for aquaculture

Is the system for introducing and processing applications for licences / renewal of existing licences digitalised?

YES / NO. If Yes,

- Please provide more details.
- Please provide as baseline indicator the situation before 1 January 2021.

Have other procedures related to aquaculture been digitalised?

YES / NO. If Yes,

- Please provide more details.
- Please provide as baseline indicator the situation before 1 January 2021.

3. Climate change

Measures / programmes for adaptation to climate change

Have there been any measures, programmes, or funded projects or investments applied to adapt the aquaculture sector to climate change in your Member State since 1 January 2021? These may include, among others, research and innovation projects and training to aquaculture producers on good practices.

YES / NO. If Yes,

- Please provide more details.
- Please provide as baseline indicator the situation before 1 January 2021.

4. Animal health and public health

Development of codes of good practices on animal health.

Have any codes of good practices (e.g. good husbandry practices) been developed in your Member State regarding farmed aquatic animal health related to aquaculture? This may include initiatives from public authorities, research institutions or industry.

YES / NO. If YES,

- Please provide more details (e.g. source, dissemination, use, etc.).
- Were any such codes available before 1 January 2021?

Research and funding on animal health

Have there been any research and innovation projects and / or other funded measures on aquatic animal health since 1 January 2021?

YES / NO. If YES,

- Provide more details (number of projects, and type and amount of funding). Please specify those projects dedicated specifically to bivalve mollusc' diseases.

Please provide as baseline indicator the number of projects and funding of research on aquatic animal health in the reference period of 2016 to 2020.

Preventive measures / programmes

Have there been any disease prevention measures or programmes for aquaculture in your Member State since 1 January 2021 (e.g. vaccination campaigns)?

YES / NO. If Yes,

- Please provide more details (e.g. how many, geographical scope, species covered).
- Please provide as baseline indicator the situation in the period 2016-2020.

Training to competent authorities on surveillance based on new Official Control Regulation and new Animal Health Law

Have there been any training to competent authorities in your Member State on surveillance since 1 January 2021?

YES / NO. If yes,

- Please provide more details on the targeted beneficiaries, number of training, etc.
- Please provide as baseline indicator the situation in the period 2016-2020.

Training / workshops to industry members on surveillance and good practice

Have there been any training or workshops for members of the aquaculture sector on good husbandry practices on since 1 January 2021?

YES / NO. If yes,

- Please provide more details on the targeted beneficiaries, number of training, etc.
- Please provide as baseline indicator the situation in the period 2016-2020.

Research projects / funding on public health issues linked to aquaculture

Have there been any research and innovation projects and / or other funded measures on public health issues linked to aquaculture since 1 January 2021?

YES / NO. If YES,

- Provide more details (number of projects, type of funding).. Please specify how many projects / how much funding has been dedicated specifically to public health issues related to bivalve molluscs.
- Please provide as baseline indicator the number of research and innovation projects and funding on public health issues in the reference period of 2016 to 2020.

5. Producer and market organisation

Producer organisations and inter-branch organisations

Are there any aquaculture producer organisations and / or inter-branch organisations linked to aquaculture in your Member State? Producer organisations and inter-branch organisations should be understood as defined according to the CMO Regulation

YES / NO. If Yes provide more details (e.g. geographical scope, types of aquaculture covered, type of actors involved, etc.)

Have any new such organisations been created since January 2021, or are you aware of efforts to create them?

YES / NO. If Yes provide more details ((e.g. geographical scope, types of aquaculture covered, type of actors involved, etc.)

Are you aware of any other form of organisation of aquaculture producers and other actors in the aquaculture value chain in your Member State other than producer organisations and / or inter-branch organisations, as defined according to the CMO Regulation?

YES / NO. If Yes provide more details (e.g. geographical scope, types of aquaculture covered, type of actors involved, etc.) .

6. Control

Traceability

Are there any public or industry initiatives to provide better traceability of aquaculture products?

YES / NO. If Yes, please provide more details, including whether these are public or private initiatives and whether they use digital tools or are AI-based.

Have any such initiatives been created since 1 January 2021?

YES / NO. If Yes, please provide more details, including whether these are public or private initiatives and whether they use digital tools or are AI-based.

7. Diversification and adding value

Diversification of species

Please rank by order of importance in term of production species farmed in your Member State that are not among the 3 most produced species (in your Member State). This might include species farmed in research and pilot projects. When this is the case, please specify.

For each of those species, please provide annual volumes (t) and value (EUR) and number of enterprises involved in farming these species in the years from 2016 to 2020. and the years 2021-2023, respectively.

Diversification of production systems

Have new production systems been introduced in your Member State since January 2021 compared to systems in place before? This might include systems in research and pilot phase (please specify when this is the case). Some examples could be: IMTA, aquaculture in multi-use platforms, aquaculture further offshore, aquaponics, Recirculating Aquaculture Systems, pond-in-pond systems, etc.

YES / NO. If Yes, please provide more details (volume and value or production and number of enterprises in the years 2021 to 2023)

B. Participating in the green transition

8. Environmental performance

National environmental strategies

Do environmental strategies in your Member States include the aquaculture sector? *These include River Basin Management Plans (WFD) and Marine Strategies (MSFD), among others.*

YES / NO. If yes, please describe the strategy and the way aquaculture is taken into consideration in it.

Measures to increase the environmental performance of aquaculture

Have there been any measures, programmes, funded projects or investments applied to further mitigate the environmental impact of aquaculture in your Member State since 1 January 2021? *These may include, among others, research and innovation projects, funding on the mitigation of negative environmental impact of aquaculture or promoting positive environmental impact, and training to aquaculture producers on good practices.*

For reference, see issues identified in section 2.2.1 of the Strategic Guidelines.

YES / NO. If yes, please describe (including the types of measures covered and their purpose, targeted beneficiaries, whether public or private initiative, amount of funding, duration, etc.).

Low trophic species (molluscs, invertebrates, algae, herbivore fish)

Please provide the volume and value of production of low trophic species (per species) in the years 2021 to 2023.

Please provide also as baseline indicator the average volume and value of production of low trophic species (per species) in the reference period 2016-2020.

Sustainable feed

Have there been any measures to promote the use of more sustainable feed for fed aquaculture since 1 January 2021 in your Member State? *These may include, among others, research and innovation projects or funding of alternative feed.*

YES / NO. If yes, please describe (including if the measures are public or private driven, type of measure, targeted beneficiaries, etc.).

IMTA, RAS

How many aquaculture farms in your Member State currently apply IMTA techniques? *These may include pilot projects in the context of research and innovation initiatives.*

How does this compare to the situation before 1 January 2021?

How many aquaculture farms in your Member State currently apply RAS techniques? *These may include pilot projects in the context of research and innovation initiatives.*

How does this compare to the situation before 1 January 2021?

Aquaculture in nature protected areas

Are there any aquaculture farms in your Member State located in nature protected areas (e.g. MPAs, Natura 2000 sites)?

YES / NO. If yes,

- Please describe the number of farms, area, volume of production, species, production method and location.
- Please provide the same information as above, explaining the situation before 1 January 2021.

Extensive pond and wetland aquaculture.

Are there any aquaculture farms involved in extensive or semi-extensive aquaculture in ponds and wetlands in your Member State? *Extensive: low rearing density and little or no food input / Semi-intensive: medium density and additional food*

YES / NO. If yes,

- Please describe the number of farms, type of production (extensive or semi-extensive), area, volume of production, species and location.
- Please provide the information above for the baseline period of 2016 - 2020 and for the period 2021-2023.

Organic production

Please provide the volume (t) of organic aquaculture production and the number of new organic certifications for aquaculture products in your Member State in years the period 2021 to 2023.

Please provide also, as baseline indicator, the average volume of organic aquaculture production in the reference period 2016 - 2020 and the new organic certifications for aquaculture products provided in your Member State during this period.

Decarbonisation of the aquaculture sector

Have there been any measures, programmes, funded projects or investments to support the decarbonisation of the aquaculture sector in your Member State since 1 January 2021? *These may include, among others, research and innovation projects, funding on energy efficiency or the use of renewable energy, and training to aquaculture producers on good practices.*

YES / NO. If yes, please describe, including whether the measures / programmes are a public or private initiative, scope, targeted beneficiaries, etc.

What is the percentage of the total of aquaculture facilities in your Member State using renewable energy sources (partially and entirely)?

Please describe also the main sources of renewable energy used in the aquaculture sector in your Member State per type of production if applicable.

Monitoring and reporting

Have environmental performance indicators been established in your Member States for the purpose of environmental assessment and monitoring of aquaculture activities?

YES / NO. If yes, please describe (including where those indicators are set, how they are assessed and for which purpose).

Has any model / reference environmental monitoring plan been developed in your Member State for aquaculture activities?

YES / NO. If yes, please describe (including where that plan is set and for which purpose).

Alien species

Have there been any measures, programmes, funded projects or investments on the introduction of alien species in aquaculture in your Member State since 1 January 2021? *These may include, among others, research and innovation projects, funding on the introduction of alien species in aquaculture, and training to aquaculture producers on good practices.*

YES / NO. If yes, please provide more details.

Have there been any measures, programmes, funded projects or investments to mitigate the impact of invasive alien species on aquaculture in your Member State since 1 January 2021? *These may include, among others, research and innovation projects, funding of measures to mitigate the impact of invasive alien species, and training to aquaculture producers on good practices.*

YES / NO. If yes, please provide more details.

9. Animal welfare

Aquaculture and national animal welfare strategy

Is welfare of farmed aquatic animals part of national animal welfare strategies in your Member State?

YES / NO. If yes, please provide more details.

Codes of good practices and indicators on the welfare of farmed aquatic animals

Has any code of good practices to ensure the welfare of farmed aquatic animals been developed in your Member State?

YES / NO. If yes, please provide more details, including whether it is a public or private initiative and the scope (species, life stage, etc.).

Have indicators for assessing the welfare of farmed aquatic animals been developed in your Member State?

YES / NO. If yes, please provide more details, including whether it is a public or private initiative and the scope (species, life stage, etc.).

Have there been any measures, programmes, funded projects or investments applied to improve animal welfare of farmed aquatic animals in your Member State since 1 January 2021? *These include, among others, research and innovation projects, funding of measures on the welfare of farmed aquatic animals, and training to aquaculture producers on good practices.*

YES / NO. If yes, please provide more details.

C. Ensuring social acceptance and consumer information

10. Communicating on EU aquaculture

Information / communication campaigns on aquaculture

Have any information / communication campaigns on aquaculture been developed / launched in your Member State since 1 January 2021?

YES / NO. If yes, please provide more details on the type of campaign (including whether it is a public or an industry campaign), geographical scope, target audience, channels used (e.g. social media, TV, school campaign, etc.).

Measures to ensure information to the consumer on EU aquaculture products (including in HORECA).

Have any public or private initiatives been adopted to provide information on aquaculture products to the consumer (e.g. codes of conduct, traceability, information in HORECA)?

YES / NO. If yes, please provide more details on the type of initiative (including whether it is a public or private initiative), scope, target audience.

Quality schemes and labels, geographical indications, and short supply circuits.

Has any quality scheme or label applicable to aquaculture products been developed in your Member State since 1 January 2021?

YES / NO. If Yes, please provide more details. Please specify if the scheme(s) is(are) public or private.

Have any geographical indications been granted since 1 January 2021 to aquaculture products in your Member State?

YES / NO. If Yes, please provide more details (including aquaculture product concerned).

Have any short-supply circuits involving aquaculture products been developed in your Member State since 1 January 2021? E.g. online applications / platforms for direct sales to consumers.

YES / NO. If Yes, please provide more details (e.g. whether public or private initiative, geographical scope, type of aquaculture products covered, volume of production concerned, etc.).

11. Integration in local communities

Local stakeholders' involvement

Has there been in your Member State any measure / initiative to involve local stakeholders in the planning and development of aquaculture activities? e.g. consultation with or establishment of a platform of local stakeholders.

YES / NO. If Yes, please provide more details.

Fostering synergies

Has there been in your Member State any measure / initiative to foster synergies between aquaculture and other activities (e.g. fisheries, tourism, processing, etc.) at local level?

YES / NO. If Yes, please provide more details.

12. Data and monitoring

Data reporting and collection

Are there any compulsory data reporting requirements on aquaculture in your Member State?

YES / NO. If Yes, please provide more details, including scope and purpose of the requirement, source and type of data, regularity of reporting, government agency to which the data are reported, use of data, etc.

Has the aquaculture industry in your Member State taken any voluntary commitment to report to national authorities and make public environmental data, including on escapees, and the use of veterinary medicines?

YES / NO. If Yes, please provide more details, including how this data is used by public authorities.

Public data provided regarding aquaculture

Are data collected on aquaculture activities publicly available in your Member State?

YES / NO. If Yes, please provide more details.

D. Increasing knowledge and innovation

Research and innovation coordinating framework

Are there in your Member State any framework / platform for cooperation on research and innovation that brings together different stakeholders (including public authorities, industry, researchers and educators)?

YES / NO. If Yes, please provide more details, including the role of the framework and platform.

Is there any innovation cluster on aquaculture in your Member State?

YES / NO. If Yes, please provide more details.

Are actors involved in research and innovation in your Member State part of any collaboration with such actors in other Member States?

YES / NO. If Yes, please provide more details.

Are actors involved in research and innovation in your Member State part of any smart specialisation strategy linked to aquaculture activities?

YES / NO. If Yes, please provide more details.

Dissemination and exploitation of research and innovation results

Is information on research and innovation projects publicly funded related to aquaculture and their results publicly available in your member State?

YES / NO. If Yes, please provide more details, including the number of projects whose results have been published since 1 January 2021.

Are there any mechanism to ensure that the results of research and innovation projects are made available to the sector in order to facilitate their exploitation?

YES / NO. If Yes, please provide more details, including the number and type of projects whose results have been exploited at industry level since 1 January 2021.

Skills development programmes

Are there any specific curricula or training related to aquaculture activities in your Member State?

YES / NO. If Yes, please provide more details, including a description of the scope and purpose of the curricula / training.

Have any of those curricula or training been established since 1 January 2021?

YES / NO. If Yes, please provide more details.

Are there any life-long training initiatives / programmes for aquaculture producers available in your Member State?

YES / NO. If Yes, please provide more details, including a description of the scope and purpose of training and when they were established.

Have any of those been established since 1 January 2021?

YES / NO. If Yes, please provide more details.

Investment on aquaculture innovation

Are there any mechanisms in your Member State to support the upscaling, commercialisation and uptake of innovation in the aquaculture sector? E.g. support to innovative start-ups, support to aquaculture producers to adopt innovative technologies / approaches, other types of promotion of investment in the sector, etc.

YES / NO. If Yes, please provide more details about the specific purpose of these programmes / mechanisms, targeted beneficiaries, available funding, etc.

Section III. Implementation of MNSP

Please describe any other measure / action identified in the MNSP of your Member State that has been implemented or is expected to be implemented in the near future and is not mentioned in the replies to the questions above.

Section IV. Funding aquaculture

Please describe different funding instruments currently available to support the aquaculture sector (including grants, financial instruments, etc.) in your Member State.

Does your Member State support aquaculture under EU funds other than EMFAF? E.g. EAFRD, ERDF, etc.

YES / NO. If Yes, please provide more details.

Please describe any action / project funded under EU or national funds on aquaculture that is not mentioned in the replies to the questions above.

Is there any mechanism in your Member State to facilitate synergies in the use of different funding opportunities for aquaculture projects?

YES / NO. If Yes, please provide more details.

Is information on any project on aquaculture funded with public money available to the public?

YES / NO. If Yes, please provide more details.

Is there any mechanism in your Member State to facilitate access by individual aquaculture stakeholders to funding? (e.g. Information service, help desk, etc.)

YES / NO. If Yes, please provide more details (including targeted beneficiaries).

Submission

Thank you for your valuable support, your answers will be very valuable to help us assess progress in the implementation of the EU strategy for a more sustainable and competitive EU aquaculture and will be carefully analysed.

We might contact you to request clarifications of the information in response to this survey if necessary.

Annex II: Detailed Member State questionnaire response analysis

Strategic Objective 1: Building resilience and competitiveness

1.1 Space and water

Relevant Link to charts in Annex III

Chart 1: Does your Member State's marine spatial planning integrate planning for aquaculture areas?
Chart 2: Does your Member State's inland spatial planning integrate planning for aquaculture areas?
Chart 3: Are there in your Member State any areas allocated to aquaculture?
Chart 4: Are there any Aquaculture Management Areas (designated by public authorities or the result of private initiatives) in your Member State?
Chart 5: Have reference methods or other tools for planning and monitoring relevant for allocation of space for aquaculture been developed in your Member State?
Chart 6: Does the allocation of space for aquaculture, either by spatial planning, special aquaculture plans or AZAs, require a strategic impact assessment (SEA) in your Member State?
Chart 7: Have there been any SEAs conducted in your Member State in relation to the allocation of space to aquaculture activities since 1 January 2021?

Designate areas suitable for aquaculture

Spatial planning for aquaculture varies significantly across European countries, with both marine and freshwater aquaculture being regulated through different frameworks. Many countries have adopted Marine Spatial Plans (MSPs) to define areas suitable for aquaculture. Overall, while marine aquaculture spatial planning is well-established across most countries, according to the responses, freshwater aquaculture remains less defined, with planning efforts varying widely. Many nations are working toward integrating aquaculture into broader environmental and economic strategies, ensuring sustainable development and regulatory clarity.

19 of the MS responded that their MSP integrates planning for aquaculture areas (Chart 1), whereas ten responded that their inland spatial planning integrates planning for aquaculture (Chart 2). 13 responded that there are areas allocated to aquaculture (Chart 3), whereas only six responded that there were aquaculture management areas in the MS (Chart 4).

Spain has designated 35 zones of interest for aquaculture, including Zonas de Interés para Cultivos Marinos (ZICM) and Zonas de Interés para Acuicultura (ZIA), based on technical, environmental, and administrative criteria. The analysis of the regulatory framework within the 12 nm zone has not been carried out so far, but this issue is expected to be addressed. Spain's marine spatial planning, approved in 2023, integrates high-potential aquaculture zones (*Zonas de Alto Potencial para la Acuicultura* – ZAPAC), developed through stakeholder consultations, environmental assessments, and public workshops. In Spain, there is great interest in the development of offshore aquaculture as it is believed it could provide a solution to the space issues in the nearshore areas as well as providing environmental benefits. Spain is planning to conduct an analysis and review of the regulatory framework applicable to offshore aquaculture beyond 12 nautical miles and notes that there are still significant technological and financial

challenges in the development and management of infrastructure adapted to oceanic conditions making advancements in research and innovation essential.

In Croatia, marine aquaculture planning is highly developed, with Allocated Zones for Aquaculture (AZAs) first introduced in Zadar County in 2003. These AZAs are categorised into four types (A1–A4), with varying degrees of aquaculture suitability. However, spatial planning for freshwater aquaculture lags behind, with inconsistencies across counties. A forthcoming by-law under the Aquaculture Law is expected to improve inland aquaculture planning. Portugal has integrated its 2008 APAs into national maritime spatial planning, designating 22,1 km² for bivalve and finfish farming. The country also adopted an *Aquaculture Plan for Transitional Waters* in 2022 to support further development.

In the Netherlands, aquaculture spatial planning has been established since 1950, with mussel, oyster, and hanging culture farms allocated in the Wadden Sea, Oosterschelde, and Lake Grevelingen. Producer associations play a strong role, such as the Producer Organisation for Dutch Mussel Culture and the Dutch Oyster Association. France utilises regional (*Schéma régional de développement de l'aquaculture marine - SRDAM*) and departmental (*Schémas de structures - SDS*) frameworks for aquaculture planning. While marine aquaculture is included in these strategies, freshwater aquaculture is not yet formally designated, though action 1.2.5 of the *Plan Aquacultures d'Avenir (P2A)* aims to integrate it into river basin management. Additionally, criteria are being developed to identify zones where pond aquaculture could enhance wetland quality. Germany has identified suitable aquaculture sites in Schleswig-Holstein, while Bavaria has two EMFAF-supported FLAG areas focused on carp pond farming.

Several countries have integrated aquaculture zones into broader maritime strategies. Finland explicitly defines aquaculture areas in its *Marine Spatial Plan*, while Romania's 2022 *Maritime Space Management Plan* promotes aquaculture within sustainable blue economy objectives. Latvia does not specifically designate inland aquaculture areas but allows individuals or companies to apply for land use under general agricultural development conditions. The country prohibits aquaculture in protected marine areas and mandates EIAs for new proposals. Malta has established one permanent and one temporary aquaculture zones exclusive to bluefin tuna, alongside six areas for closed-cycle species such as seabream and seabass. Its planning is governed by the *Strategic Plan for Environment and Development (SPED 2015)* and the *Development Planning Act (2016)*.

Greece's aquaculture spatial planning is structured through the *Special Spatial Framework for Aquaculture (SSF-A)* and MD 31722/2011, which established 52 Areas Suitable for Development of Aquaculture (ADAs). These ADAs include 8 AODAs, covering 45 Allocated Zones for Aquaculture (AZAs) with a projected production capacity of 158,776 t/y for fish and 13,700 t/y for shellfish. AODAs act as aquaculture management areas (AMAs), governed by aquaculture operators or public / private entities under a Presidential Decree. Greece's framework ensures environmental protection, project planning, and impact monitoring.

Denmark designates aquaculture zones within its *Marine Spatial Planning* framework (March 2021) and considers aquaculture in municipal planning under the *Bekendtgørelse af lov om planlægning*, which incorporates public hearings and EIAs. Bulgaria's *Marine Spatial Plan (2021–2035)* integrates aquaculture zones in the Black Sea, coordinated with maritime authorities and the Navy, while inland aquaculture regulations allow state-owned reservoirs designated for recreational fishing to be used for aquaculture under specific conditions.

In Czechia, aquaculture is incorporated into broader spatial and territorial development plans under the *Building Act*. Belgium allows freshwater aquaculture in areas designated for agriculture, industry, greenhouse horticulture, or SMEs, provided necessary permits are obtained. Slovenia's *Marine Spatial Plan* (developed in 2021 and effective since 2023) defines designated aquaculture zones following stakeholder consultations. Cyprus has designated four marine aquaculture zones covering 47 km² under its *Marine Spatial Plan*.

Methods and Tools for Monitoring Aquaculture

Ten of the MS responded that they had developed reference methods and other tools for planning and monitoring relevant for the allocation of space for aquaculture (Chart 5). Aquaculture planning and monitoring relies on various tools and assessments across the MS. Croatia and Malta both determine aquaculture areas through *Strategic Environmental Assessment (SEA)* and *EIA* procedures, ensuring compliance with environmental regulations. Portugal utilises GIS tools under the Plano de Situação do Ordenamento do Espaço Marítimo Nacional (*PSOEM*) plan, with detailed information accessible through its geoportal. Spain employs the *ACUIVISOR* cartographic viewer for analysing marine and continental aquaculture sites, production zones, and new locations, while *INFOMAR* supports MSP with regulatory and informational maps. Finland introduced a location management plan in 2014, integrating GIS tools and marine impact modelling to streamline licensing and site selection.

Denmark incorporates GIS-based tools and advanced *MIKE* hydraulic models in its *MSP* to assess nutrient and pollutant management for marine aquaculture. France is working on developing standardised socio-economic and environmental criteria for spatial planning, alongside Ifremer's *MOCAA* project (2020 – 2024), which evaluates marine fish farms based on species and production techniques. Greece has used a carrying capacity formula for marine fish farms since 2009, factoring in production area, coastal distance, sea depth, and water currents. A GIS-based mapping system is in development to improve aquaculture monitoring and site selection.

While Hungary is creating decision-support systems under its *National Aquaculture Strategy*, many countries, including the Netherlands, Romania, Estonia, Latvia, Lithuania, Cyprus, Belgium, Bulgaria, Czechia, Slovakia,

Sweden, and Germany, did not report significant updates in aquaculture monitoring since 2021.

Strategic environmental assessments

15 of the MS responded that allocation of space for aquaculture requires a strategic impact assessment (Chart 6). The application of Strategic Environmental Assessment (SEA) in aquaculture planning varies across the MS, reflecting different regulatory frameworks. In Croatia, SEA is not specifically required for aquaculture space allocation but is conducted during spatial planning as per environmental regulations. Portugal carried out an SEA in 2015 for the *European Maritime and Fisheries Fund (EMFF) OP*, though not initially for AZAs in 2008. In Spain an SEA has been carried out for all activities under the Maritime Spatial Plans (Planes de Ordenación del Espacio Marítimo) (POEMs) and prior to 2021, an SEA was carried out for the adoption of the Regional Aquaculture Planning Plan of the Canary Islands. Finland mandates environmental assessments for plans with significant environmental impacts, while France applies them to various management plans, including SDS, Documents Stratégiques de Façade (DSF), and river basin plans. Cyprus requires SEA under its *EIA Law*, mandating strategic impact assessment studies for new programs. Hungary applies SEA under *Directive 2001/42/EC*, and Malta follows its *Environment Protection Act* and SEA regulations. Denmark enforces SEA for maritime spatial plans, river basin management, and Natura 2000 plans. Greece incorporates SEA when approving AODA, requiring studies on environmental data and carrying capacity. In other countries, such as Estonia, Lithuania, Latvia, Belgium, Bulgaria, Czechia, and the Slovak Republic, SEA practices either follow general EU regulations or were not explicitly detailed.

1.2 Regulatory and administrative framework

Relevant Link to charts in Annex III

Chart 8: Have there been any reviews of the legislative, regulatory or institutional framework for aquaculture since 1 of January 2021?

Chart 9: Are there any such reviews planned in the near future?

Chart 10: Are there any minimum / maximum periods of duration of a licence for an aquaculture site / farm in your Member State?

Chart 11: Is environmental impact assessment required for the licensing of aquaculture farms in your Member State?

Chart 12: Are there different types of requirements for different types of farms / production systems / species?

Chart 13: Is there a standard / reference environmental assessment methodology for applicants for an aquaculture licence in your MS?

Chart 14: Is there any system that allows to share data among relevant public authorities to facilitate the management of the licensing process?

Chart 15: Is there any system that allows to share data with the public to facilitate the work of applicants for a licence and provide transparency on licensing?

Chart 16: Has any other measure / action been taken to ensure a more coherent and coordinated regulatory and administrative approach to aquaculture?

Chart 17: Is the system for introducing and processing applications for licences / renewal of existing licences digitalised?

Chart 18: Have other procedures related to aquaculture been digitalised?

Review the regulatory and administrative system on aquaculture as necessary in light of the principles laid down in this Communication and future guidance consolidated by the Commission, and taking into consideration the special needs of SMEs

15 MS responded that since 2021 there had been a review of the legislative, regulatory or institutional framework for aquaculture (Chart 8). Of those that responded “no”, all of them except two (Latvia and Czechia) said that they did have reviews planned in the near future. Several countries are actively revising their aquaculture regulations to improve management, sustainability, and compliance with modern standards. Croatia’s 2018 Aquaculture Law, which simplifies administrative procedures and aligns with EU frameworks, has undergone several amendments, with reviews ongoing since 2021. Portugal streamlined aquaculture licensing with *Decree Law No. 83/2023*, while Spain has introduced three regional regulations since 2021, focusing on authorisation, registration, and spatial organisation. The Netherlands updated its shellfish policy (2023–2033) to integrate fisheries and aquaculture, imposing a 12-year limit on new shellfish rights. Estonia amended its *Building Code* to regulate aquaculture infrastructure in public waters, while France revised its authorisation process to comply with EU directives and is preparing a national decree to simplify freshwater fish farm procedures. Lithuania introduced new technological standards in 2024, and Hungary’s 2022 *Multiannual National Strategic Plan on Aquaculture* set sustainability-focused targets for 2021–2030.

Several countries are planning further updates. Romania is drafting a new aquaculture law, while Belgium aims to review its framework in line with the *European Maritime, Fisheries and Aquaculture Fund (EMFAF)* by 2028. Bulgaria is revising regulations for fish breeding and electronic registration, and Malta is updating its *Aquaculture Concession Agreement* and operational permit framework to incorporate innovation and sustainability measures. Denmark is set to implement new monitoring and reporting requirements for marine fish farms in 2025. Czechia and Slovakia are introducing decrees on fish identification and registration, while Germany is revising its *Animal Welfare Act* to impose stricter expertise requirements for fish handling. Greece is reviewing its 2014 *Aquaculture Framework Law* alongside regulatory updates for aquaculture tourism, Bluefin Tuna farming, and River Basin Management Plans. Other countries, including Cyprus, Sweden, Finland, Latvia, and Estonia, are also considering legislative revisions but have not yet specified details.

Comparing data from 2016 - 2020 to 2021-2023, **the time required for processing aquaculture licenses** has generally increased in several countries. Croatia has maintained a similar timeline, requiring 1-2 years for new licenses and 6 months to 1 year for renewals. Portugal continues to process applications with an average of 41 working days. Denmark has experienced a major slowdown, with marine fish farm applications taking 3-5 years and none being approved between 2021-2023. Estonia maintains variable timelines depending

on EIAs, while France continues to require up to 6 months for the European Association of Guarantee Institutions (AECM) authorisation and at least 1 year for Installations Classées pour la Protection de l'Environnement (ICPE) permits. Lithuania, Hungary, Belgium, Malta, and Greece report relatively stable processing times, though Greece's licensing process remains lengthy (16 months for new applications, 7 months for renewals). Bulgaria continues to process registrations quickly (14 days), while Slovakia's 30-day requirement remains unchanged. Romania, Latvia, Sweden, and Germany provide limited or no updated data, though Germany's process remains complex and case specific.

Comparing **the number of aquaculture licenses issued** between 2016 - 2020 and 2021-2023, trends vary across countries, with some seeing a significant increase while others experienced a decline. Portugal showed the most notable increase, jumping from 110 licenses in 2019/2020 to 290 in 2021-2023. Estonia also saw growth, issuing 13 licenses for marine aquaculture after previously reporting no data. Slovakia, which had no recorded data before, issued approximately 20 licenses in the most recent period. Lithuania experienced a slight increase from 37 to 38. Conversely, Croatia saw a sharp decline from 70 licenses in 2016 - 2020 to just seven in 2021-2023. Spain reported 28 licenses after lacking previous data. Finland's issuance slightly dropped from 4 to 3, and Romania also saw a small decrease from 59 to 47. Bulgaria experienced a notable reduction from 408 to 114, and Denmark issued only five environmental licenses and two water column licenses, compared to a more diverse range of permits in the earlier period. Greece also saw a decline from 59 to 43 licenses. Cyprus and Malta issued no new licenses in both periods. The Netherlands continued its trend of not issuing new shellfish licenses while reducing land-based fish farm approvals from 28 to 15. Germany (Schleswig-Holstein) issued a similar number of licenses (one application in the earlier period vs. two in 2021-2023), while Sweden and Latvia continued to lack available data. Overall, while some countries have expanded licensing activity, particularly Portugal, others—such as Croatia, Bulgaria, and Denmark—have seen a notable decline in approvals.

Comparing **the number of aquaculture license renewals** between 2016 - 2020 and 2021-2023, the trends show mixed patterns across MS, with some increasing renewals while others saw a decline or remained stable. Overall, the total number of license renewals has decreased in some major aquaculture-producing countries like Croatia and Denmark, while others, such as Portugal and Finland, have seen an increase in renewal applications.

Increases in Renewals: Portugal nearly doubled its renewals, rising from 13 licenses (2019/2020 period) to 25 in 2021-2023; Spain, which had no previous data, issued 20 renewals in the latest period; Finland more than doubled its renewals from 27 to 60 licenses; Cyprus saw a notable increase from three to 12 licenses; Slovakia, which had no prior data, reported around 50 renewals in the latest period.

Declines in Renewals: Croatia saw a drop from 140 to 103 license renewals; The Netherlands issued slightly fewer renewals for shellfish aquaculture (from 141 to

136), while continuing to grant no renewals for land-based fish farms; Denmark issued fewer renewals overall, reporting only 17 water column licenses and 5 cultivation bank licenses, compared to 16 physical, 16 environmental, and 34 water column licenses in the previous period; Greece slightly decreased from 66 to 60 renewals.

MS reporting no change or no data: Romania, Estonia, Latvia, Lithuania, Hungary, Belgium, and Bulgaria did not report renewal data for either period; Czechia, Sweden, and Germany continued to provide no relevant data; Malta issued no renewals in either period.

Overall, **the number of new aquaculture licenses granted** declined in some key MS like Croatia, Greece, Denmark, and Bulgaria, while Portugal and Slovakia saw an increase. The most dramatic decline occurred in Bulgaria, while Portugal experienced the most significant rise in new licenses granted. Comparing the number of new aquaculture licenses granted between 2016 - 2020 and 2021-2023, there are notable fluctuations across different countries.

Countries with a decrease in new licenses: Croatia saw a significant drop, from 68 new licenses in 2016 - 2020 to just 7 in 2021-2023; Finland issued one fewer license in the latest period, declining from 4 to 3; The Netherlands issued fewer land-based fish farm licenses, dropping from 21 to 8 (no shellfish licenses in either period); Greece granted fewer new licenses, decreasing from 47 to 25; Denmark continued to issue only 2 water column licenses, but granted no cultivation bank licenses in the latest period, compared to 22 previously; Cyprus and Malta, which issued 1 and 0 licenses, respectively, in 2016-2020, issued none in 2021-2023; Bulgaria experienced a sharp decline, issuing 114 licenses in 2021-2023 compared to 408 in the previous period.

Countries with an increase in new licenses: Portugal saw an increase, from 43 licenses in 2019/2020 to 141 in 2021-2023; Lithuania saw a slight increase from 37 to 38 new licenses; Spain, which had not provided previous data, reported 28 new licenses in the latest period; Estonia, which had no previous data, issued three licenses for marine aquaculture in 2021-2023; Slovakia, which did not report data previously, issued approximately 20 new licenses in 2021-2023.

MS with no change or no data: Latvia, Belgium, Sweden, Czechia, and Germany did not provide relevant data in either period.

Comparing **the number of renewals of existing aquaculture licenses** between 2016 - 2020 and 2021-2023, there are notable shifts in licensing activity across countries. Croatia saw a decrease in renewals, dropping from 140 licenses in 2016 - 2020 to 101 in 2021-2023. Portugal, which had only seven renewals in 2019/2020, reported 25+ renewals in 2021-2023, along with 722 automatic renewals under Decree Law 83/2023, marking a significant increase. Spain, which had previously provided no data, issued 28 renewed licenses in the latest period. Finland's renewals rose from 27 to 48, while Greece saw a slight decline, from 58 to approximately 50 renewals. The Netherlands' shellfish sector experienced a small drop from 141 to 136 renewals, with no data available for

land-based fish farms in either period. Denmark, which had issued twelve water column licenses in 2016-2020, increased to 17 in 2021-2023 and also issued five cultivation bank licenses, though no physical or environmental renewals were granted in either period. Cyprus quadrupled its renewals, rising from three to twelve. Malta continued to report no license renewals, while Romania, Estonia, Latvia, Lithuania, Hungary, Belgium, Bulgaria, Czechia, Sweden, and Germany either did not provide relevant data or maintained their previous status. Overall, while some countries experienced a decline in renewals (e.g., Croatia, Greece, and the Netherlands), others, particularly Portugal, Finland, and Cyprus, saw an increase, with Portugal experiencing the most dramatic jump due to its large-scale automatic renewal system.

21 of the MS responded that there were **minimum / maximum periods of duration of a licence** for an aquaculture site / farm (Chart 10). The duration of aquaculture licenses varies widely across countries. In Croatia, marine aquaculture licenses can last up to 50 years under government concessions, with potential extensions. Freshwater licenses depend on land or water use rights, with durations ranging from 20 to 25 years and possible renewals. Portugal limits licenses to 10–25 years, depending on water rejection. In Spain, durations vary by region, with initial permits vary from 10–30 years, potentially extending up to 75 years. Finland grants 10-year permits for marine areas, while inland permits are indefinite. The Netherlands issues mussel and oyster licenses for a maximum of 3 years. Estonia allows up to 50 years for marine aquaculture licenses, with possible renewals. Latvia permits marine aquaculture for up to 30 years. In France, authorisations can last 35 years for an AECM (Autorisation en Culture Marine) authorisation, but some e.g. ICPE may have no time limits depending on regulatory procedures. Cyprus grants licenses for 10 years, renewable for equal periods, and Hungary imposes a 5-year limit for sites in Natura 2000 areas. Belgium's limit is 20 years, while Malta allows up to 25 years (with possible renewals). Denmark issues marine facility permits for 10 years, with environmental permits reassessed every 8–10 years. Greece permits marine or lake aquaculture for up to 20 years. Sweden typically grants 10-year permits, while in Germany, durations vary by the type of permit and are often case-specific. Data for Romania, Bulgaria, Czechia, and Slovakia were not provided. The duration of aquaculture licenses before 1 January 2021, was largely consistent with current regulations in most countries.

24 MS responded that there was **EIA required for the licensing of aquaculture farms** (Chart 11) and they provided details as to where the requirement was laid down. Some provided an outline of what this was like pre-2021.

18 of the MS responded that there are different types of requirements for different types of farms / production systems / species (Chart 12). EIAs for aquaculture vary significantly across MS, depending on factors such as production type, scale, species farmed, and environmental sensitivity. In Croatia, the need for an EIA depends on farm type, location, and production size, with specific thresholds for marine and freshwater systems. Portugal mandates EIAs for intensive farming

and in sensitive areas but not for bivalves or extensive systems. France requires mandatory EIAs for fish farms exceeding 20 t annually, while smaller farms are assessed on a case-by-case basis and on specific criteria outlined in the Environmental Code (articles R.122-2 and onwards). Hungary enforces EIAs for intensive or large-scale farms, particularly those exceeding certain thresholds, such as ponds over 30 hectares or fish processing plants exceeding 10,000 t annually. Denmark has specific regulations for native and non-native species, and mussel or oyster farming facilities, which are subject to environmental criteria based on size and impact. Latvia, Lithuania, and Greece require EIAs for aquaculture projects based on criteria like farm size, location, and species, while Germany primarily conducts EIAs for non-native species in accordance with EU regulations. Cyprus bases the need for an EIA on a project's scale and environmental context. In the Netherlands, Romania, and Belgium, EIAs are often case-dependent, with smaller activities frequently exempt. Estonia mainly requires superficies licenses for marine aquaculture but provides fewer details on broader EIA requirements. Sweden and Bulgaria offer limited or no specific details in their responses, with regulations varying widely across the region.

Set up a single national entity that brings together national and regional public authorities dealing with aquaculture. Involve relevant stakeholders in this entity

12 MS responded (Chart 14) that there was a system that allows them to share data among relevant public authorities to facilitate the management of the licensing process. In several MS, the licensing process for aquaculture is managed through various platforms or centralised systems. In Portugal, the BMar platform serves as a one-stop-shop for all licensing procedures. In Spain, regional authorities are responsible for aquaculture licensing, with five regions offering a single window for license applications, enabling information sharing across public authorities. Finland also involves continuous communication among different authorities during the licensing process. France uses public application systems like GUN for fish farms requiring ICPE authorisation, although access is limited to certain administrations, and ATENA is primarily used for shellfish farms under the AECM procedure. Belgium introduced an e-loket in 2018 for applying for licenses at the Flemish level. Bulgaria ensures that all institutions maintain public records accessible online. In Denmark, the DMA platform publishes information on land-based fish farming licenses, and environmental data is reported through the PULS database. Greece uses an Electronic Environmental Register (EER) to manage information about Environmental Terms Approvals (ETA) and Standard Environmental Commitments (SECs), while also operating the 'Notify Business' system for electronic submissions related to aquaculture. Sweden and Germany have more collaborative approaches, with Germany using shared maps for nature and species protection assessments across authorities, and Sweden offering integrated systems, although no specific details were provided.

Following on from that, 14 of the MS responded (Chart 15) that there was a system that allows them to share data with the public to facilitate the work of applicants for a licence and provide transparency on licensing. In several MS, the transparency and public access to aquaculture licensing processes are key components. In Portugal, all information regarding requests can be found on the Directorate-General for Natural Resources, Safety and Maritime Services (DGRM) website, where ongoing processes are published, along with a Geoportal for aquaculture areas. Spain follows a similar approach, requiring a public consultation period for all authorisation procedures, typically lasting 20 days and made public via the regional Official Gazette. Finland also ensures that granted permits are available online for public viewing. France has made certain aquaculture data available through the Aquaculture portal on Géolittoral, and they are developing the AQUAPRENEUR app to provide real-time updates on farming concessions. In Lithuania, a list of approved aquaculture establishments is publicly accessible. Cyprus ensures transparency during the EIA process by posting all new studies on the Department of Environment's website for public comments. Other countries, such as Hungary, Belgium, Bulgaria, Denmark, Greece, and Germany, also offer online access to relevant records or public consultations, with some platforms available since 2018. Public participation is also required in specific procedures that involve EIAs, as seen in Germany and Greece, where public access to the Environmental Register is provided for consultation and comments.

16 of the MS they responded (Chart 16) that they had taken other measures / actions to ensure a more coherent and coordinated regulatory and administrative approach to aquaculture. In many MS, there are clear guidelines and coordinated efforts to involve relevant stakeholders in the aquaculture licensing process. As noted by the Irish Farmers Association (IFA), "development and promotion of EU aquaculture is highly dependent on Member States policy decisions in relation to their fulfilment of, per example, EU environmental legislation, revising legislation and administrative practices, allocation of space (areas and emissions of nutrients) and allocation of resources to relevant authorities, institutions and technical experts" (IFI, pers. comm., April 2025).

14 of the MS responded (Chart 18) that the system for introducing and processing applications for licences / renewal of existing licences was digitalised with several nations offering online platforms for submissions. Portugal has the "one-stop-shop" platform (BMar) for all licensing procedures. Spain, in most regions, provides an online system for license applications. Finland has been digitalised for a long time, and the Netherlands also allows licenses to be applied for online.

1.3 Animal health and public health

Relevant Link to charts in Annex III

Chart 19: Have any codes of good practices (e.g. good husbandry practices) been developed in your Member State regarding farmed aquatic animal health related to aquaculture?

Chart 20: Have there been any research and innovation projects and / or other funded measures on aquatic animal health since 1 January 2021?

Chart 21: Have there been any disease prevention measures or programmes for aquaculture in your Member State since 1 January 2021 (e.g. vaccination campaigns)?

Chart 22: Have there been any training to Competent Authorities in your Member State on surveillance since 1 January 2021?

Chart 23: Have there been any training or workshops for members of the aquaculture sector on good husbandry practices since 1 January 2021?

Chart 24: Have there been any research and innovation projects and / or other funded measures on public health issues linked to aquaculture since 1 January 2021?

Provide training to competent authorities (including under the Better Training for Safer Food initiative) on disease surveillance and notification in relation to listed and emerging diseases under Regulation (EU) 2016/429 and other relevant animal-health matters

16 of the MS responded (Chart 22) that there had been training to competent authorities on surveillance since 1 January 2021. Before 2021, training initiatives on aquatic animal health varied across MS, with some nations lacking structured programs. Croatia did not report any specific training programs. Portugal's DGRM, responsible for aquaculture licensing, did not promote training, though its inspection department received internal training on official controls. Finland, the Netherlands, Romania, Estonia, and Latvia did not report new training initiatives. France offered a Massive Open Online Course (MOOC) on fish husbandry and health prevention, supplemented by training on AHL. Cyprus had no relevant training between 2016 and 2020 but later participated in BTSF training sessions on AHL and official controls, with seven veterinarians trained between 2021 and 2024. Denmark integrated knowledge-sharing into daily activities through monthly team meetings and peer-to-peer training. Danish inspectors also completed BTSF courses, DTU-AQUA workshops on fish disease detection, clinical fish inspection training, and conferences on sustainable aquaculture. The Danish Veterinary and Food Administration (DVFA) established a quality supervision system to ensure consistency in inspections. Greece conducted BTSF training sessions for official veterinarians and organised certified training programs on official controls in food establishments. Over the course of 2023 and 2024, 12 official veterinarians (policy officers, local veterinarians, laboratory specialists) attended BTSF training courses on aquatic animals in the context of the new AHL. Before 2021, several official veterinarians participated in BTSF trainings (in-person and online) on aquatic animals in the context of Directive 2006/88/EC⁽¹⁵⁴⁾. Moreover, Greece conducted training sessions for official veterinarians and organised certified training programs on official controls in food

⁽¹⁵⁴⁾ <https://eur-lex.europa.eu/eli/dir/2006/88/oj/eng>

establishments. The review of the marine fish health and biosecurity guide (see page 98) has been concluded and it is now available on the website of the Ministry of Rural Development and Food. Between 2018 and 2020, Sweden hosted annual training workshops for veterinarians inspecting aquaculture facilities, later expanding these to include risk classification and disease monitoring. Germany did not report updates before 2021 but later introduced training on aquatic animal health, welfare, and AHL compliance, including veterinary service training, European Association of Fish Pathologists (EAFP) conferences, and online seminars on stunning large fish species.

16 of the MS responded (Chart 23) that there had been training or workshops for members of the aquaculture sector on good husbandry practices since 1 January 2021. Before 2021, aquaculture-related training varied significantly across European countries, with some nations offering structured programs while others lacked dedicated initiatives. Portugal hosted two annual seminars through the Associação Portuguesa de Aquacultores and conducted workshops under funded projects led by the Portuguese Institute of Sea and Atmosphere to enhance good practices and technical development. Spain did not provide information, as aquaculture training falls under the Animal Health Unit of the Ministry of Agriculture, Fisheries, and Food and the Autonomous Communities, but information will be made available shortly. Finland held annual Fish Health Days for producers and authorities, while Estonia and Latvia referenced training initiatives such as the European Maritime and Fisheries Fund reports and BIOR-led aquaculture consultation projects. France periodically provided training through regional sanitary defence groups (GDS), specialised aquaculture schools, and fish farming associations. Lithuania reported that National Food and Veterinary Service representatives participated in three training sessions with the Aquaculture Association since 2020. Cyprus had no industry training before 2021 but later held a seminar on fish diseases and aquaculture management in August 2023. Denmark did not conduct training on good husbandry practices from 2016 to 2020 but later organised workshops and sessions on AHL rules. Sweden's Fiskhälsan regularly offered training and workshops for the sector, though no specific indicator was provided. Germany, particularly Lower Saxony and Bavaria, hosted six face-to-face seminars between 2016 and 2020, covering animal health, aquaculture systems, and fish farming best practices through webinars, conferences, and on-site training to educate both newcomers and practitioners while meeting legal requirements. Other countries, including Croatia, the Netherlands, Romania, Hungary, Belgium, Bulgaria, Malta, Czechia, Slovakia, and Greece, did not report specific aquaculture-related training activities before 2021.

Support and promote research and innovation on animal health, including on shellfish diseases, taking into consideration the priorities identified by the Standing Committee on Agricultural Research (SCAR-Fish).

19 of the MS responded (Chart 20) that there had been research and innovation projects and / or other funded measures on aquatic animal health since 1 January 2021. Croatia has been involved in several initiatives, including the Horizon 2020 MedAID project (2017 – 2021) ⁽¹⁵⁵⁾, which focused on fish health and welfare with EUR 7 million in funding, and the Interreg Italy-Croatia AdriAquaNet project (2019 – 2022) ⁽¹⁵⁶⁾, which tested innovative vaccines and natural products with EUR 982 722 dedicated to this work. More recently, the Marinet project (2024 – 2026) ⁽¹⁵⁷⁾, with EUR 1,87 million in funding, addresses biosecurity, fish health, and integrated aquaculture systems. Additionally, an EU Innovation Regulation project received EUR 273 568,50, and Croatia's EMFAF program continues to support aquatic animal health measures. Portugal facilitates research through Ordinance No. 116/2016, with EUR 3,07 million allocated, including EUR 198 802 for bivalve health projects, while its ongoing MAR2030 program targets animal welfare in aquaculture. Spain developed the Aquaculture 21-30 strategy, comprising 16 R&D tasks on fish health (one specific to bivalve molluscs) and 56 tasks related to animal health, including five on bivalve diseases. Spain's Fundación Biodiversidad, through the Pleamar Programme, has funded multiple projects, such as BIOSAN ⁽¹⁵⁸⁾ (sustainable treatments for continental aquaculture) and PARAPEZ ⁽¹⁵⁹⁾ (studying parasite transmission between farmed and wild fish). Additional Spanish projects include ANITEST ⁽¹⁶⁰⁾, which developed a method for assessing the infectivity of anisakis-free aquaculture. Romania continued its Statutory Research Tasks (2016-2020) but reported no new developments. Estonia invested EUR 6,5 million in 18 conservation-related projects, with EUR 4,9 million from the EMFF. In Denmark, 13 significant projects focused on aquatic animal health, with DTU-AQUA ⁽¹⁶¹⁾ (ten projects) and KU-SUND (eight projects led by the Faculty of Health and Medical Sciences (SUND) at the University of Copenhagen (KU)), including five overlapping initiatives, funded through national, EU, and private sources, with two projects receiving EUR 0,8 million in EMFF funding. Notable research in Denmark includes

⁽¹⁵⁵⁾ <http://www.medaaid-h2020.eu/>

⁽¹⁵⁶⁾ <https://programming14-20.italy-croatia.eu/web/adriaquanet>

⁽¹⁵⁷⁾ <https://www.italy-croatia.eu/web/marinet>

⁽¹⁵⁸⁾ <https://www.programapleamar.es/proyectos/biosan-tratamientos-sanitarios-mas-sostenibles-en-acuicultura-continental-alternativas-de>

⁽¹⁵⁹⁾ https://fundacion-biodiversidad.es/en/programa_pleamar/parapez-study-of-parasite-transmission-between-farmed-and-wild-fish/

⁽¹⁶⁰⁾ https://fundacion-biodiversidad.es/en/programa_pleamar/anitest-an-infectivity-assessment-method-for-anisakis-free-aquaculture/

⁽¹⁶¹⁾ <https://www.aqua.dtu.dk/english/>

IMMFEED⁽¹⁶²⁾ (fish immunoglobulins), VAXFISK⁽¹⁶³⁾ (disease prevention via vaccination), and studies on salmon lice and disease-free flat oyster farming. The Netherlands participates in GIGAS⁽¹⁶⁴⁾ and COCKLE⁽¹⁶⁵⁾, addressing mollusc diseases, while Denmark supports similar research through EMFF and EMFAF. Greece has funded five innovation projects on fish disease treatment, totalling EUR 2,18 million, while Sweden is mapping welfare indicators for fish. Germany is conducting studies on environmental enrichment for fish welfare, funded by the Humboldt Foundation and the National Tierwohl Monitoring program.

Ten of the MS responded (Chart 24) that there had been research and innovation projects and / or other funded measures on public health issues linked to aquaculture since 1 January 2021. Croatia implemented the Interreg Italy-Croatia project "Marinet," focusing on biosecurity, health, and environmental monitoring of Adriatic mariculture, as well as integrated aquaculture systems for flat oysters and IMTA. Portugal and Spain included aquaculture health initiatives in their strategies, with Spain focusing on bivalve molluscs and planning R&D activities like monitoring contaminants and studying biotoxin accumulation. The Netherlands conducted statutory monitoring of contaminants in fish and shellfish, and Denmark carried out four projects addressing fish quality, zoonotic parasites, and seal-related issues but no specific mollusc health projects. Lithuania implemented 37 projects compensating for COVID-19 impacts on aquaculture, totalling EUR 1,16 million, while France focused on disease management and antibiotic resistance, launching various initiatives to optimise vaccination and reduce resistance. Estonia aimed for a disease-free aquaculture zone, supported by EMFF funds, while other countries like Germany reported no relevant projects.

Support the development of knowledge and skills by aquaculture producers on good husbandry practices

15 of the MS responded (Chart 19) that codes of good practices (e.g. good husbandry practices) had been developed regarding farmed aquatic animal health related to aquaculture. Before 1 January 2021, several MS had already established good practices and regulatory measures for aquaculture. Croatia implemented aquaculture stock insurance under Article 57 of Regulation (EU) No 508/2014⁽¹⁶⁶⁾ and allocated EUR 2,76 million in public support between 2017 and 2020 as part of its marine environmental management program. Spain had introduced the 2017 "Guide for Aquaculture Health Management" and earlier Spanish Association for Standardisation (UNE) standards for aquaculture hygiene, confirming that their regulations predated 2021. Finland prepared a fish

⁽¹⁶²⁾ <https://www.dtu.dk/english/news/all-news/nyhed?id=f34495c3-eb1d-4c33-b435-32bbbc85245d>

⁽¹⁶³⁾ <https://www.vaxfisk.dk/>

⁽¹⁶⁴⁾ <https://www.was.org/MeetingAbstracts/ShowAbstract/104253>

⁽¹⁶⁵⁾ The VAXFISK project is a Dutch aquaculture initiative focused on improving fish health through vaccination strategies

⁽¹⁶⁶⁾ <https://eur-lex.europa.eu/eli/reg/2014/508/oj/eng>

health guide, while the Netherlands developed a *Bonamia*-free oyster cultivation protocol, primarily for restoration projects. Romania created three good practice guidelines for freshwater aquaculture under the FEPAM 2014-2020 program, though they were not legislated or mandatory for licensing. Denmark, a leader in ASC certification use, had biosecurity protocols, disinfection guidelines, and aquaculture vocational education programs in place before 2021. France established voluntary VHS and IHN eradication programs, along with multiple good practice and biosecurity guides. Germany confirmed its Fish Disease Ordinance and DLG Committee for Aquaculture' aquaculture welfare guidelines predated 2021, while Sweden had developed codes of good practice for fish welfare and multi-farm operations (MFO) standards in 2019. Czechia referenced the Veterinary Act (Act No. 166/1999), and Slovakia provided an online fish farming resource. Estonia attained an EU designation as VHS and IHN disease-free in 2024, while Latvia is working on biosecurity and health guidelines under an INTERREG LATLIT project ⁽¹⁶⁷⁾. Greece recently issued a marine fish health and biosecurity guide, which remains under review. Other countries, including Lithuania, Cyprus, Hungary, Belgium, Bulgaria, and Malta, either reported no measures or provided no information. France stated that their previously reported measures remained unchanged.

⁽¹⁶⁷⁾ <https://latlit.eu/>

13 of the MS responded (Chart 21) that there had been disease prevention measures or programmes for aquaculture since 1 January 2021 (e.g. vaccination campaigns); the approach to fish health management and vaccination programs varies. In Croatia, while there is no formal campaign, most marine fish farmers vaccinate and revaccinate their fish against *Vibrio anguillarum* and *Photobacterium damsela* subsp. *Piscicida*. In Spain, there is no national vaccination program, with individual companies setting their own protocols, supported by Agrupaciones de Defensa Sanitaria (ADS), which help improve health, productivity, and hygiene in aquaculture. Finland has continuous vaccination programs in place, while Estonia has been designated by the European Commission as one of two fish virus disease-free countries for VHS and IHN. France operates a voluntary national eradication program for these diseases in freshwater fish farming. In Cyprus, routine annual inspections and sampling are conducted to maintain free status for VHS and IHN in rainbow trout farms. Denmark initiated an EU-approved eradication program for VHS in marine waters and declared its waters free of the disease in 2023, also implementing a national surveillance program for IHN. Germany's federal states run veterinary fish health services, regularly checking farms for diseases, and certifying farms as "free of epidemics" if they test negative over time. Other countries, such as Portugal, the Netherlands, Romania, Latvia, Lithuania, Hungary, Belgium, Bulgaria, Malta, Czechia, Greece, and Sweden, did not provide specific details regarding their fish health management strategies in the available data.

1.4 Climate-change adaptation and mitigation

Support the development of sector specific national, regional, transnational or sea-basin climate adaptation plans consistent with national strategies and plans, as well as the corresponding European Committee for Standardisation (CEN) standard. Support training on climate adaptation and resilience for people working in the aquaculture sector.

Relevant Link to charts in Annex III

Chart 25: Have there been any measures, programmes, or funded projects or investments applied to adapt the aquaculture sector to climate change in your MS since 1 January 2021?

Chart 26: Have there been any measures, programmes, funded projects or investments to support the decarbonisation of the aquaculture sector in your Member State since 1 January 2021?

All the MS except five stated (Chart 25) that there had been any measures, programmes, or funded projects or investments applied to adapt the aquaculture sector to climate change since 1 January 2021. Since 2021, MS have increasingly integrated climate adaptation into aquaculture policies, funding programs, and research initiatives. Prior to 2021, aquaculture adaptation measures were less structured and less widely implemented, with only a few MS adopting targeted strategies. Overall, while some MS had early-stage adaptation efforts before 2021, structured funding and targeted strategies for aquaculture climate resilience have significantly expanded since then.

- Belgium: *EMFAF projects* focus on reducing energy and water use in RAS systems for sturgeon and caviar production, as well as salmon rehabilitation in warming rivers. Pre-2021, Belgium referenced its National Strategic Plan for Aquaculture.
- Croatia: The *Program of Measures for the Protection and Management of the Marine Environment and Coastal Area (2024-2027)* includes measures such as introducing native warm-water species and modifying farming technologies to adapt to climate change. *Aquaculture stock insurance* is available under both the Climate Adaptation Strategy and the EMFAF Programme (2021-2027), with EUR 2,88 million in public support already provided and an additional EUR 6,45 million allocated. Pre 2021, the *2017-2021 Program of Measures* introduced aquaculture stock insurance under EU Regulation 508/2014, with EUR 2,76 million in public support provided from 2017 to 2020.
- Cyprus: Investments have focused on improving culture conditions to mitigate climate stress on farmed species. Nothing pre-2021 reported.
- Denmark: The *EMFAF Programme* includes investment and innovation schemes focused on green transition and climate solutions for aquaculture. The *EMFF 2014-2020* did not include aquaculture-specific climate adaptation schemes.
- Estonia, Latvia, and Sweden: Funding schemes encourage renewable energy adoption and climate adaptation initiatives, with Latvia specifically supporting renewable energy in aquaculture. Nothing pre-2021 reported.
- France: The third iteration of the *National Climate Change Adaptation Plan (PNACC)* prioritises aquaculture resilience, with funding for coastal protection, ocean acidification mitigation, and temperature adaptation strategies. Pre-2021, the second *PNACC (2018-2022)* included broad sectoral adaptation strategies, but aquaculture-specific actions were only introduced later in the third PNACC.
- Germany: The Federal Ministry of Food and Agriculture (BMEL) funds small-scale projects aimed at reducing climate impact in aquaculture feed production and ensuring future food security. Nothing pre-2021 reported.
- Greece: The *LIFE-IP AdaptInGR project* monitors aquaculture adaptation through climate indicators, while the Hellenic Aquaculture Producers Organisation (HAPO) studies greenhouse gas emissions in fish farming. A government working group on mussel farming adaptation was established in 2024. Pre-2021, Greece participated in LIFE-IP AdaptInGR and ClimeFish projects, which monitored climate risks but did not implement specific adaptation strategies.
- Hungary: The *National Aquaculture Strategy* promotes pond aquaculture climate resilience, innovation in sustainable fish farming, and legal framework improvements. The *MAHOP Plus Programme* funds fishpond conservation, water retention, and environmental protection measures. Pre-2021, The

MAHOP Programme provided general public funding for aquaculture adaptation but lacked structured climate resilience measures.

- Italy: The Italian National Strategic Plan for Aquaculture is focused on the awareness among Italian producers about the need to improve energy efficiency and reduce carbon emissions. The Plan has suggested to Regional authorities (Intermediate bodies) to link EMFAF funds and investments dedicated to aquaculture to companies who have environmental performance objectives and who have possibly carried out an LCA analysis. It has helped initiate discussions on renewable energy integration at farm level. Technical and financial tools for implementation, especially tailored to small-and medium-scale farms, could be further developed in certain areas where priorities are the consolidation of productions and companies' financial stability rather than greater environmental sustainability, considering that aquaculture activities are the most sustainable compared to the terrestrial animal production sector.
- Lithuania: Nine projects have improved energy efficiency and supported renewable energy investments, including solar power plants and heat pumps, with EUR 0,22 million in public support. The 2021-2027 financial period continues to promote decarbonisation and sustainability. Nothing pre-2021 reported.
- Portugal: The *European Maritime, Fisheries, and Aquaculture Fund (FEAMPA) 2021-2030* supports decarbonisation efforts, including renewable energy-powered support vessels, low-carbon transport, and energy-efficient RAS. The Recovery and Resilience Facility (RRF) also funds energy transition and environmental impact reduction for aquaculture businesses. Pre-2021, the *EMFF 2014-2020* supported environmental impact reduction in aquaculture, though climate adaptation was not a primary focus.
- Romania: The *ADER 2023-2026 research program* explores selective breeding and epigenetic programming to enhance fish adaptability to temperature, oxygen, and water quality fluctuations. Nothing pre-2021 reported.
- Spain: The *National Adaptation Plan to Climate Change (PNACC* 2021-2030)* includes risk assessments for coastal and inland aquaculture, strategies to increase sectoral resilience, spatial planning adjustments, and climate-smart aquaculture system implementation. Other efforts focus on monitoring, early warning systems, and research into species' climate adaptability. Pre-2021, The *Acuicultura 14-20 Strategy* initiated sectoral risk evaluations and climate interaction studies for aquaculture but had no specific resilience-building measures.

Support climate mitigation in the aquaculture sector

15 of the MS responded (Chart 26) that there had been some measures, programmes, funded projects or investments that would support the decarbonisation of the aquaculture sector happening since 1 January 2021. The EMFAF and related initiatives under the EU's decarbonisation efforts are actively supporting the transition of aquaculture to more sustainable and energy-efficient practices through several MS initiatives. Through measures like "Productive Investments in Aquaculture" (Measure II.2), aquaculture farmers are encouraged to adopt renewable energy sources, such as photovoltaic power plants, and improve energy efficiency. Several projects focus on decarbonising fishing fleets and aquaculture support vessels, including initiatives like the 3EFishing project⁽¹⁶⁸⁾ and the use of electric or hydrogen-powered vessels, aiming to reduce fuel consumption and emissions in the Adriatic region. Additionally, the EMFAF supports investments in renewable energy systems for aquaculture facilities, such as solar panels and heat pumps, as seen in multiple projects funded with public money. Various EU countries, including Germany, reported that they have implemented projects to further decarbonise their aquaculture sectors, focusing on renewable energy, energy efficiency, and reducing carbon dioxide emissions. Specific regional projects in Germany, such as in Baden-Württemberg and Bavaria, are exploring solar energy solutions for fish farms and investigating the effects of floating photovoltaic systems on aquaculture.

The use of renewable energy in aquaculture is becoming more recognised across the MS, though detailed data on its implementation remain scarce. In Croatia, a large producer reported that photovoltaic solar power plants covered nearly 10% of its electricity consumption in 2023, although national statistics on the sector's renewable energy adoption are lacking. Other countries such as Lithuania and Cyprus have reported partial adoption, with 21% and 5% of aquaculture enterprises, respectively, utilising renewable energy sources. In Germany, some regions like North Rhine-Westphalia have identified that around 6% of farms use photovoltaics, but overall data on renewable energy usage are limited. France is seeing a growing interest in renewable energy, though precise figures are not available. Similarly, many other countries, including Spain, Portugal, and Finland, have not provided specific statistics, but renewable energy seems to be gaining traction in the sector, supported by various national and EU funding programs.

Renewable energy in the aquaculture sector across the MS is primarily derived from solar power, with many countries adopting solar panels as the main source of energy. Croatia, Finland, the Netherlands, and Lithuania are notable for utilising solar energy, particularly in RAS. Other countries like Romania, Estonia, Hungary, and Cyprus also rely on solar energy, with Cyprus additionally using water turbines for renewable energy. France is exploring a variety of renewable

⁽¹⁶⁸⁾ <https://www.italy-croatia.eu/web/3efishing>

options, including solar, wind, hydroelectric, and biomass energy, with ongoing pilot projects for wind energy integration in aquaculture. In Belgium, solar panels and surplus heat are utilised, while in Germany and Greece, photovoltaics are the main renewable energy source. Though some countries, such as Bulgaria, Czechia, and Denmark, lack comprehensive data, there is evidence of increasing interest in renewable energy adoption within the sector.

1.5 Producer and market organisation

Promote among producers and operators in the sector the benefits of setting up POs and inter-branch organisations, as well as transnational activities between POs. Continue to support these organisations, in particular their production and marketing plans, including through national and EU funding

Relevant Link to charts in Annex III

Chart 27: Are there any aquaculture producer organisations and / or inter-branch organisations linked to aquaculture in your Member State?

Chart 28: Have any new such organisations been created since January 2021, or are you aware of efforts to create them?

Chart 29: Are you aware of any other form of organisation of aquaculture producers and other actors in the aquaculture value chain in your Member State other than producer organisations and / or inter-branch organisations, as defined according to the CMO Regulation?

17 MS responded (Chart 27) that there were aquaculture producer organisations and / or inter-branch organisations linked to aquaculture in their MS. In Spain, four aquaculture POs (one transnational, national and two regional) are recognised. In the Netherlands, mussel farming companies belong to the PO for Dutch Mussel Culture, oyster farmers join the Dutch Oyster Association, and other fish farmers and seaweed producers are organised into various branch associations like NeVeVi and the North Sea Farmers. Romania has organisations such as RomFish, Patronatul Pestelui din Romania, and the Cooperativa Patravul din Tara ta, representing aquaculture interests, including salmonid farming. Estonia lists its POs organisations in the EU database for recognised producer organisations. Latvia has a recently formed aquaculture producer organisation focusing on trout production, involving three enterprises.

15 MS responded (Chart 28) that new organisations had been created of that they made efforts to create them since January 2021. In Croatia, an initiative by shellfish farmers (mussels and oysters) in the Middle and South Adriatic aims to establish a producer organisation. In Portugal, the first aquaculture PO, recognised in February 2022, included seabass and seabream producers in the Algarve but officially ended in February 2024. In Spain – where there are Spain four recognised POs (1 transnational, 1 national, and 2 regional) - no new POs have been created since 2021, but the Aquaculture Strategy 2021-2030 includes plans for PO establishment in Catalonia and the Balearic Islands. In Romania, the "Cooperativa Patravul din Tara ta" represents salmonid farms. In Estonia, a PO focuses on marine and freshwater aquaculture, mainly rainbow trout, with

details available in the EU's list of recognised POs. In Latvia, the "Latvijas Akvakultūras ražotāju organizācija," registered in 2023, includes three trout farms. In France, the Mediterranean Shellfish Farmers Cooperative convened in May 2023 and is working toward official PO recognition. Lithuania recognised the Lithuanian Aquaculture Producer Association as a PO for common carp in February 2024. In Cyprus, efforts have been made to educate stakeholders on creating POs, but none have been established. Hungary is working on a PO for African catfish farmers. In Denmark, the Dansk Akvakultur Producentorganisation was recognised as a PO in 2023, and Foreningen Fiskebranchen became an inter-branch organisation in 2024. In Czechia, a CMO for aquaculture is under discussion for the next Fisheries Program. In Germany, the SaBiKu Association for the Protection of Aquatic Biodiversity and Cultural Landscape has been established in Niedersachsen.

When asked about other types of professional organisations in aquaculture, eleven MS responded with details of these. In Croatia, the Mariculture Cluster operates under the Croatian Chamber of Economy and includes tuna, white fish, and shellfish farmers, representing about 90% of all mariculture farmers in the country. In Finland, the Finnish Fish Farmers' Association has been active since 1964. In Cyprus, the Pancyprian Association of Marine Aquaculture Producers represents all marine aquaculture producers. In Malta, the Federation of Maltese Aquaculture Producers (FMAP) advocates for responsible aquaculture and represents five of six tuna aquaculture operators; FMAP is also a member of the Federation of European Aquaculture Producers (FEAP). In Denmark, AlgeCenter Danmark is a network focusing on seaweed and algae, involving producers, technology developers, universities, and retailers. In Greece, several organisations represent aquaculture producers, including the Panhellenic Association of Small Medium Fish Farmers (PANEMMI), Thesprotia Aquaculture Producers Association, 'Axios' Agricultural Fisheries and Mussel Farm Association, the Agricultural Cooperative of Mussel Farmers of Makrygialos, 'Poseidon' Fishing-Shellfish Farming Association, and the Association of Greek Mussel Farmers. In Germany, various regional organisations exist, such as the Landesfischereiverband Brandenburg / Berlin, Verband Hessischer Fischer in Hesse, the Association of North Rhine-Westphalian Fish Farmers and Pond Keepers, and the Landesfischereiverband Sachsen-Anhalt, which represents aquaculture producers and fishermen in Saxony-Anhalt.

1.6 Control

Ensure that the necessary tools are in place to ensure traceability of aquaculture products from their catch / harvest to the retail sale. Encourage the use of digital tools and artificial intelligence for increased traceability and transparency of aquaculture products across the value chain.

Relevant Link to charts in Annex III

Chart 30: Are there any public or industry initiatives to provide better traceability of aquaculture products?
Chart 31: Have any such initiatives been created since 1 January 2021?

15 MS responded (Chart 30) that there is public or industry initiatives to provide better traceability of aquaculture products. These combined efforts across the MS reflect a strong commitment to improving traceability in aquaculture through both public and private initiatives. In Croatia, a public initiative ensures digital traceability of aquaculture products, supplemented by industry initiatives like LOT numbers on products, which include information such as farming location, feed type, and processing details.

Certification schemes like ASC Farm Standard and Global G.A.P are also used to enhance traceability and sustainability communication. Portugal complies with traceability requirements through production and processing unit improvements, and official controls by the Directorate General for Food and Veterinary ensure product traceability.

Spain has the 'Programa Nacional de Control de la Trazabilidad', integrated by the General Secretariat for Fisheries (co-ordinator) and the Autonomous Communities (implementation). Within this framework, technical meetings are held and the annual traceability report is drawn up, allowing the programme to be continuously reviewed and improved. As an IT tool, the 'TRAZAPES' programme allows the first sale to be recorded electronically, establishing the starting point for traceability.

Italy operates within a robust EU control framework, ensuring compliance with rules on traceability, labelling, and environmental monitoring. The Italian Ministry of Agriculture, Food Sovereignty and Forests (MASAF), together with regional authorities and the Coast Guard, oversees control activities, applying EU standards to ensure product integrity, food safety, and environmental sustainability.

The EU's revision of the Control Regulation will likely introduce new traceability requirements. Germany has several retail-led traceability initiatives, including "PRO TRACE FISCH" by METRO, "fTRACE" by EDEKA, and "ALDI Transparenz Code," among others. North Rhine-Westphalia promotes local traceability with the "NRW is(s)t gut!" label, ensuring high-quality, regional food products.

The Romanian Fish Farmers Association (ROMFISH) note that there is still insufficient control on the market for the source and proper labelling of aquaculture products and also for capture fisheries products and that there are still large quantities of fish from unregistered farms or from poaching.

1.7 Diversification and adding value

Relevant Link to charts in Annex III

Chart 32: Have new production systems been introduced in your Member State since January 2021 compared to systems in place before?

When asked to rank, by order of importance, production species farmed that are not among the three most produced species [in each MS], the survey responses demonstrate that a diverse range of aquaculture species are cultivated. Statistical data varied by country in terms of species production and availability.

- In Croatia, species such as the common carp (*Cyprinus carpio*) (fluctuated, reaching the highest volume of 2 828 t in 2021 with a value of EUR 6,51 million), the meagre (*Argyrosomus regius*) (significant increase, with production growing from 125 t in 2016 to 999 t in 2021, yielding EUR 6,15 million), the rainbow trout (*Oncorhynchus mykiss*) (fluctuated, with volumes reaching 328 t in 2021 and rising to 410 t in 2022), and the bighead carp (*Hypophthalmichthys nobilis*) are commonly farmed, alongside several types of shellfish and freshwater fish like the Wels catfish (*Silurus glanis*) and the northern pike (*Esox lucius*).
- Portugal references data but does not list specific species.
- Spain mentions increasing production of species like the turbot (*Psetta maxima*) (8 538 t), Senegalese sole (*Solea senegalensis*) (962 t) and greater amberjack (*Seriola dumerili*) (139 t in 2021) with additional species under statistical confidentiality.
- Finland focuses on cold-water species like Atlantic salmon (*Salmo salar*), pike perch (*Sander lucioperca*), and arctic char (*Salvelinus alpinus*), while the Netherlands farms turbot and seaweed.
- Romania's aquaculture includes various sturgeon species (e.g. *Huso huso*, *Acipenser* spp.) (growing from volume 70 t, valued EUR 606 778 in 2018 to volume 177 t valued EUR 1 596 889 in 2022) and European catfish (*Silurus glanis*).
- Estonia mentioned crayfish.
- France provides detailed value and volume data for species such as Mediterranean mussel (*Mytilus galloprovincialis*), European seabass (*Dicentrarchus labrax*), and gilthead seabream (*Sparus aurata*), with a focus on both freshwater and marine species. Lithuania lists species like Bighead carp (*Hypophthalmichthys nobilis*) and sturgeon, while Cyprus farms rainbow trout (*Oncorhynchus mykiss*) and red seabream (*Pagrus major*).

- Hungary focuses on species like grass carp (*Ctenopharyngodon Idella*) (779 t in 2023, with a value of EUR 3,2 per kilogram, up from 746 t in 2020), wells catfish (*Silurus glanis*) (significant increase in 2023, reaching 329,1 t at EUR 9,1 per kilogram), and pike perch (*Sander lucioperca*) (fluctuating production, with 81,2 t in 2023 at EUR 12,7 per kilogram).
- Other countries like Belgium, Bulgaria, Denmark, and Greece also report various species such as Pacific oyster (*Crassostrea gigas*), grass carp (*Ctenopharyngodon Idella*), and spiny lobster (*Palinurus elephas*), along with microalgae production.
- Germany listed species: blue mussels (*Mytilus edulis*), rainbow trout (*Oncorhynchus mykiss*), and common carp (*Cyprinus carpio*), with additional species like brown trout (*Salmo trutta*) and Siberian sturgeon (*Acipenser baerii*) noted as well.

Ten of the MS reported (Chart 32) that new production systems had been introduced since January 2021 compared to systems in place before. In Spain, the number of companies with recirculation systems increased from 25 in 2021 to 28 in 2022, and the number of installations increased from 28 in 2021 to 31 in 2022. In France, while new production systems were not reported to have been introduced since 2021, there has been a significant rise in the interest in IMTA, with a national working group established in 2023 to promote sustainability. Other countries like Lithuania introduced 14 new establishments since 2021, which produced 60 t with a value of EUR 264 200 in 2023. In Germany, Bavaria reported fluctuating numbers of recirculating systems for fish and crabs between 2021 and 2023, and North Rhine-Westphalia introduced systems for seabass, gilthead bream and pike-perch, as well as algae production using recirculating systems. In addition, Schleswig-Holstein introduced a new circulation system for shrimp production in 2023. Other countries reported various aquaculture activities, including research, pond, and tank-based systems, with notable mention of Bulgaria's demonstration aquaponics centre producing tilapia juveniles.

In Italy, the 'Acquacoltura Sostenibile' certification, developed and supported by MASAF, plays a strategic role in enhancing the value of national products within both national and EU markets. The 'Acquacoltura Sostenibile' mark is not just considered a label; it is regarded as a catalyst for economic, environmental, and reputational growth of the Italian aquaculture sector. Although farmed species diversification it is not an easy goal to achieve, a major opportunity for Italian aquaculture is considered to lie in the diversification of farmed species, especially through sustainable models such as IMTA and the farming of low-trophic species (algae, echinoderms, bivalves).

Strategic Objective 2: Participating in the Green Transition

2.1 Environmental performance

Relevant Link to charts in Annex III

Chart 33: Do environmental strategies in your Member State include the aquaculture sector?
Chart 34: Have there been any measures, programmes, funded projects or investments applied to further mitigate the environmental impact of aquaculture in your Member State since 1 January 2021?
Chart 35: Have there been any measures to promote the use of more sustainable feed for fed aquaculture since 1 January 2021 in your MS?
Chart 36: Are there any aquaculture farms in your Member State located in nature protected areas (e.g. MPAs, Natura 2000 sites)?
Chart 37: Are there any aquaculture farms involved in extensive or semi-extensive aquaculture in ponds and wetlands in your Member State?
Chart 26: Have there been any measures, programmes, funded projects or investments to support the decarbonisation of the aquaculture sector in your Member State since 1 January 2021?
Chart 38: Have environmental performance indicators been established in your Member States for the purpose of environmental assessment and monitoring of aquaculture activities?
Chart 39: Has any model / reference environmental monitoring plan been developed in your Member State for aquaculture activities?
Chart 40: Have there been any measures, programmes, funded projects or investments on the introduction of alien species in aquaculture in your Member State since 1 January 2021?

Responses from the MS on the topic of environmental performance were assessed to show that there is a growth in monitoring and managing potential impacts of aquaculture through national level regulations, EU level collaborations and national initiatives / projects. There are examples where these include animal health and welfare too.

Support efforts to reduce further the environmental footprint of EU aquaculture

For the analysis of this action the responses to the questions about measures, programmes, funded projects or investments (since 1 January 2021) the following questions were used: mitigate impacts, promote the use of more sustainable feed, introduction of alien species and mitigate the impact of invasive alien species. The efforts highlight that the MS are completing projects and investing in efforts to reduce the environmental impact of aquaculture across the areas that the survey focused on. There is disparity in organic aquaculture activity across Europe, with some countries showing notable production and certification, while others have limited or no organic aquaculture.

Over half of the MS (16) said (Chart 34) that they have any measures, programmes, funded projects or investments applied to further mitigate the environmental impact of aquaculture. Croatia has implemented measures under its Program for the Protection and Management of the Marine Environment and Coastal Area, focusing on mitigating mariculture impacts, protecting biodiversity, and achieving sustainable aquaculture including support for aquaculture methods aligned with environmental needs. Portugal and Spain have similar strategies, with Spain focusing on the integration of aquaculture into spatial planning, controlling exotic species, and reducing environmental impacts. France is developing modelling tools to assess aquaculture's environmental impact, while

Denmark is funding projects aimed at improving water efficiency and sustainability in land-based salmon farming. Other countries, including Finland, Romania, Latvia, and Greece, have ongoing projects to improve aquaculture's environmental sustainability, with funding for innovative technologies and measures to reduce negative impacts. Germany provides funding across several states for measures enhancing the environmental compatibility of aquaculture facilities, including water quality protection and the use of renewable energy.

Seven MS reported to have measures to promote the use of more sustainable feed for fed aquaculture. Croatia's efforts are supported under the EMFAF Programme, e.g. through "Innovations in Aquaculture" measure; promoting the development of sustainable feed including reducing reliance on fishmeal and fish oil, improving animal welfare, and promoting environmentally friendly production methods. Additionally, Croatia participates in the AdriaAquaNet project, focusing on sustainable feeds and feeding protocols for Adriatic fish farming. Many of the MS are involved in the GIN-TONIC project ⁽¹⁶⁹⁾, which explores innovative insect-based feed solutions. In Finland, sustainable Baltic fish feed is produced through fish meal recycling, while Estonia's water protection regulations emphasise the importance of using feed with minimal environmental impact. In France, the "Charte Qualité – Aquaculture de nos régions" initiative ⁽¹⁷⁰⁾ supports the use of alternative ingredients, such as insect proteins and algae oils, in fish feed. Hungary has explored alternative feed ingredients, including pea protein concentrate, insect protein, and barley protein. In Greece, a study conducted with the Agricultural University of Athens in 2022 focused on the development of modern marine fish feeds to improve nutritional value and fish welfare. Germany has implemented multiple research projects, such as those in Brandenburg and Bavaria, to explore biotechnological substitutes for fish meal and oil, and alternative feeds like fly maggots and regional feed components.

Twelve MS reported (Chart 40) that there had been measures, programmes, funded projects or investments on the introduction of alien species in aquaculture. Across Europe, various initiatives and regulations are being implemented to manage the introduction of alien species in aquaculture, focusing on both local and foreign species. In Portugal, there has been an increase in projects related to the production of Japanese oysters under the EMFAF for the 2021-2030 period. The Netherlands employs a Shellfish Dependent Species Inventory as part of a Shellfish Import Monitoring Protocol to track potential invasive species in shellfish transport areas. France has introduced regulations regarding tetraploid organisms in oyster farming and is developing closed aquaculture systems to minimise ecological risks associated with alien species. In Denmark, EMFAF-funded projects are introducing warm-water shrimp in RAS. Greece applies Regulation EC 708/2007 for managing the introduction of alien species, while Germany's Bavaria region is developing guidelines for dealing with invasive

⁽¹⁶⁹⁾ <https://www.cost.eu/actions/CA23127/>

⁽¹⁷⁰⁾ <https://www.poisson-aquaculture.fr/les-poissons-daquaculture/charte-qualite/>

species in line with EU regulations, and a working group addresses the commercial use of invasive crustaceans.

Croatia has enacted the Ordinance on the Black and White List of Invasive Alien Species, which includes several species found in aquaculture, such as brown bullhead (*Ameiurus nebulosus*) and channel catfish (*Ictalurus punctatus*), banning their intentional introduction or cultivation. The country has also developed action plans to prevent the spread of these species and established a monitoring system for early detection. In Portugal, the Japanese Oyster Control Plan outlines specific control measures including certificates for triploid oysters. Spain's Aquaculture Strategy 21-30 includes studies on invasive species and new pathogens related to climate change. In Greece, a project is being funded to develop best practices for controlling alien species, particularly ascidians in mussel farming. Other countries, such as Bulgaria and Czechia, have introduced legislation and training programs to manage invasive species, while Bavaria and Thuringia in Germany are implementing local measures to control invasive species with the help of advisory bodies and government authorities.

Support the diversification of EU aquaculture to types of aquaculture with better environmental performance, *inter alia* by ensuring an appropriate policy framework & allowing the use of EU funds.

Responses to the following questions were used to analyse whether the MS were diversifying aquaculture to those types with better environmental performance: low trophic species, IMTA, RAS and organic practices.

France and Spain have both grown their low trophic industries, France has doubled its organic production. In Spain this increase refers to the production of algae and cyanobacteria and not to all low-trophic level species. Approximately half of the MS reported information about the production of low trophic species. In Croatia, aquaculture data for 2021 to 2023 showed production for Mediterranean mussels steadily increasing in both volume and value, reaching 924.83 t valued at EUR 1,93 million (2023). European oysters also saw growth, with volumes rising from 55,93 t in 2021 to 92 t in 2023, reaching a value of EUR 1,1 million. Grass carp and silver carp followed a similar upward trend, while bighead carp had fluctuating values but remained significant. The total production for 2023 amounted to 1 796 t valued at EUR 4,38 million. In other countries, various types of aquaculture data are provided via online resources, with no specific numerical data given in the responses for some regions. In Latvia, production data for species like carp and white amur show significant values in 2022, though the values varied fluctuating by year, with algae production data was also included. France provided comprehensive data on several species, such as Pacific cupped oysters, blue mussels, and Mediterranean mussels, detailing production values from 2016 to 2022. France shared data on spirulina and seaweed production from 2018 to 2022, showing substantial production growth, particularly in spirulina. Notable information from Greece includes the production of molluscs and spirulina, with volumes and values available for 2021

to 2023. Finally, Sweden, Germany, and other regions show limited but relevant production information for various species, including mussels and algae. Other countries such as Lithuania, Cyprus, Belgium, Bulgaria and Hungary have partial or no data.

In Europe, IMTA is a growing practice, though its adoption varies widely. Croatia reports one aquaculture farm combining finfish and shellfish (mussels), while Portugal has four such farms. Romania has 319 farms, but other countries, such as Spain, Finland, the Netherlands, Cyprus, Latvia, and Malta, report no IMTA operations. In France, while interest in IMTA has increased since 2021, the lack of specific registration requirements makes it difficult to quantify the exact number of farms using this approach. Hungary practices IMTA principles in carp-based polyculture fish farms, where the diverse feeding habits of fish species help recycle nutrients efficiently. Belgium has one IMTA farm and one pilot project, while Bulgaria reports no IMTA farms. Denmark, Czechia, Greece, and Sweden have no commercial IMTA operations, though Sweden has some pilot projects related to research. In Germany, there are no current commercial IMTA farms, though several innovation projects have been conducted, particularly in Mecklenburg-Western Pomerania and North Rhine-Westphalia. Overall, while IMTA is becoming more explored in European aquaculture, its widespread adoption remains limited, with many countries still lacking large-scale operations. Uptake still appears to be slow, except in Hungary where the production seems to be widely practiced due to the nature of the aquaculture and species farmed.

Across Europe, the adoption of RAS techniques varies significantly by country. In Croatia, two farms use RAS for farming the African catfish (*Clarias gariepinus*), while Portugal has nine RAS facilities. Spain reports 31 such installations, and Finland has between five and eight. In the Netherlands, all land-based aquaculture farms utilise RAS techniques. Romania has 21, Estonia has nine, and Latvia reports 13 farms and 3 nurseries using RAS. France has seen an increase in RAS farms since January 2021, though precise numbers are hard to quantify due to inconsistent data collection. Lithuania has seen a slight fluctuation in RAS farms, with 36 in 2021, 32 in 2022, and 33 in 2023. Other countries, such as Cyprus, Hungary, Belgium, and Bulgaria, also report varied numbers, with Hungary having 23 companies operating RAS systems at 25 sites in 2022. Denmark has 65 RAS facilities across 39 enterprises as of 2023. Greece has two land-based RAS facilities, while Germany reports a total of 22 commercial RAS facilities across several states. Overall, RAS adoption is expanding, especially in Western and Northern Europe, but the level of implementation varies widely. It is difficult to assess the growth rate since 2021 because of the availability of data, but it does seem that where there are RAS farms in 2021, the amount in that country has either stayed the same or grown (France did not provide numbers but reported growth) and in Spain the number of facilities applying RAS techniques increased from 25 in 2020 to 31 at present. In the Netherlands, all farms apply RAS techniques.

The data on organic aquaculture production across several European countries reveals a mix of trends and varying levels of reporting. Croatia has shown significant growth in organic aquaculture, with production rising from 444 t in 2021 to 1 500 t in 2023, accompanied by an increase in the number of operators. Spain's organic production fluctuated from 4 891 t in 2021 to 4,307 t in 2023, although data on certifications is not available. Romania reported organic production of 54 t in 2022 across 5 units, while Lithuania's organic aquaculture production has also been increasing, reaching 1 125 t in 2023. Latvia's organic aquaculture was significantly smaller, averaging around 7 t per year. Hungary produced a total of 2 773 t with four certifications from 2016 to 2020, while Bulgaria had a single certified mussel farm producing 1 797 t in 2019. France saw production increase from 5 600 t in 2018 to 9 111 t in 2020, along with a rise in certifications from 124 to 131. Denmark's organic aquaculture production varied from 6 507 t in 2021 to 4 468 t in 2023, with a decrease in the number of enterprises and facilities. Other countries such as Portugal, Estonia, and Malta reported no data or have not provided sufficient information on organic production. Several nations, including Finland, Cyprus, Slovakia, and Czechia, reported little or no organic aquaculture production, with some calling for improved transparency and recognition of environmentally friendly practices in aquaculture management.

Ensure that competent authorities integrate all environmental aspects in aquaculture planning & licensing, ensuring full implementation & compliance with applicable legislation.

These aspects to be integrated include: (i) developing sensitivity mapping of species & habitats to aquaculture pressures; (ii) determining the environmental carrying capacity of sites according to objective criteria; & (iii) developing agreements & schemes for site rotation & area management to reduce emissions of nutrients and organic matter.

For the analysis of this action the responses to the questions about integrating environmental aspects into aquaculture planning and licensing (since 1 January 2021) the following questions were used: SEAs conducted, assessment methodology for licence applicants, whether environmental strategies include aquaculture and if farms are located in MPAs / wetlands / ponds.

Ten MS reported (Chart 7) that there had been SEAs conducted in relation to the allocation of space to aquaculture but for most MS, from the details provided, the uplift from 2021 was not clear. The application of SEA in aquaculture planning shows significant variation across countries. In Croatia, SEAs are not conducted specifically for aquaculture space allocation but are integrated into the creation or amendment of spatial plans if required by the SEA Regulation e.g. an SEA was completed for the alteration of the Zadar County Spatial Plan (2023). In Spain, SEAs have been carried out for all activities within the framework of Maritime Spatial Planning, and before 2021 only one had been carried out on the Canary Islands. Finland has applied SEAs to its aquaculture localisation plan and

aquaculture strategy. Similarly, in Cyprus, a SEA was performed during the development of the Marine Spatial Plan, which included the designation of Allocated Zones for Aquaculture. In France, a SEA was conducted in 2024 for the action plan related to marine aquaculture planning within each maritime façade. Denmark introduced its Maritime Spatial Plan in 2021 so before this no SEAs were conducted but since then has executed SEAs for several key initiatives. Before 2021, one SEA was conducted in Greece, since 2021 it has processed 25 requests for AODA, each accompanied by SEAs and seven SEAs have been completed for various AODAs e.g. in the North and South Euboean Gulf and Kefalonia Island. In Malta, an SEA was conducted in 2012 to assess alternative sites for aquaculture activities. Other countries, e.g. the Netherlands, Romania, Estonia, Latvia, Lithuania, Hungary, Belgium, Bulgaria, and Germany, reported that they have not conducted SEAs.

Twelve MS reported (Chart 13) that they had a standard / reference environmental assessment methodology for applicants for an aquaculture licence and most of those reported that the situation was the same before 2021, except France which said that before then they did not have a unified standard methodology. Spain, the Netherlands, Latvia, Lithuania, Hungary, Belgium, Czechia, Slovak Rep and Sweden reported that they do not have a methodology. Most of the MS reported that they include aquaculture in their environmental strategies, with the exceptions of the Netherlands, Belgium, Bulgaria and Sweden. The MS provided descriptions of the strategies, how they have aligned with EU regulations and directives.

All of the MS reported (Chart 36) that they had farms located in protected areas with exceptions of Estonia and Sweden. Many farms are located within Natura 2000 sites or other protected natural areas. In Croatia, most carp ponds are designated as Natura 2000 sites, with some situated in nature parks and ornithological reserves. Portugal has approximately 1 221 farms spread across 3 716 hectares, with various production methods, including clams, mussels, and finfish. In Spain, Natura 2000 sites host multiple aquaculture farms, though data updates are ongoing. The Netherlands' mussel and oyster farming areas are all within Natura 2000 sites. Romania reports around 83 000 hectares of aquaculture, including extensive and semi-extensive farming methods, in protected areas. France has several farms in Natura 2000 sites, such as Thau Lagoon and Arcachon Bay, focusing on oyster and mussel farming using environmentally friendly techniques. In Lithuania, three pond farms produce carp in Natura 2000 sites. Hungary's pond aquaculture areas in Natura 2000 sites span over 13 500 hectares. Malta's marine, cage-based farms are entirely within Natura 2000 sites, with significant production of Bluefin tuna and seabream / bass. Denmark reports several fish and mussel farms in Natura 2000 sites, producing rainbow trout and mussels with various recirculation and traditional methods. Greece has around 200 aquaculture units in protected areas, although more precise data is being developed. Germany's Natura 2000 sites host numerous pond farms producing carp, sturgeon, and crayfish, with large farm concentrations in Brandenburg and Saxony. The MS reported that there had been

limited changes since 2021. Many of the MS reported that there was limited data available to report.

19 MS reported (Chart 37) that there are farms involved in extensive or semi-extensive aquaculture in ponds and wetlands. The use of extensive and semi-extensive aquaculture methods in pond farming remains widespread. In Croatia, the production of carp in semi-extensive ponds continues, with 27 ponds covering 14,082 hectares in 2023. Portugal operates approximately 1020 farms, predominantly extensive, producing mussels, clams, and oysters. In Finland, 126 extensive pond farms focus on the production of young fish, especially whitefish. Romania's 319 farms primarily practice polyculture with common carp as the main species. Other countries such as Estonia, Latvia, Hungary, and Slovakia also follow semi-extensive methods, with a focus on carp and other freshwater species. France emphasises sustainable practices in wetland aquaculture, while Lithuania reports increased production in its wetland areas, with species like common carp and sturgeon. Major species in extensive aquaculture in Greek lagoons are seabream, seabass, mullet, golden grey mullet and blue crab. In Germany, several federal states like Brandenburg and Mecklenburg-Western Pomerania maintain extensive pond farming operations, focusing on carp and other species, though production volumes have declined in recent years. The absence or inconsistent data in many MS reflects challenges in monitoring and reporting. From Italy's standpoint, improving the environmental performance of EU aquaculture demands a multi-level approach: combining innovative farming models like IMTA, regulatory streamlining, and targeted financial support. These measures are seen as both pragmatic and scalable, especially for Mediterranean contexts. In particular, it must speed up regulatory and spatial planning procedures for a clear designation of environmentally suitable areas for low-impact production. Moreover, the EU should support innovation for resource efficiency by orienting investment towards research projects able to deliver concrete results in commercial aquaculture contexts, such as low-carbon technologies, wastewater recirculation systems, and alternative protein sources use (e.g. single cell protein, insect or ingredients from circular economy).

Promote & disseminate the guidance on environmental performance developed by the EC among authorities competent for aquaculture & the aquaculture industry.

Ensure appropriate monitoring & reporting on the environmental performance of the sector, fully implementing applicable legislation. Promote monitoring & reporting by the industry of environmental indicators.

The responses to four questions were used to assess these two actions, they were the ones about: have environmental performance indicators been established and have model monitoring plans been developed.

Environmental monitoring in aquaculture is reportedly governed by national laws and regulations, with a focus on assessing the impact of aquaculture practices on water quality, sediments, and benthic biota. Environmental monitoring is increasingly integrated into aquaculture operations to ensure sustainability and compliance with EU directives, though the consistency and scope of data collection vary by country. Environmental monitoring is increasingly integrated into aquaculture operations to ensure sustainability and compliance with EU directives, though the consistency and scope of data collection vary by country.

13 MS had established environmental performance indicators for aquaculture (Chart 38) whilst only nine reported that any model / reference environmental monitoring plan has been developed (Chart 39). France, Spain and Greece all had both these and model / reference environmental monitoring plans. In Croatia, monitoring includes parameters like sediment composition, water quality (e.g., oxygen levels, nutrients), and benthic communities, though the system lacks unified standards. Portugal requires wastewater monitoring as part of its self-regulation program. In Spain, the environmental monitoring process is structured through an Environmental Surveillance Plan (PVA) as part of the Environmental Impact Declaration (DIA), with preventive and corrective measures to assess the impact on protected spaces and compliance with marine strategies, and it reports it is working on improving environmental indicators under its 2021-2030 aquaculture strategy. Finland incorporates environmental models into permit applications. France monitors various water quality parameters such as suspended solids and biochemical oxygen demand for freshwater aquaculture and has developed monitoring plans for installations posing environmental risks, overseen by regional authorities. Cyprus implements a protocol that includes regular sampling for nutrients and benthic community assessments. In other countries like Lithuania and Hungary monitoring focuses on parameters such as water quality, sediment composition, and energy consumption, although specific data is often limited or not fully standardised. In Malta mandatory monitoring includes water quality parameters, sediment quality parameters and video surveys of the seabed below tuna cages but does not monitor energy consumption.

In Greece, specific environmental requirements are outlined in Circular No. 121634/7242/2019, focusing on the establishment and operation of marine fish farms and it also provides a public geoportal for water quality monitoring (integrating data concerning River Basin Districts, River Basins, Water Bodies, water classification and water body status, offering transparency on water systems' status). Environmental data from marine fish farms, resulting from the implementation of the Circular No. 121634/7242/2019, are reported to national authorities, but are not disseminated to the public.

No information was gathered from the survey to provide information on the following actions:

Actions for the MS: Work on limiting the contribution of aquaculture to marine litter by: (i) implementing the requirements of the Single Use Plastics Directive; (ii) supporting the replacement of plastic-based aquaculture gear with sustainable solutions and the adaptation of sites to minimise loss of material to the environment; (iii) ensuring the separate collection of waste; and (iv) promoting innovation in the packaging of aquaculture and processed aquaculture products.

Actions for the MS: Support the application of research and innovation to improving the environmental performance of the sector.

2.2 Animal welfare

Relevant Link to charts in Annex III

Chart 41: Is welfare of farmed aquatic animals part of national animal welfare strategies in your Member State?
Chart 42: Has any code of good practices to ensure the welfare of farmed aquatic animals been developed in your Member State?
Chart 43: Have indicators for assessing the welfare of farmed aquatic animals been developed in your Member State?
Chart 44: Have there been any measures, programmes, funded projects or investments applied to improve animal welfare of farmed aquatic animals in your Member State since 1 January 2021?

The survey results show that progress is being made by the MS against the actions, this led by MS such as Spain and France. CGP have been developed in half of the countries, but indicators in only a quarter. Initiative implementation is happening in most of the countries but with country level CGP and indicators perhaps the focus of these could be guided and aligned.

Support the development by EU MS, the EU aquaculture industry, EU scientific bodies & NGOs of a CGP on fish welfare based on scientific research & evidence, covering farming, transport and killing. This CGP should be widely disseminated (Action required by the EC).

Although this was not a specific action for the MS, rather it was for the Commission, the survey did provide responses to assess whether the MS have a CGP (but not whether it has been supported by the Commission nor what the CGP was based on or covers). Of the MS which responded, 15 reported that they have a CGP to ensure the welfare of farmed aquatic animals been developed (Chart 42). France, Spain & Greece all have CGP, as do Portugal (who use the Spanish CGP), Finland, the Netherlands, Romania, Estonia, Denmark, Germany and Sweden. Some provided additional details and links to the publicly available CGP, for example, in Spain, UNE, a private entity, has published a standard in relation to the welfare of aquaculture animals, "UNE 173300:2016. Pisciculture. Guide to correct practices for slaughter (11/23/2016)" and The Spanish Aquaculture Business Association (APROMAR), a private entity, has published 3 guides in relation to the welfare of aquaculture animals: "The welfare of fish in

Spanish aquaculture (Vol. 1): Concepts and Generalities (2022)”⁽¹⁷¹⁾, “The welfare of fish in Spanish aquaculture (Vol. 2): Welfare of sea bass (2024)”⁽¹⁷²⁾, and “The welfare of fish in Spanish aquaculture (Vol. 2): Welfare of sea bream (2024)”⁽¹⁷³⁾. In Italy, MASAF together with Ministry of Health have developed practical guidelines and technical manuals to support Italian fish farmers in implementing science-based welfare standards. These documents, often produced in collaboration with the Italian network of Institutes of Experimental Zooprophyllactic (IZS), cover species-specific good practices, handling procedures, health monitoring, and biosecurity measures. The IZS institutes also carry out field research, training, and welfare assessments, promoting the uptake of best practices across different farming systems. In Germany, producer organisations and professional associations developed guidelines and recommendations, and the Verband Deutscher Fischereiverwaltungsbeamter und Fischereiwissenschaftler (VDFF) developed guidelines on welfare indicators. In France, CGP to ensure the welfare of farmed aquatic animals has been developed. The Czech Republic State veterinary administration has developed legislation, standards and methods to support animal welfare.

Support the development by EU MS & the EU aquaculture industry of common, validated, species-specific & auditable fish-welfare indicators throughout the production chain, incl. transport & slaughtering. Part of this support should include support to research (Action required by the EC).

Although this was not a specific action for the MS, rather it was for the Commission, the survey did provide responses to assess whether they have developed indicators for assessing the welfare of farmed aquatic animals but from the information in the survey, it is not possible to assess whether they are validated, species-specific and auditable fish-welfare indicators throughout the production chain, including transport and slaughtering. Seven of the MS (Chart 43), less than one third, reported that they had them and from the responses to the follow up question about the indicators scope etc. it appears that these vary from only having one species testing some indicators to which are better developed – but based on the responses it would seem that support is needed for the MS to have indicators which meet the objective of having common, auditable species-specific indicators.

⁽¹⁷¹⁾ <https://aquaculture.ec.europa.eu/knowledge-base/guidelines/guide-fish-welfare-spanish-aquaculture-volume-1-concepts-and-generalities>

⁽¹⁷²⁾ <https://aquaculture.ec.europa.eu/knowledge-base/guidelines/guide-fish-welfare-spanish-aquaculture-volume-2-welfare-european-sea-bass>

⁽¹⁷³⁾

Support & promote research & innovation on animal welfare, taking into consideration the priorities identified by SCAR-Fish.

16 MS reported (Chart 44) that there had been measures, programmes, funded projects or investments applied to improve animal welfare of farmed aquatic animals since 1 January 2021 (e.g. research and innovation projects, funding of measures on the welfare of farmed aquatic animals, and training to aquaculture producers on good practices). From the information provided in the responses it is difficult to understand to what extent these take into consideration the priorities identified by the SCAR-Fish, but this analysis has tried to catalogue the responses against these priorities. The amount of information provided in the follow up question for more details provided varying results, such as the number of projects varies from one-to-many projects / initiatives and the topic of the projects is very diverse, but none were focused on addressing climate change impacts. Here is a selection of some of the examples that the MS provided details on:

- Enhancing sustainability in aquaculture: Lithuania reported that aquaculture companies implemented eight initiatives and one investment project by public body (Food & Veterinary Risk Assessment Institute) to reduce dependence on the use of veterinary medicines. The projects received EUR 2,1 million of public funding, including EUR 1,6 million from the EMFF.
- Improving animal health & welfare: a number of the projects being implemented and planned are on this topic e.g. Finland developed a fish health guide, projects also reported in Hungary, France, Denmark, Spain, Belgium.
- Examples of technology projects: Greece, has a project to apply intelligent systems to improve the management and welfare of fish in cages; Hungary have done a digital monitoring project which includes a shift toward digital technologies to enable continuous monitoring and improvement of welfare conditions; Germany have completed projects on the digitalisation of shrimp farming and AI use.
- Latvia & Lithuania: joint project to improve Baltic salmon (*Salmo salar*) and pike perch (*Sander lucioperca*) rearing methods for more sustainable and healthy fish populations.
- Hungary aligning with "Farm to Fork" environmental targets with a project on Knowledge-Based Innovation: Intended developments in research and technology seek to reduce antibiotic use and boost fish health.

Support the development of knowledge & skills by aquaculture producers on good practices for fish welfare.

This information was not asked directly to the MS in the survey, rather this analysis has reviewed and used the responses to the other questions to understand if the projects described would support development of knowledge and skills of the producers. The development of the CGP and indicators appears in most of the MS who have developed them to have engaged the producers (e.g. through POs); this process is believed to develop understanding and share knowledge. Some specific project details were given such as in Spain where they reported to have disseminated CGPs according to the cultivated species and production method and established criteria and indicators of animal welfare through training and research. In France, they reported that the “PEACE” project is set to take place from 2024 to 2026; this project aims to provide French fish farmers with a methodology and an assessment tool for fish welfare and will evaluate stunning efficacy during slaughter. Training sessions will be offered to users of the application to enhance their understanding and implementation of welfare practices.

Strategic Objective 3: Ensuring social acceptance and information to the consumer

3.1 Communicating on EU aquaculture

Relevant Link to charts in Annex III

Chart 45: Have any information / communication campaigns on aquaculture been developed / launched in your Member State since 1 January 2021?

Chart 46: Have any public or private initiatives been adopted to provide information on aquaculture products to the consumer (e.g. codes of conduct, traceability, information to HORECA)?

Chart 47: Have any quality scheme or label applicable to aquaculture products been developed in your Member State since 1 January 2021?

Chart 48: Have any geographical indications been granted since 1 January 2021 to aquaculture products in your Member State?

Chart 49: Have any short-supply circuits involving aquaculture products been developed in your Member State since 1 January 2021? (e.g. online applications / platforms for direct sales to consumers).

Support & ensure the broad dissemination at national level of the coordinated EU-wide campaign on EU aquaculture, with the full involvement of regional authorities; aquaculture producers; retailers; & to the extent possible, NGOs & media.

15 MS reported (Chart 45) that since 1 January 2021, there had been information / communication campaigns on aquaculture via a variety of media channels e.g. TV, social media, websites. The campaign's focus on educating the public about fish's nutritional benefits and promoting sustainable, locally farmed fish. In Croatia, the "Fish from Croatia - Eat What is Worth Eating" initiative⁽¹⁷⁴⁾ aims to increase local fish consumption by promoting sustainable fisheries and aquaculture products. Similarly, Cromaris and PP Orahovica have launched media campaigns in Croatia and Italy to highlight sustainable and organic farmed fish. In Estonia, the "Fish Sounds Good" campaign⁽¹⁷⁵⁾ and Fish Week activities have drawn attention to local fish farming, while in Lithuania, a national campaign has been rolled out using EMFF funds to encourage the consumption of farmed fish. Hungary's "HalPéntek" (Fish Friday) campaign⁽¹⁷⁶⁾ promotes the health benefits of regular fish consumption, particularly highlighting omega-3 fatty acids and sustainable farming. France has several communication campaigns focusing on aquaculture products, including the "Aquaculture Farmers of France" campaign and educational outreach to children⁽¹⁷⁷⁾. In Greece, multiple industry campaigns have been funded under EMFF, involving product promotions, school initiatives, and participation in exhibitions. Italy has an objectives to promote aquaculture certification as an opportunity to increase the added value of national production and to facilitate access to large-scale distribution. Lithuania noted huge popularity and interest with the Farmed in the EU communication campaign in the country.

⁽¹⁷⁴⁾ <https://fishfromcroatia.com/en/>

⁽¹⁷⁵⁾ <https://www.division.ee/portfoolio/fish-sounds-good/>

⁽¹⁷⁶⁾ <https://halpentek.hu/>

⁽¹⁷⁷⁾ <https://www.lesaquaculteursdefrance.fr>

Other countries, including Germany, Denmark, and Belgium, have also launched various regional and national initiatives to boost consumer awareness of sustainable aquaculture and local fish products. One NGO stated that communication on EU aquaculture must be science-based, transparent, and inclusive of animal welfare and environmental concerns (The Aquatic Life Institute, pers. comm., April 2-025). Others felt it important to take into account the geographic location and regional specifics for the different regions within EU during such campaigns, since aquaculture methods and produce of Mediterranean area has little relevance / impact on the customers / producers in Northern Europe and *vice versa*.

Promote self-regulatory initiatives by the aquaculture sector (e.g. good practices, codes of conduct, and traceability) & the communication of these initiatives to the consumer. Promote brands & quality labels with appropriate control mechanisms.

17 MS reported (Chart 46) that public or private initiatives had been adopted to provide information on aquaculture products to the consumer (e.g. codes of conduct, traceability) and have taken steps to improve transparency and consumer awareness regarding aquaculture products. Some of the campaigns outlined in the previous action were noted by the MS as the channel used under this action too.

In addition to these, the following examples were provided: Portugal has introduced educational campaigns, labelling guidelines, and blockchain technology to ensure the traceability and sustainability of aquatic food, helping consumers make informed choices; in the Netherlands, there are legal requirements for labelling fish products, including information on species, origin, and production method, with additional sustainability insights provided by the Mr. Goodfish initiative; Greece has developed the "Fish from Greece" certification scheme⁽¹⁷⁸⁾, which ensures that aquaculture products meet high standards of quality, sustainability, and fish welfare; other countries like Belgium, and Estonia also focus on improving traceability and sustainability within the aquatic food sector, with initiatives like ASC certifications. France improves traceability through Public Labels (Signes Officiels de Qualité et d'Origine (SIQO) such as BIO, Label Rouge (LR)). Eight MS reported that they had developed a quality scheme or label applicable to aquaculture products since 1 January 2021, such as: France introduced the "French Aquaculture Fish" label in 2024⁽¹⁷⁹⁾, focusing on traceability and good practices in fish farming; Hungary's Kiváló Minőségű Élelmiszer (KMÉ) certification⁽¹⁸⁰⁾ ensures that fish are raised in hormone-free environments with strict standards for animal welfare, hygiene, and freshness.

⁽¹⁷⁸⁾ <https://fishfromgreece.com/en/organization/>

⁽¹⁷⁹⁾ <https://www.poisson-aquaculture.fr/>

⁽¹⁸⁰⁾ <https://kme.minoseg.kormany.hu>

Promote the use of digitalisation tools & artificial intelligence for the traceability & transparency of aquaculture products.

Nine MS reported (Chart 48) geographical indications had been granted since 1 January 2021 including: Croatia, the mussel from Novigrad and the oyster from Mali Ston received the Mark of Authenticity under EC 2023/1308 ⁽¹⁸¹⁾; France granted Protected Geographical Indication (PGI) status to two aquaculture products: Caviar from the Caviar d'Aquitaine Association, and Oysters of Normandy; Hungary's "Balatoni hal" label covers fish from Lake Balaton; Germany, the "Aischgründer Karpfen" is a regional fish protected under a PGI. A different six MS out of the 21 reported short-supply circuits involving aquaculture products had been developed since 1 January 2021, these included: Portugal, companies like Aquanostra successfully developed online platforms and smartphone apps for direct-to-consumer sales, allowing home delivery of aquaculture products; France, platforms such as Poiscaille and the government-backed 'Frais et Local' connect consumers directly with local aquaculture producers; Lithuania, both private initiatives and public support from the Ministry of Agriculture foster short-supply circuits for aquaculture; Germany, regional supply chains for fish products have been developed through private initiatives, with some support from European funding programs, particularly in Bavaria and Saxony.

3.2 Integration in local communities

Relevant Link to charts in Annex III

Chart 50: Has there been in your Member State any measure / initiative to involve local stakeholders in the planning and development of aquaculture activities?

Chart 51: Has there been in your Member State any measure / initiative to foster synergies between aquaculture and other activities.

Efforts to integrate aquaculture and the local communities were reported to have been taken across lots of the MS demonstrating an understanding of the importance of community involvement in ensuring the sustainable and socially accepted development of the aquaculture sector. The development of synergies should facilitate the growing recognition of the potential for aquaculture to contribute to broader regional development, benefiting both the sector and local communities.

Ensure the early involvement of local stakeholders according to the good practices provided by the EC as part of the guidance documents for spatial planning & administrative procedures.

16 MS reported (Chart 50) that there had been measures / initiatives to involve local stakeholders in the planning and development of aquaculture activities. In Croatia, stakeholders participate through local fisheries action groups and community consultations during spatial and development planning processes.

⁽¹⁸¹⁾ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32023R1308>

Portugal involves local organisations in maritime spatial planning and aquaculture-related decisions through public consultations. Malta carries out stakeholder consultation processes for aquaculture site selection and prior to the establishment of any aquaculture area/site. Spain promotes local economic development by encouraging aquaculture participation in rural and coastal development initiatives, with support for women's roles in the sector. In Finland, stakeholder input is solicited via online consultations during the permitting process. Similarly, France and Romania emphasise the involvement of local stakeholders in maritime and aquaculture planning through public debates, councils, and consultations. Germany's federal states such as Bavaria, Saxony, and Brandenburg engage local communities and fishing groups in planning and decision-making processes, supported by funding opportunities under the EMFAF.

Promote the integration of the aquaculture sector in local communities & the development of synergies with other sectors, taking into consideration the good practices collected by the EC.

18 MS have reported (Chart 51) measures / initiatives to foster synergies between aquaculture and other activities (e.g. fisheries, tourism, processing, etc.) at local level showing that there has been an effort to foster synergies with other local activities, e.g. tourism. In Croatia, local development strategies funded under the EU's EMFF focus on integrating aquaculture with tourism and circular bio-economies. Similarly, Portugal has incorporated the compatibility of aquaculture with tourism and fishing into its maritime spatial planning. Spain has emphasised "aquaculture tourism" to revitalise coastal and rural areas, while Finland and the Netherlands have seen oyster farmers combining cultivation with tourism and hospitality activities. Romania and Estonia also promote synergies through local action groups and collaborative partnerships, supporting aquaculture alongside tourism and local economic development. In France, the Lieux de Développement de l'Aquaculture (LDLA) program, funded by the EMFF, has facilitated the collaboration of local actors to address maritime challenges and promote aquaculture alongside tourism. Italy noted the importance of FLAGs in ensuring a meaningful representation of aquaculture within local areas, including through the development of cultural and museum spaces, while supporting education and training, employment, environmental protection, and promoting social well-being. Other countries, such as Hungary, Latvia, and Germany, have integrated aquaculture with tourism activities like fishing tourism, culinary experiences, and educational programs to diversify and strengthen local economies. One NGO noted that integration must go beyond 'economic framing' and support should prioritise community-led, low-impact models with shared benefits. (The Aquatic Life Institute, pers. comm., April 2025). Finally the ready availability of good information on aquaculture e.g. its spatial distribution and the location of new aquaculture applications will assist good communication with local communities.

3.3 Data and monitoring

Overall, public resources are the main mechanism for transparency and is how data is made available for stakeholders and researchers. Most MS have mandated reporting.

Relevant Link to charts in Annex III

Chart 52: Are there any compulsory data reporting requirements on aquaculture in your Member State?

Chart 53: Has the aquaculture industry in your Member State taken any voluntary commitment to report to national authorities and make public environmental data, including on escapees, and the use of veterinary medicines?

Chart 54: Are data collected on aquaculture activities publicly available in your Member State?

Submit to the Commission data on freshwater aquaculture as well as environmental indicators for which collection & reporting is required under national legislation.

All of the MS, with the exception of Belgium (Chart 52), reported that they had compulsory data reporting requirements on aquaculture. The MSs provided the following information about their systems: in Croatia, aquaculture producers are required to report production volumes, values, and environmental data on a monthly and annual basis through an electronic system to the Ministry of Agriculture. Similarly, Spain and Portugal require annual surveys on production, economic data, and species details, with additional reports submitted to EU bodies such as Eurostat and DG MARE; other countries like Finland, Latvia, and Romania also collect data on production volumes, environmental conditions, and socio-economic aspects, with reporting obligations to both national authorities and international organisations; France's annual survey monitors regional production data; Denmark and Germany, data is collected and shared with Eurostat and relevant ministries; Lithuania, Hungary, and Malta have specific national frameworks for data reporting, which are crucial for informing policies and meeting EU and international obligations and these reporting systems ensure that data is gathered for policy management, sector monitoring, and scientific analysis, promoting a more sustainable and informed aquaculture industry.

Implement reviewed data-collection obligations on aquaculture under the DCF.

This question was not asked directly to the MS but some did mentioned the DCF in their responses. Owing to this it isn't possible to provide a definitive assessment of this at this time.

Encourage industry & industry associations to take voluntary commitments to report to national authorities & make public environmental data, including on escapees & the use of veterinary medicines.

Seven MS reported (Chart 53) that their aquaculture industry had taken voluntary commitments to report to national authorities and make public environmental data, these were Croatia, Finland, Romania, Estonia and Greece. Four of the MS provided extra details, but their responses mostly stated that aquaculture producers are required to report statistical data related to their activities, including data on escapees, as part of their legal obligations rather than it being voluntary. This might require further researching to assess this point better. All MS, except Belgium, Greece and Sweden, reported that data collected on aquaculture activities were publicly available. For many MS, it is made publicly available through official government websites. Croatia, for example, publishes its aquaculture data, including relevant fisheries statistics, on the Ministry of Agriculture, Forestry, and Fisheries' website. Portugal and Spain release annual fisheries statistics, with Spain sharing production and economic data through its Ministry of Agriculture, Fisheries, and Food's website. In Finland, the Environmental Authorities and the Natural Resources Institute provide accessible aquaculture statistics, while the Netherlands uses the "Visserij in Cijfers" platform to report on the fishery sector, including mussel and oyster culture. Other countries like Romania, Estonia, Lithuania, Cyprus, and France ensure that aquaculture production data is publicly available via dedicated websites. Some countries, including Denmark and Germany, provide detailed regional statistics on aquaculture production and related sectors.

Strategic Objective 4: Increasing knowledge and innovation

Relevant Link to charts in Annex III

- Chart 55: Are there in your Member State any framework / platform for cooperation on research and innovation that brings together different stakeholders?
- Chart 56: Are actors involved in research and innovation in your Member State part of any collaboration with such actors in other Member States?
- Chart 57: Are actors involved in research and innovation in your Member State part of any smart specialisation strategy linked to aquaculture activities?
- Chart 58: Is information on research and innovation projects publicly funded related to aquaculture and their results publicly available in your member State?
- Chart 59: Are there any mechanisms to ensure that the results of research and innovation projects are made available to the sector in order to facilitate their exploitation?
- Chart 60: Are there any specific curricula or training related to aquaculture activities in your Member State?
- Chart 61: Have any of those curricula or training been established since 1 January 2021?
- Chart 62: Are there any life-long training initiatives / programmes for aquaculture producers available in your Member State?
- Chart 63: Have any of those been established since 1 January 2021?
- Chart 64: Are there any mechanisms in your Member State to support the upscaling, commercialisation and uptake of innovation in the aquaculture sector?

Set up a framework of cooperation bringing together public authorities, industry, and research and educational institutions, and promote the development of clusters for aquaculture

15 MS responded (Chart 55) that there were frameworks / platforms for cooperation on research and innovation to bring together different stakeholders. In several MS, innovation and research in the aquaculture sector are supported through various national programs and collaborative platforms. Croatia funds innovation through organisations such as the Croatian Science Foundation and the Croatian Agency for SMEs, Innovations, and Investments, while regional hubs like AgriFood Croatia promote networking and education in the sector. Spain fosters technological development through the Plataforma Tecnológica Española de la Pesca y la Acuicultura (PTEPA) ⁽¹⁸²⁾, which coordinates stakeholders and supports innovation. Finland's innovation activities are facilitated under the EMFAF program, which involves all stakeholders in research and development. Other countries like France also have platforms such as AQUIMER, which promotes collaboration between industry, research institutions, and public authorities. Hungary's HUNATIP platform ⁽¹⁸³⁾ and Greece's Hellenic Technology Platform for Aquaculture (HE.TE.P.A) ⁽¹⁸⁴⁾ further emphasise the importance of cooperation among stakeholders for technological advancement. Additionally, Denmark, the Netherlands, and Germany have various initiatives that bring together public authorities, researchers, and industry professionals to promote knowledge transfer and innovation in aquaculture.

Seven MS responded (Chart 57) that there were actors involved in research and innovation that were part of smart specialisation strategy linked to aquaculture activities. In Croatia, the Smart Specialisation Strategy (S3) focuses on sustainable aquaculture, promoting innovation in resource efficiency and environmental impact reduction. The AdriaAquaNet project, under the Interreg Italy-Croatia Program, is an example of this approach, aiming to enhance feed efficiency and minimise environmental effects. Romania's National Institute for Marine Research and Development also collaborates with the General Fisheries Commission for the Mediterranean (GFCM) to advance its aquaculture strategy. Additionally, in Germany, research on alternative sustainable feed is highlighted as a key area of focus, promoting innovation for long-term sector sustainability. Across other MS, there are varying levels of cooperation between research institutions, aquaculture enterprises, and governmental bodies to foster innovation and meet broader EU objectives.

⁽¹⁸²⁾ <https://ptepa.es/>

⁽¹⁸³⁾ <https://www.hunatip.hu/en/home-en/>

⁽¹⁸⁴⁾ <https://www.hetepa.gr>

Disseminate information on national research and innovation projects and their results

20 of the MS responded (Chart 58) that information on research and innovation projects that was publicly funded and related to aquaculture (and the results) were publicly available. For example, Croatia's Smart Specialisation Strategy (S3) supports sustainable aquaculture innovations, with projects like AdriaAquaNet focusing on feed efficiency and environmental impact reduction. In Portugal, many publicly funded projects actively share their results, with platforms such as MAR2030 providing detailed information. Spain has national programs that encourage the dissemination of research findings, particularly through the National Aquaculture Plans, while France allows project-specific dissemination and offers increased funding for projects that commit to public deliverables. Other countries, including Romania, Latvia, and Denmark, also provide accessible public reports and project results via their respective governmental websites. In Germany, research outcomes are commonly published in scientific journals and through annual reports by institutions like the Institute for Inland Fisheries.

18 of the MS responded (Chart 59) that there are mechanisms to ensure that the results of research and innovation projects are made available to the sector to facilitate their exploitation. Croatia employs initiatives such as the HRZZ, OpenAIRE, KTOs, and conferences to facilitate the sharing of research findings, ensuring that the aquaculture sector can benefit from the latest advancements. In Spain, results are shared through congresses, workshops, and validation by the sector, with national aquaculture plans requiring sector involvement. In Romania, public research projects mandate the publication of results, while in Estonia, Latvia, and Hungary, dissemination occurs through research projects, scientific meetings, and specialised conferences. France and Germany also emphasise the public accessibility of research results through platforms, workshops, and publications, ensuring that innovations reach a wider audience.

Support (including using EU funding) skills development in the aquaculture sector and the regular training of aquaculture professionals

20 of the MS responded (Chart 60) that there were specific curricula or training related to aquaculture activities. Several confirmed that these had been in place since pre-2021. Across the MS, a diverse range of education and training programs support individuals pursuing careers in aquaculture, catering to different levels from basic vocational training to advanced degrees. Croatia provides structured programs, including a two-part training system covering general knowledge and specialised breeding technologies. In Portugal, the University of Algarve offers master's programs in sustainable aquaculture, while Centro de Formação das Pescas e do Mar (FORMAR) delivers annual courses to enhance aquaculture expertise. Spain provides undergraduate and postgraduate programs in marine sciences and aquaculture, alongside professional courses for specific aquaculture activities. Latvia's Aquaculture

Research and Education Centre organises seminars and hands-on training for fish farmers, while Romania integrates aquaculture courses within faculties specialising in animal sciences. Finland, the Netherlands, Estonia, and Hungary also contribute to professional development, with institutions such as Wageningen University and Danish universities offering master's degrees in aquaculture and marine resource management. France has a well-structured vocational training system covering technical certifications to advanced degrees in marine sciences. Additionally, Belgium, Germany, Malta, and Lithuania do both practical and academic education, with research institutions and associations offering specialised courses. In Cyprus and Greece, while details on specific programs are limited, local initiatives continue to support aquaculture training.

Several MS responded the following details when asked about life-long training initiatives / programmes for aquaculture producers available. Croatia provides a continuous education program that addresses strategic issues in aquaculture development, ecological sustainability, and food safety, incorporating lectures, workshops, and consultations. In Portugal, institutions like the University of the Algarve and Polytechnic Institute of Leiria offer master's programs in aquaculture, while FORMAR organises annual courses to improve professional skills. Spain's APROMAR offers specialised courses on various aspects of aquaculture, including RAS management, animal welfare, and the commercialisation of fishery products. In Latvia, the Aquaculture Research and Education Centre supports ongoing training in aquaculture practices, and France organises regular sessions for pond farming, focusing on fish health and feeding. Additionally, Denmark offers single courses on topics like water quality and genetic methods at DTU Aqua.

Support (including using EU funding) skills development in the aquaculture sector and the regular training of aquaculture professionals

22 of the MS responded (Chart 64) that there were mechanisms in place to support the upscaling, commercialisation and uptake of innovation in the aquaculture sector. Various countries reported that they are utilising the EMFAF and national funding programs to support the adoption of innovative technologies in aquaculture. Croatia, for example, has allocated around EUR 300 000 under its EMFAF Programme for advisory services to assist aquaculture producers in adopting new technologies. Portugal also supports innovation through its Operational Programme under the FEAMPA (EMFAF) for 2021-2030, particularly for start-ups focused on developing new products and technologies. Spain and France promote innovation through national and regional programs, with specific focus on climate change adaptation, environmental impact reduction, and activity diversification. In the Netherlands, subsidies are offered for innovative practices in the mussel and oyster sectors. Estonia's EMFAF support aims to enhance knowledge and sustainability in aquaculture, while Latvia promotes investment in sustainable aquaculture. Other countries like Hungary, Denmark, Czechia, and Germany offer funding schemes for innovative projects, including those aimed at

improving environmental sustainability, resource use, and production technologies. Malta offers funding schemes for environmentally-related projects through a dedicated Aquaculture Fund ⁽¹⁸⁵⁾.

Transversal: Funding

Relevant Link to charts in Annex III

Chart 65: Does your Member State support aquaculture under EU funds other than EMFAF? (e.g. EAFRD, ERDF, etc.)
Chart 65: Does your Member State support aquaculture under EU funds other than EMFAF? (e.g. EAFRD, ERDF, etc.)

Chart 66: Is there any mechanism in your Member State to facilitate synergies in the use of different funding opportunities for aquaculture projects?

Chart 67: Is information on any project on aquaculture funded with public money available to the public?

Chart 68: Is there any mechanism in your Member State to facilitate access by individual aquaculture stakeholders to funding?

Coordinate the planning, commitments and expenditure on aquaculture under different funds under the Multiannual Financial Framework, ensuring coherence, synergies complementarity between them

Various financial support mechanisms are available for the EU aquaculture sector apart from the EMFAF. Croatia offers grants under the EMFAF Program for 2021-2027, as well as state aid schemes like *de minimis* and block exemptions. Portugal provides support through the MAR2030 Operational Programme, as well as other EU funding programs like Horizon Europe. In Spain, the primary funding source is the EMFAF, complemented by the Plan for Recovery, Transformation, and Resilience, as well as several innovation-focused programs. Other countries, such as Finland, Latvia, and Romania, rely on EMFAF grants for funding, while countries like the Netherlands and Cyprus also offer subsidies for innovation and sustainability projects. France primarily provides investment grants through EMFAF, with additional support during crises through social contributions, tax reductions, and loans. Additionally, several countries, including Lithuania, Hungary, and Bulgaria, provide state aid, loans, and specific schemes to support the development and modernisation of aquaculture businesses. Other programs, such as the Recovery and Resilience Fund (RRF) and competitive research grants, further expand the financial tools available to the sector across different nations. These financial instruments aim to foster innovation, sustainability, and the overall growth of the aquaculture industry.

Overall 13 of the MS (Chart 65) responded that they support aquaculture with EU funds other than EMFAF. Croatia's Partnership Agreement for 2021-2027 allows for complementary financing under the ERDF Program, particularly for investments related to energy efficiency and renewable energy sources. Portugal and Cyprus also utilise the Recovery and Resilience Facility (RRF) for

⁽¹⁸⁵⁾ <https://dfa.gov.mt/en/aquaculture-fund/>

aquaculture-related investments, with specific projects such as the construction of collaborative aquaculture port facilities in Cyprus. France supports some aquaculture initiatives through both the EMFAF and the European Regional Development Fund (ERDF), such as the Interreg Greater Region project focused on polyculture in RAS systems. Hungary, Malta, and Denmark also have access to EU funding programs, including Horizon Europe, ERDF, and Interreg, for various aquaculture projects. Greece, through the RRF, is funding eight development actions aimed at modernising aquaculture infrastructure, introducing new technologies, and promoting product innovation. Additionally, countries like Romania, Germany, and Sweden support aquaculture with programs targeting digitalisation, innovation, and financial instruments, further broadening the range of funding available to the sector.

Ensure that information about projects funded in the sector is provided publicly and regularly

23 MS responded (Chart 67) that they provide public access to information regarding aquaculture projects funded through EU and national schemes, ensuring transparency and promoting awareness. For example, Croatia's EMFAF Programme supports marketing measures to improve the market placement of aquaculture products and compensates producers for damages caused by predators. Similarly, Portugal, Spain, and Finland make information about funded projects available through specific websites and publications. Spain, for instance, provides details of the Pleamar Program, co-financed by EMFAF. France also ensures transparency by publishing a list of funded projects every six months, which includes project objectives and beneficiary details. Other countries, such as Lithuania, Cyprus, and Germany, make project information accessible on dedicated websites, while Sweden and Denmark also ensure that EMFAF-funded projects are publicly disclosed. This widespread publication of information supports knowledge sharing, helps to raise public awareness, and contributes to the visibility of sustainable aquaculture practices across Europe.

Facilitating access to EU aquaculture stakeholders to funding

All but one MS (Slovakia) have a mechanism to facilitate access by individual aquaculture stakeholders to funding (Chart 68), establishing systems to communicate funding opportunities related to aquaculture under the EMFAF Programme. In Croatia, a dedicated website serves as a primary communication tool, providing updates on tenders, regulations, and opportunities, while also offering guidance through FLAGS and the Managing Authority. Portugal and Estonia provide centralised resources through official websites for stakeholders to access program details. France and Lithuania offer clear guidance through their respective public institutions, with websites and newsletters promoting funding measures. Similarly, Cyprus, Hungary, and Denmark facilitate access to funding information through their fisheries departments and public meetings. Germany stands out with its regional approach, offering information through

state-level authorities and dedicated websites, alongside personal consultations for applicants. Across these countries, clear communication channels, such as websites, newsletters, and direct support, help ensure stakeholders can easily navigate and apply for aquaculture-related funding opportunities.

Annex III: Charts from MS survey

Chart 1: Does your Member State's marine spatial planning integrate planning for aquaculture areas?

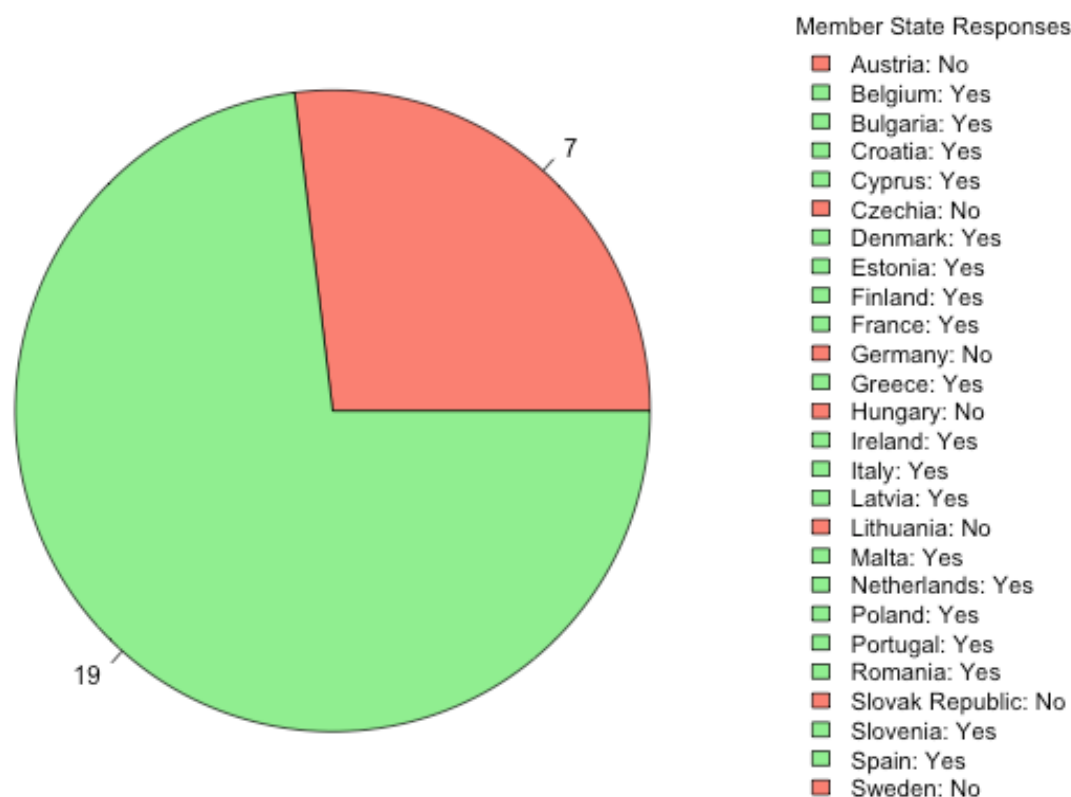


Chart 2: Does your Member State's inland spatial planning integrate planning for aquaculture areas?

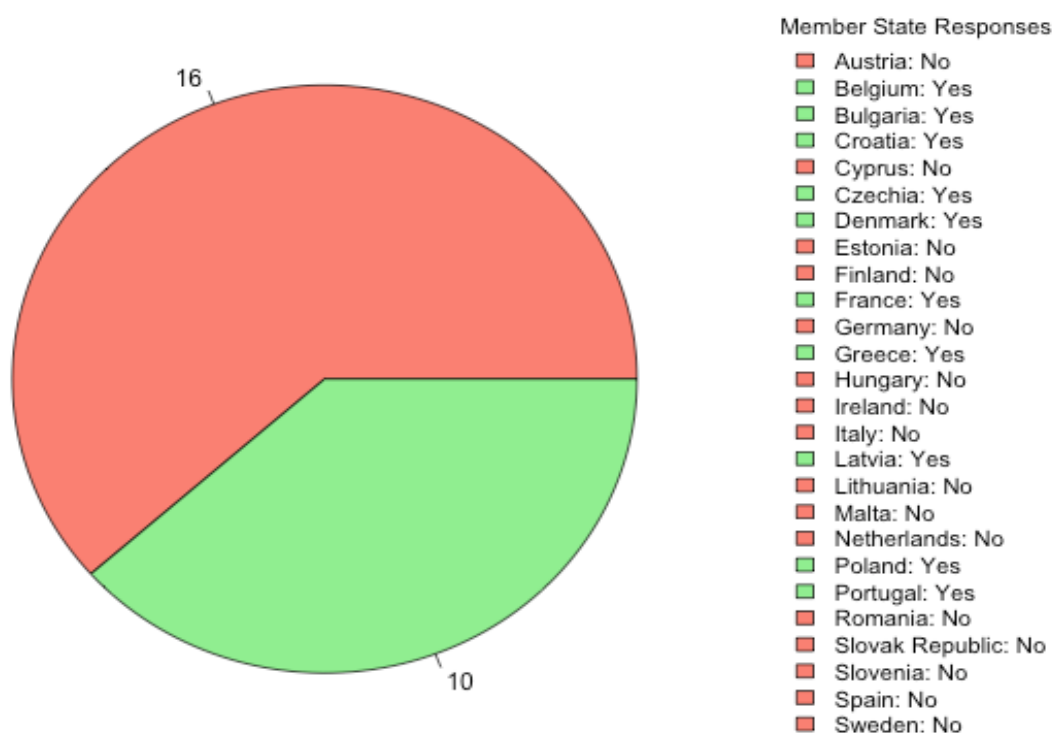


Chart 3: Are there in your Member State any areas allocated to aquaculture?

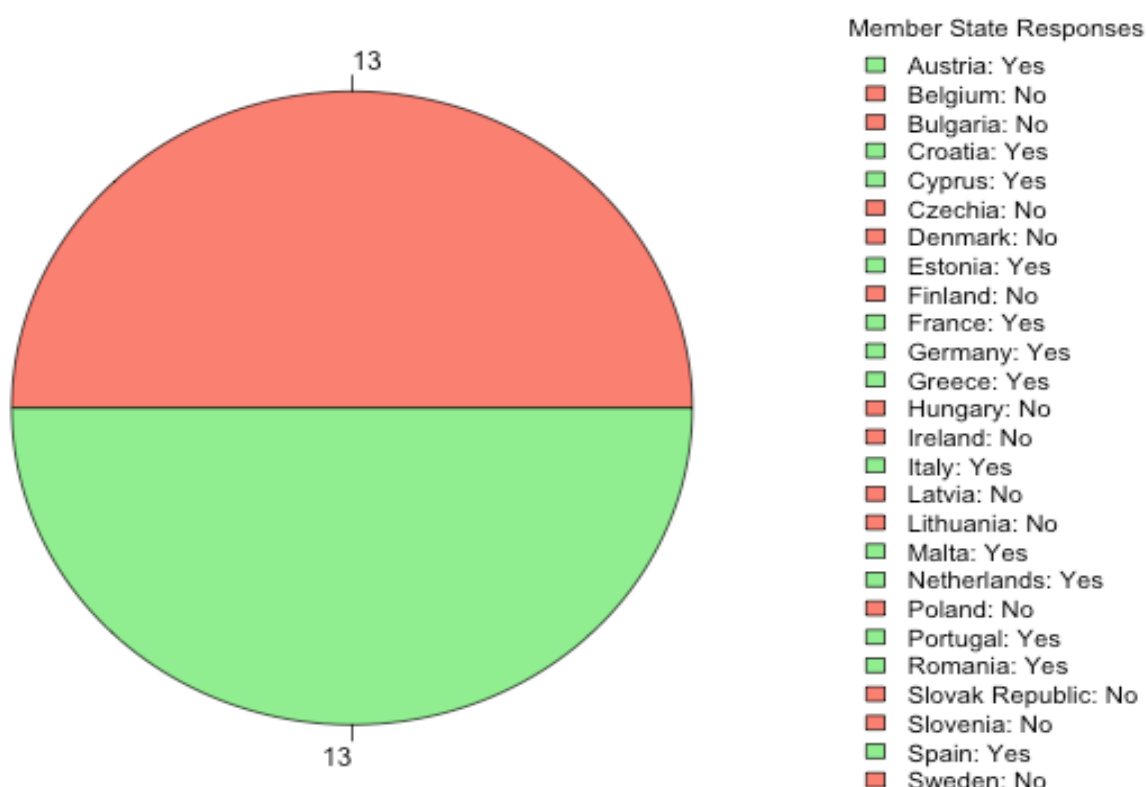


Chart 4: Are there any Aquaculture Management Areas (designated by public authorities or the result of private initiatives) in your Member State?

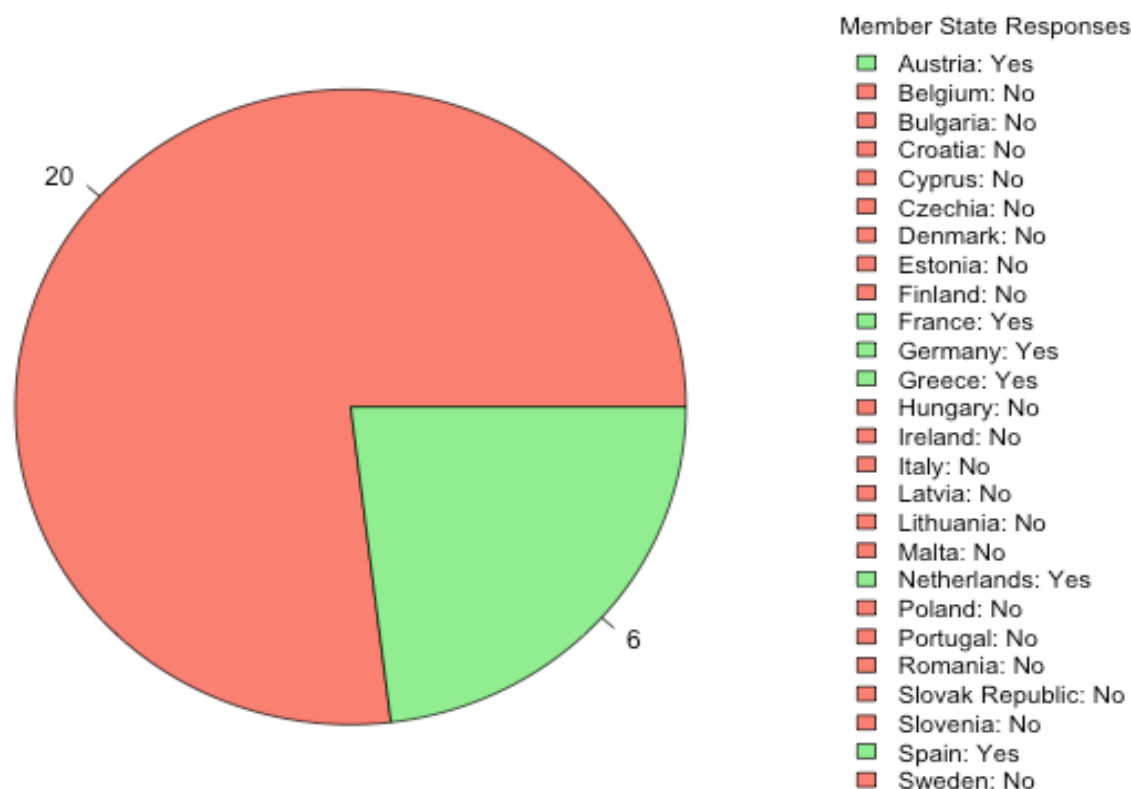


Chart 5: Have reference methods or other tools for planning and monitoring relevant for allocation of space for aquaculture been developed in your Member State?

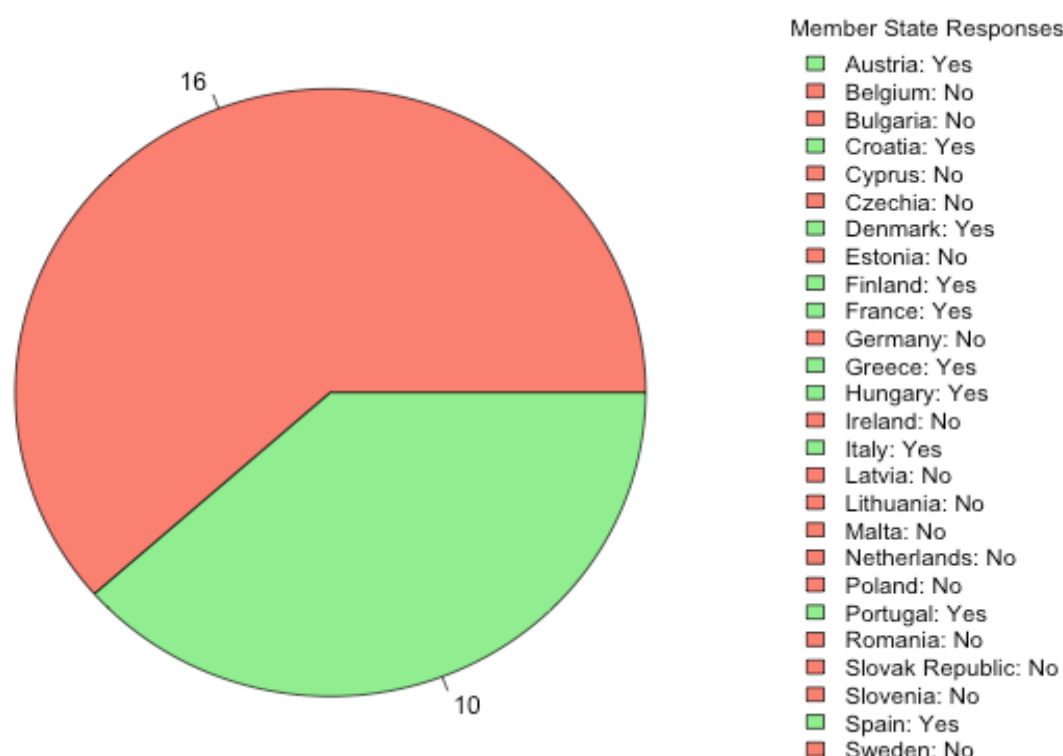


Chart 6: Does the allocation of space for aquaculture, either by spatial planning, special aquaculture plans or AZAs, require a strategic impact assessment (SEA) in your Member State?

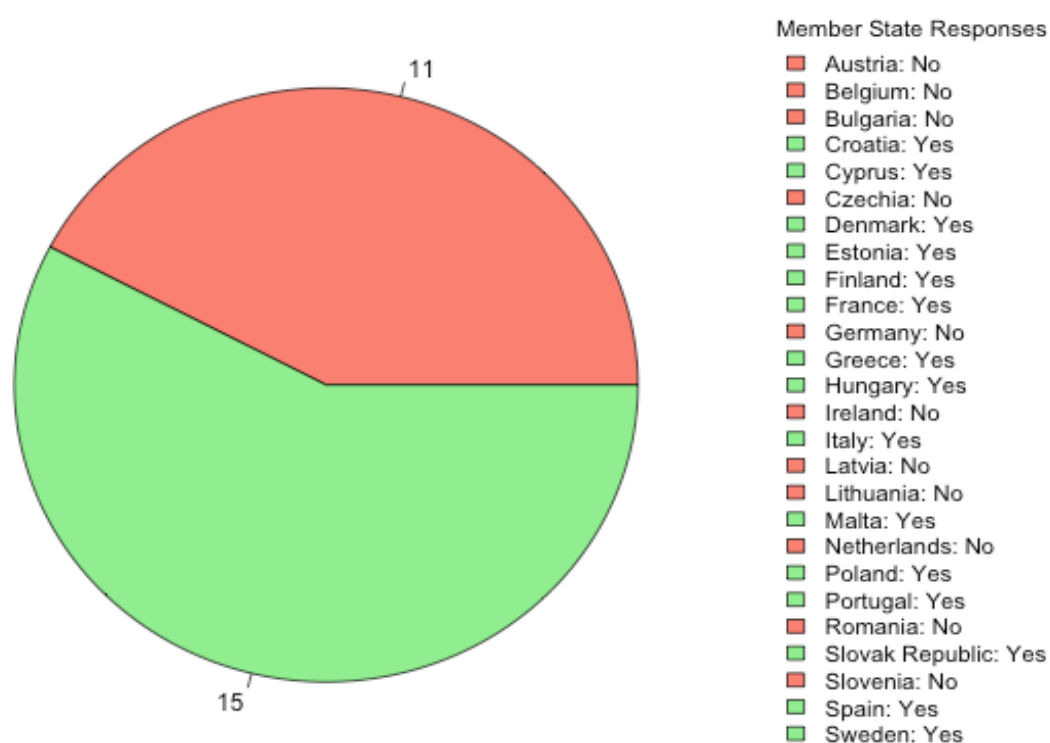


Chart 7: Have there been any SEAs conducted in your Member State in relation to the allocation of space to aquaculture activities since 1 January 2021?

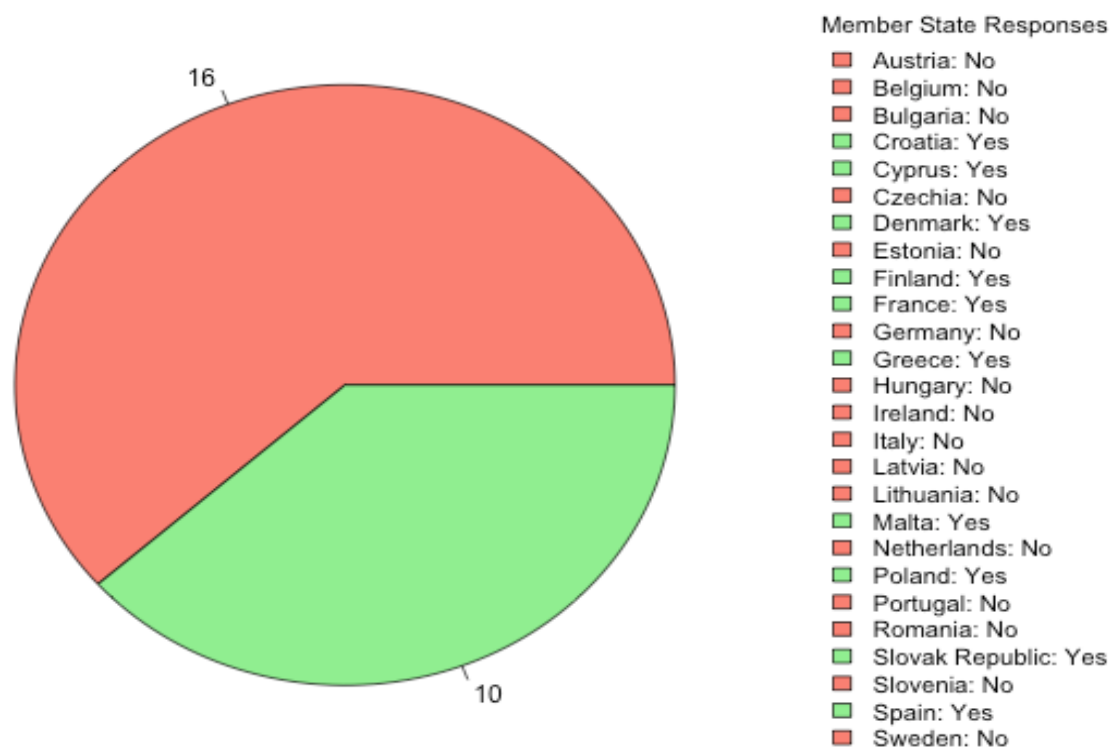


Chart 8: Have there been any reviews of the legislative, regulatory or institutional framework for aquaculture since 1 of January 2021?

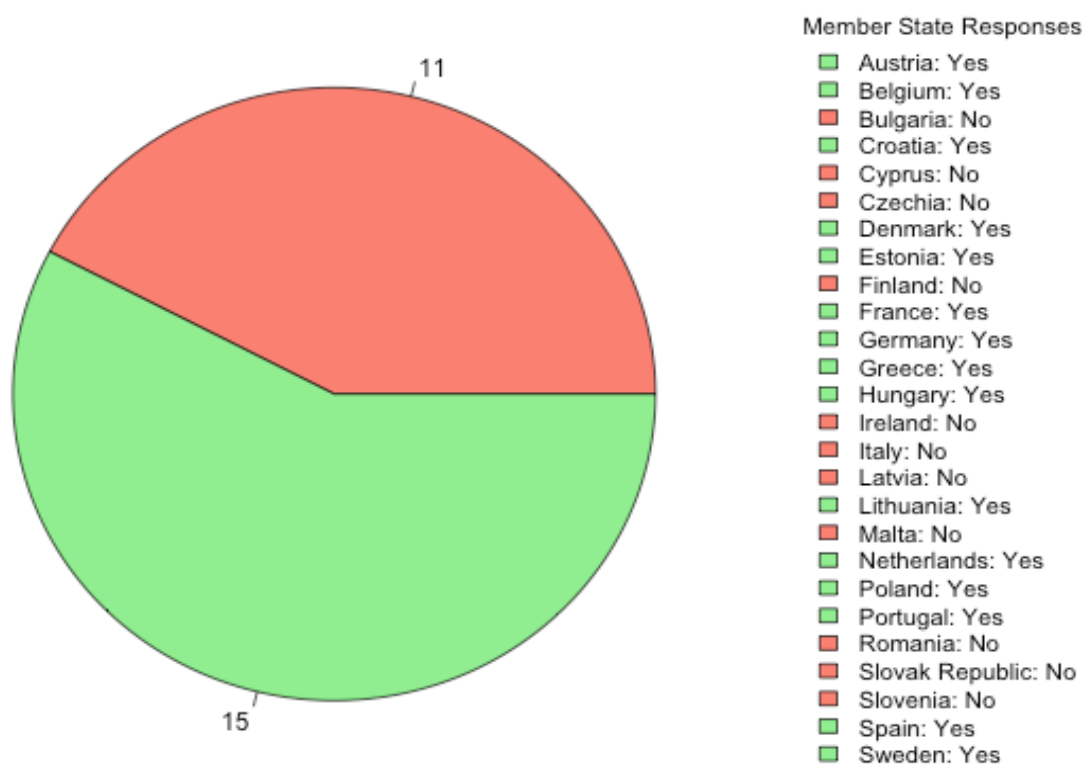


Chart 9: Are there any such reviews planned in the near future?

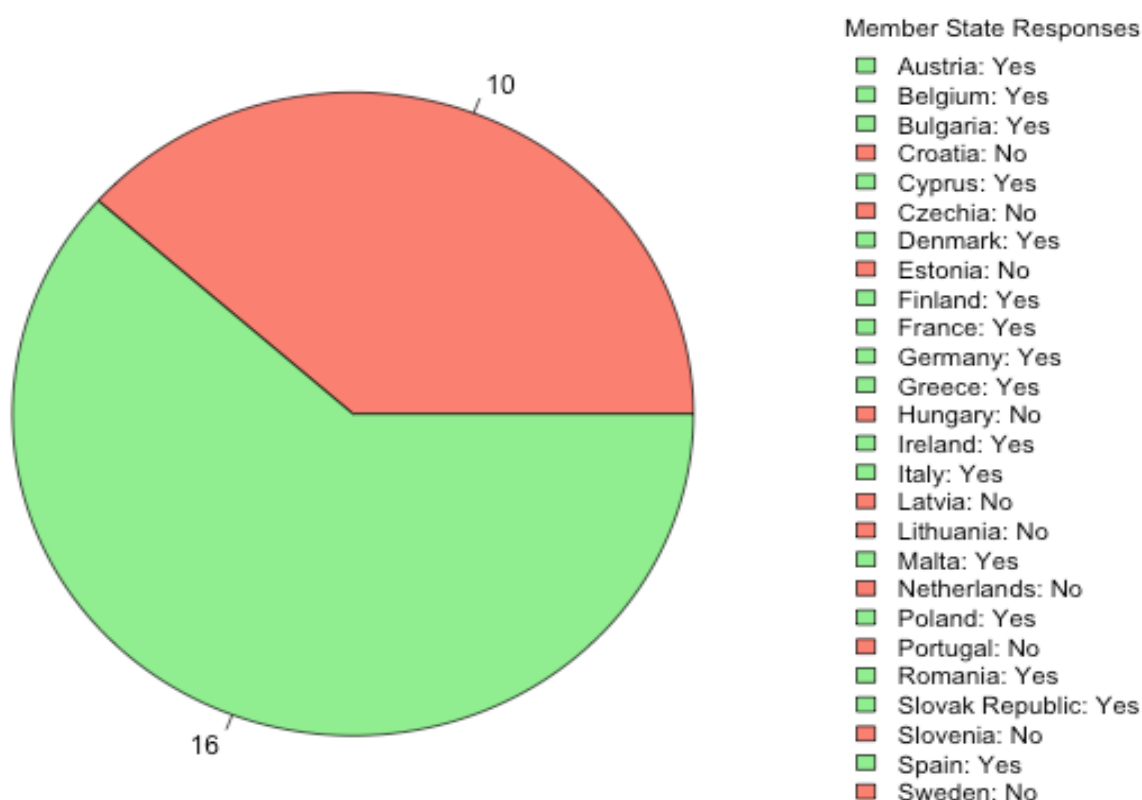


Chart 10: Are there any minimum / maximum periods of duration of a licence for an aquaculture site / farm in your Member State?

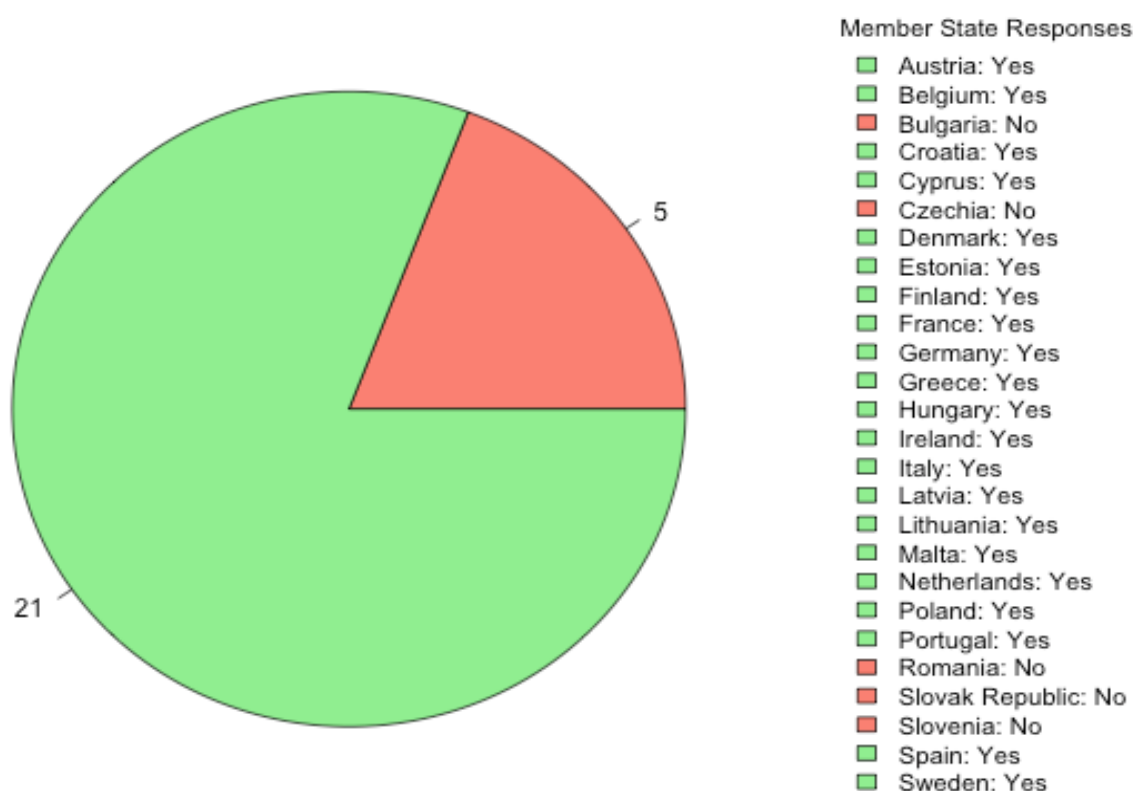


Chart 11: Is environmental impact assessment required for the licensing of aquaculture farms in your Member State?

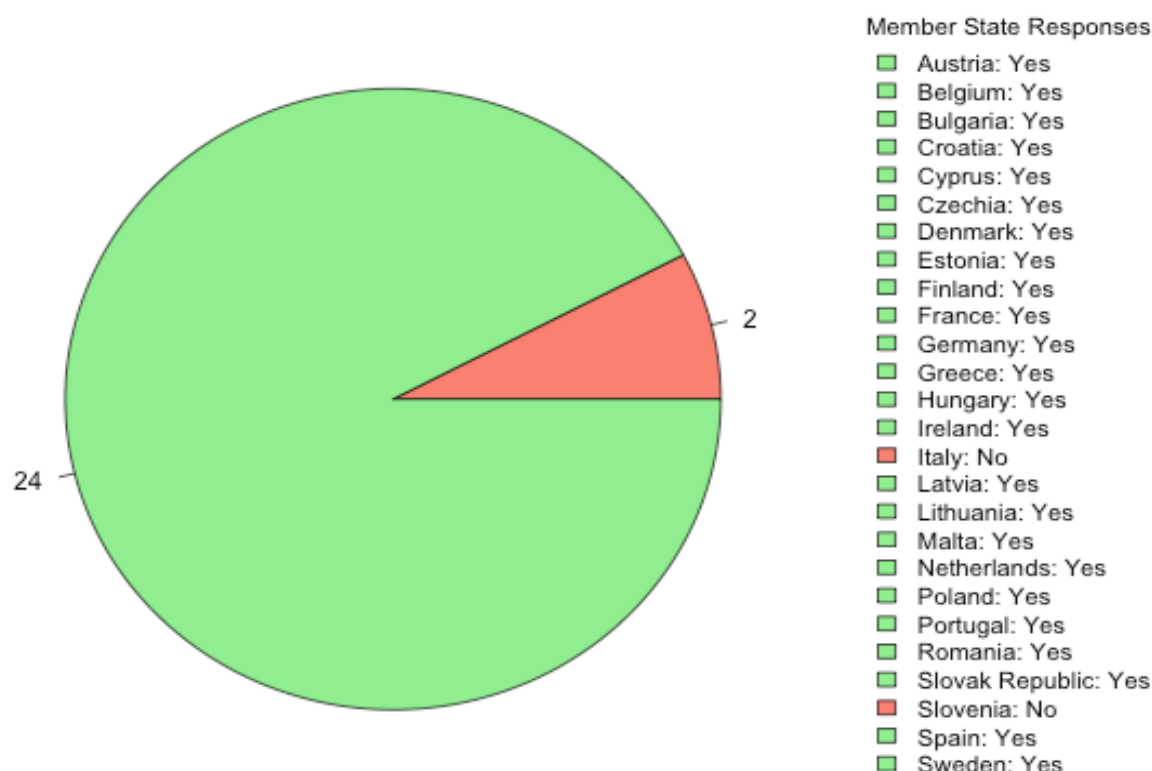


Chart 12: Are there different types of requirements for different types of farms / production systems / species?

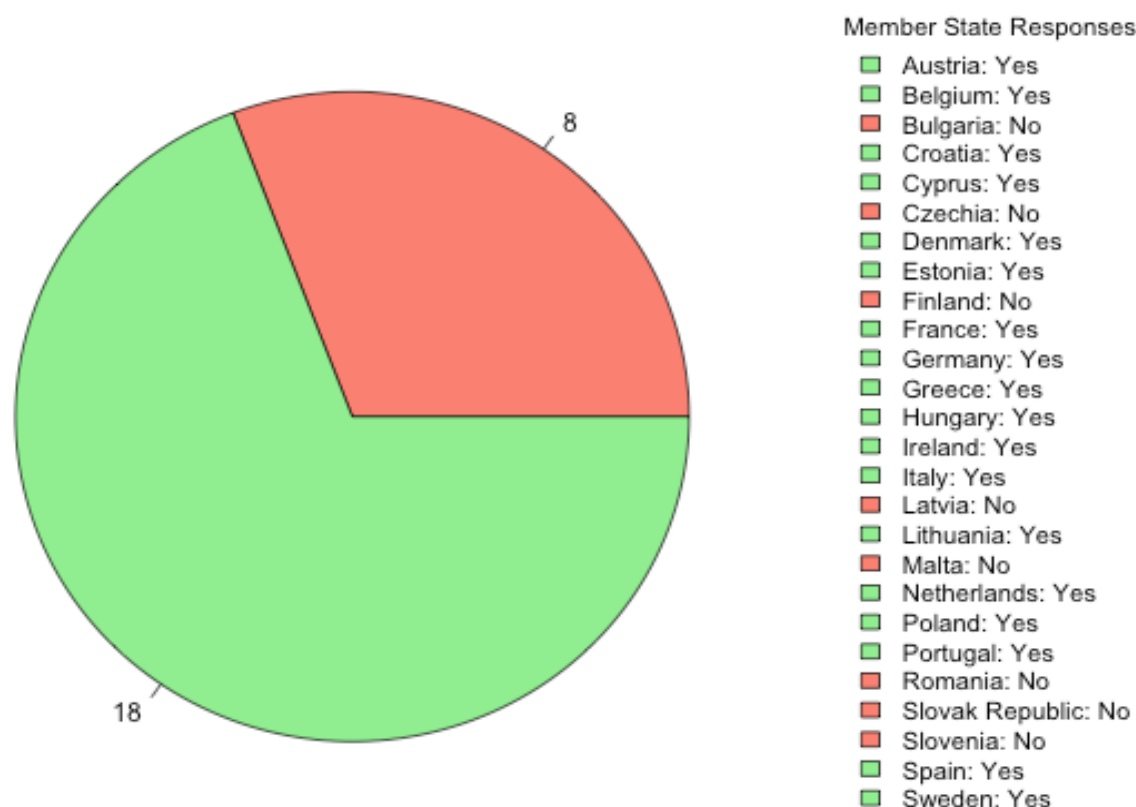


Chart 13: Is there a standard / reference environmental assessment methodology for applicants for an aquaculture licence in your MS?

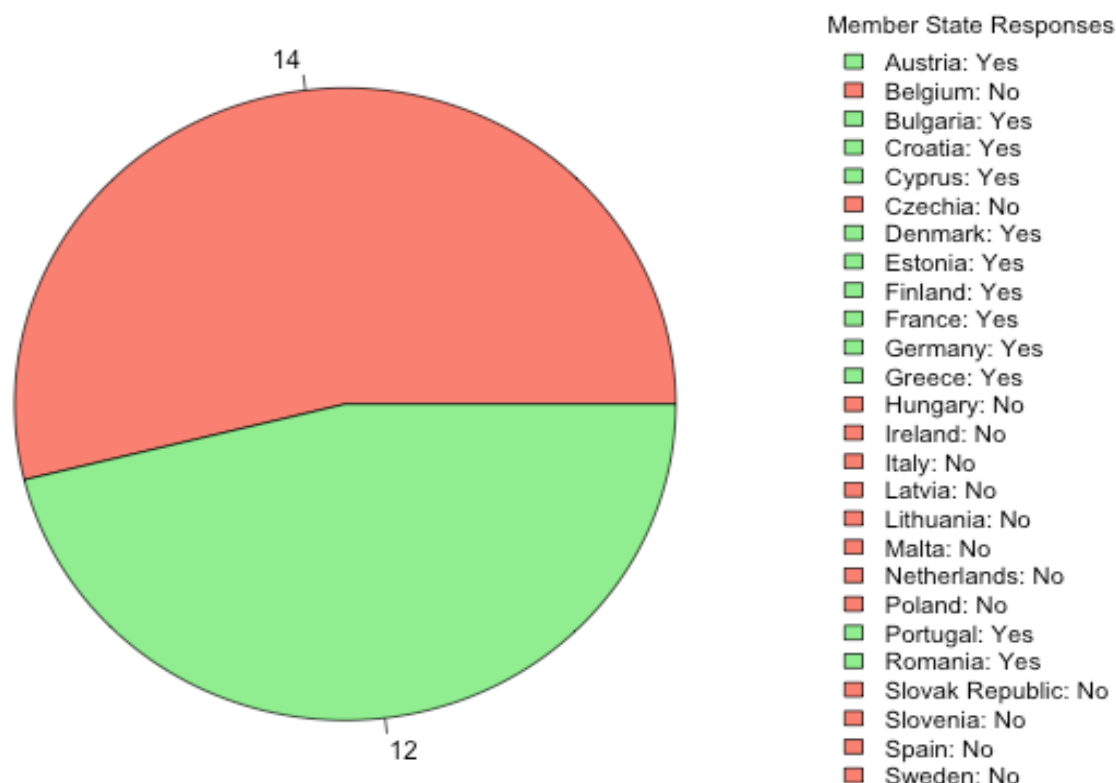


Chart 14: Is there any system that allows to share data among relevant public authorities to facilitate the management of the licensing process?

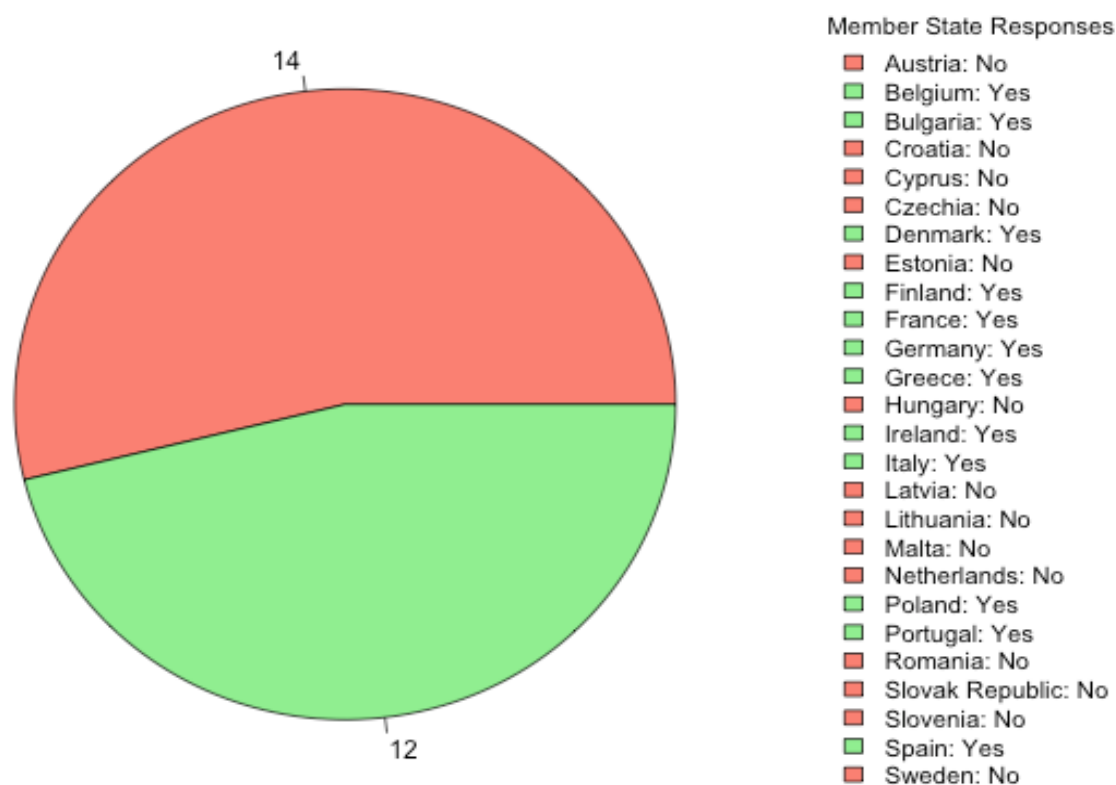


Chart 15: Is there any system that allows to share data with the public to facilitate the work of applicants for a licence and provide transparency on licensing?

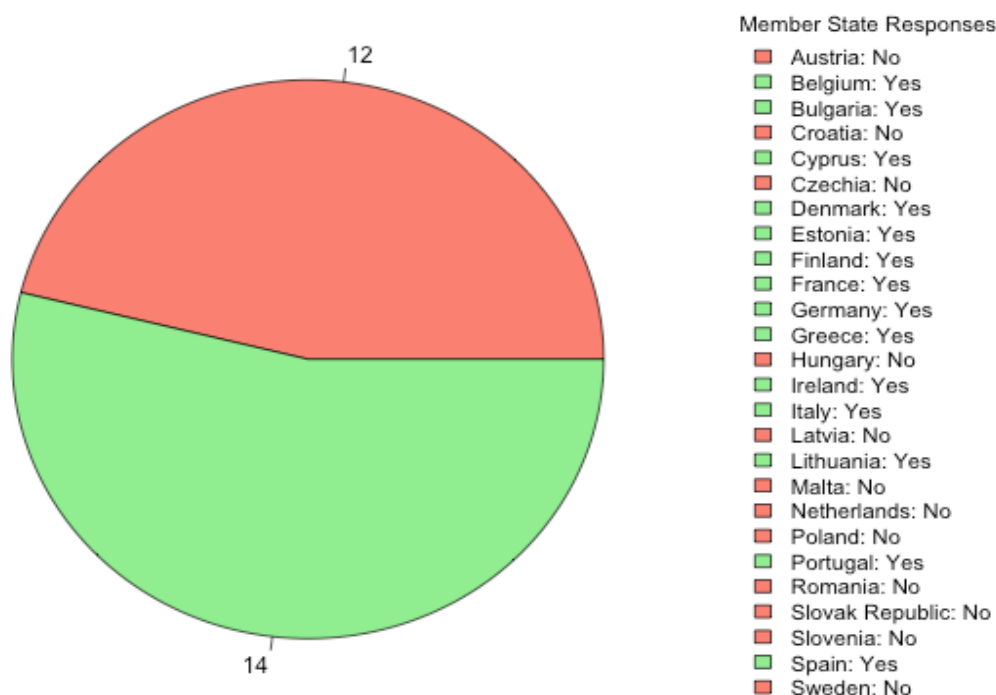


Chart 16: Has any other measure / action been taken to ensure a more coherent and coordinated regulatory and administrative approach to aquaculture?

e.g. guidance to different authorities involved in aquaculture development / licensing, a coordination system among different responsible public authorities, coordination with stakeholders).

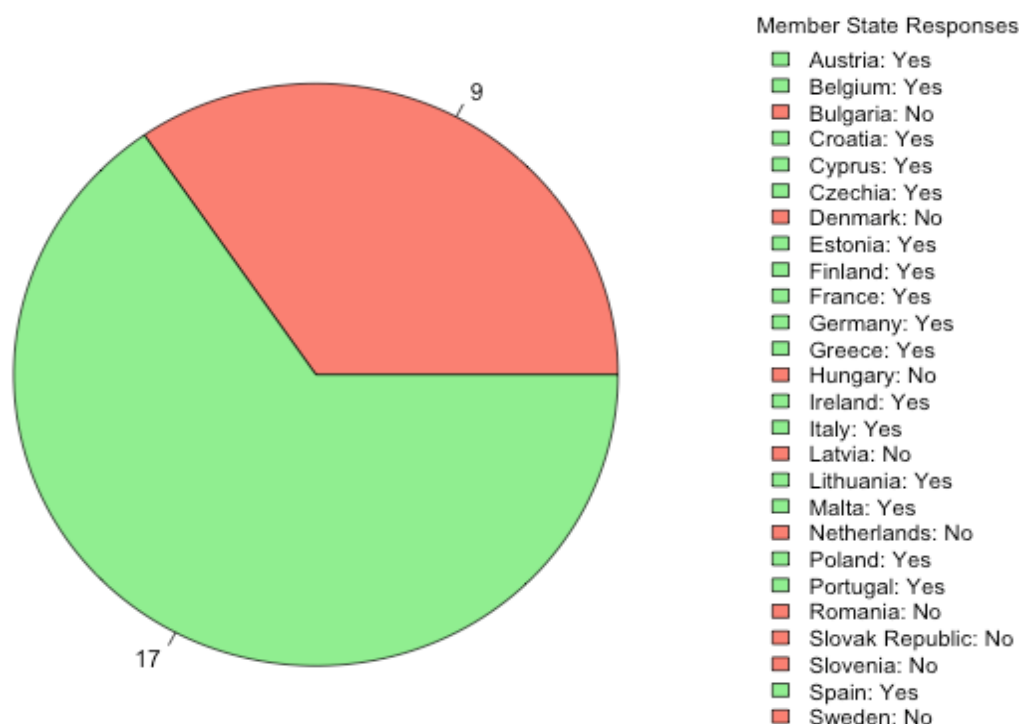


Chart 17: Is the system for introducing and processing applications for licences / renewal of existing licences digitalised?

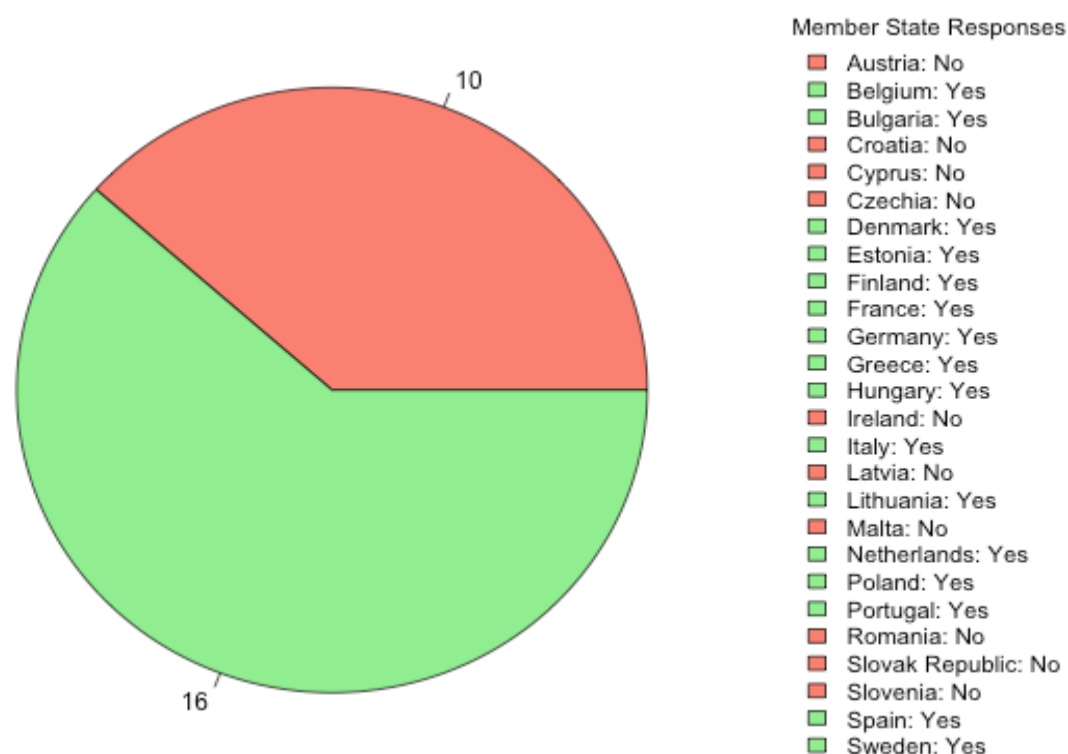


Chart 18: Have other procedures related to aquaculture been digitalised?

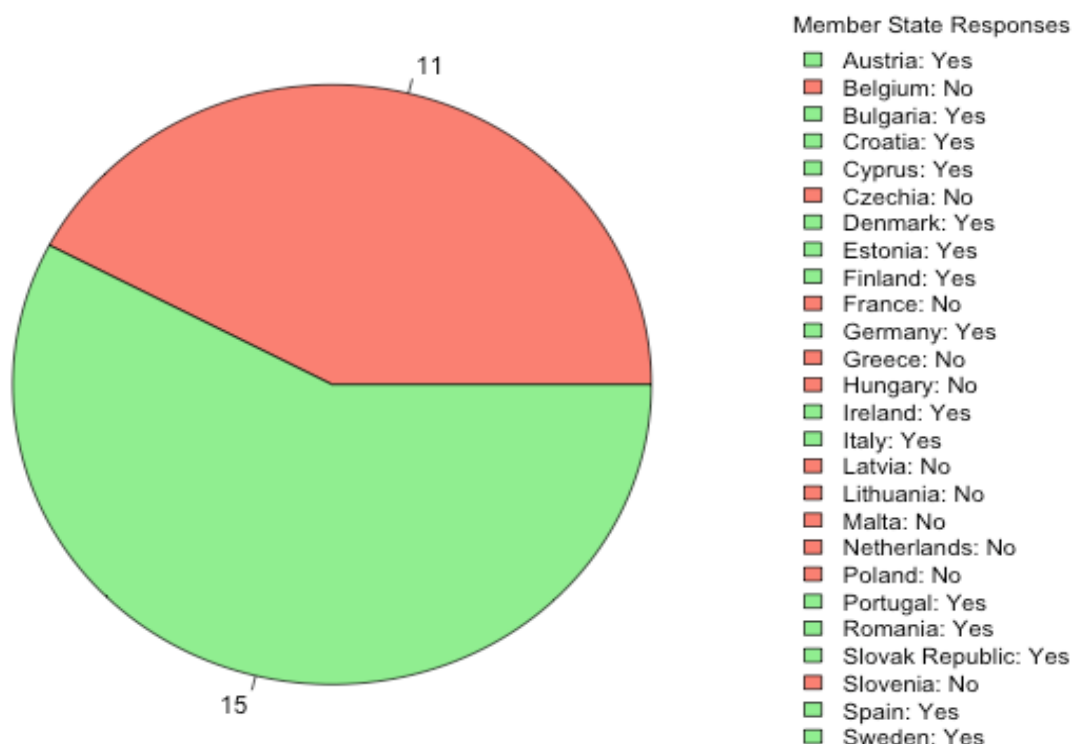


Chart 19: Have any codes of good practices (e.g. good husbandry practices) been developed in your Member State regarding farmed aquatic animal health related to aquaculture?

This may include initiatives from public authorities, research institutions or industry.

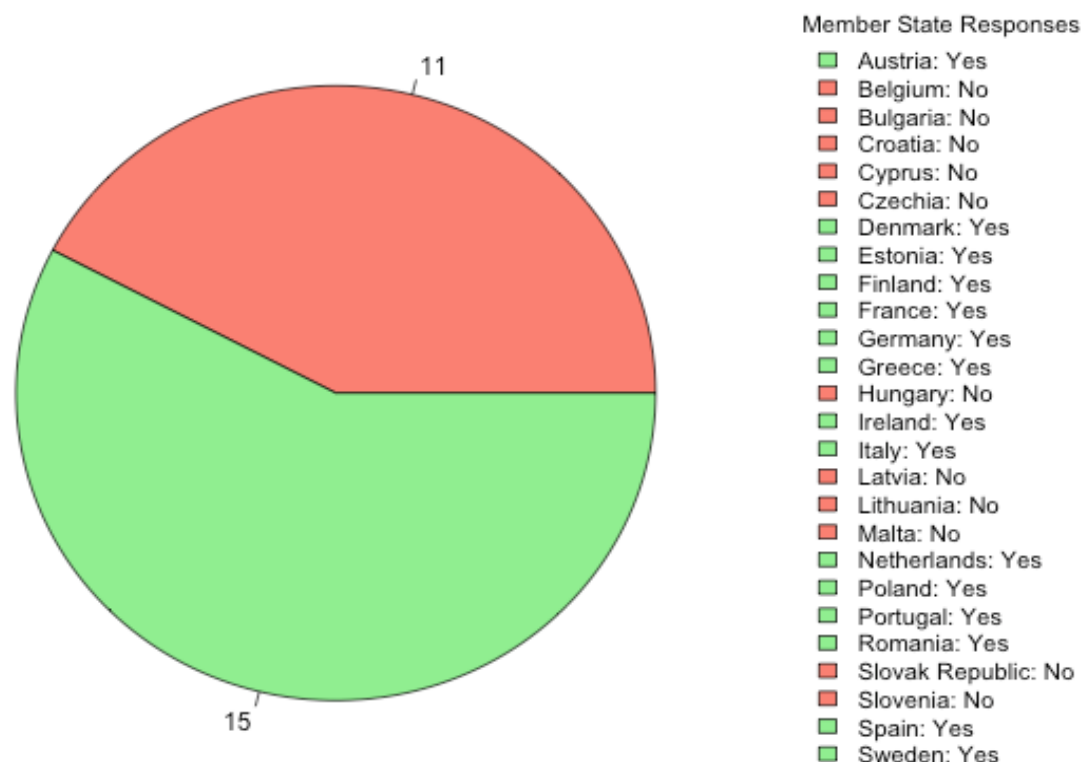


Chart 20: Have there been any research and innovation projects and / or other funded measures on aquatic animal health since 1 January 2021?

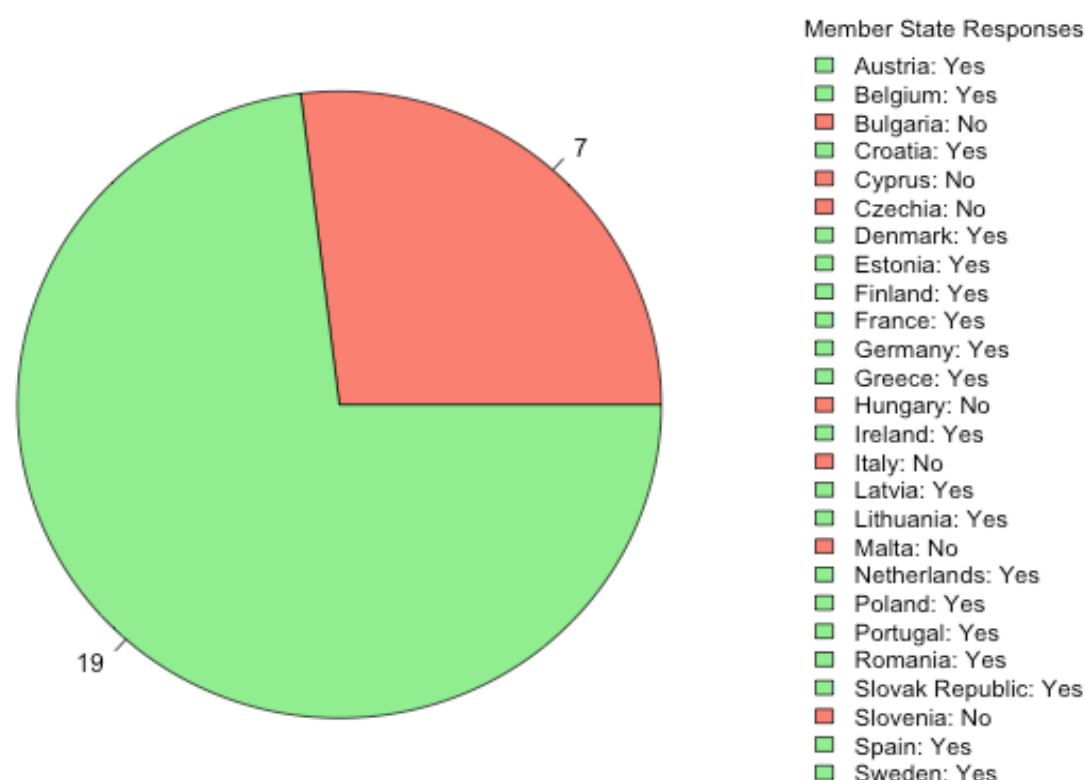


Chart 21: Have there been any disease prevention measures or programmes for aquaculture in your Member State since 1 January 2021 (e.g. vaccination campaigns)?

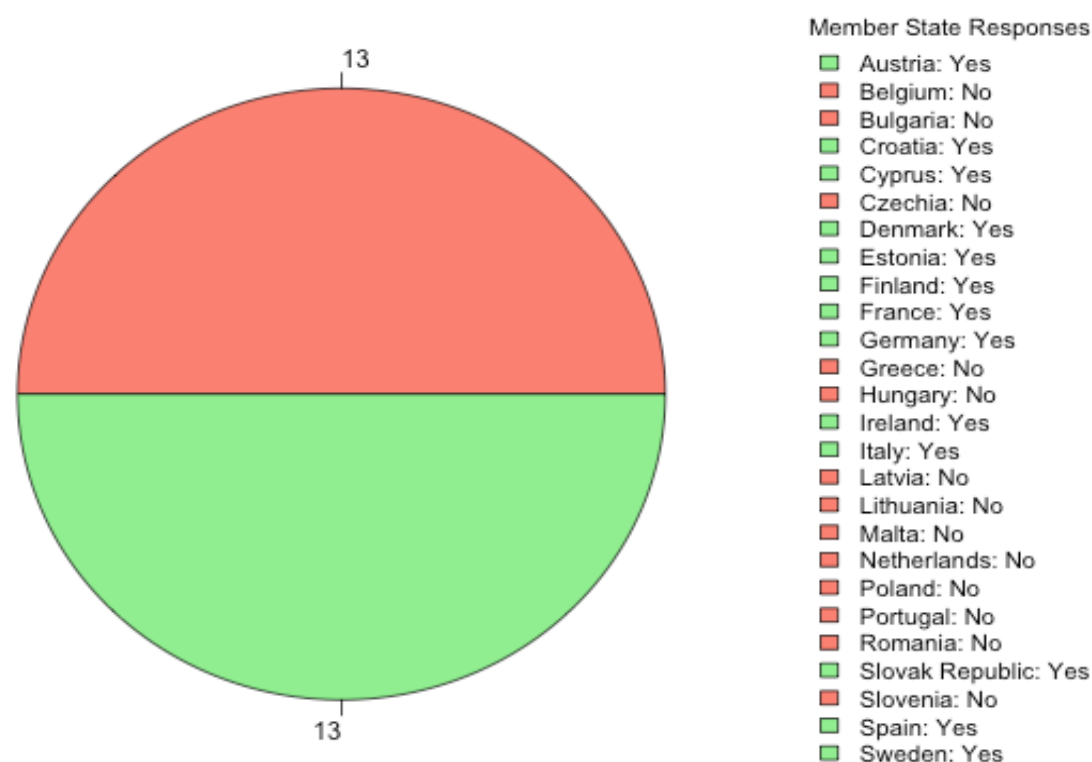


Chart 22: Have there been any training to Competent Authorities in your Member State on surveillance since 1 January 2021?

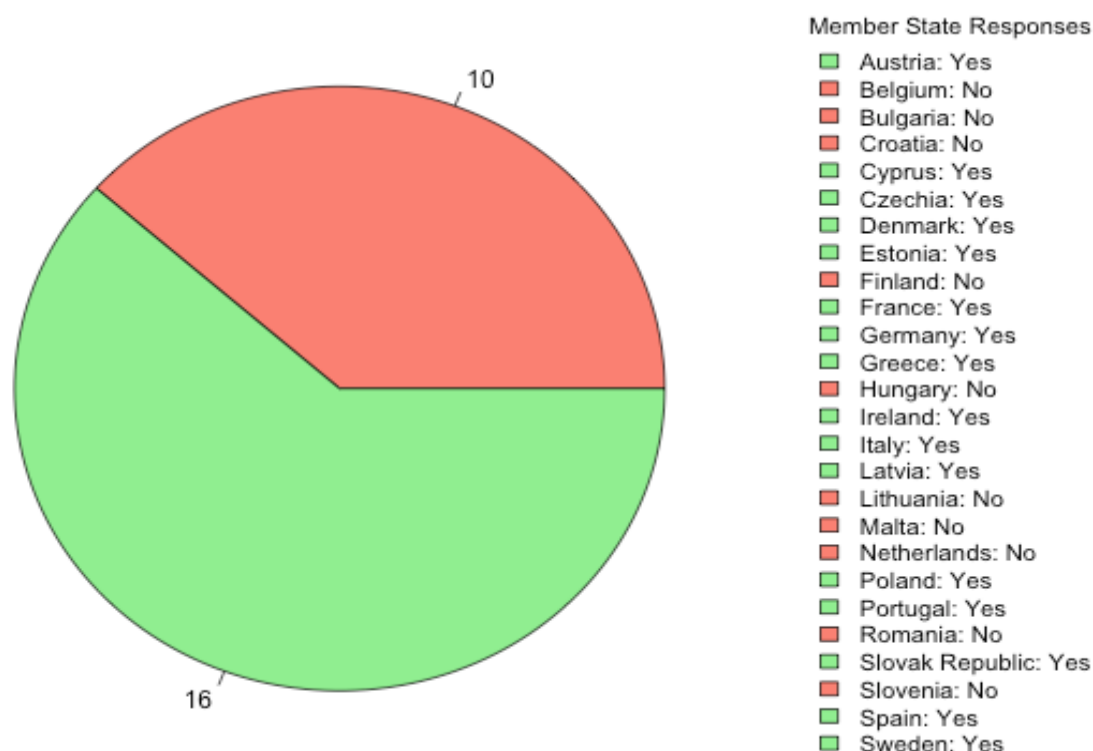


Chart 23: Have there been any training or workshops for members of the aquaculture sector on good husbandry practices since 1 January 2021?

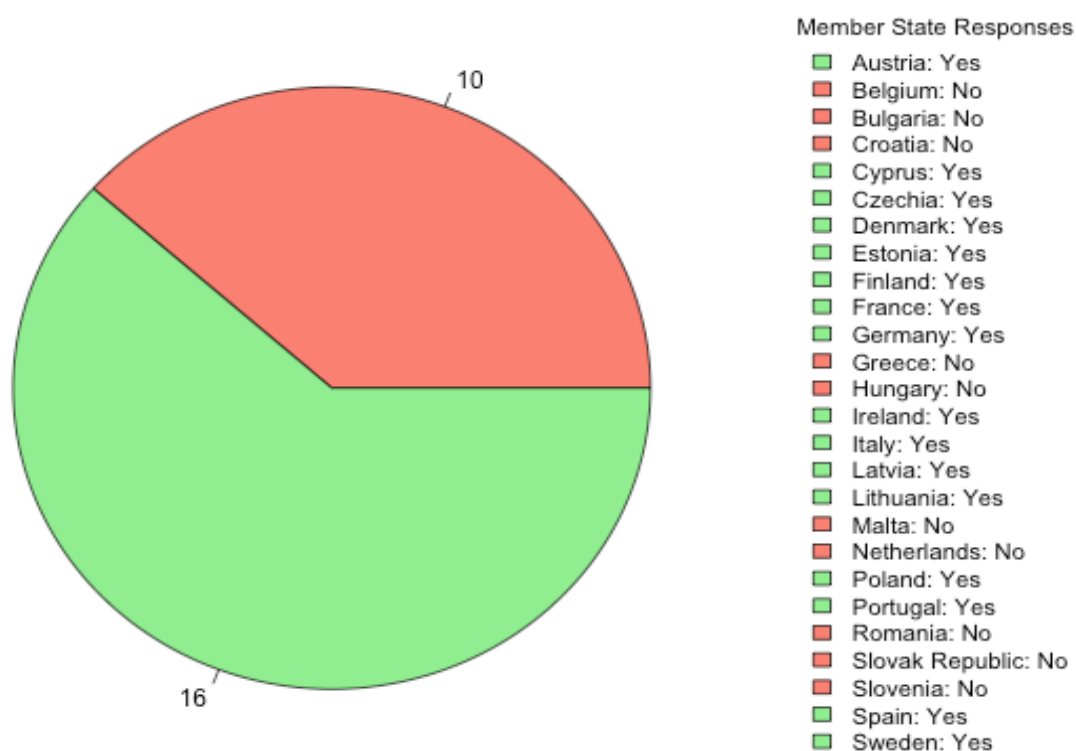


Chart 24: Have there been any research and innovation projects and / or other funded measures on public health issues linked to aquaculture since 1 January 2021?

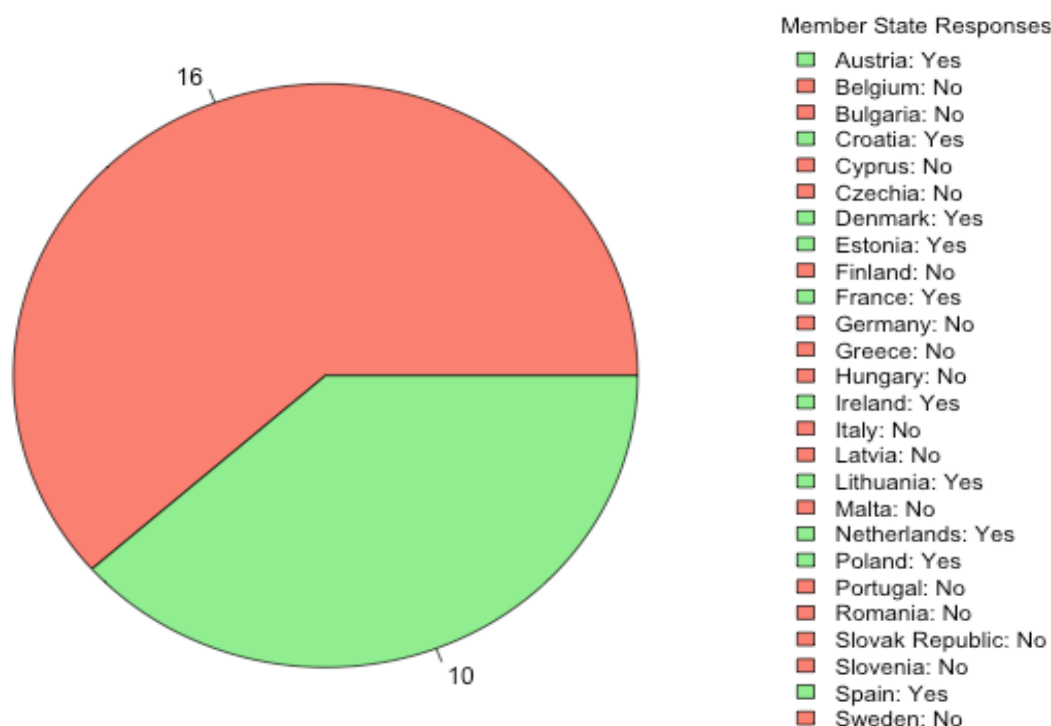


Chart 25: Have there been any measures, programmes, or funded projects or investments applied to adapt the aquaculture sector to climate change in your MS since 1 January 2021?

These may include, among others, research and innovation projects and training to aquaculture producers on good practices.

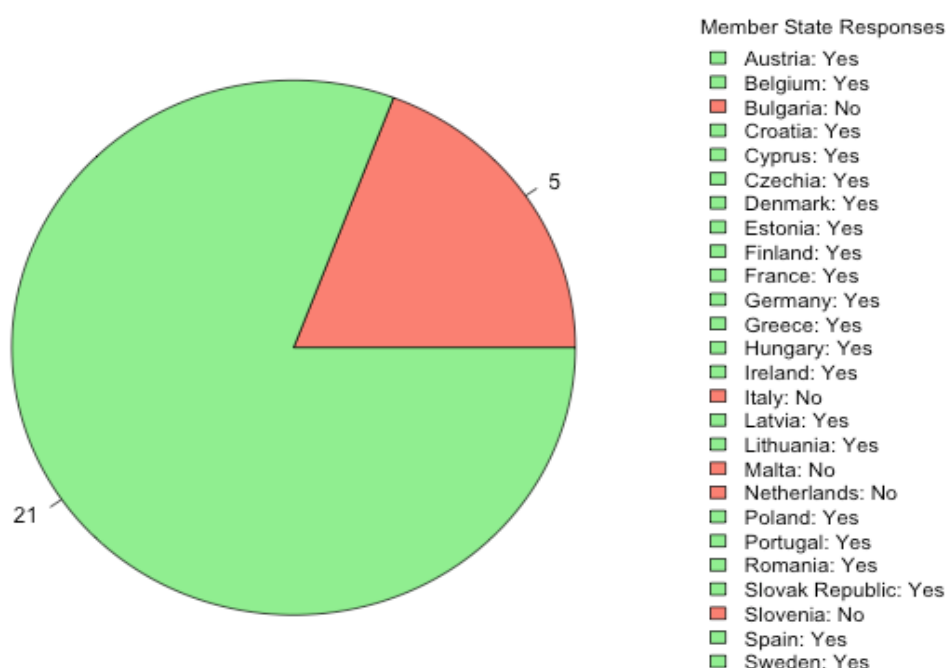


Chart 26: Have there been any measures, programmes, funded projects or investments to support the decarbonisation of the aquaculture sector in your Member State since 1 January 2021?

These may include, among others, research and innovation projects, funding on energy efficiency or the use of renewable energy, and training to aquaculture producers on good practices.

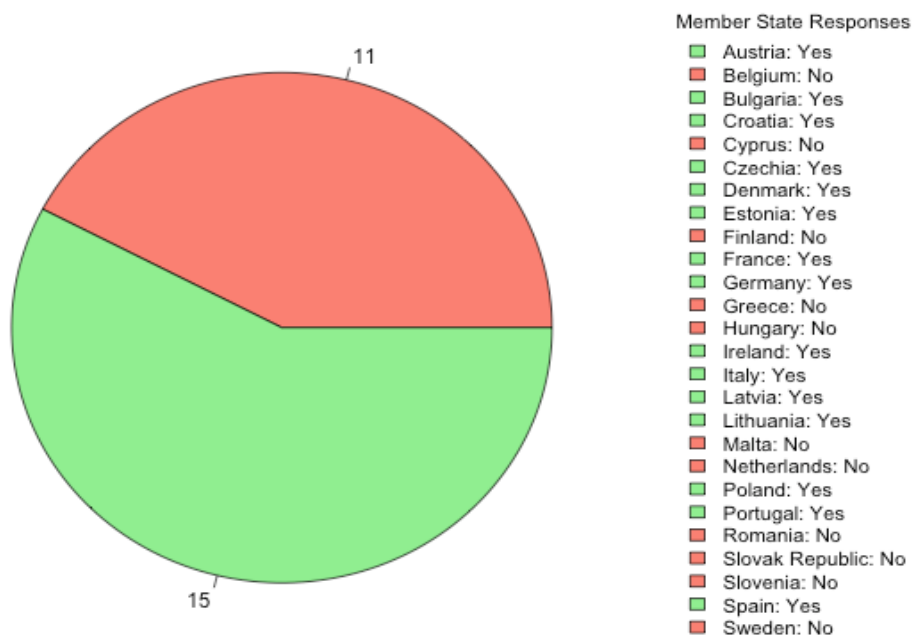


Chart 27: Are there any aquaculture producer organisations and / or inter-branch organisations linked to aquaculture in your Member State?

Producer organisations and inter-branch organisations should be understood as defined according to the CMO Regulation.

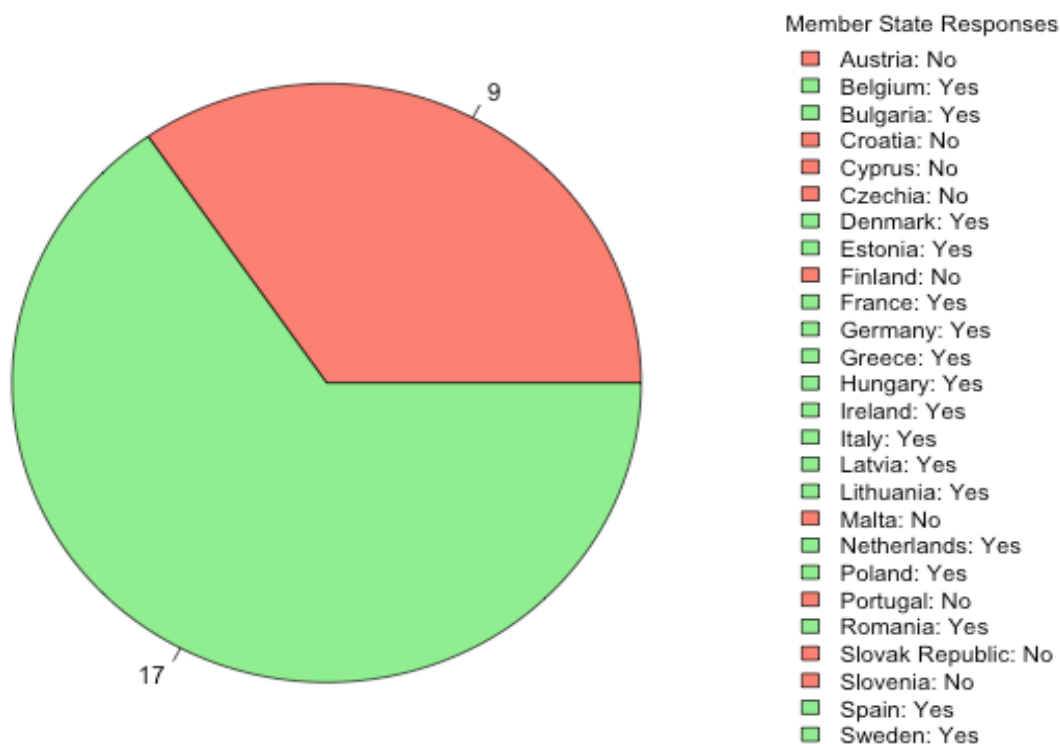


Chart 28: Have any new such organisations been created since January 2021, or are you aware of efforts to create them?

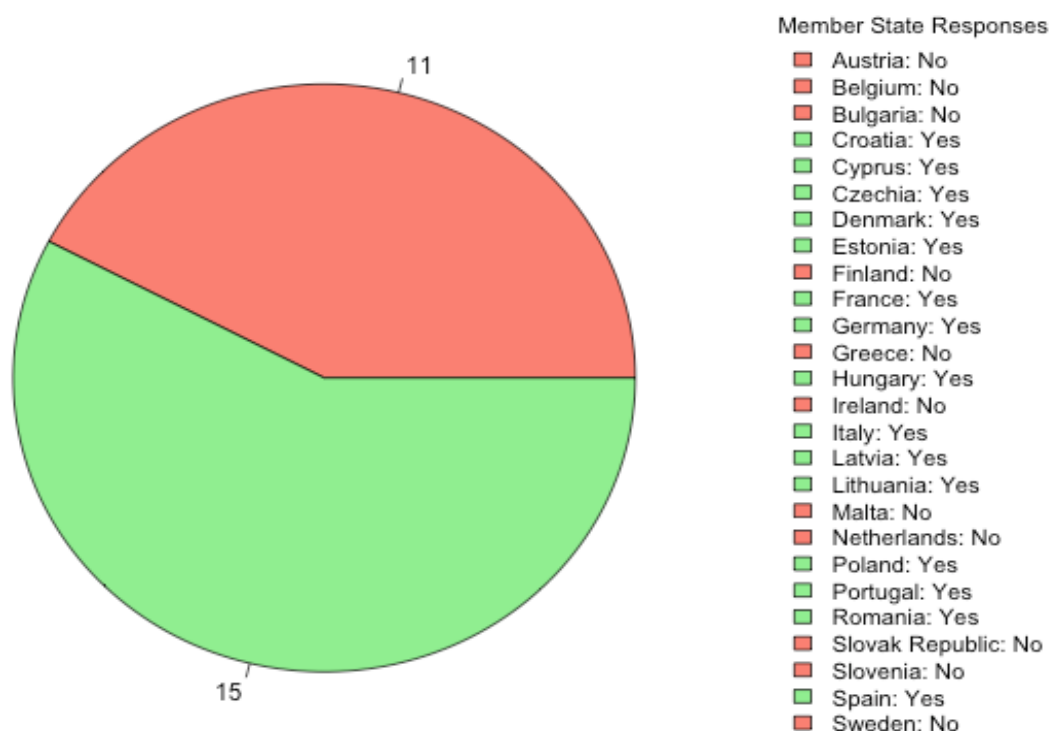


Chart 29: Are you aware of any other form of organisation of aquaculture producers and other actors in the aquaculture value chain in your Member State other than producer organisations and / or inter-branch organisations, as defined according to the CMO Regulation?

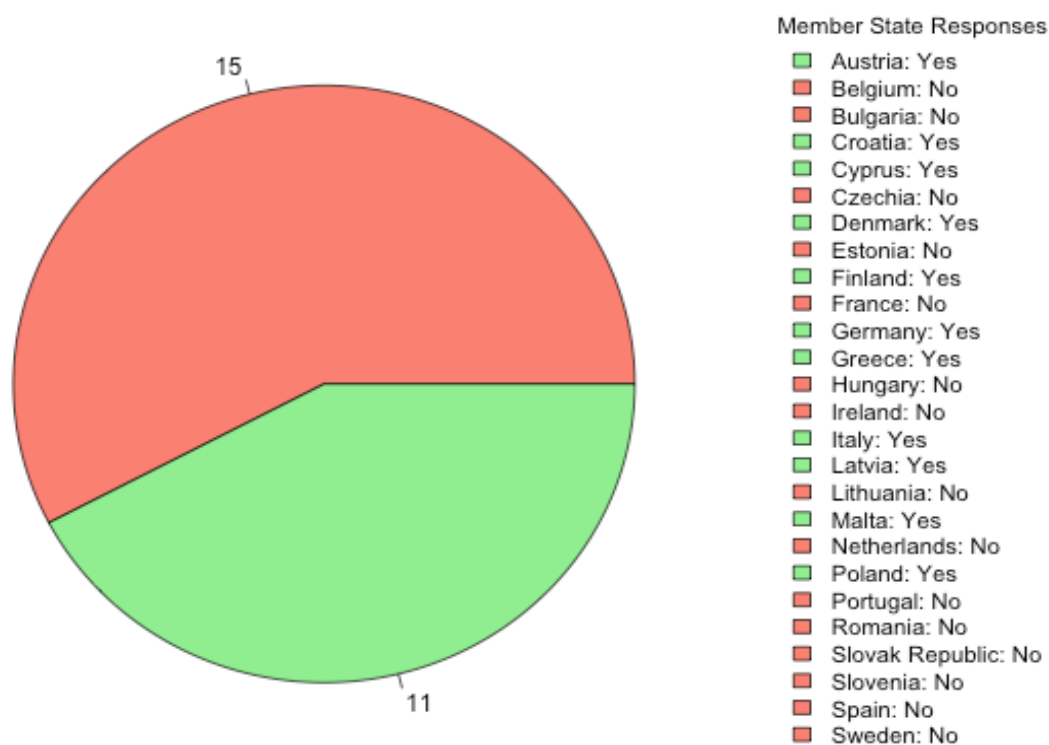


Chart 30: Are there any public or industry initiatives to provide better traceability of aquaculture products?

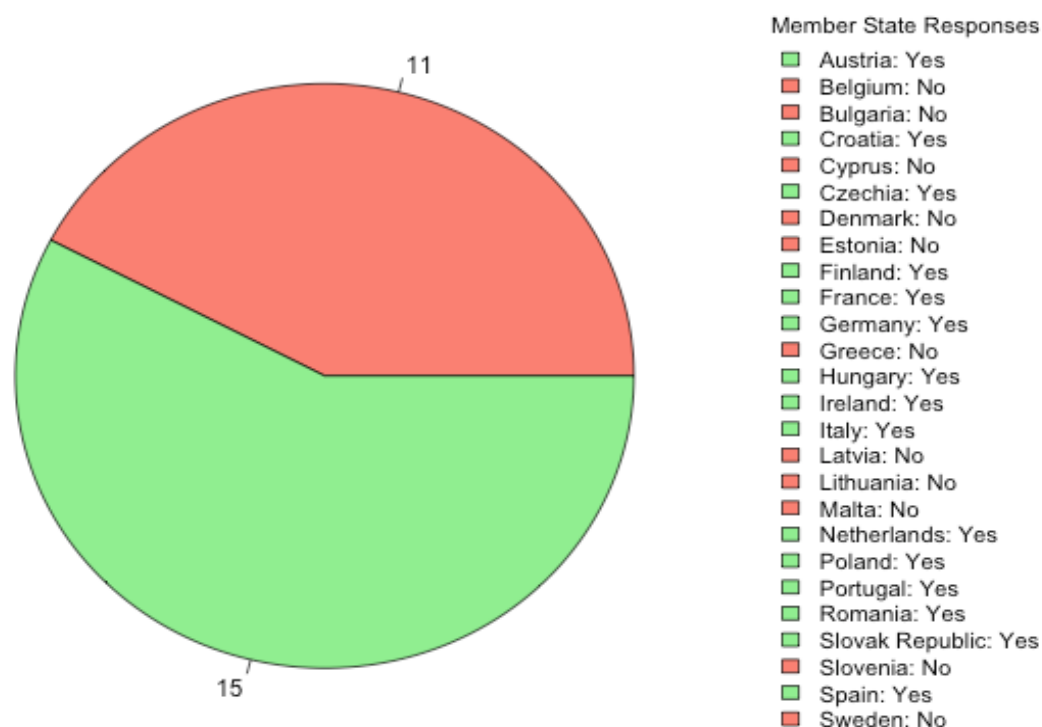


Chart 31: Have any such initiatives been created since 1 January 2021?

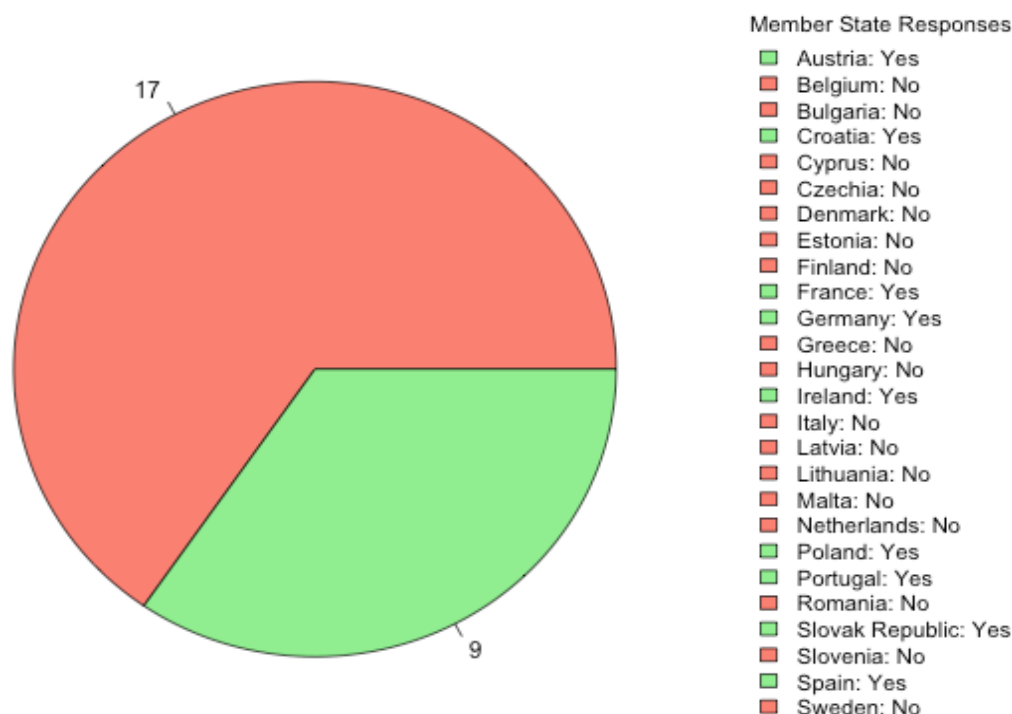


Chart 32: Have new production systems been introduced in your Member State since January 2021 compared to systems in place before?

This might include systems in research and pilot phase (please specify when this is the case). Some examples could be: IMTA, aquaculture in multi-use platforms, aquaculture further offshore, aquaponics, RAS, pond-in-pond systems, etc.

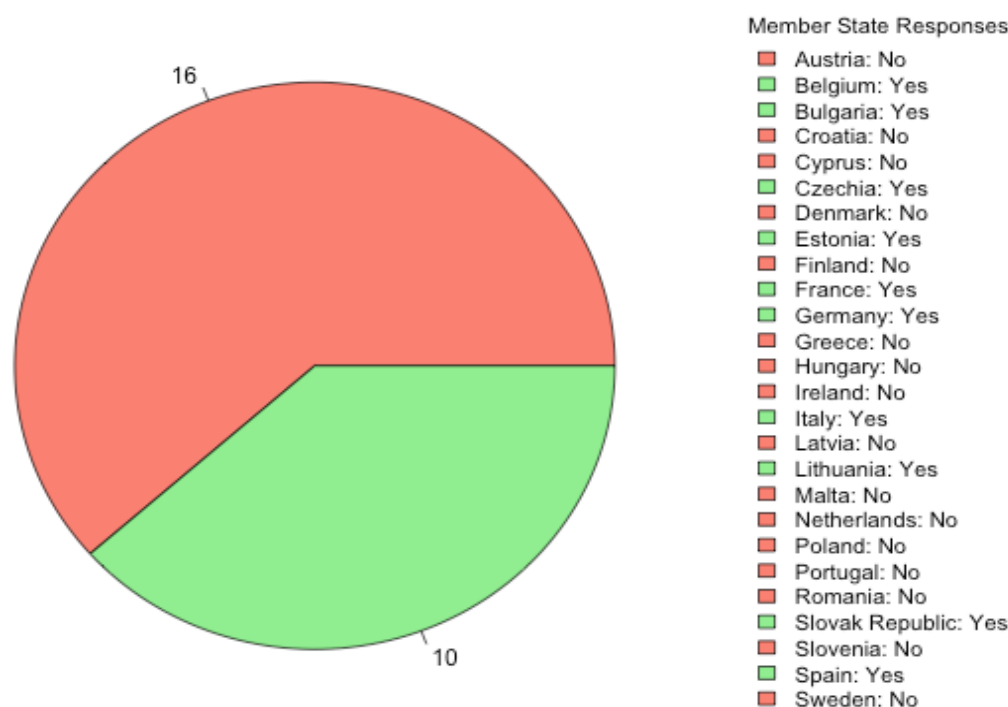


Chart 33: Do environmental strategies in your Member State include the aquaculture sector?

These include WFD and MSFD, among others.

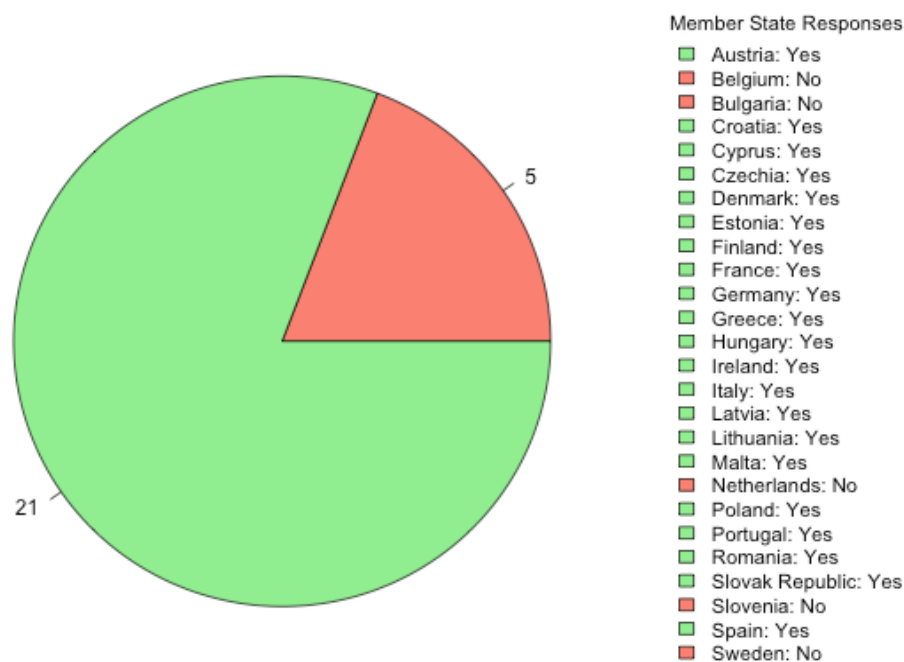


Chart 34: Have there been any measures, programmes, funded projects or investments applied to further mitigate the environmental impact of aquaculture in your Member State since 1 January 2021?

These may include, among others, research and innovation projects, funding on the mitigation of negative environmental impact of aquaculture or promoting positive environmental impact, and training to aquaculture producers on good practices. For reference, see issues identified in section 2.2.1 of the Strategic Guidelines.

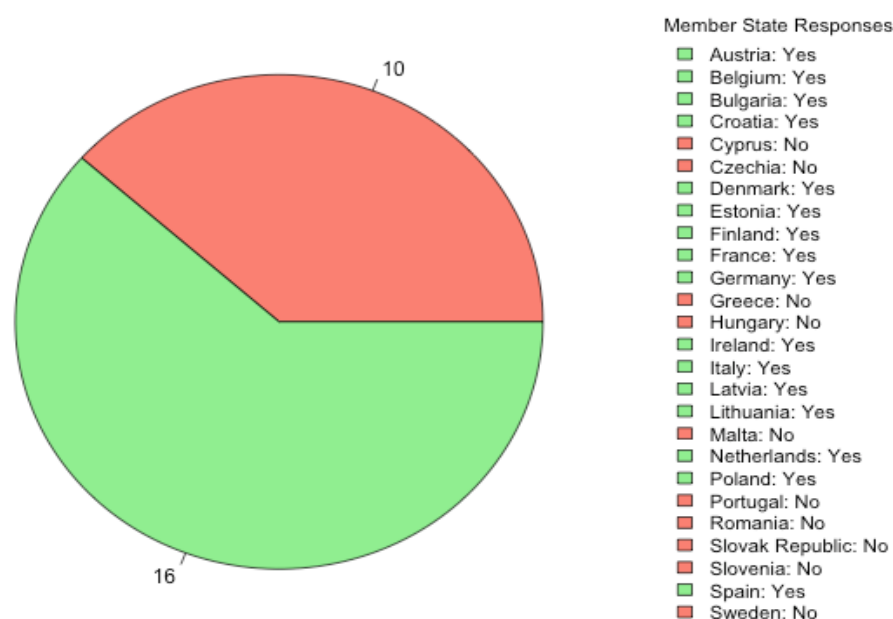


Chart 35: Have there been any measures to promote the use of more sustainable feed for fed aquaculture since 1 January 2021 in your MS?

These may include, among others, research and innovation projects or funding of alternative feed.

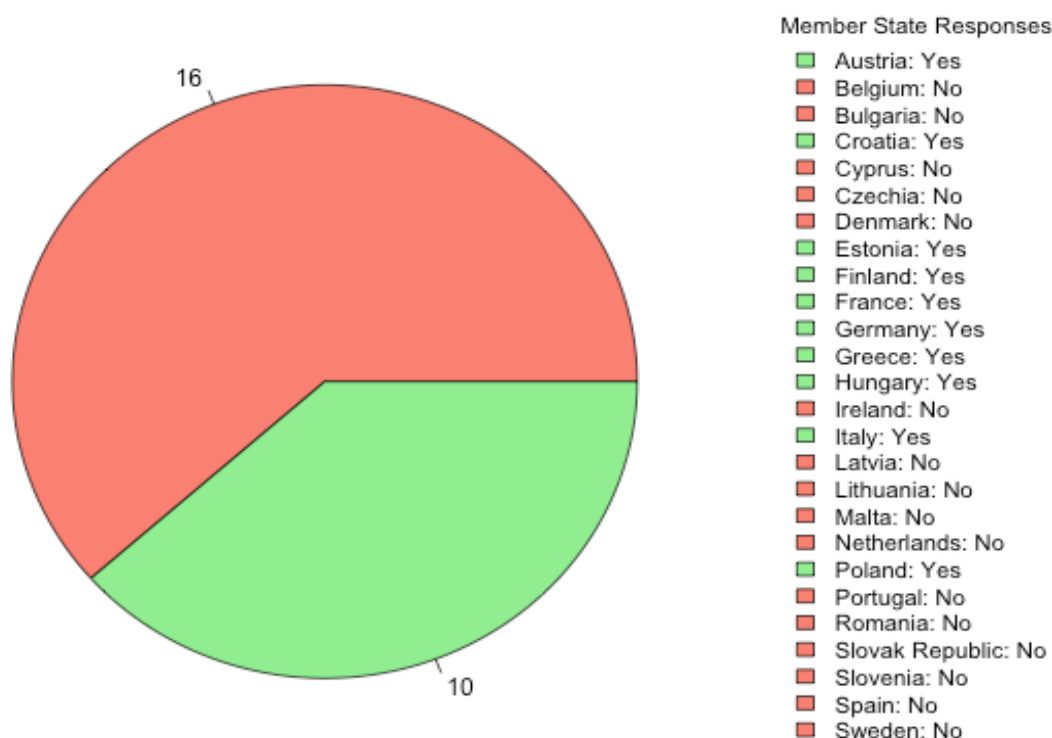


Chart 36: Are there any aquaculture farms in your Member State located in nature protected areas (e.g. MPAs, Natura 2000 sites)?

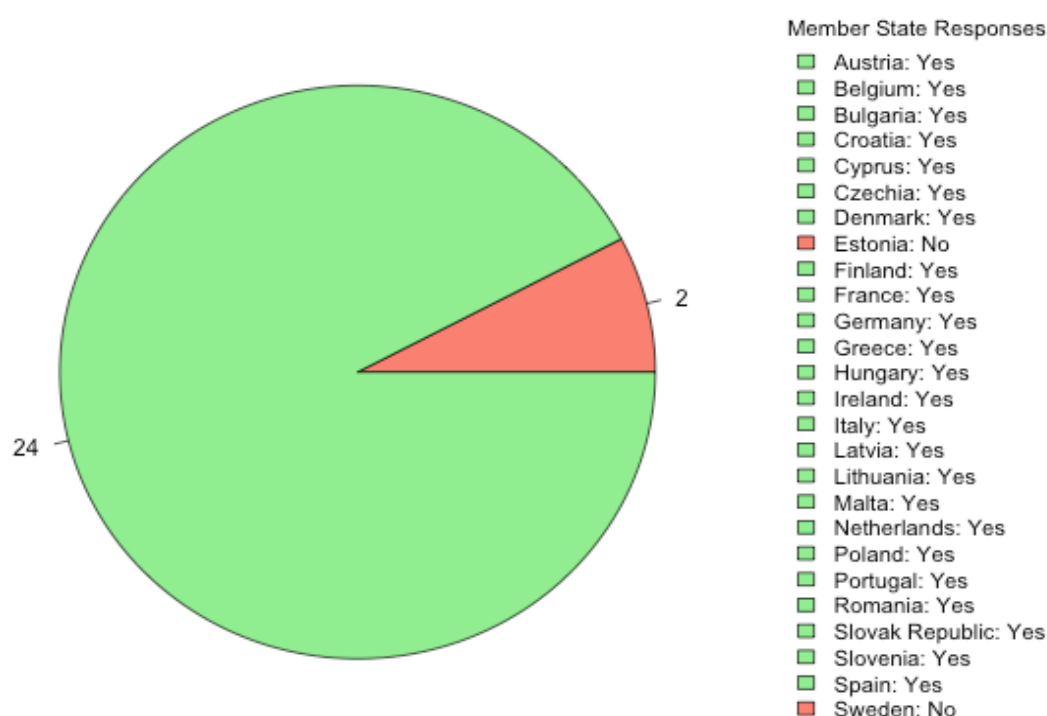


Chart 37: Are there any aquaculture farms involved in extensive or semi-extensive aquaculture in ponds and wetlands in your Member State?

Extensive: low rearing density and little or no food input / Semi-intensive: medium density and additional food.

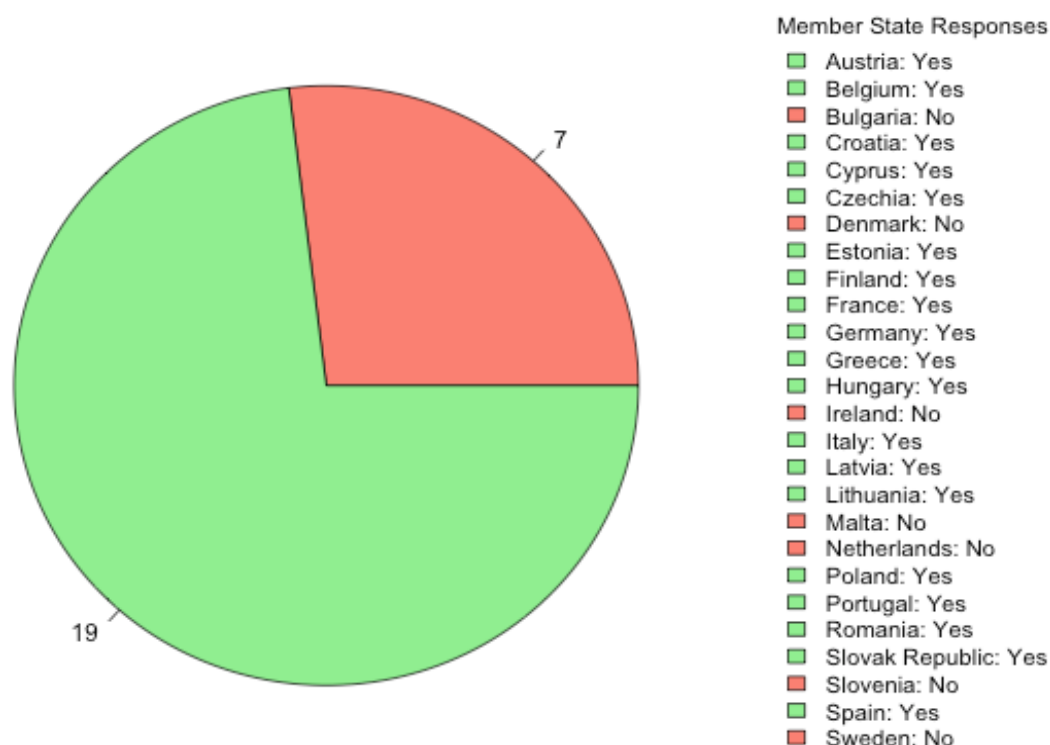


Chart 38: Have environmental performance indicators been established in your Member States for the purpose of environmental assessment and monitoring of aquaculture activities?

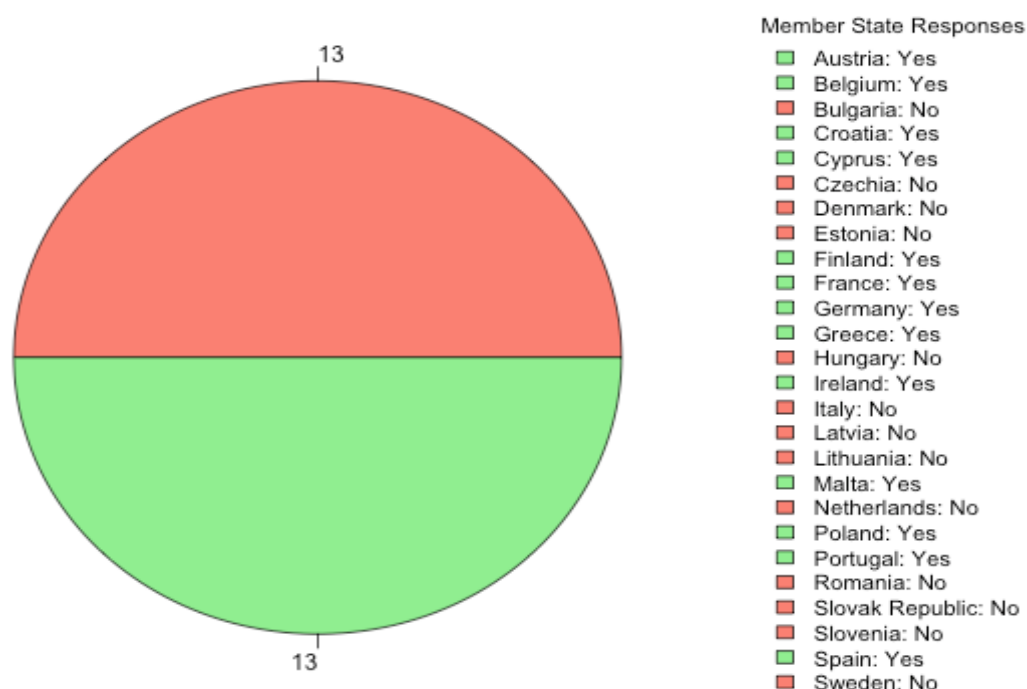


Chart 39: Has any model / reference environmental monitoring plan been developed in your Member State for aquaculture activities?

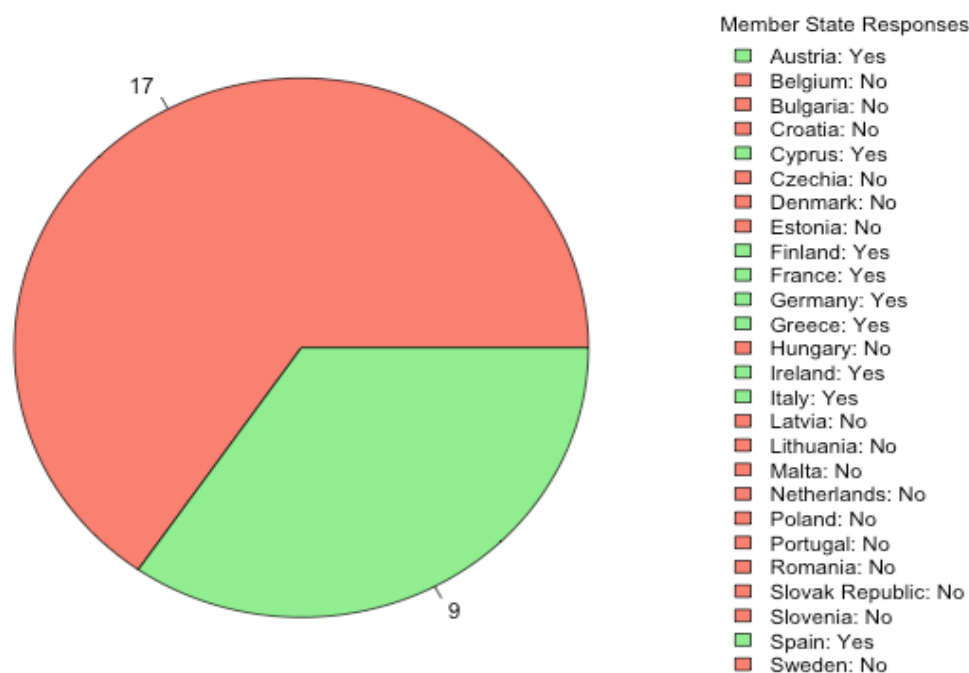


Chart 40: Have there been any measures, programmes, funded projects or investments on the introduction of alien species in aquaculture in your Member State since 1 January 2021?

These may include, among others, research and innovation projects, funding on the introduction of alien species in aquaculture, and training to aquaculture producers on good practices.

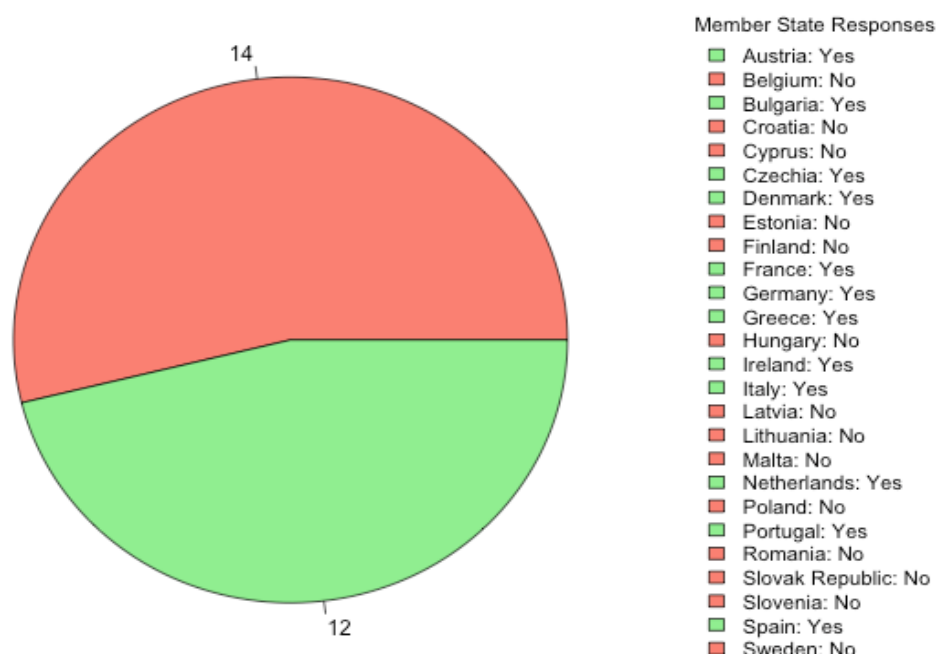


Chart 41: Is welfare of farmed aquatic animals part of national animal welfare strategies in your Member State?

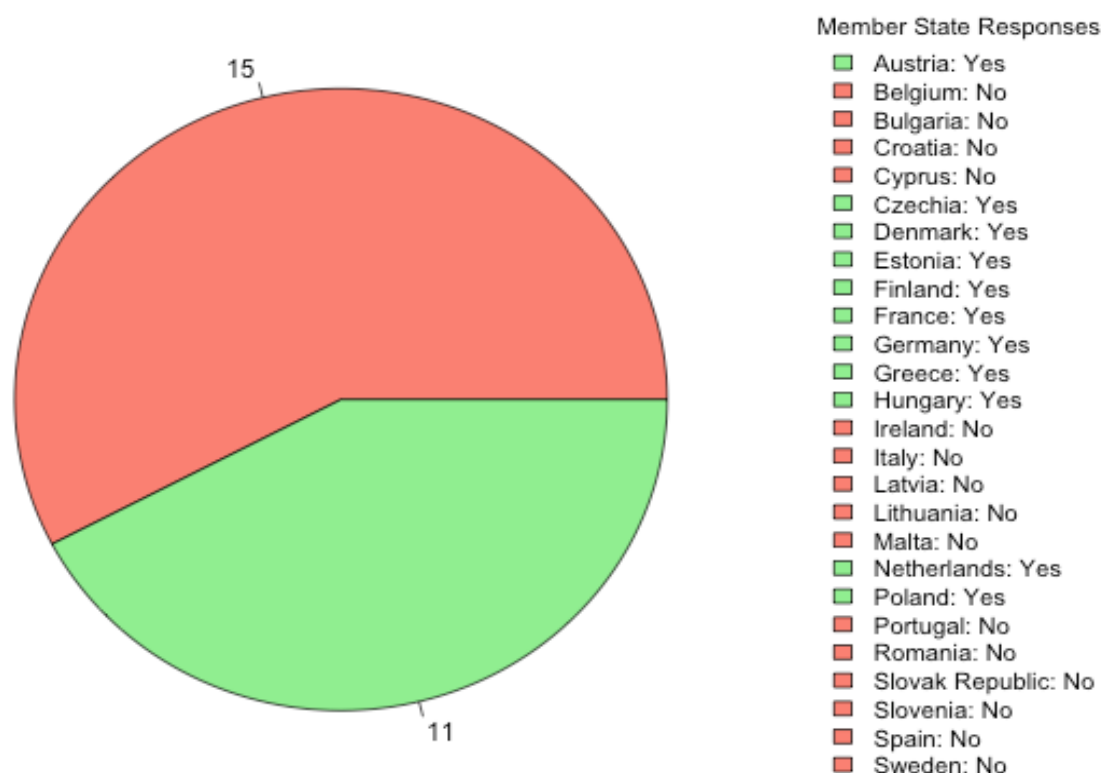


Chart 42: Has any code of good practices to ensure the welfare of farmed aquatic animals been developed in your Member State?

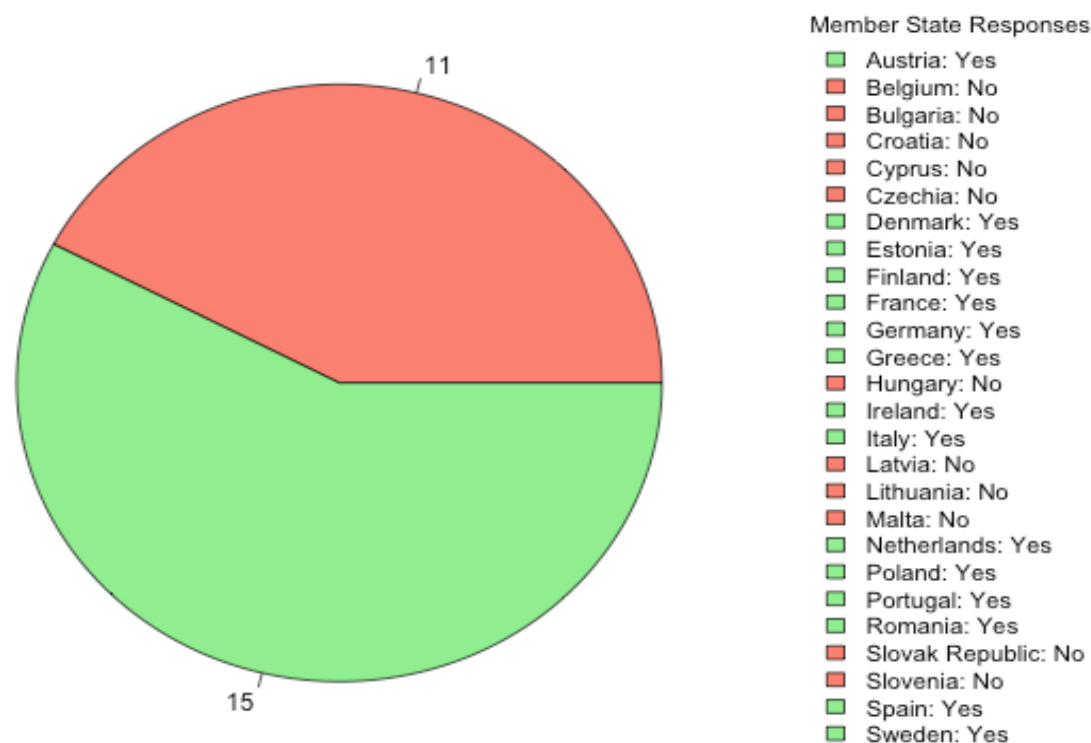


Chart 43: Have indicators for assessing the welfare of farmed aquatic animals been developed in your Member State?

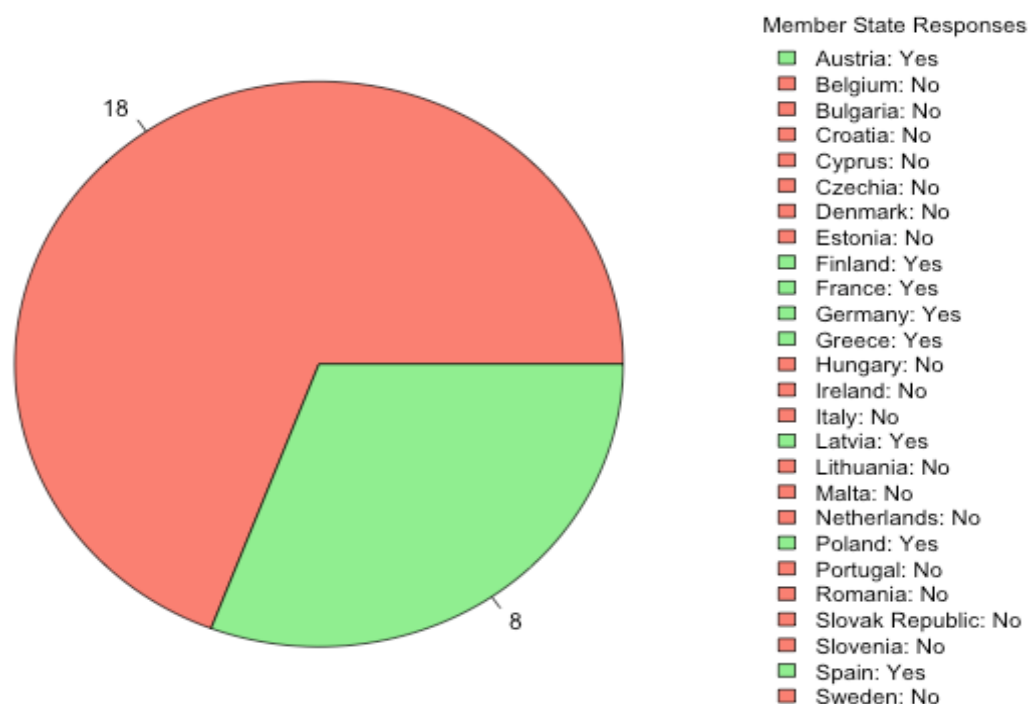


Chart 44: Have there been any measures, programmes, funded projects or investments applied to improve animal welfare of farmed aquatic animals in your Member State since 1 January 2021?

These include, among others, research and innovation projects, funding of measures on the welfare of farmed aquatic animals, and training to aquaculture producers on good practices.

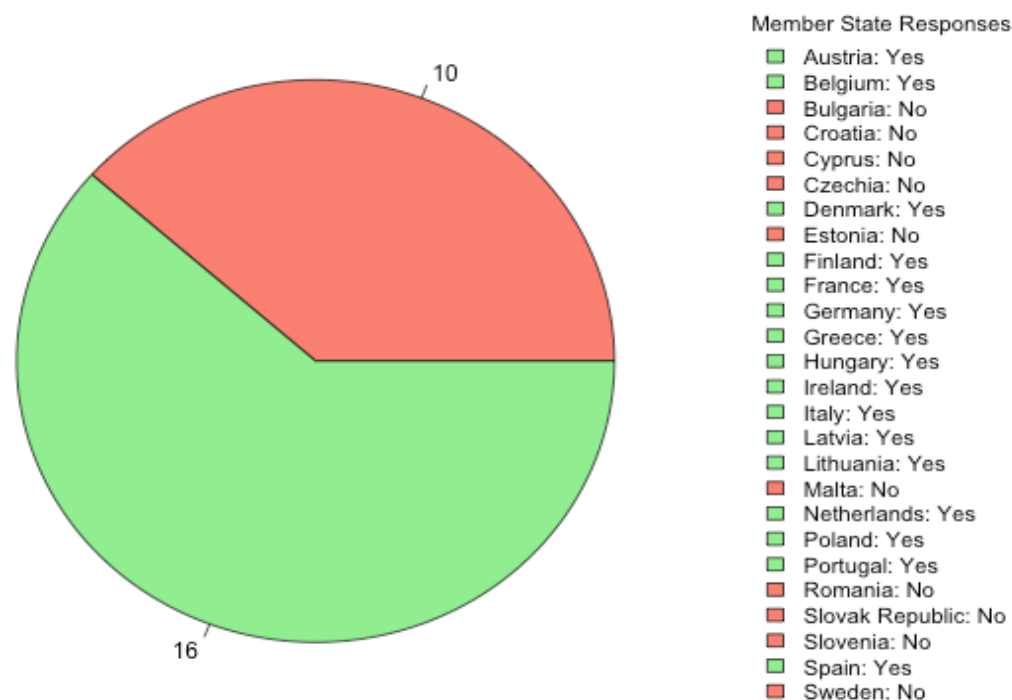


Chart 45: Have any information / communication campaigns on aquaculture been developed / launched in your Member State since 1 January 2021?

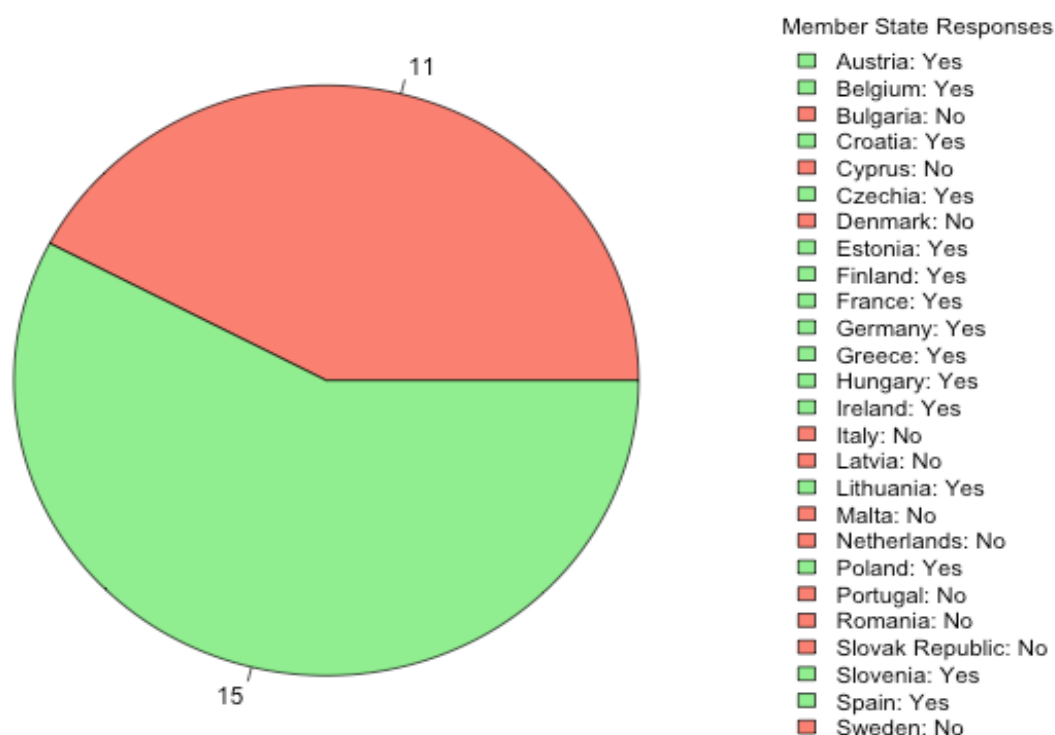


Chart 46: Have any public or private initiatives been adopted to provide information on aquaculture products to the consumer (e.g. codes of conduct, traceability, information to HORECA)?

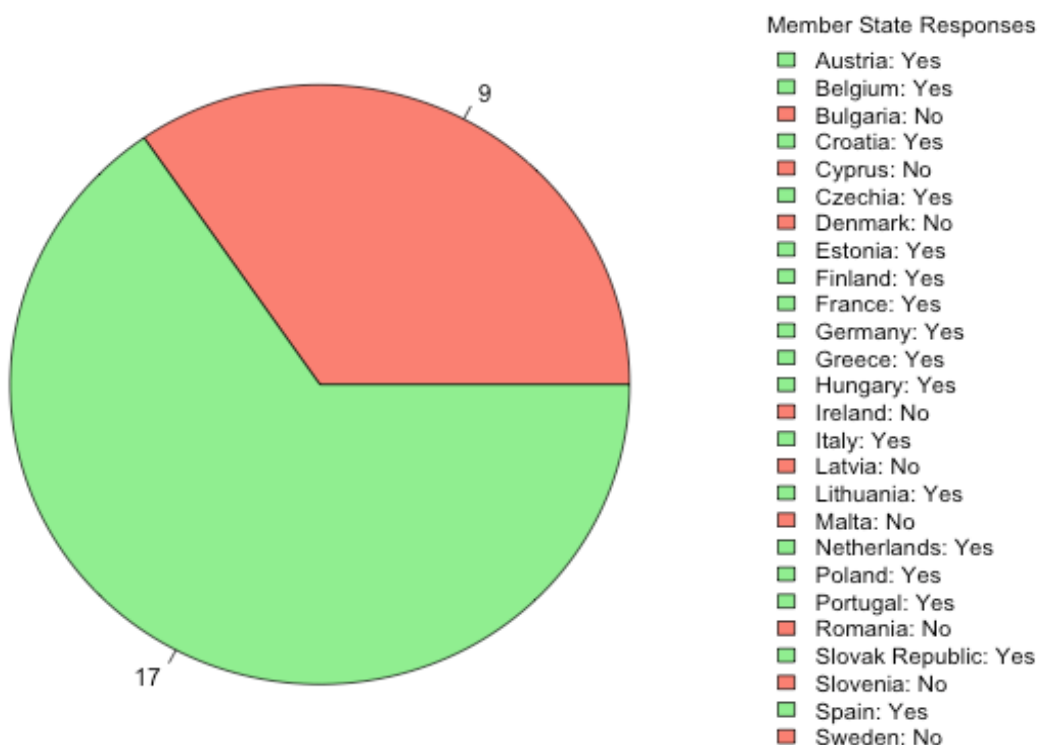


Chart 47: Have any quality scheme or label applicable to aquaculture products been developed in your Member State since 1 January 2021?

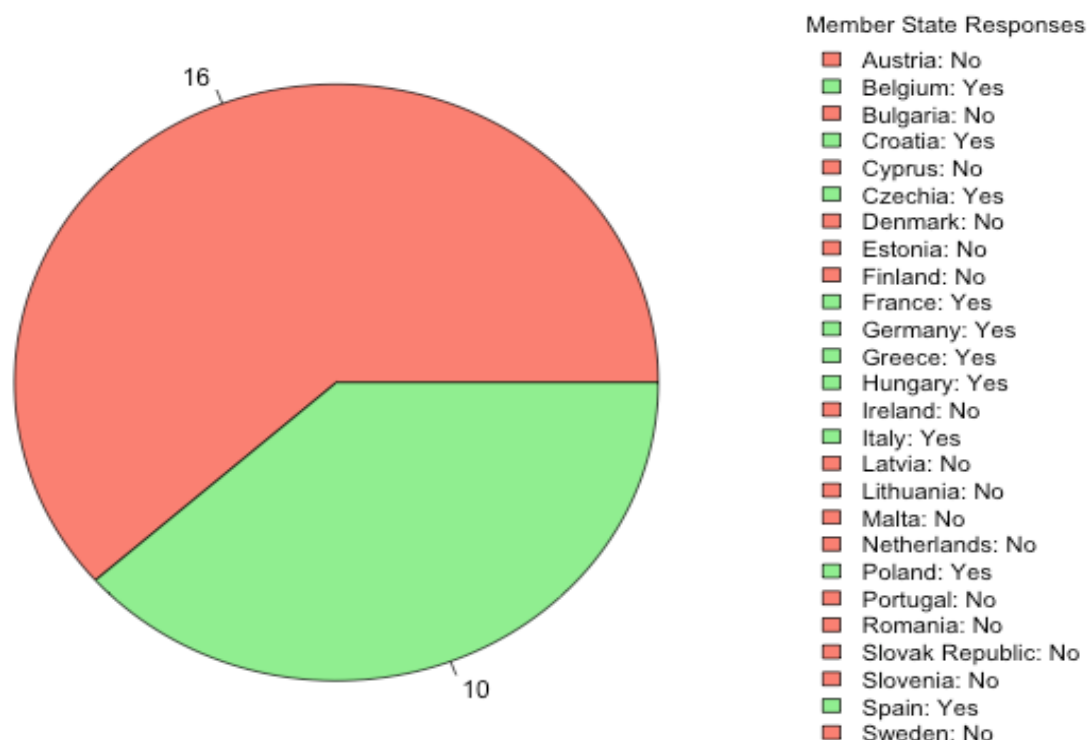


Chart 48: Have any geographical indications been granted since 1 January 2021 to aquaculture products in your Member State?

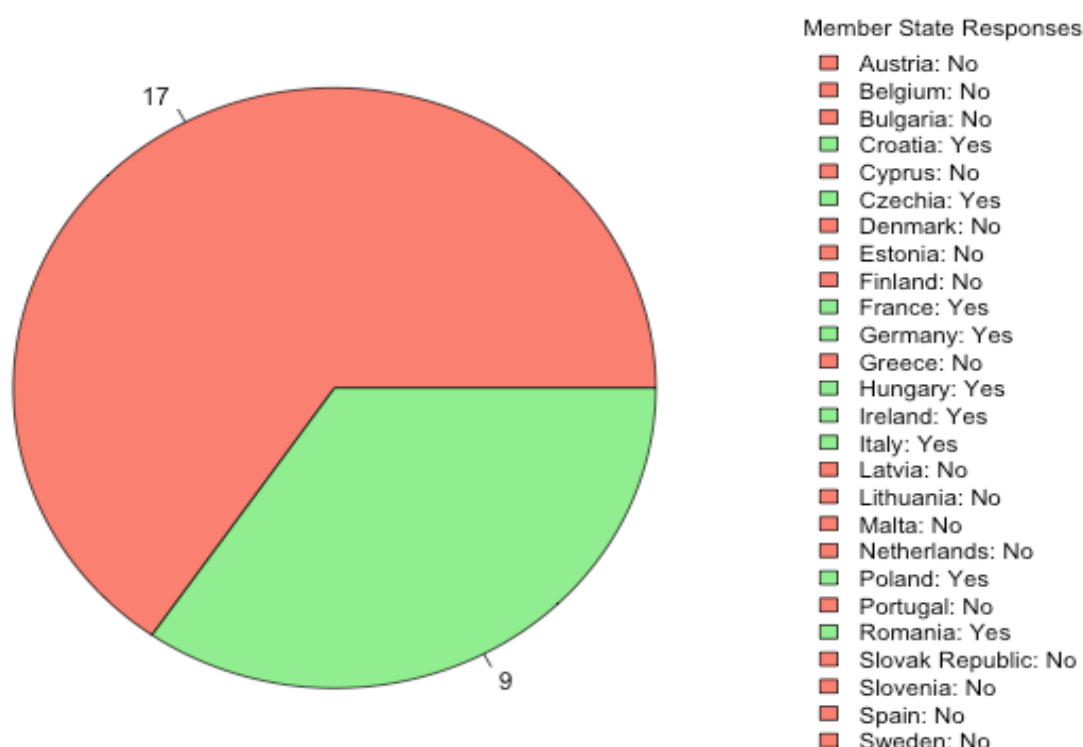


Chart 49: Have any short-supply circuits involving aquaculture products been developed in your Member State since 1 January 2021? (e.g. online applications / platforms for direct sales to consumers).

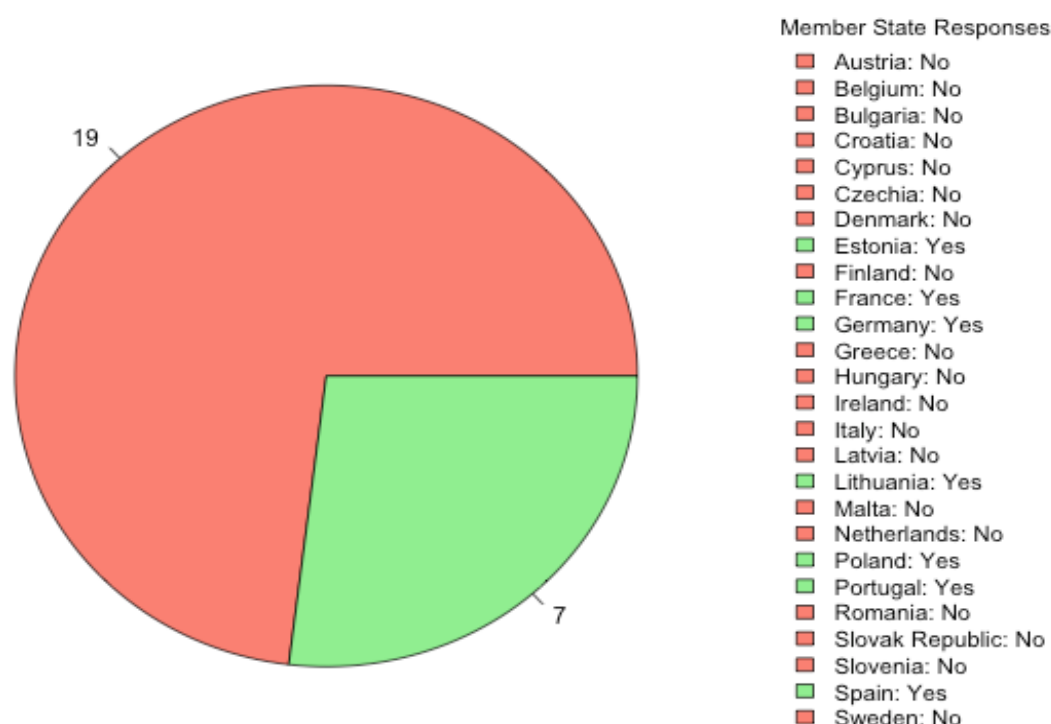


Chart 50: Has there been in your Member State any measure / initiative to involve local stakeholders in the planning and development of aquaculture activities?

E.g. consultation with or establishment of a platform of local stakeholders).

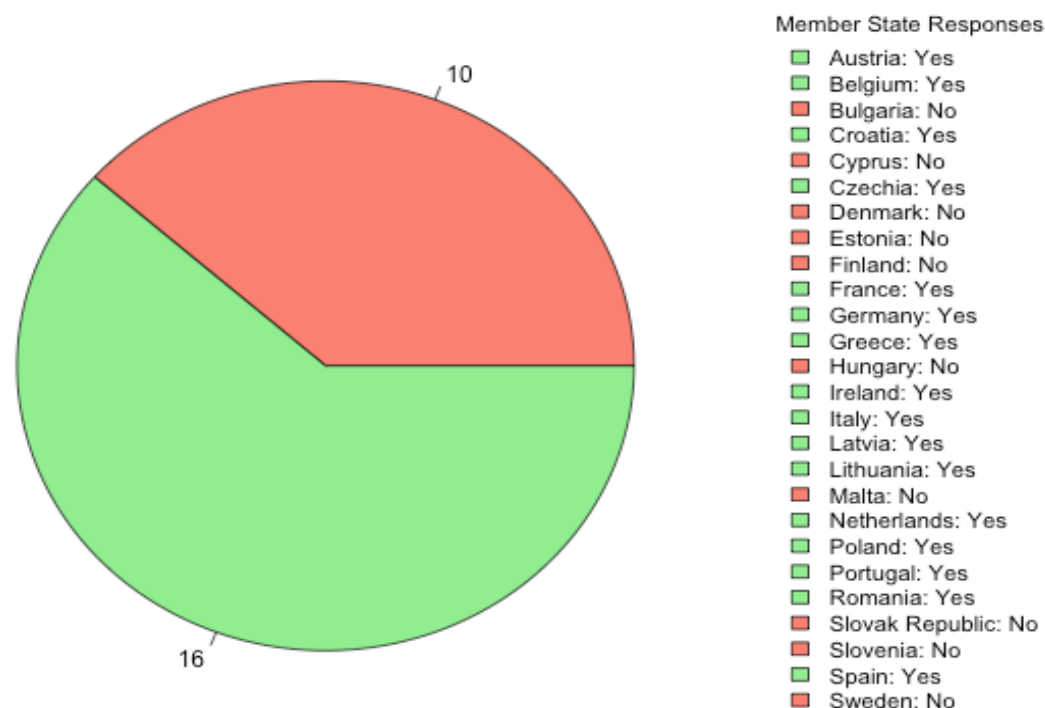


Chart 51: Has there been in your Member State any measure / initiative to foster synergies between aquaculture and other activities

E.g. fisheries, tourism, processing, etc.) at local level?

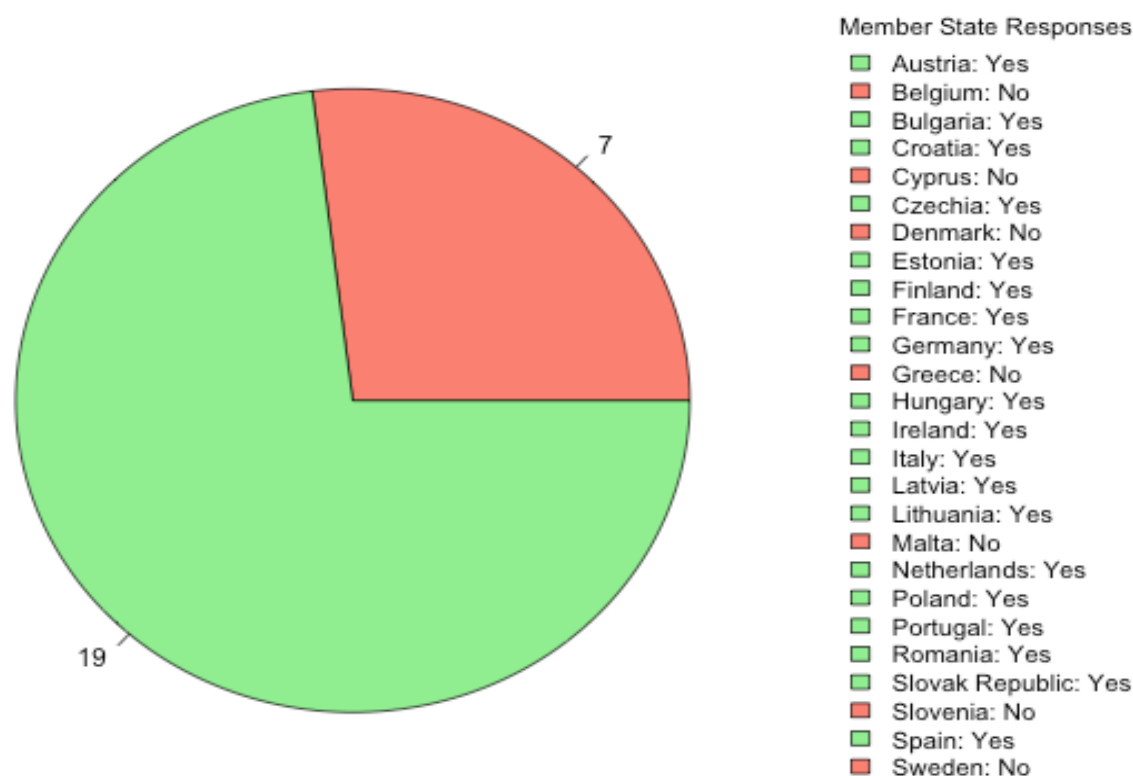


Chart 52: Are there any compulsory data reporting requirements on aquaculture in your Member State?

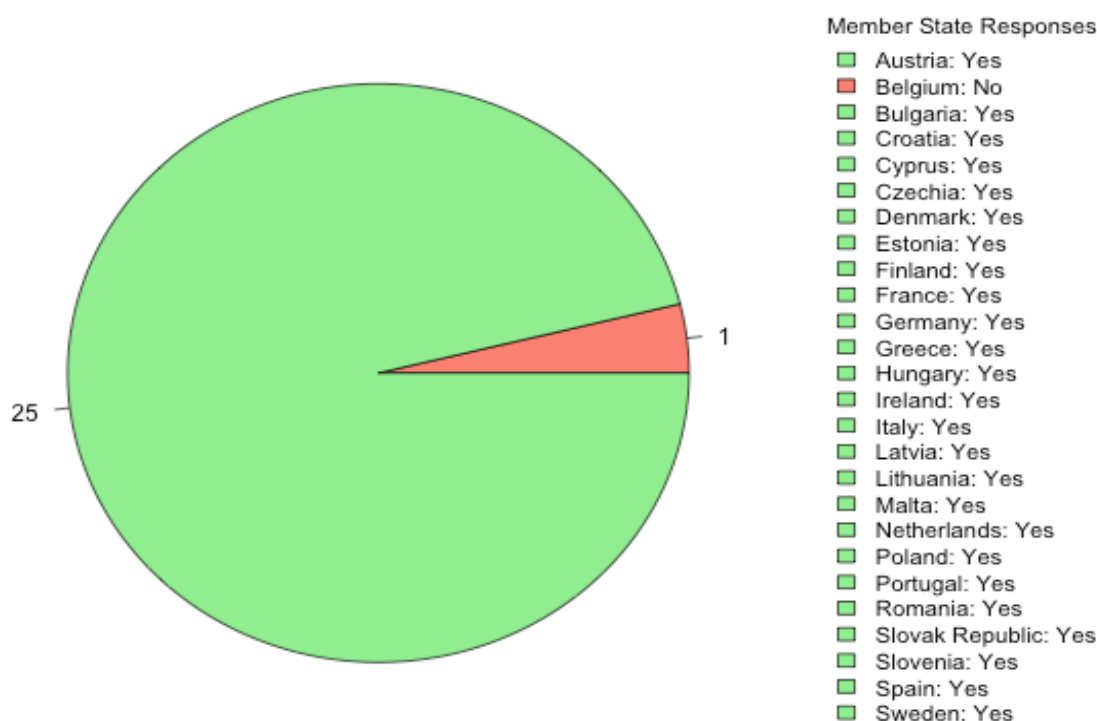


Chart 53: Has the aquaculture industry in your Member State taken any voluntary commitment to report to national authorities and make public environmental data, including on escapees, and the use of veterinary medicines?

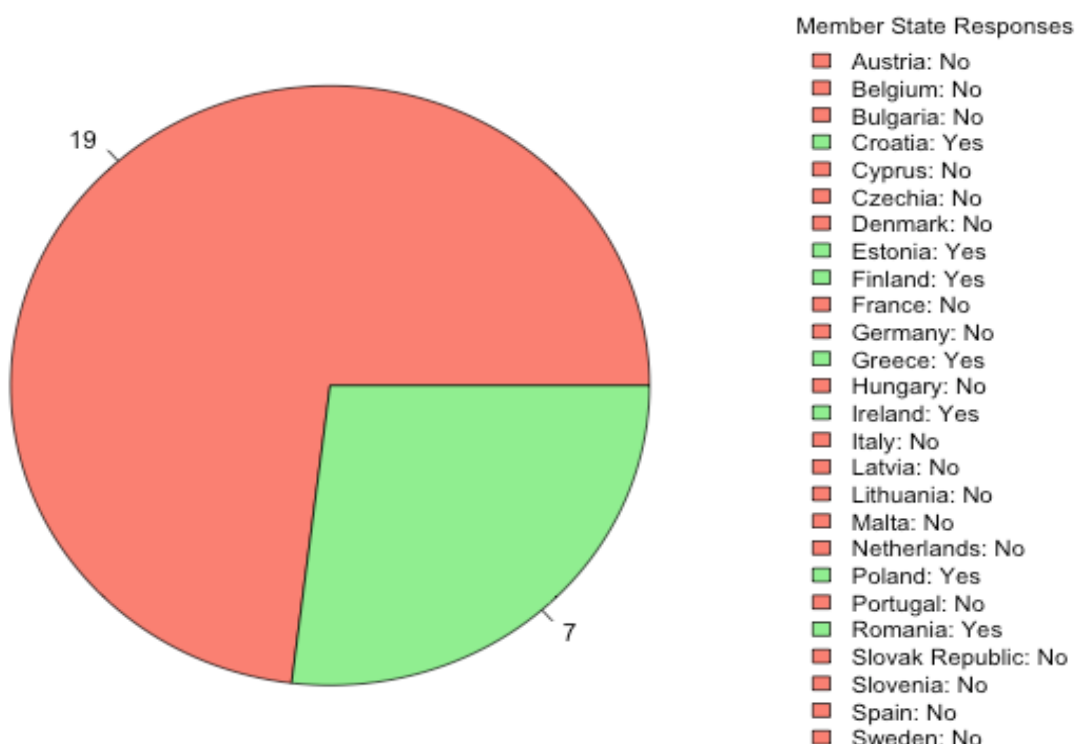


Chart 54: Are data collected on aquaculture activities publicly available in your Member State?

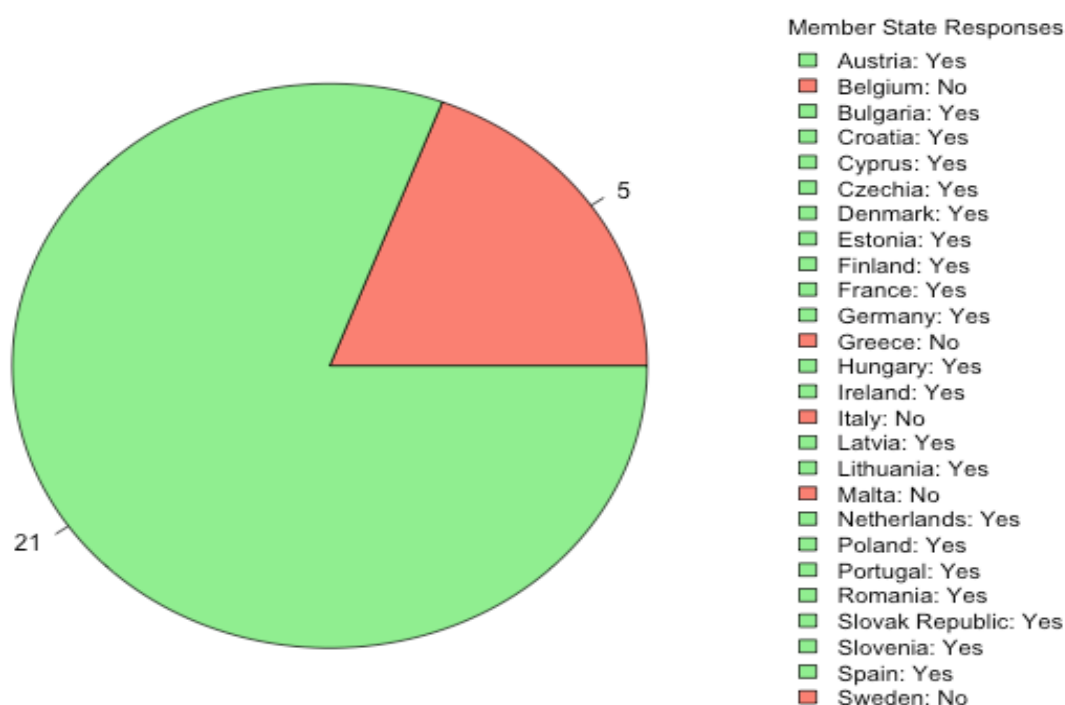


Chart 55: Are there in your Member State any framework / platform for cooperation on research and innovation that brings together different stakeholders?

Including public authorities, industry, researchers and educators

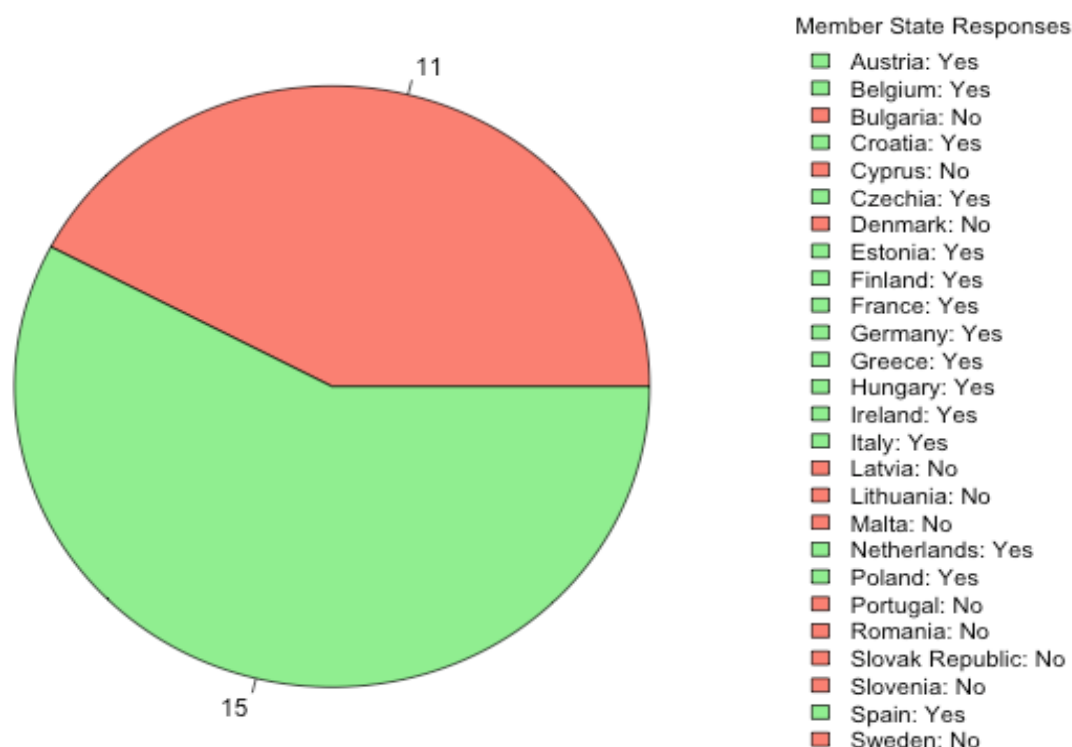


Chart 56: Are actors involved in research and innovation in your Member State part of any collaboration with such actors in other Member States?

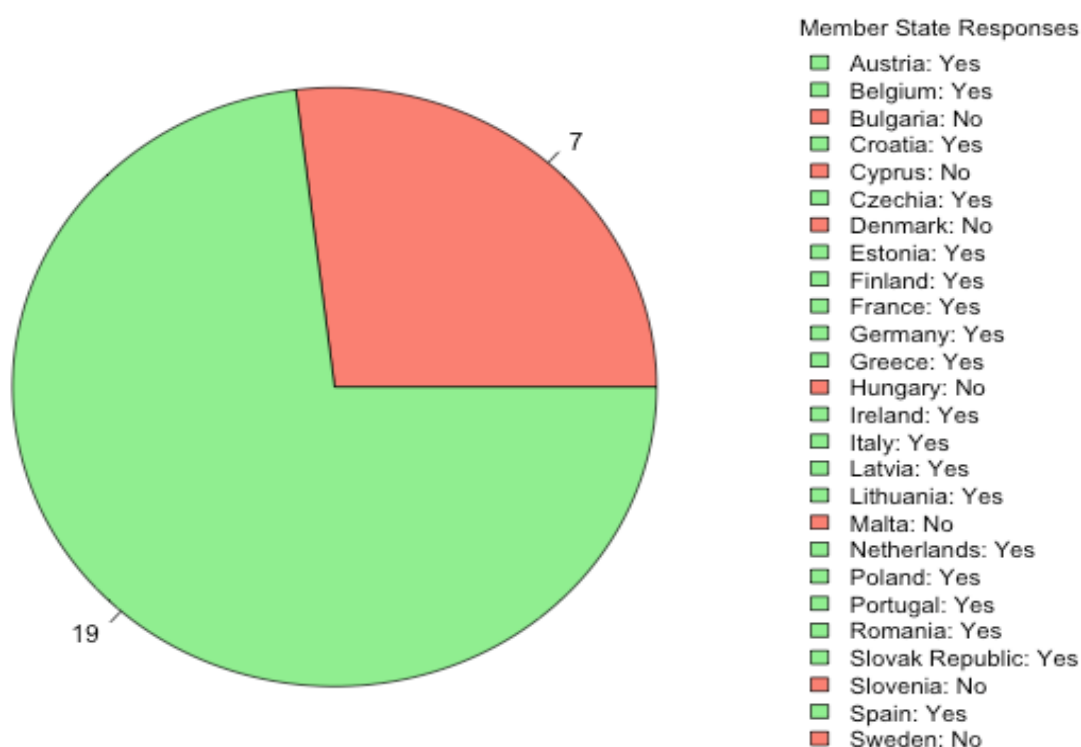


Chart 57: Are actors involved in research and innovation in your Member State part of any smart specialisation strategy linked to aquaculture activities?

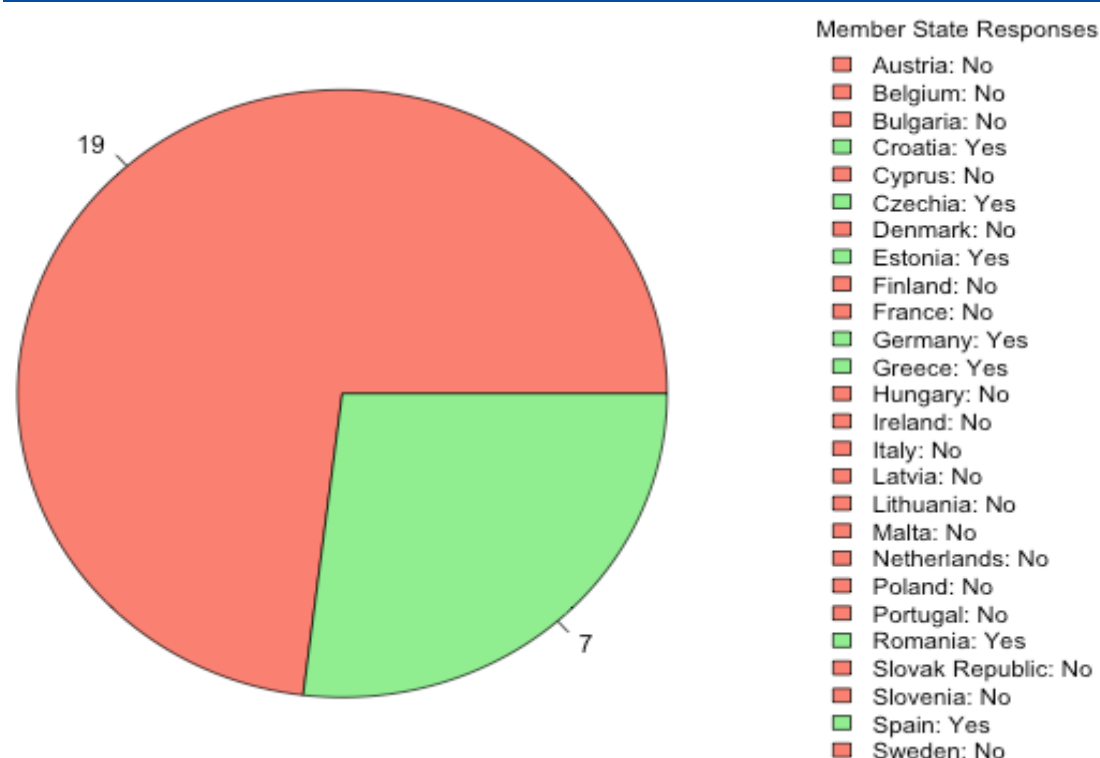


Chart 58: Is information on research and innovation projects publicly funded related to aquaculture and their results publicly available in your member State?

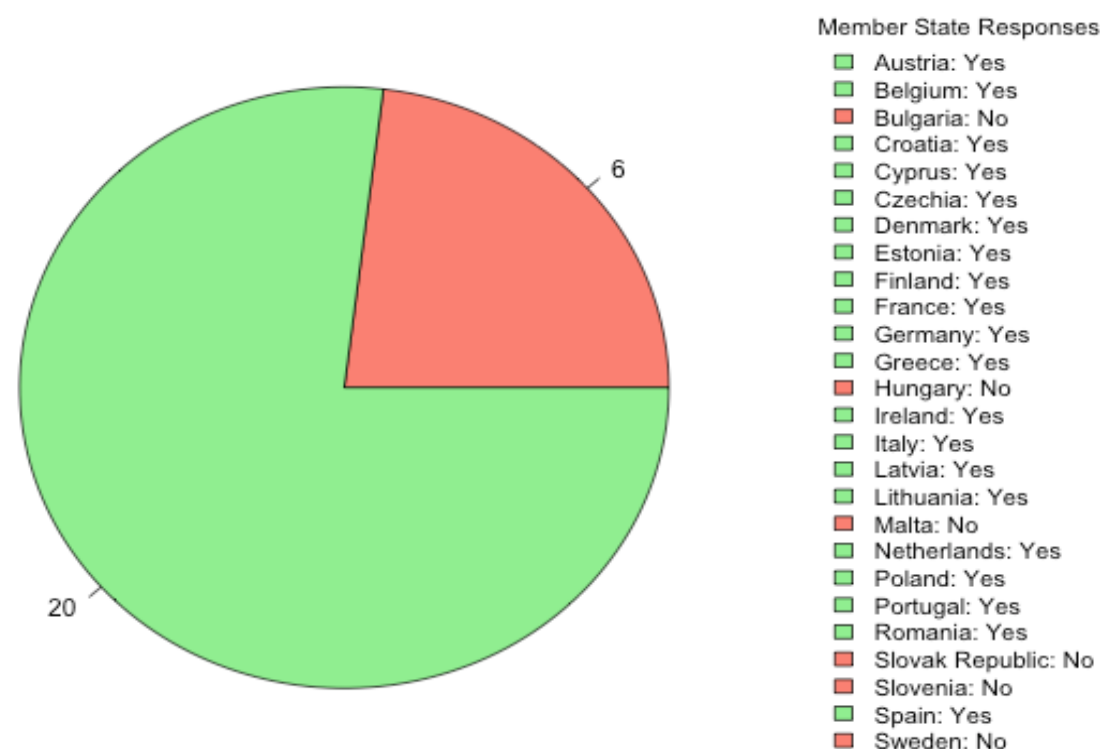


Chart 59: Are there any mechanisms to ensure that the results of research and innovation projects are made available to the sector in order to facilitate their exploitation?

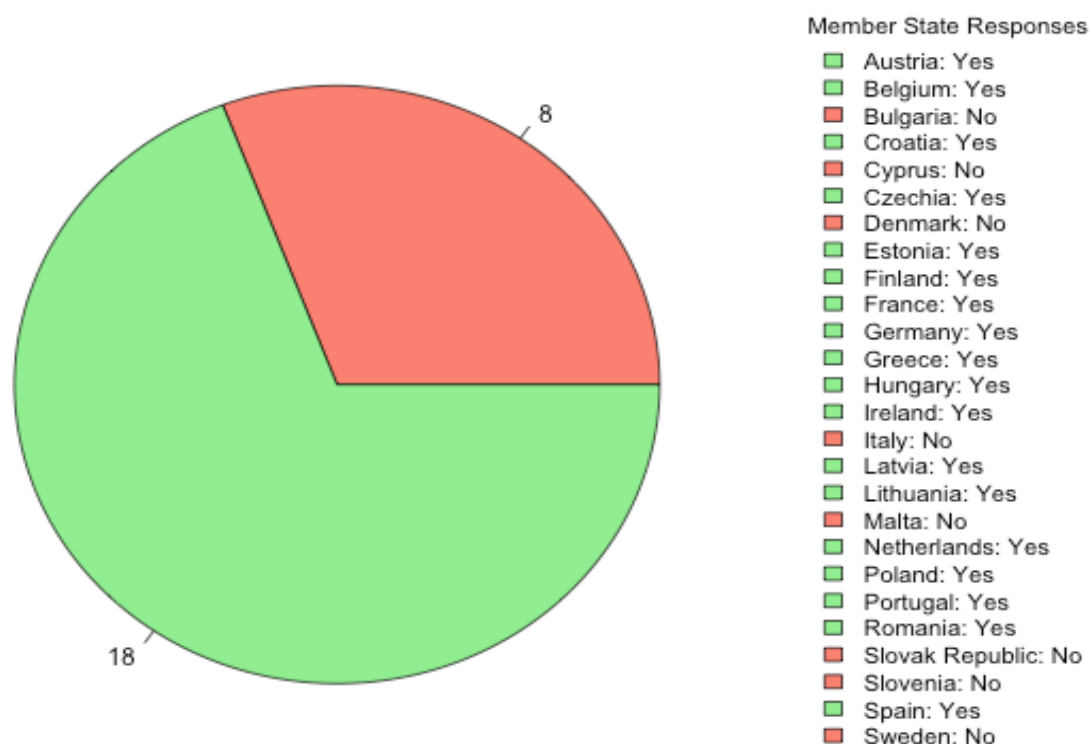


Chart 60: Are there any specific curricula or training related to aquaculture activities in your Member State?

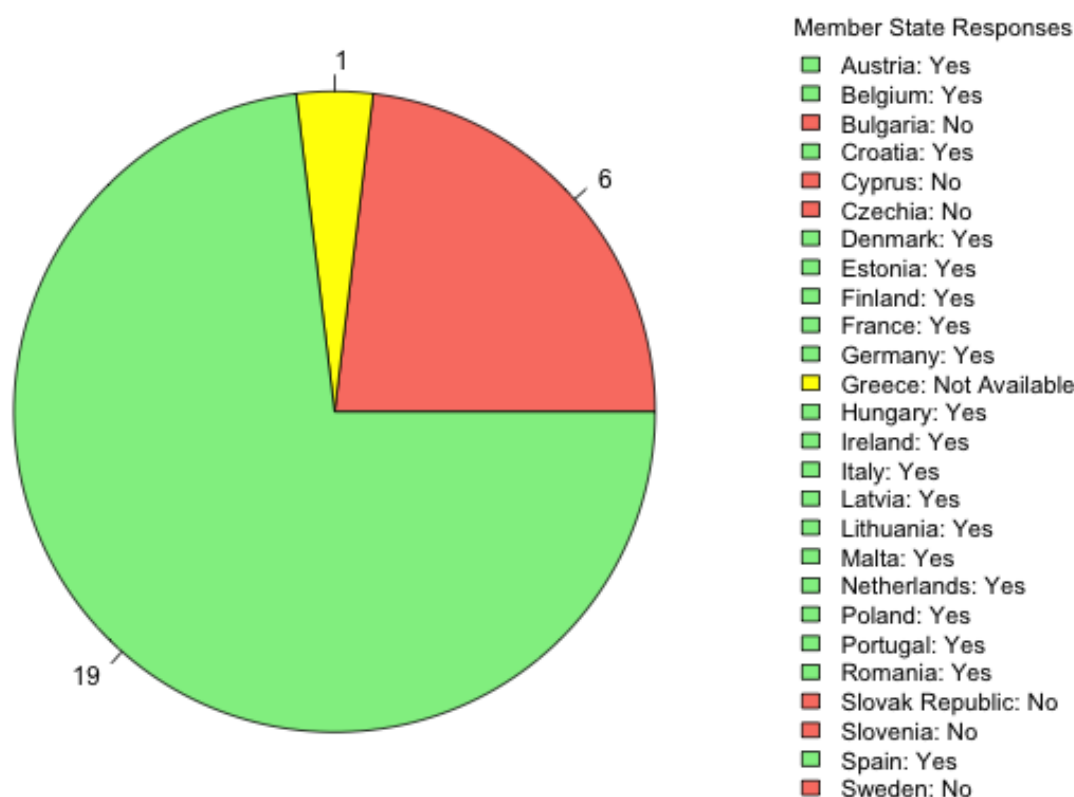


Chart 61: Have any of those curricula or training been established since 1 January 2021?

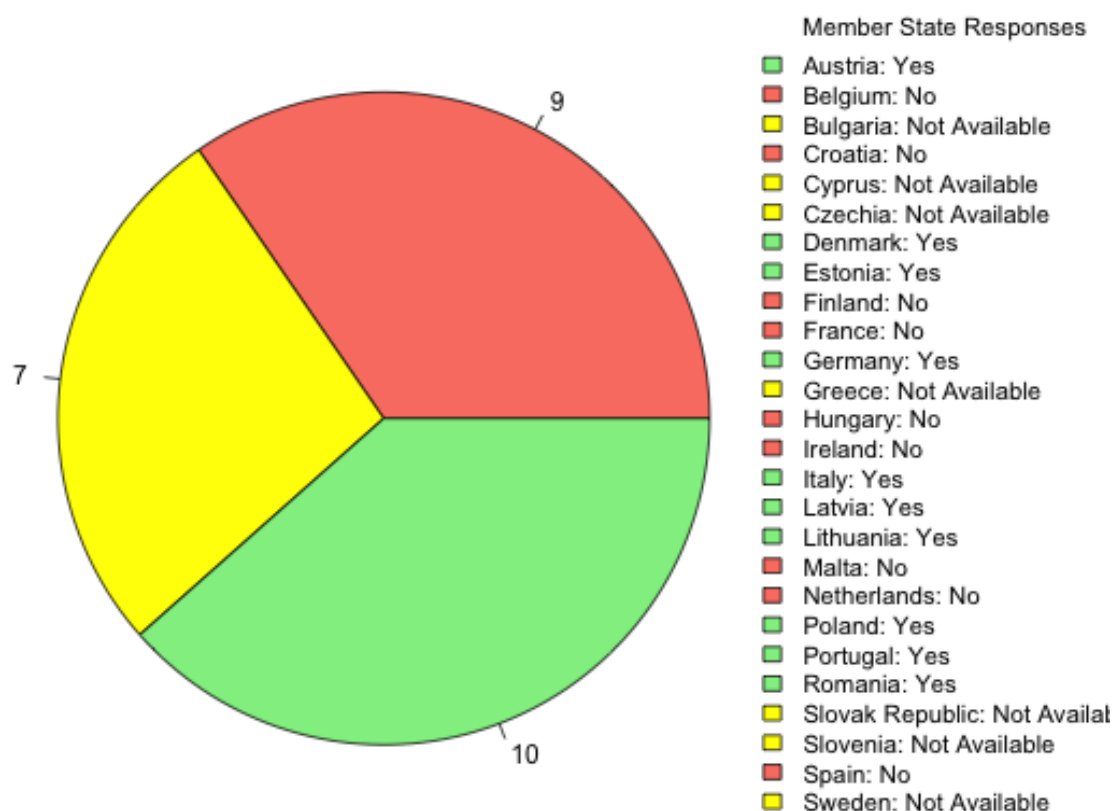


Chart 62: Are there any life-long training initiatives / programmes for aquaculture producers available in your Member State?

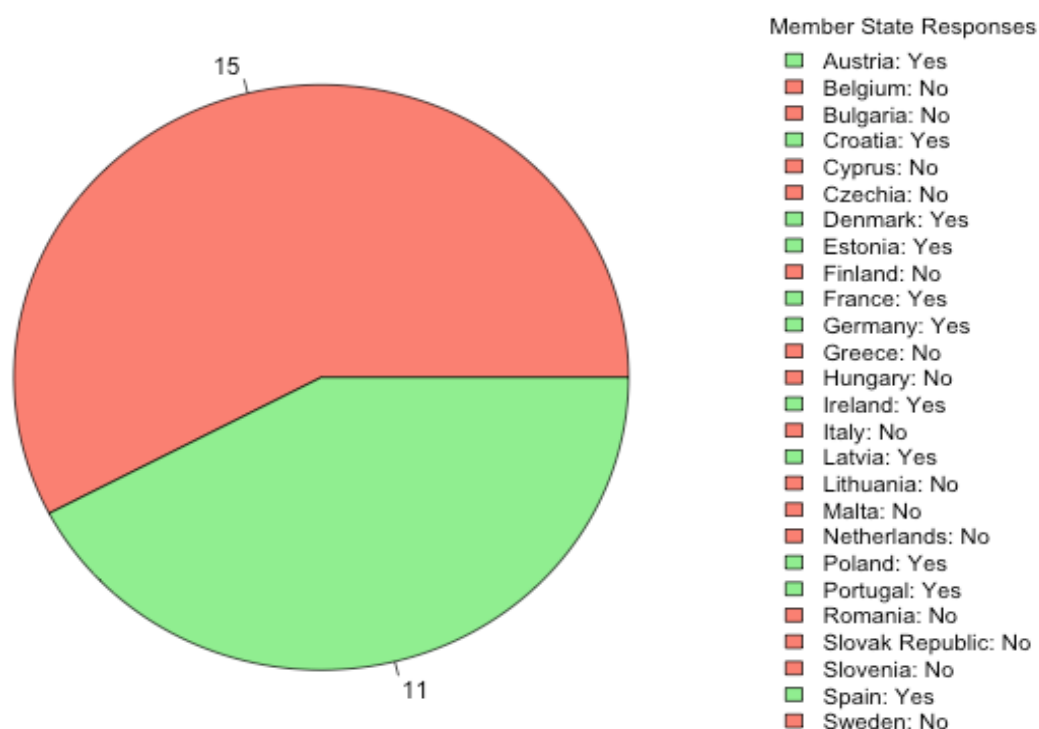


Chart 63: Have any of those been established since 1 January 2021?

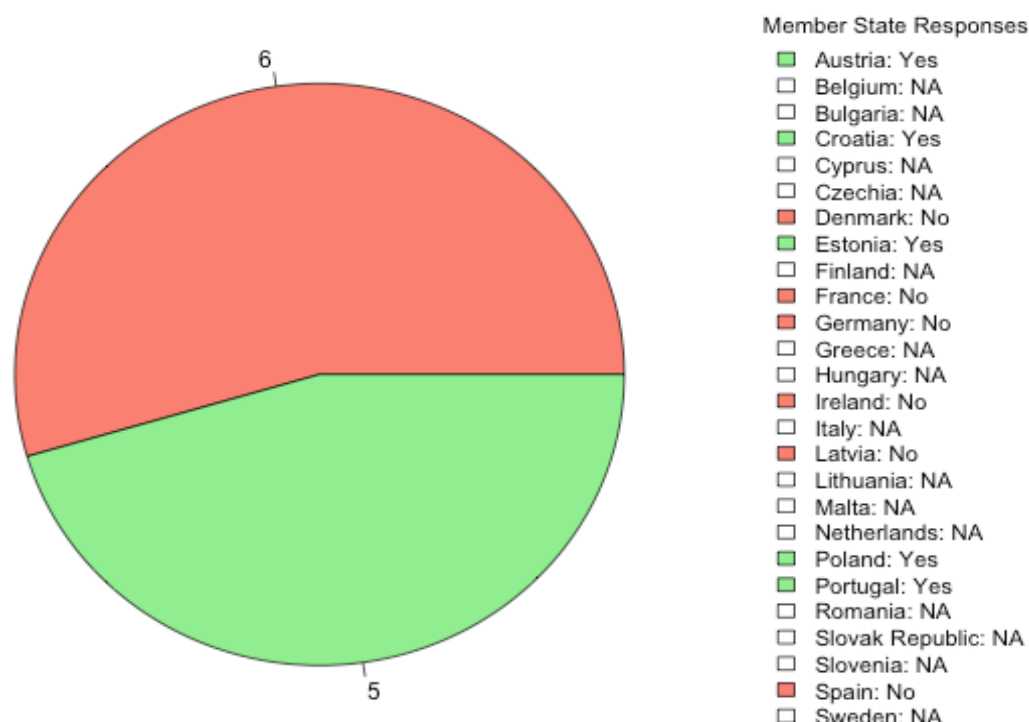


Chart 64: Are there any mechanisms in your Member State to support the upscaling, commercialisation and uptake of innovation in the aquaculture sector?

E.g. support to innovative start-ups, support to aquaculture producers to adopt innovative technologies / approaches, other types of promotion of investment in the sector, etc.

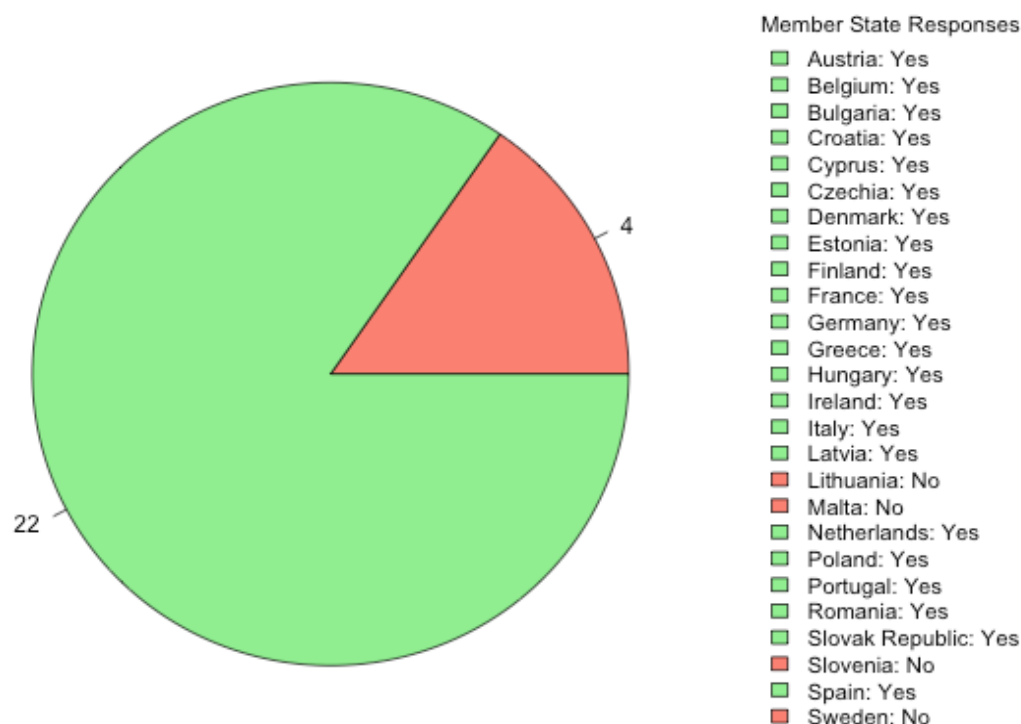


Chart 65: Does your Member State support aquaculture under EU funds other than EMFAF? (e.g. EAFRD, ERDF, etc.)

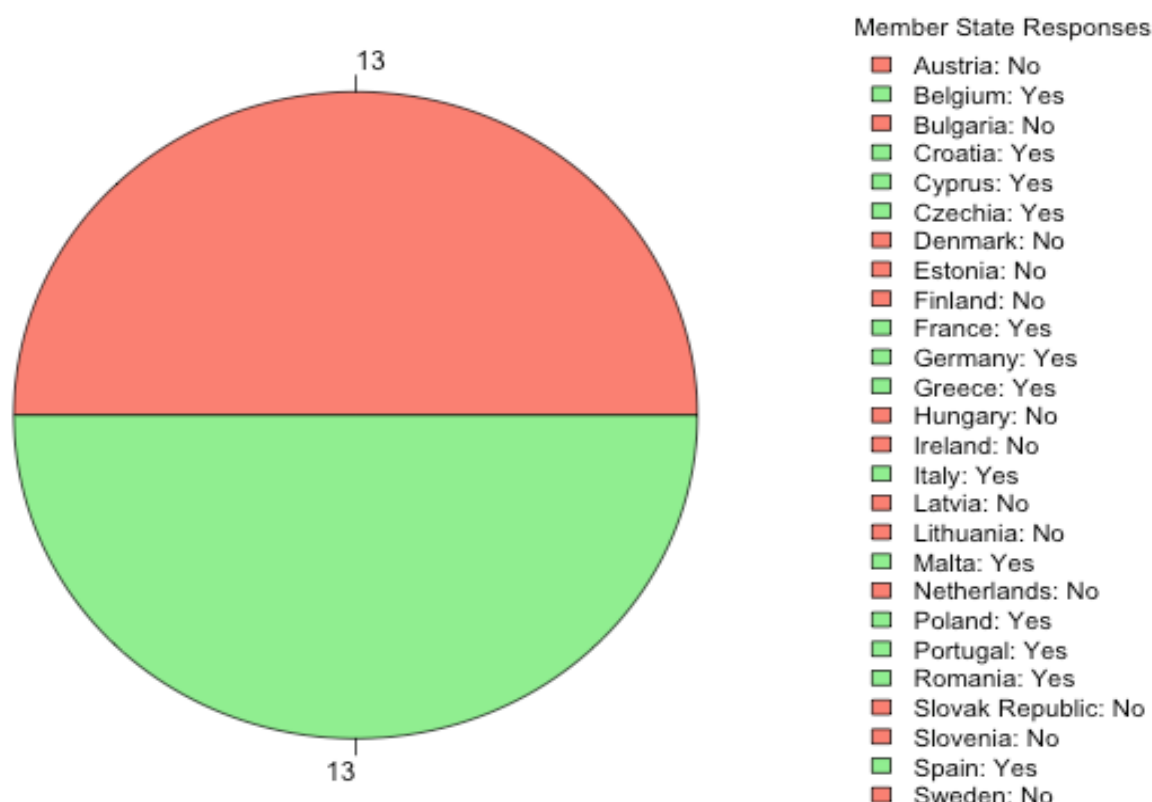


Chart 66: Is there any mechanism in your Member State to facilitate synergies in the use of different funding opportunities for aquaculture projects?

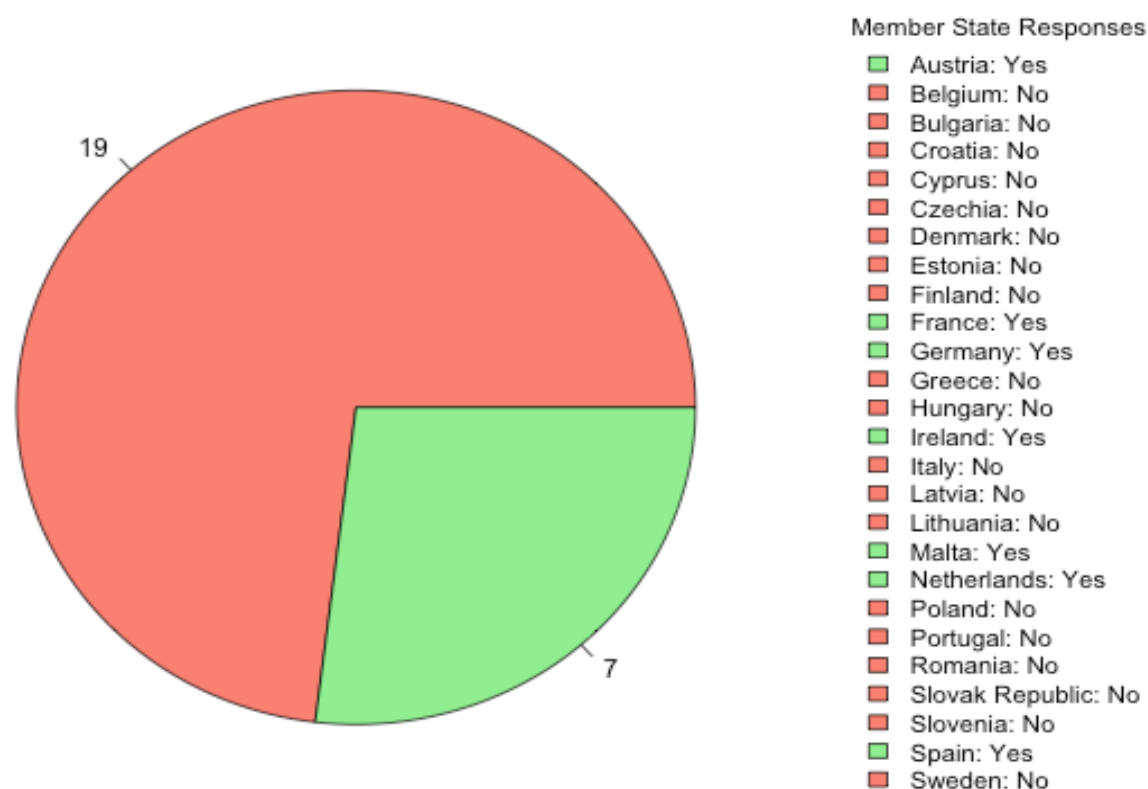


Chart 67: Is information on any project on aquaculture funded with public money available to the public?

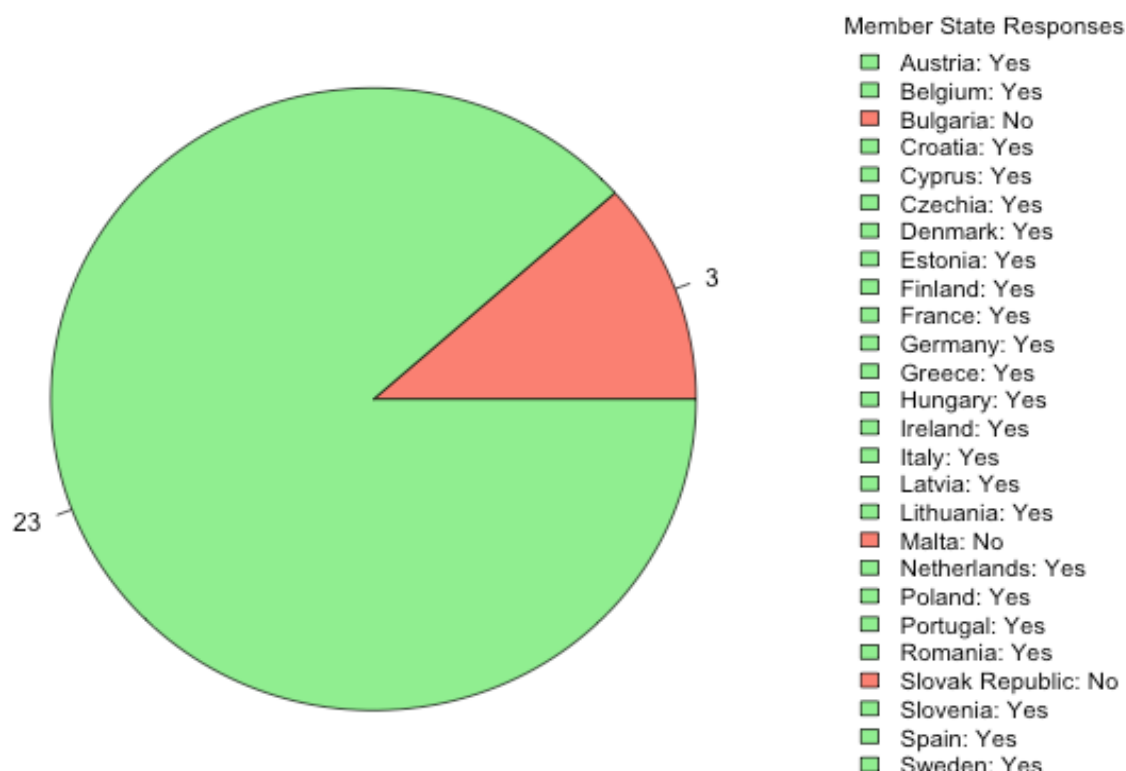
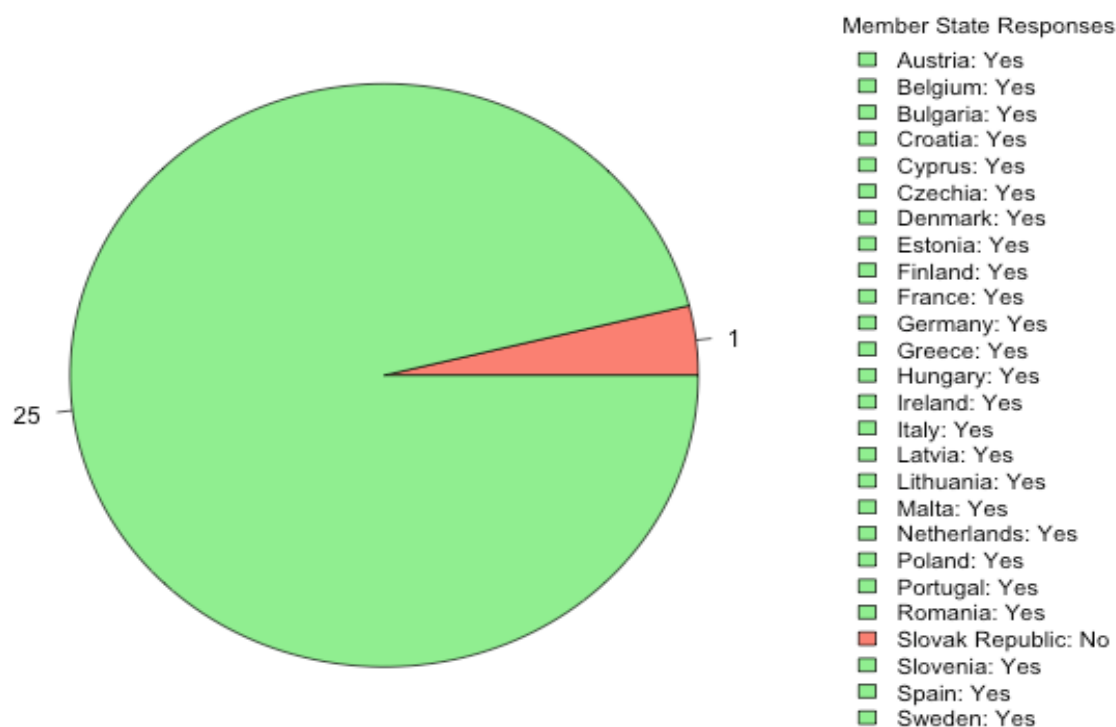


Chart 68: Is there any mechanism in your Member State to facilitate access by individual aquaculture stakeholders to funding?

E.g. Information service, help desk, etc.)



Annex IV: Sources

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Report (STECF-24-14), Nielsen, R., Llorente, I., Virtanen, J., and Guillen, J. editor(s), Publications Office of the European Union, Luxembourg, 2025, <https://data.europa.eu/doi/10.2760/5049952>, JRC140767.

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