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COMPERATIVE ASSESSMENT OF MARINE AQUACULTURE

2026

GREECE'S POSITION IN EUROPEAN AND MEDITERRANEAN AQUACULTURE

COMPARATIVE ASSESSMENT OF AQUACULTURE

1st Digital Edition

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ΠΕΡΙΕΧΟΜΕΝΑ

INTRODUCTION

CONTEXT & OBJECTIVE OF THE STUDY

Aquaculture is a dynamic and strategically important sector of the blue economy, contributing to food security and the development of coastal areas. Its sustainable development requires the protection of marine ecosystems and the application of scientifically documented practices.

The sector is shaping a modern, competitive and institutionally resilient production system, characterised by strong export orientation and significant prospects for long-term sustainable growth.

In this context, the present study comparatively examines the institutional and environmental aquaculture frameworks in nine countries - Greece, Spain, Italy, France, Croatia, Cyprus, Norway, Scotland, and Turkey - with the aim of mapping Greece's position, identifying best practices, and formulating policy proposals to strengthen competitiveness.
The analysis focuses on environmental compliance, spatial planning, licensing procedures, and technological adaptation, highlighting the role of innovation and institutional stability in shaping a modern and sustainable aquaculture production model.

BENCHMARK COUNTRIES

01 GREECE
02 CROATIA
03 FRANCE
04 SPAIN
05 CYPRUS
06 ITALY
07 NORWAY
08 SCOTLAND
09 TURKEY

METHODOLOGY

FROM DATA COLLECTION TO COMPERATIVE ASSESSMENT

01

SAMPLE & TIMELINE

9 countries analysed
Reference period: 2024-2025

02

DATA COLLECTION

Questionnaire
Institutional texts
Statistical databases
Geospatial data

03

DATA PROCESSING

Data cross-checking
Unit standardisation
Hadling of missing data

04

DEVELOPMENT OF EVALUATION VARIABLES

16 assessment variables
Qualitative & Quantitave criteria for comparative evaluation

05

GROUPING OF VARIABLES

Three core dimensions:
Environmental
Spatial
Regulatory

06

SCORING & COMPARISON

Normalisation of variables on a 0-100 scale
Calculation of composite indicators
Final country ranking


BULGARIA
MACEDONIA
EASTERN MACEDONIA & THRACE
ALBANIA
CENTRAL MACEDONIA
THERMAIC AZA
PIERIA AZA
WESTERN MACEDONIA
MOUNT ATHOS
CHALKIDIKI AZA
THESPROTIA AZA
EPIRUS
THESSALY
LESVOS AZA
AMVRAKIKOS AZA
MALIAKOS AZA
NORTH AEGEAN
TURKEY
CENTRAL GREECE
LARYNNA AZA
CHIOS AZA
ECHINADES AZA
AZA FOKIDA
KEFALONIA AZA
OXIA AZA
VOURLIA AZA
ATTICA
EVOIKOS AZA
MEGARA AZA
WESTERN GREECE
IONIAN ISLANDS
KORINTHOS - ARGOLIDA AZA
DIAPORIA AZA
AGATHONHSI AZA
POROS AZA
PELOPONNESE
LEROS AZA
VOURLIA BAY AZA
KALYMNOS AZA
SOUTH AEGEAN
RHODES AZA
CRETE
INDICATIVE BOUNDARIES OF AZA ZONES
WIDER AREAS OF AZA ZONES
1KM FISHING ZONE FROM AZA
INDICATIVE AZA
NATURA Areas
REGIONS OF GREECE
NEIGHBORING COUNTRIES

VARIABLES

VARIABLE STRUCTURE BY DIMENSION

The comparative assessment is based on a quantitative benchmarking framework in which critical aspects of the regulatory framework for fish farming are captured through sixteen (16) variables. These are grouped into three thematic dimensions - Regulatory, Spatial, and Environmental - to enable consistent comparison across countries.

1

REGULATORY

Governance & Licencing

- Coordination of spatial/marine planning
- Stakeholder participation
- Duration of the licensing process
- Complexity of the licensing process
- Bureaucratic burden
- Complexity of governance/responsibilities
- Stocking density

2

SPATIAL

Siting

- Requirements/minimum net distances
- Distance from tourist zones
- Distance from other units
- Distance from coastline
- Minimum required depth
- Recommended buffer zones/distances

3

ENVIRONMENTAL

Environmental Monitoring

- Frequency of water quality analyses
- Frequency of sediment analyses
- Protocols/procedures for degradation management

WEIGHTING SCENARIOS

GREECE'S POSITION

The composite indicator for each dimension - Regulatory/Administrative, Spatial, and Environmental - is calculated as the arithmetic mean of the normalised variables that comprise it. The overall score for each country results from combining the three dimensions under three alternative weighting scenarios, in order to examine the sensitivity of the rankings to different policy priorities:

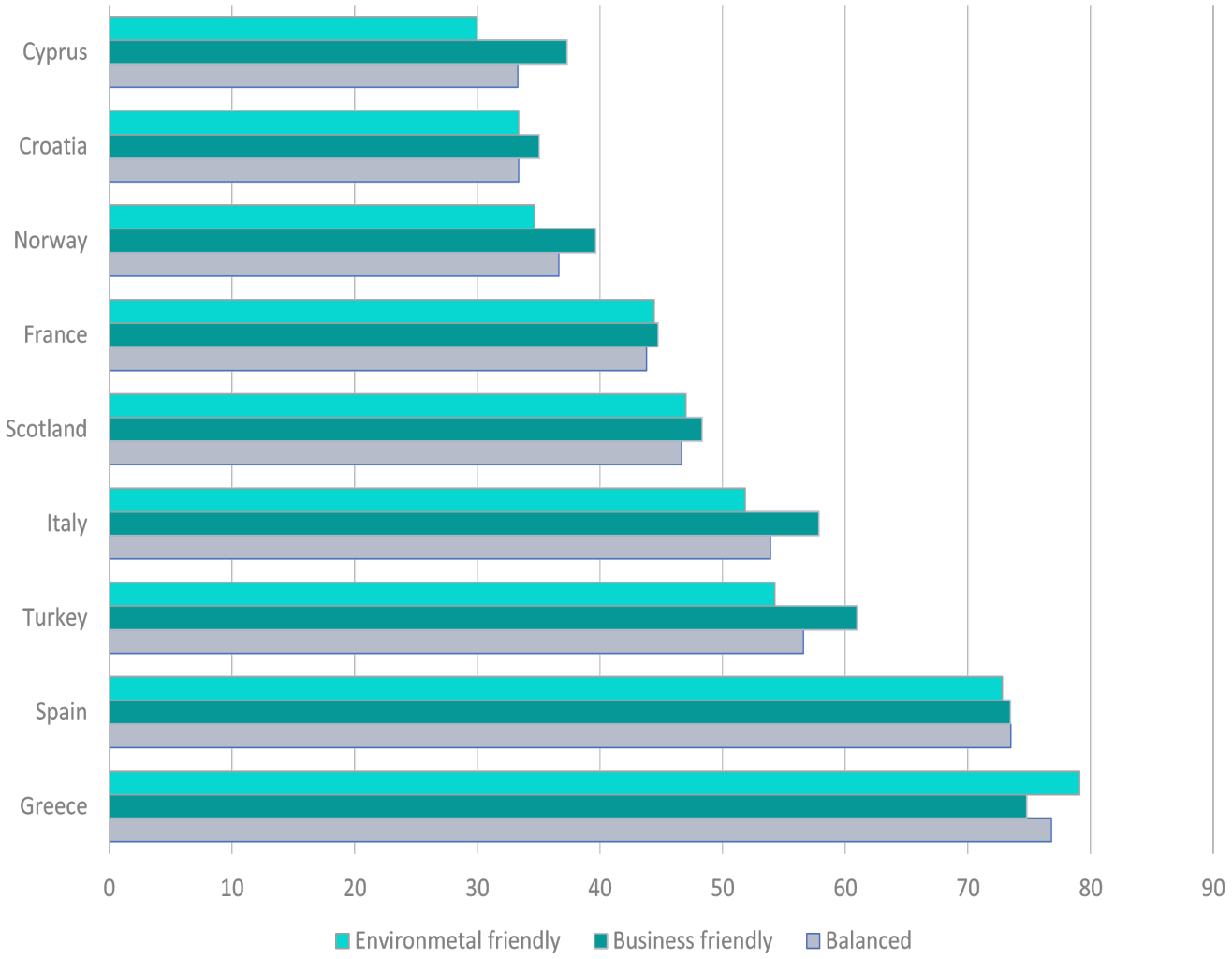
- **Balanced:** 33.33% Regulatory/Administrative - 33.33% Spatial - 33.33% Environmental.
- **Business-friendly:** 40% Regulatory/Administrative - 30% Spatial - 30% Environmental.
- **Sustainability priority:** 30% Regulatory/Administrative - 30% Spatial - 40% Environmental.

Greece ranks 1st in all three scenarios

76.78	74.74	79.10
		
BALANCED	**BUSINESS**	**SUSTAINABILITY**

FINAL COUNTRY RANKING

BY SCENARIO



Greece retains first place in all scenarios, demonstrating that its leading position does not depend on the assessment methodology, but on the structural characteristics of its system itself. The sustainability scenario is the one that most strengthens Greece's performance, due to its exceptionally high environmental score

FINAL COUNTRY RANKING

BALANCED SCENARIO

Multidimensional ranking across four groups

High Performance

Greece, Spain
Reg. 65.0 / Spatial 77.0 / Env. 83.3
Average 75.1

Regulatory Strength

Turkey, Italy
Reg. 96.7 / Spatial 35.7 / Env. 33.3
Average 55.2

Balanced - Moderate Performance

France, Scotland
Reg. 58.3 / Spatial 27.3 / Env. 50.0
Avergage 45.2

Low Performance

Croatia, Norway. Cyprus
Reg. 63.3 / Spatial 23.3 / Env. 16.7
43.4 M.O.

International experience highlights different models in the design, environmental management, governance, and licensing framework of aquaculture.

- **Norway:** a model of institutional stability and digitalisation, with automated procedures and carryingcapacity control.
- **Turkey:** strong development and export dynamics, with room for stronger environmental control and alignment with European standards.
- **Cyprus:** a clear framework, with progress in planning and monitoring, but on a smaller scale
- **Italy:** significant infrastructure and expertise, especially in gilthead seabream and European seabass, with room for improvement in procedures and administrative coordination
- **Spain:** a strong scientific base and modern facilities, but increased institutional complexity
- **France:** a strict environmental framework, with emphasis mainly on shellfish farming.

The grouping shows that countries differ not only in overall performance, but also in the combination of regulatory, spatial, and environmental characteristics. Distinct national profiles thus emerge: from more integrated and balanced performance to models that emphasise individual dimensions.

GREECE'S POSITION

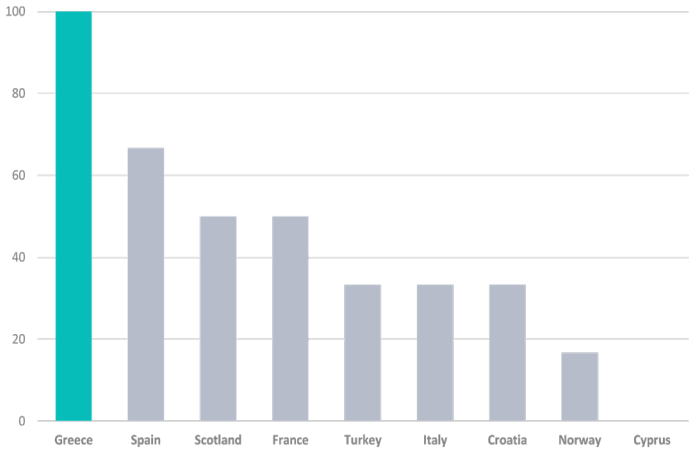
CHARTS

ENVIRONMENTAL EXCELLENCE

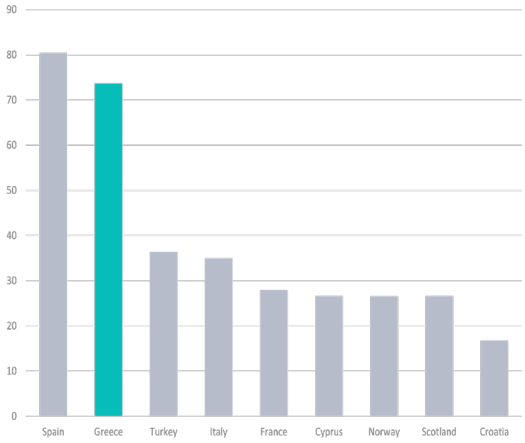
Greece scores 100/100 on the environmental indictors

This performance is based on an integrated framework for monitoring water, sediment, and environmental degradation.

Final Ranking - Environmental dimension



Final Ranking - Spatial dimension



STRONG SPATIAL PLANNING

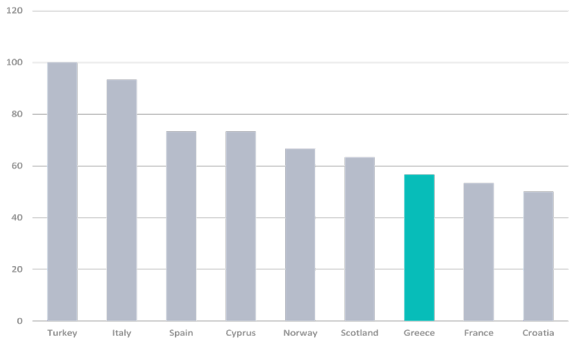
Greece ranks 2nd in the spatial dimension, with a score of 73.68/100, following Spain.

The high performancereflects the existence of a clear siting framework and rules for organising the units.

REGULATORY WEAKNESS

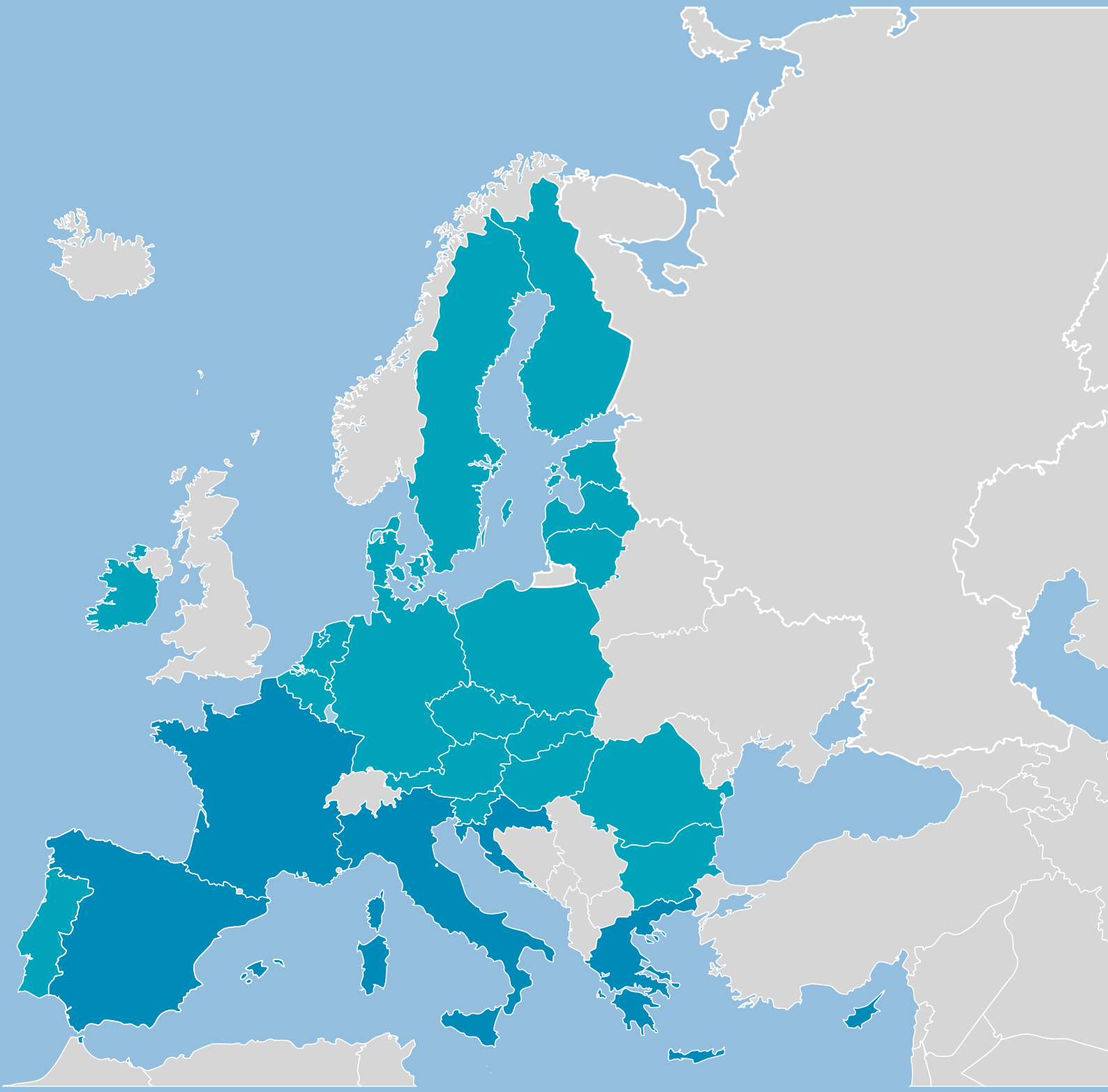
The regulatory dimension is Greece's main area for improvement, with a score of 56.67/100. The lower performance is mainly associated with bureaucracy and the complexity of administrative procedures.

Final Ranking - Regulator dimesion



EUROPEAN UNION COUNTRIES

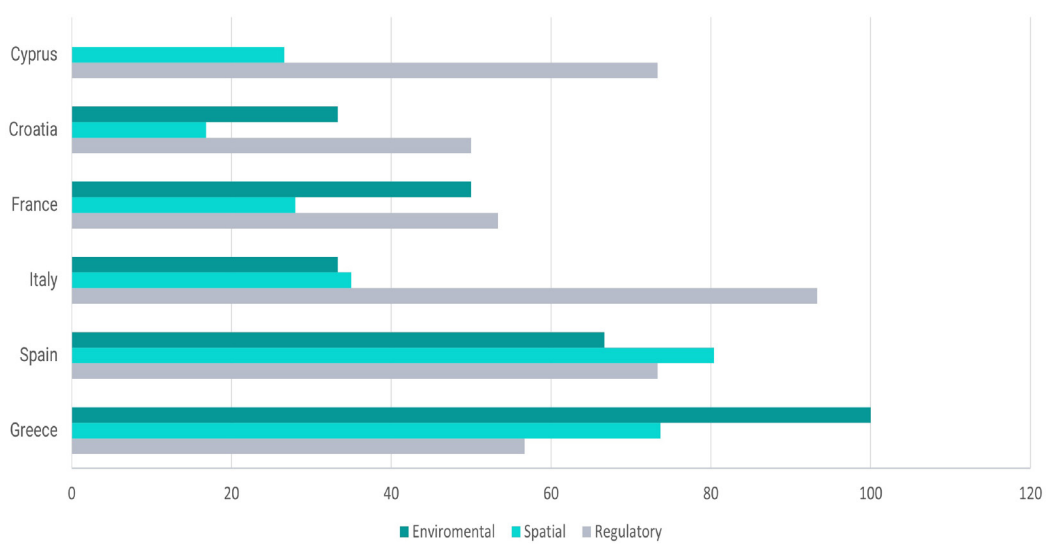
EU BENCHMARK COUNTRIES



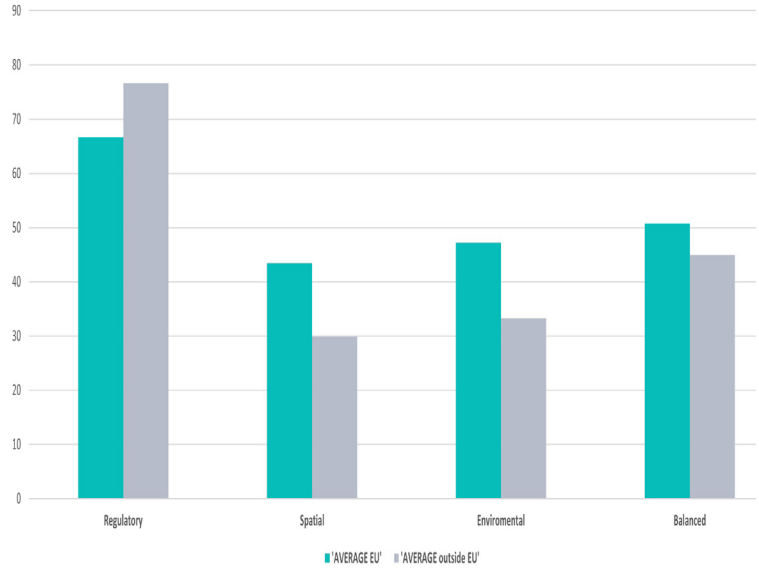
EUROPEAN UNION
BENCHMARK COUNTRIES

EUROPEAN UNION COUNTRIES

Final Ranking - EU Countries - Balanced Scenario



Greece and Spain clearly stand out from the other European countries.
Medium and lower performances show that a single strong dimension is not enough. What matters is the combination of environmental, spatial, and regulatory performance.
No country excels in all three indicators simultaneously, which means that national systems are based on different strategic choices.



EU countries show, on average, higher performance in the spatial and environmental dimensions, but lower performance in the regulatory dimension. Overall, the EU records slightly better performance, mainly thanks to the particularly high scores of Greece and Spain.

Photograph: PHILOSOFISH

AQUACULTURE FOOTPRIN REPORT

EMISSION CALCULATION TOOL

Within the framework of the present study, AMBIO developed a specialized algorithm for calculating carbon dioxide emissions (CO_2) in an Excel environment, into which recognized open-access calculation tools and standards were incorporated, such as:

- the FAO FISH-e tool
- the ISO 14044:2018 / GHG Emissions Protocol
- the tool for calculating emissions of the Ministry of Enviro-ment and Energy
- the Guide to European Investment Bank Climate Strategy for calculating CO_2 emissions in investment plans

OBJECTIVES OF THE ANALYSIS

- **Accurate** mapping of CO_2 emissions from food transport.
- **Evaluation** of the effect of the influence of geographical location and distances
- **Support** for sustainable planning and decision making
- **Strengthening** the environmental and economic efficiency of the sector

The tool supports the recognition, capture and evaluation of the carbon footprint from the transport of food with different modes of transport and practices.

WHAT DOES IT COVER?

LAND TRANSPORT

From aquafeed production units to company warehouses.
Emissions directly linked to distance and vehicle type.

SEA TRANPORT

From port piers to fish farming units.
Emissions directly linked to sea distance, vessel type and route frequency.

AQUACULTURE FOOTPRIN REPORT

TRANSPORT & SPATIAL STRUCTURE

For all countries, the analysis was based on the assumption that land transport is carried out using heavy goods vehicles of the "HGV rigid" type, over 32 tonnes. Respectively, sea transport is mainly carried out using supply vessels or other means of sea transport serving the farming units, while in certain cases of local transport, the use of a bulk carrier freight vessel of deadweight category 0–9,999 tonnes was also examined.

Average land distance & CO_2 emissions by country

COUNTRY	DISTANCE (km)	CO_2 EMISSIONS(tonnes)
TURKEY	84	0,795
GREECE	155	1,468
SCOTLAND	207	1,960
CYPRUS	309	2,926
ITALY	410	3,882
SPAIN	581	5,501
CROATIA	653	6,183
NORWAY	810	7,669
FRANCE	951	9,004

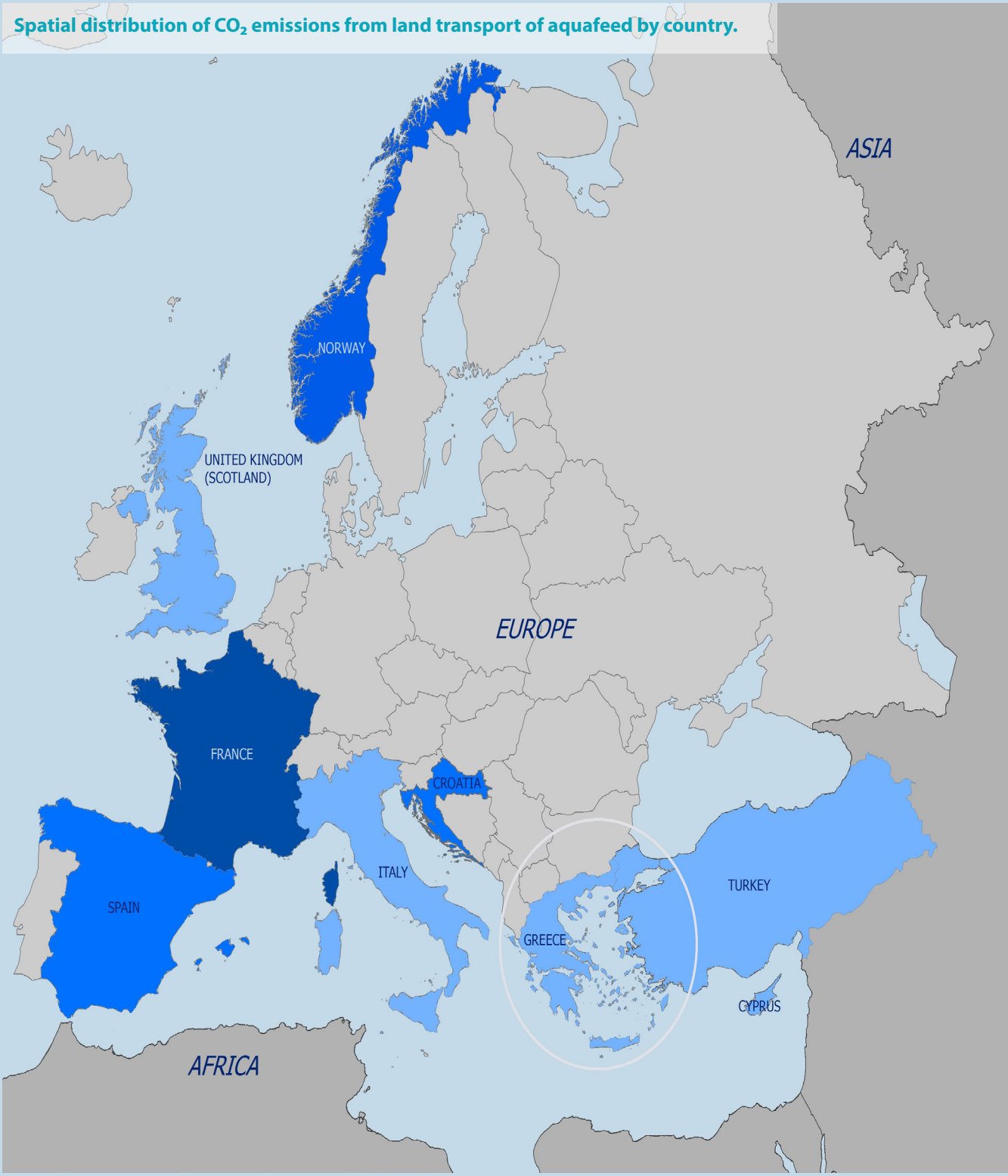
The analysis of CO_2 emissions from land transport of aquafeed highlighted clear differences among the countries under examination, with Greece recording one of the lowest emission levels, both in absolute values and proportionally to the distances transported. Specifically, with an average land distance of only 155 km and corresponding emissions of 1.468 tonnes of CO_2, Greece ranks as one of the most environmentally efficient countries in the study sample.

This finding indicates the importance of locating aquafeed production factories in strategic proximity to farming units, a factor that can lead to significant fuel savings and reduced greenhouse gas emissions.

AQUACULTURE FOOTPRIN REPORT

TRANSPORT & SPATIAL STRUCTURE

Spatial distribution of CO_2 emissions from land transport of aquafeed by country.



CO_2 EMISSIONS FROM LAND TRANSPORT OF AQUAFEED (IN TONNES)

0,80 - 3,88	7,67	OTHER EUROPEAN COUNTRIES
5,50 - 6,18	9,00	OTHER CONTINENTS

AQUACULTURE FOOTPRIN REPORT

TRANSPORT & SPATIAL STRUCTURE

The average sea distance from the pier to the farming units for each country separately, as well as the corresponding CO_2 emissions, are shown in the table below:

Average sea & CO_2 emissions per country

COUNTRY	DISTANCE (km)	EMISSIONS CO_2 (tons)
SCOTLAND	2,8	0,045
NORWAY	3,1	0,049
CROATIA	53,7	0,066
GREECE	266,5	0,078
FRANCE	239,9	0,096
ITALY	245,9	0,128
TURKEY	9,2	0,146
CYPRUS	318,6	0,197
SPAIN	26,9	0,426

The analysis of maritime transport shows that CO_2 emissions do not depend solely on distance, but also on the frequency and organization of transport operations. Greece constitutes a characteristic example, as, despite having a large average maritime transport distance, it presents very low CO_2 emissions. This is mainly due to the infrequent execution of long-distance transport operations and the rational management of the supply chain.

Overall, the Greek case exhibits some of the lowest emissions compared to the reference countries and can be considered an example of effective and sustainable practice for the aquaculture sector.

Greece has some of the lowest carbon dioxide emissions compared to the other reference countries.

AQUACULTURE FOOTPRIN REPORT

TRANSPORT & SPATIAL STRUCTURE

Spatial distribution of CO_2 emissions from sea transport of aquafeed by country.

CO_2 EMISSIONS FROM SEA TRANSPORT OF AQUAFEED (IN TONNES)

0,80 - 3,88 | 5,50 - 6,18 | 7,67 | OTHER EUROPEAN COUNTRIES | THIRD COUNTRIES

ASSESSMENTS BY OTHER BODIES

External assessments by private bodies compare the Greek framework with northern and Mediterranean countries and estimate that Greece has less stringent requirements regarding siting, depths, distances, biomass, and carrying capacity. Greece appears to have less stringent regulations regarding:

- distances from the coast & between units
- minimum installation depths
- maximum permitted biomass limits
- nutrient modelling approach
- carrying capacity calculation methodoogy

This external assessment provides useful comparative references; however, some conclusions regarding Greece appear to be influenced by methodological choices that **limit comparability** with Mediterranean data.

1. The application of criteria developed for salmonids to Mediterranean species is not always accompanied by sufficient recalibration with respect to hydrodynamic conditions, biomass, and critical ealth indicators

2. Distances and depths are often treated as universal thresholds, even though in the Mediterranean carrying capacity depends strongly on the local characteristics of each site.

3. In systems of regional regulation, emphasis on the strictest cases may underestimate the local adaptability of more heterogeneous national frameworks.

DISCUSSION

The comparative analysis demonstrated that the differences among countries converge around three axes:

1

DEGREE OF DIGITAL MATURITY & AUTOMATION OF THE LICENSING PROCESS
The extent of digital tools used in the licensing process and the automation of licensing procedures.

2

INSTITUTIONAL STABILITY & TIMELINES
The existence of clear and predictable licensing timelines and legislative procedures.

3

STANDARDIZATION & INTEGRATION OF ENVIRONMENTAL REQUIREMENTS
The integration, standardization and proportionality of environmental requirements, as well as the manner in which they are incorporated into the licensing process.

In this context, effectiveness is not determined exclusively by the level of strictness of the rules, but by the extent to which the requirements are predictable, proportionate and systematically monitored, ideally also in real time, so as to reduce uncertainty without compromising protection.

At the same time, the development of CO_2 emissions calculation tools at the value chain level enables the quantitative assessment of alternative siting scenarios, production practices and supply chain organization, strengthening the connection between spatial and institutional planning and measurable targets such as the achievement of climate neutrality.

DISCUSSION

LIMITATIONS – PREREQUISITES

LIMITATIONS & SCOPE OF APPLICATION OF THE FINDINGS

The comparative framework used to classify and rank countries based on the six indicators (0–10) constitutes an analytical tool—not a statistical estimate—and is interpreted together with the qualitative context.

ADAPTABILITY & PREREQUISITES

Norway and Scotland offer a strong foundation of regulatory principles, carrying capacity indicators linked to the dynamic revision of permitted production, standardized monitoring and digital licensing; however, their model cannot be transferred directly to Mediterranean species. Differences in biology and production cycles (protocols designed for salmonids, different critical health indicators), the scale and cost of infrastructure, as well as the different hydrodynamic environment (fjord tides/currents versus Mediterranean gulfs or offshore sites) limit direct replication. In addition, the institutional architecture and allocation of responsibilities in northern countries do not directly correspond to Mediterranean administrative structures, while even the assessment protocols themselves (e.g. B/C-assessments, fixed mixing zones, capacity "cut-off" mechanisms) require recalibration before being applied to seabream and seabass.

DISCUSSION

Overall, Greece possesses the characteristics of a **modern model** with high environmental compliance, integrated spatial planning, outward-looking and export-oriented development, and a clear role for digital transformation and the rapid completion of the licensing process, which can constitute a structural advantage and a full investment advantage without discounting quality.

- **High** enviromental compliance
- **Mature** spatial planning
- **Outward looking** - export orientation
- **Technological** direction

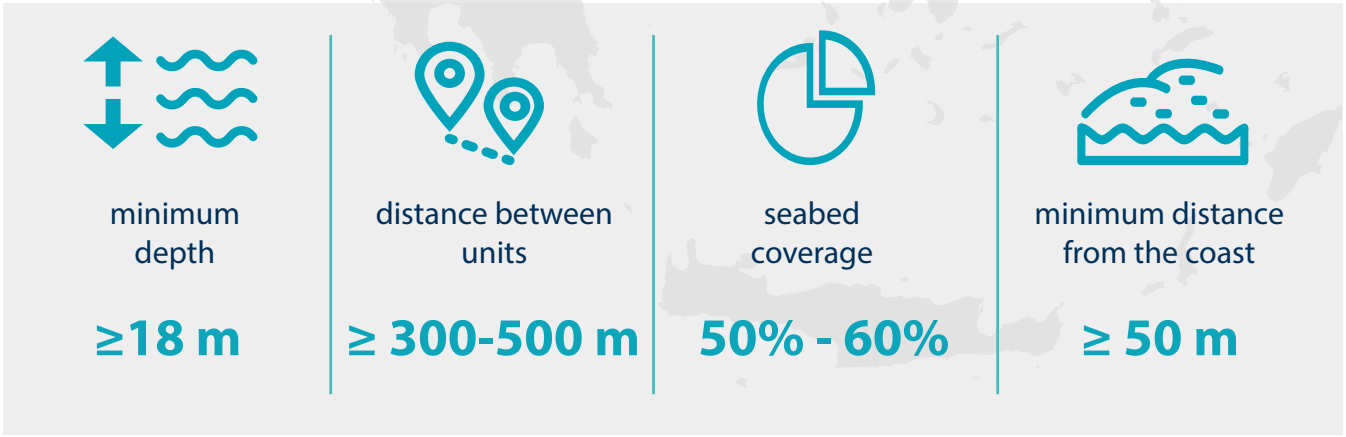
DISCUSSION

RESULTS

The composite indicators (0–10) reflect a very **high level of environmental compliance** for Greece compared to the other countries. The findings are consistent with the graphical representation and substantiate the proposed policy directions. In addition, the country combines high export intensity (over 80%) with a leading share in the EU market for Mediterranean species (over 60% in seabream/seabass).

BASIC SPATIAL PLANNING LIMITS IN GREECE

The basic spatial planning limits (indicatively: minimum depth ≥18 m, distance between units ≥500 m or ≥300 m for organic farms, lease area coverage up to 50% or 60% for organic farms, minimum lease distance from the coast ≥50 m) function as stable reference points for predictability and social legitimacy.



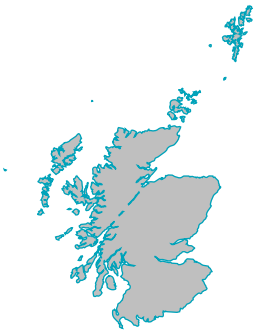
DISCUSSION

RESULTS

Spain achieves a score of 66.67, ranking second after Greece.

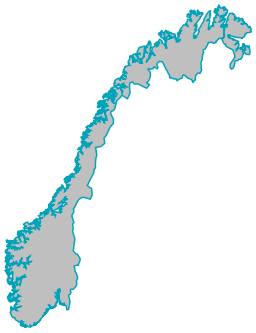
Turkey ranks third in the system assessment with a score of 58.56 points.

In the comparative assessment, Italy ranks fourth in the weighted policy scenario with an overall score of 53.89 points.



Scotland ranks fifth in the assessment system with a score of 46.64 points.

France scores 50 points in the environmental dimension and secures one of the intermediate positions among the countries examined.



Norway ranks seventh in the comparative assessment with a total score of 36.64 points.

Croatia ranks eighth in the weighted policy scenario with a score of 33.38 points.

Cyprus implements a clear regulatory framework with a high degree of institutional transparency. It achieves a total score of 33.31 points, recording a lower performance than all the other countries in the sample.

CONCLUSIONS

The comparative analysis of fish-farming governance and licensing systems in Europe and the Mediterranean showed that the main differentiations are found in the **degree of digitization and interoperability of procedures**, in **institutional stability** and the **predictability of timeframes**, as well as in the way environmental requirements are incorporated. These factors directly affect the effectiveness of administrative mechanisms, the investment attractiveness and the social acceptance of the sector.

> **Digital integration, institutional stability and environmental responsibility constitute the core of an effective and sustainable fish-farming system**

IN THIS CONTEXT

Greece presents an overall balanced profile, combining a very high level of environmental compliance with mature spatial planning organization and significant export momentum. of administrative mechanisms, the investment attractiveness and the social acceptance of the sector.

THE OPERATION OF THE AZA ZONES

enhances the clarity of siting, reduces land-use conflicts and offers greater predictability for investments.

AT THE SAME TIME

the country holds a leading position in the European production of Mediterranean species, particularly sea bream and sea bass, with a high export intensity exceeding 80%.

Clear spatial planning boundaries, such as minimum distances, installation depth and coverage percentages, further contribute to the transparency and social legitimization of the activity.

However, despite the institutional and environmental strength of the system, significant **challenges** continue to exist. The **complexity of the procedures** and the **fragmentation of responsibilities** among administrative levels limit effectiveness, while the **absence of full digital integration** and interoperability makes monitoring and transparency more difficult. Particularly critical is the lack of binding time milestones, which leads to **significant delays**, with the duration of licensing often exceeding twelve months and, in some cases, two years.

CONCLUSIONS

Overall, Greece has a strong institutional and environmental foundation, which, with the appropriate strengthening of digitalization and administrative effectiveness, can evolve into a full competitive advantage, supporting the sustainable development of fish farming and its contribution to the economy.

The comparison with other European systems confirms this dual picture. Compared with Northern European countries such as Norway, Greece lags behind in full digitalization and strict adherence to timelines, although it approaches high levels of environmental compliance. By contrast, it shows greater cohesion compared with countries with more fragmented administration, such as Spain and Italy, while achieving a more functional balance between protection and development than more slow-moving regulatory frameworks. International experience highlights the importance of transitioning to systems based on risk and carrying capacity, as well as the use of dynamic management tools that link production with environmental conditions. In this context, strengthening the Greek system requires **targeted interventions.**

A central priority is the development of **a single full-cycle digital licensing portal**, which will interconnect all involved bodies and allow transparent monitoring of the progress of applications. At the same time, the **establishment of binding time limits per stage** and the **implementation of automatic forwarding mechanisms** can significantly improve time predictability. The **simplification and standardization of procedures** through standard specifications and checklists will contribute to reducing the administrative burden and strengthening consistency.

TRANSPARENCY	MONITORING	INDICATORS	CO_2
open environmental data	real-time systems telemetry & sensors	carrying capacity per marine unit	integration of life-cycle calculations

Equally important is the **strengthening of transparency** through open environmental data and the development of real-time monitoring systems, utilizing technologies such as **telemetry** and **sensors**. The adoption of **customized carrying-capacity indicators** per marine unit, combined with the gradual integration of **carbon footprint calculation methods**, can enhance the **sustainability** and **international competitiveness** of the sector. Finally, the strengthening of **administrative capacity** through staff training and harmonization of procedures constitutes a key prerequisite for the effective implementation of reforms.

BIBLIOGRAPHY

1. Cappelluti, G., et al. (2020). The challenges of aquaculture governance in Italy. Journal of Aquatic Policy and Planning.
2. Department of Fisheries and Marine Research (DFMR) – Republic of Cyprus. (2025). Response to the questionnaire on the licensing and environmental management of fish farming. [Questionnaire response / primary material].
3. European Commission. (2020). Evaluation of administrative procedures in Mediterranean aquaculture. Brussels: European Commission.
4. European Commission. (2020). EU Member States' reports on aquaculture licensing procedures – Spain. Brussels: European Commission.
5. European Commission. (2021). Strategic guidelines for a more sustainable and competitive EU aquaculture 2021–2030. Brussels: DG MARE.
6. Eurostat. (2023). Aquaculture production statistics. Retrieved from https://ec.europa.eu/eurostat
7. FAO. (2022). National Aquaculture Legislation Overview: Turkey. FAOLEX database.
8. FAO. (2022). National Aquaculture Sector Overview: Cyprus. Rome: FAO.
9. FAO. (2022). The State of World Fisheries and Aquaculture (SOFIA) 2022. Rome: Food and Agriculture Organization of the United Nations.
10. Federation of European Aquaculture Producers (FEAP). (2022). Annual production reports by country. Brussels: FEAP.
11. Hellenic Statistical Authority (ELSTAT). (2023). Aquaculture production and trade data. Athens: ELSTAT.
12. Ifremer – French Research Institute for Exploitation of the Sea. (n.d.). Reports and datasets on aquaculture. Brest: Ifremer.
13. ISO. (2018). ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. Geneva: ISO.
14. Italian Ministry of Agricultural, Food and Forestry Policies (MIPAAF). (n.d.). Aquaculture legislation and policies. Rome: MIPAAF.
15. Marine Institute Ireland. (2022). Shellfish and finfish monitoring reports. Galway: Marine Institute.
16. Marine Scotland & Scottish Environment Protection Agency (SEPA). (2025). Response to the questionnaire on the licensing and environmental management of fish farming. [Questionnaire response / primary material].
17. Ministry for the Ecological Transition & Ifremer. (2025). Response to the questionnaire on the licensing and environmental management of aquaculture. [Questionnaire response / primary material].
18. Ministère de la Transition Écologique. (n.d.). ICPE legislation for aquaculture. Paris: Ministère de la Transition Écologique.
19. Ministry of Agriculture – Directorate of Fisheries (Croatia). (2025). Response to the questionnaire on the licensing and environmental management of fish farming. [Questionnaire response / primary material].
20. Norwegian Directorate of Fisheries. (2023). Norwegian aquaculture management. Retrieved from https://www.fiskeridir.no

BIBLIOGRAPHY

21. Norwegian Ministry of Trade, Industry and Fisheries. (n.d.). Aquaculture licensing in Norway. Oslo: Ministry of Trade, Industry and Fisheries.
22. OECD. (2020). Policy implications of climate change for aquaculture. Paris: OECD Publishing.
23. Observatorio Español de Acuicultura. (n.d.). Recursos y datos sobre acuicultura. Retrieved from https://www.observatorio-acuicultura.es
24. Olafsen, T. (2025). Response to the questionnaire on the licensing and environmental management of fish farming (Norway). [Questionnaire response / primary material].
25. Republic of Cyprus – Department of Fisheries and Marine Research (DFMR). (2021). National aquaculture strategy. Nicosia: DFMR.
26. Scottish Government / Marine Scotland. (n.d.). Policy and guidance on marine aquaculture. Edinburgh: Scottish Government.
27. Spanish Ministry of Agriculture, Fisheries and Food (MAPA). (n.d.). Acuicultura: legislación y estadísticas. Madrid: MAPA.
28. Spanish Ministry of Agriculture, Fisheries and Food (MAPA). (2025). Respuesta al cuestionario sobre autorización y gestión ambiental de la acuicultura. [Questionnaire response / primary material].
29. Spanish Ministry of Agriculture, Fisheries and Food (MAPA). (n.d.). Acuicultura: legislación y estadísticas. Madrid: MAPA.
30. Standards Norway. (n.d.). NS 9410 Environmental monitoring of marine fish farms; NS 9415 Marine fish farms — Requirements for design, dimensioning, production, installation and operation.
31. Turkish Ministry of Agriculture and Forestry (MoAF). (2022). Aquaculture sector report. Ankara: MoAF.
32. Tveterås, R., et al. (2012). Norwegian aquaculture: Past, present and future. Marine Policy, 36(3), 464–472.
33. Greece. (2011). Law 4014/2011 – Environmental licensing of projects and activities.
34. Greece. (2014). Law 4282/2014 – Support measures for fish farming (Government Gazette A' 182/29.08.2014).
35. Presidential Decree 99/2018. (2018). Designation of AZA Zones.
36. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
37. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.
38. Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for marine strategy.
39. Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.
40. Ministry of Rural Development and Food – Directorate of Aquaculture. (n.d.). Service website/documents. Athens: MRDF.