

TSI-19998

ACTION PLAN FOR THE DEVELOPMENT OF SUSTAINABLE AQUACULTURE IN MALTA

2026 – 2036

Technical Note on a Draft Action Plan for the Development of Sustainable Aquaculture in Malta

Technical Support Instrument
Supporting reforms in 27 Member States

Funded by the European Union

GOVERNMENT OF MALTA
MINISTRY FOR AGRICULTURE, FISHERIES AND FOOD SUPPLY

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Foreword by the Minister

Malta is a maritime nation. Our relationship with the sea has shaped our economy, our communities and our identity for generations. Today, as we look towards a more resilient and sustainable food system and a stronger blue economy, aquaculture has an increasingly important role to play.

Malta has developed an aquaculture sector with a strong international presence, particularly in Atlantic Bluefin Tuna, while also producing European seabass and gilthead seabream. The sector contributes to economic activity and exports, but it operates in a rapidly changing environment characterised by increasing international competition, market volatility, climate pressures, environmental challenges and growing expectations from our communities.

The Action Plan for the Development of Sustainable Aquaculture in Malta 2026–2036 therefore represents an important step in defining the future we want for this sector. Its vision is clear: a resilient, diversified and sustainable aquaculture industry that contributes to Malta's food security, economic growth and stewardship of the marine environment, while earning and maintaining the trust of our communities.

This is fundamentally an Action Plan for responsible growth.

We want Malta to build upon the expertise and international standing it has already developed, while reducing vulnerabilities through diversification, innovation and research. This means exploring opportunities for Closed-Cycle Species and low-trophic species, identifying appropriate new aquaculture sites, supporting enabling infrastructure and strengthening the research capacity necessary to take new ideas from the laboratory to commercial application.

Investment in knowledge will be central to this transformation. Through the continued strengthening of Aquatic Resources Malta including investment in modern research, innovation and supporting infrastructure, we want Malta to strengthen its position as a Mediterranean centre for aquaculture and fisheries research and innovation.

At the same time, Government recognises that economic growth cannot be separated from environmental responsibility.

Our marine environment is one of Malta's most valuable assets. Aquaculture must therefore develop within its ecological limits and alongside other legitimate uses of our seas. This Action Plan places stronger environmental performance, climate resilience, ecosystem-based management and the reduction of the sector's environmental footprint at the heart of future development. It proposes measures ranging from climate vulnerability assessments and circular-economy initiatives to stronger environmental monitoring and a risk-based approach for managing environmental impacts.

Public trust is equally important.

For aquaculture to grow sustainably, it must do so in a way that protects the marine environment and commands the confidence of the public. This requires high environmental standards, responsible practices, transparency and meaningful engagement with communities and stakeholders. The Action Plan therefore places environmental sustainability and public trust at the heart of the sector's future development, while strengthening public awareness, stakeholder participation and confidence in locally farmed products.

This approach is reflected in the four strategic pillars underpinning the Plan: Growth through Diversification and Innovation; Building Resilience and Competitiveness; Earning Public Trust and Social Acceptance; and Leading the Green Transition.

Government also understands that ambition must be matched by effective governance. The proposed National Aquaculture Council will provide a structured forum bringing together Government authorities, industry, academia, NGOs and other stakeholders. Alongside regulatory reform, streamlined permitting and licensing and an enhanced centralised digital portal, this should help create a regulatory environment that is transparent, efficient and capable of supporting sustainable investment while maintaining appropriate safeguards.

The future of the sector also depends on its people. We therefore need to invest in skills, educational pathways, work placements, professional development and the next generation of researchers, technicians and entrepreneurs who will shape Maltese aquaculture in the years ahead.

Importantly, this document is not intended to remain simply a statement of ambition. It establishes an implementation framework with responsibilities, indicators, risk-management measures and monitoring arrangements. The Department of Fisheries and Aquaculture will retain a central role in coordinating implementation, with progress monitored through the structures established under the Action Plan.

The preparation of this Action Plan has also benefited from consultation with industry, academia, NGOs, Government entities and international stakeholders, together with a national public survey. It is aligned with Malta's Multiannual National Plan for the Development of Sustainable Aquaculture, relevant European priorities and the broader direction of Malta Vision 2050, which identifies the blue economy as a strategic driver of sustainable growth.

Its development was supported by the European Union through the Technical Support Instrument, managed by the European Commission Reform and Investment Task Force. I would like to recognise this support, together with the contribution of all stakeholders who provided their knowledge, experience and perspectives throughout the process.

Our ambition for the coming decade is therefore clear: an aquaculture industry that is more diversified, more innovative, more competitive and more environmentally responsible; an industry that creates economic opportunity while protecting our marine environment; and an industry that earns the confidence of the communities within which it operates.

Achieving this ambition will require Government, regulators, industry, researchers and civil society to work together. This Action Plan provides us with the framework to do so.

The sea is one of Malta's greatest resources. Our responsibility is to ensure that the economic opportunities it provides are developed sustainably, responsibly and for the benefit of present and future generations.

Hon. Anton Refalo
MINISTER FOR AGRICULTURE,
FISHERIES AND FOOD SUPPLY



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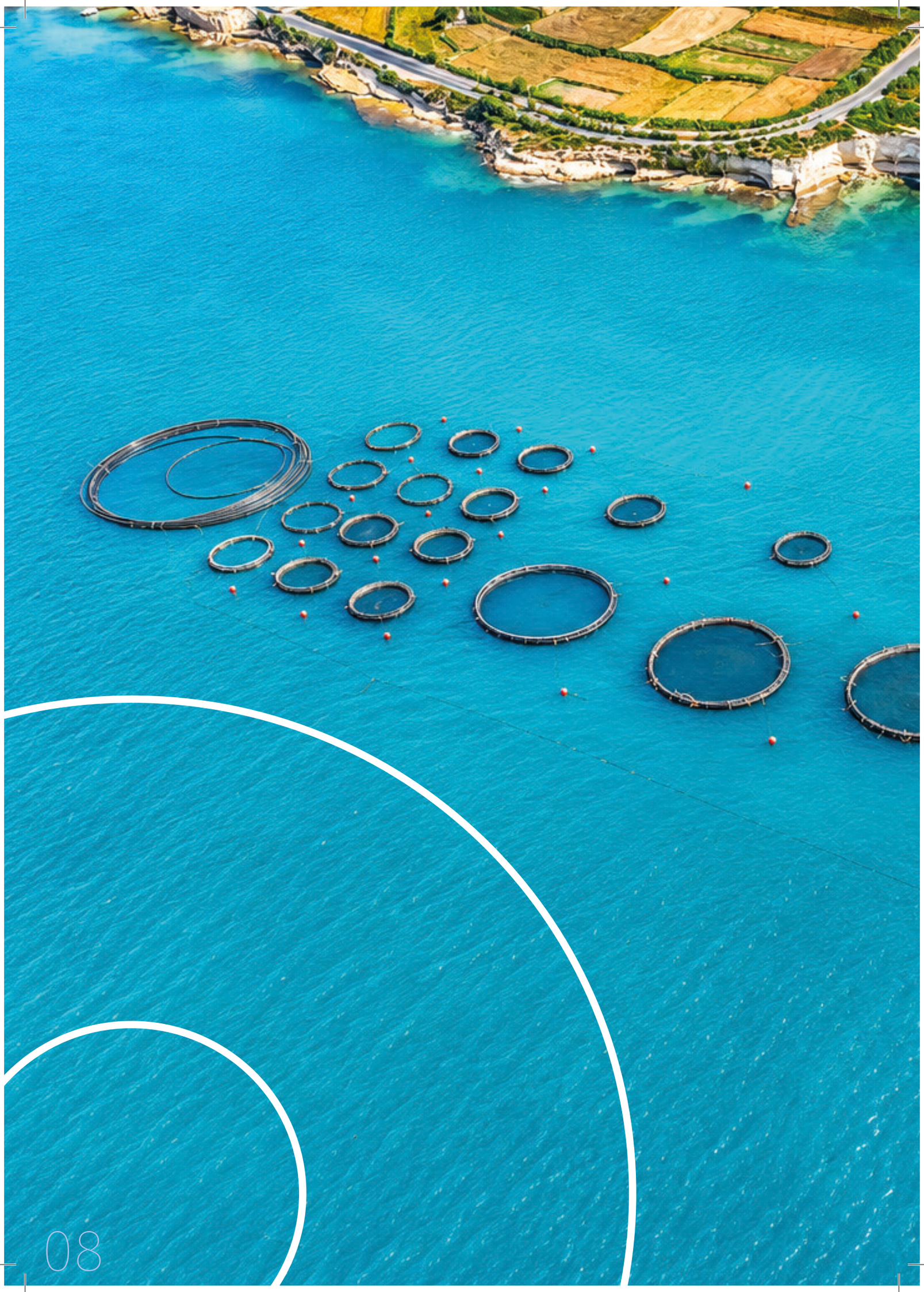
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Abbreviations

Abbreviation	Definition
AA	Appropriate Assessment
AAC	Aquaculture Advisory Council
AFM	Armed Force of Malta
AGIs	Aquaculture Governance Indicators
ALART	Aquaculture Legal Assessment and Revision Tool
ARM	Aquatic Resources Malta
AZA	Allocated Zone for Aquaculture
AZE	Acceptable Zone of Effect
BFT	Atlantic Bluefin Tuna
CAA	Climate Action Authority
CBA	Capture-Based Aquaculture
CCS	Closed-Cycle Species
CEMalta	Circular Economy Malta
CFP	Common Fisheries Policy
CMO	Common Market Organisation
CPD	Continuous Professional Development
CSD	Continental Shelf Department
DFA	Department of Fisheries and Aquaculture
EAA	Ecosystem Approach to Aquaculture
EC	European Commission
EEZ	Exclusive Economic Zone
EHD	Environmental Health Department
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIF	European Investment Fund
EMFAF	European Maritime, Fisheries and Aquaculture Fund
EMP	Environmental Monitoring Programme
ENSG	Effective Number of Species Groups
EQS	Environmental Quality Standards
ERA	Environment and Resources Authority
EU	European Union
EU AAM	EU Aquaculture Assistance Mechanism
FAO	Food and Agriculture Organization of the United Nations
FEAP	Federation of European Aquaculture Producers
FIBER	Fisheries Block Exemption Regulation
FMAP	Federation of Maltese Aquaculture Producers
FSSA	Food Safety and Security Authority
FTE	Full-time Equivalent
GBER	General Block Exemption Regulation
GFCM	General Fisheries Commission for the Mediterranean
GHG	GreenHouse Gas

Abbreviation	Definition
HACCP	Hazard Analysis and Critical Control Point
IAS	Invasive Alien Species
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICZM	Integrated Coastal Zone Management
IMTA	Integrated Multi-Trophic Aquaculture
IPS	Institute for the Public Services
KPIs	Key Performance Indicators
LA	Lands Authority
LCA	Life Cycle Assessment
MAFF	Ministry for Agriculture, Fisheries and Food Supply
MCAST	Malta College of Arts, Science & Technology
MDB	Malta Development Bank
MEEP	Ministry for the Economy, Enterprise and Strategic Projects
MEER	Ministry for Energy, the Environment and the Regeneration of the Grand Harbour
MEYR	Ministry for Education, Sport, Youth, Research and Innovation
MFA	Malta Food Agency
MFDC	Ministry for European Funds, Social Dialogue and Consumer Protection
MFIN	Ministry for Finance
MNPSA	Multiannual National Plan for the Development of Sustainable Aquaculture
MPAs	Marine Protected Areas
MSFD	Marine Strategy Framework Directive
MSP	Marine Spatial Planning
MTA	Malta Tourism Authority
NCPE	National Commission for the Promotion of Equality
NGO	Non-Governmental Organisation
NSO	National Statistics Office
PA	Planning Authority
PBS	Public Broadcasting Services
PO	Producer Organisation
PPP	Public-Private Partnership
R&D	Research and Development
SCH	Superintendence of Cultural Heritage
SEA	Strategic Environmental Assessment
SEAZ	South-East Aquaculture Zone
SMEs	Small and Medium-sized Enterprises
SPED	Strategic Plan for the Environment and Development
TM	Transport Malta
UBOs	Ultimate Beneficial Owners
UM	University of Malta
WAPI	World Aquaculture Performance Indicators
WBS	Work Breakdown Structure





Executive summary



Executive summary

Malta's aquaculture sector is at an important point of transition. The sector has established a strong international position, particularly in Atlantic bluefin tuna, but remains exposed to market concentration, rising operating costs, environmental pressures, limited marine space, infrastructure gaps and challenges around public trust. At the same time, new technologies, species diversification, research, sustainable production practices and emerging investment opportunities offer considerable potential for future growth.

This Action Plan for the Development of Sustainable Aquaculture in Malta 2026–2036 provides a practical roadmap for translating Malta's strategic ambitions into coordinated action. It builds on the Multiannual National Plan for the Development of Sustainable Aquaculture and aligns aquaculture development with Malta's wider objectives for food security, the blue economy, environmental protection and sustainable economic growth.

Strategic Framework

The Action Plan is structured around four Strategic Pillars, each addressing a core area of need and opportunity. These pillars are operationalised through 24 strategic objectives and 70 targets, which collectively map the pathway for the sector's transformation over the next decade in line with Malta's Multiannual National Plan for the Development of Sustainable Aquaculture (MNPSA) 2022 2030.

From Strategy to Delivery

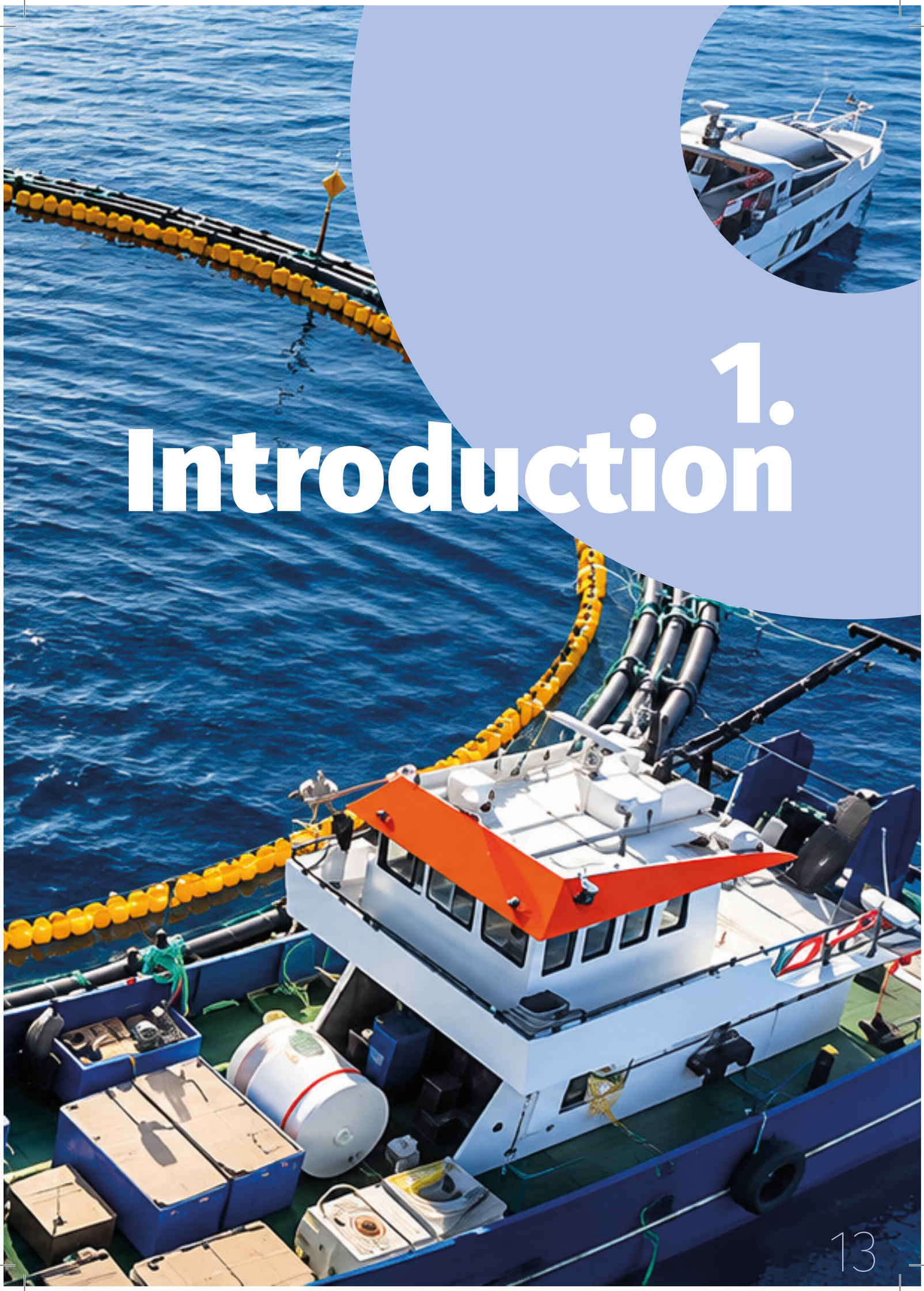
The Action Plan is designed as an implementation framework rather than solely a statement of policy ambition. Its Work Breakdown Structure translates the four pillars into specific actions, identifies lead and supporting entities and establishes output and outcome indicators for monitoring progress. A dedicated risk register identifies implementation risks and corresponding mitigation measures, while potential national, European and private financing opportunities are considered to support delivery.



The Department of Fisheries and Aquaculture (DFA) will retain the central role in sector oversight, supported by the proposed National Aquaculture Council as a platform for coordination between public authorities, industry, research institutions, civil society and other stakeholders. Regular progress updates and annual reporting are intended to strengthen accountability and allow implementation to respond to changing conditions.

Ultimately, the Action Plan seeks to move Malta from a high-value but concentrated aquaculture model towards a more diversified, innovative, competitive and environmentally responsible sector. Its success will depend on coordinated implementation, sustained investment, scientific evidence and meaningful collaboration between government, industry, research organisations and communities.





1. Introduction



1. Introduction

This Action Plan outlines the Government's strategic approach to strengthening and expanding aquaculture in Malta. It builds on the foundations laid by the 2014–2025 Aquaculture Strategy[1], which helped establish clearer spatial planning, environmental oversight, and a regulatory framework for the sector. As that strategy nears its timeframe, the Multiannual National Plan for the Development of Sustainable Aquaculture ('MNPSA') 2022–2030[2] was adopted to guide the sector through new and evolving challenges.

This Action Plan supports the implementation of the MNPSA by translating its high-level priorities into clear, actionable steps. It aims to foster a more competitive, diversified, and sustainable aquaculture industry that contributes meaningfully to Malta's food system, economy, and marine environment.
Its development was informed by a broad evidence base, including consultations with industry stakeholders, academia, Non-Governmental Organisations ('NGOs'), Government entities, and international stakeholders. A national public survey was also conducted to understand perceptions and expectations around aquaculture. The Action Plan further aligns with key European Commission ('EC') priorities, including amongst others the Strategic Guidelines for a Sustainable and Competitive EU Aquaculture (the 'EC Strategic Guidelines')[3], the Farm to Fork Strategy[4], and the European Green Deal[5]. It also remains consistent with Malta's objectives under the European Maritime, Fisheries and Aquaculture Fund ('EMFAF') programme[6]. In addition, it draws on guidance provided by the EU Aquaculture Assistance Mechanism ('EU AAM')[7], and the publications of the Aquaculture Advisory Council ('AAC'), and the Food and Agriculture Organization ('FAO') of the United Nations. The Action Plan[8] is also congruent with other national strategies, such as Malta's 2030 Energy and Climate Plan, the Low Carbon Development Strategy[9], and the National Biodiversity Strategy and Action Plan[10], and is further aligned with Malta Vision 2050[11], which identifies the blue economy as a future strategic driver of sustainable growth.

Aquaculture in Malta

Aquaculture is defined by the Common Fisheries Policy ('CFP') as the rearing or cultivation of aquatic organisms using techniques designed to increase the production of the organisms in question beyond the natural capacity of the environment, where the organisms remain the property of a natural or legal person

throughout the rearing and culture stage, up to and including harvesting[12]. Aquaculture is one of the world's fastest-growing food sectors, already supplying over half of global seafood consumption[13]. With global seafood demand projected to rise, aquaculture is expected to supply over 60% of fish and general aquatic products intended for human consumption by 2030[14].

Against this global backdrop, Malta has carved out a distinctive position, with an aquaculture industry that, while small in scale, ranks among the EU Member States with the highest production values[15]. This is a remarkable achievement given Malta's very limited territorial waters. The sector's strength is rooted in its long-standing role as a global player in the Atlantic Bluefin Tuna (***Thunnus thynnus, tonn***)[16] industry. Lying along the species' migratory route, Malta has strategically leveraged its geography to develop a robust Capture Based Aquaculture ('CBA') segment focused on the Atlantic Bluefin Tuna ('BFT'), positioning itself as the leading producer in the Mediterranean and a major exporter to premium markets such as Japan and Korea. Given its ecological sensitivity, the Atlantic BFT industry is subject to strict regulation under the International Commission for the Conservation of Atlantic Tunas ('ICCAT'), which sets quotas, monitoring requirements, and conservation measures to safeguard wild stocks and elevate long-term sustainability.

Apart from CBA, Malta also engages in Closed-Cycle Species ('CCS') aquaculture, that is, the farming of species that are bred and grown entirely in captivity, independent of wild stock inputs. In Malta, CCS aquaculture includes the European seabass (***Dicentrarchus labrax, Spnotta***)[17], and the Gilthead seabream (***Sparus aurata, Awrata***[18]). Despite its potential for sustainable development and economic expansion, volumes for CCS have remained relatively low. CCS production offers several advantages that can help address constraints in expanding Malta's aquaculture industry, as will be discussed later. In particular, it allows for greater control over feed inputs, which in turn enables tighter management of cost structures as well as ecological impacts.

Figure 1 below illustrates the difference in production weight between Capture Based Aquaculture ('CBA') and Closed-Cycle Species ('CCS') aquaculture in Malta over recent years. It highlights the clear dominance of CBA in terms of output volume, while also showing the relatively limited but consistent contribution of CCS.

Production output of the Maltese Aquaculture Sector

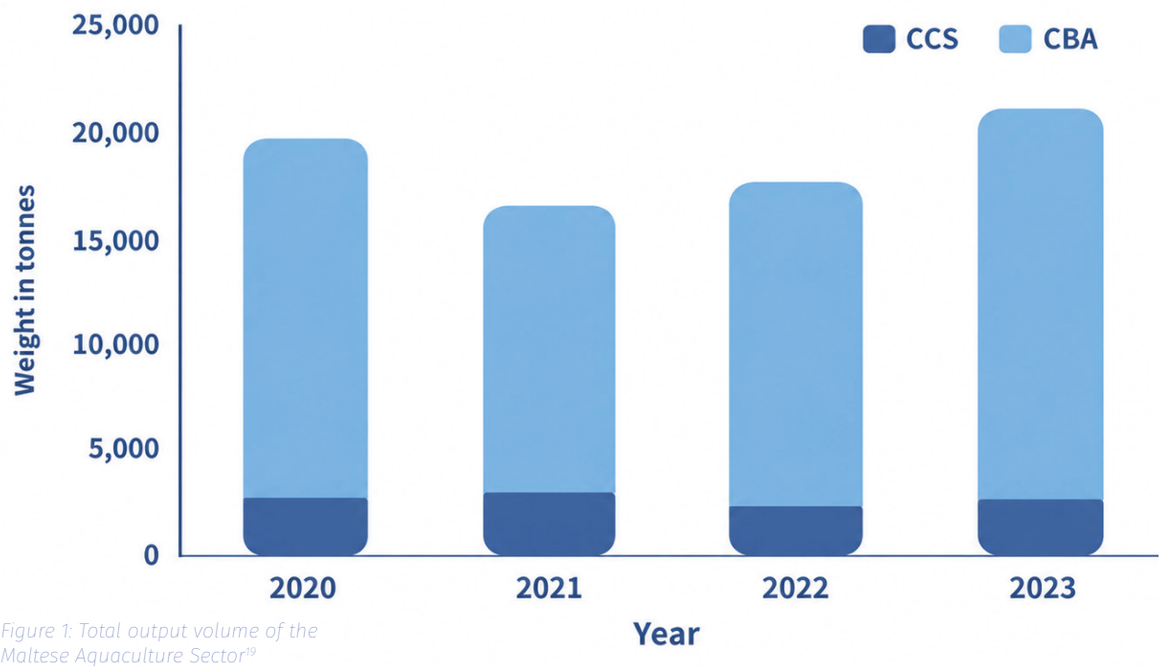


Figure 1: Total output volume of the Maltese Aquaculture Sector[19]

An Industry at a crossroads

Figure 1 reveals that in 2023, Malta's aquaculture industry produced nearly 21,000 tonnes of farmed fish. This generated a total output valued at €199.1 million[20], and also marked a 15.4% increase in production volume compared to the previous year, primarily driven by a rise in farmed tuna output. This level of production is achieved through the operations of seven licensed aquaculture companies, some of which share common Ultimate Beneficial Owners ('UBOs'), reflecting a degree of consolidation within the sector. Most operators focus on CBA of Atlantic BFT. A single operator is dedicated exclusively to CCS, while another undertakes both types of species and production systems.

Despite the increase in production, export value fell sharply by €121.31 million (38%) in 2023[21]. In fact, industry representatives have reported that the price per kilo of tuna exported from Malta has almost halved, attributing this to changes in exchange rates and geopolitical issues affecting Malta's main export markets[22]. With almost 95% of exports destined for Japan, this overreliance leaves the sector especially exposed to fluctuations in the yen and market conditions in a single country. In addition, intermediate consumption, which includes most operating expenses, increased by €28.5 million (11.9%) to €266.8 million in 2023[23]. Fish purchases, particularly live tuna and imported feed such as mackerel, account for around 60% of these costs, making profitability highly sensitive to price shifts. These combined pressures have led to a significant decrease.

This economic setback underscores the sector's vulnerability to market volatility, rising input costs, and its heavy reliance on Atlantic BFT and a narrow range of export markets. Malta's insularity compounds these challenges, with higher transport costs than mainland competitors, limited space for onshore storage and processing, and a reliance on foreign intermediaries for logistics. Operators also face substantial livestock management risks, including cage damage from shipping, extreme weather, and bacterial diseases, with costly insurance available only from foreign providers. The situation reinforces the urgent need for government-led reforms aimed at building a more competitive and resilient aquaculture sector, with diversification, innovation, and long-term sustainability at its core.

Within this context, the CCS segment represents one of the strongest opportunities for Malta's aquaculture to diversify and build resilience. Beyond its environmental and technological advances, CCS holds significant potential to generate high economic value and to contribute socially by creating shorter food supply chains that bring farmed fish closer to local and regional consumers. This would reduce dependence on distant export markets, improve food security, and stimulate local economic activity. However, expansion of the CCS segment remains constrained by limited availability of aquaculture sites and competition for marine space, the absence of essential infrastructure such as a dedicated hatchery, and other challenges outlined below. Overcoming these barriers is essential if Malta is to unlock the CCS sector's full potential as a driver of a more competitive, diversified, and socially beneficial aquaculture industry.



Challenges and Opportunities

Beyond the economic and financial dimensions outlined above, Malta's aquaculture sector also faces significant environmental and social challenges that continue to impact public perception and policy priorities.

The CBA segment, in particular, has faced persistent environmental challenges, notably the issue of fish oil slicks (commonly referred to as 'fish slime') caused by baitfish used to feed Atlantic BFT. There have been commendable efforts to mitigate the problem, including relocation further offshore, booms to contain oil slicks, and industry-led clean-up campaigns. While these measures have helped reduce the severity of the issue, fish slime continues to affect coastal waters.

In addition to this, other social and environmental conflicts such as occasional reports of dead tuna washing ashore (whose farm origin is not confirmed), and the disruption of bathing areas by the fish slime and occasionally by large dead tuna, have further compounded tensions, particularly during peak tourism months which coincide with Atlantic BFT ranching season. These issues have collectively eroded public trust in the industry.

This decline in public trust also reflects broader national consumer attitudes, with 65% of Maltese preferring wild-caught fish, the highest in the EU and significantly higher than the EU average of 36%[24]. This highlights a missed opportunity to leverage local food circuits, particularly important against the backdrop of rising costs, supply chain disruptions, and threats to food security.

These key structural factors shaping the current state of aquaculture in Malta are framed in the SWOT analysis below.

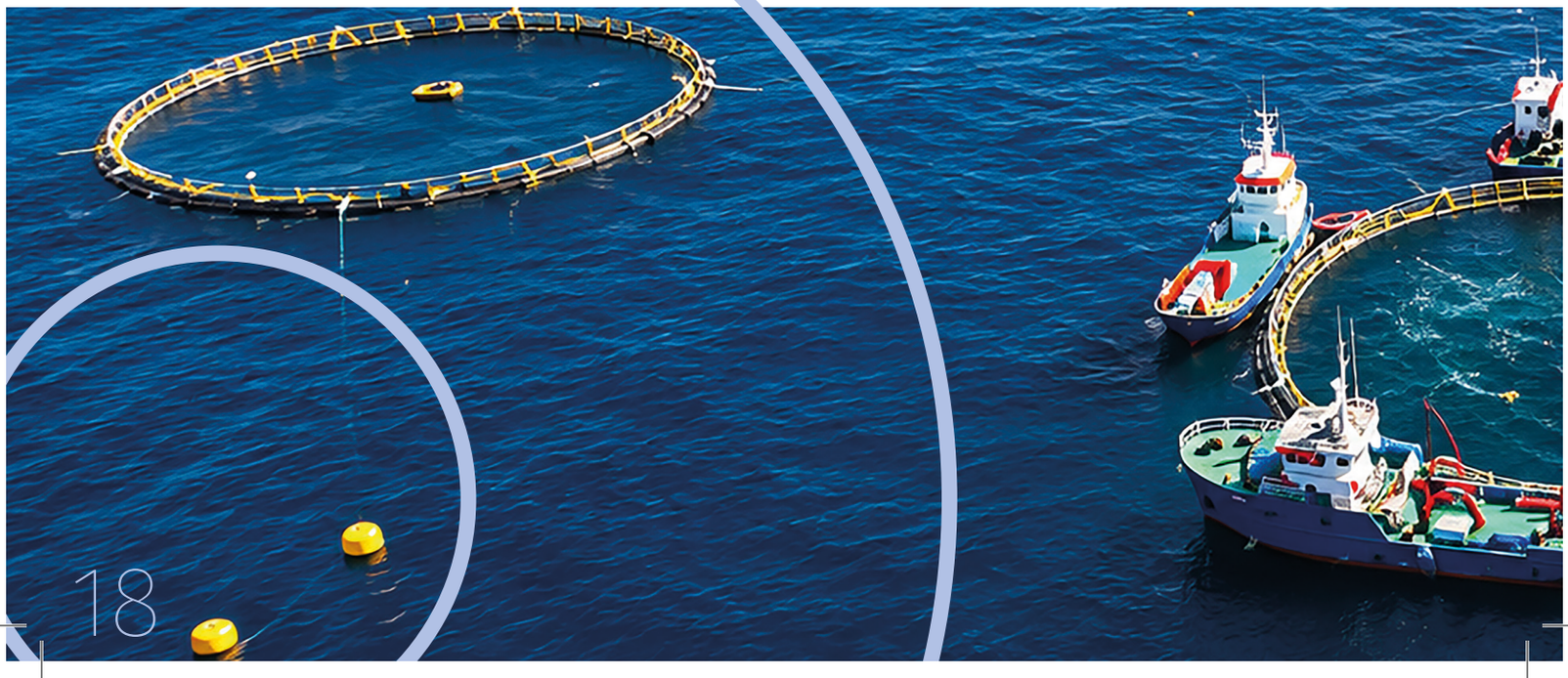


Strengths

- Established global reputation in Capture-Based Aquaculture ('CBA') of Atlantic Bluefin Tuna.
- Strong export links and relational capital with premium markets (Japan, Korea, China).
- Experienced operators with technical know-how and track record.
- Geographical advantage along BFT migratory routes and access to EU/MENA markets.
- Existence of Allocated Zone for Aquaculture ('AZA') and - Exclusive Economic Zone ('EEZ') expansion supporting spatial management.
- Ongoing research capacity – particularly the establishment of Aquatic Resources Malta ('ARM') which showcases a commitment to increased investment in the area.

Weaknesses

- Heavy reliance on Atlantic BFT and limited export markets, creating vulnerability.
- Small domestic market with a strong reliance on foreign markets.
- Limited diversification into Closed-Cycle Species ('CCS') and low-trophic species.
- High intermediate consumption costs
- Fragmented governance and long permitting processes.
- Lack of essential infrastructure (e.g. no local hatchery available for CCS production).
- Public perception challenges and social acceptance gap.
- Insularity issues creating high transport costs and other challenges.
- Financing gaps including high entry costs and limited access to tailored financial instruments.



Opportunities

- Global growing demand for seafood
- Potential to stand out as an industry driven by sustainable practices
- Species diversification with potential for local value chains and short food circuits.
- Climate-proofing the industry through resilient species selection, offshore technologies, circular economy practices.
- Establishment of enabling infrastructure (e.g. local hatchery).
- Improved consumer trust through traceability, product awareness campaigns, and enforcement against mislabelling.
- Investment potential, particularly for diversification projects.
- Government interventions around areas such as public perception and governance.

Threats

- Persistent volatility of Atlantic BFT markets.
- Rising operational and input costs, particularly for imported baitfish.
- Environmental pressures including fish slime and nutrient loading.
- Limited marine space due to competing uses.
- Lack of affordable and accessible insurance options.
- Risk of public opposition to expansion projects.
- International competition, particularly from countries with lower costs and stronger subsidies.
- Climate change impacts including higher sea temperatures, extreme weather, and water quality deterioration.
- Disease outbreaks and parasites, which may intensify with warming seas and can severely disrupt production.

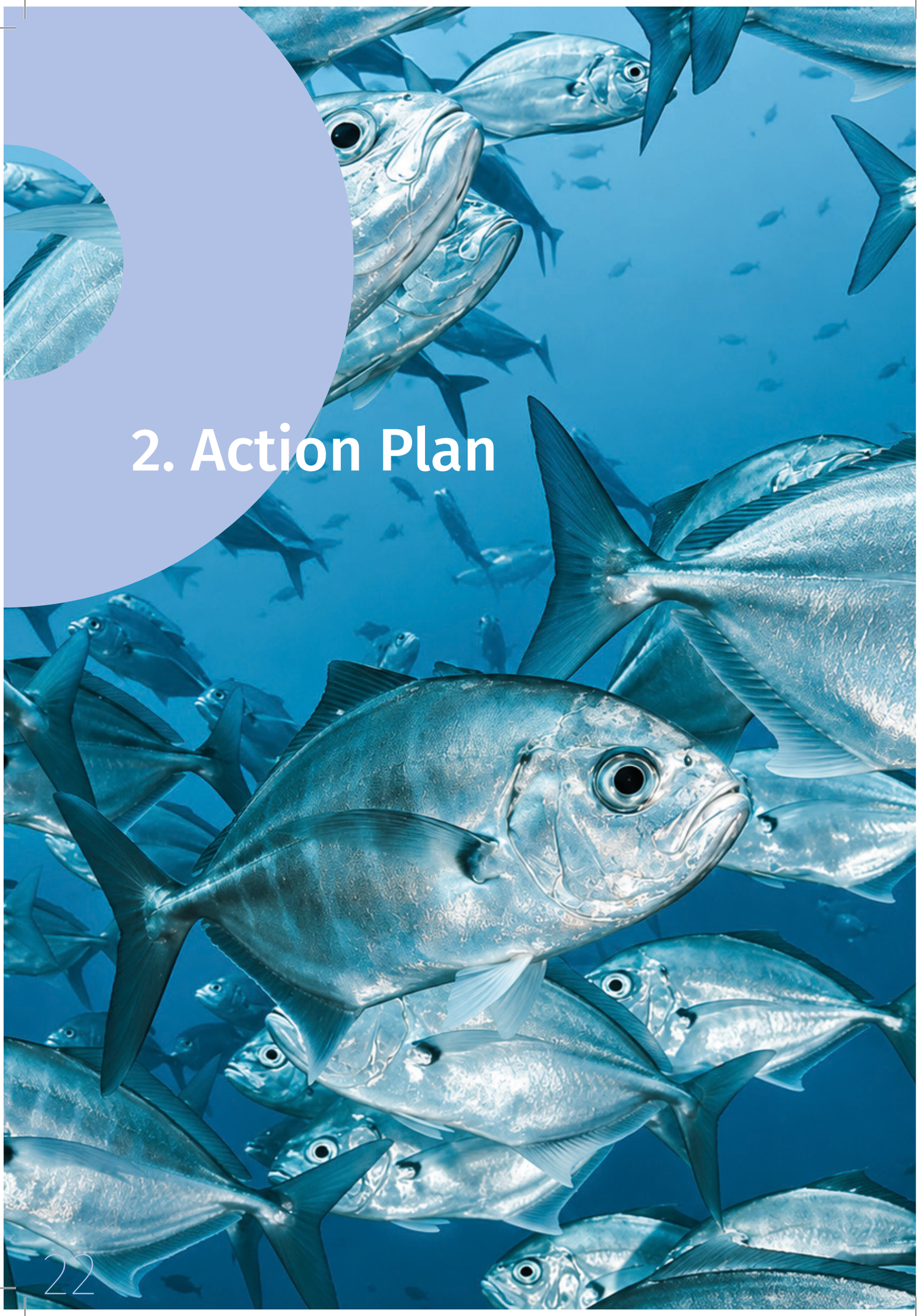
These insights provide the foundation for the strategic framework and targeted actions outlined in Chapter 2, which aims to build on existing advantages while directly addressing key challenges and external risks.







2. Action Plan



2. Action Plan

This chapter outlines the framework for the development of aquaculture in Malta. It presents the overarching vision, mission, and the key strategic pillars, each supported by targeted actions.

2.1 Action Plan Framework

Vision

To develop a resilient, diversified, and sustainable aquaculture sector that contributes to Malta's food security, economic growth, and marine environmental stewardship, while earning the trust of local communities.

This vision reflects Malta's commitment to developing an aquaculture sector that is stable, inclusive, sustainable and environmentally responsible. It emphasises the importance of diversification, sustainability, and resilience in supporting national food systems, economic development, and the health of marine ecosystems, while earning a strong social license to operate.

Mission

Leveraging technological, environmental, social, and economic advancements in aquaculture to address current challenges and unlock new opportunities for growth and diversification.

This mission reflects Malta's intent to leveraging new approaches to aquaculture and advancements in resolving existing constraints. It emphasises using Malta's strategic location, regulatory evolution, and sectoral experience to shape a future-ready aquaculture industry that delivers long-term value across society, economy, and the environment.

Strategic Pillars

The following strategic pillars set out the pathway to achieve Malta's vision for aquaculture. Each pillar is linked to specific goals and actions designed to strengthen resilience, drive diversification, and facilitate the sector's long-term sustainability. Together, they form an integrated framework that must be pursued in unison.

1. Growth through Diversification and Innovation: expanding aquaculture through new sites, enabling infrastructure, and research capacity to support new market opportunities including species diversification.

2. Building Resilience and Competitiveness: strengthening structural factors including governance, financing, and industry collaboration with a view to create a more competitive, attractive, and investment-ready sector.

3. Earning Public Trust and Social Acceptance: earning a social license to operate by improving environmental performance and increasing transparency to build a stronger confidence.

4. Leading the Green Transition: aligning with environmental objectives through ecosystem-based management whilst strengthening climate change adaptation and mitigation measures.

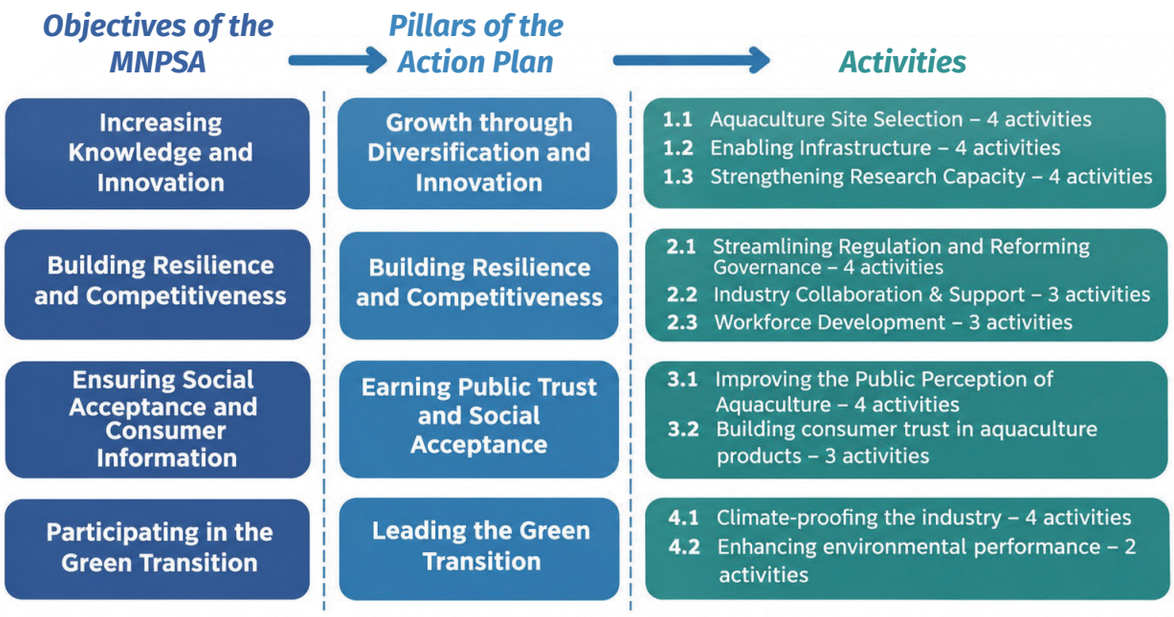


Figure 2: MNPSA to Action Plan





As this Action Plan follows from and supports the implementation of the MNPSA, the pillars are connected to its high-level priorities. Through stakeholder consultation and research, the Action Plan affirms and then expands upon the work of the MNPSA according to the current industry realities, providing a more detailed implementation plan.

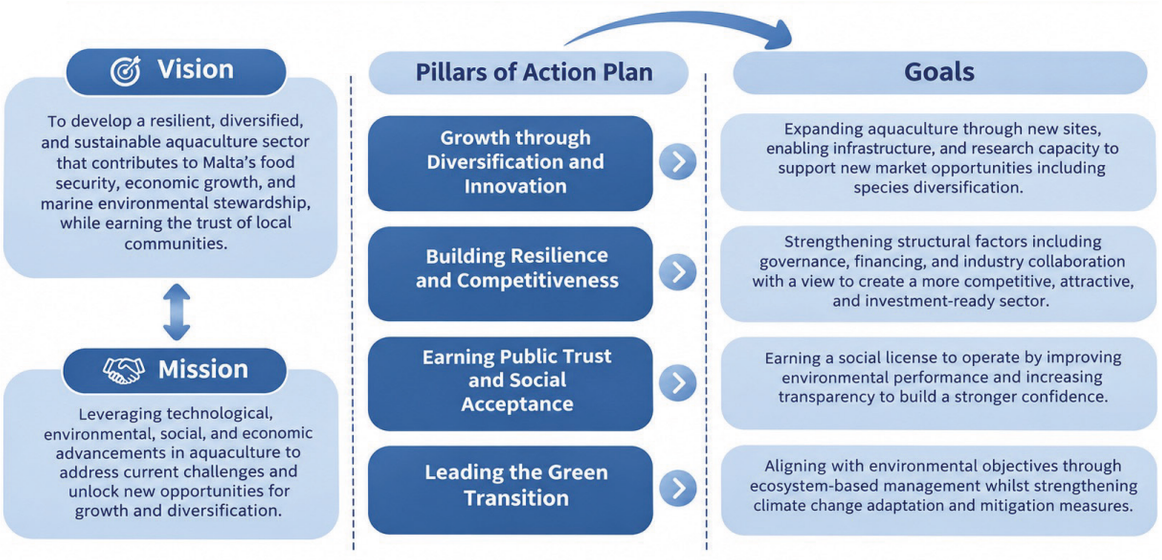


Figure 3: Strategic Framework





2.2 Action Plan

Pillar 1: Growth through Diversification and Innovation

Goal: *expanding aquaculture through new sites, enabling infrastructure, and research capacity to support new market opportunities including species diversification.*

Action 1.1: Aquaculture Site Selection

The diversification and expansion of Malta's aquaculture sector are heavily dependent on the availability of suitable marine space. This challenge is recognised at a European level[25], where competition for marine space continues to grow. For Malta, a small island state with a long history tied to the blue economy, this issue is particularly acute. Indeed, Malta's waters are busy; restricted areas, bunkering zones, trawling areas, the Armed Forces of Malta shooting range, submarine cables and pipelines which include interconnectors and gas pipeline, and coastal tourism all exert pressure on the marine environment. In addition, approximately 35% of Malta's territorial waters are designated as Marine Protected Areas ('MPAs')[26], which underscores the need for careful site selection that takes into account conservation objectives.

Over the past decade, Malta has made positive strides, notably by establishing Allocate Zone for Aquaculture ('AZA'), such as the South-East Aquaculture Zone ('SEAZ'), which consolidates multiple operators into shared sites, improving operational efficiency and environmental management. Malta has also extended its maritime jurisdiction through the Exclusive Economic Zone Act of 2021 (Chapter 625 of the Laws of Malta)[27], opening new areas for blue economic activity including aquaculture while facilitating sustainable marine resource management.

Technological innovations have also broadened the technical parameters of site selection. Advanced floating systems and offshore technologies now make it possible to establish aquaculture farms in deeper waters, overcoming the challenges posed by anchoring in such depths. Deep-water systems represent a different type of aquaculture being carried out in Malta, and while they offer new opportunities, they come with their own set of unique challenges. Furthermore, environmental conditions must be compatible with the species being farmed, as factors such as temperature, salinity, and water quality directly influence the success and sustainability of the operation.

Apart from technological innovations, there have been newer approaches towards Marine Spatial Planning ('MSP') and aquaculture site selection. Approaches such as Integrated Coastal Zone Management ('ICZM') and the Ecosystem Approach to Aquaculture ('EAA') provide important frameworks for managing competing marine activities and ensuring sustainable aquaculture development. These frameworks focus on balancing environmental, social, and economic objectives, ensuring that aquaculture is integrated into the broader coastal and marine ecosystem in a way that protects natural resources while allowing for growth. In addition, the Marine Strategy Framework Directive ('MSFD') plays a critical role in guiding aquaculture development, aligning with the broader environmental goals of achieving "Good Environmental Status" for the marine environment.

Given these developments and the targeted growth of the aquaculture industry, it becomes important to establish additional space for aquaculture, and work identifying potential sites has been carried out to this effect. Nonetheless, it is recognised that the effective implementation of the expansion

of aquaculture sites, and other infrastructure proposed below, will require careful spatial planning and development permitting in line with applicable national and EU legislation, early and ongoing consultation with the Planning Authority ('PA') and the Environment and Resources Authority ('ERA'), and the incorporation of environmental screening, including, where required, Appropriate Assessment ('AA') and Strategic Environmental Assessment ('SEA') procedures. Environmental feasibility, including potential impacts on local ecosystems, biodiversity and landscape characteristics, shall also be assessed prior to progressing towards detailed site-selection exercises.

The following actions will therefore be implemented:

a) **Establishing new coastal aquaculture sites[28] for Closed-Cycle Species production:** an exercise is currently underway to identify new sites for coastal aquaculture, considering a shortlist of Closed-Cycle Species that demonstrate economic potential and promising environmental compatibility. This process will help determine suitable site-species combinations. The process also aligns with best practice frameworks and approaches, being stakeholder-driven[29] while considering a comprehensive range of factors, including environmental, technical, social, and economic considerations to facilitate a balanced and integrated approach. This exercise will serve as an important input to more detailed investigations, including assessments to establish the carrying capacity, any necessary research trials to gather scientific data on site-species compatibility, and fully fledged environmental impact assessments required as part of the site permitting process.

b) **Establishing new coastal sites for low-trophic species:** The cultivation of primary producers (e.g. macroalgae) and primary consumers (e.g. unfed shellfish) presents a valuable opportunity for Malta to build on its existing aquaculture expertise and further diversify the sector. Government remains committed to supporting projects for low-trophic species production in the future. Emerging technologies, such as Integrated Multi-Trophic Aquaculture ('IMTA'), may enable the co-farming of both high-trophic species (such as Atlantic BFT) and low-trophic species within the same water column, enhancing spatial and resource efficiency. Additionally, such initiatives may support the application of organic farming principles, aligning with Malta's Action Plan for Organic Food[30].

c) **Establishing new open sea aquaculture sites:** An exercise is currently ongoing to identify and assess potential sites for open sea aquaculture, building on preliminary spatial analysis and stakeholder input. This process will involve evaluating environmental, technical, and economic suitability, while aligning with the applicable environmental and maritime planning policies. Based on the outputs of this assessment, Government will gauge the interest of potential investors and operators, whilst exploring suitable technologies for open sea aquaculture development.

d) **Revising the capacity of the SEAZ**: Government recognises the need to reopen the Environmental Impact Assessment ('EIA') for the South-East Aquaculture Zone ('SEAZ') with a view to reassess capacity. Government will take stock of current farming operations and assess optimisation opportunities within the South-East Aquaculture Zone. This includes proactive modelling of production capacity, particularly to evaluate the potential to expand beyond the current 9,000-tonne limit embedded in the ERA permit. Any reassessment of the capacity of the South-East Aquaculture Zone will build on existing Planning Authority approvals and Environmental Impact Assessment outcomes, and any future proposals will be discussed with ERA and other competent authorities.

Action 1.2: Enabling infrastructure

The expansion of the aquaculture industry depends not only on the availability of suitable farming sites but also on the broader on-land infrastructure that supports the entire value chain.

Aquaculture is a complex sector that spans a wide range of interconnected activities, from hatchery operations, feed storage, and equipment maintenance to harvesting, processing, cold storage, and distribution. To facilitate long-term growth, it is essential to address gaps and opportunities across this full spectrum. A well-developed, integrated infrastructure will enhance efficiency, attract investment, reduce operational costs, and support the long-term resilience of the sector.

Currently, Malta adopts a highly decentralised approach, with operators are typically individually responsible for developing and managing their own supporting facilities. While this model has enabled

flexibility, it can lead to duplication of effort, inefficiencies, and missed opportunities for collaboration and economies of scale.

In addition, critical to the growth of the Closed-Cycle Species ('CCS') sector is the establishment of a local hatchery capable of supplying high-quality seed stock to Maltese operators. A hatchery provides the foundation for selective breeding, genetic improvement, and the controlled production of juveniles tailored to local environmental conditions. At present, Malta's CCS aquaculture segment is heavily reliant on imported seed stock, which introduces supply chain vulnerabilities, increases costs, limits species diversification, and constrains long-term growth.

As part of this Action Plan, stakeholder input helped identify key needs for land-based facilities whilst defining associated site-selection criteria.

These provide a structured basis for evaluating future sites and guiding the following policy actions:

a) **Establishing a local hatchery for CCS:** The development of a hatchery, to be wholly developed and operated by the private sector, has been secured, with a project currently in the pipeline. The hatchery will serve as a dedicated production facility for the Closed-Cycle Species segment, providing locally sourced, high-quality seed stock to aquaculture operators.

b) **Assessing and identifying nursery sites:** Before fish fingerlings are transferred to full-scale production sites, they must first be reared in nursery facilities that allow for better controlled growth during their early stages. Nursery sites, preferably sheltered and located in inshore areas, will need to be identified and developed.

c) **Centralising cold storage capacity:** Adequate cold storage is a prerequisite for a thriving aquaculture sector and at present, facilities are limited, leaving operators with high individual costs and little capacity to buffer against market shocks. A centralised cold storage facility will be developed by a private operator, to enable operators to stock baitfish, helping to mitigate price volatility while improving efficiency and reducing logistical costs across the value chain. The facility could also store harvested fish, which is currently not a challenge for tuna exported to Japan since their intermediaries directly handle cold storage and processing, but would be important for diversifying into other markets. In addition, the facility could potentially support on-site processing, including portioning and preparing ready-to-consume fillets. This would give Maltese operators greater flexibility, reduce dependence on bulk-buying wholesalers, and open direct channels to new markets. Furthermore, this investment represents an opportunity to reduce the industry's carbon footprint, as presently, fish is shipped to Japan to be shipped into Europe, when it could go directly to its ultimate destination from Malta. The government will actively facilitate and support the establishment of this centralised cold storage facility.

d) **Pathology laboratory:** Fish pathology is becoming increasingly important, particularly in light of climate change, which is expected to intensify disease and parasite pressures (see Pillar 4). At present, Malta lacks rapid diagnostic capabilities; suspected cases are sent abroad for testing, and by the time results are received, the opportunity for timely intervention is often lost. While some operators have invested in basic testing, enhanced capacity is required to provide fast, reliable, and cost-effective diagnostics. Government will support the establishment of a centralised pathology laboratory, accompanied by an active disease monitoring plan that sets clear protocols for regular sampling, early detection, and rapid response. This combined approach is intended to strengthen disease and parasite management to reduce the risk of major disruptions to production and increase the sector's attractiveness for new entrants. In addition, close collaboration between aquaculture disease surveillance and national public health notification systems shall facilitate rapid detection and response to zoonotic and emerging aquatic diseases. Clear protocols are therefore to be established for data sharing, confidentiality, and timely communication between aquaculture operators, any sector-specific laboratory, and public health authorities so as to achieve a single unified health approach. The pathology may also be expanded if future to include development of fish treatments, including research on vaccine delivery and development.

It is important to note, that new land-based aquaculture infrastructure will be preferably directed towards already committed sites such as industrial areas or formal coastal zones, avoiding natural coastlines, protected areas, and pristine landscapes.

Action 1.3: Strengthening Research Capacity

Aquaculture is a highly technical and rapidly evolving field, driven by continuous advancements in biology, engineering, and environmental sciences. For Malta to remain competitive and sustainable, its aquaculture development must be underpinned by context-specific and localised research which addresses and accounts for unique local factors, including bio-ecological interactions and specific environmental conditions.

There have already been promising strides in advancing aquaculture research in Malta. Several research trials have been conducted locally, exemplified by the TRANSDOTT project[31], focusing on the domestication of ***Thunnus thynnus,*** and the Amberjack project[32], aiming to develop rearing technologies for the ***Seriola dumerili*** in Malta. Both projects highlight the importance of tailoring aquaculture research to local contexts for successful application and commercial innovation.

Building on this potential, Government has invested in dedicated infrastructure, notably the research facility at Fort San Lucjan, which continues to play a central role in supporting experimental trials and knowledge generation. More recently, the establishment of Aquatic Resources Malta ('ARM') also marks a renewed commitment to strengthening national research capacity. ARM has been entrusted with a dedicated research and innovation portfolio, with a mandate to coordinate and lead applied sustainable aquaculture research, support technology uptake, and foster greater integration between science, policy, and practice. Active efforts are also underway by ARM to understand the fish slime problem, with one initiative looking at how much oil is released during the fish feed thawing process. Government may also consider an Aquaculture Research Plan to be based on the needs of the sector.

To further strengthen Malta's research capacity, the following actions shall be implemented:

a) **Continued Research and Development ('R&D'):** Aquatic Resources Malta will continue to receive national support as well as assistance under the European Maritime, Fisheries and Aquaculture Fund to lead projects that advance the Maltese aquaculture sector. This includes initiatives such as the Species Diversification for Maltese Aquaculture project, which explores the cultivation of new marine species like Greater amberjack (Seriola dumerili) and Red porgy (Pagrus pagrus), as well as research on climate change mitigation and adaptation, and alternative feeds for tuna to reduce environmental impacts and improve sustainability. Government recognises the need to foster collaboration with local academic institutions, including in areas of less traditional research such as computational studies or modelling.

b) **Ongoing investment in R&D infrastructure:** Government will continue to strengthen Aquatic Resources Malta ('ARM'). In addition, Malta will develop a dedicated Aquaculture and Fisheries Research Centre. The envisaged new state-of-the-art facility will enhance national research capacity, create high-quality jobs, and position Malta as a Mediterranean leader in aquaculture and fisheries innovation.

c) **Support for international collaboration:** Participation in international research projects, such as the CopeMed II initiative, provides Malta with valuable opportunities for knowledge exchange, technology transfer, and capacity building. Such collaborations connect Maltese researchers to regional networks working on priority areas including species diversification, feed innovation, climate adaptation, and disease management. Going forward, Malta will actively strengthen its participation in EU-funded projects and regional partnerships across the Mediterranean, aligning research conducted locally with best practices. These efforts will also help attract foreign expertise and investment, elevating Malta's profile as a Mediterranean hub for aquaculture research and innovation.

d) **Enhanced industry coordination:** To make research outputs more commercially relevant and directly usable by operators, Aquatic Resources Malta ('ARM') will intensify its collaboration with industry stakeholders. Structured mechanisms will be introduced to strengthen knowledge transfer and to validate new technologies and approaches. As part of the coordination framework proposed in Action 2.1(b), a research committee composed of industry and Government will be established to guide R&D priorities in line with sector needs.

Pillar 2: Building resilience and competitiveness

Goal: *Strengthening structural factors including governance, financing, and industry collaboration with a view to create a more competitive, attractive, and investment-ready sector.*

Action 2.1: Streamlining Regulation and Reforming Governance

The primary legal framework for aquaculture in Malta is established by the Fisheries Conservation and Management Act of 2001[33], which mandates operational permits for aquaculture establishments. These permits are issued by the Director General of the Department of Fisheries and Aquaculture ('DFA') in consultation with Transport Malta ('TM'), the Environment and Resources Authority ('ERA'), and the Planning Authority ('PA'), particularly concerning site allocation. A key feature of the current system is that aquaculture developments require permits under the Development Planning Act[34] and its subsidiary legislation, notably the Maritime Spatial Planning Regulations (S.L. 552.27)[35]. They must also comply with the Environment Protection Act[36], and its applicable subsidiary legislation, which requires operators to obtain an Environmental Permit from ERA. Subsidiary legislation of the main act (CAP 425), including the Aquaculture Operations Regulations[37] and the Blue Fin Tuna Harvesting Regulations[38], further define regulatory requirements. In addition, any aquaculture activity outside of territorial waters and in Malta's Exclusive Economic zone, requires a licence from the Continental Shelf Department (the 'CSD') in line with the applicable regulations.

Malta's aquaculture legal framework continues to gradually evolve with the growth of the industry. Nonetheless, opportunities for improvement remain, due to limited legal clarity on species-specific needs (such as those between Closed-Cycle Species and Capture-Based Aquaculture), and inadequate focus on sustainability themes such as fish welfare and environmental resilience. Moreover, the current concession and permit system is usually perceived as burdensome and opaque, especially for new entrants, with high fees and separate procedures acting as barriers to growth. Stakeholders report a permit approval turnaround time of three to five years which is far too long given the fast-paced evolution of aquaculture technologies and practices.

In terms of governance, the DFA is the principal entity responsible for licensing, oversight, and policy implementation. It works in collaboration with a wide network of public bodies and while these institutions play vital roles, the overall governance structure is decentralised and fragmented, leading to duplicated efforts and inefficient decision-making. Operators often struggle to navigate the disjointed system, while regulators face challenges in enforcement and coordination.

These challenges are not unique to Malta; indeed, the European Commission highlights that the complexity and lack of predictability of national licensing systems remain key barriers to growth across Member States. The involvement of multiple authorities, the administrative burden on operators, particularly Small and Medium-sized Enterprises ('SMEs'), are all cited as obstacles that mirror Malta's current experience[39].

As Malta seeks to scale up and diversify its aquaculture industry, addressing these structural issues is important to create a more accessible environment for new entrants, including foreign direct investment and SMEs.

The following actions shall be implemented:

a) Enhancing the regulatory framework for aquaculture and making it more accessible: Key priorities for a revised legal framework, identified through stakeholder consultations, include sustainability, simplification, harmonisation, transparency, improved fish health and welfare measures, and addressing gaps related to Closed-Cycle Species. Building on this work, a legal gap analysis will be undertaken using best practice tools such as the Aquaculture Legal Assessment and Revision Tool ('ALART')[40] to assess current legislation and guide reform. The revised framework will aim to align with EU strategic guidelines[41] by streamlining procedures, clarifying application timelines, and potentially consolidating legislation into a single legal instrument to improve accessibility and clarity, in particular for new entrants. The regulatory framework will be visually communicated, such as on government websites, offering a clear visual guide to the regulatory flow and process.

b) Establishing a National Aquaculture Council: While the DFA will remain the lead authority for aquaculture oversight, a new National Aquaculture Council will be established to improve coordination and decision-making. The Council will comprise representatives from key entities and industry representatives, as well as NGOs, The Council will coordinate planning, licensing, and monitoring, and serve as an advisory body engaging stakeholders, including local communities. It will also act as a one-stop shop for operators, streamlining procedures and providing a single interface with public authorities. In addition, the Council will oversee the implementation of this Action Plan and set up a structured framework of cooperation that brings together public authorities, industry, and research, and educational institutions, while promoting the development of clusters for aquaculture. This consolidation reflects recommendations in the EU Strategic Guidelines for Aquaculture, which call for more streamlined governance under a unified structure and a cooperation framework. The Council may also undertake targeted strategic outreach to segments such as professional fishermen, which may mitigate and address potential tensions and facilitate a positive relationship with the wider communities of stakeholders.

c) Improving permitting, licensing, and enforcement: The proposed Aquaculture Council will serve as a consultative body to the DFA on matters related to the permitting and licensing system, providing advice aimed at simplify procedures, reduce administrative burdens, and improve coordination among relevant authorities. This process will involve mapping current procedures, identifying inefficiencies, and proposing reforms, in line with EU Strategic Guidelines and the FAO's Guidelines for Streamlining Aquaculture Licensing and Leasing Processes[42]. It will also include a review of licensing fees and permitting conditions, with potential updates such as species-specific requirements, new data reporting obligations to support sustainable aquaculture development, and revised penalties for non-compliance, including breaches related to discharges such as fish slime.



d) **Enhancing the Centralised Digital Portal:** A dedicated digital portal has been developed by the DFA to centralise data management. This platform will be enhanced to allow operators to manage permit applications, submit required data, and track the status of approvals through a single, user-friendly interface. For regulators, the platform will serve as a consolidated system to review submissions, monitor compliance, and coordinate with other authorities.

Action 2.2: Industry Collaboration & Support

Producer Organisations ('POs') play a central role in aquaculture by supporting operators through cooperation, economies of scale, improved market access, and joint initiatives, amongst other benefits. They provide a platform for collective action that helps the sector tackle shared challenges, pursue opportunities, attract new entrants, and achieve efficiencies that individual operators cannot secure on their own.

In Malta, the Federation of Maltese Aquaculture Producers ('FMAP') plays a key role in representing the sector both nationally and internationally, including through its participation in European platforms such as the Federation of European Aquaculture Producers ('FEAP'). However, FMAP is not formally registered as a PO, which limits access to the full benefits available under the Common Market Organisation ('CMO') Regulation[43]. Stakeholders report that this is due both to the administrative burden of registration, which can be particularly challenging for a small and specialised sector like aquaculture, and to the lack of financial incentives provided under the current EMFAF programme, which has prioritised public-sector projects over industry support. Nonetheless, it is to be noted that there are already ongoing efforts to register a PO.

More broadly, access to finance remains a persistent barrier. Aquaculture is a capital-intensive industry with high entry costs, which can deter new operators and contribute to market concentration. Operators have substantial investment needs, particularly for infrastructure and diversification, but profitability volatility and weak access to external finance have made larger projects difficult to undertake. Apart from the lack of direct support through the EMFAF programme as explained above, national-level support is also limited. In this regard, funding schemes such as the Aquaculture Fund[44], which offers €10,000 per project, are helpful but have been viewed by stakeholders as insufficient to meet financing needs. Malta Enterprise schemes generally exclude aquaculture due to state aid restrictions under the General Block Exemption Regulation ('GBER')[45] and ***De Minimis*** Regulation[46].

As a result, operators typically rely on their own resources, parent company funding, or



bank loans. While some operators have accessed bank financing, particularly for working capital, credit remains difficult to secure overall. Banks view the sector as high-risk, collateral requirements are demanding, and recent profitability declines have further tightened lending conditions. Insurance adds another layer of constraint, since no local aquaculture products exist and foreign coverage is costly.

The following actions shall be taken forward:

a) **Shaping the next programming cycle for the 2028 – 2034 period:** The Managing Authority for EMFAF will undertake a structured consultative process with industry, relevant public bodies, and other key industry stakeholders to co-define investment priorities for the next EU funding cycle. This process will align future allocations to better reflect industry needs, particularly in supporting POs and joint projects that can strengthen diversification, competitiveness, and sustainability.

b) **Facilitating access to debt financing for aquaculture SMEs:** Building on the financing gaps identified, financial intermediaries will be engaged to explore how existing instruments, including InvestEU guarantees, can be made accessible to aquaculture operators. Given the sector's high collateral requirements and risk profile, particular attention will be given to guarantee-based solutions, such as uncapped guarantees, which can improve loan conditions and increase banks' willingness to lend to SMEs and new entrants.

c) **Promoting equity and responsible investment in aquaculture ventures:** Government will work to attract equity into the aquaculture sector, which remains underrepresented as an investment focus. This includes exploring incentives for impact and sustainability-oriented investors, raising awareness of opportunities in emerging species and technologies, and positioning aquaculture as part of Malta's wider blue economy investment strategy, in coherence with Malta Vision 2050. This initiative may align with Resolution GFCM/47/2024/3[47], adopted by the General Fisheries Commission for the Mediterranean ('GFCM') in 2024, which establishes principles for responsible investment in aquaculture. The Resolution marks a commitment to ensuring that growth in the sector aligns with sustainability, social responsibility, and sound governance across the Mediterranean and Black Sea regions.



Action 2.3: Workforce Development

As Malta targets new investment into the aquaculture sector, the demand for labour is expected to rise, making the development of a skilled, adaptive, and resilient workforce central to its sustainable growth. As technologies advance, production systems diversify, and environmental standards become more demanding, it is essential to ensure that the industry is supported by expertise at all levels.

The EMFAF Programme for Malta[48] highlights that the sector's workforce remains male-dominated, with only 5% female full-time equivalents in 2020, pointing to the need for greater gender diversification. At the same time, education pathways remain limited; while the Malta College of Arts, Science & Technology ('MCAST') offers dedicated aquaculture courses, uptake has been very low, and the University of Malta does not currently provide any courses focused specifically on aquaculture. Currently, Aquatic Resources Malta accepts students from MCAST and the University of Malta to conduct work placements through the Institute for the Public Services. On completion of these placements, graduates are offered employment within the same entity. While this system is functioning well, there is scope to further strengthen these placements.

Building human capital is therefore aimed at strengthening competitiveness and innovation, while also meeting future workforce demand and preventing stagnation of the industry due to limited skills. Workforce development must be guided by forward-looking labour market assessments, stronger links between academia and industry, and a culture of continuous professional growth aligned with EU strategic priorities.

a) **Forecasting Workforce Demand:** Government will commission a forecasting study to identify future labour and skills needs in aquaculture, covering hatchery operations, husbandry, feed and nutrition, animal health and welfare, engineering, and environmental management, amongst other areas. The study will draw on labour market data to anticipate emerging roles linked to the investment areas proposed in this Action Plan. Its findings are intended to inform national training programmes and enable education providers to adapt curricula in line with real industry requirements.

b) **Degree Sponsorships and Internships**: To attract and retain new talent, existing internships will be strengthened in partnership with higher education institutions, ARM, and the Institute for the Public Services. These internships will be further strengthened to provide students and early-career professionals with hands-on experience and exposure to cutting-edge practices, thereby improving employability and sector engagement. In addition, Government will explore sponsorships for aquaculture degrees, as envisaged in the MNPSA. This will build a stronger pipeline of skilled graduates while better aligning training with industry needs.

c) **Continuous Professional Development ('CPD') on key areas:** Government will promote and explore funding opportunities for CPD initiatives targeting technical staff and management, in line with the EU Strategic Guidelines for a More Sustainable and Competitive Aquaculture[49]. Priority areas include climate adaptation and resilience, animal health and welfare (specifically disease surveillance and notification), good husbandry practices for the Closed-Cycle Species ('CCS') sector, and digitalisation, amongst other areas. Delivered in collaboration with key stakeholders such as Aquatic Resources Malta and international partners, these programmes will facilitate skills development and alignment with EU priorities for a sustainable and competitive sector.

d) **Study on gender-based barriers to entry in employment in aquaculture:** Government will commission a study to assess barriers limiting women's participation in aquaculture, on the basis of which tailored interventions will be developed. The study will examine factors such as access to education and training, workplace practices, and cultural perceptions that may discourage female participation.

Pillar 3: Earning Public Trust and Social Acceptance

Goal: *Earning a social license to operate by improving environmental performance and increasing transparency to build a stronger confidence.*

Action 3.1: Improving the Public Perception of Aquaculture

Targeted investment in Malta's aquaculture sector will be futile if the challenge of poor public perception is neglected. The industry cannot grow without a strong social license to operate, and public trust must therefore be treated as a central pillar of development. Awareness and communication are key to achieving this, as clear messaging on the sector's role in sustainable food production, employment, and innovation can foster broader acceptance.

At a pan-European level, aquaculture is perceived as a sector which can create local value chains and short supply circuits which contribute to environmental, economic, and social objectives, as highlighted in the EU Strategic Guidelines. This potential is even more pronounced in Malta, where a long-standing history tied to the blue economy has already fostered a thriving sector and provides a strong foundation for integration of aquaculture into sustainable local food systems.

Over the years, several initiatives have been introduced to improve perceptions of the aquaculture industry. The One Sea, Our Sea media campaign (2018) emphasised environmental protection and the role of aquaculture in reducing pressure on wild fish stocks[50]. The Let's Talk Farming programme highlighted aquaculture's contribution to sustainable food systems, environmental stewardship, and local employment opportunities[51].

Nevertheless, poor public perception remains a major weakness in Malta's aquaculture sector, largely driven by environmental concerns. A recurring issue is 'fish slime' (oily residues from baitfish used in tuna farming) that at times affects bathing areas and beaches, triggering social conflicts and public complaints. To mitigate this, in 2017 Government required tuna farms to relocate further offshore, while operators have deployed booms and skimmers and organised clean-up campaigns. These measures have reduced but not fully resolved the problem, and additional concerns such as odours, oily coastal waters, and occasionally dead tuna of uncertain origin washing ashore, as well as tuna straying near bathing zones of anyway uncertain origin, continue to affect public trust. While long-term solutions are being explored, such as the potential use of artificial feed for tuna, public perception must be actively addressed if the sector is to develop sustainably.

In developing this Action Plan, a national survey with the general public was carried out, and the results further confirm challenges around public trust. Around 25% of respondents stated that their views of the aquaculture sector are not positive at all and 50% reported being extremely concerned about environmental aspects. These findings highlight the urgency of addressing public perception as a prerequisite for sustainable sector growth. The survey results also reveal that in general, there is a lack of awareness around the aquaculture sector and its benefits (e.g. in creating cost effective local short food circuits as highlighted earlier)[52].

Addressing these challenges requires a sustained and structured effort. Public perception will not shift on its own; it must be actively shaped through campaigns that are evidence-based, transparent, and tailored to address the concerns highlighted by the public. Indeed, the FAO stresses that communication strategies should form an integral part of any aquaculture development plan, while the EU Strategic Guidelines recommend broad national dissemination of the coordinated EU-wide campaign on aquaculture.

The following actions shall be implemented:

a) Public broad communication campaign on aquaculture: A nationwide communication and information campaign will be launched to build trust and strengthen the sector's social license to operate. Repeated and consistent messaging will be used to showcase aquaculture as a reliable source of affordable and nutritious food, with a central focus on food security. The campaign will highlight the value of short supply chains for locally farmed and consumed products, introduce the public to new and innovative practices and products, and encourage the use of undervalued and underutilised species. It will also address the potential of the Closed-Cycle Species ('CCS') segment of the industry, underlining its sustainable benefits such as relieving pressure on wild fish stocks, alongside its economic importance for diversification and growth. The campaign is targeted to be rolled out across multiple platforms, including conventional media (such as billboards and press), social media, and public events (e.g. participation in AgriFair), and will be complemented by expanded outreach activities such as school initiatives, open days and potential public competitions which may contribute ideas to aquaculture initiatives[53].

b) Support for environmental initiatives: Government will continue supporting self-regulatory measures, including codes of conduct and good practices such as clean-up campaigns to address fish oil slicks, while engaging with industry to explore how these efforts can be strengthened and made more effective. In parallel, Government will also maintain support for restorative aquaculture projects, such as the Killifish project on species conservation, the Life PanPuffinus initiative on protecting seabirds. These projects highlight the sector's contribution to environmental stewardship and biodiversity[54-55].

c) Structured engagement with NGOs and media: Mechanisms will be established to facilitate the early involvement of stakeholders including NGOs, industry and the general public in key developments. Their engagement will allow aquaculture developments to be communicated in a transparent and inclusive way, while also providing a channel for gathering stakeholder input.

d) Synergies with related sectors and marine uses: Wherever possible, Government will encourage and support multi-use of marine and coastal sites, building synergies between aquaculture and related activities such as fisheries, tourism, and conservation areas. Multi-use models can be explored to optimise space use whilst enhancing economic value and promoting integrated co-management of marine resources. Seeking complementarities will allow the sector to strengthen its contribution to the wider blue economy with a view to foster broader public acceptance, while allowing benefits to be more fairly distributed across society.

Action 3.2: Building consumer trust in aquaculture products

Apart from the perception of the aquaculture industry itself, farmed products also face low consumer acceptance. As highlighted earlier, a 2024 Eurobarometer survey shows that 65% of consumers in Malta prefer wild-caught seafood[56]. This is the highest rate among EU Member States and nearly double the EU average of 36%. Wild-caught seafood is deeply embedded in local culinary culture, and many consumers associate wild fish with freshness, quality, and authenticity, which makes them more reluctant to embrace farmed alternatives. Nonetheless, this perception and clear consumer bias against aquaculture products undermines domestic market opportunities and may reflect broader concerns. Indeed, a national survey carried out as part of this Action Plan sought to investigate the factors influencing consumer choices, with product quality and environmental impact emerging as the two most decisive considerations when purchasing seafood.

Food fraud, including the misrepresentation of aquaculture products as wild-caught, is recognised challenge across many markets and not limited to Malta. Such practices can undermine consumer trust and negatively impact confidence in the aquaculture sector as a whole. Strengthening monitoring and compliance is therefore essential. In this context, it is important to highlight the ongoing work led by the Malta Food Safety and Security Authority, which plays a central role in coordinating enforcement efforts and enhancing controls aimed at ensuring accurate product labelling and safeguarding consumer protection

Domestic consumption of aquaculture products in Malta remains very low, with the majority (over 95%) of production exported overseas. This represents a missed opportunity for the sector to contribute more directly to local food systems, particularly through Closed-Cycle Species ('CCS') that show promising consumer demand. To secure its place in Malta's food systems, however, consumer perceptions of aquaculture products must be improved.

The following action points will therefore be implemented:

a) **Public awareness campaigns on aquaculture products:** A segment of the broader campaigns outlined under Action 3.1 will specifically focus on promoting the nutritional value, affordability, and sustainability of aquaculture products, with particular emphasis on Closed-Cycle Species as a means of relieving pressure on wild fish stocks and strengthening local food circuits. These campaigns will also aim to position aquaculture products as local and fresh, highlighting their contribution to Malta's food systems.

b) **Strengthening enforcement against food fraud:** Enforcement will be strengthened through the recently established Malta Food Safety and Security Authority, with stricter controls to prevent the mislabelling of aquaculture products, including the HoReCa sector. Separately, digital traceability tools will be explored to elevate transparency and protect consumers.

c) **Supporting quality labels and traceability schemes:** Government will promote and support the development of quality labels, certification schemes, and other mechanisms that enhance consumer information and product transparency. Such initiatives, aligned with the EU Strategic Guidelines, will help build consumer confidence by providing information on product origin, farming practices, and sustainability standards. This also includes the use of digitalisation tools, including emerging technologies for traceability and transparency.

Goal: *Aligning with environmental objectives through ecosystem-based management whilst strengthening climate change adaptation and mitigation measures.*

Action 4.1: Climate-proofing the industry

The aquaculture industry is highly vulnerable to the impacts of climate change, which are already reshaping aquatic ecosystems in ways that affect production. Rising sea temperatures, ocean acidification, and changing salinity patterns are creating conditions that increase the prevalence and severity of diseases and parasites. Warmer waters, beside decreasing the dissolved oxygen levels in water, accelerate parasite life cycles, expand their range into new areas, and weaken the immune responses of farmed species, making outbreaks more frequent and more difficult to manage.

Beyond disease, climate change threatens the viability of certain species whose growth and reproduction depend on specific environmental parameters, while at the same time favouring the expansion of others into regions where they were previously absent. Such shifts may disrupt established production systems, requiring adjustments in species choice, breeding programmes, and farm management practices. Most critically for Malta, recent scientific projections suggest that Atlantic Bluefin Tuna may alter its migratory routes as early as 2030 due to shifting habitat suitability, which may create volatility in what is a capture-based industry[57]. The sector also faces broader risks linked to extreme weather events, oxygen depletion, and variability in water quality, all of which can reduce productivity and increase mortality.

Aquaculture has an important role to play in climate change adaptation, through resilient species selection, improved farm management, and investment in research. At the same time, given the sector's energy-intensive value chain and reliance on feed and other resource-heavy inputs, it also has a role in mitigation by reducing its carbon footprint, improving energy efficiency, and contributing to wider climate objectives under the European Green Deal.

The following actions shall be implemented:

a) **Sector-specific vulnerability and resilience assessments:** Government will commission comprehensive assessments through Aquatic Resources Malta ('ARM'), to identify the vulnerabilities and resilience capacities of Malta's aquaculture sector to climate change, including risks linked to species sensitivity, disease and parasite outbreaks, extreme weather events, and water quality deterioration, amongst other factors. The results of these studies will be shared with industry and could also serve as an input to the development of a sector-specific climate adaptation and resilience plan, aligned with national climate strategies.

b) **Promoting circular initiatives**: Government will promote and encourage the development of circular economy projects within the aquaculture sector, including its upstream and downstream value chain. An existing industry-led example is the processing of by-products from tuna farming into fishmeal and fish oil, demonstrating how waste can be transformed into valuable resources. Building on this model, further initiatives will be supported to reduce waste, close resource loops, and improve sustainability across the industry. This also includes opportunities to source inputs such as fish feed more sustainably, for instance by using by-products from other industries.



c) **Embedding lifecycle assessments in aquaculture operations:** Government will explore the integration of Life Cycle Assessments ('LCAs') into aquaculture operations to better account for their full environmental footprint. LCAs would provide a holistic view of impacts across the production cycle, from feed inputs and energy use to waste management and end products. Incorporating this approach into licensing and site allocation would strengthen decision-making, promote low-impact practices, and align Malta with EU objectives on resource efficiency and sustainability.

d) **Minimising the industry's carbon footprint:** Building on insights from Life Cycle Assessments ('LCAs'), Government will promote measures to reduce emissions across the aquaculture value chain, with a focus on energy efficiency upgrades, renewable energy integration, and reduced reliance on resource-intensive inputs. Active efforts are also underway to shift tuna fattening from baitfish to artificial feeds, a change that not only lowers environmental impacts such as fish slime and the logistics of transporting baitfish but also relieves pressure on wild fish stocks. These combined measures are intended to align the sector with decarbonisation targets and the wider climate objectives of the European Green Deal.

Action 4.2: Enhancing environmental performance

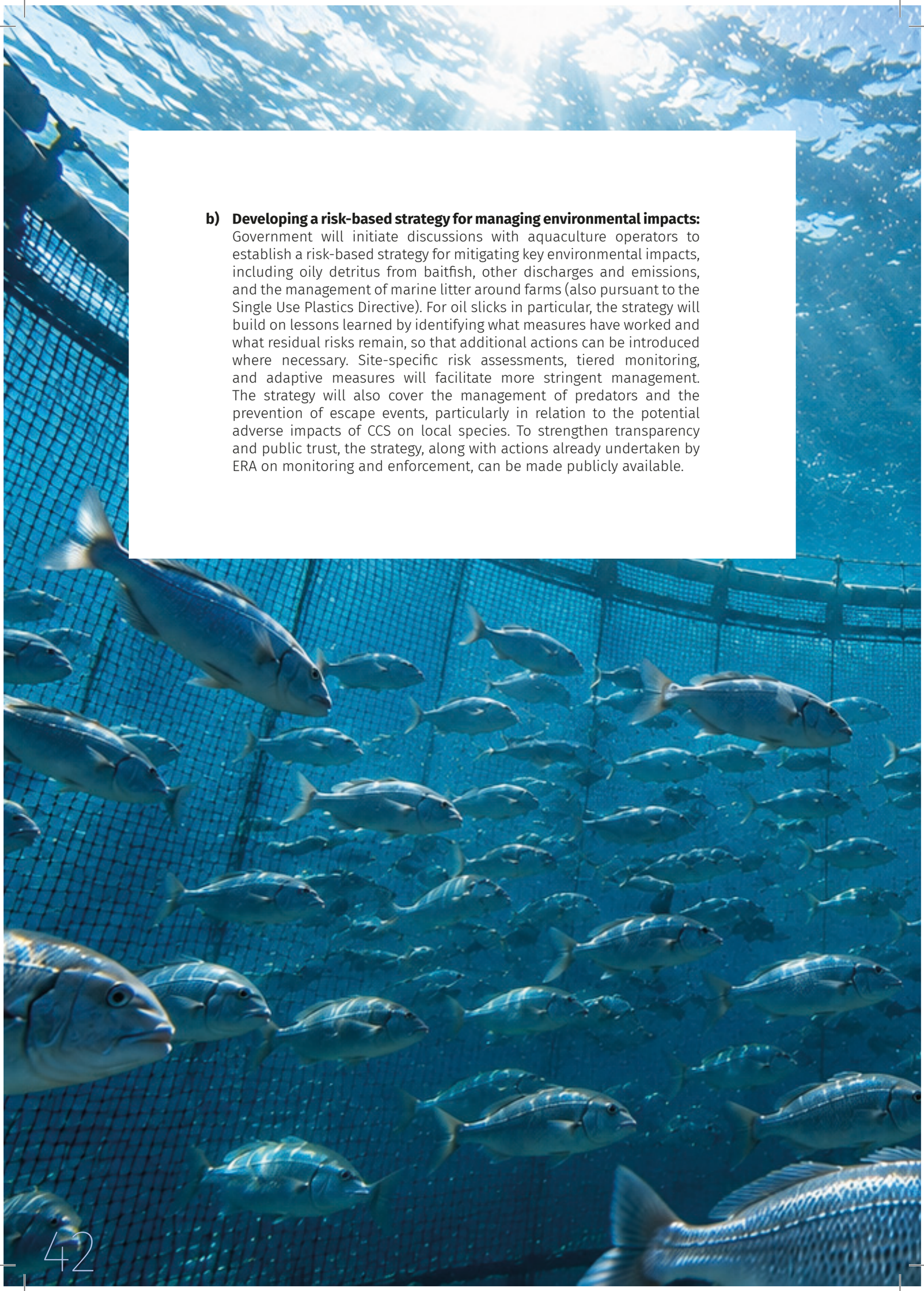
Aquaculture in Malta operates under a range of national and EU-level obligations that set standards for environmental management and monitoring. These obligations are important for ensuring compliance whilst also safeguarding the environment and maintaining public trust in the industry. Effective monitoring and reporting systems provide the basis for enforcement and transparency, and while Malta already has a robust permitting regime, including annual reporting obligations for operators set out within Environmental Monitoring Programmes approved by ERA, there remains scope to build on these strengths to further optimise processes and outcomes.

Current planning processes do not fully incorporate ecological and hydrodynamic carrying capacity, leaving risks of overstocking and eutrophication insufficiently addressed. Without systematically considering these limits, aquaculture operations risk degrading water quality and increasing disease pressures. This gap not only weakens the sector's ability to manage pressures on the marine environment but also undermines confidence in its long-term sustainability and social acceptance. There is also potential for regular publication of Annual Environmental Reports and environmental monitoring data, including assessment against Environmental Quality Standards ('EQS'), and better definition of Acceptable Zones of Effect ('AZE'), to ensure thresholds are scientifically robust and practical.

In addition, oily detritus from baitfish used in tuna farming continues to affect water quality, and other forms of pollution such as marine litter are occasionally observed around farms. These issues not only undermine public trust, as noted earlier, but also pose real ecological risks, including impacts on biodiversity. Aquaculture can also affect seabird populations, with sites in close proximity to breeding or rafting areas potentially disturbing nesting behaviour, increasing chick abandonment, heightening predation risks, and creating dangers of attraction, displacement, or entanglement. Furthermore, presumed escape events involving farmed species could disrupt local ecosystems and create risks of genetic introgression with wild populations. These pressures underline the importance of adopting a precautionary, ecosystem-based approach that integrates biodiversity protection into aquaculture planning and management.

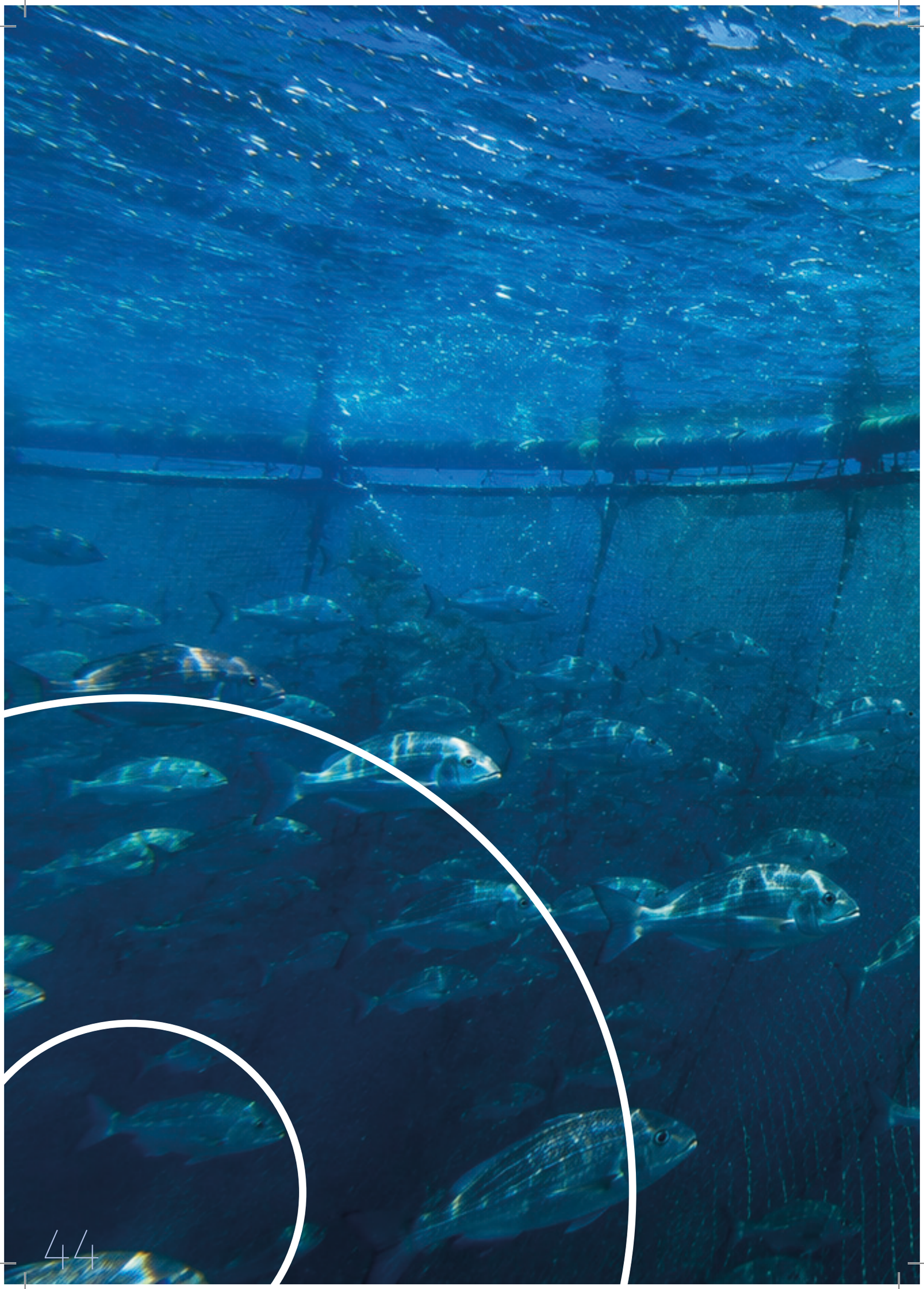
To address these challenges, the following actions shall be implemented:

a) **Embedding an ecosystem-based approach:** Government will initiate discussions around strengthening aquaculture governance through an ecosystem-based approach that integrates ecological thresholds, carrying capacity, and cumulative impacts into planning and monitoring processes. This may include regular and timely publication of Annual Environmental Reports and environmental monitoring data, including an assessment against Environmental Quality Standards ('EQS'), and clearer definition of Acceptable Zones of Effect ('AZE') to ensure thresholds are scientifically robust and practical. The Environmental Monitoring Programme should continue to be tailored as more environmental monitoring data becomes available, so as to focus on the most relevant pollutants and impacts. It may also entail developing sensitivity mapping of species and habitats to aquaculture pressures, incorporating carrying capacity assessments according to objective criteria, and exploring site rotation or area-based management schemes to reduce nutrient and organic matter emissions. Biodiversity protection could be more systematically incorporated into Environmental Monitoring Programmes, with particular attention to seabird populations and the risks posed by escape events. Particular emphasis will be placed on promoting Closed-Cycle Species ('CCS') and considering Integrated Multi-Trophic Aquaculture ('IMTA') as pathways to reduce environmental pressures and diversify production. These measures are pursued with a view for aquaculture development to be better managed within the limits of Malta's marine environment, supporting ecosystem health, public trust, and long-term sustainability. Environmental performance will be further strengthened through the integration of nature-based approaches within aquaculture operations and best practices, particularly where alien or locally absent species are involved. This includes alignment with the National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species ('IAS') and the Action Plan Addressing Escape from Confinement of IAS of Union Concern. Existing national Codes of Good Practice on IAS will be actively promoted, and the potential development of a dedicated Code of Practice on IAS specific to aquaculture will be explored.



b) Developing a risk-based strategy for managing environmental impacts: Government will initiate discussions with aquaculture operators to establish a risk-based strategy for mitigating key environmental impacts, including oily detritus from baitfish, other discharges and emissions, and the management of marine litter around farms (also pursuant to the Single Use Plastics Directive). For oil slicks in particular, the strategy will build on lessons learned by identifying what measures have worked and what residual risks remain, so that additional actions can be introduced where necessary. Site-specific risk assessments, tiered monitoring, and adaptive measures will facilitate more stringent management. The strategy will also cover the management of predators and the prevention of escape events, particularly in relation to the potential adverse impacts of CCS on local species. To strengthen transparency and public trust, the strategy, along with actions already undertaken by ERA on monitoring and enforcement, can be made publicly available.







3. Implementation Plan



3 Implementation Plan

Carrying out the actions outlined in the Action Plan requires the creation of a strong implementation and monitoring framework. This framework provides a structured and systematic approach to managing and overseeing the various proposed actions.

3.1 Work Breakdown Structure:

The Work Breakdown Structure ('WBS') acts as a roadmap for the implementation of the Action Plan. The roadmap includes a timeline for implementation of the actions, the key actors responsible for implementing the actions, and indicators to serve as a monitoring system to track the progress and measure the outcomes of each action.

3.2 Risk Register:

Via the inclusion of a risk register which both lists potential risks as well as proposed mitigation measures, a holistic approach can be taken to the implementation of the measures outlined in the WBS.

3.3 Potential Funding Sources:

An analysis is provided of the state of play in terms of funding for the aquaculture sector in Malta.

3.1 Work Breakdown Structure

The effective execution of the Action Plan necessitates the establishment of a robust implementation and monitoring framework. This serves as the backbone of the Action Plan, providing a structured approach to managing and overseeing the various initiatives. By adopting a Work Breakdown Structure ('WBS'), each pillar of our Action Plan is regarded as a distinct workstream, with individual actions representing work packages. These work packages are then further dissected into specific activities, in line with the Action Plan. This structured breakdown facilitates coherence, and manageability, enabling a more efficient progression towards our targets.

For each work package, a target completion date is defined, a responsible and supporting entities identified and designated. This clear allocation of responsibilities and timelines is crucial for maintaining momentum and ensuring accountability throughout the implementation process. To have the action plan brought to fruition and be able to measure its success, Key Performance Indicators ('KPIs') are incorporated within the monitoring framework. This approach not only offers a means to track advancements but also serves as a tool for continuous improvement. These indicators shall be regularly reviewed to assess the effectiveness of each initiative, identify areas for optimisation, and make informed decisions to steer the Action Plan towards its intended outcomes. Furthermore, through the introduction of Output and Outcome KPIs, we are able to apply a Benefits Realisation Management approach.

The importance of embracing best practices and innovative benchmarks to enhance aquaculture performance monitoring is acknowledged. Consequently, Government is taking note of the potential future utility of indicators such as the World Aquaculture Performance Indicators ('WAPI'), which is an initiative by the FAO Fisheries and Aquaculture Department aimed at developing user-friendly tools for compiling, generating, and providing easy access to quantitative information on aquaculture sector performance at national, regional, and global levels[58]. There are also case studies Malta may take note of for other benchmarks, such as Aquaculture Governance Indicators ('AGIs') developed to measure progress on aquaculture governance[59]. Integrating internationally recognised indicators offers a pathway to benchmark Malta's aquaculture Action Plan against global standards, ensuring continuous improvement and alignment with sustainability and governance advancements worldwide.

In estimating the indicative costs of certain actions, the methodology employed entails estimating the required additional work from public sector employees on the basis of pay scales per Full-time Equivalent ('FTE'), including the use of Government pay scales. Benchmarking exercises were also carried out whereby in the case of infrastructure or services, the costs for similar projects were taken into consideration.

In some cases, due to efforts entailing a continuation of ongoing work or the natural progression of momentum in business-as-usual activities, no additional costs were estimated. It was concluded in some cases that costings would also heavily depend upon factors or indicators yet to be established, where providing an estimated budget in terms of FTE might instead prove counterproductive to the objectives of the Action Plan given the flexibility required and work still required in terms of implementation. Nonetheless, estimations from other activities serve as potential guidelines depending on their individual unique factors.

The cost estimates presented herein are high-level and indicative, derived through desk-based research and stakeholder consultations. While every effort has been made to base these estimates on reasonable assumptions and verified sources, actual costs may vary significantly depending on factors such as the type and specifications of equipment procured, the nature of capital expenditure, and the operational practices of individual operators.

Accordingly, these figures should be treated as broad benchmarks rather than definitive quotations, and any prospective investor or operator is strongly advised to undertake their own detailed due diligence and financial assessment prior to committing to any investment decision.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
1.1: Aquaculture Site Selection	**1.1a)** Establishing new coastal aquaculture sites for CCS production.	· Number of viable sites mapped and assessed. · Number of new identified sites utilised.	· Increase in ENSG in CCS production. · Increase in potential production capacity (tonnes/year).	· DFA	· AFM · ERA · PA · TM · LA · CSD · SCH
	1.1b) Establishing new coastal sites for low-trophic species.	· Number of viable sites mapped and assessed. · Number of new identified sites utilised.	· Potential production capacity (tonnes/year) enabled. · Increase in number of low-trophic species introduced to commercial production.		· Interconnect Malta · SPED
	1.1c) Establishing new open sea aquaculture sites.	· Number of viable sites mapped and assessed. · Number of new identified sites utilised.	· Additional potential production capacity (tonnes/year) enabled.		· National Aquaculture Council
	1.1d) Revising the capacity of the SEAZ.	· Completion level (%) of capacity modelling and optimisation study.	· Revised potential production capacity (tonnes/year) approved by competent authorities.		

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
1.2: Enabling infrastructure	**1.2a)** Establishing a local hatchery for CCS.	· Annual hatchery seed-stock capacity (no. of fry/ juveniles produced per cycle). · % of fry produced meeting survival/quality benchmarks.	· % increase in total production capacity. · Share (%) of seed stock sourced locally vs imported.	· Private Investor	· PA · ERA · DFA · ARM
	1.2b) Assessing and identifying nursery sites.	· Nursery capacity identified (m^3 and juveniles/ year).	· Nursery capacity established (m^3 and juveniles/ year).	· DFA	· ARM · ERA · PA · LA
	1.2c) Centralising cold storage capacity.	· Total centralised cold storage volume (tonnes) commissioned and operational. · Number of operators using shared facility or service agreements signed.	· Reduction in average price volatility of baitfish (%).	· Private Investor	· PA · INDIS · ERA · LA · DFA
	1.2d) Pathology laboratory.	· Total person-hours utilised in laboratory operations. · % of diagnoses requests fulfilled. · Number of diagnostic tests.	· Number of diagnosed disease outbreaks.	· ARM	· FSSA · DFA · PA · ERA · INDIS · EHD

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
1.3: Strengthening Research Capacity	**1.3a)** Continued Research and Development ('R&D').	· Number of R&D projects initiated / completed per year. · Number of publications, patents, or prototypes. · Annual R&D expenditure (€).	· Year-on-year growth in R&D expenditure. · % increase in number of international collaborations, citations, or technology exports. · Number of new jobs annually as a result of increased R&D. · Value of external R&D funding leveraged from international and/or EU funding projects (€).	· ARM	· DFA · UM · MCAST · Aquaculture Operators · Private Investors · International Partners
	1.3b) Ongoing investment in R&D infrastructure.	· Number of new or upgraded laboratories, hatcheries, or pilot sites.		· ARM	· DFA · UM · MCAST · Aquaculture Operators · International Partners · PA · ERA · LA · INDIS · Private Sector

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
1.3: Strengthening Research Capacity	**1.3c)** Support for international collaboration.	· Number of joint research projects with international partners. · Number of joint publications or patents produced with foreign institutions. · Number of EU funding applications submitted (having local entities as a leading or participating partner).	· Year-on-year growth in R&D expenditure. · % increase in number of international collaborations, citations, or technology exports. · Number of new jobs annually as a result of increased R&D. · Value of external R&D funding leveraged from international and/or EU funding projects (€).	· ARM	· DFA · UM · MCAST · Aquaculture Operators · International Partners
	1.3d) Enhanced industry coordination.	· Number of industry stakeholders engaged in joint R&D activities. · Total person-hours utilised as part of the new research committee.		· National Aquaculture Council	· ARM · DFA · ERA · UM · TM · PA · MCAST · NGO's · Industry Representatives

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
2.1: Streamlining Regulation and Reforming Governance	**2.1a)** Enhancing the regulatory framework and making it more accessible.	· Number of amendments to regulatory framework.	· Increased operator satisfaction (measured via stakeholder surveys).	· DFA	· National Aquaculture Council
	2.1b) Establishing a National Aquaculture Council.	· Man-hours spent as part of the new National Aquaculture Council.	and/or · % reduction in complaints or appeals lodged against decisions taken. · % Reduction of permits / licenses submitted physically or through other means vs through the Digital Portal.	· DFA	· ERA · PA · TM · NGOs · ARM · Industry Representatives · CSD
	2.1c) Improving permitting and licensing.	· Average processing time for permit / license approvals.		· DFA	· ERA · PA · Aquaculture Operators
	2.1d) Enhancing the Centralised Digital Portal.	· % of permitting / licensing services migrated online. · % of permits / licenses submitted online digital portal vs through other means.		· DFA	· ERA · Aquaculture Operators

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
2.2: Industry Collaboration & Support	**2.2a)** Shaping the next programming cycle for the 2028 – 2034 period.	· Number of structured consultations conducted with industry stakeholders and public bodies. · Number of recommendations derived from stakeholder consultations on new EU funding cycle.	· Satisfaction rating of local entities in relation to the new EU funding cycle. · Increase in uptake (% and €) of EU funding for aquaculture-related projects in Malta. · Value of funds allocated and utilised for the development of aquaculture in Malta.	· MFDC	· MFIN · National Aquaculture Council · DFA · ARM
	2.2b) Facilitating Access to Debt Financing for aquaculture SMEs.	· Number of stakeholders and financial intermediaries engaged to explore how existing instruments can be made accessible to aquaculture operators.		· MAFF	· MFDC · National Aquaculture Council · DFA · MEEP · Malta Development Bank · Commercial Banks
	2.2c) Promoting equity investment in aquaculture ventures.	· Number of awareness or outreach events launched to foster an environment conducive to equity investment in aquaculture.		· MEEP	· Malta Enterprise · National Aquaculture Council · DFA · Malta Stock Exchange

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
2.3: Workforce Development	**2.3a)** Forecasting Workforce Demand.	· Number of recommendations put forward for adapting national training programmes and curricula based on forecasting study's insights. · Number of aquaculture related subjects or programmes available by local educational institutions. · Number of existing education or training programmes updated based on study findings.	· % increase in students enrolling and graduating in aquaculture related subjects.	· MEYR	· Jobsplus · DFA · NSO · ARM · UM · MCAST
	2.3b) Degree Sponsorships and Work Placements.	· Number of degree sponsorships awarded per year. · Number of students placed in internships / work placements. · Number of partner institutions participating.		· MEYR	· DFA · UM · MCAST · ARM · MFDC

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
2.3: Workforce Development	**2.3c)** CPD on key areas.	· Number of CPD courses delivered annually.	· % of CPD participants demonstrating improved competencies	· MEYR	· ARM
		· Number of employees enrolled in CPD per year and rate of course completion (%).	· % of participating employees applying acquired skills in their workplace.		· DFA
			· Increase in female enrolment in aquaculture-related education, training and work placements.		· UM
			· % of study implemented or incorporated into relevant policies.		· MCAST
	2.3d) Study on barriers to entry in blue economy careers.	· Number of stakeholders consulted during study. · Number of policy recommendations or action proposals generated.		· NCPE	· DFA · ARM

Pillar 3: Social Acceptance and Information.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
3.1: Improving the Public Perception of Aquaculture	**3.1a)** Public broad communication campaign.	· Expenditure on communication campaigns.	· Overall improvement in public perception of aquaculture (based on survey data). · Measurable improvement in environmental performance indicators, including water quality compliance, and presence of litter (by weight collected). · Reduction in recorded reports and/ or complaints in relation to aquaculture (included reported occasions of fish slime, odour, etc.)	· DFA	· MFDC
	3.1b) Support for environmental initiatives.	· Number of projects and/ or initiatives supported.		· DFA	· Industry Representatives · NGOs
	3.1c) Structured engagement with NGOs and media.	· Number of stakeholder engagement mechanisms established.		· DFA	· ERA · NGOs · Aquaculture operators · PBS / Media Houses
	3.1d) Synergies with related sectors and marine uses.	· Number of marine or coastal sites which are multi-use or co-managed. · Number of other projects co-managed by aquaculture operators and players in other industries.		· MSP - PA	· DFA · TM · Interconnect Malta · ERA · SCH · PA · MTA

Pillar 3: Social Acceptance and Information.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
3.2: Building consumer trust in aquaculture products	**3.2a)** Public awareness campaigns on aquaculture products.	· Number of awareness campaigns or adverts launched annually.	· Increase in consumer awareness and improved perception in aquaculture products (based on surveys).	· MFA	· National Aquaculture Council
		· Expenditure on awareness campaigns.	· Changes in public preference of consuming farmed vs wild-caught fish (based on survey data).		· DFA
			· % increase in label awareness, recognition and trust among Maltese consumers.		· Industry Representatives
					· MFIN
	3.2b) Strengthening enforcement against food fraud.	· Number of inspections and audits conducted annually within the HoReCa sector.		· FSSA	· DFA
	3.2c) Supporting quality labels and traceability schemes.	· Number of government initiatives implemented to promote and support the development of quality labels, certification schemes, and other mechanisms that enhance consumer information and product transparency.		· MFA	· FSSA
		· Number of aquaculture producers (and %) participating in traceability or certification schemes.			· DFA

Pillar 4: Green Transition.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
4.1: Climate-proofing the industry	**4.1a)** Sector-specific vulnerability and resilience assessments.	· Number of climate vulnerability assessments. · Number of actions identified as part of a new sector-specific climate adaptation plan.	· % reduction in waste generation per tonne of production. · Improved perception of aquaculture as a sustainable, low-carbon, and resource-efficient industry. · % reduction in environmental impact per production unit. · % reduction in sectoral GHG emissions (CO_2e/tonne of production). · Reduction in feed-related environmental impacts (e.g., transport emissions, bycatch use).	· MAFF	· ARM · DFA · ERA · UM · MCAST
	4.1b) Promoting circular initiatives.	· Number of circular economy projects supported.		· CEMalta	· DFA · Industry Representatives · CAA · ARM · National Aquaculture Council · ERA
	4.1c) Embedding LCA in aquaculture operations.	· Number of public sector officers (including ERA, DFA, and ARM and other relevant authorities) participating in training sessions on applying LCA in decision-making.		· CEMalta	· CAA · ERA · MEER · DFA · ARM · Aquaculture operators
	4.1d) Minimising the industry's carbon footprint.	· Number of energy efficiency audits conducted.		· MAFF	· ARM · DFA · ERA · Aquaculture operators

Pillar 4: Green Transition.					
Work Package	**Actions**	**Output KPIs**	**Outcome KPIs**	**Leading Entity**	**Supporting Entities**
4.2: Enhancing environmental performance.	**4.2a)** Embedding an ecosystem-based approach.	· Number of Annual Environmental Reports published. · Number of policy consultations and workshops held on integrating ecosystem-based management into aquaculture governance.	· % reduction in number of recorded oil slick or litter incidents. · Improvement in biodiversity health indicators (e.g., seabird nesting success, benthic community indices).	· ERA	· ARM · DFA · National Aquaculture Council · MEER · Aquaculture operators
	4.2b) Developing a risk-based strategy for managing environmental impacts.	· Number of risks and mitigations identified and taken into consideration when drafting the risk-based strategy for managing.		· ERA	· DFA · ARM · PA · Aquaculture operators



3.2 Risks and mitigation measures

In developing a robust Action Plan for the sustainable growth of aquaculture in Malta, it is essential to recognise and address the potential risks associated with each aspect of implementation. Identifying these risks enables stakeholders to proactively develop strategies to mitigate adverse impacts and ensure successful outcomes. This section outlines the specific risks related to the strategic pillars and actions of the plan, providing a framework for understanding potential challenges and implementing appropriate measures to safeguard the initiative's goals.

Risks are interpreted as pertaining both to the process of implementing the actions, as well as their longer-term management and oversight and the ensuing success of the actions.

Within this context, a risk impact factor is determined, allowing prioritisation of subsequent mitigation actions which are identified. The risk impact factor is determined according to a combination of both the probability of the risks playing out as well as their severity in terms of impacts upon implementation timelines, additional costs, or long-term viability of the action.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.1: Aquaculture Site Selection	**1.1a)** Establishing new coastal aquaculture sites for CCS production.	· Limited availability of suitable coastal space due to competing uses. · Potential conflicts with local communities and stakeholders, including due to sectoral reputation.	High	High	· Multi-use and integrated use of aquaculture sites for other purposes, while also potentially pursuing restorative aquaculture. · Improving reputation of aquaculture to facilitate expansion and growth. · Ensuring National Aquaculture Council is involved in site expansion from an early stage to facilitate stakeholder consultation.
	1.1b) Establishing new coastal sites for low-trophic species.	• Economic viability of sites due to low-margin commodity markets and few differentiated products. Low-trophic species depend more so on economies of scale than others.	Medium	Medium	· Economic risk may be mitigated if low-trophic species used as part of Integrated Multi-Trophic Aquaculture, resulting in economic diversification and potential link to restorative aquaculture practices.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.1: Aquaculture Site Selection	**1.1c)** Establishing new open sea aquaculture sites.	· Vulnerability of sites to storm damage and escape events. · Such operations involving offshore infrastructure typically involve higher capital and operating costs, which may deter investors. · Potential conflicts with local communities and stakeholders, including due to sectoral reputation.	High	High	· Pilot phased testing of offshore systems prior to full deployment. · Coordinate with TM and ERA for navigation safety and environmental compatibility. · Strategic use of latest technologies to minimise any cases of future damage, such as high-energy–rated cages, semi-submersible systems for storms, and real-time mooring load sensors. · Ensuring National Aquaculture Council is involved in site expansion from an early stage to facilitate stakeholder consultation.
	1.1d) Revising the capacity of the SEAZ.	· Changes in water temperature, currents, or storm frequency could alter carrying capacity.	High	High	· Integrate climate resilience into modelling and management. · Partner with research institutions and operators to directly share environmental and production data and collaborate on research.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.2: Enabling infrastructure	**1.2a)** Establishing a local hatchery for CCS.	· Potential delays in project timelines and implementation.	Medium	Medium	· Ensure current and future private sector led projects are aware of and have access to the appropriate guidance, including through the provision of training on best practices.
		· Potential deficiencies in cutting-edge technical expertise, or insufficient seed stock quality, could constrain hatchery performance, representing an opportunity cost.			· Facilitate technical exchange with hatcheries abroad.
		· Potential biosecurity breaches or effluent management issues may affect wild stocks or surrounding environments.			· Implement wastewater treatment and disinfection systems and enforce biosecurity protocols and routine health monitoring.
	1.2b) Assessing and identifying nursery sites.	· Inadequate water quality or biosecurity in new nursery sites.	Medium	Medium	· Apply site suitability screening in coordination with relevant stakeholders.
		· Limited availability of suitable sheltered inshore areas for nursery operations.			· Conduct continuous environmental monitoring.
		· Lengthy or unclear authorisation processes for new or expanded nursery sites could delay development.			· Enforce operational standards and monitoring.
					· Engage with the relevant stakeholders to clarify permitting pathways, and communicate clear guidance notes for site authorisations under the Aquaculture Council.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.2: Enabling infrastructure	**1.2c)** Centralising cold storage capacity.	· Difficulty in securing investment or operator participation for a shared facility.	Medium	Medium	· Conduct a feasibility and cost-benefit study.
		· Under-utilisation of cold storage capacity if sector diversification progresses slower than expected or operators invest in their own individual storage arrangement in the future.			· Explore options around PPP models or cooperative ownership.
		· Technical failures or inadequate design could compromise temperature control, energy efficiency, or biosecurity standards.			· Offer grants and/or fiscal incentives for participation in the initiative.
					· Conduct market demand forecasting and implement shared-access agreements among operators to ensure minimum occupancy.
					· Facility to be designed according to international cold-chain and HACCP standards. Preventive maintenance and operator training programmes also to be conducted.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.2: Enabling infrastructure	**1.2d)** Pathology laboratory.	· Delays in infrastructure development or procurement of specialised equipment.	High	High	· Prioritise critical diagnostic functions first.
		· Shortage of specialised personnel and expertise in aquatic pathology and molecular diagnostics.			· Develop capacity-building and training partnerships with educational institutions and recognised regional reference labs.
		· Low initial testing volume or inconsistent use by operators could reduce efficiency and cost-effectiveness.			· Develop an active disease monitoring plan requiring regular sampling by all licensed farms.
		· Delays or opacity in communicating results could weaken early warning capacity and stakeholder confidence.			· Provide incentives to encourage industry participation.
					· Define response timelines and data confidentiality protocols and implement a digital reporting system.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.3: Strengthening Research Capacity	**1.3a)** Continued Research and Development ('R&D').	· Slow uptake of research results by industry due to weak knowledge transfer. · Insufficient technical expertise or research capacity to cover emerging topics. · Research outcomes not aligned with industry priorities or not translated into commercial practice.	Medium	Medium	· Leverage EU research networks (Horizon Europe, PRIMA). · Establish regular industry–research consultation cycles to co-define R&D priorities and provide updates on progress.
	1.3b) Ongoing investment in R&D infrastructure.	· Difficulty in educating, attracting or retaining qualified researchers and technicians. · Current shortages of specialised researchers and technicians to meet demand or use new infrastructure to its full potential.	Low to Medium	Medium	· Offer competitive remuneration and explore available research grants. · Create further partnerships with universities and international centres. · Implement knowledge transfer and mentoring systems within Aquatic Resources Malta.

Pillar 1: Growth through Diversification and Innovation.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
1.3: Strengthening Research Capacity	**1.3c)** Support for international collaboration.	· Difficulty in identifying and obtaining space in consortia or collaborations. · Weak dissemination and adoption of international research outcomes into local practice and policy.	Low to Medium	Low	· Partner with local and foreign expertise as required and leverage past and current networks. · Provide training to public sector staff (specifically those in relation to aquaculture) on EU funding call identification, proposal writing, project management, and reporting. · Develop mechanisms for post-project knowledge transfer (policy briefs, training workshops) and require local dissemination activities as part of project deliverables.
	1.3d) Enhanced industry coordination.	· Limited engagement from industry stakeholders. · Mismatch between research outputs and operational needs due to poor feedback loops or lack of validation by producers.	Low to Medium	Low to Medium	· Formalise engagement mechanisms such as through establishment of a research committee composed of industry and Government. · Use feedback sessions and impact assessments to refine research priorities annually.



Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.1: Streamlining Regulation and Reforming Governance	**2.1a)** Enhancing the regulatory framework making it more accessible.	· Potential continued legislative gaps or misalignments.	Medium to High	Medium to High	· Best practice tools to be used in legal gap analysis, such as Aquaculture Legal Assessment and Revision Tool ('ALART').
		· Fragmentation or overlap between existing legal instruments and authorities (e.g., DFA, ERA, TM, PA) could complicate the reform process.			· Benchmark national legislation against EU Strategic Guidelines and FAO guidance.
		· Weak enforcement mechanisms or unclear institutional responsibilities in the revised framework may limit effectiveness.			· Ensure regular cross-agency consultations and legal reviews during the drafting phase.
					· Develop a clear timeline and implementation roadmap with defined milestones, and secure political endorsement and Cabinet commitment early in the process.

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.1: Streamlining Regulation and Reforming Governance	**2.1b)** Establishing a National Aquaculture Council.	· Institutional overlap or unclear delineation of responsibilities among existing authorities. · Insufficient participation or buy-in from key stakeholders. · Limited awareness among operators and stakeholders of the Council's role.	Medium	Low	· Implement transparent appointment process. · Hold regular public and consultation sessions. · Clearly define institutional mandates and enforcement powers in the new legislation. · Provide capacity-building and training for regulators and enforcement officers. · Establish performance-based objectives and indicators for the Council and conduct annual reviews of its effectiveness. · Develop communication materials and outreach campaigns on the Council's roles and functions.

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.1: Streamlining Regulation and Reforming Governance	**2.1c)** Improving permitting, licensing and enforcement.	· Incomplete mapping of current licensing processes leading to overlooked bottlenecks. · Insufficient enforcement capacity or unclear penalty framework could undermine compliance and credibility of reforms.	High	Medium to High	· Validate findings with operators and regulators. · Review and update penalty structures to ensure proportionality and deterrence. · Provide training for inspectors and establish cross-agency enforcement protocols.
	2.1d) Developing a Centralised Digital Portal.	· Low user uptake, interoperability, or data availability. · System performance issues may limit functionality.	Medium to High	Medium	· Regularly collect feedback and use portal to collect data on user behaviour to feed refinement of site. · Ensure a reporting system is in place in case of any performance issues, as well as regular maintenance, updates and backups.

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.2: Industry Collaboration & Support.	**2.2a)** Shaping the next programming cycle for the 2028 – 2034 period.	· Weak evidence base or insufficient data to support investment prioritisation. · Weak coordination between the Managing Authority and key entities (DFA, ERA, ARM, industry) could lead to fragmented priorities and missed opportunities in programme design. · Delays in preparing and submitting Malta's EU funding proposals in time for the post-2027 period.	Medium to High	Medium to High	· Commission targeted studies to inform programme design. · Establish a formal coordination task force under the Aquaculture Council to support programming for the 2021 – 2027 period · Hold regular inter-agency meetings to align project pipelines and strategic goals and maintain shared documentation and progress tracking throughout the consultation process.
	2.2b) Facilitating access to debt financing for aquaculture SMEs.	· Administrative complexity or slow rollout of financial instruments. · Limited awareness or understanding among aquaculture operators about available debt instruments and eligibility criteria.	High	High	· Establish clear eligibility criteria and application templates. · Offer information and outreach sessions to explore possibilities in detail and collect feedback.

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.2: Industry Collaboration & Support.	**2.2c)** Promoting equity and responsible investment in aquaculture ventures.	· Lack of dedicated pipeline of investable projects.	High	High	· Develop investment prospectus highlighting sector potential using viable business cases and market data.
		· Limited investor interest or risk appetite.			· Build linkages with blue economy innovation hubs and participate in international investment forums.
		· Coordination gaps between financial promotion entities.			· Establish inter-agency working group on blue economy investment.
		· Limited visibility of Malta's aquaculture sector among international investors and blue economy funds.			· Develop a communication and branding campaign positioning Malta as a Mediterranean aquaculture innovation hub.

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.3: Workforce Development.	**2.3a)** Forecasting Workforce Demand	· Persistent data gaps or difficulties obtaining necessary data.	Medium	Low to Medium	· Obtaining institutional support and buy-in from entities like the NSO and Jobsplus which go beyond one-off data requests. · Combine quantitative data analysis with qualitative stakeholder input (industry surveys, expert panels).
	2.3b) Degree Sponsorships and Work Placements.	· Continued low interest in degrees in spite of sponsorships, or failure to culminate in work placements and low return on investment. · Inconsistent supervision or limited exposure during internships may reduce learning impact. · Graduates may not remain in the aquaculture sector after completing internships or degrees.	High	Medium	· Sponsorships and work placement offerings must form part of a wider strategy to promote the industry. · Require post-placement evaluations from both students and hosts and act upon the provided feedback. · Create employment bridging mechanisms, link sponsorships to service commitments, and strengthen career progression pathways within the sector.

Pillar 2: Building resilience and competitiveness.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
2.3: Workforce Development	**2.3c)** CPD on key areas.	· Low uptake of CPD opportunities by industry staff. · Weak coordination among training providers may lead to overlap or inconsistent standards.	Medium	Medium	· Identification of international partners according to industry requirements. · Industry CPD requirements and offering to follow from the workforce forecasting study. · Offer flexible training formats (online, modular, short courses). · Coordination with the Institute for the Public Services (IPS) when required if public sector employees are involved.
	2.3d) Study on gender-based barriers to entry in employment in aquaculture.	· Terms of reference of the study failing to account for all variables, or terms of reference constraining study.	Low to Medium	Low to Medium	· Initial desk research to be carried out in the area to ensure terms of reference are guided by latest research.



Pillar 3: Social Acceptance and Information.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
3.1: Improving the Public Perception of Aquaculture.	**3.1a)** Public broad communication campaign on aquaculture.	· Low positive impact relative to investment and effort. · Inconsistent or unclear messaging across media platforms.	High	Medium to High	· Communication campaign to be paired with Corporate Social Responsibility initiatives and to go beyond standard advertising, to ensure attention is grabbed. · Have centralised coordination for the development of a unified communication strategy and visual identity. · Pre-test messages through focus groups to ensure clarity and resonance.
	3.1b) Support for environmental initiatives.	· Low uptake of sustainability initiatives by operators and other stakeholders. · Low valorisation from sustainability projects. · Low visibility of sector contributions to environmental protection could limit public awareness and recognition.	Medium to High	Medium	· Link communication to sustainability initiatives to motivate operators through positive publicity. · Broadcast successes from sustainability projects to promote their results.

Pillar 3: Social Acceptance and Information.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
3.1: Improving the Public Perception of Aquaculture	**3.1c)** Structured engagement with NGOs and media.	· Lack of interest from NGOs to engage. · Miscommunication in spite of early involvement mechanisms.	Low	Low-to-Medium	· Leverage the Aquaculture Council and other forums, ensure engagement mechanisms are interlinked and consistent, building trust.
	3.1d) Synergies with related sectors and marine uses.	· Misaligned expectations when entities or stakeholders collaborating. · Lack of coordination among authorities managing marine and coastal zones may hinder joint planning and licensing. · Resistance from existing marine users or communities due to perceived competition or environmental concerns.	Medium	Medium	· Leveraging National Aquaculture Council as a forum to mediate and coordinate agreements with clear terms of reference. · Promote co-benefit narratives and publicly communicate success stories.

Pillar 3: Social Acceptance and Information.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
3.2: Building consumer trust in aquaculture products.	**3.2a)** Public awareness campaigns on aquaculture products.	· Persistent bias among consumers favouring wild-caught seafood despite campaign efforts. · Difficulty in measuring campaign impact on consumer behaviour or perception. · Inconsistent messages between broader aquaculture campaigns and product-focused promotions.	High	Medium	· Base messaging on independent scientific evidence regarding nutrition, safety, and sustainability of farmed products. · Promote recipes, tasting events, and endorsements by local chefs; focus on freshness and link to local identity. · Conduct pre-surveys and post-surveys to be able to benchmark. · Have centralised coordination for the development of a unified communication strategy and visual identity.
	3.2b) Strengthening enforcement against food fraud.	· Enforcement against food fraud may be weakened by insufficient inspection capacity, gaps in traceability, increasingly sophisticated fraudulent practices, and difficulties in coordinating investigations across competent authorities and borders. This may result in fraudulent products remaining undetected or enforcement action being delayed.	Medium	High	· Strengthen risk-based controls targeting products, operators and supply chains with higher fraud vulnerability. · Improve information sharing between food-control authorities, customs, police and other relevant enforcement bodies. · Undertake coordinated inspections and targeted sampling, and strengthen traceability and documentary checks. · Provide specialised training to inspectors.

Pillar 3: Social Acceptance and Information.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
3.2: Building consumer trust in aquaculture products.	**3.2c)** Supporting quality labels and traceability schemes.	· Insufficient consumer awareness, recognition or trust in new quality labels or traceability systems.	High	Medium	· Link awareness campaigns to the quality labels, to create synergies and network effects. · Partner with accredited third-party certifiers to enhance consumer trust and recognition. · Promote voluntary but incentivised participation. · Simplify administrative procedures and provide training.
		· Low adoption by operators.			· Encourage participation to strengthen traceability, transparency and the ability of Malta's aquaculture sector to demonstrate product quality, sustainability and origin to consumers and export markets.

Pillar 4: Green Transition.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
4.1: Climate-proofing the industry.	**4.1a)** Sector-specific vulnerability and resilience assessments.	· Weak coordination between climate modelling experts and aquaculture researchers may limit how well vulnerability assessments reflect Malta's specific coastal and production realities.	Low-to-Medium	Medium	· Facilitate engagement between researchers, stakeholders and international partners to ensure the quality of assessments.
		· Insufficient baseline data or long-term monitoring of environmental parameters.			· Compile data from existing datasets and where required apply modelling and forecasting tools.
	4.1b) Promoting circular initiatives.	· Limited collaboration across the aquaculture value chain may hinder the development of circular projects linking producers, processors, and input suppliers.	High	Medium-to-High	· Leverage Aquaculture Council to establish value chain agreements.
		· Regulatory uncertainty around the use of fish by-products or waste streams for feed, fertiliser, or other purposes.			· Ensure legal and regulatory reviews take the circular initiatives into consideration.
		· Financial or logistical barriers for small producers to invest in circular technologies.			· Provide targeted support or PPP models to facilitate circularity.

Pillar 4: Green Transition.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
4.1: Climate-proofing the industry.	**4.1c)** Embedding lifecycle assessments in aquaculture operations.	· Limited availability of localised data on inputs, energy use, and emissions across aquaculture operations, making LCAs less precise.	High	Medium	· Refine data collection protocols.
		· Lack of effective inter-agency coordination between planning, environmental, and fisheries authorities to integrate LCAs into existing workflows.			· Ensure early buy-in and effective inter-agency coordination through the National Aquaculture Council.
		· Potential resistance from operators due to perceived administrative burden or costs associated with LCA requirements.			· Conduct awareness workshops to operators to emphasise long-term benefits to operators and offer technical support or incentives.
	4.1d) Minimising the industry's carbon footprint.	· Limited options to meaningfully reduce carbon emissions due to Malta's small geographic scale, dependence on imported energy, and limited feed production capacity.	High	Medium	· Focus on incremental but cumulative improvements across the value chain.

Pillar 4: Green Transition.					
Work Package	**Actions**	**Risk Description**	**Risk Likelihood**	**Risk Impact Factor**	**Mitigation Measure**
4.2: Enhancing environmental performance.	**4.2a)** Embedding an ecosystem-based approach.	· Inconsistent or incomplete environmental monitoring data, hindering robust evaluation of cumulative impacts.	High	High	· Continuously tailor the EMP as more data becomes available.
		· Operators may perceive new ecosystem-based thresholds as restrictive, while the public may lose confidence if tangible results are not communicated.			· Involve industry and communities early in defining thresholds and AZEs. · Ensure transparent publication of Annual Environmental Reports and highlight measurable environmental improvements to build trust.
	4.2b) Developing a risk-based strategy for managing environmental impacts.	· Limited public visibility of progress and actions taken could reduce public trust. · Lack of consistent environmental data and risk assessment methodologies may limit the ability to prioritise impacts or apply tiered monitoring effectively.	High	Medium	· Publish annual reports summarising key findings and mitigation actions. · Build on existing EMP data to identify hotspots and priority risks.
		· Operators may resist stricter or site-specific requirements due to perceived added cost or administrative burden.			· Involve industry early in the design of the risk-based strategy through the National Aquaculture Council.

3.3 Potential Funding Sources

Malta's aquaculture industry operates within a uniquely constrained financial environment. Despite being one of the country's most export-oriented blue economy sectors, it remains capital-intensive, high-risk, and dominated by a small operator base. The sector's exposure to external shocks, such as fluctuating input costs, market volatility, and climatic pressures, continues to influence credit conditions and the willingness of financial institutions to lend. Recent trends highlight this structural fragility: in 2023, aquaculture output value fell by 37.4%[60], even as intermediate consumption rose, reflecting higher operating costs and tightening margins.

As Malta's aquaculture sector continues to evolve towards greater diversification and sustainability, improving access to finance is becoming essential for future growth. Addressing these financing challenges involves optimising the use of existing funding opportunities, creating new tools that attract private capital, and introducing new financial instruments aligned with sustainability goals.

Public financial support for aquaculture in Malta is provided through a combination of EU and national instruments. Most available funding is channelled through EU-level instruments, primarily EMFAF, with Malta's 2021-2027 programme totalling €31.2 million for aquaculture[61]. National mechanisms complement these funds but operate on a narrower scale and more often directed toward public bodies, fishers (including small-coastal fishers and fishing cooperatives), and NGOs rather than commercial aquaculture enterprises.

Beyond the nationally allocated EMFAF resources implemented under shared management, Maltese entities may also participate in direct EU calls published throughout the programming period. These provide access to additional EU-level support beyond Malta's national envelope. Since 2021, 6 EMFAF projects have involved Malta as a beneficiary, including one focused on regenerative ocean farming that supports private investment in sustainable seaweed cultivation, with participation from a private Maltese entity[62]. Similar cross-border project opportunities are also available under other EU funding programmes that periodically issue calls relevant to aquaculture and the wider blue economy. These include, among others:

- Horizon Europe[63], which funds Research and Innovation (R&I) projects in sustainable food systems and marine ecosystems;
- Interreg[64], which supports regional cooperation projects (Interreg Italia-Malta, Euro-Med) promoting sustainable aquaculture planning, ecosystem management, and circular economy practices through joint research and policy initiatives; and
- LIFE[65], which facilitates aquaculture projects enhancing biodiversity, water quality, and circular resource use, whilst enabling capacity-building and best-practice exchange.

Participation in such calls typically requires engagement within international consortia, which facilitates knowledge exchange, innovation, and the building of long-term partnerships with research institutions and industry leaders across Europe. Although the value adding factor of this dynamic is clear, for Maltese stakeholders, particularly smaller operators and public entities with limited administrative capacity, active participation in international projects can present challenges. These include the need for dedicated proposal-writing expertise, compliance with complex EU administrative requirements, and the financial and logistical commitments associated with consortium-based projects. Strengthening institutional capacity and enhancing collaboration between government, academia, and industry will therefore be key to increase the participation and success rates of Maltese stakeholders within the industry.

Private operators may also access finance through the InvestEU Sustainability Guarantee Product, intermediated nationally via eligible financial partners. This guarantee supports green and circular investments, including projects that reduce emissions, improve energy efficiency or enhance waste and water management, and it is open to SMEs and small mid-caps. In Malta, a Bank of Valletta and European Investment Bank ('EIB') linked risk-sharing

guarantee announced in July 2025 expands access to working capital and investment loans for mid-caps, with the EIB sharing portfolio risk[68]. Complementing this, the BlueInvest initiative, also implemented under InvestEU through the European Investment Fund ('EIF'), provides equity financing and investment-readiness support for innovative SMEs and start-ups in the blue economy, including aquaculture[69]. Together, these mechanisms can de-risk lenders and crowd in private capital for qualifying aquaculture investments whilst supporting early-stage innovation and business development.

At the national level, the newly introduced Aquaculture Fund provides small-scale, non-refundable grants to public bodies, NGOs, and students for projects on biodiversity and habitat conservation, sustainable operations, waste reduction, research, education, and renewable energy in aquaculture. Though not designed for private firms, this fund indirectly benefits the sector by enhancing its environmental performance and public engagement[70].

Additionally, Malta Enterprise administers a number of horizontal business support schemes that are accessible to aquaculture operators. These include non-refundable grants for research, innovation, and skill development, including the Skills Development Scheme and the Access to Finance (Soft Loan) instrument, which could serve as practical funding avenues for sustainable aquaculture investments[71].

The Malta Development Bank ('MDB') provides further potential support through national credit and guarantee facilities. The regulatory framework for fisheries and aquaculture State aid has recently been updated through the Fisheries Block Exemption Regulation ('FIBER'), establishing conditions for national support. As these provisions are integrated locally, MDB and national intermediaries can more readily structure targeted credit lines or guarantees that complement InvestEU instruments[72].

Taken together, these programmes and mechanisms provide a broad framework of potential funding opportunities for aquaculture operators in Malta. Enhanced coordination between the EU, national managing authorities, financial intermediaries, and sector stakeholders will be essential to ensure that the available instruments are effectively aligned with the sector's investment needs and long-term sustainability objectives.

A further source of financing is the use of Public Private Partnerships ('PPPs'), which can mobilise private finance for the actions outlined in this document. Well-designed partnership models can improve delivery efficiency, accelerate innovation uptake and distribute commercial risk more evenly between public authorities and private operators.

3.4 Implementation, Monitoring and Coordination

The successful realisation of this Action plan for the development of sustainable aquaculture in Malta (2026 - 2036) hinges on robust leadership, coordinated implementation, and the active engagement of all stakeholders. At the heart of this process stands the Department of Fisheries and Aquaculture (DFA), which will continue to serve as the principal regulator and steward of the aquaculture sector. As the core authority, the DFA is entrusted with overseeing the regulatory framework, issuing operational permits, and ensuring that all activities within the sector adhere to national and EU standards for sustainability, competitiveness, and environmental stewardship. The DFA's leadership is fundamental in translating the strategic vision and action plan into tangible outcomes, providing clear direction and maintaining accountability throughout the implementation journey.

To further strengthen governance and foster a collaborative environment, the establishment of the National Aquaculture Council marks a pivotal development. This Council will bring together representatives from key regulatory bodies, industry, academia, NGOs, and other stakeholders, creating a unified platform for dialogue and coordination. The Council will have an advisory function which will support the implementation of the Action Plan, providing valuable feedback, mediating between diverse interests, and ensuring that the perspectives of all stakeholders are integrated into policy and operational decisions. By acting as a central hub for information exchange and consensus-building, the Council will help streamline processes, resolve challenges, and promote best practices across the sector.

A cornerstone of the implementation framework is the commitment to transparency and continuous improvement. The DFA will request pre-agreed regular updates from all lead entities identified within the Action Plan, ensuring that progress is systematically monitored and that any emerging issues are promptly addressed. These updates will be circulated among all Aquaculture Council members, fostering a culture of shared responsibility and collective problem-solving. In addition, the DFA will prepare an annual report summarising achievements, challenges, and lessons learned, which will be presented to the Aquaculture Council. This annual review will serve to formalise progress, celebrate milestones, and recalibrate actions where necessary, ensuring that the Action Plan remains dynamic and responsive to evolving circumstances. If deemed required, a mid-term evaluation shall be carried out by the DFA with the support of the Aquaculture Council. This shall ensure that the Action Plan always remains aligned with any emerging industry needs.

Crucially, the success of this Action Plan depends on the active participation and collaboration of all stakeholders. The input of industry operators, researchers, local communities, and civil society is not merely welcomed but is recognised as essential. Only through open dialogue, mutual respect, and a shared commitment to sustainable growth can Malta's aquaculture sector realise its full potential. The Action Plan explicitly prioritises stakeholder engagement at every stage, from planning and implementation to monitoring and evaluation. By harnessing the collective expertise and insights of all involved, Malta can ensure that its aquaculture sector remains resilient, innovative, and aligned with the highest standards of environmental and social responsibility.

In summary, the leadership of the DFA, the collaborative framework provided by the Aquaculture Council, and the prioritisation of stakeholder input together form the backbone of the implementation plan. Through these mechanisms, Malta is well-positioned to achieve the ambitious goals set out in this Action Plan, securing a sustainable and prosperous future for its aquaculture industry.

3.5 Concluding Remarks

This Action Plan sets a clear and ambitious pathway for the sustainable growth of Malta's aquaculture sector, balancing economic opportunity with environmental stewardship and social responsibility. By building on the lessons of past strategies and aligning with both national and EU priorities, the plan addresses the sector's most pressing challenges—ranging from market volatility and environmental pressures to public perception and workforce development. The proposed actions are grounded in robust stakeholder engagement, evidence-based policy, and a commitment to innovation and resilience. Central to the plan's success will be the collaborative efforts of government, industry, academia, and civil society, working together through strengthened governance structures such as the National Aquaculture Council. With transparent monitoring, adaptive management, and a focus on continuous improvement, Malta is well-positioned to realise a thriving, diversified, and climate-resilient aquaculture industry that contributes meaningfully to food security, economic prosperity, and the health of marine ecosystems for years to come.

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