

Resolution GFCM/41/2017/1 on a strategy for the sustainable development of Mediterranean and Black Sea aquaculture

The General Fisheries Commission for the Mediterranean (GFCM),

RECALLING that the objective of the Agreement for the establishment of the General Fisheries Commission for the Mediterranean (GFCM Agreement) is to ensure the conservation and sustainable use, at the biological, social, economic and environmental level, of marine living resources in the GFCM area of application;

RECALLING the 2030 Agenda for Sustainable Development adopted in the context of the United Nations Sustainable Development Summit (New York, September 2015) and the United Nations Sustainable Development Goals (SDGs), in particular SDG 14 “Conserve and sustainably use the oceans, seas and marine resources”, SDG 2 “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”, SDG 6 “Ensure availability and sustainable management of water and sanitation for all”, SDG 8 “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”, SDG 12 “Ensure sustainable consumption and production patterns”, SDG 13 “Take urgent action to combat climate change and its impacts”, SDG 15 “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss” and SDG 17 “Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development”.

RECALLING the Food and Agriculture Organization of the United Nations (FAO) has launched the Blue Growth Initiative with the aim of addressing food security and poverty alleviation, namely by promoting the production of quality capture and aquaculture fish through integrated and sustainable processes that take into account socio-economic aspects.

RECALLING the FAO has enshrined its quest for securing a productive and sustainable aquaculture to achieve food security in its Strategic Objective 2;

RECALLING that, according to the Code of Conduct for Responsible Fisheries of FAO, states should establish, maintain and develop an appropriate legal and administrative framework which facilitates the development of responsible aquaculture;

RECALLING the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention);

RECALLING the subregional approach to fisheries management and aquaculture development as enshrined in the GFCM Agreement, with a view to better addressing the specificities of the Mediterranean and the Black Sea region;

CONSIDERING the Task Force established in 2015 in charge of preparing a strategy for the sustainable development of Mediterranean and Black Sea aquaculture (Aquaculture Task Force), and the extensive consultation process it has launched;

ADOPTS, in conformity with Articles 5 and 8 of the GFCM Agreement, the following resolution:

1. The GFCM shall establish a strategy for the sustainable development of Mediterranean and Black Sea aquaculture (the strategy) aimed at supporting the fulfilment of its mandate, as presented in Annex.
2. The implementation of the strategy is expected to ensure that, by 2030, the aquaculture sector delivers its full potential.

3. The strategy is divided into the following three targets, which selected outputs and proposed actions:
 - a) build an efficient regulatory and administrative framework to secure sustainable aquaculture development;
 - b) enhance interactions between aquaculture and the environment while ensuring animal health and welfare; and
 - c) facilitate market-oriented aquaculture and enhance public perception.
 4. The GFCM shall review the contents of the strategy in due course.
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Strategy for the sustainable development of Mediterranean and Black Sea aquaculture

Executive summary

Aquaculture is a flourishing industry which plays a key role in Mediterranean and Black Sea countries, under a blue growth perspective. According to current trends in aquaculture production and to some national aquaculture strategies, the production of farmed seafood is expected to substantially increase in the region over the next decades. This needs careful planning for the long-term social, economic and environmental sustainability of the sector. At the international level, crucial steps have been made to promote sustainable development and cooperation, in light of emerging global challenges. In particular, the United Nations Sustainable Development Goals (SDG), and more specifically SDG 14, underscore the importance of a “sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism”. At the FAO level, the Code of Conduct for Responsible Fisheries (CCRF) supports responsible aquaculture practices while the attainment of a productive and sustainable aquaculture is enshrined in FAO Strategic Objective 2 (SO2). In the Mediterranean and the Black Sea, the need to promote blue growth and develop sustainable aquaculture to ensure food security has been reiterated on several occasions. Acknowledging this growing trend and in line with its mandate to ensure the sustainable development of aquaculture in the Mediterranean and the Black Sea, the General Fisheries Commission for the Mediterranean (GFCM) has established, in 2015, a dedicated Task Force in charge of preparing a strategy for the sustainable development of Mediterranean and Black Sea aquaculture (Aquaculture Task Force). The aquaculture strategy has been developed as part of an extensive consultation process and building upon the key elements provided by the Aquaculture Task Force. It is aimed at helping countries accomplish their national production plans and thus enabling the sector to efficiently reach its potential by 2030. This strategy envisages a future for Mediterranean and Black Sea aquaculture where a level playing field is achieved and the promotion of the sector is ensured so that it is more competitive, sustainable, productive, profitable and equitable. It is structured around three main targets addressing key transboundary vulnerabilities and cross-cutting issues, based on the pillars of sustainable development. These targets will be instrumental in achieving the overall objective of the aquaculture strategy, through a number of outputs and activities.

Target 1: Build an efficient regulatory and administrative framework to secure sustainable aquaculture growth

Output 1.1: Improved aquaculture regulatory frameworks and streamlined public sector management

Output 1.2: Integrated aquaculture in coastal zones

Target 2: Enhance interactions between aquaculture and the environment while ensuring animal health and welfare

Output 2.1: Mitigated impacts on the environment and improved environmental protection

Output 2.2: Responsible aquatic animal health and welfare management

Output 2.3: Enhanced research and knowledge sharing on aquaculture

Target 3: Facilitate market-oriented aquaculture and enhance public perception

Output 3.1: A market-driven aquaculture sector development

Output 3.2: Improved safety and quality of Mediterranean and Black Sea aquaculture products

Output 3.3: Enhanced aquaculture and aquaculture products marketing and communication

BACKGROUND INFORMATION

This strategy is the fruit of a consultative process started after the thirty-ninth session of the GFCM, when it was decided to establish a task force to develop a strategy for the sustainable development of Mediterranean and Black Sea aquaculture, building, among others, on the outcomes of the Regional Conference “Blue Growth in the Mediterranean and the Black Sea: developing sustainable aquaculture for food security” (Italy, December 2014).

The consultative process of the strategy has involved national focal points and experts, who have met on various occasions. The two meetings of the Aquaculture Task Force held so far have constituted its main milestones. The first meeting of the Task Force (Italy, May 2016) reviewed the recent progress made and the priorities for the aquaculture sector in the region, and agreed on preliminary key elements for the strategy, working areas, practical actions, management tools as well as a roadmap. The outcomes of the first meeting of the Aquaculture Task Force were presented and endorsed at the fortieth session of the Commission (GFCM:41/2017/Inf.6). The second meeting of the Aquaculture Task Force (Italy, November 2016) reviewed existing national and supranational aquaculture strategies and development plans in the region and discussed the structure and contents of the strategy, with a particular emphasis on priority actions and technical assistance needs. The meeting agreed on the fine-tuning of the strategy, in particular with regard to its structure, timeframe, cooperation and technical assistance components.

A revised version of the strategy was brought to the attention of the tenth session of the Scientific Advisory Committee on Aquaculture (CAQ) (Turkey, March 2017) which agreed to keep working towards its finalization so that it could be submitted to the next session of the Commission (GFCM:41/2017/Inf.10).

This document reflects the work carried out based on the different feedbacks received. The strategy is structured in three parts: i) a general introduction providing background information, the vision, mission, nature, scope and guiding principles of the strategy; ii) a section dedicated to the three targets of the strategy, addressing key transboundary vulnerabilities and cross-cutting issues based on the pillars of sustainable development, with associated activities and outputs; and iii) a part addressing the operationalization of the strategy.

The Commission is invited to review the strategy and to provide further advice for its finalization, as appropriate.

1. INTRODUCTION

The need for a regional strategy

In Mediterranean and Black Sea riparian countries, aquaculture is an active and growing sector which plays a major role in achieving food security, employment and economic development while reducing the dependence on the often overexploited wild stocks. In a blue growth perspective, aquaculture constitutes a strategic sector for future development. In 2014, the production of Mediterranean and Black Sea bordering countries reached 2 381 954 tonnes¹, with an economic value estimated at around USD 6.8 billion. According to some national aquaculture strategies, the production is expected to reach over 4 600 000 tonnes in 2020–2030 in Mediterranean and Black Sea riparian countries.

However, this rapid growth poses challenges for the overall sustainability of the sector in the long term and raises concerns under several perspectives. A sustainable aquaculture means ensuring not only that the industry is economically and environmentally sustainable but also that aquaculture farms operate in a socially and culturally responsible manner. The current challenges in terms of governance, spatial planning, economic and market issues, ecological and environmental concerns as well as the globalization of the market of aquaculture production have highlighted the importance of a regional strategy for the sustainable development of aquaculture in the Mediterranean and Black Sea riparian countries.

Aquaculture holds great potential for many coastal countries and communities in the Mediterranean and Black Sea region. If managed and governed properly, it can provide multiple benefits in terms of nutritious food and positive socio-economic outcomes. Since Mediterranean and Black Sea aquaculture consists of various culture systems at varying stages of development, a holistic approach is needed to ensure that aquaculture is developed in a way that reconciles all the principles of sustainable development, taking into account the complexity and specificities of aquaculture across the region.

¹ Including production from all environments (marine, brackish and freshwater) and from the Atlantic.

In this context, the implementation of a regional aquaculture strategy should help countries in reaching this objective. By facilitating cooperative processes and fostering synergies, the strategy aims at enabling the sector in delivering its full potential by 2030.

Vision and mission

This integrated regional aquaculture strategy is based on extensive consultations held within a co-construction process and aimed at securing equal terms of competition, a minimum common criteria to address aquaculture-related cross-cutting and transboundary issues, good aquaculture–environment interactions and aquaculture activities integrated with coastal areas and communities in Mediterranean and Black Sea riparian countries. The strategy envisages a future for Mediterranean and Black Sea aquaculture where the industry will be globally competitive, sustainable, productive, profitable, and equitable.

At the same time, the aquaculture strategy should help Mediterranean and Black Sea riparian countries in formulating harmonized aquaculture activities and action plans with special attention to current regional, subregional, national and local aquaculture priorities and emerging challenges at the different levels while taking into account existing national and supranational strategies and existing legal requirements.

International and institutional background

The international community recently recognized that further progress needs to be achieved in order to secure an efficient cooperation towards sustainable development in light of emerging global challenges. On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development – adopted by world leaders in September 2015 at an historic United Nations Summit – officially came into force and will mobilize efforts over the next fifteen years towards a more prosperous and sustainable world. The conservation and sustainable use of marine environment has an important role to play in this respect and is especially reflected in SDG 14 which is to “conserve and sustainably use the oceans, seas and marine resources for sustainable development”. Its Target 7, in particular, aims “by 2030, [to] increase the economic benefits to Small Island Developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism”. This target acknowledges the significant role to be played by good governance in aquaculture in the context of comprehensive UN efforts to improve life conditions, stressing the necessity to “balance priorities between growth and conservation, and between industrial and artisanal fisheries and aquaculture, ensuring equitable benefits for communities.” Other SDGs such as SDG 2 (Zero hunger), SDG 6 (Clean water and sanitation), SDG 8 (Decent work and economic growth), SDG 12 (Responsible production and consumption), SDG 13 (Climate action), SDG 15 (Life on land) and SDG 17 (Partnerships for the goals), are also of importance for aquaculture. Back in 2012, “The Future We Want” outcome document of the United Nations Conference on Sustainable Development (Rio+20) had already renewed international commitment for sustainable development and cooperation. Along with these efforts, the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) concluded with the historic adoption, in December 2015, of the Paris Agreement. For the first time, all nations jointly committed to undertake ambitious efforts to combat climate change and adapt to its effects, thereby outlining a new course in the global climate effort.

In support of these efforts, the FAO has launched the Blue Growth Initiative with the aim of addressing food security and poverty alleviation by producing quality capture and aquaculture fish through processes which are integrated, sustainable, and socio-economically sensitive. The FAO has enshrined its quest for securing a productive and sustainable aquaculture to achieve food security in its Strategic Objective 2 (SO2) which is to “make agriculture, forestry and fisheries more productive and sustainable”. The FAO programme of work in fisheries and aquaculture under the FAO strategic framework, elaborated by the FAO Committee on Fisheries (COFI)², highlights that “some of the Blue Growth Initiative activities contributing to SO2 involve cross-sectoral technical work, including [...]

² FAO. 2016. FAO’S programme of work in fisheries and aquaculture under the FAO Strategic Framework. Thirty-second session of the Committee on Fisheries, Rome, Italy, 11–15 July 2016. Document COFI/2016/9.

reducing the impact of agriculture intensification on aquatic eco-systems, improving aquatic animal health, and promoting coastal zone management”. Furthermore, the FAO Code of Conduct for Responsible Fisheries (CCRF) also tackles the promotion of responsible aquaculture. In particular, Article 9.1.1 indicates that “States should establish, maintain and develop an appropriate legal and administrative framework which facilitates the development of responsible aquaculture”, while Article 9.2 clearly addresses the protection of transboundary aquatic ecosystems by supporting responsible aquaculture practices and Article 11 puts forward the right of consumers to safe and quality products encouraging states to set minimum standards in this regard and promoting certification.

In the Mediterranean and the Black Sea, other international legal instruments have been adopted and are contributing to these efforts, such as for instance the 1995 Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.

At the GFCM level, the need to pursue the sustainability of the aquaculture sector is enshrined in the Agreement for the establishment of the General Fisheries Commission for the Mediterranean (GFCM Agreement), thereby affirming that responsible aquaculture reduces stress on marine living resources and plays an important role in the promotion and better use of aquatic living resources, including food security. Designing a regional strategy is fully in line with Article 5 e) of the GFCM Agreement, which states that the GFCM shall “foster, as appropriate, a subregional approach to fisheries management and aquaculture development in order to better address the specificities of the Mediterranean and the Black Sea”.

The aquaculture strategy directly stems from the thirty-ninth session of the GFCM, when it was decided to establish a Task Force on a Strategy for the sustainable development of Mediterranean and Black Sea aquaculture (Aquaculture Task Force). The work of the Aquaculture Task Force should, among other things, build upon the outcomes of the Regional Conference “Blue Growth in the Mediterranean and the Black Sea: developing sustainable aquaculture for food security” (Italy, December 2014), which underlined that a good governance implies that aquaculture management should be participative, effective, accountable and coherent and be based on sound and effective regulatory frameworks. The aquaculture strategy contains the key elements that emerged after the first meeting of the Aquaculture Task Force (Italy, May 2016); it is also based on the strategic areas of the GFCM Aquaculture Multi-Stakeholder Platform (AMShP) and has been enriched with the outcomes of other aquaculture projects carried out so far³ under the GFCM Framework Programme.

2. NATURE AND SCOPE

The aquaculture strategy is linked to SDG 14 and to SO2. It is multiannual (2017–2020) and provides guidance to unlock the potential of the sector in the region by ensuring that it meets the growing need for aquaculture products and contributes to food security and poverty reduction, with particular attention to coastal communities. Responsibility and sustainability constitute the cornerstone of the aquaculture strategy, which is also in line with the principles and approaches enshrined in modern international legal instruments governing fisheries and aquaculture.

The strategy does not apply to fisheries since the challenges associated with this sector are specifically addressed in a dedicated mid-term strategy towards the sustainability of Mediterranean and Black Sea fisheries.

The aquaculture strategy is structured around three targets addressing a range of transboundary key vulnerabilities and cross-cutting issues, based on the pillars of sustainable development. For each target, proposed outputs and activities will be instrumental towards its efficient achievement.

3. GUIDING PRINCIPLES

The implementation of the strategy for the sustainable development of Mediterranean and Black Sea aquaculture will be guided by the following principles, which are enshrined in the GFCM Agreement and in place at the FAO level:

³ MedAquaMarket, InDAM, SHoCMed, LaMed, etc.

Sustainability: the FAO vision for sustainable food and agriculture is that of a world where food is nutritious and accessible for everyone, and natural resources are managed in a way that maintains ecosystem functions to support current as well as future human needs. According to this vision, rural communities have the opportunity to actively participate in, and benefit from, economic development, have decent employment conditions, work in a fair price environment, live in security, and have control over their livelihoods and equitable access to resources. This is particularly reflected in SO2 and in the GFCM Agreement, which states that “aquaculture, including culture-based fisheries, should be considered as a means to promote the diversification of income and diet and, in so doing, ensure that marine living resources are used responsibly, that genetic diversity is conserved and adverse impacts on the environment and local communities are minimized”;

Best available knowledge: the implementation of the strategy should duly take into account the best available knowledge, including on the aquaculture trends, ecosystems and marine environment, as well as relevant information emanating from a variety of sources. Efforts to collect all information available shall be ensured, and standards for assuring the quality of information should be applied wherever and whenever practicable and appropriate within the CAQ and its subsidiary bodies, in particular the Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM);

Objectivity and transparency: the collection, analysis and dissemination of information on the status and trends of aquaculture, ecosystems and marine environment should contribute to the aquaculture strategy while respecting confidentiality requirements. Transparency in decision-making processes and related activities should be promoted. Uncertainty associated with information on status and trends should be expressed, without detracting from the application of the precautionary approach in accordance with the 1995 Agreement and the CCRF when data and information are incomplete;

Timeliness: the collection, analysis and dissemination of information on the status and trends of aquaculture, ecosystems and marine environment should be provided as timely as possible;

Participation, cooperation and efficiency: the implementation of the aquaculture strategy should be based on the participatory and consultative process stemming from the Aquaculture Task Force and account for all relevant participants in the preparation, analysis and presentation of information. Relevant participants may include, *inter alia*, representatives of Mediterranean and Black Sea riparian States, as well as international, non-governmental and civil society organizations. Cooperation among relevant stakeholders, existing structures and mechanisms should be promoted in order to create synergies and avoid duplications of existing knowledge and initiatives;

Adaptability and level playing field: the activities foreseen in the aquaculture strategy should be adaptive enough to permit adjustments, as necessary, and take into account the different stages of regional industry maturity in the area and the different legal contexts of all Mediterranean and Black Sea riparian countries. In this respect, the capacity of developing states in the region should be duly taken into account in implementing the strategy. In addition, a level playing field should be sought to guarantee parity, impartiality and equal opportunities to all parties involved.

TARGET 1: BUILD AN EFFICIENT REGULATORY AND ADMINISTRATIVE FRAMEWORK TO SECURE SUSTAINABLE AQUACULTURE GROWTH

As acknowledged by the international community on several occasions, a good governance in aquaculture would enable to increase the social acceptability of the sector and confidence of all stakeholders, and to unlock aquaculture socio-economic potential, thereby enabling the various actors to benefit from new development opportunities.

It is widely recognized that in the Mediterranean and Black Sea riparian countries, the main challenges to aquaculture development are: the lack of streamlined administrative management, the lack of dedicated regulatory frameworks accounting specifically for coordinated spatial planning and enabling the selection of suitable areas for aquaculture (e.g. implementation of allocated zones for aquaculture [AZAs]), the overlapping of numerous legislations and authorities, the lack of strategy for aquaculture long-term planning, and the lack of participatory and transparent decision-making processes. These bottlenecks result in excessive bureaucracy, lacking coordination among authorities – which entails lengthy and cumbersome aquaculture licensing processes – conflicts over competing uses, misallocation

of resources, stagnation of the industry and irreversible environmental damage in transboundary aquatic ecosystems.

In light of this, improvements need to be achieved in order to build an efficient regulatory and administrative framework to secure the sustainability of aquaculture growth. Hence, in the context of its Target 1, the aquaculture strategy aims at ensuring that aquaculture in the Mediterranean and the Black Sea is: a) regulated by a sound and functioning system and by the implementation of specific regulations governing the sector, in line with the principles of the CCRF and with the support of strategic plans; b) based on the existence of functioning and transparent participatory mechanisms in the decision-making process; and c) developed in a consistent way based on maritime coastal planning principles and integrated with the activities of other coastal users. In order to make advances towards good aquaculture governance in the region, the aquaculture strategy aims at supporting Mediterranean and Black Sea riparian countries in achieving enabling conditions, such as: dedicated and improved regulatory frameworks, streamlined administrative and public sector management, and participatory, transparent and accountable policy-making processes (Output 1.1); improved and sustainable integration of aquaculture in coastal and marine zones and enhanced compatibility of the sector with other existing and future human activities (Output 1.2).

Output 1.1: Improved aquaculture regulatory frameworks and streamlined public sector management

Recent data⁴ suggest that the main challenges for good aquaculture governance in the Mediterranean and Black Sea riparian countries are related to the lack of comprehensive regulatory frameworks, clear leadership structures and space allocated to aquaculture.

Legal frameworks often do not include a comprehensive vision of aquaculture activities nor do they consider the specificities connected with the location of aquaculture activities (land, offshore, inshore), the type of production (intensive, extensive) or the type of enterprises (small, medium or large scale). This is also reflected in the difficulty experienced by managers in the administration in applying aquaculture regulations themselves. According to recent surveys in the Mediterranean and Black Sea region, 62 percent of the countries apply a national development plan dedicated to aquaculture, while only 25 percent have specific regulations on aquaculture. In countries where no specific regulations on aquaculture exist, aquaculture is regulated by laws on fisheries or agriculture that are not designed to meet the specific needs of the sector⁵.

According to the Strategic Guidelines for the sustainable development of EU aquaculture (2013), the licensing time for aquaculture farms exceeds 17 months in the majority of EU countries, while in some countries licenses for aquaculture activities at sea have a limited duration (less than 10 years). Furthermore, the time needed to build facilities and begin the production is often quite long (2.5–3.5 years) before the first sale. Finally, only a limited number of countries in the Mediterranean and Black Sea have functioning participatory fora such as multi-stakeholder platforms or equivalent mechanisms (mirror platforms, aquaculture committees, etc.) enabling dialogue and having a participatory role in decision-making processes.

This output will require the execution of a number of activities as listed below:

⁴ Chapela, R. 2016. Review of current approaches to spatial planning for aquaculture in marine and freshwater environments in Europe, non-EU Mediterranean and Black Sea countries. Report prepared for the EU funded project AquaSpace – Ecosystem Approach to making Space for Sustainable Aquaculture (<http://www.aquaspace-h2020.eu/>).

⁵ Chapela, R. 2016. Review of current approaches to spatial planning for aquaculture in marine and freshwater environments in Europe, non-EU Mediterranean and Black Sea countries. Report prepared for the EU funded project AquaSpace - Ecosystem Approach to making Space for Sustainable Aquaculture (<http://www.aquaspace-h2020.eu/>).

Activities required for Output 1.1

Activities to support the improvement of regulatory frameworks and enhance administrative efficiency

- a) Preparation of **regional guidelines for sound regulatory systems**, including main guiding principles, good practices and key elements for the sustainable growth of the aquaculture sector (e.g. specific laws and measures on social rights and fair working conditions). This action is expected to provide Mediterranean and Black Sea riparian countries with minimal basic requirements on governance-related issues, such as licensing, spatial planning, and competitiveness and level playing field.
- b) Compilation of **regional and global successful practices on licensing processes simplification** in order to carry out a benchmarking of models and options for good governance. This action will offer the necessary support and practical solutions to help Mediterranean and Black Sea riparian countries improve their administrative procedures.
- c) Organization of **training and national capacity building programmes** for operators and decision-makers, at the local and regional levels. This action will enhance the role of aquaculture within national and regional development plans (e.g. human health, local and national economy) and raise awareness on good governance systems and procedures in aquaculture. Workshops may be also organized to improve interinstitutional cooperation.
- d) **Monitoring of the progress of aquaculture development in** the Mediterranean and the Black Sea area. This action is aimed at following the implementation for sustainable aquaculture development according to the sustainability indicators so far identified by the CAQ and within the InDAM project⁶.
- e) Establishment of a **regional network (or/and forum/workshop) on aquaculture governance** among Mediterranean and Black Sea riparian countries and partner organizations in order to address, following a coordinated approach, regulatory issues and to share experience and knowledge. This action is expected to provide an enabling environment for cooperation among key decision-makers on aquaculture-related issues with a view to further strengthening efforts towards a regional harmonization of the sector's regulations.

Activities to enhance accountability of policy-making and implementation processes

- f) Preparation of **guidelines to enhance the involvement of aquaculture farmers' organizations (AFOs) in aquaculture management**. These guidelines will include provisions aimed at strengthening stakeholder participation mechanisms in decision-making processes so to ensure proactive inputs and enhanced accountability of the actors involved.
- g) Provision of **support to the establishment of national and regional participatory tools** such as multi-stakeholder platforms (e.g. AMShP). These participatory tools are expected to foster a strong regional network involving national aquaculture experts, partners and research organizations, to stimulate dialogue, and facilitate knowledge sharing at different geographic levels in order to provide regional solutions to the main gaps and priorities identified at the national level.

Output 1.2: Integrated aquaculture in coastal zones

The spatial development of marine aquaculture should be considered within the broader context of marine spatial planning in order to minimize the negative impacts on the coastal areas, avoid competition with other users and conserve ecosystem services provided by the environment. In the Mediterranean and Black Sea region, the lack of sound spatial planning seriously hinders aquaculture development. At the local level, the major source of conflicts stems from the struggle over marine space and competing coastal utilizations and users; as a result, the available space for new mariculture development in coastal zone is becoming seriously limited. Conflicts usually reported by Mediterranean and Black Sea riparian

⁶ Project on "Indicators for Sustainable Development of Aquaculture and Guidelines for their use in the Mediterranean".

countries refer to interactions with tourism, local communities, environmental conservation, small-scale fisheries and oil and gas industry⁷.

In the wake of the international acknowledgment of the need for marine spatial planning, the COFI⁸ emphasised its crucial importance with a view to ensuring the allocation of space for aquaculture and integrating aquaculture activities within other coastal uses in a concerted manner. At the GFCM level, the Resolution GFCM/36/2012/1 on Guidelines on Allocated Zones for Aquaculture, adopted in 2012, highlights that aquaculture development along the coastal areas goes beyond the zoning concept and that marine spatial planning, environmental impact assessment and monitoring programmes are essential for the implementation of a regional strategy addressing AZAs. The resolution considers that the implementation of AZAs is a priority for the responsible development and management of aquaculture activities in the Mediterranean and Black Sea. It also includes social and economic provisions aimed at reducing negative aquaculture externalities while allowing a harmonious development of various types of activities in the same area. Moreover, it stresses that the implementation of AZAs should usually be accompanied by a management plan in which aquaculture itself is developed.

In the region, countries are considering to frame aquaculture activities within the context of marine spatial planning, especially in relation to spatial and temporal allocation of maritime space to different activities with a view to preserve the ecological services provided by the ocean ecosystems. For example, at the EU level, the Maritime Spatial Planning Directive⁹ sets overarching principles and common requirements by which to organise human activities in EU maritime space to achieve environmental, economic and social objectives. It requires the implementation of maritime spatial planning (MSP) in all EU waters and the establishment by Member States of cross-sectoral maritime spatial plans by 2021. All activities foreseen in the strategy will be in line with existing international, regional, supranational and national spatial planning processes.

From a recent survey carried out in 21 Mediterranean and Black Sea riparian countries, it emerged that 14 countries had implemented site selection for aquaculture development. However, various barriers (conflict for space, environmental concerns, aquaculture priorities not accounted for, etc.) were still limiting the application of AZAs. Moreover, it is worth underlining that site selection *per se* does not imply the establishment of AZAs nor the planning and creation of zones that are specifically dedicated to aquaculture. The respondents to the survey also indicated that only 8 countries had established AZAs or aquaculture management areas. Therefore, there is a need to promote the implementation of these tools in order to enhance the integration of aquaculture in coastal zones¹⁰.

This output will require the execution of a number of activities as listed below:

Activities required for Output 1.2

- a) **Implementation of technical cooperation projects and mechanisms to support the effective implementation of AZAs** in the region. This action will include capacity building and training to support Mediterranean and Black Sea riparian countries in achieving an effective implementation of AZAs and to facilitate proactive planning (based on to the GFCM resolution on AZAs). Upon request, this action could be tailored to specific requirements, as appropriate. This action will also need to be integrated in the broader EU MSP process at the national level and the sea basin levels.
- b) **Preparation and dissemination of an AZA toolkit** (“AZA: benefits, identification, implementation and management”). The AZA toolkit will be based on existing technical achievements and knowledge outputs and will be tailored to the region’s specificities. This action will include, among other things, the use of graphics and the publication of a guide,

⁷ Chapela, 2016.

⁸ FAO Committee on Fisheries. 2014. Report of the seventh session of the Sub-Committee on Aquaculture. St Petersburg, Russian Federation, 7–11 October 2013. FAO Fisheries and Aquaculture Report. No. 1064. Rome, FAO. 53 pp.

⁹ Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.

¹⁰ Chapela, 2016.

summary sheets, short leaflets and a training handbook for public managers; it will aim at maximizing existing scientific knowledge on AZAs in the region.

TARGET 2: ENHANCE INTERACTIONS BETWEEN AQUACULTURE AND THE ENVIRONMENT WHILE ENSURING ANIMAL HEALTH AND WELFARE

The need to enhance interactions between aquaculture and the environment has been highlighted in several international and regional fora. The 2012 Rio+20 Conference has acknowledged that healthy sea ecosystems are more productive and are essential for sustainable sea-based economies. In light of this, the 2016 FAO COFI Sub-Committee on Aquaculture suggested that the FAO Blue Growth Initiative should not only focus on strategies aimed at reducing the negative impacts of aquaculture, but also contribute to maximizing positive effects of aquaculture on the environment, such as those of shellfish farming¹¹. At the regional level, the GFCM itself has recognized the need to strike a balance between minimizing effects on the environment and supporting a growing aquaculture production in the coastal zones of the region.

The Mediterranean and the Black Sea share a unique aquatic ecosystem and are characterized by complex aquaculture-environment interactions. Indeed, aquaculture impacts on the environment at the local scale could influence negatively the ecological services provided by the environment and have an effect at wider scales. In this regard, the lack of regional cooperation in addressing transboundary issues and the poor harmonization of norms and standards contribute to the increasing difficulty to monitor such interactions. Other factors contribute to hampering these efforts: the lack of applied and harmonized environmental monitoring programme (EMP) dedicated to aquaculture, the lack of capacity in and application of risk analysis, the lack of guidelines on control and prevention (diseases, alien species, escapees, climate change and ocean acidification stressors), the lack of applied standards for prevention and control of contaminant procedures along the value chain, and the lack of harmonized regulatory and monitoring frameworks.

In light of this, efforts need to be carried out to enhance interactions between aquaculture and the environment, while ensuring animal health and welfare. Hence, in the context of Target 2, the aquaculture strategy aims at ensuring that aquaculture in the Mediterranean and the Black Sea is: a) fully integrated into an environment where the ecological services provided are preserved; b) able to secure adequate health and welfare to farmed aquatic animal; and c) supported by a thriving cooperative research and technological development (RTD) based on industry needs, the results of which are efficiently transferred to farmers. In order to progress towards enhanced interactions between aquaculture and the environment while ensuring animal health and welfare, the aquaculture strategy aims at supporting Mediterranean and Black Sea riparian countries in achieving mitigated impacts on and improved protection of the environment. This should be attained through actions promoting: traditional and smart aquaculture activities (Output 2.1); a more efficient management of production activities and improved aquatic animal health and welfare (Output 2.2); enhanced research and knowledge sharing in support of sustainable aquaculture development (Output 2.3).

Output 2.1: mitigated impacts on the environment and improved environmental protection

Aquaculture relies on clean and healthy marine waters; therefore, the implementation of an environmental impact assessment (EIA) prior to the establishment of aquaculture operations is critical to address environmental impacts before they occur, while monitoring the environment surrounding farming facilities at sea is essential to evaluate the effects and impacts on the environment and on aquaculture itself. In line with the GFCM resolution on AZAs, an allowable zone of effect of aquaculture activities should be defined in the close vicinity of each farm and accompanied by an EMP. Based on this need, the GFCM developed the Guidelines on EMP for marine finfish cage farming. Recent findings

¹¹ FAO. 2016. Decisions and recommendations of the eighth Session of the COFI Sub-Committee on Aquaculture, Brasilia, Brazil, 5–9 October 2015. Thirty-second Session of the Committee on Fisheries, Rome, Italy, 11-15 July 2016. Document COFI/2016/4.

of the SHoCMed project¹² have highlighted that in the Mediterranean and the Black Sea, 8 out of 12 respondent countries – representing 80 percent of the riparian countries which carry out cage culture at sea – do not have a permanent environmental monitoring system. These findings also showed that when an environmental monitoring system exists, there is a lack of cooperation with farmers in monitoring activities. In many cases, environmental monitoring data exist but are not accessible due to a lack of cooperation among the different institutions and farms.

Furthermore, another recent study carried out at the European level¹³ reported that escapee accidents are also relatively frequent – in six countries where 242 incidents have been reported, three of which were bordering the Mediterranean, approximately 8.9 million fish escaped. This situation entails risks of pathologies spreads and biosecurity threats and it is mainly due to scarce preventive measures undertaken at the farm level. Strict procedures should be in place to regulate the introduction of alien species and other locally absent species. At the EU level, the Council Regulation on alien species in aquaculture¹⁴ establishes a framework governing aquaculture practices in relation to alien and locally absent species to assess and minimise the possible impact of those species and of associated non-target species on aquatic habitats. The Strategy for the sustainable development of Mediterranean and Black Sea aquaculture will also take into account this European legal context. At the farm level, the implementation of well-designed better management practices (BMPs) can support producers in reducing or mitigating the impacts on the environment, increasing efficiency and productivity, improving food safety and quality of farm products, and increasing the social benefits from aquaculture farming while improving its social acceptability and sustainability.

This output will require the execution of a number of activities as listed below:

Activities required for Output 2.1

- a) Preparation of **guidelines on risk analysis methods and data recording**. These guidelines should highlight the importance of monitoring and collecting data on specific aspects of aquaculture activities. Environmental issues that are usually not subject to monitoring and recording could also be taken into consideration (e.g. on alien and locally absent species, escapees, pathogens, drugs and feeds, etc.).
- b) Provision of **training and technical assistance on the implementation of EMP**. This action aimed at fostering national capacity building on the implementation of EMP within AZAs and increasing awareness on the practical use of management and monitoring tools.
- c) **Production and dissemination of a toolkit for the harmonization on minimum common criteria** on allowable zones of effects (AZE) and environmental quality standards (EQS). This activity will update the minimum standards and requirements for environmental monitoring produced by the CAQ. The update will also take into consideration climate change and related phenomena which could represent threats to aquaculture.
- d) Implementation of **plans oriented to “climate smart aquaculture activities”**. This action aims at supporting aquaculture activities that have a positive effect on global warming and is intended to contribute to the preservation of ecological services provided by the environment and to maximize the positive effects of aquaculture on the environment. It could leverage on initiatives implemented at the local, national and regional level – such as extensive aquaculture in lagoon areas, marine protected areas and mussel culture – which take into consideration

¹² Result from the survey on the “Implementation feasibility at the national level of the guidelines on a harmonized environmental monitoring programme (EMP) for marine finfish cage farming in the Mediterranean and the Black Sea” (SHoCMed project).

¹³ Jackson, D., Drumm, A., McEvoy, S., Jensen, Ø., Mendiola, D., Gabiña, G., Borg, J.A., Papageorgiou, N., Karakassis, I., Black, K.D. (2015) A pan-European valuation of the extent, causes and cost of escape events from sea cage fish farming. *Aquaculture*. (436):21–26.

¹⁴ Council Regulation (EC) No 708/2007 of 11 June 2007 concerning use of alien and locally absent species in aquaculture.

carbon footprint and sustainable models for bioremediation with a view to securing carbon sequestration and preserving the environment.

- e) **Preparation of guidelines on and the promotion of aquaculture BMPs.** This action aims at increasing farmers' awareness and responsibility on conservation of environmental integrity. The BMPs will focus on meeting the minimum standards related to the farming aspects of the main reared species including stocking density, feed management, water quality and monitoring, harvest calendar, drugs management, disease and implementation of surveillance plans.

Output 2.2: responsible aquatic animal health and welfare management

Recent concerns were expressed on antibiotic and antimicrobial resistance as these issues are occurring worldwide and call for the responsible use of successful treatments and for the prevention of diseases. The urgent need to address aquatic animal health and welfare management is contemplated in SO2 where improving aquatic animal health has been set as a priority area for 2016–2017 and beyond. Various international legal instruments such as the Codex Alimentarius of the FAO and the World Health Organization (WHO), also specifically address health issues based on the principle that animals and crops must be healthy throughout the entire food chain. In addition, the Aquatic Animal Health Code of the World Organisation for Animal Health (OIE) provides important highlights, in particular on infections.

The regional goal will be to harmonize actions aiming at tackling the challenges related to aquatic animal health and welfare should be regional in scope and take into account existing specificities of aquaculture in the region. Managing the health and welfare of farmed fish, including disease prevention and a responsible use of veterinary medicines, biological products and chemicals, depends on the overall management of the farm. A good farm management should ensure in fact fish health while maintaining food safety and food quality and minimizing the potential impacts on human health and the environment.

This output will require the execution of a number of activities as listed below:

Activities required for Output 2.2

- a) Provision of **capacity building for aquaculture farmers** in the field of risk analysis (including risk assessment, management and communication), adaptive management, diagnosis, biosecurity measures and sanitary and food security (responsible use of registered, recorded and traceable medicaments and vaccines). This activity would improve the capacities of farmers to deal with disease prevention and with potential risks and hazards posed by farming operations.
- b) Development of **systems and protocols for the early diagnosis of pathogens** with the support of certified laboratories sufficiently equipped and competent in the sector. This activity would strengthen the capacity to contain the spread of diseases.

Output 2.3: Enhanced research and knowledge sharing on aquaculture¹⁵

The COFI Sub-Committee on Aquaculture has recently acknowledged the important role of aquaculture education and research as well as its potential contribution to the development of sustainable aquaculture¹⁶. RTD plays a key role since it brings innovation, fosters rapid technological advances and is a crucial aspect of competitiveness for farmers and the industry as a whole.

In the Mediterranean and the Black Sea, research is rather well developed, as highlighted by the AquaMed project, carried out in 12 Mediterranean riparian countries. The findings of this project report that, in 2013, there were 115 research institutes and 1 155 researchers involved in aquaculture research and that 547 aquaculture research projects had been implemented from 2005 to 2010. To be effective, the selection of research topics should be based on actual needs of the sector and the outputs be

¹⁵ Ongoing discussion on the importance/structure to be given to the research component of the strategy.

¹⁶ FAO Committee on Fisheries. 2014. Report of the seventh session of the Sub-Committee on Aquaculture. St Petersburg, Russian Federation, 7–11 October 2013. FAO Fisheries and Aquaculture Report. No. 1064. Rome, FAO. 53 pp.

transferred to the industry. Similarly, dialogue between the industry (in particular small-scale farms having limited funding resources) and the research community needs to be improved. Efficient networks should be established and research cooperation facilitated to strengthen dialogue between stakeholders, enhance synergies and achieve a better coordination on research activities so as to avoid duplication or fragmentation.

The Mediterranean and the Black Sea is considered as an area that is vulnerable to climate change, which entails likely changes in temperature, eutrophication, harmful algae blooms, water stress, sea level rise, acidification and diseases. These threats could have an impact on the aquaculture sector, especially for shellfish farming, therefore calling for specific science-based information to evaluate the degree of vulnerability to climate change and associated phenomena, taking into account the location, production segment, farming system and cultured species, with a view to identifying suitable adaptation and mitigation measures.

As the principal objective of aquaculture is to produce food for human consumption, nutritional aspects are considered essential for the promotion and evolution of the sector. Therefore the cooperation with researchers and experts on human nutrition to promote the benefits of the aquaculture products in the Mediterranean and Black Sea should be reinforced.

This output will require the execution of a number of activities as listed below:

Activities required for Output 2.3

- a) **Preparation of a research work plan to strengthen aquaculture industry-driven RTD.** This plan should foster the establishment of aquaculture pilot demonstrative centres in the region, showcasing different production methods for the attention of potential investors, as well as cooperative research and knowledge sharing on cross-cutting and transboundary issues. It should also include a programme to transfer the results of applied research supporting the use of RTD patents and research performance assessment. Within this context, the selection of research priorities should be based on end-user needs and follow a strategic research and innovation agenda (e.g. epidemiology of aquatic animal pathologies, vaccines, feed technologies, restocking good practices, efficient water resources use and maintenance of water quality, integrated multitrophic aquaculture, recirculating aquaculture, etc.).
- b) Provision of **technical assistance and cooperation to implement innovative farming technology** (e.g. recirculation systems, integrated systems of aquaculture production and processing). This action would ensure that applied research results are regularly transferred to farmers.
- c) Organization of a **Workshop on challenges posed by climate change and ocean acidification to Mediterranean and Black Sea aquaculture.** This action is aimed at taking stock of new challenges brought about by climate change and ocean acidification to aquaculture, taking into account the current body of knowledge and ongoing projects. It should also look at available best practices to integrate climate change adaptation, mitigation and innovative options into aquaculture activities which could be adjusted to the Mediterranean and Black Sea region.
- d) Implementation of a **regional research to assess aquaculture vulnerability to climate change and risk mapping** as well as associated phenomena, including ocean acidification, in order to identify context-specific adaptation and mitigation measures and implement a regional monitoring system.
- e) Set-up of a **database of aquaculture experts** made available to public administrations and aquaculture farmers.

TARGET 3: FACILITATE MARKET-ORIENTED AQUACULTURE AND ENHANCE PUBLIC PERCEPTION

A market-oriented production strategy is key to secure a sound, attractive and fair market for aquaculture products and contribute to building a positive image of aquaculture activities and products in the region.

This would help enhance the competitiveness of the industry and fully capitalize on the increasing demand for high quality and value-added seafood products.

However, in the Mediterranean and Black Sea riparian countries, aquaculture remains a highly fragmented sector with uneven negotiation power along the value chain as the retail sector seems to benefit from a disproportionate share of the value created. Producers still lack the ability to proactively respond to emerging market issues and to government regulatory initiatives due to a lack of coordinated marketing strategies and promotional initiatives as well as low levels of collective actions and cooperation in production. In addition, there is a general lack of market data collection and dissemination for production planning, marketing plans and supply-demand forecasts. The Mediterranean and Black Sea industries in riparian countries also suffer from competition within domestic and global markets. Finally, insufficient awareness exists in the industry and its related sectors on corporate social responsibility (CSR)¹⁷.

In light of this situation, actions need to be undertaken to improve food safety and quality, marketing strategies for aquaculture products, and enhance public perception of aquaculture. Hence, in the context of its Target 3, the regional aquaculture strategy aims at ensuring that aquaculture in the Mediterranean and the Black Sea is: a) a flourishing industry based on a level playing field and producing safe and healthy food products sold to informed consumers; b) a market-oriented sector based on well-structured market data as well as efficient dissemination tools; and c) a sector integrated into modern supply chains and supported by efficient AFOs through advocacy, technical and economic services. In order to provide the aquaculture sector with a strong foothold in national and global markets and to enhance its public perception, the regional aquaculture strategy aims at supporting Mediterranean and Black Sea riparian countries in achieving: a market-driven aquaculture sector (Output 3.1), improved safety and quality of Mediterranean and Black Sea aquaculture products (Output 3.2), and enhanced marketing and communication capacity to promote aquaculture and aquaculture products (Output 3.3).

Output 3.1: A market-driven aquaculture sector development

The Mediterranean and Black Sea region is characterized by a predominance of small-scale producers. According to a survey carried out by the GFCM in 2007¹⁸, there were approximately 575 fish farms producing European seabass and gilthead seabream in the Mediterranean, 82 percent of which produced less than 500 tonnes per year. In 2015, it was estimated that about 1 000 shellfish farms (mussels and oyster) existed in the region and generally produced less than 50 tonnes per year per farm¹⁹. This situation is that of a family-based and labour-intensive aquaculture farming, with a majority of small and medium-scale enterprises (SMEs), mostly family owned. The characteristics and trends of the industry differ between finfish (generally large-scale, moving towards a capital-intensive and vertically-integrated structure, and generally producing more than 1 000 tonnes per year – and up to 5 000 tonnes in some cases) and shellfish enterprises (generally small or medium-scale, often family-run and labour-intensive, with small volumes of product concentrations obliging farmers to market their products through middlemen, resulting in low profit margins).

The fragmentation of primary production has traditionally contributed to the decreasing bargaining power of farmers in the supply chain. As a response, small-scale producers have established AFOs which can play a key role in facilitating the integration of SMEs into modern supply chains. Capitalizing on the industry and market opportunities could easily translate into efficiency gains and this would in turn multiply positive socio-economic returns in the region.

¹⁷ Regional Aquaculture Conference (Italy, December 2014); regional FAO/Eurofish/GFCM workshop on Predicting the market for seabass and seabream (Turkey, November 2014.); GFCM CAQ Working Group on Marketing of Aquaculture Products Technical meeting on marketing (Morocco, October 2009) and MedAquaMarket project “Development of a strategy for marketing and promotion of Mediterranean aquaculture”, 2010.

¹⁸ Barazi-Yeroulanos, L. 2010. Synthesis of Mediterranean marine finfish aquaculture – a marketing and promotion strategy. Studies and Reviews. General Fisheries Commission for the Mediterranean. No. 88 Rome, FAO. 198p.

¹⁹ Report of the expert meeting on sustainable shellfish aquaculture in the Mediterranean and the Black Sea (Cattolica, Italy, 23–25 November 2015).

(<https://gfcmlib.org/CAQ/Report/2015/InDAM/1/Cattolica%20shellfish-FinalReport.pdf>)

This output will require the execution of a number of activities as listed below:

Activities required for Output 3.1

Activities to respond to market requirements shifting from a production-oriented to a market-oriented approach

- a) **Enhancement of national and regional aquaculture data collection and statistical systems.**
This action would leverage on the current information system for the promotion of aquaculture in the Mediterranean (SIPAM) in place at the GFCM, and would also address the socio-economic implications of aquaculture. It is expected to be carried out in cooperation with relevant AFOs, national aquaculture multi-stakeholder platforms and GFCM partner organizations such as Eurofish and Infosamak. Cooperation will be considered also with national and supranational institutions involved in aquaculture and market data collection (e.g. EUMOFA). This action also foresees a regular assessment of Mediterranean and Black Sea aquaculture production, trade and general market-data.
- b) Organization of **training and capacity building for aquaculture farmers on market requirements and innovation in shellfish and finfish aquaculture** in order to increase their competitiveness, especially in the case of small- and medium-scale enterprises (e.g. financial management, production planning, credit access, aquaculture insurance, aquaculture market and trends monitoring, appropriate logistics and packaging practices, food safety and quality, certification and traceability, species diversification and product differentiation, added value and processed products, integration of aquaculture with other business activities such as tourism, restaurant industry, non-food aquaculture activities, blue biotechnologies, etc.).

Activities to enhance the role of aquaculture farmers' organizations and multi-stakeholder platforms in marketing and promotion

- c) Organization of **cooperative pilot actions at the national level with aquaculture farmers and AFOs** in order to implement concerted activities (e.g. collection and dissemination of market data and other information, provision of technical assistance, technology transfer and training, promotion sales, etc.). The results of this action and the information from the CAQ preliminary survey on AFOs²⁰ are expected to be widely disseminated with a view to enhancing the visibility of AFOs.
- d) Facilitation of **the establishment of multi-stakeholder platforms at the national level**, expected to foster dialogue and cooperation.

Output 3.2: Safety and quality of Mediterranean and Black Sea aquaculture products

Consumers are now devoting more attention to seafood safety, quality, freshness and traceability. While compliance with, among others, standards on food safety and hygiene and an adequate monitoring would ensure that the risk of food-borne health hazards is minimized, increasingly, certification and traceability could serve as mechanisms for food quality assurance and help aquaculture production be consumer-responsive and meet the growing demand for sustainable and high quality aquaculture commodities.

The Codex Alimentarius has developed harmonized international food standards to protect consumer health and Codex documents often serve as a basis for country-specific laws and regulations drafted by national food control agencies.

Arguably, certification in aquaculture could be considered as a market-based tool for reducing negative impacts while increasing social acceptability and consumer confidence in aquaculture and aquaculture products. The 2011 FAO Technical Guidelines on Aquaculture Certification²¹ provide minimum substantive criteria for developing aquaculture certification standards (animal health and welfare; food safety; environmental integrity; and socio-economic aspects). One of the principles underpinning the

²⁰ Preliminary survey completed by the CAQ in May 2013 to understand the current status, structure and function of these organizations.

²¹ FAO. 2011. Technical Guidelines on Aquaculture Certification. Rome, FAO. 122 pp.

guidelines is that a certification scheme “should include adequate procedures for maintaining chain of custody and traceability of certified aquaculture products and processes”, thereby highlighting the fact that certification and traceability are strictly intertwined.

In aquaculture, traceability should take into account all stages of the production process: source of feed, use of vaccines and medicines, production environment, source of eggs and seed, transportation of goods and products, treatment and labelling of final products ready for sale.

Several private aquaculture certification schemes also exist; however, the fifteenth session of the FAO Sub-Committee on Fish Trade (Morocco, February 2016) noted that they could become potential trade barriers and called upon FAO to pursue efforts within Codex and continue cooperating within the framework of the World Trade Organization Sanitary and Phytosanitary Agreement to ensure that a distinction is made between mandatory and voluntary standards.

This output will require the execution of a number of activities as listed below:

Activities required for Output 3.2

- a) Preparation and dissemination of **guidelines and technical protocols for seafood safety** of Mediterranean and Black Sea aquaculture products. This action will take into account existing international reference standards to ensure compliance with responsible aquaculture practices and food safety.
- b) Provision of **technical assistance to countries on compliance with international standards**. This action also aims at improving national legal frameworks dealing with aquaculture food products safety and hygiene in line with the Codex and compliant with WTO principles.
- c) Provision of **technical assistance to countries** on food quality, aquaculture certification and traceability, in line with the Codex and FAO Technical Guidelines on Aquaculture Certification.

Output 3.3: Enhanced aquaculture and aquaculture products marketing and communication

Marketing initiatives are strictly connected to the public perception of aquaculture and aquaculture products, which, as demonstrated by a recent research programme, depends on many factors including personal experience, preconceived ideas and demographic and regional contexts²². Over the last decade, important efforts have been made in the region to educate consumers and enact new legislation that contributed to improve public opinion on aquaculture products²³. Building a positive image of aquaculture is key to the social acceptability of the sector, which is, in turn, closely linked to social responsibility.

Marketing strategies should be supported at the national and at the regional levels to promote Mediterranean and Black Sea aquaculture and aquaculture products, both in the region and worldwide. Coordinated marketing efforts would increase consumer knowledge and improve the image of farmed products, thus fostering increased consumer demand. To achieve CSR, aquaculture production should comply with existing standards and reflect a high level of social accountability; at the same time socially responsible practices should be effectively communicated to consumers.

This output will require the execution of a number of activities as listed below:

Activities required for Output 3.3

Activities to develop a marketing and communication strategy to promote Mediterranean and Black Sea aquaculture and aquaculture products

- a) Development of **regional communication and marketing initiatives**. This action would possibly envisage collaboration within business-to-business segments (producers, traders, retailers, organizations and media) through joint marketing or cooperative initiatives between

²² Bacher, K. 2015. Perceptions and misconceptions of aquaculture: A global overview. GLOBEFISH Research Programme, Vol. 120, Rome, FAO. 35 pp.

²³ Barazi-Yeroulanos, L. 2010. Synthesis of Mediterranean marine finfish aquaculture – a marketing and promotion strategy. Studies and Reviews. General Fisheries Commission for the Mediterranean. No. 88 Rome, FAO. 198p.

industry and the largest retailers. Promotional campaigns targeting the general public, and especially younger generations, can also be foreseen, together with the production of promotional material leveraging on the attractive attributes of the region and highlighting the nutritional and healthy aspects of aquaculture products, as well as the aquaculture positive externalities. Such campaigns would need to be preceded by a market analysis to ensure that the campaign's messages and target groups are correctly identified.

- b) Provision of **technical assistance on developing and implementing national communication and marketing plans**. This action would contribute to boost domestic consumption of aquaculture products in Mediterranean and Black Sea countries. It will include joint promotion campaigns, training of relevant stakeholders and their participation in national and regional initiatives.

Activities to promote aquaculture corporate social responsibility

- c) Organization of **training and national capacity building on aquaculture corporate social responsibility** and social risk management for farmers and decision-makers. This action will contribute to ensuring health and welfare schemes and a safe working environment in line with the Declaration on Fundamental Principles and Rights at Work of the International Labour Organization (ILO) and related guidance.

4. IMPLEMENTATION AND WAY FORWARD

The implementation of the strategy is intended to be part of a process that is consistent with national and supranational aquaculture strategies in Mediterranean and Black Sea riparian countries. The work plan of the CAQ will be aligned with the targets and expected outputs of the aquaculture strategy.

Bilateral initiatives will be also considered and technical assistance provided where there is a need to build national capacities so that existing commitments can be fulfilled equally. Furthermore, the implementation of the strategy will be carried out through knowledge and result sharing with institutions as well as national and supranational projects.

The GFCM, through its relevant subsidiary bodies, should regularly assess the implementation of the strategy by regularly monitoring the achievement of the targets, activities and outputs, and by reviewing, revising and updating the expected outputs, as appropriate, and providing guidance to reach more effectively the objectives. The implementation of the strategy will also benefit from the support of the CAQ working groups and the AMShP.

The terms used for the purpose of this strategy are defined in the GFCM CAQ glossary and the FAO Aquaculture Glossary (available online).