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## **REGIONAL COMMISSION FOR FISHERIES**

**Report of the**

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### **EIGHTH MEETING OF RECOFI THE WORKING GROUP ON AQUACULTURE**

**Kuwait City, State of Kuwait, 17–19 April 2018**



REGIONAL COMMISSION FOR FISHERIES

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## PREPARATION OF THIS DOCUMENT

This is the final version of the report as approved by the eighth meeting of the Regional Commission for Fisheries (RECOFI) Working Group on Aquaculture (WGA), held in Kuwait City, State of Kuwait, from 17 to 19 April 2018. The material contained in the appendixes is reproduced as submitted.

### ABSTRACT

The eighth meeting of the Working Group on Aquaculture (WGA) of the Regional Commission for Fisheries (RECOFI) was held in Kuwait City, State of Kuwait, from 17 to 19 April 2018 and was attended by the representatives from six Member countries. The WGA reviewed the outcome and recommendations of the eighth session of the Commission, ninth session of COFI Sub-Committee on Aquaculture; and thirty-third session of the FAO Regional Conference for the Near East. The WGA noted that a major intersessional activity was the Regional Workshop on Building National Capacity for Cultured Animal Disease Diagnostic in Relation to Bio-Security. It was highlighted that the workshop, which was originally scheduled to be held in Saudi Arabia, was held in Cairo, Egypt, from 6 to 8 March 2018, for organizational reasons. A brief status review of aquaculture developments in participating member countries was done. Among the main priorities identified for the region, the WGA agreed on the importance of: (i) sharing work experiences on aquaculture spatial planning and discuss criteria and indicators to be used for fish cage culture site selection; (ii) adopting the proposed FAO-FIAS roadmap for the implementation of RECOFI recommendations on minimum data reporting on aquaculture; and (iii) revising and update the contents of the Regional Aquaculture Information System (RAIS). The WGA agreed on a programme of work for the intersessional period 2018-2020.



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## ABBREVIATIONS AND ACRONYMS

BG	Blue Growth
COFI-SCA	COFI Sub-Committee on Aquaculture
FAO	Food and Agriculture Organization of the United Nations
NASO	National Aquaculture Sector Overview
NERC	FAO Regional Conference for the Near East
NMC	National Mariculture Centre (Bahrain)
PAAFR	Public Authority for Agriculture Affairs and Fish Resources (Kuwait)
RAIS	Regional Aquaculture Information System
RAS	recirculation aquaculture system
RECOFI	Regional Fisheries Commission
ROPME	Regional Organization for the Protection of the Marine Environment
SDG	Sustainable Development Goal
UAE	United Arab Emirates
WGA	Working Group on Aquaculture



## **OPENING OF THE MEETING**

1. The eighth meeting of Working Group on Aquaculture (WGA) of the Regional Commission for Fisheries (RECOFI) was held in Kuwait City, State of Kuwait, from 17 to 19 April 2018. Twenty-three participants from six members of the Commission attended, namely, Bahrain, State of Kuwait, Sultanate of Oman, State of Qatar, Saudi Arabia and United Arab Emirates. The Regional Organization for the Protection of the Marine Environment (ROPME) was present at the meeting as an invited regional organization. The list of participants is shown in Appendix 2.
2. The Meeting was officially opened with a welcoming statement delivered by Mr Yousef Khalifa Al-Najem, Director of Fish Resources Development, Kuwaiti Public Authority for Agriculture Affairs and Fish Resources (PAAFR), and Chairperson of RECOFI. Mr Al-Najem highlighted the increasing global contribution of aquaculture to poverty alleviation, food security and social well-being, making reference to FAO's Blue Growth Initiative (BGI). He underlined the critical role of the WGA in the promotion of the development of aquaculture in RECOFI's area of competence by strengthening aquaculture cooperation. The opening statement is shown in Appendix 3.
3. The Chairperson of the WGA, Mr Dawood Al-Yahyai, Director of Aquaculture Development, Ministry of Agriculture and Fisheries, Sultanate of Oman, welcomed the participants to the meeting and stressed the important role of the WGA in the sustainable management and development of aquaculture, and in the exchange of knowledge, best practices and lessons in the region.
4. The RECOFI Secretary, Mr Haydar Fersoy, welcomed the participants to the meeting. He expressed his gratitude to the State of Kuwait for hosting the meeting and for its continuous support to the Commission.
5. Mr Ali Al-Farsi, Assistant Undersecretary and Deputy Director-General for Fisheries Affairs, PAAFR, State of Kuwait, was also present at the opening session of the meeting.

## **ADOPTION OF THE AGENDA**

6. The agenda was presented by the WGA Chairperson and adopted with some minor modifications, as shown in Appendix 1. The list of documents submitted to the WGA is provided in Appendix 4.

## **INTERSESSIONAL PERIOD ACTIVITIES OF THE WORKING GROUP ON AQUACULTURE (WGA)**

7. The WGA Chairperson informed the meeting on the WGA activities that took place during the intersessional period since its seventh meeting (Doha, the State of Qatar, 26–28 April 2016). The WGA noted that a major intersessional activity was the Regional Workshop on Building National Capacity for Cultured Animal Disease Diagnostic in Relation to Bio-Security. It was highlighted that the workshop, which was originally scheduled to be held in Saudi Arabia, was held in Cairo, Egypt, from 6 to 8 March 2018, for organizational reasons. The regional workshop was complementary to the following previous work of the WGA: the Introductory Training Course on Risk Analysis for Movements of Live Aquatic Animals for RECOFI Members and the Round-table Meeting on RECOFI Regional Aquatic Biosecurity, held in Muscat, Sultanate of Oman, from 1 to 5 November 2015.
8. The meeting was informed that the workshop consisted of two-day lectures and a one-day practical diagnostic exercise in a laboratory. The workshop was attended by five participants representing three of the eight RECOFI Members, Iraq (one participant), Sultanate of Oman (one participant) and Kingdom of Saudi Arabia (three participants), as well as one FAO staff and five invited lecturers.
9. The WGA took note that the workshop provided an overview of the major infectious fish and shrimp diseases. The one-day practical laboratory session, which was held in the Central Laboratory

for Aquaculture Research (CLAR), based in Abbassa, Sharkeya, provided introductory-level laboratory diagnosis methods for viral and bacterial fish diseases.

## **UPDATES ON DECISION AND RECOMMENDATIONS OF RECOFI WGA-7, RECOFI 9, COFI-SCA 9 AND NERC 33**

### ***Seventh Meeting of RECOFI Working Group on Aquaculture (RECOFI WGA-7)***

10. The WGA Chairperson presented the agenda item and reviewed the main decisions, recommendations and outcomes of the seventh meeting of the WGA held in Doha, State of Qatar, from 26 to 28 April 2016. The key recommendations and decisions of the seventh meeting were noted as follows: (i) review the regional WGA training course on risk analysis on live aquatic animal introductions and of the round-table meeting on the RECOFI regional aquatic biosecurity programme; (ii) establish an ad hoc biosecurity task force with the mandate to evaluate and follow-up on the aquatic animal health in RECOFI's area of competence in a strategic manner; (iii) develop a regional set of cage site-selection criteria for adoption as RECOFI guidelines; and (iv) strengthen the RAIS.

11. With regard to RAIS updates and the development of a regional set of cage site-selection criteria, the WGA noted that no considerable progress was recorded during the intersessional period. The meeting acknowledged the support offered by the State of Kuwait to operationalize the RAIS, which is expected to serve as a hub for the RECOFI fisheries and aquaculture regional information system.

### ***Ninth Session of RECOFI (RECOFI-9)***

12. The Secretary presented the key outcomes of the ninth session of the Commission, held in Kuwait City, State of Kuwait, from 9 to 11 May 2017, particularly those concerning the WGA. In this regard, the Meeting noted that the Commission agreed to:

- include the main decisions and recommendations of the FAO Committee on Fisheries (COFI) and the FAO Regional Conference for Near East (NERC) in the agenda of the regular meetings of the Subsidiary Bodies of the Commission (i.e. the Working Groups);
- proceed with the standard FAO aquaculture data questionnaires (AQNS1 and FishStat-AQ forms) for use at the national and regional levels with regard to the RECOFI Recommendation on Minimum Reporting on Aquaculture Data and Information (RECOFI/8/2015/1);
- organize the regular meetings of the subsidiary bodies on a biennial basis with the aim of allocating budget to more technical activities.

13. It was further noted that, at its ninth session, the Commission adopted a limited number of work programme activities both for the RECOFI Working Group on Fisheries Management (WGFM) and for the WGA, mainly due to budget constraints.

### ***Ninth session of COFI Sub-Committee on Aquaculture (COFI-SCA 9)***

14. Mr Valerio Crespi, FAO Aquaculture Officer of the Fisheries and Aquaculture Department, presented the main outcomes and recommendations from the ninth session of the COFI-Sub-Committee on Aquaculture (COFI-SCA) held in Rome, Italy, from 24 to 27 October 2017. The WGA was informed that the Sub-Committee, recognized, among others, the growing global significance of sustainable aquaculture development and its potential contributions to both global food security and nutrition, as well as to the achievement of a wide range of Sustainable Development Goal (SDG) targets.

15. The WGA was further informed that COFI-SCA recommended that FAO should develop global guidelines for sustainable aquaculture development and highlighted the need to support small-scale aquaculture producers, particularly for post-harvest and market access. The Sub-Committee endorsed the FAO BG initiative as part of FAO's Common Vision. Furthermore, it was noted that COFI-SCA

welcomed the forthcoming report on The State of the World's Aquatic Genetic Resources for Food and Agriculture.

16. The importance of extension for sustainable aquaculture development was also recognized by the COFI-SCA, and it was requested that FAO provide guidance and facilitate experience-sharing among Members. With regard to the FAO Technical Guidelines on Aquaculture Certification, the COFI-SCA welcomed FAO's work, noting the increasing role of certification in national and international markets, and highlighting the need to strengthen the capacity of small-scale producers to attain certification and eventually improve market access.

***Thirty-third session of the FAO Regional Conference for the Near East (NERC 33)***

17. The Secretariat presented the main outcomes of relevance to fisheries and aquaculture of the NERC 33 Conference, which was held in Rome, Italy, from 9 to 13 May 2016. The Secretariat highlighted that the Conference: (i) endorsed the application of FAO's BG initiative in the region and its components, including ecosystem services, economic growth, environmental benefits and social development, within the framework of the three regional initiatives; (ii) the State of Kuwait offered to be a focus country for the BG initiative and FAO technical assistance on the fisheries and aquaculture sector, and also to promote value addition along the fish supply chain in the region; and (iii) urged countries to safeguard the interests of small-scale and traditional fishing communities facing multinational illegal, unreported and unregulated (IUU) fishing.

**STATUS REVIEW OF AQUACULTURE DEVELOPMENT BY COUNTRY: BRIEF COUNTRY PRESENTATIONS**

18. The participants made short presentations on recent aquaculture developments in their countries, including emerging issues and national priorities (see summary table below).

Bahrain	<p>The National Mariculture Centre (NMC) successfully achieved the mass propagation of seed from the following commercially important local species: rabbit fish (<i>Siganus canaliculatus</i>), sobaity seabream (<i>Sparidentex hasta</i>), gilthead seabream (<i>Sparus aurata</i>), mangrove red snapper (<i>Lutjanus argentimaculatus</i>) and brown-spotted grouper (<i>Epinephelus coioides</i>). For many years, NMC has been supplying marine finfish seed to all Gulf Cooperation Council (GCC) countries and other RECOFI Member countries). Bahrain has maintained its position as a leading marine finfish seed producer and exporter in the region.</p> <p>Commercial mariculture in Bahrain begun at the end of 2014, when Asmak Bahrain Company started producing gilthead seabream and sobaity bream as well as brown-spotted grouper after the signing of the agreement with the Ministry of Municipalities Affairs and Urban Planning. Recognizing the importance of aquaculture development, the Government, which was represented by the Directorate of Fisheries, established NMC to undertake applied research in this field. NMC began as a pilot project in 1979 in cooperation with FAO. NMC is located at Ras Hayan on the south-eastern coast of Bahrain.</p> <p>Currently, there are three commercial mariculture projects in operation in Bahrain, which are run by the companies Asmak Bahrain; Aquatic; and United. Mariculture activities are limited to NMC's applied research activities, which includes studies on nutrition, reproduction, hatchery techniques, fish pathology, nursery and grow-out of the species indicated above, and the mass production of finfish juveniles.</p> <p>Due to the scarcity of freshwater resources in Bahrain, all efforts have been diverted towards marine species; there are very limited land-based culture activities carried out in tanks.</p> <p>The Ministry of Municipalities and Urban Planning has signed an agreement with three private companies. One of these companies is Asmak Bahrain Company, which</p>
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	<p>has planned to produce 1 500 tonnes of fish by using floating cages allocated in Gumais area within an area of 240 000 m<sup>2</sup>. At the end of 2012, the company began to set up 36 cages: they used 12 units of 40 m circumference, 635 m<sup>3</sup> in volume, constructed from high-density polyethylene (HDPE) pipes for acclimatizing introduced fry and growing them up to 30 grams; and 24 units of 60 m circumference, 1 720 m<sup>3</sup> in volume for growing the fish to market size. They started producing gilthead seabream and sobaity bream at the end of 2014. From 2015 to 2017, Asmak Bahrain Company re-adjusted their production plan due to the inconstant supply of finfish seed.</p>
Kuwait	<p>Aquaculture, a relatively new potential source for fish resources in Kuwait, is currently being expanded to boost local landings.</p> <p>Three types of aquaculture systems are practised in the country: (i) integrated tilapia culture in agriculture farms, which uses brackish water; (ii) the recirculating aquaculture system (RAS), which also uses brackish water; and (iii) fish culture in marine floating cages at Kuwait Bay (totally halted since 2007). Concrete tanks are used for tilapia culture. The size of the tanks ranges from a few squared metres to in using brackish water with a salinity of 5–8 ppt pumped from underground wells. In some farms, greenhouse shelters are used to cover the tanks. The stocking rates vary between 10 and 50 fingerlings/m<sup>3</sup>. Fish attain a marketable size of 350–400 g within 6–8 months. Pelleted fish feed is partially supplied by the Public Authority for Agricultural Affairs and Fish Resources (PAAFR) on a subsidy basis. Annual average production of tilapia from these farms is recorded as 309 tonnes.</p> <p>Asian seabass and Nile tilapia are cultured in recently established indoor RASs in some agriculture plots. This system rears fish at high densities in indoor tanks with a controlled environment. Recirculating systems filter and clean the water for recycling back through fish culture tanks. The functional parts of a RAS include: (i) a growing tank; (ii) a sump of particulate removal device; (iii) a biofilter; (iv) an oxygen injection with U-tube aeration; and (v) a water circulation pump. Ozone and ultraviolet sterilization may also be advantageous for reducing organic and bacteria loads.</p> <p>Recently, PAAFR has prepared a strategic framework for aquaculture development in Kuwait, in which both inland and coastal aquaculture are supported. A two-pronged approach to brackish-water aquaculture development is proposed: (i) advancing integrated agriculture-aquaculture systems; and (ii) a RAS for marine aquaculture, floating cage farming and shrimp farming were identified.</p>
Oman	<p>At present, there are two commercial aquaculture projects: (i) cage culture for Gilthead seabream (<i>Sparus aurata</i>) in Quriyat Wilyat; and (ii) for Indian white prawn (<i>Penaeus indicus</i>), a local species, in Mahout Wilyat. For integrated tilapia culture, there are currently 17 farms in different wilyats (administrative zones) of the Sultanate of Oman. The production of Nile tilapia (<i>Oreochromis niloticus</i>) increased from 55 tonnes in 2014 to 77 tonnes in 2017.</p> <p>As a result of the National Strategic Plan for Sustainable Aquaculture (2011–2040), many initiatives conducted by Ministry of Agriculture and Fisheries (MAF) have led to an increase in the applications for aquaculture projects. Currently, there are 23 aquaculture projects and applications: two are currently active; eight have final aquaculture licences and are in the development stage; seven have preliminary approval and are in the stage of preparing feasibility studies and an environmental impact assessment (EIA); and six have conditional approval. MAF recently conducted a project on using GIS for selecting suitable sites for aquaculture in Musandam Governorate, where environmental, economic and social data were collected and analysed using GIS. The legal and institutional structure of aquaculture in Oman is under MAF, being the main governmental authority for management of</p>

	<p>aquaculture. There is also a special by-law for aquaculture in Oman, which was issued in 2004 and amended in 2012.</p>
Saudi Arabia	<p>The Kingdom of Saudi Arabia's top development priority in support of its food security programme is aquaculture development, particularly mariculture. The country aims to raise annual fish consumption from the current level of 12 kg to 19 kg per person. Saudi Arabia has suitable land and sea locations (mainly in the Red Sea for mariculture), experienced investors and a strong local market. The authorities have strengthened the regulatory base to support the growth of the industry. The aquaculture industry in Saudi Arabia has grown annually by 16 percent since the early 2000s. Institutional technical capacity building remains a top priority. An atlas of suitable marine culture sites along the coast of the Red Sea was recently finalized and is available on the FAO Web site (<a href="http://www.fao.org/3/a-c0046b.pdf">www.fao.org/3/a-c0046b.pdf</a>).</p> <p>Noteworthy aquaculture developments are as follows:</p> <ol style="list-style-type: none"> <li>a) It is expected that more than 80 percent of the aquaculture projects are received the best aquaculture practice (BAP) certification worldwide and that all of Saudi Arabia's projects will have the BAP certification by the end of 2018. It will be considered the first country in the world to apply BAP.</li> <li>b) A roadmap was completed for algal production techniques, which may contribute towards future innovation in reducing the cost of production of fish feed, currently constituting 70 percent of the cost per production unit.</li> <li>c) Technical and economic studies were completed for the establishment of the Aqua Co Aquaculture Company, which will serve as primary reference of some companies in the food industry, and 90 percent of the construction work of the company has been completed.</li> <li>d) A twinning agreement was signed between the Laboratory of Aquatic Diseases at the University of Arizona, United States of America, and the World Organization for Animal Health (OIE) with the Jeddah Fish Health and Safety Laboratory to access the capabilities of Jeddah Fish Laboratory to be a global reference in the diagnosis of shrimp and fish diseases.</li> <li>e) Seventy percent of the work has been completed on the establishment of a national cooperative insurance entity for fish farming projects from members affiliated with the Saudi Aquaculture Society and under the supervision of the relevant authorities.</li> <li>f) The Agreement for Supporting Applied Research to Enhance Productivity of Fisheries was signed with King Abdullah University for Science and Technology according to the standards and requirements of the Ministry for optimum utilization of the available resources.</li> </ol>
United Arab Emirates	<p>The United Arab Emirates (UAE) is prioritizing sustainable aquaculture development to ensure food security, economic diversification, employment generation and the reduction of fishing pressure on wild resources. The Government encourages investors to focus on local species; alien species with high potential may and have been permitted by the Ministry of Climate Change and Environment, but are strictly screened. There are several species of marine finfish, crustaceans and molluscs that can be cultured using different culture systems in the UAE.</p> <p>The first phase of the Sheikh Khalifa Marine Environment Research Centre has been completed: the marine finfish hatchery has a production capacity of 10 million fingerlings. Construction of the second phase of the project, which includes the extension of the hatchery for low survival marine species and a series of research facilities, will commence soon on the site in Umm Al-Quwain. At present, 13 commercial farms are operational and 11 commercial species are being cultured. In 2017, these farm produced 3 255 tonnes of fish.</p>

19. Updated National Aquaculture Sector Overviews (NASOs) for each RECOFI Member State were provided by the respective WGA Focal Points with the exception of Iraq and the Islamic Republic of Iran. The updated NASOs will be published in the FAO and RAIS dedicated web pages following their revision.

#### **FOLLOW-UP ON THE REGIONAL AQUACULTURE INFORMATION SYSTEM (RAIS)**

20. Mr Usama Khalifa, Fisheries Consultant of PAAFR, made a presentation on web analysis of RAIS carried out by the Regional Centre staff using Google analytics (Appendix 5). The analysis covering the period from 15 March 2016 to 15 April 2018 suggests that there is a global interest in RAIS, primarily from RECOFI's competence area. It was noted, however, that during the given period, RAIS was mostly used by users from the Islamic Republic of Iran and the State of Kuwait, and the percentage of returning visitors was only 9.6 percent. The analysis reveals that the RAIS homepage and photo library are the most frequently visited pages of RAIS. Even though the analysis was found useful, it does not allow the WGA to reach a firm conclusion regarding the use of RAIS by the public.

21. Discussions took place following the RAIS web reporting. The meeting noted that the name and contact details of RAIS National Coordinators on the "Contact us" webpage were not updated. Accordingly, a need for effective working cooperation between RAIS National Coordinators and RAIS Regional Centre staff was highlighted regarding regular data and information updating, taking into consideration the RAIS directories. Mr Kadarkaraiyandi Kumar, Marine Biology Expert of the RAIS Regional Centre based in PAAFR, State of Kuwait, was nominated as the contact person of the RAIS Regional Centre in this regard. There was a common agreement on setting restrictions for uploads/downloads for RAIS external users. The WGA noted that national aquaculture information and data had not been regularly updated during the intersessional period, which caused a considerable limitation in assessing status and trends of aquaculture at the regional, sub-regional and national levels.

22. The WGA agreed to update: (NASO and the National Aquaculture Legislation Overview (NALO); the RAIS data and information for each directory, including contact details of the RAIS Focal Point; RAIS National Centre details; the Virtual and Photo Library; and aquaculture production data within one month following the eighth meeting of the WGA. The WGA also agreed to regularly post news on the "News and Events" section.

23. Mr Xiaowei Zhou, FAO Fishery Statistician (Aquaculture), informed the WGA on the status and progress regarding the three-phased implementation roadmap agreed on by the WGA during its seventh meeting for the implementation of the RECOFI Recommendation on Minimum Data Reporting on Aquaculture (RECOFI/8/2015/1).

24. The WGA was briefed that, regarding RECOFI/8/2015/1, the Commission was informed by FAO Fisheries and Aquaculture Department (FI) during its ninth session (2017) of the implementation roadmap and the need for member states to prioritize the national data collection and reporting on **production statistics** before moving towards the collection of data on **production centres and markets**. It was noted that there was no objection from the Commission to the recommendation by FAO/FI for RECOFI Members to focus first on **production statistics**, which are basic and top priority data. Except for production data by intensity of farming system, which are not commonly collected due to lack of established standard definition for intensity, the scope of aquaculture data recommended for collection and reporting by RECOFI under **production statistics** generally match with the aquaculture data collection questionnaires in current use by FAO FI.

25. The Secretariat presented to the WGA the aquaculture production data registered to date for all the RECOFI member countries, including data reported by national authorities as well as FAO estimates for missing data due to incomplete data reporting or non-reporting (Appendix 6). Based on national reporting in several most recent years including the 2016 reference year, it was concluded that RECOFI member countries have varying levels of capacity and show varying levels of compliance in national data reporting to FAO in terms of: (i) completeness in data coverage; (ii) validation of actual production

and projected/expected production by producers; (iii) identification of farmed species using internationally established standard references such as the ASFIS list for fisheries statistics purposes (available at <http://www.fao.org/fishery/collection/asfis/en>); (iv) classification/disaggregation of production by farming system; and (v) timeliness in reporting. In view of the current situation of aquaculture data reporting to FAO by RECOFI member states, the meeting reiterated the need for members to focus first on production statistics using existing FAO data questionnaires before national data scheme to expand to cover additional statistical areas.

26. The two data questionnaires in MS Excel format used by FAO for annual data collection on aquaculture, namely AQNS1 and FishStat-AQ forms, were presented to the WGA, specifically explaining areas of major concern regarding national data collection and reporting. In addition, the ASFIS List of Species for Fishery Statistics Purposes, an annually updated international standard reference, was introduced to WGA for recommendation to the member countries for use in production statistics in both capture and aquaculture.

27. The WGA recognized that, together with the need for updating by FAO for the future questionnaires to accommodate the data collection and reporting on production from newly emerging farming systems such as aquaponics and RASs, the current FAO data forms have captured the most essential aquaculture statistics. The WGA realized that to utilize the ASFIS List for national data collection and reporting, the relatively low percentage of aquatic species with standard Arabic names needs to be addressed appropriately.

28. It was agreed that while FAO/FI will take aquaponics and RASs into consideration for the future update of global aquaculture data questionnaires, WGA members will be consulted by FAO/FI regarding the finalization of national data reports of their respective countries, for the reference years 2017 and 2018. The meeting strongly recommended that RECOFI/2015/1 minimum data reports for 2017 be submitted to the RECOFI Secretariat no later than 1 June 2018, as required by the Recommendation.

29. To address the need for national capacity building in aquaculture data collection and reporting, the WGA decided to include a regional workshop on harmonized RECOFI aquaculture data collection and dissemination in line with Internationally Established Standards in the workplan, with the tentative date for implementation in December 2019. The workshop aims to address problems and bridge the gap in the development of capacity for full compliance with the national data collection and reporting requirement referred to in paragraph 25 above.

## **DEVELOPING MARINE CAGE CULTURE IN THE NEAR EAST FOR ENHANCED AQUACULTURE SUSTAINABILITY**

30. Mr José Aguilar-Manjarrez, Aquaculture Officer, FIAA, FAO introduced the agenda item covering issues related to marine cage culture. The presentation by the Secretariat began by briefly describing FAO's initiatives on the ecosystem approach to aquaculture (EAA), the BG initiative and the Sustainable Development Goals (SDGs) as essential frameworks for aquaculture development to target fish as the entry point for improving nutrition and livelihoods of targeted communities.

31. The second part of the presentation focused on the key aspects of marine cage culture and on the relevance of implementing a marine spatial planning (MSP)<sup>1</sup> as a BG tool to ensure sustainable marine capture fisheries and aquaculture development in the RECOFI region. In the deliberations, the Secretariat highlighted the actions and decisions proposed by the seventh meeting of the RECOFI Working Group on Aquaculture, and the recommendations from the Technical Workshop on Marine Cage Culture in the Islamic Republic of Iran in 2016. The presentation was well received and was

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<sup>1</sup> MSP is a cooperative approach that integrates all marine users in identifying issues, opportunities and challenges to securing the sustainable use of marine space.

followed by a fruitful debate. The WGA was then invited to discuss how best to implement actions through FAO's technical assistance.

32. The WGA recognized the knowledge base established by the Secretariat on marine cage culture and MSP in RECOFI's area of competence, and concluded that to move forward, the next phase would be to organize a technical workshop. The WGA accepted the kind offer by the Sultanate of Oman to host the workshop on MSP jointly with the RECOFI-WGFM in April 2019, which would also include a technical discussion on cage site-selection criteria for adoption as RECOFI guidelines.

33. The draft set of guidelines on criteria for marine fish cage site selection will be prepared by the Secretariat with the help of a consultant and distributed in advance of the technical workshop with a view to adoption at the next session of the Commission. The WGA Focal Points agreed to review the information that will be prepared by the Secretariat and to propose criteria that could be considered for adoption as RECOFI guidelines.

34. The WGA focal points also agreed to exchange information on the current status of marine cage culture in the countries of the RECOFI region using the RAIS Web site (Virtual Library) as the main tool for dissemination.

35. Furthermore, the WGA Focal Points agreed to prepare a spatial inventory of aquaculture for their respective country with attributes including species, culture systems and production using FAO's NASO map collection to facilitate future planning and management of aquaculture in their country. The WGA Focal Points will use the MS Excel forms prepared by the Secretariat for the preparation of the NASO maps, and upon their completion one month after this meeting, they need to be sent to the Secretariat for validation and migration into the FAO NASO maps ([www.fao.org/fishery/naso-maps/naso-home](http://www.fao.org/fishery/naso-maps/naso-home)) and RAIS Web site.

## **AN OVERVIEW ON DESERT AND ARID LAND AQUACULTURE– OPPORTUNITIES AND LIMITATIONS**

36. Mr Valerio Crespi, Aquaculture Officer of FAO Fisheries and Aquaculture Department, presented the Agenda item. Even though inland fisheries and aquaculture are not part of RECOFI's mandate, the WGA considered the agenda item of great relevance and importance to this meeting.

37. He highlighted that 20 percent of the world's surface is covered by desert and arid lands, and 13 per cent of the global population (313 million) live in arid and hyper-arid zones. Therefore, aquaculture development in the desert can contribute to food security, nutrition and the generation of employment in remote, inhospitable regions of the world.

38. Furthermore, current and future developments of inland aquaculture in desert and arid lands will heavily rely on the appropriate use of subsurface waters using farming practices that ensure the smart use of this limited resource. The constant growth of the human population and the continuous exploitation of land and water resources, particularly in arid lands, will require the application of new strategies to ensure adequate food production (animal protein and vegetables). The integration of aquaculture with agriculture is becoming progressively more attractive in areas where water is a limited resource. Indeed, these systems can reduce water requirements for the production of high quality protein and fresh vegetable products.

39. The presentation provided information of the main water sources, most common farmed species, and suitable farming systems in desert and arid lands. Success stories in the Near East and North African (NENA) region were highlighted, and ongoing FAO activities related to desert aquaculture were presented. Attention was also drawn to an FAO project that is currently operating under the FAO Regional Office for the Near East (RNE) Water Scarcity Initiative in which three countries, Sultanate of Oman, Egypt and Algeria, are undertaking an analysis on the use of non-conventional water in agri-aquaculture farming systems in arid lands. A regional workshop will be



organized later in 2018 to present the outcomes of this activity, and the Secretariat will inform WGA Focal Points on their possible attendance.

40. The presentation was well received by participants and was followed by a discussion. It was noted that desert aquaculture is already a reality in the region. It was also noted that most RECOFI Member countries already have the relevant know-how and technology through their research centres and that the private sector is already developing this aquaculture subsector (e.g. integrated agri-aquaculture farms, aquaponics farms).

41. The WGA agreed to provide the Secretariat with success stories from different Members to be included in the Secretariat's presentation on this topic for further promotion and dissemination.

#### **WORK PROGRAMME FOR 2018-2020**

42. Given the limited budget of the Commission and the new regular meeting frequency (i.e. biennial), the WGA proposed a programme of work for the 2018–2020 period for adoption by the Commission. The proposed programme of work is provided in Appendix 7.

#### **ANY OTHER MATTER**

43. The RECOFI Secretary informed the meeting of the status of the Memorandum of Understanding (MoU), which was jointly developed by FAO (on behalf of RECOFI) and ROPME for period of four years. It was noted that the MoU was not signed at the time of the meeting because the internal clearance process was underway. The meeting was further informed about the likely collaboration activity areas, including aquaculture.

44. Mr Magdy A. El-Alwany, Marine Biodiversity Expert of ROPME, provided brief information on ROPME's key objectives, programmes and activities. The WGA acknowledged the MoU with appreciation.

#### **DATE AND PLACE OF THE NINTH MEETING**

45. The WGA agreed to hold the ninth WGA meeting in April 2020. The location of the meeting will be determined during the intersessional period.

#### **ELECTION OF THE CHAIRPERSON AND VICE-CHAIRPERSON**

46. The WGA participants invited and unanimously agreed to renominate Mr Dawood Suleiman Al-Yahyai, the outgoing WGA Chairperson, for an additional term, and the WGA Focal Point of Kuwait was retained as the WGA Vice-Chairperson.

47. The meeting acknowledged the excellent work carried out by the re-elected chair, Mr Dawood Suleiman Al-Yahyai, WGA Focal Point for the Sultanate of Oman, over the intersessional period.

#### **ADOPTION OF REPORT**

48. The RECOFI Secretary thanked all the participants for their contribution to their contribution to the discussions. The report of the meeting was adopted on 19 April 2018.

#### **VOTE OF THANKS**

49. The WGA expressed sincere gratitude and appreciation to Kuwait for its kind support and hospitality for hosting the meeting.

## Agenda

### *17 April 2018*

Morning session (09.30–13.00 hours)

1. Opening of the meeting
2. Adoption of the agenda
3. Report on the intersessional period activities of the Working Group on Aquaculture (WGA)
4. Updates on:
  - Main decisions and recommendations of the seventh meeting of the RECOFI Working Group on Aquaculture (WGA)
  - Main decisions and recommendations of the ninth session of the RECOFI
  - Main decisions and recommendations of the ninth session of FAO Sub-Committee on Aquaculture
  - Main decisions and recommendations of FAO Regional Conference for the Near East and North Africa.
5. Status review of aquaculture development by country: Brief country presentations
6. Follow-up on the Regional Aquaculture Information System (RAIS)

Afternoon session (14.30–17.30 hours)

7. Implementation of the RECOFI recommendation on minimum data reporting on aquaculture (RECOFI/8/2015/1)
8. Developing marine cage culture in the Near East for enhanced aquaculture sustainability

### **18 April 2018**

Morning session (09.00–13.00 hours)

9. An overview on desert and arid land aquaculture – Opportunities and limitations

Afternoon session (14.30–17.00)

10. Work programme for 2018-2020
11. Any other matter
12. Date and place of the ninth meeting
13. Election of the Chairperson and Vice-Chairperson

### **19 April 2018**

Morning session (09.00–13.00 hours)

Field visit

Afternoon session (14.30–17.30 hours)

14. Adoption of the report

### List of participants

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**Opening Statement by Mr Yousef Khalifa Al-Najem**  
**Deputy Director-General for Fish Resources and RECOFI Chairperson**

*May the peace and blessings of God be upon you.*

*Honorable Representative of RECOFI Member Countries,*

*Dr. Hayder Fersoy, Secretary of the Regional Commission for Fisheries (RECOFI),*

*Learned experts of FAO and RECOFI,*

*Dear colleagues from PAAFR and the dignitaries of the other Institutions in Kuwait,*

*Ladies and Gentlemen,*

On behalf of the Public Authority for Agriculture and Fish Resources, State of Kuwait, I am delighted to welcome you all to the State of Kuwait for the Eighth Meeting of the Working Group on Aquaculture (WGA) of the Regional Commission for Fisheries (RECOFI). It is indeed a great honour and pleasure for me to inaugurate this session, and I would like to express my sincere thanks and gratitude to the Honourable Director-General for Public Authority of Agriculture and Fish Resources for his immense support and encouragement in organizing this important meeting.

We are aware that aquaculture is probably the fastest growing food-producing sector, and this sector can make an important contribution to poverty alleviation, food security and social well-being; it already does so in many developing countries.

Currently, many farmers strongly believe that we are entering a third revolution termed the “Blue Growth” which has been taken as an important initiative by the FAO since 2012.

I strongly believe that the RECOFI Member Countries are fully realizing the importance of aquaculture development in this region. The Working Group on Aquaculture is playing a vital role in strengthening cooperation in between Members Countries, whose aquaculture activities vary in the RECOFI area.

The Working Group on Aquaculture provides opportunities for fish farmers, administrators, researchers and academicians from RECOFI member countries to meet regularly and discuss joint issues and obstacles facing the development of aquaculture in the area, and sharing information and experiences.

Distinguished delegates, I hope that the discussions and deliberations in this Eighth Meeting of the Working Group on Aquaculture will yield important recommendations and results, which will definitely ensure strengthened regional cooperation in the aquaculture sector in this region.

**List of documents**

RECOFI:WGA/VIII/2018/1	Agenda
RECOFI:WGA/VIII/2018/2	Report of the intersessional activities
RECOFI:WGA/VIII/2018/Inf.1	List of documents
RECOFI:WGA/VIII/2018/ Inf.2	List of participants
RECOFI:WGA/VIII/2018/Inf.3	Report of the Seventh Meeting of the Working Group on Aquaculture, Doha, State of Qatar, 26–28 April 2016
RECOFI:WGA/VIII/2018/Inf.4	Adopted Terms of Reference for the RECOFI WGA Focal Points
RECOFI:WGA/VII/2016/Inf.5	Adopted Terms of Reference for the Regional Aquaculture Information System (RAIS) Regional Centre staff
RECOFI:WGA/VII/2016/Inf.6	Adopted Recommendation RECOFI/8/2015/1 on Minimum Reporting on Aquaculture Data and Information
RECOFI:WGA/VIII/2018/Dma.1	Report of the Ninth Session of the Regional Commission for Fisheries, Kuwait City, State of Kuwait, 9–11 May 2017
RECOFI:WGA/VIII/2018/Dma.2	Report of the Ninth session of the FAO Committee on Fisheries (COFI) Sub-Committee on Aquaculture (SCA), Rome, Italy, 24–27 October 2017
RECOFI:WGA/VIII/2018/Dma.3	Report of Thirty-third Session of the FAO Regional Conference for the Near East, Rome, Italy, 9–13 May 2016.

### RAIS Web analysis summary report

The analysis covered the period from 15 April 2016 to 15 April 2018, during which 7 227 users visited the Regional Aquaculture Information System (RAIS) Web site, i.e. about 60 per cent of the number of users of the previous period (14 April 2014 to 14 April 2016). Data analysis showed that a very high percentage of the visitors were new users, i.e. 90.4 per cent and only 9.1 were returning visitors. This can be explained by the fact that information and aquaculture data are not regularly updated in the information system, which does not meet the needs of sector users, who require updated and reliable information.

Concerning the page view per session for RECOFI Member Countries, the analysis values (in descending order) were recorded for visitors from State of Qatar (7.76 pages), United Arab Emirates (5.07 pages), Sultanate of Oman (4.62 pages), Saudi Arabia (4.33 pages), Bahrain (3.35 pages), State of Kuwait (2.84 pages), the Islamic Republic of Iran (2.46 pages) and Iraq (2.17 pages). The overall average of page view per session was 3.28 pages, which was nearly the same as indicated in the previous report. The “bounce rate” (the percentage of simple page visits, i.e. visits in which the user left the site from the entrance page without interacting with the page throughout the whole period) was 63.14 per cent. For RAIS, the average time on site for the whole period and all visitors was estimated at 2 minutes and 10 seconds on average, which is very low.

There were 3,115 users from RECOFI countries, or about 43.1 per cent of total visitors. The analysis values in descending order for recorded visitors were: 1 298 (the Islamic Republic of Iran), 949 (State of Kuwait), 242 (United Arab Emirates), 227 (Saudi Arabia), 159 (Sultanate of Oman), 120 (Bahrain), 102 (State of Qatar) and 18 (Republic of Iraq). As mentioned in this and previous reports, the RAIS Web site would have more visitors and be more useful if the aquaculture data and information provided by the Member countries would be updated more frequently. This would certainly attract and retain a wider number of visitors.

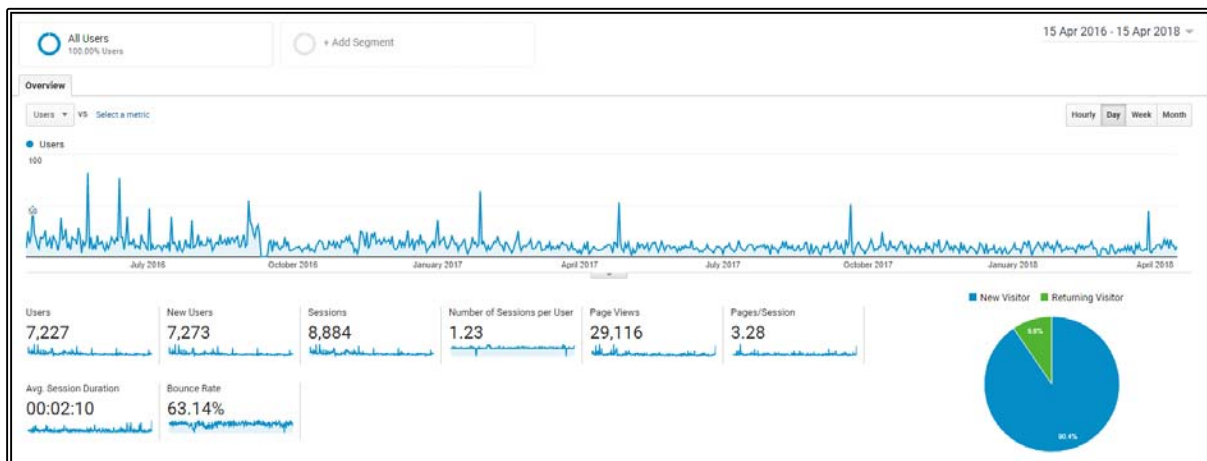


Figure 1. Audience overview



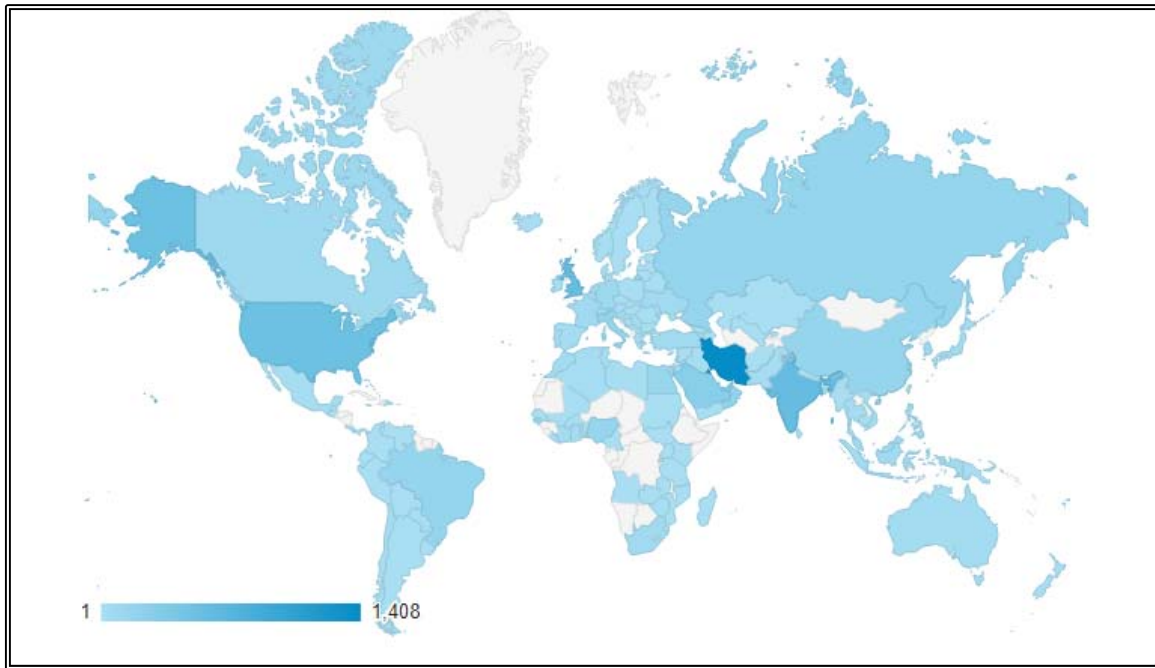


Figure 2. Sessions per country

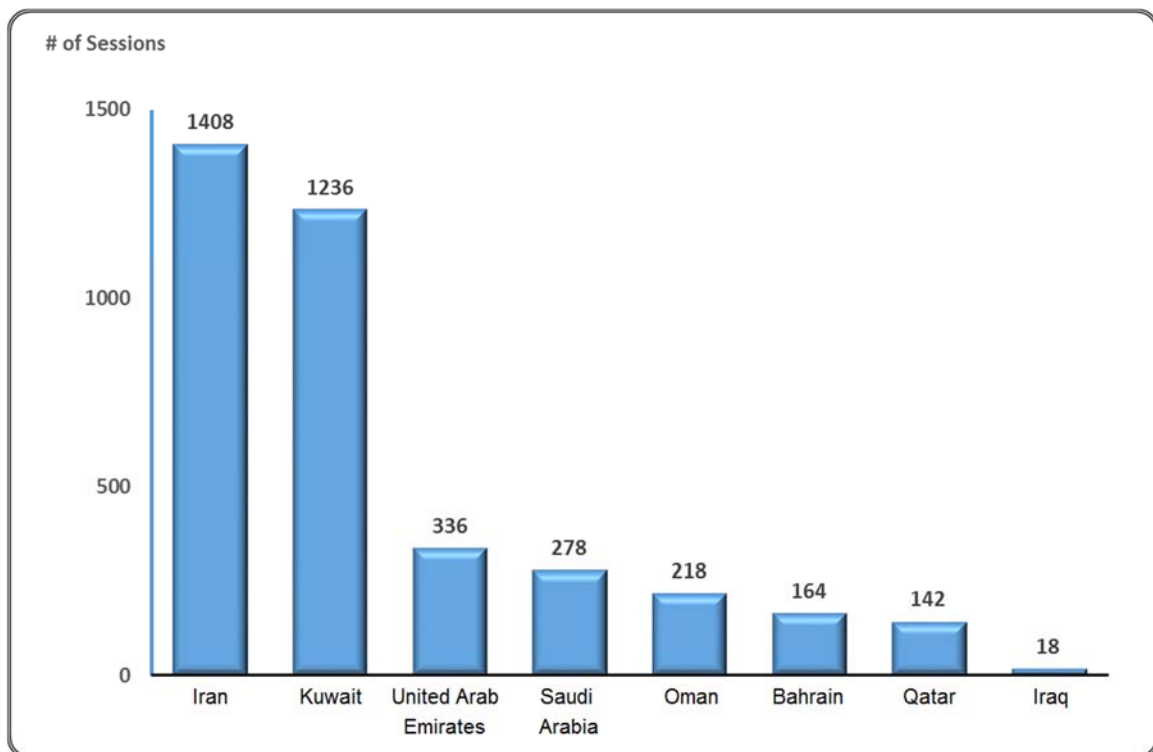


Figure 3. Number of sessions for RECOFI Member countries

**Status of 2016 national aquaculture statistical data reporting to FAO  
by RECOFI member countries**

All RECOFI member states, except Bahrain, reported their 2016 national aquaculture production statistical data to FAO respectively. The national data reports for the year 2016 vary in completeness, accuracy and timeliness. The status of 2016 national data reporting to FAO by RECOFI member states are summarized in Table 1.

**Table 1. Summary of 2016 national aquaculture statistical data reporting to FAO by RECOFI member states**

Country	Date of first report to FAO of 2016 national aquaculture data	ASQN1 Form		FishStat-AQ Form		
		Production quantity by species	Unit price by species for first sale (per kg)	Aquaculture area & facility	Seed production quantity & seed uses	Production quantity and unit price by culture method by species
Bahrain	no report	No	No	No	No	No
Iran, Islamic republic of	07-11-2017	Yes	No	No	No	No
Iraq	21-08-2017	Yes	Yes	Yes	Yes	No
Kuwait	17-07-2017	No	No	Yes	Yes	Yes
Oman	28-05-2017	Yes	Yes	Yes	Yes	Yes
Qatar	24-07-2017	Yes	Yes	No	No	Yes
Saudi Arabia, Kingdom of	24-08-2017	Yes (partial)	No	No	No	No
United Arab Emirates	31-08-2017	Yes	No	Yes	Yes (partial)	Yes (without prices)

By examining the 2016 national data reports, the RECOFI Secretariat has the following observations and suggestions to individual members regarding their national aquaculture data reporting to FAO in the future.

**Bahrain**

- National data for the year 2016 NOT reported to FAO.
- Missing for year 2016 need to be reported retroactively, when 2017 aquaculture data are to be reported in 2018.

**Iran, Islamic republic of**

- National data were reported after the 31 August deadline.
- The unit prices for first sale of farmed species were NOT reported.

- With the FishStat-AQ form NOT returned to FAO, data were missing on aquaculture area and facilities, seed production and seed uses, and production quantity and price by culture method by species.
- The very rapid development of marine finfish cage culture in Iran is reflected by the increase in production from 123 tonnes in 2014 to 10,162 tonnes in 2016. It is desirable and beneficial to identify the farmed species and disaggregate the production by major species for future data reporting.

#### Iraq

- Unit price for first sale were reported in US dollar.
- Use of national currency is recommended for future data reporting.

#### Kuwait

- Though AQNS1 form was not returned, data reported with FishStat-AQ form were general complete.
- Unit prices for first sale of farmed specie need to shift to national currency (KWD) for future data reporting.

#### Oman

- Unit prices for first sale of farmed specie need to shift to national currency (OMR) for future data reporting.

#### Qatar

- Unit price for first sale reported in US dollar. Use of national currency is recommended for future data reporting.

#### Saudi Arabia, Kingdom of

- Not all farmed species were reported for 2016, and first-sale prices were missing even for reported species.
- With the FishStat-AQ form NOT returned to FAO, data were missing on aquaculture area and facilities, seed production and seed uses, and production quantity and price by culture method by species.

#### United Arab Emirates

- Unit prices were NOT reported.
- Seed production was reported for some of the species farmed.
- Designed production capacity of new aquaculture facilities for novel species were reported as production (therefore, not recorded by FAO in global dataset).

The total aquaculture production registered in FAO global aquaculture production statistics database for the most recent ten-year period (2007-2016) for RECOFI countries are shown in Table 2.

**Table 2: National aquaculture production registered in FAO global aquaculture production statistics database for RECOFI countries for the period 2007-2016 (quantity in tonnes in live weight)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Iran, Islamic Republic of	158549	154726	179552	220034	247262	296514	325325	320174	346118	398129
Saudi Arabia*	18410	22340	26442	26374	16076	12737	9266	23880	30000	39920
Iraq	15810	19246	18732	20320	16290	25040	14060	26625	24803	28835
United Arab Emirates	644	1343	130	198	415	420	780	788	790	1241
Kuwait	348	291	272	310	319	309	303	297	262	196
Oman	96	121	118	127	157	168	353	282	170	103
Qatar	36	36	36	36	36	36	56	56	10	10
Bahrain**	1	2	2	3	3	2	0	6	6	6

Note: \* 2016 data registered in FAO global aquaculture production statistics database include estimates for a few farmed species that were not reported by the Kingdom of Saudi Arabia.

\*\* Aquaculture production in 2014 and 2015 was repeated as “estimate” for the year 2016 for Bahrain in the FAO global aquaculture production statistics database.

**National aquaculture production quantity and unit prices of RECOFI member countries  
registered in the FAO global aquaculture production statistic database 1950-2016  
--- showing the most recent five years (2012-2016)**

Important note: Those “F” symbols next to the numeric figures indicate that the values represented by the figures, for quantities or for unit prices, are of “FAO estimates” in nature. The “FAO estimates” are often registered when data are not reported by member states.

Symbols in the tables:

Environment Code : MA - Marine / sea water; IN – Freshwater; BW – Brackishwater

Quantity: t – metric tonnes (in live weight)

Price/Kg: Farm-gate price, or first sale price. National currency is preferred for reporting to FAO.

### 1. Bahrain

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	t	...	-	...	...	...
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	USD	...	0	...	...	...
ENI	Epinephelus coioides	Orange-spotted grouper	MA	t	0.945	-	0.571	1 F	1 F
ENI	Epinephelus coioides	Orange-spotted grouper	MA	BHD	6	...	6	6 F	6 F
ENI	Epinephelus coioides	Orange-spotted grouper	MA	USD	...	0	...	...	...
RES	Lutjanus argentimaculatus	Mangrove red snapper	MA	t	...	-	...	...	...
RES	Lutjanus argentimaculatus	Mangrove red snapper	MA	USD	...	0	...	...	...
SBG	Sparus aurata	Gilthead seabream	MA	t	0.78	-	2.105	2 F	2 F
SBG	Sparus aurata	Gilthead seabream	MA	BHD	3.8	...	4	4 F	4 F
SBG	Sparus aurata	Gilthead seabream	MA	USD	...	0	...	...	...
SZH	Sparidentex hasta	Sobaity seabream	MA	t	...	-	2.892	3 F	3 F
SZH	Sparidentex hasta	Sobaity seabream	MA	BHD	...	...	4	4 F	4 F
SZH	Sparidentex hasta	Sobaity seabream	MA	USD	...	0	...	...	...
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	t	...	-	0.142	...	...
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	USD	...	0	...	...	...
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	BHD	...	...	3	...	...

## 2. Iran

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
FCP	Cyprinus carpio	Common carp	IN	t	46370	41971	51102	46016	50274
FCP	Cyprinus carpio	Common carp	IN	USD	2.8 F	2.8 F	2.8 F	2.8 F	2.8 F
FCG	Ctenopharyngodon idellus	Grass carp(=White amur)	IN	t	15457	25182	17034	27610	30164
FCG	Ctenopharyngodon idellus	Grass carp(=White amur)	IN	USD	3 F	3 F	3 F	3 F	3 F
SVC	Hypophthalmichthys molitrix	Silver carp	IN	t	85010	92336	85171	101235	110603
SVC	Hypophthalmichthys molitrix	Silver carp	IN	USD	2.5 F	2.5 F	2.5 F	2.5 F	2.5 F
BIC	Hypophthalmichthys nobilis	Bighead carp	IN	t	7728	8394	17034	9203	10055
BIC	Hypophthalmichthys nobilis	Bighead carp	IN	USD	2.5 F	2.5 F	2.5 F	2.5 F	2.5 F
STU	Acipenseridae	Sturgeons nei	IN	t	456	564	650	1071	2146
STU	Acipenseridae	Sturgeons nei	IN	USD	3 F	3 F	3 F	3 F	3 F
TRR	Oncorhynchus mykiss	Rainbow trout	IN	t	131000	143917	126515	140632	163325
TRR	Oncorhynchus mykiss	Rainbow trout	IN	USD	3 F	3 F	3 F	3 F	3 F
MZZ	Osteichthyes	Marine fishes nei	MA	t	...	...	123	2465	10162 F
MZZ	Osteichthyes	Marine fishes nei	MA	USD	...	...	3.5 F	3.5 F	3.5 F
PRF	Macrobrachium rosenbergii	Giant river prawn	IN	t	61	63	18	11	11
PRF	Macrobrachium rosenbergii	Giant river prawn	IN	USD	8 F	8 F	8 F	8 F	8 F
CRD	Astacus leptodactylus	Danube crayfish	IN	t	280	200	52	80	58
CRD	Astacus leptodactylus	Danube crayfish	IN	USD	8 F	8 F	8 F	8 F	8 F
PNV	Penaeus vannamei	Whiteleg shrimp	BW	t	10152	12698	22475	17795	21331
PNV	Penaeus vannamei	Whiteleg shrimp	BW	USD	6 F	6 F	6 F	6 F	6 F
PNI	Penaeus indicus	Indian white prawn	BW	t	-	-	-	...	...
PNI	Penaeus indicus	Indian white prawn	BW	USD	...	...	0	...	...

### 3. Iraq

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
FCP	Cyprinus carpio	Common carp	IN	t	20890	12310	25600	22303	26335
FCP	Cyprinus carpio	Common carp	IN	USD	5	6	6	6	6.5
FCG	Ctenopharyngodon idellus	Grass carp(=White amur)	IN	t	1600	750	759 F	1100	1500
FCG	Ctenopharyngodon idellus	Grass carp(=White amur)	IN	USD	4	5	6 F	4	4
SVC	Hypophthalmichthys molitrix	Silver carp	IN	t	1350	500	266	1000	1000
SVC	Hypophthalmichthys molitrix	Silver carp	IN	USD	3.5	4	4	3.5	3
MUL	Mugilidae	Mulletts nei	IN	t	1200	500	...	400	...
MUL	Mugilidae	Mulletts nei	IN	USD	2	6	...	2	...

### 4. Kuwait

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
TLN	Oreochromis niloticus	Nile tilapia	BW	t	299	301	295 F	260 F	185.76
TLN	Oreochromis niloticus	Nile tilapia	BW	USD	4.6	5.2	4.52 F	4.5 F	1.532
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	t	-	-	-	-	2.5
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	USD	0	0	0	0	2
ENI	Epinephelus coioides	Orange-spotted grouper	MA	t	-	-	-	-	0.3
ENI	Epinephelus coioides	Orange-spotted grouper	MA	USD	0	0	0	0	2
MAL	Lutjanus malabaricus	Malabar blood snapper	MA	t	-	-	-	-	1.1
MAL	Lutjanus malabaricus	Malabar blood snapper	MA	USD	0	0	0	0	2
SBG	Sparus aurata	Gilthead seabream	MA	t	10 F	...	...	...	...
SBG	Sparus aurata	Gilthead seabream	MA	USD	6 F	...	...	...	...
SZH	Sparidentex hasta	Sobaity seabream	MA	t	-	-	-	-	1
SZH	Sparidentex hasta	Sobaity seabream	MA	USD	0	0	0	0	2
MZZ	Osteichthyes	Marine fishes nei	MA	t	-	2 F	2 F	2 F	5.5
MZZ	Osteichthyes	Marine fishes nei	MA	USD	0	6 F	6 F	6 F	1.318

## 5. Oman

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
TLN	Oreochromis niloticus	Nile tilapia	IN	t	3	3	5.4	20	33
TLN	Oreochromis niloticus	Nile tilapia	IN	USD	5	5	3.85	3.9	3.9
YWF	Acanthopagrus latus	Yellowfin seabream	MA	t	-	-	-	...	...
YWF	Acanthopagrus latus	Yellowfin seabream	MA	USD	0	0	0	...	...
TIP	Penaeus semisulcatus	Green tiger prawn	BW	t	...	...	...	...	...
TIP	Penaeus semisulcatus	Green tiger prawn	BW	OMR	...	...	...	...	...
PNI	Penaeus indicus	Indian white prawn	BW	t	165	350	277	150	70
PNI	Penaeus indicus	Indian white prawn	BW	OMR	2.55	5.516	6.67	6.5 F	6.5

## 6. Qatar

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
TLN	Oreochromis niloticus	Nile tilapia	IN	t	36	56	56	10	10
TLN	Oreochromis niloticus	Nile tilapia	IN	USD	3.7	3.7	3.7	3.7	3.7
YWF	Acanthopagrus latus	Yellowfin seabream	MA	t	-	-	-	-	-
YWF	Acanthopagrus latus	Yellowfin seabream	MA	USD	0	0	0	0	0
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	t	-	-	-	-	-
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	USD	0	0	0	0	0



## 7. Saudi Arabia

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
TLN	Oreochromis niloticus	Nile tilapia	IN	t	4860	5450	5921	5143	7490
TLN	Oreochromis niloticus	Nile tilapia	IN	USD	3 F	3	...	...	...
TLN	Oreochromis niloticus	Nile tilapia	IN	SAR	...	...	21	21 F	21 F
TLL	Oreochromis spilurus	Sabaki tilapia	BW	t	360	400	370	286	280 F
TLL	Oreochromis spilurus	Sabaki tilapia	BW	SAR	...	...	24	24 F	24 F
TLL	Oreochromis spilurus	Sabaki tilapia	BW	USD	4 F	4	...	...	...
CLZ	Clarias gariepinus	North African catfish	IN	t	85	125	104	111	100 F
CLZ	Clarias gariepinus	North African catfish	IN	USD	3 F	3	...	...	...
CLZ	Clarias gariepinus	North African catfish	IN	SAR	...	...	21 F	21 F	21 F
APG	Acipenser gueldenstaedtii	Danube sturgeon(=Osetr)	IN	t	30 F	39	35	26	...
APG	Acipenser gueldenstaedtii	Danube sturgeon(=Osetr)	IN	USD	90 F	90	90 F	90 F	...
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	t	20	20	2525	3888	5585
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	SAR	...	...	30	30 F	30 F
GIP	Lates calcarifer	Barramundi(=Giant seaperch)	MA	USD	6 F	6	...	...	...
MUF	Mugil cephalus	Flathead grey mullet	MA	t	50	60	60	47	50 F
MUF	Mugil cephalus	Flathead grey mullet	MA	SAR	...	...	30	30 F	30 F
MUF	Mugil cephalus	Flathead grey mullet	MA	USD	3 F	3	...	...	...
GPX	Epinephelus spp	Groupers nei	MA	t	115	125	140	108	100 F
GPX	Epinephelus spp	Groupers nei	MA	SAR	...	...	40	40 F	40 F
GPX	Epinephelus spp	Groupers nei	MA	USD	5 F	5	...	...	...
SBG	Sparus aurata	Gilthead seabream	MA	t	1648 F	1825 F	1685	3057	2220
SBG	Sparus aurata	Gilthead seabream	MA	SAR	...	...	30	30 F	30 F
SBG	Sparus aurata	Gilthead seabream	MA	USD	6 F	6	...	...	...
SZH	Sparidentex hasta	Sobaity seabream	MA	t	500 F	500 F	...	...	...
SZH	Sparidentex hasta	Sobaity seabream	MA	USD	6 F	6	...	...	...
SPI	Siganus spp	Spinefeet(=Rabbitfishes) nei	MA	t	39	50	50	39	40 F
SPI	Siganus spp	Spinefeet(=Rabbitfishes) nei	MA	SAR	...	...	30	30 F	30 F
SPI	Siganus spp	Spinefeet(=Rabbitfishes) nei	MA	USD	5 F	5	...	...	...
PNV	Penaeus vannamei	Whiteleg shrimp	MA	t	-	...	12980	17295	24055
PNV	Penaeus vannamei	Whiteleg shrimp	MA	SAR	...	...	30	30 F	30 F
HFC	Holothuria scabra	Sandfish	BW	t	10 F	12	10 F	...	...
HFC	Holothuria scabra	Sandfish	BW	USD	5 F	5	5 F	...	...

## 8. United Arab Emirates

Species Code	Scientific Name	English Name (FAO)	Environment Code	Quantity (Tonnes) / Price/Kg	2012	2013	2014	2015	2016
TLN	Oreochromis niloticus	Nile tilapia	IN	t	20	85 F	138 F	130 F	46.9
TLN	Oreochromis niloticus	Nile tilapia	IN	USD	2.9 F	3 F	3 F	3 F	3 F
OEA	Oreochromis aureus	Blue tilapia	IN	t	-	-	...	...	...
OEA	Oreochromis aureus	Blue tilapia	IN	USD	0	0	...	...	...
APB	Acipenser baerii	Siberian sturgeon	IN	t	...	...	...	20 F	32
APB	Acipenser baerii	Siberian sturgeon	IN	USD	...	...	...	15 F	15 F
STU	Acipenseridae	Sturgeons nei	IN	t	10 F	35 F	10 F	...	...
STU	Acipenseridae	Sturgeons nei	IN	USD	15 F	15 F	15 F	...	...
MUL	Mugilidae	Mulletts nei	MA	t	-	-	...	...	...
MUL	Mugilidae	Mulletts nei	MA	USD	0	0	...	...	...
EPT	Epinephelus tauvina	Greasy grouper	MA	t	-	-	...	...	...
EPT	Epinephelus tauvina	Greasy grouper	MA	USD	0	0	...	...	...
BSS	Dicentrarchus labrax	European seabass	MA	t	...	10	...	...	300 F
BSS	Dicentrarchus labrax	European seabass	MA	USD	...	7.3	...	...	7.4 F
RSS	Rhabdosargus sarba	Goldlined seabream	MA	t	-	-	...	...	...
RSS	Rhabdosargus sarba	Goldlined seabream	MA	USD	0	0	...	...	...
SBG	Sparus aurata	Gilthead seabream	MA	t	170 F	370	290 F	270 F	550 F
SBG	Sparus aurata	Gilthead seabream	MA	USD	7.1 F	7.4	7.4 F	7.4 F	7.4 F
SZH	Sparidentex hasta	Sobaity seabream	MA	t	-	...	...	...	...
SZH	Sparidentex hasta	Sobaity seabream	MA	USD	0	...	...	...	...
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	t	-	-	...	...	...
SCN	Siganus canaliculatus	White-spotted spinefoot	MA	USD	0	0	...	...	...
TIP	Penaeus semisulcatus	Green tiger prawn	MA	t	-	-	...	...	...
TIP	Penaeus semisulcatus	Green tiger prawn	MA	USD	0	0	...	...	...
PNI	Penaeus indicus	Indian white prawn	MA	t	220 F	280 F	350 F	370 F	312
PNI	Penaeus indicus	Indian white prawn	MA	USD	8 F	8.2 F	8.2 F	8.2 F	8.2 F

**Work Programme for 2018–2020**

<b>Activity</b>	<b>Date</b>	<b>Location</b>	<b>Duration</b>	<b>Estimated budget (USD)</b>
Technical workshop on marine spatial planning, including consultancy service for development of guidelines for marine cage selection (joint workshop)	2019	Oman	5 days	25 000
Regional workshop on harmonized RECOFI aquaculture data collection, reporting and dissemination in line with internationally established standards	Dec 2019	TBD	3 days	20 000
Advancement of Regional Aquaculture Information System (RAIS)				15 000
Ninth Meeting of WGA	Feb 2019	TBD	1 day (back-to-back workshop)	20 000

The eighth meeting of the Working Group on Aquaculture (WGA) of the Regional Commission for Fisheries (RECOFI) was held in Kuwait City, State of Kuwait, from 17 to 19 April 2018 and was attended by the representatives from six Member countries. The WGA reviewed the outcome and recommendations of the eighth session of the Commission, ninth session of COFI Sub-Committee on Aquaculture; and thirty-third session of the FAO Regional Conference for the Near East. The WGA noted that a major intersessional activity was the Regional Workshop on Building National Capacity for Cultured Animal Disease Diagnostic in Relation to Bio-Security. It was highlighted that the workshop, which was originally scheduled to be held in Saudi Arabia, was held in Cairo, Egypt, from 6 to 8 March 2018, for organizational reasons. A brief status review of aquaculture developments in participating member countries was done. Among the main priorities identified for the region, the WGA agreed on the importance of: (i) sharing work experiences on aquaculture spatial planning and discuss criteria and indicators to be used for fish cage culture site selection; (ii) adopting the proposed FAO-FIAS roadmap for the implementation of RECOFI recommendations on minimum data reporting on aquaculture; and (iii) revising and update the contents of the Regional Aquaculture Information System (RAIS). The WGA agreed on a programme of work for the intersessional period 2018-2020.

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