

Fisheries Development in the Arab World

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ABSTRACT

Arab fisheries resources, including the coastal waters of the Arab states, inland waters, and aquaculture potential, are an important sector for development. If rationally and scientifically exploited, fisheries could play a role in meeting increased food demand, and in activating the economies of the region, possibly surpassing oil exploitation by being a renewable and self-replenishing resource.

INTRODUCTION

Marine waters border the Arab countries on all sides: the Arabian Gulf on the east, the Atlantic Ocean on the west, the Mediterranean Sea on the north, and the Indian Ocean on the south. In addition to these, the Red Sea and various gulfs, rivers—mainly the Nile, the Tigris, and the Euphrates—and the natural and man-made lakes constituting inland water resources afford the Arab countries very important potential for fisheries. The Exclusive Economic Zone (EEZ) expands Arab marine waters to rich international fishing grounds. Engaging in aquaculture activities in marine and inland waters, as well as better exploitation of the available fisheries resources, would create a more sound and more beneficial fishery industry. It could become one of the main pillars of Arab economic activities, of no less importance, in some countries, than the fishery industry in the economy of major fishing nations such as Japan and Norway.

Prior to the discovery of oil in some Arab states, fish had traditionally been an important source of animal protein, particularly along the coastal areas. Increasing incomes from oil, providing higher purchasing power, made other protein sources available, causing diversification of protein intake and reducing fish consumption. In recent years, however, due to various economic and social reasons, demand for fish and its consumption in fresh or processed form have risen to some degree. On the whole, consumers have begun to turn to cheaper foods, often consuming traditionally unmarketable fish products, developing new uses for fish by either diversifying preparation methods or accepting imported products previously unknown locally.

Fish marketing opportunities are increasingly opening up in the Arab states. Such an increase in the demand for fish products may be met either from better exploitation of fisheries resources or through the importation of quantities that may not be obtained from local sources.

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Fishing and fisheries contribute more than any other animal production activity to protein intake in most of the developing regions of the world, including most of the Arab states, and are important for the food security of many coastal populations. By all accounts, many wild marine and freshwater resources are on the decline.

THE ISSUE OF FISHERIES GLOBALLY

In past decades the rapid growth of the exploitation of fisheries resources has taken its toll: during the 1950s and 1960s, the global catch from commercial fishing grew three times faster than the world population. Production growth was slower afterwards; currently, as global fishery production (catch and aquaculture) averages 100 million tons (MT) per year (113 MT in 1995, a record so far), per capita supplies are on the decline. These trends have an obvious impact on prices: during the last decade seafood prices have risen almost 4%/yr on average, rendering a traditionally inexpensive source of protein much less accessible to the poor.

Blame for the depletion of aquatic resources has been placed mostly on two factors:

- The development of excess fishing capacity with respect to existing fish stocks and their natural growth rates; and
- the deteriorating condition of fish stocks due to the pollution of sensitive aquatic systems, both freshwater and marine.

Small-scale fisheries in developing countries have generally played a minor role beyond their communities, although the pressure of growing local demand has occasionally contributed to the over-exploitation of coastal waters.

The development of fishing capacity has taken place mostly in the large-scale (industrial) and medium-scale fishing sub-sectors. Since the early days of international development assistance, the main objective of fisheries development projects has been to increase fishing efficiency and income levels through motorizing boats, improving gear, and in harbor development and other infrastructure facilities. The sector and its manpower have grown, drawing workers from rural to urban areas.

At the same time, large numbers of small-scale fishermen have had no access to that assistance, finding it increasingly difficult to survive in an overexploited environment. From this perspective, the crisis of fisheries has been a crisis of livelihoods.

The implications go far beyond dwindling fish stocks available to small-scale fishermen. Globally, fishing provides the main source of income for about 100 million fishermen and their families, the

majority of them among the world's poorest. They are among the one billion people—nearly a fifth of the global population—for whom fish is the main source of animal protein. The scarcity of fisheries resources is leading to clashes between neighbors as fishing fleets stray across maritime borders after depleting stocks in their own waters.

It is estimated that 85% of the world's fish harvest is still caught in the wild, although the practice has reached the limits of sustainability in many areas. This, in part, is because the means of exploitation have become so efficient. Fishing fleets use sonar, radar, aircraft and satellites to track shoals. Winches and motors and drift nets typically trap more than 18 tons of fish. This enables trawlers to increase not only catches but the by-catches—species that are netted but are unwanted and consequently discarded.

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PRESENT STATUS OF ARAB FISHERIES

FISHERIES BOUNDARIES

The geographical boundaries of the Marine Statistical Areas as classified by FAO place Arab waters in the following areas:

AREA 34: East Central Atlantic, Mauritania, and Morocco

The most dominant fisheries of Area 34 consist mainly of rich resources of hake, crustaceans (shrimps and lobsters), cephalopods (octopus, cuttlefish, and squid), small pelagics (sardines, mackerels), and tunas (big-eye and yellowfin). Rich demersal resources are also present. This area is the largest contributor to Arab fish landings.

AREA 37: Mediterranean Sea, Morocco, Algeria, Tunisia, Libya, Egypt, Gaza (Palestine), Lebanon, and Syria

Area 37 is generally considered medium to poor with regard to fish productivity. The western parts of this area have small pelagics, with its main fishery consisting mostly of sardines and anchovy, as well as a modest population of demersal species. The central parts, while rich in demersal and small pelagic species, suffer from over-fishing in such areas as the Gulf of Gabes in Tunisia, for example, while other waters bordering Libya are under-exploited. The eastern portions consist of poorer fisheries fished by much smaller boats than those of the central and western portions. Palestinian fisheries off Gaza have in recent years dropped from about

4,000 t/y to about 1,000 t/y as a result of the reduction of the fishing limits from 20 km to 12 km from the shore. This has also caused the reduction of the number of fishermen from 13,000 in 1980s to the current estimate of some 1,500 or so.

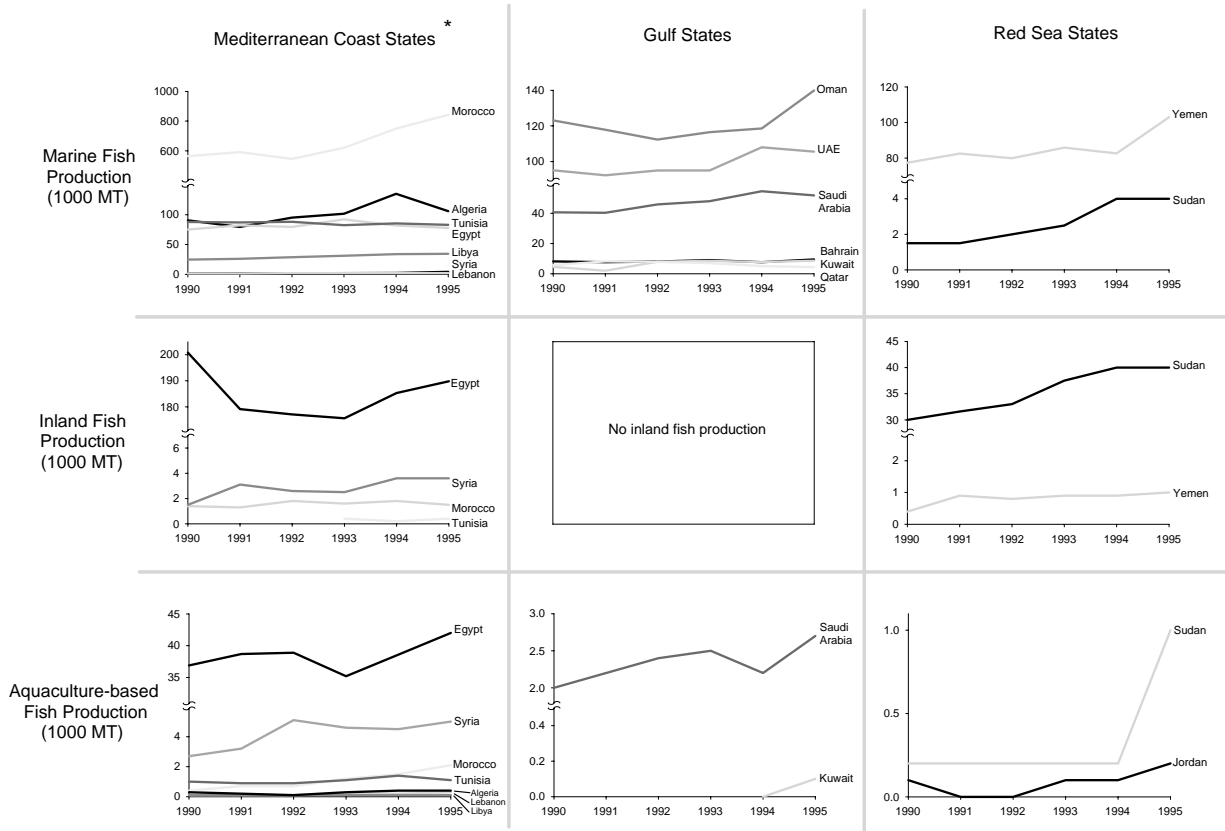
Area 51: North Western Indian Ocean, Egypt, Sudan, Djibouti, Somalia, Yemen, Comoros, Saudi Arabia, Jordan, Iraq, Kuwait, Bahrain, Qatar, United Arab Emirates, and Oman

Area 51 is an extremely varied area consisting of the Red Sea, the North Arabian Sea, several gulfs, and the northern parts of the Indian Ocean. The Red Sea is considered of poor productivity (outside of the Gulf of Suez, which is actually over-fished) and its fisheries resources consist of quantities of small pelagics, jack, and some demersal and crustacean resources. The fisheries of the Arabian Gulf and Gulf of Oman are modest in their production of small pelagics, demersal species and crustaceans. Some areas, especially in the Gulf of Oman and the north Arabian Sea, could withstand further exploitation of their resources. Only the shrimp resources are highly exploited. The Gulf of Aden is considered a fish-rich area and is underexploited, the fisheries consisting of mostly small pelagics (sardines and anchovy) and several high-value demersal species. Crustaceans resources and cephalopods are also available and could withstand further exploitation. The unexploited resource of meso-pelagic fish in the Gulf of Aden as well as in the Gulf of Oman, estimated to be not less than 1.5 - 2 MT, is another resource which offers potential. Finally, the southern part of Area 51, waters bordering Somalia, is considered rich in small pelagics (sardines) as well as a good resources of demersal species, tunas and crustaceans.

In addition to the traditional and conventional fisheries, a wide variety of seafoods, such as abalone, bivalves, crabs, sea cucumbers, jelly fish, sea-unicorn and sea turtles, are available in Arab waters. It is possible that some of these species may be nationally exploited for export purposes once the expertise for their processing and marketing becomes available, as long as the harvest of endangered species is still strictly prohibited.

The coastlines of the Arab states total 23,000 km, and span a continental shelf area of 608,000 km². Inland waters are estimated to have an area of about 7.2 million hectares of marshes, water reservoirs, rivers and lakes.

Latest FAO fisheries statistics on the Arab world indicate that in 1995 fish production from marine and inland waters including aquaculture was 2 MT or about 1.8 % of global catches. The 1994 fish landings from all sources were 1.9 MT amounting to 1.7% of the world catch of 109 million tons, i.e., a rise in landings of about 1.1 %



* Data not shown: Palestine (Gaza) achieved 1,200 MT in marine production in 1995.

Figure 1 Fish Production of Arab states from 1990-95. Source: FISHDAB.

from all sources over the period of 1990–1995.

Marine and inland catches over a period of six years have fluctuated slightly but maintained an increasing trend (see Figure 1).

With regard to the contribution of aquaculture to Arab fisheries resources in both marine and fresh waters in 1995 the total production reached 69,000 MT. Aquaculture is a relatively new source of fish in the Arab states but has made significant progress since 1984 increasing by about 68% in roughly a decade. It is significant to note that the practice of aquaculture in Egypt, Iraq and Syria for many years has been contingent upon the availability of fresh water. In recent years, aquaculture has been initiated in several countries where fresh water is very scarce, such as Kuwait, Saudi Arabia, Bahrain and United Arab Emirates (Figure 1).

CLASSIFICATION OF FISHERIES RESOURCES

Fisheries resources may be classified into four main areas:

EXCLUSIVE ECONOMIC ZONE FISHERIES

The introduction in the mid-1970s of Exclusive Economic Zones (EEZs) and the adoption in 1982 of the United Nations Convention of the Law of the Sea provided a new framework for the management of marine resources. The new legal regime of the oceans gave coastal states rights and responsibilities for the management and use of fishery resources within their EEZs. However, many coastal states, including several Arab countries, continue to face serious challenges, lacking experience and financial and physical resources to achieve greater benefits from the fisheries within their EEZs.

Subsequently, the FAO Committee on Fisheries (COFI), at its Nineteenth Session in 1991, called for the development of new concepts which would lead to responsible, sustainable fisheries. As a result, the International Conference on Responsible Fishing, held in 1992 in Mexico, requested FAO to prepare an international Code of Conduct to address these issues. The outcome of this Conference was an important contribution to the 1992 United Nations Conference on Environment and Development (UNCED), particularly Agenda 21. Afterwards, the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks was convened, to which FAO provided important technical back-up. In November 1993, the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas was adopted.

As a result of these developments, the Code of Conduct for Responsible Fisheries, adopted in October 1995 by the FAO Conference, provided a necessary framework for national and international efforts to insure sustainable exploitation of aquatic living resources in harmony with environmental management activities. It has also brought about a significant change in the conditions under which fisheries are carried out on a world wide basis. The extent of national EEZs and the nature of jurisdiction claimed differ from country to country, but in the majority of cases the zone extends 200 nautical miles offshore and in all cases jurisdiction over fishery resources is included.

All Arab states, albeit in ranging degrees, may have access to fisheries resources in their EEZs. However, it is not yet clear what benefits the Arab states can gain from fish resources available in their EEZs. The only extension of jurisdiction by Arab states of possible benefits to their fisheries is in the fishing areas of the countries bordering the east central Atlantic Ocean (Mauritania and Morocco) and the northwest Indian Ocean (Oman, Yemen and Somalia). However, although extension of jurisdiction by these countries over the fish resources in their EEZs provides an opportu-

nity for more effective development and national management of fisheries based on the stocks available, realization of that opportunity depends on the solution of a number of difficult problems.

MARINE FISHERIES

The fisheries of the Arab Middle East and North Africa are quite heterogenous as a result of wide geographical spread. They may be classified into two broad categories based on vessel size, gear types and species targeted.

HIGH SEAS (OFFSHORE) FISHERIES

In large fish-producing countries such as Morocco and Mauritania, the category is characterized by a large modern mechanized fleets with vessels equipped with freezing, storage and other facilities capable of up to three months of operation at sea at a stretch. These vessels operate beyond the 20 mile fishing zone and their catches are almost exclusively destined for export. This is capital intensive activity requiring large investment, often beyond the reach of most private local fishermen. It is an export-oriented sub-sector of high-value species, such as cuttlefish, octopus, squid, shrimp and tuna. The fleets operating in this fishery are largely fleets from Spain and Portugal operating in most instances under license or joint ventures. Their catches are of high value, but they are not, in most cases, reported as catches of the countries bordering the waters where fishing operations take place.

COASTAL FISHERIES

Within this category, two sub-groups are usually considered: intermediate and small scale (artisanal) fisheries.

Intermediate Fisheries

This sub-group is characterized by vessels of 25 meters or less, operating up to 20 miles off shore, mostly targeting pelagic species, sardines and mackerels in particular. Because an important proportion of the production of this category goes to canning and, to a lesser extent, fish meal and fish oil industries, they are sometimes referred to as "industrial fisheries." The average share of these fisheries is 15–20%.

Small Scale Fisheries

This sub-group is characterized by a fleet of small motorized boats, 5–6 m in length, of small catching capacities equipped with various kinds of traditional fishing gear. Fishermen composing this

group are scattered all along the coastlines of Arab states. Their numbers are high and much of their fishing is subsistence fishing for local markets, families and clans. The official statistics of their catches are not recorded systematically and therefore lack reliability. The species they target are mostly demersal, near shore species and crustaceans (mainly shrimps) where they exist. The average share of coastal fisheries in the Arab world fish landings has been estimated at 80-85%.

Inland Fisheries

Inland fisheries resources are those landed from the various inland water bodies, which are estimated to cover about 1.5 million km². The major states where these are available are Egypt, Sudan, Iraq and Syria. These include lakes, rivers, marsh lands, swamps, reservoirs, and natural and man-made lakes. The lakes in the Egyptian Delta region are the main fish production water bodies in addition to Lake Nasser in the south, Lake Qarun, and the River Nile. In Sudan, the main inland fisheries are in the Blue and White Niles in addition to the main stem of the Nile. Iraq's main fisheries are located on the Tigris and Euphrates Rivers as well as some man-made reservoirs. Other rivers with smaller size fisheries exist in Syria, Lebanon, Jordan, and Mauritania.

Most of the inland fisheries in the Arab states are characterized by subsistence fishing to meet immediate food supply needs of populations living in the vicinity of the water bodies. Any excess to their food needs is sold to the local markets. The major problems facing these rivers are:

- reduced volumes from upstream diversions and flood control; and
- compromised water quality from pollution.

Aquaculture

Aquaculture's global importance grows each year because of population growth and the fact that the natural fisheries resources may have reached their maximum sustainable yield. The Arab world is no exception. Many states with freshwater resources, such as Egypt, Sudan, Iraq and Syria, have practiced aquaculture for many years. Other countries where freshwater is scarce are engaging in mariculture activities, farming fish along their coastlines (such as in Tunisia, Morocco, Saudi Arabia, Kuwait and Bahrain). The U.A.E. and Oman have also established research centres with the aim of developing mariculture in their waters.

In 1995, fish from aquaculture reached a production level of 68,000 MT, 4% of total fish catches in the Arab region, valued at about

\$300 million. Production in 1984 was only about 22,000 MT valued at only \$59 million. The 1995 level represents an increase of 67% in quantity and 95% in value (Figure 1).

The main species farmed are those indigenous species which are popularly accepted in the individual Arab countries. In Egypt and Sudan *Tilapia* is farmed and is also being introduced for farming in Saudi Arabia where Egyptian and Sudanese minorities live. Groupers and rabbitfish are farmed in the Gulf Cooperation Council States (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and U.A.E.), and shrimp farming has been attempted along the Egyptian coast of the Red Sea. There are also experimental projects aimed at developing the commercial cage farming of sea bass and sea bream in Egypt, begun in 1990 in Port Said in the east and Mersa Metrouh on the Mediterranean coast in the west. When research studies on fish farming become feasible, and as the technologies and know-how become readily available, fish from aquaculture production is expected to expand substantially.

With a coastline stretching for about 23,000 km, the Arab region offers considerable possibilities for fish farming both in inland and marine waters. It remains to be seen, however, whether aquaculture production of fish will substantially increase fish supply in the region and significantly reduce either the supply/demand gap or dependence on imports.

FISH CONSUMPTION AND PREFERENCES

Average *per capita* fish consumption in the Arab world in 1995 was about 6.6 kg, compared with the world average of about 13 kg/y.

Per capita fish consumption among the Arab countries is highest in the United Arab Emirates (51.1 kg/y) followed by Oman (36.7 kg/y) Bahrain (16.93 kg/y) Mauritania (16.6 kg/y) Qatar (16.5 kg/y) and Morocco (15.4 kg/y). All other Arab states are well below the international average, with some as low as less than 1 kg/year, as in Lebanon and Syria.

Fish consumption in the region as a whole has some distinctive characteristics:

- Fish consumption is highest in coastal countries where fish are comparatively abundant, the population is low, and fish represent an important part of the national diet.
- All other Arab states generally have a low consumption rate. This is mainly due to low production levels, high populations, and shortage of hard currencies to import fish as a supplement to local supplies. The coastal areas in several such countries have very high consumption levels, e.g., Somalia and Yemen, but remote inland populations may consume negligible amounts.

- Fish consumption patterns have changed somewhat in some of the countries having a substantial foreign labor population, notably the oil-producing countries. This is due to the increased import of non-traditional species to satisfy new consumer demands, the introduction of new fish preparation methods, changes in eating habits, and innovations in product forms.

The list of preferred locally produced seafood species includes shrimp, lobster and cuttlefish, caught mostly in the waters surrounding the Arabian Peninsula and Algeria, Morocco, and Mauritania. However, as local market demand in the region is limited, such species are largely exported due to their high international market prices.

Generally, fish consumption is affected by conditions and systems of marketing, distribution, and transport and, to a minor extent, by tribal, traditional, and social attitudes. Fish consumption thus presents a complex pattern, ranging greatly between countries and within different areas in the same country or subregion.

FISH RESOURCES POTENTIAL

The fisheries statistics of FAO indicate that total fish catches from all Arab sources during 1995 was about 2 MT. However, fishery statistics issued by the Arab Organization for Agricultural Development (AOAD) indicate that Arab fish landings in the same year were 10% higher. The discrepancy in reported figures implies that statistics require harmonization in order to arrive at a more reliable and accurate database.

However, considering the potential of all the marine waters that border the Arab states, it is believed that the marine fish total caught from Arab waters is higher than that which is actually reported. This assumption is made on the belief that there are many foreign fishing vessels operating, legally or illegally, in Arab fish-rich waters such as those off Morocco, Mauritania, Somalia, and Yemen, and the catches made are not recorded as catches from these waters. These catches are estimated to be about 1-2 MT. In other words, actual fish landings from Arab marine resources may be in the range of 3-4 MT per annum.

In the absence of strict surveillance, monitoring, and control of the fisheries resources of the fish-rich countries, it is difficult to substantiate and document the actual fish volumes caught from Arab waters. It is well known that there are several joint ventures between Arab states and foreign companies, but the extent and volume of their actual operations are not publicly known or documented.

The 1993-94 negotiations between Morocco and the European Union (EU) over fishing rights in Moroccan waters offer a case in

point. During the negotiations European fleets did not operate in Moroccan waters. Catches by the local fishermen jumped to a record high of 40 MT/d during May-November 1995. Morocco's territorial waters have an abundance of sardines, mackerel, squid, octopus, tuna, hake seabream, and shrimp. Moroccan fishermen feel that the foreign fleets are a threat to their domestic resources and feel they can better exploit their own fisheries themselves. During negotiations, the coastal fleet was catching up to five MT/d, which is still only half the record of the seventies (possibly due to the effects of indiscriminate over-fishing by the foreign fleets) but above the one MT/d maximum catch during the presence of foreign fleets.

Morocco, in its consideration of the future beyond the year 2000 when the renewed agreement with the EU expires, has embarked on an investment plan to reshape its fishing industry. It has earmarked over \$200 million to upgrade installations industry-wide as part of a long-term goal to exploit its rich waters without foreign intervention. The fisheries authorities' objective for the year 2000 is to achieve yield on an annual sustainable basis ranging from 1.5 to 2.5 million tons. Production objectives are 1.5 MT/y, up from the 1994 production of 752,000 MT/y, and 846,000 MT/y in 1995. The Moroccan authorities are also establishing another fisheries research centre and imposing longer fish conservation periods to protect the stocks. The rehabilitation of several ports and fleet servicing facilities are part of the upgrading process.

FISH TRADE

TRADE TRENDS

Although the collection and dissemination of fishery statistics has generally improved over the last few years in several Arab countries, information on fish trade within each country is still not sufficient. For example, it is not well established how much of the total fish production is marketed. Subsistence fishing is practiced to a considerable extent in the region, especially in the countries bordering the Arabian Peninsula and along the shores of inland lakes and rivers, especially in Iraq and Egypt. Therefore, it is assumed that a considerable portion of total production is consumed by the fishermen and their families.

Marine catches constituted about 84% of total catches in 1995. Quantities not consumed locally by the coastal population are mostly cured and exported. In the last few years, foreign fish and fishery products have also been exported. These exports should not be interpreted as a genuine surplus as there is probably a strong

potential demand for fish in the interior, which in some countries lacks accessibility due to poor communications and transportation.

Exports in 1995 are mostly attributed to expanded fishing activities off the coast of Mauritania (14% of the total) possibly by foreign fleets and trans-shipment of foreign fish. Morocco has also shown a substantial increase in canned fish product exports (61% of the total).

Most countries of the region are importers of some quantity of fish. Egypt is the largest importer (28% of the total) followed by Saudi Arabia (25% of the total). Apart from the imports to Egypt, other major import items include canned and foreign products and some high-value fish preparations (especially for the Gulf countries).

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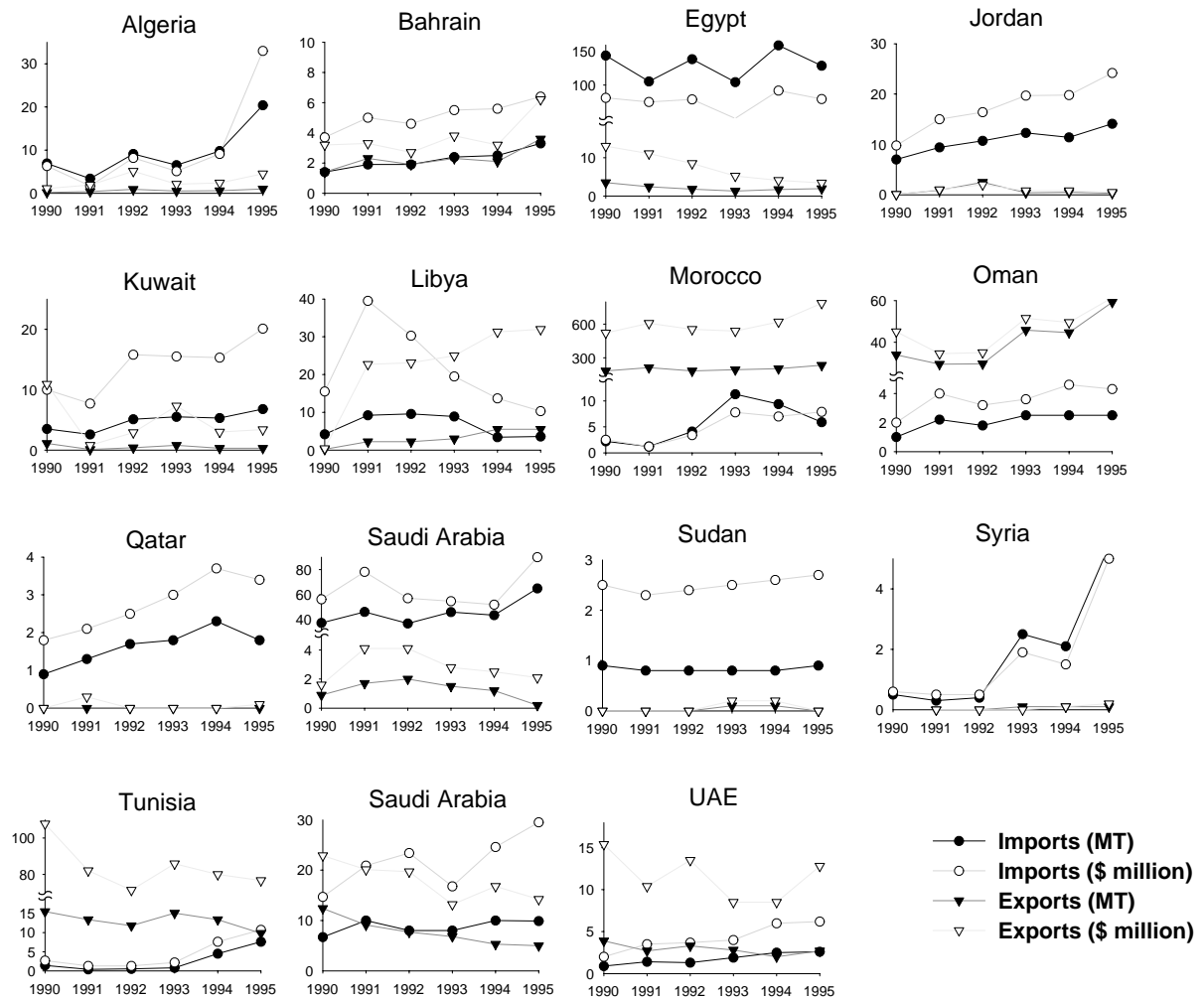


Figure 2 Imports and exports of fish and fishery products of select Arab states as a function of time, broken down by weight and monetary value.

rocco and Mauritania, the total for other countries classifies them as net importers. It should also be noted that the exports from Mauritania are predominantly small pelagic species caught mostly by foreign fishing vessels off the territorial waters and similar fish species caught and canned by Morocco. Exports by other exporting countries are mainly high valued demersal species, crustaceans and cephalopod species, mostly for export outside the region (Figure 3).

TRADE CONSTRAINTS

Shortage of dependable information on demand and supply, prices and price fluctuations, as well as buyers and sellers in most of the countries, has been a major factor adversely affecting the growth of Arab trade in fish and fishery products. Coupled with this is the dearth of technical know-how and trained manpower, together with inadequate infrastructure. Attempts at product development, product and market diversification and value addition have been quite

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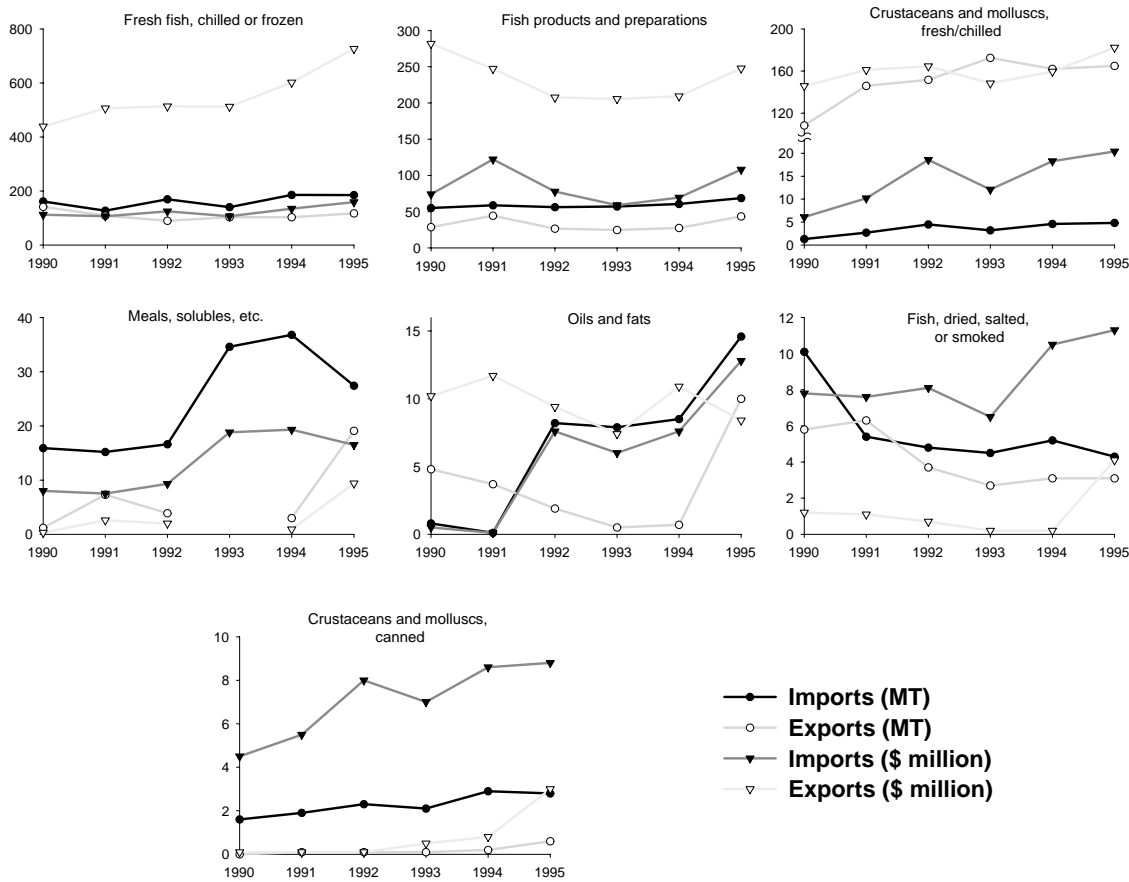


Figure 3 Total imports and exports of Arab states by seven commodity groups. Source: FISHDAB. Includes Mauritania, Comoros Islands, Djibouti, and Somalia in addition to those countries listed in Figure 1.

limited in scope and results, in spite of improvements in recent years.

Lack of regular and direct flights linking the production and consumption centres both within and outside the Arab world has restricted trade in fresh fish, while irregular shipping facilities hamper smooth flow of frozen fish from one port to another. Moreover, though some of the countries in the Arab world are among the richest in the world, there are also several countries that are not so fortunate. This has resulted in insufficient communication facilities even between neighbors. Due to such problems, the share of intra-regional trade in fish and fishery products in the total import-export trade within the Arab region is also quite negligible.

Another trade constraint is associated with canned small pelagics, a major export item. It is estimated that the GCC countries together consume between 25,000 and 30,000 MT of canned fishery products per annum. Despite the growing demand, a major share of these imports are not from Arab exporters of the same commodities. At times, countries such as Tunisia and Morocco are stuck with quantities of canned products for want of buyers. Moreover, the installed capacity utilization in these two countries is quite low, often due to lack of orders. In some Arab countries, the general pattern of trade linking producers to buyers is based exclusively on a few traditional products, depending on a few traditional buyers and sellers. In other countries, where there is a wish to diversify products, enter new markets and increase trade, producers and processors suffer from acute lack of up-to-date information on such vital matters as product requirements and specifications, the required processing technology, quality standards, current prices, and marketing opportunities and trends, all of which leads to the misapplication of production capacity, loss of potential profits, loss of foreign exchange, and reduced employment opportunities.

MAJOR TRADE MARKETS

The Arab world is most likely to continue to be a major importer of fish and fishery products in the years to come. This is in spite of the efforts made to increase indigenous production. Some of the items available in this region, such as cephalopods, crustaceans, molluscs and high-value demand species, will have to be exported to markets elsewhere due either to little domestic demand or the quest for hard currency earnings.

The major importer among the Arab states is Egypt, with 129,000 T valued at \$79 million imported in 1995 or 46% of all Arab fish imports. Egyptian imports are mostly frozen small pelagic species of sardines and mackerels which are consumed by the low in-

come section of the population at subsidized rates. The next major market is the six GCC states, which as a combined market area imported a total of 89.3 thousand tons valued at \$153.7 million and in 1995 led by Saudi Arabia as the main importer of the GCC states and second from the Arab countries (Figure 2).

Irrespective of the varying size of markets and the corresponding levels in quantity and value of imports, the consumption pattern as well as marketing channels in the GCC states have many things in common. All the GCC countries are characterized by close socio-economic and linguistic links as well as population growth trends. With the implementation of a free trade area and free movement of nationals, funds and goods, and the liberalization of wholesaling and other marketing activities, the importers, distributors, and wholesalers, in general, have benefited immensely.

The average expatriate population in the GCC countries is estimated at 45% of the total population. Consumer preferences among the expatriates is very often different from that of the nationals. Thus, fish and fishery products imports fall into two categories: chilled/fresh fish, as well as canned and dried products preferred by the native population and items like frozen fish in demand among the expatriates.

With regard to exports, the major Arab exporter is Morocco, with exports totalling 233,900 MT in 1995 or 61% of total exports, valued at \$786.5 million. Most of these exports are canned small pelagic fish species to markets in Europe, some of which are re-exported to the Arab markets. Mauritania is the second largest exporter, with 55,000 MT, or 14%, valued at \$167.3 million. The main exports are cephalopods, Japan being the most important importer. Also Italy, Spain, France and Germany are importers of Mauritanian demersal fish species. African countries import small pelagic species from Mauritania.

ROLE OF INFOSAMAK CENTRE IN DEVELOPING ARAB FISH TRADE

One of the most visible impediments to enhancing inter-regional trade in fish and fishery products and consequently a better exploitation of Arab fisheries is the fact that this sector has not in the past been given the priority it deserves in some of the Arab countries. The Centre for Marketing Information and Advisory Services for Fishery Products in the Arab Region (INFOSAMAK), which was established in Bahrain in 1986 as a link in the FAO worldwide Fish Marketing Information Network, has played a major role in providing fish trade promotional services.

INFOSAMAK services help raise the level of awareness and importance of the sector. Inter-country trade has benefited in both value and quantity by the information made available by INFOSAMAK. The market information service is an efficient and productive mechanism for fish trade information and collation. With respect to market promotion, the ability of INFOSAMAK to match buyers and sellers has been productive.

Investment opportunities in the field of Arab fisheries has also been one of INFOSAMAK's promotion and identification services. It undertook pre-feasibility studies on behalf of investors which led to the strengthening of contacts with Arab national and regional institutions and organizations who are potential investors in the fisheries sub-sector.

INFOSAMAK has proven to be an important regional service and an active participant in the Arab international fish marketing sub-sector. Its establishment has boosted the development of the Arab fish trade.

DEVELOPMENT PROSPECTS AND CHALLENGES

Total fish landings attributed to the Arab states from marine and inland resources have stagnated during the last few years at about 1.7 MT/y. Aquaculture, a newly developed resource, added about 60,000 MT in 1993. Although an increase in production from capture fisheries is possible and will probably occur in response to intensified fisheries activities, it is very unlikely to keep pace with population growth if the most sought-after and most easily caught fish are to be maintained as supply to the local domestic markets. The challenge here is organizing and stimulating production from fish resources so that per capita supply of fish as food does not decline.

In order to meet this challenge, proper management of available resources is required by the fisheries authorities in the Arab states. Maintaining efficient measures of monitoring and controlling these resources is essential. When applied properly and effectively, these measures could mitigate the effects associated with over-fishing of the major fisheries resources. The measures include building the capability to enforce laws against poaching in the territorial waters and high seas under national jurisdiction, banning fishing methods which are a threat to the resources, and finding a balance in the multi-purpose use of coastal resources to ensure a sustainable and optimum supply of fish. (Coastal fisheries at present provide Arab states with over 85% of their fish landings). In other words, the stock-damaging experience of the "shrimp-rush" of the 1960s in the Arabian Gulf by foreign fleets should not be allowed to take place again.

In aquaculture, the challenge here lies in the fact that it has not yet fully taken hold in the Arab states. In order to sufficiently develop aquaculture, governments and research institutions concerned will need to increase and improve research that could be applied inland and along the coastlines. Involvement of the private sector and industry to identify research needs and priorities is essential. Research in aquaculture must address improvements in technologies, contribute to a reduction in the cost of production, and consider the increasing need to ensure that aquaculture is environmentally safe and that farming indigenous and popularly-demanded species as well as possible introducing new species can be achieved without endangering the local ecology.

Fisheries statistics is another challenge that needs to be met. Much of the recorded data and information on the sector is incomplete, inconsistent, and outdated. Concerted efforts are needed to improve and develop the methods of data compilation, documentation, and analysis which are essential to making proper management decisions. Provision of upgraded data should be the responsibility of all concerned governments in the region, to optimize appropriate exchanges of economic, commercial, and biological data.

Training and upgrading of the fisheries workforce poses another serious challenge to the development of the fisheries sector. Training on the various aspects of fisheries management administration and technology is required. Attention should also be given to the strengthening and establishment of fisheries training institutions. This challenge will prove to be an essential contribution and, in some cases, has already had a major impact on a country's fisheries development. When fisheries resources have a human resource base adequate for supporting more efficient national exploitation and increasing that exploitation, the result is better job opportunities for those who receive training. Experience has shown that a national institution designed to meet national scientific training needs can make a bigger contribution than a regional institution, which cannot satisfy all the different needs of the various countries of the region. Regional training institutions would be effective, however, if established in a region where the countries involved have common fisheries resources, similar experiences, and homogeneity in the exploitation of their fisheries, as exists in the GCC countries.

CONCLUSIONS

The Arab states' fisheries sector can be a much better contributor to the economic development of the Arab countries and could provide increased benefits to the Arab peoples. Enhancing fisheries production would increase food supplies to help avert shortages in

animal protein, give support to food security measures, and reduce imports (which are a drain on hard currencies). It could open job opportunities to rural and urban populations, raise the standard of living of small-scale fishermen, and develop rural areas and fishing communities. Furthermore, with increased and enhanced fisheries activities, fisheries industries would improve the utilisation of fish landings, develop value-added products, and promote marketing, distribution, and inter- and intra-regional trade.

However, to embark on such activities, considerable improvements to the sector have to be implemented. These improvements require initiatives by the governments of the region to give higher priority in their national development plans to their fisheries sector. Public investment in fisheries infrastructure and services has to be increased to create an encouraging environment for potential private investors. Fisheries research must be encouraged in marine and inland fisheries and aquaculture in order to bring about better management of resources including measures for resource conservation. The new internationally recognized Code of Conduct for Responsible Fishing is an opportunity which the Arab states may seize upon in order to achieve increased benefits from their own resources.

There are various challenges to the Arab states which have to be met in order to achieve the desired results. Fisheries should not by any means be considered a side- or marginal activity and should be given sufficient support and protection measures to allow the gradual growth and development. Fisheries development is, by its very nature, a long term activity, and development projects or programmes often require considerable time until they start to bear fruit.

In the past few years marine fisheries in many areas, Arab waters included, have achieved their maximum sustainable yield. However, future concentration of development should be in the rational exploitation of some marine areas offshore and in the EEZs, as well as in maximizing benefits from joint ventures with foreign fishing fleets by negotiating better terms. Furthermore, the small-scale fisheries sector should have greater emphasis, and aquaculture, in fresh and marine waters, should be a major growth area.

Finally, it cannot be over-emphasized that, for the Arab states, fisheries are vital for the food security and economic livelihood of a major portion of the population. Fisheries productivity and renewability are dependent on both high-quality management and a high quality natural environment. Therefore, better management of currently over-exploited stocks, cautious utilization of under- or non-harvested marine and fresh water resources, expansion of aquaculture, and improvements in post-harvest utilization are prerequisites for the development of Arab fisheries.

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LIST OF ABBREVIATIONS AND ACRONYMS

AOAD	Arab Organization for Agriculture Development
COFI	Committee on Fisheries
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GCC	Gulf Cooperation Council
GLOBEFISEI FAO	Fish Marketing and Information Data Bank
INFOSAMAK	Centre for Marketing Information and Advisory Services for Fishery Products in the Arab Region
U.A.E.	United Arab Emirates
UNCED	United Nations Conference on Environment and Development

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