MedFisis
Fishery Statistics and Information System in the Mediterranean

The present status of fishery and information system in Lebanon

Enabling Participation in the fishery statistics and information system in the Mediterranean (TCP/INT/2904)

Majdalani, S. 2004. The present status of fishery and information system in Lebanon. GCP/INT/918/EC - TCP/INT/2904/TD-4.1. MedFisis Technical Document No. 4.1: 45pp.

Abstract:

The document contains an assessment study on the status of the fishery and information system in Lebanon before the implementation of the MedFisis project. The document indicates that Lebanon lacked at the time of writing most of the physical requisites and competent human resources to establish and manage sustainably/autonomously a fisheries statistical system that is harmonized with regional and international standards.

The Present Status of the Fishery and Information System in Lebanon

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TABLE OF CONTENTS   **Page**

Executive summary

The importance of accurate and timely statistics has been realized by the Lebanese Ministry of Agriculture. Census for many agricultural sectors was initiated through the General Agriculture Census Project. Fisheries was not an integral part of this endeavor. To overcome this gap in information a general fisheries census was expected to be executed in collaboration with the Department of Fisheries & Wildlife. This exercise never launched due to many reasons one of which fear of conflict with the Medfisis East Mediterranean project.

During the launch (Beirut, January 2004) of Medfisis - TCP/INT/2904, it was agreed that Medfisis would assist participating countries with setting up and overseeing a fisheries statistical system and that funds from the General Agriculture Census Project will be used to carry out the field work for Lebanon.

Lebanon is to prepare a preliminary assessment of its statistical resources and its vision or plan to undertake such a statistical task. This is to assist Medfisis personnel better assess the situation and pinpoint areas that require assistance.

Investigations indicated that Lebanon lacks most of the physical requisites and competent human resources to establish and sustainability & autonomously manage a fisheries statistical system that is harmonized with regional and international standards.

The proposed work program involves:
- Establishment of a statistical entity within the Department of Fisheries & Wildlife together with all required personnel and physical requirements.
- Conduct a census of fishing vessels
- Conduct a Catch & Effort survey
- Consolidation of the system

Such a system will be discussed and finalized during fact finding missions of Medfisis personnel to Beirut and during implementation of the project. It is hoped that all basic work will be done during 2004.

It should be noted that the recommendations for working strategy for Medfisis-East that were set in Beirut meeting (January 2004) will be the guidelines for undertaking the project

1. Introduction

The importance of the Lebanese fisheries sector was realized for a while now as well as for the need for accurate and reliable statistical data. This information is indispensable to identify the needs of the fisheries sector, set priorities and consequently plan to satisfy those needs and for legislative/policy purposes. Furthermore, statistical data supplied by Lebanon to international organizations are merely estimates based on experience and/or educated guessing. This practice should discontinue and accurate data should be supplied. The availability of such data is valuable for all kinds of stakeholders and interested parties whereby the only available accurate data are the trade statistics issued by the Ministry of Finance-Customs Service. The opportunity to design and implement a modern and effective Fisheries Statistical system that will generate standardized data comes through the GFCM Medfisis program.

2. Acknowledgements

We would like to extend our thanks to Medfisis-GFCM-FAO represented by Mr. Rino Coppola for supplying funds and assistance to undertake this endeavor.
Also we would extend appreciation to all who contributed into producing this report

Overview of general country information

1- Country's rationale
A preliminary assessment of the present status of the Fishery Data Collection System in Lebanon highlighted the lack of fishing vessels register, fishing records and the lack of catch data collection systems. This is mainly due to financial constraints, lack of methodology/system, lack of competent personnel and lack of resources/facilities for implementation. The information about the sector is sketchy and does not go beyond the number of licensed fishing vessels and fishing licenses issued by the Ministry of Public Works and Transportation and Ministry of Agriculture simultaneously (Appendix 2). The need for accurate data about the sector is mandatory so as to assist the relevant Lebanese authorities to make appropriate decisions and effective future plans and legislation. Moreover, this will help in supplying international organizations and concerned/interested stakeholders/parties with timely and scientifically accurate data. Introduction of a new system is expected to face certain difficulties due to lack of historical involvement of the Department of Fisheries & Wildlife in such activities and the possibility of change of political support/priorities and thus affecting the launching and/or the sustainability of the system.

2- Geographic, demographic and international context
Lebanon is a predominantly mountainous country, with an area of 10,452 sq.km. and a population of around four millions. Nearly half of the country's population lives in the Greater Beirut area. The Lebanese coastline is 220 km long. The land rises steeply from the coast in the North, while in the South it forms a very narrow coastal plain. The continental shelf is narrow, especially in the South. Bottom grounds are mainly rough with intensive rocky patches good for stationary demersal gear.

Lebanese are historically ocean-origin people, consuming lots of fish in their diet. Local demand for fish is considerably higher than the neighboring Middle Eastern countries. Due to the low local fish production, the Lebanese have been depending on imported fish that are generally of inferior quality.

The production of the fisheries sector in mid 1970's was about 2,300 tons while it was about 6,000 tons (including 600 tons of trout) in 2000. They were produced by about 4,000 traditional/small scale fishermen distributed all over the Lebanese coast. The active fishing fleet is supposed to consist of around 1,600 small fishing boats (less than 6 meters) and 400 motorized boats (less than 8 meters). The average annual income of the fishermen, in 1998, was equivalent to US $800. The demand for fish has remained high (15,000 tons per year in 2000). Imports of chilled, frozen, and canned fish were reported to be about 9,000 tons in 2002. The potential for Fish Consumption in Lebanon is 35,000 ton per year. The per capita fish consumption was about 3.75 kg per year in 2000.

The fisheries of Lebanon are classified as small scale "artisanal" and traditional based mainly on bottom stationary gear (trammels and longlines), purse seine nets (lampara) and beach seines. Fishing operations, with the exception of longlines, are mostly carried out at depths of up to 50m. Most of fishing nets used have extremely small mesh size (less than 2x2 cm). Because of the strict control by the military, the extensive fishing with explosives has been significantly reduced during the past few years. Fishing equipment is expensive. Moreover, the traditional fishermen have no access to institutional credit.

Fishery Administrative Structure

1. **National, sub-regional, and regional structures**
   + Structure of the Department of Fisheries and Wildlife
        a. Head of Department: 1
        b. Agricultural Engineers: 1
        c. Rangers: 1
   The department is directly in charge of the Oceanography and Fisheries Institute at Batroun and Chouaifat Aquaculture Station and two Fish Centers. The department is technically in charge of two Aquaculture Stations and seven Fish Centers

2. **National Fishery Organizational Chart (as per Annex 13)**

3. **Fishery law and obligations vis-à-vis the statistical issue**
   There is no specific statistical role mandated, according to the Fishery Law (Law 2775 of September 28, 1929 & Decree 5246 of June 20, 1994), to the Department of Fisheries & Wildlife. This function is stipulated to be the responsibility of another department, namely Department of Statistics and Economical Analysis of the Directorate of Studies & Coordination/Ministry of Agriculture. This department does not carry such censuses at this stage.

4. **Roles and responsibilities** (as per Decree 5246 of June 20, 1994)
        a. Marine & freshwater fisheries and Game hunting affairs.
        b. Applied research on aquaculture and establishment of training centers in different locations and at its Institute of Oceanography and Fisheries at Batroun
        c. Give fishing licenses
        d. Establishment and modernization of fishing ports and fish handling facilities in coordination with the Ministry of Transportation
        e. Regulating the fishing sector by assigning fishing seasons and protected areas. Organizing and regulating diving clubs and protected areas.
        f. Attempt to improve the livelihood of fishermen by organizing cooperatives and syndicates.
        g. Carrying applied research on aquaculture. Development and modernization of fishing techniques. Provide training on fishing boats.
        h. Preparation of extension programs.
        i. Hatching and distribution of adaptable fish species. Run trials on local and introduced fish species.
        j. Survey of game species.

k. Prepare general guidelines to preserve game species and regulate its hunting in coordination with the Ministry of Environment.
l. Growing of game species and running trials on them.
m. Enforcing fishing and game hunting laws and regulations.
n. Other pertaining matters

The Present National Fishery Survey Programme

1. **Ongoing research activities:**
    Aquaculture trials on local fishes e.g. rabbit fish and crayfish

2. **Fishery statistical system.**
    None. However, three sample based surveys performed during 2000, 2001 and 2002. The quality of data obtained is questionable, yet it is the only data available to date. The General Agricultural Census Project (UTF/LEB/016/LEB) performed two studies (50 vessels samples each) and a private-sector company commissioned by FAO performed one study (400 vessels sample). (Appendix 4 gives a summary of the UTF/LEB/016/LEB results for 2001).

3. **Biological fishery surveys.**
    None

4. **Economical or Socio-Economical Surveys**
    Some data was obtained from the studies mentioned above (2)

5. **Other Fishery Surveys.**
    None

6. **National and International Synergies**
    - General Agricultural Census Project (UTF/LEB/016/LEB)
    - Medfisis-TCP/INT/2904

The Present Statistical System

1. **Introductory considerations**
    Some necessary administrative/logistic inputs need to be taken into consideration when planning the new Statistical System. Identification of all necessary inputs will be done in collaboration with the fact-finding missions of Medfisis-East personnel. Internal and external discussions and evaluations, in this regard, indicated the following basic considerations:
    -   The work must be done by and with the staff of the Department of Fisheries & Wildlife, limiting external resources only to fill the gaps (methodological and financial resources). The system to be adopted should be as modern, simple, robust, easily upgradeable and requiring minimum technological inputs as possible. Also, it should be compatible with the educational levels, experiences, working practices/attitudes and conditions of the staff involved.
    -   The system should guarantee that the assigned staff would undertake their tasks professionally and at no extra benefits to them (after external resources cessation). Furthermore, job satisfaction and work ethics/attitudes training and reinforcement are to be carried out. New office hours for the concerned staff should be officially mandated. Clear mandated new/amended job descriptions should be drawn.
    -   Introduction of computerized systems as well as different mechanisms for handling assigned tasks should cause minimum disruption to the existing operational procedures.
    -   Reassignment and re-qualification of the agricultural engineers, fisheries rangers and administrative personnel to successfully undertake the new tasks without neglecting/disrupting their other job requirements or functions.
    -   The need for supplementary resources from the Administration should be kept to the minimum.

    Furthermore, it is worth mentioning that the following aspects characterize the fisheries data in Lebanon:

    -   Seaworthiness and sailing licensing for fishing vessels is under the jurisdiction of the Ministry of Public Works & Transportation (Appendices 11 & 12 show sample vessel registration and navigation license). This Ministry, however; does not maintain, to date, a computerized vessel registry. They are in the process of designing and implementing a new computerized vessel registry, the usefulness of which, to Department of Fisheries & Wildlife is not clear. Further meetings and coordination with Ministry of Public Works & Transportation is required to ensure compatibility and harmony of the proposed Fishery Statistical System. Furthermore, Ministry of public works & Transportation issues fishermen licenses/passports (based upon the recommendation of a fishermen

cooperative). No computerized registry for those fishermen exists, to date. Ministry of Public Works & Transportation is in the process of issuing new version of fishermen passports aimed at decreasing possibility of forgery and misuse. It is expected that within one year of implementation of the new passport, they will know the exact number of fishermen in Lebanon and will have a computerized registry for them.

- The Lebanese Central Administration of Statistics is mandated to lying down of statistics related to natural wealth including Agriculture. However, they only collect and issue data regarding fruits and vegetables exportation. The Central Administration of Administration does not collect any information about fisheries sector.

- Fish sales in Lebanon are mainly through auctions to fishmongers/restaurants/individuals. Fish selling outside such venues is common, but its extent is unknown. There is one official Central Fish Auction Yard next to Beirut Sea Port. Moreover, there is one fish auction yard/fish stalls at each fishing port which is run by the respective fishermen cooperative at that port. Some of these auction yards keep some manual records on certain improvised ledger books, which are extremely difficult to consolidate.

- The Ministry of Finance-Lebanese customs maintain and publish (online: http://www.customs.gov.lb/customs/English) Fish Trade data (quantities and value) according to the Harmonized System adopted on 17/4/2002. Such information is very accurate for legally imported/exported products.

- There is no specific statistical role mandated to the Department of Fisheries & Wildlife. This function is stipulated to be the responsibility of another department, namely Department of Statistics and Economical Analysis of the Directorate of Studies & Coordination/Ministry of Agriculture. This department does not carry such censuses at this stage. Coordination and cooperation with this unit is mandatory to avoid any possible conflict.

- Fishing licenses (Appendices 3 & 9) are issued by the Ministry of Agriculture, either by the Department of Fisheries & Wildlife or by the regional Rural Development Departments. Seaworthiness/sailing license by the Ministry of Public Works & Transportation is a prerequisite to issuing such licenses. The whole process of Fishing Licensing is manual and seldom updated. The information was never consolidated and/or computerized. At present the Department of Fisheries & Wildlife is attempting to consolidate/computerize data for years 2002 & 2003. The process is proving to be difficult, time consuming and a poor cost/benefit exercise.

- No general census of the fishing sector was done since 1963. There was, however, three sample based surveys performed during 2000, 2001 and 2002. The quality of data obtained is questionable, yet it is the only data available to date. The General Agricultural Census Project (UTF/LEB/016/LEB) performed two studies (50 vessels samples each) and a private-sector company commissioned by FAO performed one study (400 vessels sample). (Appendix 4 gives a summary of the UTF/LEB/016/LEB results for 2001).

2. Objectives

The primary objective of the proposed programme is the production of reliable fishery statistics and to supply the Department of Fisheries & Wildlife with modern and dynamic tools for data administration.

Below is brief description of the most significant outputs that this programme should produce:

➢ Establishment of a systematic data collection system of the national fishery sector, covering the Census data as well as Catch and Effort statistics.

➢ Construction of a network of statistical data collection and monitoring formed by specialized staff.

➢ As per the requirement of Medfisis-TCP/INT/2904, the Lebanese Ministry of Agriculture should set up a "Statistical Entity" for fishery statistics at the Department of Fisheries & Wildlife-Directorate of Rural Development and Natural Resources that is able to autonomously manage the above system. This Entity is further expected to be regarded as a "Department or Section" in the administrative concept and as a working group with rules, mandates, assigned tasks, co-ordination, etc. This Entity will also manage the collection of forms and questionnaires, as well as the whole data processing and production of reports. Design of forms and questionnaires in response to various needs should be also the responsibility of this Entity.

➢ Automatic obtaining and/or transfer of data and information to the Central Administration of Statistics and Ministry of Public Works & Transportation (content and format must be agreed on).

➢ Data compilation and reporting to the concerned Lebanese Ministries, as well as Regional and International Organizations and Institutions. (Content and data formats to be agreed on).

➢ Provide fishermen cooperatives, fishing companies, shipyards, association of fishery suppliers, etc., with access to statistical reports.

➢ Build up detailed time series useful for scientific workers and all concerned people.

Establishment of a Register of Fishing Vessels (in collaboration with the Ministry of Public Works & Transportation) associated to Fishing Licenses, with automated routines for monitoring, releasing, and updating them.

3. **Definitions and Context**
   The system, once introduced, will be finalized through a series of modifications and refinements that may occur during its implementation. However, at the moment of designing it, the following situation can be foreseen:

   National context:
   Area coverage and stratification.
   The country will be divided into three Statistical strata according to geographical and administrative criteria. A fourth stratum that involves inland/freshwater fisheries is envisaged for the future. Aquaculture could be also included in another stratum. The exact localization and geographical references of all fishing ports, landing places, fish markets in the country will be according to geographical, administrative and fishery-statistical characteristics. It is prohibitive to include characteristics of the fishery as a factor in stratification because such data is not available in Lebanon. The only available data is the Map Information about Lebanon Coast developed in early 1960s by Dr. Ismat Boulos (Appendix 8). Furthermore, K. O. Emery, Carl J. George, V. A. Athanassiou and Ismat Boulos, of the American University of Beirut, conducted the only studies about Lebanese shores and fishes in the 1960s too (see references).

   It is technically prohibitive (due to lack of in-house expertise), at this stage, to localize and define all fishing zones and grounds of interest to the Lebanese fleet, and the preparation of detailed grid maps. This is be done after the completion of the Frame Survey. Furthermore there are no biological/biomass fishery studies in Lebanon.

   In order to produce statistics according to the administrative background of Lebanon, the whole country will be stratified, for statistical purposes, into three Main Strata: 1 - North Lebanon, 2 - Mount Lebanon & Beirut and 3 - South Lebanon (see map in Appendix 7)

   Further stratification, if necessary, to classify the population data according to the characteristics of the fishing industry, will be established after the completion of the Frame Survey.

   Fishing Vessel Data Coverage (Frame data):
   The Frame will cover all the existing fishing boats owned in Lebanon that includes, among others, Trawlers, Multi-purpose vessels, Artisanal/Traditional fishing units.   The

Department of Fisheries & Wildlife stopped issuing, in 2004, any fishing licenses for occasional (amatorial/recreational) fishing units in Lebanon that include yachts and other recreational vessels whose owners are not expected, in the first place, to be cooperative, at all in undertaking the census. A provision to account for such missing information data should be devised.

Vessel characteristics by area (regions/port) and by typology of the fishing industry.

Catch and Effort Data Coverage:
Landing catch statistics by landing area, by fishing zone and by typology of the fishing industry (vessels). Specifically, the system should be able to produce:
➢ Monthly catch and effort estimates by typology of the fishing industry;
➢ Monthly catch and effort estimates by type of boat/gear class
➢ Monthly catch and effort estimates by fishing zones (statistical)
➢ Monthly catch and effort estimates by landed species.
➢ Monthly catch and effort estimates by any combination of the above.

Regional and international contexts.

Since there are no local standards in effect, then it is recommended that the codification structure of the proposed Lebanese fishery system follow the UN, FAO standards.
However, it should still be divided into two sub-systems: A first set of International references that Lebanon will not be authorized to change, and a second set of National or Local references that the Lebanon might develop and manage. The international references will be used to prepare reports for internal and external use, whereas the Local references will be used for national items and do not appear in international communications. Should some of the Local references deal with data to be exchanged, they will be combined, grouped or reorganized and reconnected to the international ones.

The International Plan of Action for the Management of Fishing Capacity which was adopted by COFI in 1999 states (paragraph 18) that: *States should support the establishment by FAO by the end of 2000 of an international record of fishing vessels operating on the high seas, following the model indicated in the Compliance Agreement".* According to it, "Each Party shall make readily available to FAO…omissis (see reference)".

The GFCM, on various occasions, recommended the collection and submission of data concerning the fishing vessels in the member countries. In spite of the many recommendations, this item is still a standing problem. The FAO currently collates vessel and landing statistics for the GFCM.

Various reports presented at the GFCM Working Party on Fishery Statistics have highlighted the need to be more active and punctual in this respect.

Lebanon is undergoing trade and partnership negotiations with several regional and international bodies e.g. European Union (EU) and GCC. Thus, the system should also be compliant with their directives and/or respective agreements, in terms of the fishery statistics submission.

In response to the above, it is believed that the proposed system will be compliant with the directives of the FAO, COFI, GFCM etc., not only in the data structure, but also in producing and timely submitting automated statistical reports, and as much as possible in the required formats.

4. **Staffing; office and field staff**
   At the request of the GFCM-Medfisis, the present proposal has been prepared for discussion and further consideration. It has been prepared coherently with the financial and human resources that would probably be available.
   It is worth underlining that some administrative, financial, functional and logistic reorganization within the Lebanese Department of Fisheries & Wildlife and the Directorate of Rural Development & Natural Resources are needed. This arrangement is proposed to scope with two major constraints: i) that only very limited human resources could be eventually added, and therefore it is done only by reorganizing and re-assigning tasks accordingly and, ii) there would be very little, if any, financial resources assigned

   a) **Establishment of the Statistical Service/Entity, and nomination of a Service/Entity Chief/Head**.
      Establishment of a Department or Service is a long legislative exercise, in Lebanon, that might require several years to accomplish. Thus, it is prohibitive to establish such a Statistical Service in the foreseen future. Furthermore, due to decentralization, no nationwide service can be formed. A Central Entity within the Ministry's HQ-Department of Fisheries & Wildlife will be formed with assigned personnel, but the personnel from the regional offices will remain part of their respective Rural Development Departments. They will however report, technically, to the Ministry's HQ. This entity can also serve a coordinating function among the various sections of Department of Fisheries & Wildlife and concerned Ministry of Agriculture departments.

The Entity, headed by a Chief/Head/Coordinator, will be made of three Units/Sections/Groups:

b) **Data Entry/Processing Unit/Section/Group**: Three Data Clerks/Rangers (one per region) at present assigned to inspection and fishery administration. Their jobs will involve data entry/processing and issuing fishing licenses. Two of them (North & South Lebanon) are to report administratively to their respective Rural Development Department Head and technically to the **Statistical Entity.**

c) **Field Support Unit/Section/Group**: Six Fisheries Rangers at present assigned to inspection and fishery administration. Two of whom (North & South Lebanon) are to report administratively to their respective Rural Development Department Head and technically to the **Statistical Entity.** Further rangers should be assigned to fieldwork if the need arises.

d) **Methodology/Coordination Unit/Section/Group**: One agricultural engineer should receive intensive training in fisheries statistics since no Junior Statistician, or graduate from the Mathematics and Computer faculty is available within the cadre of the Ministry of Agriculture and since outsourcing is prohibitive.

At the Ministry of Agriculture level, the following assignment should be confirmed: Data/Information Liaison with Medfisis, and the Data/Information Liaison with SIPAM.

5. **Financial considerations**
   As far as resources to be assigned to this Entity are concerned, it should be noted that:
   - There is no assigned hardware/software used for fisheries statistical purposes. The available computers at the Department of Fisheries & Wildlife are "old" and locally assembled that frequently breakdown. Four new workstations (with internet connections) should be secured and assigned.
   - There are no assigned transportation means to the Department of Fisheries & Wildlife. Assignment or ensuring the availability of such means should be secured
   - Need for assigned premises to the proposed Statistical Entity at the Ministry of Agriculture HQ and regional offices.
   - Creation of such an entity will require the approval of the Cabinet, thus all legislative/administrative authorizations should be secured or else the work might be not be sustainable.
   - Financial resources should be secured as of 2005. There is no provision in 2004 budget to undertake such tasks. Furthermore, austerity measures in effect might make securing such funds difficult.

- No budget line can be created for any department at the Ministry of Agriculture. This will require law amendment by the Parliament. Eventual financial support from EastMed and other Organizations or Projects is be handled through bilateral protocols and agreements; e.g. FAO projects are handled through FAO Representative Office in Beirut which forwards the requests (by the local focal point) to the Project Coordinator in Rome for approval; then, upon receipt of this approval funds are disbursed to concerned vendors or otherwise.
- Resources available at General Agricultural Census Project (UTF/LEB/016/LEB) and earmarked for fisheries statistics are to be coordinated and reassigned to Medfisis Lebanon component. This was agreed upon during the meeting held in Beirut held on January 1, 2004 between Messers S. R. Coppola from Medfisis, E. Azzabi from the General Agricultural Census Project (UTF/LEB/016/LEB) and Mr. G. Akl, Director of Rural Development and Natural Resources of the Lebanese Ministry of Agriculture. This coordination will be finalized after negotiations between UTF/LEB/016/LEB & Directorate of Rural Development and Natural Resources-Lebanese Ministry of Agriculture and the approval of competent authorities. This should secure enough funds to undertake the fieldwork for the frame survey and probably secure some of the needed physical requisites, if permissible.

6. **Political will and commitment**

The officials at the Lebanese Ministry of Agriculture expressed committment to undertake the envisaged tasks of the project. Mr. Ghattas Akl, Director of Rural Development & Natural Resources, expressed, verbally, his personal commitment and conveyed the Minister's commitment in this regard. Such will is expected to stay valid as long as the present administration is in office.

7. **Achievements and results**

Country visit by Mr. Rino Coppala & Felix Marttin occurred in early March 2004. Several points were clarified then and commitments to the project were verbally conveyed by Mr. Ghattas Akl, Director of Rural Development & Natural Resources-Lebanon Ministry of Agriculture, to Mr. Rino Coppola. Timetable for trainings was set.

Trining for Lebanon and Syria statistics staff (9 from each country) occurred in at Oceaonographic & Fisheries Institute-Batroun, Lebanon, for one week by the end of March 2004. Comments on the questionnaire and data entry were conveyed to Medfisis for consideration and according amendments

Specifications for the workstation and interviewers kit were finalized in April 2004.

Marine Fishery Sector

1. Brief overview

Lebanon is a predominantly mountainous country, with an area of 10,452 sq.km. and a population of around four millions. Nearly half of the country's population lives in the Greater Beirut area. The Lebanese coastline is 220 km long. The land rises steeply from the coast in the North, while in the South it forms a very narrow coastal plain. The continental shelf is narrow, especially in the South. Bottom grounds are mainly rough with intensive rocky patches good for stationary demersal gear.

Lebanese are historically ocean-origin people, consuming lots of fish in their diet. Local demand for fish is considerably higher than the neighboring Middle Eastern countries. Due to the low local fish production, the Lebanese have been depending on imported fish that are generally of inferior quality.

The production of the fisheries sector in mid 1970's was about 2,300 tons while it was about 6,000 tons (including 600 tons of trout) in 2000. They were produced by about 4,000 traditional/small scale fishermen distributed all over the Lebanese coast. The active fishing fleet is supposed to consist of around 1,600 small fishing boats (less than 6 meters) and 400 motorized boats (less than 8 meters). The average annual income of the fishermen, in 1998, was equivalent to US $800. The demand for fish has remained high (15,000 tons per year in 2000). Imports of chilled, frozen, and canned fish were reported to be about 9,000 tons in 2002. The potential for Fish Consumption in Lebanon is 35,000 ton per year. The per capita fish consumption was about 3.75 kg per year in 2000.

2. The main components of the Marine Fishery

The fisheries of Lebanon are classified as small scale "artisanal" and traditional based mainly on bottom stationary gear (trammels and longlines), purse seine nets (lampara) and beach seines. Fishing operations, with the exception of longlines, are mostly carried out at depths of up to 50m. Most of fishing nets used have extremely small mesh size (less than 2x2 cm). Because of the strict control by the military, the extensive fishing with explosives has been significantly reduced during the past few years. Fishing equipment is expensive. Moreover, the traditional fishermen have no access to institutional credit.

3. The data collection programme

There is no data collection programme in effect. The only data collected is for fishing licenses issued. The proposed system is as follows:

a) Build the national Fishery Frame.

Design and launch a Quality Check Survey of the Census of fishing vessels through Area approach, in order to extend the coverage (including all types of fishing vessels in the country) and integrate all the vessel characteristics in the upcoming Inventory to be undertaken by the Ministry of Public Works & Transportation. The context of the survey should be within the valid laws & regulations and the agreed upon definitions & terminology.

A survey of fishing ports is expected to be done simultaneously.

Its main objectives are:

i. To provide detailed and accurate information on the present size, structure and localization pattern of the primary marine fishing industry, i.e., number of fishing vessels by type category, fishing methods and equipment used, fishing labor force, etc., and the distribution pattern of the fishing vessels in space.

ii. To construct the Sampling Frame for the Catch and Effort Sample Survey. Build up the statistical stratification.

iii. To provide the Administration with accurate information about ports facilities.

b) Build the Data Base management system of the Fishery Frame Data

Design and development of a computerized system (Database) to save and manage Census data. Once the system, as a whole, (the statistical system and the associated database management system) is completed, more functions will be added to the system. By adding specialized routines, this Fishery Frame Database, should be able to assist the Administration to manage the fishing license undertaking, monitor fishing fleet modifications, keep the Database up to date, including the notary component (ownership/partnership), to automatically compile reports for national and international institutions according to specific formats (See Appendix 5 -Main data elements).

c) Introduce Catch and Effort Survey.

The ensuing activity is the catch assessment survey. At the initial phase, it is not possible to determine which approach to use. This survey is expected to provide reliable estimates on a monthly basis of the catch landed and the effort exerted by the fishing industry by sector (coastal, offshore, and oceanic) and by fishery. Catch and effort estimates should be ideally reported by area, by vessel/gear used and by species. The Catch and Effort Sample Survey should also contribute to define the mobility pattern of the fishing units and the pressure they exert on the fishing grounds (See Appendix 6 - Main data elements).

d) Consolidation of the National System

Once the programme of work is implemented through this activity, the Statistical Entity, in cooperation with the all concerned official parties e.g. Central Administration of Statistics and Ministry of Public Works and Transportation, should attempt to create a Permanent Expert Group/Committee to monitor the System, introduce adjustments, keeping the variance to the minimum possible levels. The Expert Group/Committee should also be given the responsibility for producing *ad hoc* analyses using the System data to assist the Lebanese Government in its decision-making. It is also foreseen that the main WorkStation be connected on-line (if technically and financially feasible) with the Lebanese Central Administration of Statistics to give them access to the data and to improve data and information exchange. The System should be linked to the Ministry of Agriculture web site and be promptly updated.

A further activity that the Expert Group/Committee should be involved in is the establishment of a National Information System for Fishery and Aquaculture. The System should host the outcome from the Statistical System, from SIPAM, interact with Medfisis and the GFCM, and with any system developed or being developed dealing with data referring to fishery, aquaculture and their environments.

i. Information exchange between offices/institutions

Data about fishing licenses are consolidated into the central system upon request

ii. The system design and its implementation plan

It is suggested that the entire programme be implemented over one year, 2004, and be divided into three phases (preceded by a preliminary one). Different levels of involvement characterize these phases: timely and frequent during the first phase, monitoring and *ad hoc* intervention during the second

Preliminary phase

The preliminary phase encompasses all preparatory work prior to Medfisis fact-finding mission to Lebanon i.e. most of the items indicated in the previous pages. A clear decision to establish the Statistical Entity of the Department of Fisheries & Wildlife should have been taken. Furthermore, assignment of premises should be finalized.

The staff of the Central Administration of Statistics and Ministry of Public Works and Transportation of Lebanon will be invited to join the discussions during Medfisis personnel presence in Lebanon.

Medfisis personnel will be provided, for their perusal, with all the Department of Fisheries & Wildlife preparatory work (translated into English) prepared earlier to undertake a

General Fisheries Census under the General Agricultural Census Project (UTF/LEB/016/LEB).

Phase One
➢ Define list of Ports, Landing Places and Fish Markets in the Country. (See Appendix 7)
➢ Define all possible terminology to be in effective use
➢ Define fishing Zones with appropriate grid.
➢ The data items to be included in the Census Structure are listed in Appendix 5.
➢ Design the methodology of the Lebanese Statistical System for revising, updating and completing the Census. Launch the field programme involving only national staff.
➢ Design and develop the Database to manage Census data. Develop, among other things a sound reporting system to satisfy the day-to-day needs of the Administration. The Statistical System will also be able to handle the storage, management (administrative and financial), monitoring and issuance of the fishing licenses in Ministry of Agriculture HQ at first stage and in the country at a later point in time.
➢ Establish the statistical area stratification.

As far as the methodological design for implementation of the Census and the Catch and Effort Sample Survey are concerned, different approaches will be contemplated, and the most effective one will be adopted. Medfisis personnel are to assist in this regard.
The overall codification system related to Vessel, Gear, Species, etc., will follow and be compatible with those of FAO. Harmony/compatibility with national terminology should be established.

Phase two
Following the successful completion of the Frame Survey component, an in-depth analysis will take place to find out the best Sampling approach to be chosen to produce Catch and Effort estimates.

Selection of the sample scheme for the systematic collection of the fish catch and effort data (See Appendix 6) will be performed soon after completion of the Frame Survey. If everything goes as expected, it can be anticipated that there are two main candidates for this task.

1) A classic catch and effort **Sample Survey** based on landing interviews, integrated by a series of *ad hoc* surveys at the market place, whose results will be used as control characteristics of the estimates, and to evaluate the values of the landings and.

2) A catch assessment survey based on the **Market Approach**. There is no central fish market(s) in Lebanon. There is one official Fish Market at Beirut Sea Port, but it handles only a portion of local fish landings. Cooperatives who handle most sales at ports keep sketchy records. Elaboration of their bookkeeping capabilities with proper training, follow-up and incentives might prove to be a useful tool. Automation/computerization of such practices cannot be envisaged at this stage. This might be a far fetched approach that could be implemented in the future after rehabilitation of fisheries sector is conducted which is to include upgrading of ports/cooperatives facilities and establishment of "modern' auction points at those ports or some central auction yards at the major ports

One or two partial evaluations will be carried out after few months of implementation and changes will be introduced whenever needed .In any case, Sampling errors and coefficients of variations of the means will be calculated in order to give month by month a level of accuracy of the estimates. At the end of this phase, undertake an analysis of the results and produce estimates of fish catch and effort.

Phase three
This will involve analysis and critical analysis of the whole system put in place. If satisfactory, it will be adopted. Consolidation of the system by assigning permanent functions to the staff will be one of the primary actions. This will also involve, simultaneously, initiating the legislative procedure to reorganize Department of Fisheries & Wildlife and establishing a Statistical Department/Service within it.

Develop integrated and specific software for the central and peripheral offices necessary for data collection, verification, exchange and processing. Set up a Permanent Expert Group/Committee (Joint Group between the Department of Fisheries & Wildlife and Central Administration of Statistics and Ministry of Public Works and Transportation) to monitor, improve and expand the system as necessary. At this stage the setting up of a National Information System to manage fishery data will be initiated if resources are available.

    i.   Catch disposition
No catch assessment surveys was conducted since the late 1960's; thus, all information about nature of the catch is based on earlier observations. It is noted that an important portion of the catch is composed of juvenile fishes. Efforts to control this phenomenon by gradual limitation on fishing net mesh size, fishing season and fishing gear were not very successful.

Last Completed Fishery Census

This was conducted in 1963. All data pertaining to this census was lost and/or destroyed during the Lebanese Civil War (1975-1990). Thus, no data available except the summary information that appears in departmental and other reports

Last or ongoing Catch and Effort Survey

The last survey was conducted in late 1960's. All data pertaining to this survey was lost and/or destroyed during the Lebanese Civil War (1975-1990). Thus, no data available except the summary information that appears in departmental and other reports**.**

Statistical Electronic Data Processing

There is no statistical system in effect; thus, there is no Electronic Data Processing

1. **Data Processing Resources:** none assigned
2. **Computer equipment:** none assigned
3. **Internal data exchange model:** does not exist
4. **Local and Networked Workstations:** does not exist
5. **The database structure and software packages used:** Microsoft Office XP
6. **The Statistical Reporting System:** does not exist
7. **National and International Reporting:** To FAO
8. **Analytical Tools:** does not exist

Main Findings and Conclusions

    1. Constraints and drawbacks

There are few points that require further elaboration before the system finalization and implementation.

- The largest part of this programme is based on fieldwork, both due to the constant changes in the structural characteristics of the fishing vessels and their operational status and to the interviewing of the fishermen at the time of landing the catch. These interviews occur at many different hours, even at night and daybreak, and therefore outside the accepted/official "office hours". Moreover, the recorder is given different levels of responsibility, which juridically belong to a different category of employees, and is also allowed a high degree of initiative. This, cannot be, at least for the foreseen future, be compensated for financially. Further training and positive reinforcement might help in alleviating this problem and be necessary to make their tasks rewarding and satisfying. Other compensation means should be devised.

- Medfisis and FAO are going to provide assistance that is expected to end within 14 months of project commencement, after which the whole programme of work will be entirely transferred to the national staff. Thus, it is important that a statistician or biologist with statistical background be available to carry on the tasks.

- External assistance, at various levels of intervention, will be required at practically every step of data collection methodology, questionnaire preparation, data entry and data processing (data analysis and reporting) of this activity.

- Clear terms of reference and/or job description should be drawn prior to onset of work. The assignment of Ministry of Agriculture personnel to this Entity should be on a permanent basis or at least for the duration of the TCP, whereby at the end of the exercise the usefulness of the system can be fully demonstrated and thus the need for such personnel in those capacities. It is imperative that they report, during that period, only to the head of the Statistical Entity.

- Political will and commitment could stop.

- Inability to assign required human, physical and financial resources is a continued threat and thus the sustainability of the statistical system to be developed and implemented will be in jeopardy.

- Cooperation and coordination with other departments (e.g. Central Bureau of Statistics) and organizations might prove difficult.

- Many fishermen would be uncooperative with the surveys and probably some might be hostile.

2. Recommendations
– Proceed with the stipulated tasks of FAO-Medfisis - TCP/INT/2904 as planned
– Continue requesting commitment and support from the officials of the Ministry of Agriculture.
– Medfisis staff to provide assistance at every step of the project, because of lack of experience of the Lebanese staff in such endeavors.
– Continued FAO financial support is a must.

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Appendix 1 – People participating in this task.

Mr. Ghattas Akl, Director, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon
Dr. Dahej Mukdad, Chief, Department of Fisheries & Wildlife, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon
Mr. Ibrahim El Hawi, Chief, Beqaa Rural Development Department, Ministry of Agriculture, Lebanon
Dr. Chadi Muhanna, Head, Oceanographic & Fishing Institute, Department of Fisheries & Wildlife, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon
Mr. Wafik Kombarji, Head, Chouaifat Aquaculture Centre, Department of Fisheries & Wildlife, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon
Mr. Marwan Ghosh, Agricultural Engineer, Oceanographic & Fishing Institute, Department of Fisheries & Wildlife, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon
Mr. Samir Majdalani, Agricultural Engineer, Department of Fisheries & Wildlife, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon
Mr. Salim Rukoz, Agricultural Engineer, Department of Irrigation, Directorate of Rural Development & Natural Resources, Ministry of Agriculture, Lebanon

Directorate of Rural Development & Natural Resources Ministry of Agriculture Beirut, Lebanon Tel: +961 1338336 Fax: +961 215209 E-mail: sem@cyberia.net.lb

Mr. Mohammad Nahle, Chief, Maritime Department, Ministry of Public Works & Transportation, Lebanon

Maritime Department Ministry of Public Works & Transportation STARCO Center, Beirut, Lebanon Tel: +961 1372767 Fax: +961 1372767

Fisherman representing the Beirut & Mount Lebanon Fishermen Syndicate:

Mr. Fadi Najm, Mr. Emile Eid, & Mr. Dib Alameh

Appendix 2   Number of Vessels registered at Lebanese Harbor Masters-2002

Port	Available Fishing Vessels	Registered Fishing vessels	Leisure vessels & ski jets	Registered Fishermen
Tripoli	1,300	850	300	5,000
Chikka	50	50	N/A	250
Jbeil	128	128	160	350
Jounieh	250	225	1,500	400
Beirut	1,000	691	425	N/A
Saida	1,878	670	318	2,671
Sour	240	222	19	460
Total	**4,864**	**2,836**	**2,722**	**9,131**

Appendix 3   Fishing Licenses issued by Department of Fisheries & Wildlife in 2003

License	Number
Boat fishing license	**1,948**
Fishing rod	**2,539**
Spear	**480**
Diving	**82**
Inland fishing	**22**

Appendix 4   Results of Sample Surveys of Fisheries Sector in 2001, by General agriculture Census Project

Distribution of active fishing vessels according to governorates

Governorate	Port	Number of ports	Number of vessels	
			< 10 m	> 10 m
North	> 100 vessels	2	400	22
	50-100 vessels	2	105	1
	<50 vessels	7	171	-
Beirut/Mount Lebanon	> 100 vessels	2	340	32
	50-100 vessels	2	104	-
	<50 vessels	9	180	1
South	> 100 vessels	3	560	15
	50-100 vessels	-	-	-
	<50 vessels	2	30	-
Total		29	1,890	71

Production (in tons) for each governorate according to seasons

	North	Beirut & Mount Lebanon	South	Total	%
Spring	811	709	652	**2,172**	29
Summer	1,099	958	764	**2,821**	38
Autumn	728	583	529	**1,840**	25
Winter	208	181	173	**562**	8
Total	**2,846**	**2,431**	**2,118**	**7,395**	100
%	38	33	29	100	

Appendix 5 Lebanon Statistical System –Fishing Vessels Frame –Main Data Elements

Lebanon Statistical System –Fishing Vessels Frame –Main Data Elements
Frame Survey Identification
Recorder Name, Year, Month, Day of completion of the form, re-interviewing, supervisor Etc.
Localization of the Registration Office
Stratum and Main office where the fishing vessel is registered.
Identification of the Fishing Vessel
Name, Previous names, Registry Number, Registration date, Ownership, Home port, skipper, Residency, fishermen passport number, number of vessels owned, owner main economic activity.
Identification of Fisherman
Name, nationality, birth place, age, civil register number, city/town, fisherman passport (number & date), work permit (number and date), residency permit (number & date), date of entry into Lebanon, residence address (type, size, requisites, etc), source of profession (family business, personal), reason to fish (sale, personal consumption), family size(wife(s), children, education, etc) etc.
Fishing Vessel Category
Type/class of the Vessel, Age, Shipyard details, Country of origin. Name of builder, Etc.
Fishing Vessel Structural Parameters
Material of the Hull, GT, Net weight, Length (m), Height (m), depth (m).
Fishing Licensing
Fishing License, Type of license (fishing/recreational), Main gear authorized, Other authorized gears, Operational status, Seaworthiness, Insurance, Etc.
Fishing Operations
Accessory fishing units, Lights, Underwater assistance, Gear activation tools, Drums, Sails, Oars, Etc.
Engine Parameters
Main engine, inboard/outboard engines, Manufacturer(s), Type of propeller, Age, HP, Fuel type, Fishing range.
Navigation Equipment
Radio, VHF, Radio Signal, Type, Number, Age, Cellphone, Compass, Maps, Radar, Radar reflectors, lighting, Power source
Fishing Aids Devices
Type and identification of Echosounders, Sonars, Net sonds.
Manpower
Number, Nationality, Legal status, Age, Education level, Other activities, weekly working days, payment method, syndication, years, position and skill of expected Fishermen, training of

fishermen.
Operating Ports /Fishing Operations Describe the mobility pattern of the Fishing Vessel by Port and Seasons, Number of expected outings.
Fishing Areas Identification and activity intensity of exploited Fishing Areas
Fishing Gear Used Identification of Fishing Gear used (and the units) by Vessel and Fishing Zone.
Species Caught Group of Target and non Target Species caught by Gear (Vessel and Fishing Zone)
Fishing Periods Describe fishing Periods and Seasons by Gear /Vessel /Fishing Zone/Time/. Etc
Fish Processing on board Identify the type and utility of Fish processing system operating on board. Cold stores.
Fish marketing Central auction yard, port fish yard, direct sale (fishmongers, restaurants, retailers, individuals, etc). Problems, Competition.
Investments Type, value, source of funds, credit facilities.
Safety Equipment on board Identify and quantify Safety Equipment on Board.
Accidents and problems Identify accidents at sea and port, Engine breakdown at sea
Fishing Port Location, capacity, installations, management, facilities, etc

Appendix 6 Lebanon Statistical System –Catch and Effort Survey –Main Data Elements

Lebanon Statistical System –Catch and Effort Survey –Main Data Elements
Related Frame Survey Identification   Define Linking keys to Associate the actual CAS to its Frame Survey.
CAS Round identification   Stratum and temporal position of the CAS. (Sequential Number of the Survey in that Year).
Sampling Frame data   Extraction of the Sampling Frame from the Frame Data. (Fishing Vessels Registered in the Country, by Stratum /Port or Landing Site /Vessel-Gear Category, their Operational Status, etc.)
Dynamic Updates of the Sampling Frame at the Round Level   Operational Status of the Fishing Vessels and any variations in the size and distribution of the fleet at the moment of the Sample Period, Expected fishing days in that month.
Sample Data reporting   Stratum, Sample site, Number of Vessels Fishing the day of the interview, Number of Sampled Vessel, Landings by Sampled Vessels, by Species, Fishing Zone, Gear used and Effort parameter. Etc. Fishermen involved in each operation.
Other Associated Data   Other data elements to construct Statistical Estimators.

Appendix 7   Lebanese Fishing Ports

Lebanese Fishing Ports
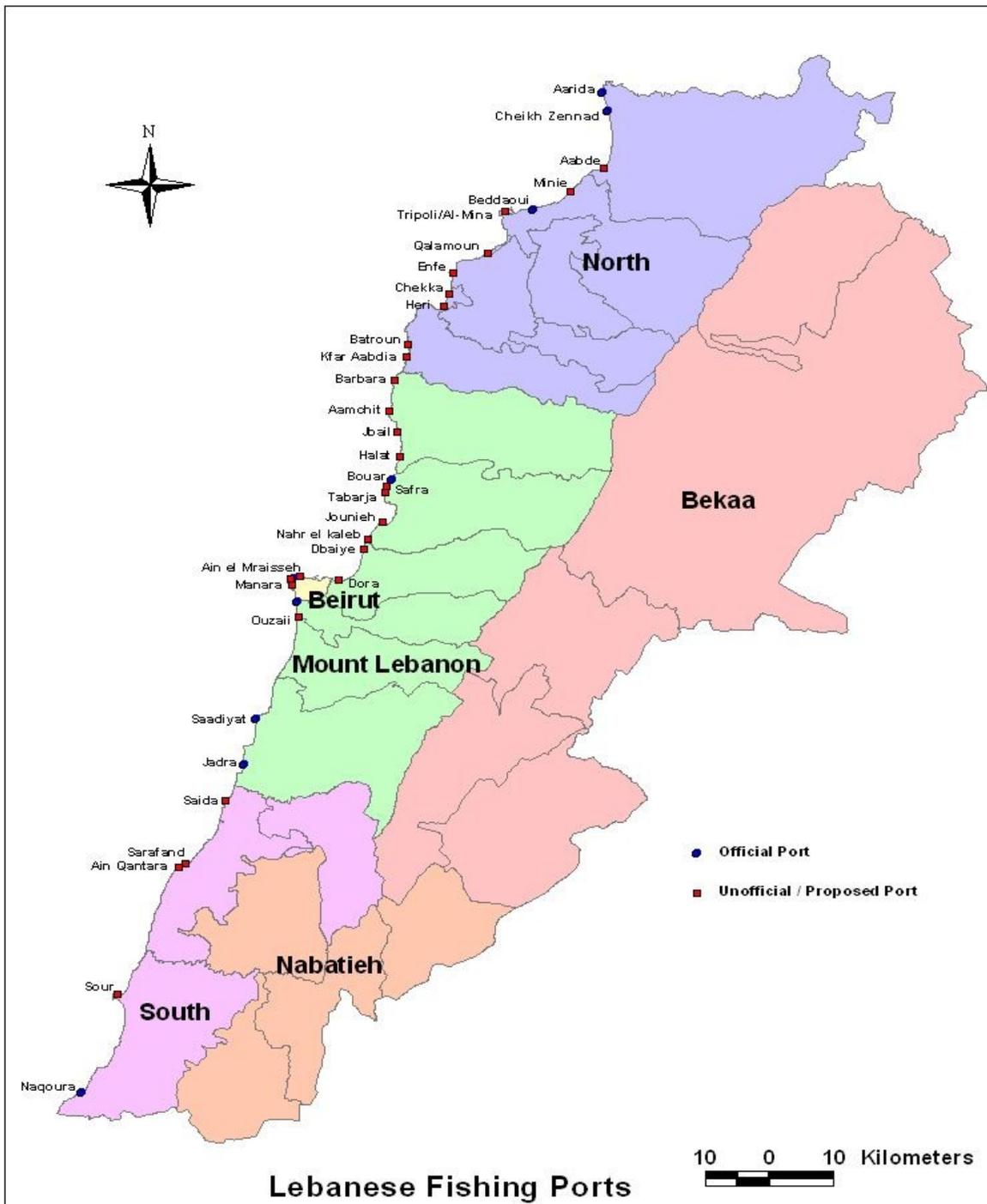
Appendix 8 Information about Lebanese Coast

Carte de Reconnaissance des Côtes du Liban
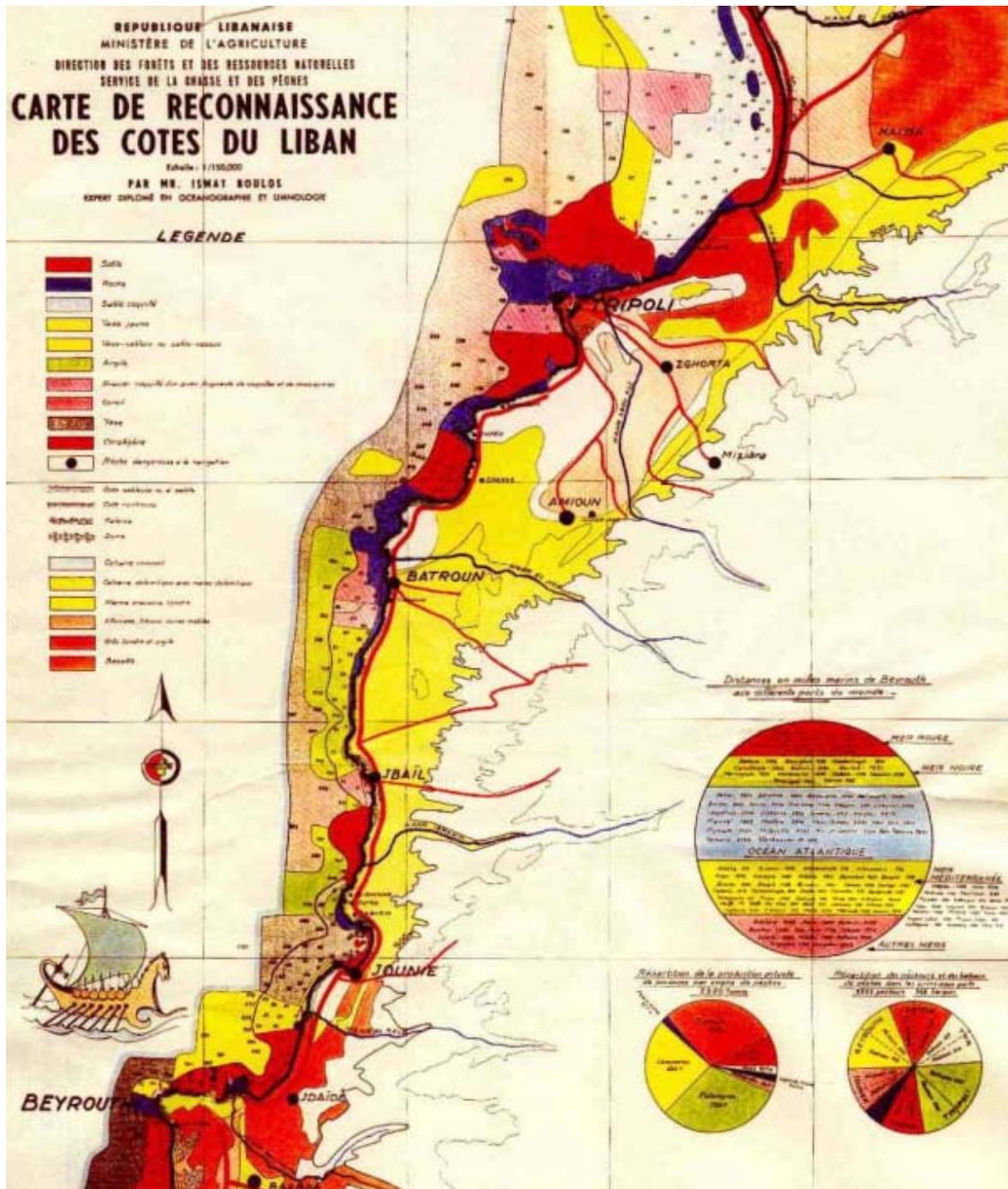
Appendix 9 – Sample Fishing License

جمهورية اللبنانية

وزارة الزراعة

مديرية التنمية الريفية والثروت الطبيعية

مصلحة الاحراج والثروة الطبيعية

دائرة الصيد البحري والبري

رقم ١٣١٩٧

رخصة صيد الاسماك البحرية

لسنة ....

ان الزورق البخاري او القارب المسمى ....

البالغ محموله الصافي .... طن

المسجل في ميناء .... تحت رقم ....

ابينة وصفه ادناه :

الطول ....

العرض ....

العمق ....

و بجهز بمحرك من طراز .... وقوة أحصنته ....

الذي يخص ....

ورئيسه اللبناني .... المقيم في ....

أحمل رخصة صياد بحري رقم .... وعدد بحرته ....

وعمه الميكانيكي (عند لزوم) ....

قد رخص له بان يتعاطى الصيد البحري الساحلي بالشباك الآتية

٤ –	١ –
٥ –	٢ –
٦ –	٣ –

هذه الرخصة ليست صالحة الا لغاية ٣١ كانون الاول من سنة ٢٠٠ .... وبعد دفع الرسوم المعينة في المادة ٢١ من القرار رقم ٤ تاريخ ٢٠ كانون الثاني ١٩٣٩ .

ستوفي الرسم البالغ .... في ....

بموجب لايصل الذي رقم ....

رئيس دائرة الصيد البري والبحري

Lebanese Republic   Form # 7

Ministry of Agriculture   No   XXXX / xx

Directorate of rural Development & Natural Resources
Division of Forests & Natural Resources
Department of Fisheries & Wild Life

Marine Fishing License

For the Year …….

The Vessel named ……………………………………………..
Net weight…………………………………………………… Ton
Registered in port……………………… Under number…………….
Whose specifications are as below:
Length: …………………….
Width: …………………….
Depth: …………………….
Equipped with engine make/model: ……………………….. Horsepower: …………..
Belonging to: ………………….
Lebanese skipper name: ……………………. Residing at: ……………………………
Whose marine fisherman license number is …………….. Number of sailors…………
And its mechanic (if needed) …………………………

Is licensed for marine coastal fishing using following fishing gear:

   1-   4-

   2-   5-

   3-   6-

This license is valid till December 31, 200_ , and after paying fees described in article 21 of Decree # 4 dated January 20, 1939.

Fee collected: LL…………
Receipt number…………..

                                   Date…………………
                                   Chief, Department of Fisheries & Wildlife

Appendix 10 Most Common Marine Fish Species in Lebanon

Family	Species	Common Name
Anguillidae	*Anguilla anguilla*	European eel
Atherinidae	*Atherina (Hepsetia) boyeri*	Big-scale sand smelt
Balistidae	*Balistes carolinensis*	Grey triggerfish
Bothidae	*Arnoglossus laterna*	Scaldfish
Carangidae	*Caranx crysos*	Blue runner
	Caranx rhonchus	False scad
	Lichia amia	Leerfish
	Seriola dumerili	Greater amberjack
	Trachurus mediterraneus	Mediterranean horse mackerel
	Trachinotus ovatus	Derbio
	Trachurus trachurus	Atlantic horse mackerel
Clupeidae	*Alosa alosa*	Allis shad
	Alosa fallax	Twaite shad
	Sardina pilchardus	European pilchard
	Sardinella aurita	Round sardinella
	Sardinella maderensis	Madeiran sardinella
Hemiramphidae	*Hemiramphus far*	Blackbarred halfbeak
Holocentridae	*Sargocentron rubrum*	Redcoat
Merlucciidae	*Merluccius merluccius*	European hake
Moronidae	*Dicentrarchus labrax*	European seabass
	Dicentrarchus punctatus	Spotted seabass
Mugilidae	*Liza aurata*	Golden grey mullet
	Chelon labrosus	Thicklip grey mullet
	Mugil cephalus	Flathead mullet
Mullidae	*Mullus barbatus*	Red mullet
	Mullus surmuletus	Striped red mullet
	Upeneus asymmetricus	Asymmetrical goatfish
Pomatomidae	*Pomatomus saltatrix*	Bluefish
Rhinobatidae	*Rhinobatos cemiculus*	Blackchin guitarfish
Scaridae	*Sparisoma cretense*	Parrotfish
Sciaenidae	*Umbrina cirrosa*	Shi drum
	Umbrina canariensis	Canary drum
Scombridae	*Auxis rochei rochei*	Bullet tuna
	Euthynnus alletteratus	Little tunny
	Katsuwonus pelamis	Skipjack tuna
	Sarda sarda	Atlantic bonito
	Scomberomorus commerson	Narrow-barred Spanish mackerel
	Scomber japonicus	Chub mackerel

	Scomber scombrus	Atlantic mackerel
	Thunnus thynnus	Northern bluefin tuna
	Orcynopsis unicolor	Plain bonito
Sebastidae	*Helicolenus dactylopterus dactylopterus*	Blackbelly rosefish
Scorpaenidae	*Scorpaena elongata*	Slender rockfish
	Scorpaena porcus	Black scorpionfish
Serranidae	*Epinephelus aeneus*	White grouper
	Epinephelus fasciatus	Blacktip grouper
	Epinephelus marginatus	Dusky grouper
	Epinephelus haifensis	Haifa grouper
	Serranus cabrilla	Comber
	Serranus scriba	Painted comber
Siganidae	*Siganus luridus*	Dusky spinefoot
	Siganus rivulatus	Marbled spinefoot
Sparidae	*Boops boops*	Bogue
	Dentex dentex	Common dentex
	Dentex macrophthalmus	Large-eye dentex
	Diplodus annularis	Annular seabream
	Diplodus sargus sargus	White seabream
	Diplodus vulgaris	Commun two-banded seabream
	Lithognathus mormyrus	Striped seabream
	Oblada melanura	Saddled seabream
	Pagellus acarne	Axillary seabream
	Pagellus erythrinus	Common Pandora
	Pagrus pagrus	Common seabream
	Sarpa salpa	Salema
	Sparus aurata	Gilthead seabream
	Spondyliosoma cantharus	Black seabream
Sphyraenidae	*Sphyraena chrysotaenia*	Yellowstripe barracuda
	Sphyraena sphyraena	European barracuda
	Sphyraena viridensis	Yellowmouth barracuda
Synodontidae	*Synodus saurus*	Atlantic lizardfish
	Saurida undosquamis	Brushtooth lizardfish
Triglidae	*Chelidonichthys lucernus*	Tub gurnard
	Chelidonichthys lastoviza	Streaked gurnard
Xiphiidae	*Xiphias gladius*	Swordfish
Zeidae	*Zeus faber*	John dory
Sepiidae	*Sepia officinalis*	Common cuttlefish
	Sepia elegans	Elegant cuttlefish
	Palinurus elephas	Common spiny lobster
	Homarus gammarus	European lobster

	Palinurus mauritanicus	Pink spiny lobster
	Scyllarus arctus	Small European locust lobster
	Aristaeomorpha foliacea	Giant red shrimp
Aristeidae	*Aristeus antennatus*	Blue and red shrimp
Carangonidae	*Crangon crangon*	Common shrimp
Penaeidae	*Penaeus (Melicertus) kerathurus*	Caramote prawn
	Penaeus (Penaeus) semisulcatus	
	Palaemon serratus	Common prawn
	Penaeus (Marsupenaeus) japonicus	
	Solenocera membranacea	Atlantic mud shrimp
	Macropipus tuberculatus	Knobby swimcrab
	Carcinus aestuarii	Mediterranean shore crab
	Maja squinado	Spinous spider crab
	Illex coindetii	Broadtail squid
	Loligo vulgaris	European squid

Appendix 11 Sample Registration of Lebanese Vessel

AUTORISATION
d'arborer le Pavillon Libanais

Le chef du Service des Transports Maritime

Vu le titre de propriété maritime n° .... date ....

attestant la propreté libanaise du navire de pêche :

Nom : ....

Port et n° matricule ....

Construit à .... en ....

Propriétaire : ....

Jauge : nette .... brute ....

Dimensions : longueur : .... largeur : .... creux : ....

Nombre des mâts .... des voiles ....

Propulseurs : Nombre .... type .... puissance : ....

Autorise ce navire à arborer le Pavillon Libanais

Ce livre reste valable tant que ce navire est immatriculé dans un port libanais.

le ....

Le capitaine du port   Le Chef du Service
    de   du Transport Maritime

Vu :
Le Chef du Service
de Navigation Maritime

Appendix 12 Sample Navigation License

رقم ٧٠٤٤٠.

الجمهورية اللبنانية

وزارة النقل

المديرية العامة للنقل البري والبحري

رخصــة الملاحــة

شهادة السلامة البحرية (١)

رئاسة مرفأ ـ بيــروت ـ

بناء على محضر الكشف رقم ـــ تاريخ ١٢ شبــاط ٢٠٠٤ الصادر عن لجنة الكشف الادارية لمرفأ بيروت أو عن خبير شركة التصنيف المعترف بها رسميا والمتعلق بالسفينة ياسم ـ د ـ حري للصيد المسجلة في مرفأ ـ بيــروت ـ تحت رقم ١٠٠ ٢/ س

والبالغ محمولها الصافي المسجل ـــ طنا بحريا ،

مالكها حسن دي اس دردش وتحت قيادة ربانها ـ

وبالاستناد الى نتيجة الكشف التي تظهر بان السفينة المدرجة أوصافها أعلاه مستوفاة جميع شروط الملاحة للإبحار ،

أعطيت السفينة ـ باسم ـ د ـ رخصة الملاحة أو شهادة السلامة البحرية (١) الصالحة لغاية ٣١ كانون الأول ٢٠٠٤ ويرخص بها بنقل ـ أشخاصا «من بحارة وركاب» (٢).

رئيس المرفأ

عـن رئيس مرفأ بيروت

بيــروت في ١٢ شباط ٢٠٠٤

حســن صعــب

١) تشطب الكلمات الزائدة   ٢) يذكر عدد الأشخاص المرخص بنقلهم فيما إذا أعطيت شهادة السلامة البحرية

43

Lebanese Republic
Ministry of Transportation
General Directorate Pf Terrestrial & Marine Transportation

Navigation License

<div align="right">Number xxxxx</div>

Marine Safety License (1)

Harbor Master …………………

Based upon examination number …………….. dated……………. By Administrative Inspection Committee for Port of ………………………… or by expert from the officially recognized Classification Company …………………………………. Regarding the vessel…………………………………
Registered at Port of ……………………………… under number……………………..
With net registered tonnage ………………………………. Marine tons
Owned by …………………………………………………. Captain name ………………

Upon result of inspection that showed that the vessel described above is seaworthy, the vessel ………………………… was given a navigation license or Marine Safety Certificate (1) valid till ……………………… and licensed to carry ……….. persons (sailors and passengers) (2)

<div align="right">Harbor Master</div>

Date ………………………………….

……………………………………………………………………………………………….

    (1) delete what is not appropriate
    (2) mention number of persons licensed to transport if Marine Safety Certificate was issued

Appendix 13   Partial Organogram for Lebanese Ministry of Agriculture

Minister

Director General

Directorate of Rural Development & Natural Resources

Division of Forests & Natural Resources

Department of Fisheries & Wildlife
- Chief
- Agricultural Engineer
- 1 Ranger

Oceanographic & Fisheries Institute
- Director
- 1 Agricultural Engineer
- 1 Clerk

Chouaifat Aquaculture Station
- Head
- 1 Ranger

Beirut Fish Center
- Center Chief
- 3 Rangers
- 1 servant

Jounieh Fish Center
- Center Chief
- 2 Rangers

North Lebanon Agricultural Service

Rural Development Department

Mina Forest & Fish Center
- Center Chief
- 3 Rangers

Batroun Forest & Fish Center
- Center Chief
- 2 Rangers

Mount Lebanon Agricultural Service

Rural Development Department

Jbeil Forest Center
- Center Chief
- 6 Rangers
- 1 clerk

South Lebanon Agricultural Service

Rural Development Department

Saida Forest & Fish Center
- Center Chief
- 11 Rangers

Sour Forest & Fish Center
- Center Chief
- 9 Rangers

Beqaa Agricultural Service

Rural Development Department

Saghbin Forest & Fish Center
- Center Chief
- 4 Rangers

Hermel Forest & Fish Center
- Center Chief
- 7 Rangers

Anjar Aquaculture Station
- Head
- 2 Ranger

Hermel Aquaculture Station
(under construction)

45