THE CYPRUS NATIONAL PROGRAMME FOR THE COLLECTION OF DATA IN THE FISHERIES SECTOR

INTRODUCTION

This document presents the National Programme of the Republic of Cyprus for the collection of fishery data for the year 2006, as required by article 3, Council Regulation 1543/2000. The Department of Fisheries and Marine Research (DFMR) of the Ministry of Agriculture and Natural Resources and Environment will be responsible for the data collection obligations and data transmission.

The National Programme (NP) will conform to the MP according to Article 3 and collect data according to Article 4 of *Council Regulation 1543/2000*.

The document has been produced in accordance with Commission Regulation 1543/2000 "*establishing a Community framework for the collection and management of the data needed to conduct the common fisheries policy*" based on detailed rules, set by Regulation 1639/2001 hereafter called the "Data Collection Regulation – DCR. The NP establishes the minimum and extended Community programmes for the collection of data in the fisheries sector and covers the Minimum Programme requirements of the DCR. Also there are proposals for the Extended Programme as set by the Council Regulation

All data collected under the programme will be dealt with in confidence by the National authorities. Only members of staff of the DFMR will have authorisation to access data collected. Data collected under the Cyprus National Programme will be analysed and stored into computerised databases.

It should be noted, that the NP will cover only areas under Cyprus Government control.

The National Programme will be conducted in close cooperation between:

- The DFMR of the Ministry of Agriculture, Natural Resources & Environment.
- The Statistics department of the Ministry of Economy.

Fishing area monitored

The Fishery fleet of Cyprus operates (majority of vessels) in the territorial waters of Cyprus under Government control. It is unfortunate that no data on fisheries operations are available from the areas which are not accessible to the Government Authorities of Cyprus, namely the North/North East shores of Cyprus. The same applies for the trawlers, licensed to operate in the territorial waters of Cyprus.

The trawler fleet is segmented by operational fishing license in Cyprus into two segments:

a) the territorial water trawlers, licensed to operate in Cyprus territorial waters and in International waters during the trawler closed season in Cyprus territorial waters
b) the International trawler fleet, licensed to operate exclusively in International waters.

Trawlers land their catch in Cyprus as well as other EU countries after being given landing permits and report their catch on log-book sheets (In the statistics of Cyprus this catch is referred as catch from "International Waters").

The Cyprus capture Fishery

The Cyprus fishery fleet comprises of the Inshore Fishery fleet, the Trawl fishery fleet, the Multipurpose fishery fleet and the Sport fishery. There is also one purse seiner licensed to operate in the territorial waters of Cyprus.

The Cyprus capture fishery consists mostly of the Inshore fishery fleet (passive gears), that is comprised of small wooden vessels 6 to 12m (OAL), which mainly operate with bottom set nets and longlines.

In 2004 723 persons were occupied as full time Inshore fishermen in 500 licensed boats. Table 1 illustrates the total production of the Inshore fishery, number of working days, number of boats, total fleet size, Horse Power (H.P.) and production per working day for the years 1994 to 2004.

Table 1: Inshore fishery production and Fishing Effort(1994-2004)

YEAR	PRODUCTION	WORKING	No. OF	FLEET	FLEET	PRODUCTION/
	M. TONS	DAYS	BOATS	TOTAL m.	TOTAL	WORKING DAY
				O.A.L.	H.P.	Kg
1994	1.789,5	104.192	438	3.574,0	18.225,0	17,18
1995	1.587,2	109.379	491	3.978,0	20.237,0	14,51
1996	1.648,5	110.124	500	4.216,0	23.266,0	14,97
1997	1.498,0	96.657	466	3.724,0	20.035,0	15,50
1998	1.520,9	101.289	490	3.945,0	21.539,0	15,02
1999	1.299,6	113.589	498	4.017,3	22.771,5	11,44
2000	1.341,4	111.391	500	4.274,1	26.017,5	12,04
2001	1.168,7	101.098	500	4.420,3	27.841,0	11,56
2002	1.062,8	84.257	500	4.514,7	31.942,5	12,61
2003	972,5	72.588	500	4.033,5	24.090,5	13,40
2004	639,4	64.237	500	-	-	9,95

The trawl fishery (mobile gears, 2004) consists of 22 trawlers the size being 21,4 to 26,8m (OAL) and the engines power 220-750 HP (diesel engines) and are categorized into Inshore trawlers and International trawlers based on their license. The trawlers are of stern steel or wooden hull construction. Eight trawlers are licensed to operate in the waters of Cyprus (Inshore trawlers) operating by law at depths equal or greater than 50 meters, whereas International trawlers operate exclusively in international

waters in the Mediterranean. In 2004 168 fishermen were fully occupied on these 22 trawlers.

Total production, number of working days, fleet total size, HP, as well as production per working days of the 8 trawlers fishing in the waters of Cyprus are given on Table 2 for the years 1994 to 2004. The same information on the trawl fishery in international waters is given on Table 3.

Table 2: Trawl fishery production and Fishing Effort (1994-2003)
Cyprus Territorial Waters

YEAR	PRODUCTION M. TONS	WORKING DAYS	No. OF VESSELS	FLEET TOTAL m. O.A.L.	FLEET TOTAL H.P.	PRODUCTION/ WORKING DAY Kg
1994	452,5	1.261	8	187,6	2.290	358,8
1995	427,7	1.314	8	187,6	2.290	325,5
1996	526,7	1.321	8	187,6	2.290	398,7
1997	462,5	1.308	8	187,6	2.290	353,6
1998	451,0	1.305	8	187,6	2.290	345,6
1999	405,8	1.308	8	193,0	3.365	310,2
2000	313,6	1.000	8	193,0	3.365	313,6
2001	415,6	1.305	8	193,2	3.365	318,5
2002	375,3	1.412	8	191,9	3.400	265,8
2003	394,0	1.388	8	191,9	3.400	283,8
2004	349,5	1.448	8	191,9	3.400	241,4

Table 3: Trawl fishery production and Fishing Effort (1994-2003)
International Waters

YEAR	PRODUCTION M. TONS	WORKING DAYS	No. OF VESSELS	FLEET TOTAL m. O.A.L.	FLEET TOTAL H.P.	PRODUCTION/ WORKING DAY Kg
1994	348,4	852	6	96,2	1.785	408,9
1995	400,4	1.001	10	234,2	3.915	400,0
1996	333,9	852	10	235,3	3.815	391,9
1997	275,9	769	11	265,1	4.395	358,8
1998	350,7	1.051	13	258,7	4.135	333,7
1999	420,3	1.155	13	288,6	5.055	363,9
2000	406,8	1.309	12	292,5	5.470	310,8
2001	425,2	2.316	16	387,7	7.573	183,6
2002	236,7	916	22	531,1	9.663	258,4
2003	222,6	1.102	16	381,0	6.598	202,0
2004	122,2	866	16	-	-	141,2

The Multipurpose fishery (polyvalent gears) is practiced with boats of about 16m OAL using longlines in the territorial waters of Cyprus and International waters of the

Mediterranean. In 2004 105 fishermen were fully occupied in 34 boats licensed for multipurpose fishing.

Table 4 gives the production, number of working days, fleet total size, HP, as well as the production per working day for the years 1994 to 2004 in the multipurpose fishery. The polyvalent fishery targets pelagic highly migratory species such as Bluefin tuna (*Thunnus thynnus)*, Swordfish (*Xiphias gladius*) and Albacore (*Thunnus alalunga*).

Table 4: Multipurpose fishery production and Fishing Effort (1994-2003)

YEAR	PRODUCTION M. TONS	WORKING DAYS	No. OF VESSELS	FLEET TOTAL m. O.A.L.	FLEET TOTAL H.P.	PRODUCTION/ WORKING DAY Kg
1994	218,8	1.148	-	-	-	190,6
1995	122,0	899	-	-	-	135,7
1996	74,9	803	-	-	-	93,3
1997	71,3	778	-	-	-	91,6
1998	94,5	679	-	-	-	139,2
1999	139,5	1146	-	-	-	121,7
2000	157,1	1286	-	-	-	122,2
2001	237,1	1615	24	405,3	5.965,0	146,8
2002	211,2	2006	24	378,9	5.451,0	105,3
2003	132,8	1446	33	499,9	9.185,0	91,8
2004	520,2	1184	34	-	-	439,4

In Cyprus recreational/sport fishery is widely practiced with approximately 2000 yearly licensed individuals, while a large number of people fish with rod and line as well as spearguns (free divers) without the need of licenses.

Techniques used in sport fishing in Cyprus:

- boats with nets, bottom set longlines, traps, troll fishing and fishing rods
- spearguns (scuba divers)
- spearguns (free divers)
- fishing with nets (land based)
- Fishing rods (land based)

The recreational/sport fishery catch is not reflected in the Fishery Statistics of Cyprus as the DFMR attention has only recently focused on this fishery. Cyprus fishing legislation prohibits marketing of marine organisms caught from leisure fisheries.
Through the proposed National Programme measures will be taken to record data on catches resulting from recreational/sport fisheries.

Collection and Processing of Fishery Data

The data reports on catches and landings (logbooks) are collected by the Fisheries Inspectorate Service, located at the main fishing ports of Cyprus, or by Fisheries Inspectors, based at the Head Office in Nicosia. The collection of fishery data is usually completed in January/February of the following year. Data are then sent to the Statistics Section of the Department for computer processing and analysis.

Cyprus Fishery Data Collection System

Fishery statistical data are collected by:

a) Direct Reports
b) Legislative procedures
c) Interviews

a) Direct Reports

Licensed Fishing vessels of the Cyprus Fishery larger than 10m (LOA) are required by law to record their catch in logbooks provided by the DFMR. Recreational fishing with the use of vessels are not required by law to report their catch.

i) Trawl Log-books: All trawlers are required by law to keep log-books. Collection of data is carried out by daily return of log-book sheets that vessel owners are required to present to official inspectors prior to landing their catch (Cyprus ports). The log-book sheets are handed to the Fisheries Inspectors, while landed catches are inspected upon landing, to ensure that they are weighed and recorded accurately.

Trawl log-books include the following information:

- Trawler Identification
- Geographical area and depth of fishing
- Active fishing days, dates of the trip, port of landing,
- Total catch of 22 demersal fish (see Annex) species and breakdown of the catch by species and by quality.

The log sheets are collected by the Fisheries Inspectors and sent at intervals of one to two months to the Head Office of the Department for data processing.

ii) Inshore Fishery Production Reports: Production data from the Inshore fishery are collected from a sample of this category of fleet. In this system a 10% random sample of the boat owners are provided with logbooks of weekly production reports and are required to record their daily production.
Inshore fishery reports include the following information:
    - Identification of the fisherman and the boat,
    - Fishing station, and the week of the month.

The inshore fishery reports include daily catch and breakdown of the catch by species summed by week. A number of fish species are reported by the inshore fishery (see Annex).

The Inshore Fishery Production Reports are collected at irregular intervals of one – two months by the Fisheries Inspectors and sent to the Head Office of the Department to process the data. It is noted that the fishing equipment of every fisherman (i.e nets, type of nets and length, longlines etc) are known from the application for fishing licence.

iii) Polyvalent Fishery log-books: All the polyvalent vessels are provided by log books, which are completed and returned to the Fisheries Inspectors every month.

The Multipurpose fishery log books include the following information:

- Dates of departure and return to the port,
- Geographical area of fishing,
- Number of hooks, fish species, number of fish and total weight of catch.
- Seven pelagic fish species are reported on these forms (see Annex).

Similarly to the other reports, these log-books are collected and sent to the Head Office of the DFMR for data processing.

iv) Purse-seiner Production Reports: The purse seiner completes production reports, which are similar to the inshore fishery reports. The catch is reported daily and the breakdown of the catch by species summed by week. These reports include 12 small pelagic species. The area of fishing, month and week of the month is noted on the reports, which are collected and sent to the Head Office of the DFMR for data processing.

b. Legislative Procedures

i) Vessel Registration Forms:

All fishing vessels are registered in the Fleet Vessel Register (FVR), by the Department of Fisheries. Registration forms include the following information: Boat characteristics (length, width, depth, type and construction material), engine data (type, construction, power), the fishing equipment (nets, traps, longlines), the mechanical and electronic equipment, as well as identification of the owners and the crew. Any vessels that submits an application for fishing license has to be registered in the FVR. Data collected concerning the FVR are pursuant to Council Regulation (EC) No 2090/98.

ii) Fishing Licences*:*

Fishermen apply for fishing licence every year. Fishing licence applications include the following information: Identification of the fisherman and crew (ages, addresses, I.D., insurances, etc.) boat and engine characteristics, fishing equipment, mechanical and electronic equipment.

Data on the fishing fleet is obtained by processing the information given in the application forms for vessel registration and for fishing licences, which are verified by the Fisheries Inspectorate Service.

c. Interviews

The average prices of species landed at Cyprus ports are collected from interviews. The system for fish trading in Cyprus is predominantly fixed, with prices based on the various species and grades (size and quality). Interviews with the first hand buyers and the skippers/fishermen give the prices of the landings per species and season of the Cyprus fishery.

d. Sampling Surveys

The Statistical Service of Cyprus in Cooperation with the DFMR carries out sampling surveys of the fishing fleet at predetermined intervals.

Aquaculture statistics:

The collection of data on aquaculture is based on the information given by the farm owners/managers on reports on Production, Fish food consumption, Prices and Personnel. These forms are provided to the farmers at the beginning of the year and are to be returned to the Department within three months. The production reports include detailed information on the production of table size fish, fry and eggs for local use and for export, as well as the fry stocked in the farm. These data are verified by Fisheries Officers, from the veterinary certificates issued by the Veterinary Services Department for the export of aquaculture products, and the statistics kept on the supply of dry food to the fish farms. The provision of the above data to the Department of Fisheries is a contractual obligation of the farmers who operate their farms under the conditions contained in the respective licence. The Fisheries Officers regularly visit the farms and observe, consult and supervise their activities.

The prices of the aquaculture products are submitted on the Prices Reports to the Department of Fisheries every year by the fish farmers. Price Reports include the following information:

- Maximum/minimum wholesale and retail price of table size fish
- Maximum/minimum wholesale and retail price for fry fish for every species sold in the local market
- Maximum/minimum price and total values for table size fish, fry and eggs for each species exported.

The prices are verified by data collected during the year by the personnel of the Fisheries Department, from fish mongers and retail outlets, as well as form the data stated on the export of the Veterinary Certificates. In the past few years tuna farming ventures have been developed in Cyprus. The DFMR implements the relevant tuna farming EU and ICCAT Regulations and collects data on the production of the farm. In 2004 the production from tuna farming was approximately 1350 metric tonnes.

CHAPTER I

CONTENTS AND METHODOLOGY

SECTION A. Contents of the Community programmes

The following modules that are referred to in regulation (EC) No 1639/2001 and its amendment 1581/2004, comprise the Cyprus National Programme for the collection of data in the Fisheries sector:

a) Module of evaluation of inputs: fishing capacities and fishing effort;
b) Module of evaluation and of sampling of the catches and landings;
c) Module of evaluation of the economic situation of the sector.

SECTION B. Precision levels and sampling intensities

Precision levels will vary according to the sampling strategies which will be described in detail in the present programme. According to the Regulation 1639/2001, when reference is made to precision/ confidence level, the following distinction is established.

a Level 1: parameters with precision of plus or minus 25% for a 95% confidence level;
b Level 2: parameters with precision of plus or minus 10% for a 95% confidence level;
c Level 3: parameters with precision of plus or minus 5% for a 95% confidence level;

Where the sampling programme is unable to define quantitative targets and precision levels, a pilot survey will be established so as to evaluate the problem. The cost effectiveness of such surveys will be taken into consideration.

CHAPTER II
MODULE OF EVALUATION OF INPUTS: FISHING CAPACITIES AND FISHING EFFORT

SECTION C. Collection of data concerning fishing capacities

Introduction

The basic principle of the Common Fisheries Policy is to regulate Member States fishing fleets to conform to the available stocks. Fishing capacity is defined by the number of fishing vessels in relation to certain characteristics of the fleet such as:

- Tonnage
- Engine power

The collection of data on a regular basis will facilitate the management of the fleet on an annual basis.

Minimum Programme

The Cyprus Fleet Vessel Register (FVR), as well as the fishing license applications register include the following parameters in the databases, as required by EU Regulations *2371/2002, 2930/86 and 2090/98*:

- Identification of the owners and crew.
- Vessel type (e.g. trawler, purse seiner, boat) and age (age of hull).
- Vessel characteristics (length, width, depth, type of construction material).
- Engine data (type, construction, power expressed in Kw as defined in Regulation 2930/86).
- Tonnage
- Fishing equipment (nets, traps, long-lines)
- Mechanical and electronic equipment.

The FVR is updated on a regular basis and fishing licenses applications are received yearly.

Since all fishing vessels are registered in the FVR and applications for licenses are made every year, there is 100% coverage of the fishing vessels segments data.

Dissaggregation levels of the various segments of the fleet are made according to Appendix III of EC Regulation 1639/2001 and its amendment 1581/2004.

Extended Programme

No data collection on fishing activities will be carried out based on the Extended Programme.

Methodology

Data concerning fishing power will be collected on all the categories of fishing vessels, segmented according to Annex III, DCR, and its amendment EC regulation 1581/2004. The Cyprus fishing fleet segmentation per length category and type of fishing technique is shown on Table 5.

Table 5: Cyprus fishing fleet segmentation 2004 (Licenses for 2006 will be issued January 2006)

Vessel length / Type of fishing technique		<12 m	12 - <24 m	24 - <40 m	>40m
Mobile gears	Demersal trawl	-	16	6	
	Purse seiners	-	1	-	
Passive gears	Fixed nets and Hooks	499	-	-	
	Polyvalent	4	30	-	
Vessels with no license*		357	31	4	4

*Indicative numbers

Table 5 presents the number of fishing vessels licensed for 2004. It is not possible to present the number of vessels of the Cyprus fishing fleet for 2006, since fishing licenses applications and subsequent approval are carried out during September-December 2005.
Fishing capacity parameters, which will be recorded for each vessel segmentation (see Table 5), are as follow:

- The maximum continuous engine power actually developed by the main engine, after derating if appropriate, expressed in Kw as defined in Council Regulation 2930/86
- The tonnage (gross tonnage)
- The age of vessel calculated on the basis of the age of the hull

These data will be derived from the information regarding the 2006 fishing licenses which will be recorded in the existing computerised database.

Description and analysis of the phases

Phase I.
Collection of data concerning fishing capacity after fishing licenses are approved (end of 2005). Data will be recorded in the database under the responsibility of the DFMR.

Phase II.
Management and grouping of the data according to Annex III (EC) Regulation 1639/2001 and its amendments, per category and technique.

Phase III.
Data dispatch to the relevant agencies (Article 7, EC Regulation No 1543/2000), May of the following year.

Table 6: Timetable of phases for the implementation of the programme

	Dec 2005	2006											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Phase I	*	*	*							*	*	*	*
Phase II													
2007													
Phase III						*							

Expected outcome

The existing computerised database which includes capacity data for all the registered vessels of the Cyprus fishing fleet will be updated. Data will be available and comply with the parameters and disaggregation levels set by EC Regulation 1639/2001.

Budget: Section C - Collection of data concerning fishing capacities

Data will be collected exclusively by the DFMR and other Government agencies.

Budget

Category of costs, 2006	**(Euros)**
Staff costs	1550
Travelling expenses	0
Durable equipment	0
Consumable material and supplies	0
Computer costs	0
Subcontracting and other costs	0
Total	1550

SECTION D. Collection of data related to fishing effort

Introduction

Module D of the DCR requires the collection processing and management of data related to the following parameters:

i. Fuel consumption
ii. Fishing effort by type of technique
iii. Specific fishing efforts

Minimum Programme

Data collected under the Minimum Programme:

(i.) Fuel consumption

Fuel consumption data will be collected with the use of questionnaires.
Information on fuel consumption will be collected according to the requirements set in Chapter IV of the implementing Regulation.

(ii.) Fishing effort by type of technique

All the information required concerning fishing effort by technique is derived by logbook sheets of the trawlers, the purse-seiner and the polyvalent vessels which are compulsory by law for vessels >10 meters (LOA).

(iii.) Specific Fishing effort:

Data required concerning catches kept onboard for stocks mentioned in Appendix VI, exceeding the threshold referred to in that Appendix will be collected where applicable.

Data collected under the MP regarding fishing fleet vessels <10 m will be obtained by surveys using inshore fishery production reports (see Annex 3) which provide the necessary data on effort by type of technique and fuel consumption. The survey will meet the required precision levels layed down by EC Regulation 1639/2001.

Extended Programme

No data collection on fishing activities will be carried out based on the Extended Programme.

Methodology

Data regarding fuel consumption, will be collected by the DFMR in cooperation with the Statistical Service of Cyprus according to vessel segmentation (EC Regulation 1581/2004, Appendix III), from vessels stationed at ports within Cyprus sovereign area.

Fuel consumption will be expressed by volume (litres) and cost (euro/litre). The values recorded will allow estimates of average fuel consumption per vessel for each trawler and each polyvalent vessel, as well as of average fuel consumption per vessel of the remaining segment of the fleet. For each fleet segment the values recorded will provide an estimate of the average fuel consumption per vessel category as defined in appendix III of the Implementing Regulation.

Data regarding fishing effort by type of technique are recorded since 1963 by the DFMR on an annual basis. The current practice of sampling 10% of the inshore fleet vessels (vessels 6-12 m) by the DFMR will be continued. The fishing effort data collected are processed and stored in the computerised database which is regularly updated.

Specific fishing effort data concerning stocks of special interest (Appendix VI EC Regulation 1639/2001) will not be collected under the minimum programme . Fishing effort regarding small pelagic and bentho-pelagic catches are insignificant in the Cyprus Fishery (see table 7). Species that are caught by the fishing fleet of Cyprus, relating to Annex VI of EC Regulation 1639/2001 are listed in Table 7. Demersal and small pelagic species total daily catch is below the threshold of 5% .
(Refer to Cyprus data reports collected by the Department of Fisheries and Marine Research, DFMR, the last 30 years).

The existing infrastructure concerning data collection will be used for collection of data regarding effort for stocks of special interest. The collection of data will be according to the procedures described regarding fishing effort and fuel consumption.

Table 7: Catch of species 2003 listed in DCR Regulation Appendix VI

Species	**Gear**	**Catch MT**	**Percentage in total catch**
Hake *Merluccius merluccius*	Demersal Trawl	4.7	0.8
	Passive gear (fixed nets)	5.8	0.6
Sardine *Sardinella spp.*	Passive gear (fixed nets)	2.7	0.5
	Purse Seiner	4.2	5.5
Albacore *Thunnus alalunga*	Passive (longlines)	17.3	11.5
Swordfish *Xiphias gladius*	Passive (longlines)	47.4	31.5
Bluefin tuna *Thunnus thynnus*	Passive (longlines)	78.9	52.6

Percentage of the total catch was estimated on the total production, related to gear used, compared to the species listed in Table 7. It is clearly demonstrated that catches of small pelagic species do not exceed the predetermined limits set in DCR Regulation Appendix VI (defined as effort by technique, but only days to be taken into account are those where the catches kept onboard exceed the thresholds referred to, see table 8).

Table 8 , Appendix VI DCR Regulation.

Species and area	Threshold[1] %	Threshold[2] %
Hake	30	5
Sardine	50	5
Albacore	30	5
Swordfish	30	5
Bluefin tuna	30	5

Fishing techniques of the Cyprus fishing fleet do not target small pelagic species and by the definitions of thresholds as stated in the regulation, are not affecting significantly those species. It is evident that large pelagic species such as BFT and Swordfish are targeted by the polyvalent fishery (Passive-longlines). Specific fishing effort is estimated by the DFMR using the following parameters:

- Number of working days (number of days at sea)
- Number of Hooks used per working day.

Description and analysis of the phases

Phase I:
Upgrading modification of existing computerised database will be the responsibility of the DFMR.

Phase II:
Data collection and processing. Processing and grouping of the data per fishing fleet segment, fishing technique and geographical area.

Phase III:
Data dispatch to the relevant agencies (Article 7, EC Regulation No 1543/2000).

Table 9: SECTION D, completion timetable

Year	**2006**											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Phase I												*
Phase II	*	*	*	*	*	*	*	*	*	*	*	*
Phase III					*							

Data will be transmitted in May following the year of implementation of the National Programme 2006.

Expected outcome

The collection of data will ensure assessments at the level of significance required by the DCR.

- Evaluation of fishing effort by technique and fuel consumption per vessel category.
- Specific fishing efforts. Data collected regarding stocks of special interest will take into account data relating to fishing effort and fuel consumption of vessels targeting large pelagic species Bluefin Tuna, Swordfish and Albacore.

Budget Section D: Collection of data related to fishing effort

Category of costs, 2006	**(Euros)**
Staff costs	0
Travelling expenses	2,600
Durable equipment	0
Consumable material and supplies	0
Computer costs	0
Subcontracting and other costs	12,750
Total	15,350

CHAPTER III
MODULE OF EVALUATION OF THE CATCHES AND LANDINGS

SECTION E. Collection of data related to catches and landings

Introduction

Data will be collected concerning the Evaluation of Catches and Landings at the Minimum Programme level, on the following parameters:

- Commercial landings for all stocks
- Stocks mentioned in Appendix XII, total catches, landings and discards
- Catches from recreational and game fisheries in marine waters for stocks mentioned in Appendix XI.

Data on landings and catches give rise to the contribution of different fishing techniques to the total catch. Data on landings regarding various segments of the Cyprus fishing fleet are collected through logbook reports (vessels under 10 meters, are subject to random sampling of 10% of the number of vessels).

Species which are subject to data collection under Council Regulation 1639/2001 (Appendix XII) MP and are not included in Table 10, have been omitted because these species are not landed by the Cyprus Fishery. The "List of species for which weights and values of landings are collected by the DFMR" (see annex 4), illustrates the species caught by the Cyprus fishery and have been recorded by the DFMR since 1963.

Recreation and game fisheries data collection according to the MP are not included in the National Programme of Cyprus because no catches of Bluefin tuna (*Thunnus thynnus)* Appendix XI DCR Regulation, have ever been observed by the DFMR. Catches from the recreational fishery in Cyprus, relate to certain species not mentioned in Appendix XI EC Regulation 1639/2001 as well as various pelagic species such as *Thunnus alalunga*.

Minimum Programme

The MP requires data to be collected according to the following parameters.
Information required to assess:

- commercial landings for all stocks
- for stocks mentioned in Appendix XII, total catches, landings and discards
- catches from recreational and game fisheries mentioned in Appendix XI.

According to Cyprus legislation, information on catches and landings are collected by the DFMR. The current practice of sampling 10% of the inshore fleet vessels catches (vessels 6-10 m) by the DFMR will be continued.

Table 10: List of species, Appendix XII DCR, that are caught by the Cyprus Fishery, Geographical stratification FAO 37:

Common name	**Scientific name**
Eel	*Anguilla anguilla*
Bogue	*Boops boops*
Curled octopus	*Eledore cirrosa*
White octopus	*Eledore moschata*
Atlantic bonito	*Sarda sarda*
Giant red shrimp	*Aristeomorpha foliacea*
Red shrimp	*Aristeus antennatus*
Common squid	*Loligo vulgaris*
Hake	*Merlucius merlucious*
Red mullet	*Mullus barbatus*
Stripped red mullet	*Mullus surmuletus*
Common octopus	*Octopus vulgaris*
Pandora	*Pagellus erythrinus*
White shrimp	*Parapenaeus longirostris*
Thornback ray	*Raja clavata*
Sardine	*Sardine pilchardus*
Mackerel	*Scomber spp.*
Cuttlefish	*Sepia officinalis*
Gilthead sea bream	*Sparus aurata*
Picarels	*Spicara spp.*
Mantis shrimp	*Squilla mantis*
Albacore	*Thunnus alalunga*
Bluefin tuna	*Thunnus thynnus*
Mackerel	*Trachurus spp*
Swordfish	*Xiphias gladius*

Commercial landings of the trawl fishery are recorded using vessel logbooks which are obligatory by law. The logbooks include the following data:

- Identification of the trawler
- Departure and arrival date
- Place and depth of fishing activity
- Port of landing
- Total catch of 22 demersal fish species (see Annex 2)
- Breakdown of the catch by species weight and quality

Trawler logbooks will be collected by Fisheries Inspectors.

The inshore fishery production (vessels over 10m, and 10% sample of vessels 6-10 m) reports include the following information:

- Identification of the boat and the fishermen
- Fishing station
- Method of fishing
- Number of hooks and length of nets
- Time, place and depth of fishing

- Breakdown of catch by species per week (see Annex 3)

The inshore production reports are collected by Fisheries Inspectors and data are processed in the DFMR.

The polyvalent fishery logbooks include the following information:

- Identification of the vessel.
- Date of departure and return to port.
- Place of fishing and distance from Cyprus.
- Number of hooks.
- Species caught by number and weight for each fish capture
- Seven pelagic fish species are recorded.

The polyvalent fishery logbooks are collected in the same procedure as the other reports.

Logbook reports regarding fishing effort data, the overall commercial landings by species, and by geographical dissagregation will be extracted and recorded by type of fishing technique as defined in Appendix VIII of the DCR.

Tuna farming statistics related to transhipment will also be collected in the National Programme.

Precision levels related to the assessment of commercial landings will be made according to data gathered under Council Regulations 2847/93.

Based on experience and sampling in previous years it has been verified that discard rates obtained in the Cyprus passive gear fishery are not significant. Therefore, no discard sampling of the Cyprus fishery will be conducted.

Methodology

As mentioned, landings of the mobile and polyvalent fleet segments are based on logbook reports that are compulsory by Cyprus legislation (Fisheries Law, Chapter 135and Laws of 1961 to 2000). Landings of these segments of the fleet are derived from logbook reports of all the vessels. The landings of the inshore fleet segment (vessels using passive gears) are collected at the moment by sampling of the fleet segment. However, for the fulfilment of the requirements concerning landings of the inshore fleet segment for all vessels over 10 meters, logbooks will be used. The same procedure of sampling will be used for the vessels <10 m (10% of the inshore vesssels).

Conversion factors are not described in the NP because catches are landed intact. Conversion factors are used for Bluefin tuna (T*hunnus thynnus)* and Swordfish (*Xiphias gladius*), for which the ICCAT conversion factors are used.

Description and analysis of the phases

Phase I:
Landing data collection and updating of the database. Processing and grouping of the data per fishing vessel segment/technique.

Phase II:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 11: SECTION E timetable of the phases

Year	**2006**											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Phase I	*	*	*	*	*	*	*	*	*	*	*	*
Phase II					*							

Expected outcome

- Evaluation of commercial catches and landings of stocks,
- Evaluation of total catches, landings and discards for stocks mentioned in Appendix XII EC Regulation 1639/2001 by segment of the fleet.

Budget:
SECTION E - Collection of data related to catches and landings, MP

Data related to catches and landings will be collected by subcontracting. The DFMR will be responsible for monitoring the data collection programme.

Budget: SECTION E. Collection of data related to catches and landings, MP

Category of costs (Euros)	**2006**
Staff costs	0
Travelling expenses	0
Durable equipment	0
Consumable material and supplies	0
Computer costs	0
Subcontracting and other costs	170,000
Total	170,000

SECTION E. Collection of data related to catches and landings

Extended Programme

Data collection on fishing activities related to game and recreational fisheries for stocks other than those mentioned in Appendix XI of the DCR.
The Cyprus recreational and game fishery inevitably has an impact on the stocks. It is worth noting that the majority of the recreational fishery is practiced with small vessels (less than 10 meters) using gillnets, trammel nets, bottom-set longlines, traps and fishing poles (both vessel and land based).
Some vessels target pelagic species such as small tunas (*Thunnus alalunga*).

At the Extended Programme level data will be gathered related to catches and landings regarding species caught (Table 12) by the recreational and game fishery.

Table 12: Species included in the extended programme data collection from the recreational and game fishery.

Mullus surmuletus	*Sarpa salpa*	*Sparisoma cretense*
Mullus barbatus	*Sparus aurata*	*Spicara maena*
Pagrus pagrus	*Merluccius merluccius*	*Spicara smaris*
Dentex dentex	*Mugil spp.*	*Spicara flexuosa*
Pagellus erythrinus	*Sphyraena spp.*	*Synodus saurus*
Pagellus acarne	*Umbrina cirrosa*	*Dicentrarchus labrax*
Lithognathus mormyrus	*Sciaena umbra*	*Oncorhynchus mykiss*
Oblada melanura	*Belone belone*	*Squaliformes*
Diplodus annularis	*Seriola dumerili*	*Rajiformes*
Diplodus vulgaris	*Trachurus spp*	*Palinurus vulgaris*
Boops boops	*Euthynnus alletteratus*	*Scyllarides latus*
Epinephelus spp.	*Sardina pilchartus*	*Octopus vulgaris, Eledone spp*
Serranus scriba	*Sardinella aurita*	*Sepia officinalis*
Serranus cabrilla	*Sardinella spp.*	*Loligo vulgaris*
Epinephelus aeneus	*Thunnus alalunga*	
Sarda sarda		

Methodology:

Landings of the recreational and game fisheries have not been monitored sufficiently. The proposed programme will formulate a sampling survey for the collection of data associated to the catches and landings of the recreational fishery in relation to species listed in Table 12.

The survey will encompass all the recreational fishery vessels regardless of length, fishing technique and geographical areas of Cyprus based on the various districts of the island, namely Famagusta, Larnaca, Limassol and Paphos.
Main ports and fishing shelters, where recreational vessels are located, will be targeted. The frequency of the sampling survey will be monthly by type of fishing technique and geographical area.

Species reported in the recreational fishery catch for a fishing day consisting of less than 5% of the particular species on the total catch will be omitted from the end report of the survey.

The disaggregation level for data concerning landings of the stocks mentioned in Table 12 will be in accordance with the provisions defined in Appendix XII EC Regulation 1639/2001. Further disaggregation, according to depth or any other criteria that is deemed necessary by the DFMR will be addressed in the survey in relation to that data parameter corresponding to the national programme objectives. Discard data related to the recreational fishery will also be collected with the same frequency.

The recreational fleet segment catch data will be aggregated according to the types of fishing technique Appendix III EC Regulation 1639/2001 and its amendment 1581/2004.

Description and analysis of the phases

Phase I:
Landing/catches/discards data collection from the recreational fishery. Processing and grouping of the data per fishing vessel segment/technique.

Phase II:
Submission of report data to the authorities (DFMR) involved in the programme.

Phase III:
Data dispatch to the relevant agencies (Article 7, EC Regulation No 1543/2000).

Table 13: SECTION E Recreational fishery programme timetable of phases

Year	**2006**											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Phase I	*	*	*	*	*	*	*	*	*	*	*	*
Year	**2007**											
Phase II	*	*										
Phase III					*							

Expected outcome

- Evaluation of catches, landings and discards of the Recreational Fishery

Budget, SECTION E. Collection of data related to catches and landings
Recreational Fisheries

Category of costs, 2006	**(Euros)**
Staff costs	0
Travelling expenses	3,000
Durable equipment	3,000
Consumable material and supplies	3,400
Computer costs	0
Subcontracting and other costs	41,850
Total	51,250

SECTION F. Collection of data concerning the catches per unit of effort and/or effective effort of specific commercial fleets

Introduction

One of the most important indicators of the relative abundance of stocks is the catch per unit of effort (CPUE), calculated on the basis of catches landed and fishing effort. CPUE is a very useful index for the long term monitoring of a fishery.
Data concerning catches per unit of effort are collected for all the fishing vessel segments of the Cyprus fishery (see Table 14).

Table 14: Review of the detailed catch and effort data from vessels flying the Cyprus flag

Year	Category of vessels	Production MT	Total H.P	Working days	CPUE*
2000	Inshore	1.341,40	26.017,5	111.391	12,04
	Trawl	720,4	8835	2309	624,4
	Polyvalent	157,1	-	-	122,2
2001	Inshore	1.168,7	21.876,0	101.098	11,56
	Trawl	840,8	10.938	3.621	502,1
	Polyvalent	237,1	5.965	1.615	146,8
2002	Inshore	1.062,8	26.491,5	84.257	12,61
	Trawl	612	13.063	2.328	524,2
	Polyvalent	211,2	5.451	2.006	105,3
2003	Inshore	972,5	24.090,5	72.588	13,40
	Trawl	616,6	9.998	2.490	485,8
	Polyvalent	132,8	9.185	1.446	91,8

*****CPUE expressed as production / working days

Minimum Programme

The collection of data concerning catch per unit of effort (CPUE) series, of vessels flying the Cyprus flag will be performed by the DFMR.

Table 14 presents catch and effort data of the years 2001-2003. Catch per unit effort will continue to be collected for all vessels flying the Cyprus flag.

Extended Programme

No data collection on fishing activities will be carried out based on the extended programme.

Methodology

Data to be collected are the following:

- Commercial landings data from the Mobile, Passive and Polyvalent segments of the Cyprus fleet.
- Fishing effort of the various fishing vessel segments.

The above data are included in the logbooks provided to all fishing vessels of the fleet and will be collected on a monthly basis.
It should be noted that in the case of the trawl segment of the fleet, a substantial reduction of the fleet may occur during 2005 (European Fisheries Fund- Fishing fleet Capacity reduction).

Data for the following parameters will be collected:

- Days spent at sea
- Fishing area
- Information on equipment (e.g. characteristics and types)
- Catches

Collaboration with the owners of fishing vessels will be continued. There will be co-ordination with the biological sampling programme that will include data on the length and weight distributions of catches.

Description and analysis of the phases

Phase I:
Collection of data of the various fishing fleet segments.

Phase II:
Data analysis and tabulation. Evaluation of results.

Phase III:
Submission of final report on CPUE of the Cyprus fishing fleet.

Table 15: Timetable of the phases, 2006

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I	*	*	*	*	*	*	*	*	*	*	*	*
Phase II							*					*
Phase III					*[1]							

[1] May 2007

Expected outcome

- Results on the CPUE of the fishery are expected to provide an estimation of the relative abundance of stocks.
- Estimations on catch by species, effort by boat and technique will provide valuable information to be used for fisheries management.

Budget:

The budget for the collection of data concerning fishing capacity shows no expenses because the data will be collected exclusively by the DFMR.

SECTION F. Collection of data concerning the catches per unit of effort and/or effective effort of specific commercial fleets

Category of costs, 2006	**(Euros)**
Staff costs	0
Travelling expenses	0
Durable equipment	0
Consumable material and supplies	0
Computer costs	0
Subcontracting and other costs	0
Total	0

SECTION G. Eligibility of the scientific evaluation surveys of stocks

Introduction

Two surveys based on the MP are to be carried out, and one assessment survey based on the Extended programme during 2006:

- Medits
- Tuna tagging (*Thunnus thynnus*), Minnimum Programme
- Tuna tagging (*Thunnus alalunga*), Extended Programme

The Medits survey will have been carried out for the first time in the summer of 2005. The Medits survey will be carried out in 2006 as an annual sample survey of demersal stocks. The study will give rise to existing trends in abundance indices and length frequency distributions of the species being examined. The use of the data collected from the survey in 2005 and 2006 (data series), as well as the collected fishing activity data will provide results for assessing the stocks in Cyprus territorial waters.

Bluefin tuna (*Thunnus thynnus*) is a stock that faces overexploitation in the Mediterranean. The tuna tagging survey data will be use to evaluate the migration patterns of the stock, the stock composition, size, mortality and behaviour.

Minimum Programme

The surveys with priority 1 as mentioned by Appendix XIV of the implementing regulation for the Mediterranean will be carried out according to guidelines of the Minimum Programme.

- **Mediterranean International Trawl Survey (MEDITS)**

The Medits programme will be carried out as an annual sample survey of demersal stocks.

Medits was designed to meet the following objectives:

i. description of the bottom fisheries resources in the Mediterranean in term of population distribution and demographic structures
ii. data for modelling the dynamic of the species under study, i.e. estimation of total mortality

The survey will collect data in Cyprus seas under Government control in the summer of 2006, using the Medits protocol and will study the resulting data series that will arise. The survey will give rise to existing trends in abundance indices and length frequency distributions of the species being examined (*data required by SECTION H of Regulation 1639/2001, Biological sampling of catches: composition by age and by length*).

Methodology

The bottom trawl fishing technique used in the Medits programme will be carried out during the closed season for trawler fishing in Cyprus (End of May–October),

between the end of spring and the end of summer. This programme will cover the continental shelf and slope of Cyprus at depths ranging from 10 to 800 m. Stratification of the number of halls related to depth are illustrated in Table 16.

Table 16: Depth zones, surface area and number of hauls

Depth (m)	**Surface (Km²)**		**No of hauls**
	Total of Cyprus	Under Government Control	
10 –50	796	450	4
50 – 100	717	470	4
100 – 200	918	857	5
200 – 500	2245	1055	5
500 – 800	6430	2156	7
Total	11106	4988	25

It is noted from the surface areas shown on Table16, that only the areas under direct control of the Republic of Cyprus will be surveyed. For the purposes of the Medits programme the main harbours of Larnaka, Limassol, and Paphos, as well as the fishing shelter of Lachi will be used as base stations.

The biological parameters (i.e. total weight, sex, stage of sexual maturity, length of individual for the 36 reference species and the total weight of the remaining species) will be collected in accordance with the manual of protocols for Medits sampling. The basic environmental data will also be collected on a systematic basis that will assist in the interpretation of the biological data.

Data from the Medits programme will be evaluated using the Medits Data Management System (MDMS) created in the context of the DG XIV/EU No 96/016 programme. Any data corrections required will then be stored in the MDMS database and calculations of the abundance indices will be made. The composition by length will be given in relation to depth zone and per area. The programme allows the presentation and analysis of the results in accordance with GFCM areas. Apart from these analyses, nursery areas will also be identified for the main reference species in accordance with the Medits 2000-2001 methodology programme.

Description and analysis of the phases

Phase I:
Sampling surveys for the collection of the data during this period.

Phase II:
Modification of the existing computerised database to the requirements of the programme if needed. Processing of the data.

Phase III:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 17: Timetable of the phases, 2006

Month	Jan	Feb	Mar	Apr	May[2]	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I						*	*	*				
Phase II	*	*							*	*	*	*
Phase III					*							

Expected outcome

- Data on sex ratio, sexual maturity, mortality, and degree of exploitation of demersal stocks.
- Description of the population distribution and demographic structures.
- Data on species dynamics
- Nursery areas identified
- Data series, 2006-2007

Budget:

SECTION G.Eligibility of the scientific evaluation surveys of stocks

MEDITS

Category of costs (Euros)	**2006**
Staff costs	-
Travelling expenses	10,020
Consumable material and supplies	24,100
Sea Allowances	17,460
Subcontracting*	99,500
Total	151,080

*** Scientific staff need to be subcontracted, as human resources to carry out the required work are not available to the DFMR.**

[2] year following the survey, 2007

- **Bluefin tuna (*Thunnus thynnus*) tagging**

Bluefin tuna (*Thunnus thynnus*) is heavily exploited in the Mediterranean Sea. The Mediterranean and Eastern Atlantic populations are considered to form a common stock. Although very little is known about spawning in the Mediterranean, high catch rates of large individuals in certain eastern Mediterranean areas during the reproductive period of the species may suggest the presence of spawning grounds in the Easter Mediterranean.

Methodology

The Bluefin tuna tagging project will be carried out in the Levantine Sea (FAO Area 37A, 3.2) using pop-up satellite tags (see Annex I). it is expected that the survey will improve the knowledge of the migration patterns of BFT in the Mediterranean and give data on the behaviour of this species related to environmental parameters.

The tagging survey will be based on ICCAT and DG FISH recommendations during the planning group meeting for Atlantic and Mediterranean tuna tagging held in Bari, Italy in 2005.

A commercial vessel will be used to carry out the survey. The target of the survey will be, that a number of 10 Bluefin tuna (size of fish, 150 Kg) will be tagged. During the survey the tagged fish will be weighed and measured. The data will be recorded in a computerised database.

Description and analysis of the phases

Phase I:
Collection of data and tagging.

Phase II:
Processing and grouping of the data.

Phase III:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 18: Timetable of the phases, 2006-2007

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I					*	*	*					
Phase II								*	*	*	*	*
Phase III					*[3]							

[3] May 2007

Expected outcome

- Indications on Bluefin tuna migration patterns
- Weight and size data of the tagged fish.
- Geographical location of capture

Budget SECTION G.Eligibility of the scientific evaluation surveys of stocks
Bluefin Tuna Tagging Survey

Category of costs 2006	**(Euros)**
Staff costs	1,000
Travelling expenses	1,000
Consumable material and supplies	51,500
Sea Allowances	1,486
Subcontracting	7,500
Total	62,486

SECTION G. Eligibility of the scientific evaluation surveys of stocks

EXTENDED PROGRAMME

Under the extended programme the following assessment survey will be carried out:

- **Albacore (*Thunnus alalunga*) tagging**

Mediterranean catches of Albacore (*Thunnus alalunga)* based on ICCAT reports are highly uncertain. Estimated albacore catches in the Mediterranean were 4,000 tonnes, fluctuating between 2,000 and 4,000 since 1984[4]. The Cyprus polyvalent fishery (surface longlines) has not traditionally targeted this species. Reported catches, were bycatch of the targeted species *Thunnus thynnus* and *Xiphias gladius*. The trend has changed in the last two years with more vessels targeting *Thunnus alalunga* (see Table 19). The catches reported, clearly illustrate the increase of the catch of this species which is attributed to marketing the catch directly to the European market.

ICCAT has stated that there is a lack of proper data and that an assessment of the Mediterranean stock has never been carried out by the committee. It is worth noting that there are no ICCAT regulations directly aimed at managing the Mediterranean Albacore stock.

Table 19: Cyprus Polyvalent vessel catches of *Thunnus alalunga*

Year	Production MT
2002	12
2003	17
2004	248

Methodology

The *Thunnus alalunga* tagging assessment survey (Table 20) will be carried out in the Eastern basin of the Mediterranean (Levantine Sea-FAO Area 37A, 3.2) using conventional tags. The purpose of the tagging is to improve the knowledge of the migration patterns in the Mediterranean and of the behaviour of this species related to environmental parameters.

Table 20: Description of *Thunnus alalunga* tagging survey

Fishing area	Tagging period	Tagging place	Gear	Expected number/size of fish
East Mediterranean	July-August	Levantine Sea	Bait boat	n= 200 ; <7 kg

[4] ICCAT REPORT 2002-2003/EXECUTIVE SUMMARY ALB

A commercial vessel will be used to carry out the survey. The target of the survey will be the tagging of approximately 200 *Thunnus alalunga* individuals. During the survey the tagged fish will be weighed and measured. The data will be recorded in a computerised database. The tagging period has been selected in relation to the increased catches of *Thunnus alalunga* by the Cyprus Fleet during those months.

Description and analysis of the phases

Phase I:
Sampling surveys for the collection of the data and tagging.

Phase II:
Modification of the existing computerised database to the requirements of the programme, if needed. Processing and grouping of the data.

Phase III:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 21: Timetable of the phases

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I					*	*	*					
Phase II								*	*	*	*	*
Phase III					*[5]							

Expected outcome

- Indications on *Thunnus alalunga* migration patterns
- Weight and size data of the tagged fish.
- Geographical location of capture and release

Budget:
SECTION G.Eligibility of the scientific evaluation surveys of stocks
Albacore tagging survey

Category of costs 2006	**(Euros)**
Staff costs	5,715
Travelling expenses	4,676
Consumable material and supplies	9,410
Sea Allowances	17,460
Subcontracting	12,220
Total	49,481

[5] May 2007

SECTION H. Biological sampling of catches: composition by age and by length

Introduction

Collection of data relating to biological composition of the catches is a basic requirement both for species fisheries biology and for the management of the fisheries. Parameters such as length and age give statistical data, which define the dynamic of the populations targeted and lead to the determination of the stock composition. Data collected from the Medits survey will be used for the purpose of biological sampling of catches and their composition by age and length.

Minimum Programme

Biological sampling will be performed, in order to evaluate the composition in length and, where appropriate, in age, of landings for the stocks specified as manadatory in Appendix XV DCR. The purpose of the biological sampling of catches is to estimate the number of fish and their mean weight at age of landings made in Cyprus harbours. Sampling will be performed based on the segmentation of the fleet.

According to the Regulation the following stocks will be included in the sampling:

- Age/Lengths:
  - (i.) *Mullus surmuletus*
  - (ii.) *Mullus barbatus*
  - (iii.) *Boops boops*
  - (iv.) *Spicara smaris*
  - (v.) *Pagellus erythrinus*
  - (vi.) *Thunnus thynnus*

Extended Programme

No data collection on fishing activities will be carried out based on the extended programme.

Methodology

In order to evaluate the composition in length and where appropriate in age, biological sampling of landings will be taken from a representative part of each segment of the Cyprus fishing fleet.

The stocks to be sampled are specified in Appendix XV of Regulation 1639/2001. Table 22 shows the production of years 2001-2003, the average catch production of the species, which will be included in the biological sampling.

Table 22: Species included in the biological sampling of landings according to Appendix XV of Regulation 1639/2001.

Year / Species	2001 (MT)	2002 (MT)	2003 (MT)	Average (MT)
M. surmuletus	132.2	125.3	130.0	129
M. barbatus	91.2	84.3	83.8	86
Boops boops	216.0	161.6	151.4	176
Spicara smaris	603.7	438.2	543.7	529
Pagellus erythrinus	34.0	30.9	20.7	29
Thunnus thynnus	85.2	91.4	79.3	85.3
Thunnus alalunga	-	-	17.3	-

Sampling system: A sample of fish (100 individuals) covering all size classes is collected from the landing of a vessel. These fish are measured and aged providing an age length key (ALK) by size grade. Other biological data such as weight and maturity are also collected. The sampled ALK applies to the raised length composition and provides an age composition of the landings of the vessels. The age- and length compositions of the catches of the vessels are raised to the total landings of the fleet by stratum. Data on the species, Table 22, will be collected during the Medits programme in order to establish biological keys of length/age correlation.

The pelagic species such as *Thunnus thynnus* will be included in the biological sampling.

Vessel owner collaboration will be encouraged, with onboard observers also collecting biological samples. The biological sampling programme coordination will allow measurements on numbers of fish, weights and length distributions.
The programme will collect data using the following methods:

- Activity and landing questionnaires
- On board observers for effort (fishing areas, gears, number of hooks, etc)
- Biological sampling and classification.

Description and analysis of the phases

Phase I:
Biological sampling of catches including the sampling surveys for the collection of the data. These activities will be carried out on a yearly basis.

Phase II:
Adjustment of the database to the requirements of the programme. Data regarding composition by age and length will be incorporated in the existing fisheries database. Processing and grouping of the data.

Phase III:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 23: Timetable of phases

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I	*	*	*	*	*	*	*	*	*	*	*	*
Phase II							*					*
Phase III					*							

Expected outcome

- Data on species composition by age and length
- Mean weight of species at age of landings.
- Estimation of the percentage of discards of the fisheries sector by fisheries vessel segment.

Budget, SECTION H. Biological sampling of catches: composition by age and by length

Category of costs (Euros)	2006
Staff costs	3,810
Travelling expenses	0
Durable equipment	0
Consumable material and supplies	21,000
Computer costs	0
Subcontracting and other costs	12,230
Total	37,040

SECTION I. Other biological samplings

Introduction

Data collection under Section I: Biological samplings, are not programmed to be carried out for 2006. The DCR gives exemptions for the collection of biological parameters regarding species listed in Appendix XVI where catches are less than 200 tonnes.

The Cyprus fishery catches for stocks that exceed 200 tonnes annually relate only to *Spicara smaris*. Since the DCR requires data collection on biological parameters for this species every three years and this data will be collected in 2005 (Cyprus National Programme, 2005) there will be no biological sampling programmes in 2006.

CHAPTER IV
MODULE OF EVALUATION OF THE ECONOMIC SITUATION OF THE SECTOR

SECTION J. Collection of economic data by groups of vessels

Introduction

The profitability and performance of the fleet is a vital micro-economic indicator of fishery performance providing a measure of the economic sustainability of the fleet. In order to calculate the profitability of the Cyprus Fishery catching fleet, an indication of capital investment is required. The DCR Chapter IV, paragraph J.1.(a) addresses the requirement and preference of the insured value for the leased equipment. Although the DCR considers the insured value is preferred, the collection of the insured value is very difficult regarding the fishing fleet of Cyprus, the main reason being that not all vessels are insured. For this purpose for vessels not insured the replacement value will be used or the current evaluation cost.

Landing prices in connection with data on investment and operational costs can provide fleet performance indices. The use of CPUE and prices in the sector are often used in the evaluation of socio-economic studies showing the trend of fisheries in an area. These indicators can subsequently lead to appropriate fishery management controls and infrastructure investment.

Minimum Programme

Data required under the MP for the economic analysis are listed in the FVR and in the National Statistics database. The FVR is the main Register used in the collection of economic data for the fleet. Also the DFMR collects data from the Inshore Fishery Production Reports, Logbooks, the Purse Seiner Production, the Fishing Licenses and the Sales Notes from the fishmongers for the value and production in tonnes. Questionnaires will also be used in cooperation with the Statistical Service for the collection of the data required.

The NP will take into consideration the following parameters that are considered to be essential for the implementation of the DCR

- The income or otherwise the turnover is essential, since it is defined as the total Gross Revenue of the fishing sector. The total income can be found from the logbooks, which the DFMR collects from fishermen as described above and from the Sales Notes. Personal consumption is excluded from income.
- The production cost is one factor that is also very important, since it includes the total expenditure of the fishing activity. The DFMR does not keep records of costs because it is not subject to administrative control. These data and all the information will be collected using a questionnaire-interview method. The

production cost should be calculated taking into account the following parameters:

1. Labour costs including the wages, all the expenditures paid by the employers, including social security, health insurance, retirements and other related taxes.
2. Fuel costs
3. Repair and maintenance
4. Other operational cost

Apart from the labour costs, for which data will be collected, a survey will be carried out in order to calculate the other categories of costs together or to validate the data already collected for these costs.

- The fixed costs are considered to be major data, despite the fact that they are not directly connected with the fishing activity. Depreciation is one of the main costs and needs to be calculated according to the value of the fixed asset. Also the opportunity cost of capital should be taken into account. This information is not available at this moment and a pilot survey should be carried out.

- The financial position will be calculated with the ratio of the own capital to the borrowed capital. These data will be collected with the questionnaire method, the reason being that they concern fishermen and small enterprises, which do not have audited financial statements. The validity of the data cannot be cross-checked and a pilot survey is needed.

The investment capital is actually the total value of the capital. These data will be collected using the questionnaire method and the insurance scheme for vessels. Quality data can be verified from the questionnaires and decisions can be made of whether to use insured values or replacement costs. The choice between the two values will be based on which one is the most reliable. Although the regulation considers the insured value is preferred, not all vessels in the Cyprus Fishery are insured. For this purpose for vessels not insured the replacement value will be used or the current evaluation cost.

- The prices are collected for each species and they are the live/weighted prices taken by the fishmongers.

- Employment is defined as the total persons employed in the fishing sector, either full time or part time. These data are collected from the fishing licence applications. However, they can also be included in the questionnaires.

- Information on the fleet segment characteristics are provided by GT, KW, age and gear used. These data are collected by the DFMR and are included in the FVR, which it is continually updated (see SECTION C).

- Effort is measured by the number of days of fishing activity multiplied by the size of the fleet parameter (the number, GT, KW, age and gear used). These data are collected by the DFMR and are included in the FVR (see SECTION D).

The whole survey will be based on the same panel as the survey for evaluation of catches, landings and the fishing effort.

Precision levels:
In the pilot surveys for the collection of economic data by groups of vessels the precision level 1 is required by the Regulation. This level makes it possible to evaluate the parameters and all the data with a precision of plus and minus 25% for a 95% confidence level. This precision level will be used only in the data, which will be collected with the questionnaire-interview method. To improve the precision level of the survey, it should be noted that for all the segments of the fleet the questionnaires will cover a full census.

Extended Programme

The National Programme will not implement the EP level for the collection of economic data by groups of vessels.

Methodology

Selection of target variables:

The variables needed to be collected are:
Income-Turnover
Gross value of landings
Production costs:
- Labour costs

Remuneration of hired and own labour on board including social costs (wages, social security, health insurance, retirements and other related taxes).
- Fuel costs
- Repair and maintenance
- Other operating costs

Fixed costs
- Mainly Depreciation and opportunity cost of the capital at the current value

Financial position
- Own capital
- Borrowed capital

Investment
- Value of assets

Live/weight prices per species
Number of persons employed either Full time or part-time
Fleet
Effort

Sample questionnaire interviews census will be carried out on the parameters set in Appendix XVII according to the segmentation of the fleet Appendix III.

Surveys will be carried out, because the data are not available in the DFMR and because the collected data need to be verified.
The census will be carried out by the DFMR in cooperation with the Statistical service. The collection of economic data by groups of vessels will be carried out at predetermined intervals with the use of questionnaires.

The census needed are:

1) To verify the data collected for three categories of cost:
   - Fuel costs
   - Repair and maintenance
   - Other operational cost

2) To calculate the fixed costs and in particular depreciation rate and opportunity cost of capital.

3) To calculate the financial position of fishermen

Description and analysis of the phases

Phase I:
Adjustment of the database to the requirements of the programme.

Phase II:
Collection of the data through surveys. Processing and grouping of the data per fishing vessel segment, fishing technique and geographical area.

Phase III:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 25: Timetable of phases

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I											*	
Phase II	*	*	*	*	*	*	*	*	*	*	*	*
Phase III												*

Expected outcome
- Fuel costs
- Repair and maintenance
- Other operational cost
- Fixed costs and in particular depreciation rate and opportunity cost of capital.
- Financial position of fishermen

Budget, SECTION J. Collection of economic data by groups of vessels

Category of costs, 2006	**(Euros)**
Staff costs	0
Travelling expenses	0
Durable equipment	0
Consumable material and supplies	0
Computer costs	0
Subcontracting and other costs*	20,620
Total	20,620

SECTION K. Collection of data concerning the processing industry

Introduction

Fisheries product exploitation includes the activities related to fisheries production such as preservation, processing and trade. In Cyprus the level of knowledge related to pressing activities, are limited because the sector is relatively new. The objective of this part is to record the current situation of the fisheries processing industry from a social and economic point.

Minimum Programme

The processing of fish products is a relatively new sector in Cyprus and the majority of the economic information is not available. A pilot survey needs to be carried out for collecting the data on the processing industry aiming at the evaluation of the economic situation in the processing industry as a whole. The national programme will collect first the data needed with the use of a questionnaire and interviews. This survey will be conducted taking into account that the sector is in an early-growing stage and only few firms are involved. The national programme will conduct surveys in order to assess the annual value of the sector of the following parameters:

- Raw materials (the number of fish products that are used in the processing industry).
- Income or the turnover (the total revenue of the processing sector).
- Production costs. An important factor because it includes the total expenditure of the processing activity. The DFMR does not keep records of production costs, so the data and all the information need to be collected using a questionnaire-interview method. The production costs will be calculated taking into account the following parameters:
    a. Labour costs consist of the gross wages. This means, taking into consideration all the expenditures paid by the employers, including social security, health insurance, retirements and other related taxes.
    b. Energy costs
    c. Raw materials costs
    d. Packaging costs
    e. Other Running costs
- Fixed Costs are considered to be major data despite the fact that they are not directly connected with the processing activity. The depreciation is one of it is main cost.
- Financial position will be calculated with the ratio of the own capital to the borrowed capital
- Investment is the total value of the historical, replacement and insurance value of the fixed assets. In this category the rental fixed assets will be included.
- The production of each species and the prices.
- Employment (defined as the total persons employed in the processing sector either full time or part time).

- The capacity utilisation (defined as the annual capacity average of the processing sector).

Extended Programme

The National programme will not implement the extended programme level.

Methodology

Pilot surveys will be conducted to assess the annual value of the sector and its parameters, set in Appendix XIX of the regulation.
The pilot surveys will be conducted with the use of questionnaires surveys.

Description and analysis of the phases

Phase I:
Adjustment of the database to the requirements of the programme.

Phase II:
Collection of the data through the 3 pilot surveys. Processing and grouping of the data per fishing vessel segment, fishing technique and geographical area.

Phase III:
Transmission of data to the relevant authorities/agencies involved in the programme.

Table 26: Timetable of phases

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase I											*	
Phase II	*	*	*	*	*	*	*	*	*	*	*	*
Phase III												*

Expected outcome

- Total revenue of the processing sector.
- Total Production costs.
- Labour costs
- Energy costs
- Raw materials costs
- Packaging costs
- Fixed Costs
- Financial position
- Investments
- The production of each species and the prices.
- Employment
- Capacity utilisation

Budget, SECTION K. Collection of data concerning the processing industry

Category of costs, 2006	**(Euros)**
Staff costs	0
Travelling expenses	0
Durable equipment	0
Consumable material and supplies	0
Computer costs	0
Subcontracting and other costs*	20,620
TOTAL	20,620

SECTION M: National Co-ordination

Cyprus National correspondent has been appointed to supervise the data collection programme. There will be sub-co-ordinators, for separate aspects such as the fleet, activity, catches, landings and other data required by Council Regulation 1639/2001. Cyprus National correspondent for the National Data Collection Programme will be:

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Co-ordination meetings for 2006

The DFMR intends to participate to the following planning and co-ordination meetings for 2006.

- **Data collection: International regional co-ordination**
  Mediterranean Waters
- **International planning groups for data collection**
  Workshop on fleet segmentation
  Workshop on small scale fisheries
  Workshop on Economic Data
- **International Planning Groups on surveys at sea**
  MEDITS (Mediterranean Trawl Surveys) Working group
  Mediterranean waters tagging

The number of persons participating to the above co-ordination meetings will be two, except for the Workshop on Economic Data meeting and the Workshop on fleet segmentation, whereas Cyprus will participate with one person.

International co-ordination and co-operation will be achieved through direct contacts with colleagues particularly in Greece who are involved in sea surveys (i.e. Medits).

Budget:

Details of the budget for this module are given in the Financial Forms under the title Co-ordination meetings 2006.

ANNEXES

Annex 1: Tagging Plan BFT

Type of tags	Fishing area	Fishing period	Country	Tagging place	Gear	Tagging period	Programmed time	Expected pop-up date	Number/size of fish
pop up Satellite	East Med	Jun-Jul	Cyprus	East Med	Tuna pens	Aug 2006	270/300 days	May/June 2006	n=10 ; 150 kg

Annex 2: Department of Fisheries and Marine Research

TRAWLER FISHERY LOGBOOK (Traslatted from Greek):

1. **Vessel Name: …….**
2. **Area of Fishing:……..**
3. **Depth: From: …… To :…… Fathoms**
4. **Working Days: ……...**
5. **Date of sail: …… Date of return: ……**
6. **Port of landings: ……**

Species	FISH QUALITY				Species Total
	A	B	C	D	
Red mullet					
Striped red mullet					
Common pandora					
Boque					
Gilt-head seabream					
European hake					
Comber					
Lizardfish					
Scorpionfish					
Picarel/ Golden picarel					
Axillary seabream					
Sharks and dogfishes/ Rays and skates					
Octopuses					
Cuttlefish/ Squid					
Shrimps,prawns					
Groupers/ White grouper					
Wreckfish					
Various					
Total					

Date : ……. **Signature of Captain: ……..**

Date: …… **Signature of DFMR Inspector : ……**

Annex 3: Department of Fisheries and Marine Research

Inshore Fishery Logbook

Name of Fishermen:…… Boat Number:…….
Fishing Station:…… Month:…….. Week Starting:…… Ending:……..

Species	PRODUCTION BY DAY (Kg)							
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	TOTAL
Sripped Red Mullet								
Striped mullet								
Common seabream								
Common dentex								
Common pandora								
Axillary seabream								
Stripped sea bream								
Saddled bream								
White seabream								
Annular seabream								
Common two-banded seabream								
Boque								
Salema								
Gilt-head seabream								
European hake								
Grey mullet								
Baracudas								
Cord								
Brown meagre								
Garfish								
Greater amberjack								
Mediterranean horse mackerel								
Little tuna								
Pilchard								
Sardinellas								
Dusky grouper								
Groupers								
Painted comber								
Comber								
Parrot fish								
Picarel								
Blotched picarel								
Golden picarel								
Scorpionfish								
Red scorpionfish								
Red soldierfish								
Spinefeet								
Lizardfish								
Seabass								
Swordfish								
Sharks and dogfishes								
Rays and skates								
Common spiny lobster								
Mediterrannean locust lobster								
Shrimps, prawns								
Octopuses								
Cuttlefish								
Squid								

Annex 4: List of species caught by the Cyprus fishery for which weights and values of landings are collected by the DFMR.

Mullus surmuletus	*Sarpa salpa*	*Sparisoma cretense*
Mullus barbatus	*Sparus aurata*	*Spicara maena*
Pagrus pagrus	*Merluccius merluccius*	*Spicara smaris*
Dentex dentex	*Mugil spp.*	*Spicara flexuosa*
Pagellus erythrinus	*Sphyraena spp.*	*Synodus saurus*
Pagellus acarne	*Umbrina cirrosa*	*Dicentrarchus labrax*
Lithognathus mormyrus	*Sciaena umbra*	*Xiphias gladius*
Oblada melanura	*Belone belone*	*Squaliformes*
Diplodus annularis	*Seriola dumerili*	*Rajiformes*
Diplodus vulgaris	*Trachurus spp*	*Palinurus vulgaris*
Boops boops	*Euthynnus alletteratus*	*Scyllarides latus*
Epinephelus spp.	*Sardina pilchartus*	*Octopus vulgaris*
Serranus scriba	*Sardinella aurita*	*Eledone spp*
Serranus cabrilla	*Sardinella spp.*	*Sepia officinalis*
Epinephelus aeneus	*Epinephelus guaza*	*Loligo vulgaris*
Thunnus thynnus		