



**GENERAL FISHERIES COMMISSION FOR THE
MEDITERRANEAN**
**COMMISSION GÉNÉRALE DES PÊCHES POUR
LA MÉDITERRANÉE**



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SCIENTIFIC ADVISORY COMMITTEE

SCSA

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**2012 PROGRESS
ON STANDARDIZATION OF PROTOCOLS FOR SURVEYS-AT-SEA
(BY GFCM SECRETARIAT)**

Introduction

Establishing standard GFCM protocols for surveys-at-sea has been discussed as an important issue over the last few years during various meetings of the Scientific Advisory Committee (SAC). At its 11th session of the SAC three related documents about protocols of surveys-at-sea conducted in the GFCM Area have been made available (see GFCM-SAC, 2008a). The 12th session of the SAC reiterated the need to continue to work towards developing these standard protocols (see GFCM-SAC, 2010a). The 13th session of the SAC finally acknowledged the extensive work undertaken by the projects and the valuable scientific contributions in developing and implementing common methodologies through organizing joint field training activities, surveys at sea, as well as strengthening the expertise at national level (see GFCM-SAC 2011).

This document is a short summary of the information on surveys-at-sea available at present to the Secretariat.

DEMERSAL TRAWL SURVEYS

MEDITS

The MEDITS programme aims to conduct coordinated surveys with bottom trawling in the Mediterranean. This programme derives from a EU project started in 1994 at European-Mediterranean level and it is the most widespread demersal trawl survey in the Region (Bertrand et al., 2002). The challenge of Medits survey, as for other scientific trawl-surveys, is to provide data useful for describing and quantifying changes in fish populations through indices of demography, mortality, spatial occupation, biological traits thus contributing to the development of assessment and management advice tools (GFCM-SAC, 2010a). Countries conducting this survey include seven European Union Mediterranean countries (Cyprus, France, Greece, Italy, Malta, Slovenia and Spain) together with Albania, Croatia, Montenegro and Morocco which have conducted the survey periodically over the years (see GFCM-SAC, 2008b). The basic protocol, common to all the Mediterranean partners, includes the design of the survey, the sampling gear (feature and handling), the information to be collected, and the management of the data as far as the production of common standardized analyses of the data (see GFCM-SAC, 2010a). A trawl survey using the MEDITS protocol was also undertaken by the Libyan Marine Biology Research Centre (MBRC) to study the natural marine resources of the area between Missurata and the Egyptian border (see GFCM-SAC, 2008b). Since the beginning of the survey (1994) MEDITS has produced, for a pool of target species (benthic and demersal): abundance indices by species (in number of individuals and biomass per square km; i.e. N/km² and kg/km²) and length frequency distribution (divided by sex and maturity stages) by depth macrostratum (shelf and slope) and by Geographical Sub-Area (FAO/GFCM GSA). The surveys intend to include as much as possible all the trawlable areas over the shelves and the upper slopes from 10 to 800 m depth off the coasts of the partner countries. These limits have been adopted to cover at best the distribution areas of the main exploited - or potentially exploitable - demersal species, considering the administrative and technical constraints of the project (Bertrand et al., 2000). The stations have been distributed

in each GSA applying a stratified sampling scheme with random drawing inside each stratum (GFCM-SAC, 2010a).

GRUND

Another long-established survey is GRUND, an Italian demersal trawl survey which initiated in 1984-1985 in all Italian seas within the framework of Italian Law 41/1982 regarding multi-annual plans to improve fishery management and fish farming (GFCM-SAC, 2007). Up to 1995 two surveys per year were conducted (one in spring and one in autumn) but from 1996 only one autumn survey was conducted under the GRUND protocol (Anon, 1996). Other countries namely those in the Adriatic Sea - Albania, Croatia, Italy, Slovenia, and Montenegro have also conducted GRUND-compliant surveys in their waters, mainly through FAO Sub-Regional project support (Vrgoc et al., 2007). In addition, through Italian bi-lateral cooperation, GRUND surveys have also been conducted by other countries such as Malta (MedSudMed, 2006). In 2002 GRUND was included as an optional survey within the EU Fisheries Data Collection Programme (EC 1543/2000; EC1639/2001) but has been omitted since 2008 (Comm. Dec. 2008/949/EC; Comm. Dec. 2010/93/EU). The GFCM Secretariat is informed that discussions among EU Mediterranean Members are currently underway on the possibility of conducting an autumn trawl survey using the MEDITS protocol in replacement of GRUND.

There are other records of demersal trawl surveys conducted in the Region. Technical descriptions of the trawl surveys carried out by Algeria, Libya, Morocco, Tunisia and Turkey have been provided during the second meeting of the SAC working group on assessment methodology (GFCM-SAC, 2008b). An overview of the survey carried out in Morocco in 2006 was also given during the SAC workshop on trawl survey based monitoring (GFCM-SAC, 2007). Reports of trawl surveys carried out in Libyan waters between 1993 and 1994 (Rawag et al. 2004) have also been produced and contain descriptions of the survey design.

Within the framework of the FAO-MedSudMed project, efforts have been made to standardize trawl survey protocols. During a Workshop held in 2003, research institutes from Italy, Malta, Tunisia and the Libyan Arab Jamahiriya put together all available information on the existing procedures to carry out national and international trawl surveys, compare them and attempt to develop common methodological protocols. Details of the survey methods, sampling gear used, processing of the catches, biological sampling, as well as data management and processing are available in the Workshop report (MedSudMed, 2006). It has generally been decided to maintain the procedures used in the national programs and adopt procedures to standardize selected data to be stored in a regional data base. In the summer 2009, MedSudMed organised an *on-the-job training course using the MEDITS protocol* to pursue the harmonisation of the sampling protocols in the MedSudMed Project area¹. The training, held in GSA 15 (Maltese Islands), was led by the Italian Istituto per l'Ambiente Marino Costiero (IAMC-sez Mazara del Vallo) on board R/V Sant'Anna and was attended by researchers of the Institutes participating in the Project, namely the Institut National des Sciences et

¹ <http://www.faomedsudmed.org/html/events/Training18SampleProcMedits.html>

Technologies de la Mer-INSTM (Tunisia), the Malta Centre for Fisheries Sciences-MCFS (Malta), and the Marine Biology Research Centre of Tajura (Libyan Arab Jamahiriya).

The most recent activity undertaken under the umbrella of MedSudMed has been the coordination of an *Inter-calibration exercise at sea in the south-central Mediterranean* (09-18 July 2011)². This exercise for bottom trawl surveys has been carried out in the south-central Mediterranean Sea (GSA 13) on board of the Tunisian vessel "R/V Hannibal" and the Italian vessel "M/P Sant'Anna". The inter-calibration has been organized in the framework of the MedSudMed Project and was finalized at progressing toward the standardization of survey protocols in the South Mediterranean (MedSudMed area), ensuring that the data collected by the two vessels over the last 15 years are compatible for joint analysis and to facilitate, in the near future, the joint assessment of fish stocks in the whole area using data from all the participating countries.

ACOUSTIC AND ICHTHYOPLANKTON SURVEYS

A number of cooperative acoustic and ichthyoplankton surveys, training surveys and inter-calibration exercises have been conducted throughout the Mediterranean through FAO regional project support over the years.

MEDIAS

Under the EU Fisheries Data Collection Framework (EC 665/2008), the Pan-Mediterranean acoustic survey (MEDIAS) is conducted annually by EU Mediterranean Member States. The MEDIAS echo-survey on small pelagic fish targets anchovy (*Engraulis encrasicolus*), and sardine (*Sardina pilchardus*) and it covers several areas in the Mediterranean EU Member States (Spain, France, Italy, Malta, Slovenia and Greece) with a standardized methodology. The aim is to gain knowledge of biomass levels and spatial distribution of small pelagic fishes (see GFCM-SAC, 2010a). The acoustic survey also includes biological sampling using a pelagic trawl. Its technical details, together with a summary protocol, were first conveyed to the GFCM Secretariat in 2009 on the basis of the MEDIAS Steering Committee Report (MEDIAS, 2008). A revised protocol for the survey was adopted during the second MEDIAS Steering Committee Meeting (MEDIAS, 2009). During the third MEDIAS Steering Committee Meeting (MEDIAS, 2010) the protocol was reviewed and survey designs for the new areas (Tyrrhenian and Ionian Seas) to be covered by MEDIAS were established. Surveys have been performed in summer-early autumn following an internationally agreed MEDIAS Protocol. Italy was responsible for the performance of two cruises which include also territorial waters of Slovenia and Malta (GFCM-SAC, 2010a):

- a) in the Adriatic Sea (GSAs 17 and 18)
- b) in the Sicilian Channel (GSAs 15 and 16)

In addition, the design of pilot acoustic surveys in the Black Sea (Bulgarian and Romanian marine areas), to take place for the first time in 2010 under the MEDIAS

² http://www.faomedsudmed.org/html/events/Int_Cal_Exerc_GSA13_2011.html

framework, were finalized and endorsed. Discussions on the harmonization of the collection of biological data also took place and protocols for the estimation of parameters such as maturity and age were adopted. Other issues under discussion by the MEDIAS Steering Committee include the collection of environmental data and inter-calibration between the research vessels. Technical descriptions of acoustic surveys conducted in Algeria, France, Morocco and Tunisia had been provided during the second meeting of the SAC working group on assessment methodology (GFCM-SAC, 2008) during which some agreement was reached on the regional standards to be used for a number of survey parameters.

During the GFCM Working Group on Stock Assessment of small pelagic species (Chania, Crete Greece, 24-29 October 2011) it has been recognized the importance of strengthening the scientific cooperation towards standardization of echo-survey activities in Mediterranean. The cooperation should involve North African and European countries, especially those conducting MEDIAS protocol and it should be facilitated by the FAO Sub-Regional Projects CopeMed II, MedSudMed and EastMed in the ambit of SAC-GFCM activities. At the above mentioned Working Group in Chania, Tunisian experts presented their progress on the standardization of acoustic surveys in their country (GSAs 12, 13 and 14). They admitted how the protocol adopted, compared to that of EU MEDIAS (CE 665/2008), revealed some gaps especially related to the distribution of NASC (Nautical Acoustic Scattering Coefficients) species, nevertheless they agreed on the full process of standardization, to be completed in 2011 (GFCM-SCSA, 2011a).

The most recent activities regarding the standardization of the protocol adopted for acoustic surveys at sea is the one organized by AdriaMed from 17 July to 5 August 2011, namely *Joint acoustic and ichthyoplankton survey*³. The survey has been carried out using R/V "Dalla Porta" covering the South Adriatic Sea (GSA18). The surveys were prepared in the framework of the AdriaMed Project in cooperation with the CNR - Istituto Scienze Marine (ISMAR) of Ancona (Italy), and the collaboration of the Institute of Marine Biology of Kotor (Montenegro) and the Laboratory of Fisheries and Aquaculture of the Agricultural University of Tirana (Albania). The acoustic survey has been performed following the MEDIAS Protocol. Taking this opportunity, theoretical and onboard training activities have been carried out during the survey for national staff from Italy, Albania and Montenegro. In total, acoustic data were logged over around 600 nautical miles and nineteen pelagic trawls were performed in the study area.

³ http://www.faoadriamed.org/html/events-news/Acoustic_ichthyo_survey.html

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