

WHSOP1-INFO-04

Program for Training Spanish Scientific Observers in the SIOFA Convention Area. IEO (Spanish Institute of Oceanography)

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Spanish fleet fishing in SIOFA Convention Area is very limited therefore the observer's training is made ad hoc according with the vessel needs.

The purpose of this document is to explain the steps involved in the training of observers on board the Spanish fleet within SIOFA waters. This program includes a wide range of aspects related to scientific observation both target and bycatch species in the SIOFA convention area, quantification of invertebrates by main taxa, marine mammals (MMs) and seabirds interactions/accidental catches and MMs depredation. A manual is provided to the observers to help them plan their work.

SUMMARY OF THE OBSERVERS MANUAL

1 Introduction to the Spanish fishing activity in SIOFA.

The Manual starts with a description of the areas in which the Spanish fleet traditionally operates, where *Dissostichus* spp and other targeted fisheries are carried out and its correspondence with the SIOFA and FAO areas. An overview of the different types of bottom longlines and target species is given.

2 Objectives and task

The training continues with a general explanation of the work and tasks that need to be addressed to implement the current SIOFA Conservation Measures (CMMs). Special attention is given to fishing operations, sampling involved, tagging requirements and VME identification.

3 Sampling

In accordance with the conservation measures, the sampling methodology and the way to proceed are explained. Simulated sampling of hauls with the different fractions of the catch is performed.

Another important aspect is the identification of species which includes commercial species of interest and the most abundant discarded species. Identification guides are provided for all taxonomic groups.

How to calculate the conversion factor green weight-processed weight is explained.

Methodology to collect otoliths and other biological material, as muscle tissues, is described.

4 Tagging- Recapture

A dedicated tagging training module is given related to CMMs. A PowerPoint presentation describing both the process and the material used, as well as a description of best practices is shown. A simulation is done with an Excel spreadsheet in order to calculate the tagging overlap between the TOP catch length and the TOP tagged length.

5 Depredation data

Basic guidelines are provided to observers with respect to marine mammals interactions, primarily sperm whales and killer whales that potentially depredate with the longline catch.

6 Forms

Once the tasks to be carried out have been understood, the last step of the training programme is the familiarisation with the different forms and the data entry format. The different sections and the requirements of the CMM 2021-2 are reviewed.

7 Final summary

A final summary of all the tasks to be assigned is provided.

The observer has to make a final report at the end of the survey following the template provided by SIOFA. The outline of the report and how to extract the necessary information from the forms is discussed.

Quality control of observers data

A close contact with the observers while on board is made. All doubts about species identification, sampling protocol or any problem encountered we try to solve them by e-mail. Regularly (every two weeks) the observer sends a copy of the forms to be validated at the IEO.

Data Validation

Plotting of fishing operations using GIS.

The fishing location is plotted in a GIS program where both setting and hauling are represented to look for inconsistencies.

TL distribution by species is plotted with an R script.

Analysis of maximum, minimum and average weights by species is made using an R script.

At the end of the survey, together with the observer at the IEO premises, a week is devoted to review all the work performed, forms and the observers report. Preparation of the summary tables, the labelling of the photographs and compilation of all the biological samples (otolith, muscle tissues...) is made in this period.

Bibliography provided to observers

Seabirds:

ACAP_Bycatch ID Guide.pdf

Fish the Sea not the Sky. CCAMLR.

Seabird identification cards for Fishing Vessels operating in the Indian Ocean (FAO)

Benthos

SEAFO Sponges and Coral Guide.pdf

SIOFA VME taxa guide.pdf

Indian Ocean Sponges Guide.pdf (FAO)

Field identification guide to Heard Island and McDonald island (himi) benthic invertebrates.pdf

Elasmobranchii:

The “Shark Trust” identification sheets for: *Centrophorus squamosus*, *Centroscymnus coleolepis*, *Dalatias licha*, *Deania Calcea*, *Deania hystricosa* and *Somniosus microcephalus*.

FAO guides:

Rajidae taxonomy.pdf

Deep-sea Cartilaginous Fishes of the Indian Ocean.pdf

Sharks of the world.pdf

Deep-sea Cart Fishes Indian Ocean. Vol 1. Sharks.pdf

Deep-sea Cart Fishes Indian Ocean. Vol 2 Batoideos.pdf

Fishes:

Macrourus ID guide for observers for CCAMLR Subareas 48.3 and 48.4.

Smith's sea Fishes.pdf

Marine Mammals

Tarjetas de identificación de cetáceos para las pesquerías del Océano Índico (FAO)

Marine Mammals of the World (FAO)

International Whaling Commission identification sheets.

Turtles:

Turtles of the world.pdf (FAO)

Turtles Cards.pdf (Indian Ocean)

Other:

Whale Depredation Data Collection Guidelines.pdf

Scheme of International Scientific Observation Scientific Observer's Manual. CCAMLR

An Illustrated Manual for Training Fisheries Observers for Deployment on Commercial Fishing Vessels Active in the South West Indian Ocean. SWIOFP.

Spanish Manual for observers on board the SIOFA CA.

Roles and tasks of the scientific observer on board fishing vessels in SIOFA.pdf.

Toothfish Maturity Scale.doc (CCAMLR)

Proposal of a maturity stages scale for oviparous and viviparous cartilaginous fishes.

Biologicaldatacollection.pdf (FAO)

DescripcionAutoline.pdf

Estadodelmar_viento.pdf

CODES

ASFIS_sp_2020.xlsx

COD AVES.xlsx

CMMs:

CMM 2019_02_data standards.pdf

CMM 2019_12 Sharks.pdf

CMM 2019_13 Mitigation of seabirds bycatch.pdf

CMM 2020_01 Interim Bottom Fishing Measures.pdf

CMM 2021_02 Data Standards.pdf

CMM 2021_15 Management of Demersal Stocks.pdf

Annex

SCIENTIFIC OBSERVATION PROGRAMME ON BOARD THE FISHING FLEET IN SIOFA WATERS

Introduction:

- Spanish fishing activity in the SIOFA Area
- Target species

1 OBJECTIVES OF THE SURVEY

1.1 Work of the campaign:

1.2 Observer's obligations:

2 METHODOLOGY OF WORKING ON BOARD

2.1 Important considerations

2.2 Photographs

2.3 Review work and data typing

3 SAMPLING:

3.1 Determination of maturity stages

3.2 Viviparous sharks

3.3 Sampling

4 VULNERABLE MARINE ECOSYSTEM INDICATOR ORGANISMS (VMEs)

4.1 VME encounter protocol and thresholds

4.2 Sampling of Vulnerable Marine Ecosystem Indicator Organisms

5 TAGGING of *Dissostichus eleginoides*

- Tag recaptures

6 PREDATION DATA COLLECTION

- Introduction
- Data collection

ANNEX I. GLOSSARY OF COMMON TERMS

ANNEX II: FORMS

ANNEX III Live weight to processed weight conversion factors