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Agri-Food and Biosciences Institute
Standard Operating Procedure

SOP Code:	FAEB (Branch)	MARFISH (Unit/Group)	040 (SOP No.)	V3 (Version)
Location:	Marine Fisheries Programme, Newforge Lane			
Author:				
Title:	Sampling retained demersal fish catches and discards from semi-pelagic fishery vessels at sea			
Purpose: (Please specify: analyse / measure / test / operate a method / equipment etc.	This procedure details the operations to be carried out in order to ensure that the following is carried out in a consistent manner.			
Date of Creation/Amendment	16/01/2015			

It is the project leader's responsibility to ensure that the appropriate SOP is specified for scientific work and that the SOP and training are provided to staff conducting the work.
It is the responsibility of the operator to follow the method, to record which SOP is used and any deviation from the written SOP.

Procedure

Guidance:

- *Standard operating procedures may be in numbered point format, with or without subheadings, or in a defined format as appropriate to the work.*
- *Any other documents referred to must be clearly cross-referenced.*
- *If it is necessary to amend the SOP, a new version must be created and copied to all who use it. Old versions must be withdrawn and archived and dates of amendments recorded.*

Signed:	(author)	(date)
	(laboratory manager)	(date)
	(unit manager or project leader)	(date)

Standard Operating Procedure MARFISH 040v3

Sampling retained demersal fish catches and discards from commercial vessels at sea

CONTENTS

Sampling retained demersal fish catches and discards from commercial vessels at sea.

1. **Scope**
   1.1. Samples of commercial catches from fishing vessels provide information on the fish and/or shellfish populations exploited, along with qualitative and quantitative data on discards. Discards are fish, shellfish and all the other organisms that have been caught and discarded at sea. Discards from vessel targeting groundfish are composed of undersized commercial fish species, and other species which are not marketable or cannot be landed for other reasons (e.g. species for which there is no Total Allowable Catch (TAC) remaining in the fishing area).
2. **Field of application**
   2.1. The data collected is used for commercial groundfish stock assessment. It is also used in quantifying the discard rates of commercial fish species. Otoliths are collected on commercial species for aging. This information is then used to provide a scientific basis to management options for the Irish Sea fishery.
3. **References**
   3.1. MARFISH003 Sampling at sea aboard RV Corystes: demersal fish
   3.2. Risk assessment documents (and relevant manual handling checklists):
   MARFISHRA01
   MARFISHRA07
4. **Principle**
   4.1. Fleet observers measure length frequencies and collect samples at sea on board vessels within the NI fishing fleet.
   4.2. The vessels to be sampled are randomly selected using the Skipper Contacts spreadsheet. An up to date boat list is generated every six months along with a new random sampling list for each observer.
   4.3. The level of sampling is as advised by the Project Leader to comply with EU and national sampling programmes.
   4.4. Each individual tow (hauls) should be sampled. Sampling strategy will largely depend on the main target species. Sampling technique will also depend on the type of gear used. The crew of commercial vessels sort the catch at a sorting bench or on a wooden table positioned on one side of the vessel. The sampling technique will be adapted to fit around the working practices of the crew on each vessel.
5. **Reagents**
   5.1. None
6. **Equipment**
   6.1. Sampling equipment:
   - Sampling baskets marked in fractions
   - Measuring boards both long and short
   - Forceps
   - Pencils
   - Recording forms for details of trawl deployment (MARFISHFM39)
   - Recording forms for catch composition, length, and otolith (MARFISHFM03, MARFIFM40)
   - Notebook
   - Erasers
   - Vernier callipers
   - Knives for otolith extraction, and taking biological samples

- Otolith packets/trays
- Scales

7. Operational procedure

7.1. Vessel selection:

Each week a random list of boats is drawn up for each observer. This should ensure that vessels are not sampled too frequently and that as far as possible, these vessels sampled are representative across the fleet, according to the data-collection framework. For effective sampling it is better a range of vessels is sampled as opposed to long trips on one vessel. Observers will attempt to contact skippers on the list, until they find a skipper who can take them at sea that week. All attempts to contact fishing skippers and the reasons for vessel non availability are recorded on the Fleet Observer Vessel Selection spreadsheet. If no vessel on the list is available, the team manager will generate replacement list for the observer.

7.2. Sampling

Use the same principles as *Nephrops* sampling (MARFISH042). For Retained catch determine the total weight (in boxes or baskets) for each species. Take a sample of each species and apply the appropriate raising factor. Get the crew to put the discards in a basket(s) and measure after they have finished processing the catch. Apply appropriate raising factor if necessary.

Fish length is measured from the tip of the nose to the tip of the tail and the measurements are recorded to the nearest cm below. Herring, sprat and mackerel are measured to nearest half cm below.

7.3. Otolith collection

Otoliths must be removed following the procedure described in MARFISH017. Each pair of otoliths (from an individual fish) must be placed and stored either in a 25 cells plastic box or in an envelope appropriately labelled (Species code, otolith number, fish length, tow number). Within each tow, up to 25 pairs of otoliths per category can be taken for each species.

8. Expression of results

Details of gear deployment have to be recorded using the specific forms. Time and date when leaving port and time and date on return to port have to be recorded too. Also record number of crew and vessel conditions.

The positions, times and depth of fishing station are recorded at the commencement and completion of the tow (from the time the net reaches the seabed to the time it lifts off again). Record this information on the relevant forms, which can be filled in by the fishing skipper if the observer is not present.

Recording forms for catch composition and length

Length frequencies for fish species and catch composition are initially recorded onto measuring boards. Transfer this information onto the appropriate recording forms (MARFISHFM03) after measurement of the haul.

Recording forms for otolith collection

The information from each of the fish used for otolith collection must be recorded on the appropriate recording form (MARFISHFM40) after the processing of each tow.

9. Quality Assurance

Do not discard any fish in the sample until you are sure that the lengths have been recorded. Ensure fish totals are tallied correctly using a calculator if necessary.

Ensure that the sample forms are fully and properly completed as well as legibly filled in. Document any computations or raising factors clearly.

10. Safety

Observers must have an up to date ENG1 and sea survival before going to sea. Safety gear comprising of a flotation aid, hard hat, protective gloves, safety boots/Wellingtons with steel toe caps must be worn. Use oilskins when working at sea and lab coat with waterproof apron when working onshore in lab.

Do not work on deck whilst trawling is being carried out. Ensure equipment is properly stored or secured in rough weather.

Think before lifting heavy and/or awkward objects. Ensure that you comply with Manual Handling Operations Regulations. Never be afraid to ask for help with a "lift". Heavy and bulky objects can be split in smaller parts to make lifting and handling easier and safer. The Health and Safety at work legislation requires everyone to have a duty of care both to themselves and others.

Always split the load in smaller portions when possible before handling and lifting.

Always try to establish a comfortable measuring platform to avoid kneeling and stooping.

Take adequate pauses to rest muscles, ensure the measuring board is in a suitable stable position that avoids the need for twisting. Rest individual fish on the measuring board, so that the weight of each fish is supported by the handler for the minimum length of time.

Correct use of Protective Gloves

Protective gloves in various thickness are provided for your protection. All staff must wear protective gloves when handling or sorting fish/shellfish and where appropriate when carrying out other tasks. Chain mail gloves must be worn when taking otoliths or using a knife. The correct gloves to wear are those which provide appropriate protection from the suspected risk (claws, teeth, spines, fish bones, toxins and electric shock) and which do not restrict hand movements to an unnecessary degree.

In addition, the degree of operator experience and the liveliness of fish and shellfish in the sample will also determine the choice of gloves to be worn. If you are unsure of any procedure or the degree of protection to be used, consult your line manager before beginning work.

Safety Equipment checklist

1. Safety boots
2. Steel toecap Wellington boots
3. Protective gloves
4. Mullion suit
5. Small portable fire extinguisher
6. EPIRB
7. Mini flare kit
8. Lifejacket
9. Hard hat
10. First aid kit
11. Pen knife
12. Warm outdoor clothing
13. Oilskins