

Sampling strategies as a function of the IOTC fishery

Category: Fishing Gear

[IOTC ROS SFO TR16]

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Descriptor

This module aims to familiarize Observers with sampling requirements, procedures and methods to be used in the collection of scientific fisheries data with IOTC fisheries (industrial tuna purse-seine; pelagic longline; pelagic gillnet; pole-and-line) as these will be used daily in their routine work.

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IOTC fisheries: Pelagic gillnet fishery

Trainee performance is evaluated against the following agreed IOTC ROS competency standards:

- Capable of collecting and estimating catch weight, volumes and ratios according to ROS standard procedures.

The achieving of these standards is demonstrated by candidate capacity to:

- Correctly select sampling strategies to use as a function of the fisheries, vessel configuration and set type (for the purse-seine fisheries);
- Correctly estimate weights, volumes and ratios with the industrial tuna purse-seiners, pelagic longliners, pole and line vessels and gillnetters.

Sampling strategies

- Sampling objectives include:
 - CPUE recording catch and effort
 - catch composition (target species and by-catch)
 - biological biometrics (*length frequencies, sex and maturity, diet and collecting DNA material*)

Sampling strategies

- Fishing operation and gear information can be obtained from Fishing Masters Logbook
- Observer's responsibility to verify information through
 - observations
 - measuring gear and recording operations
 - sampling

Sampling strategies

- CPUE Data (FORM 3– GIL)
- Gear information for gillnets are
 - net depth
 - length of the net set;
 - soak time (time the net is in the water)
 - set depth (vertical position in the water column)
 - mesh size

Sampling strategies

- Recording Catch composition
- catch composition can be obtained two sources
 1. vessels logbook (fish retained)
 2. observer monitoring (fish retained and by-catch discarded)
- Observe position requires view of net coming out of water and onto the deck*
- Two possibilities
 1. Total observed catch – *(monitoring whole net [100%] hauled back)*
 2. Percentage of net hauled *(length of net observed vs total length let set – raised figures)*

Sampling strategies

- Recording Catch composition
- Percentage of net hauled equals

•*(length of net observed vs total length let set)*

Number of panels observed / total length of net (m)

Sampling strategies

•**Example:** Percentage of net observed

- net panel dimensions 30 m long and 24 m deep
- number of panels set 250
- number of panels observed 150

•Calculation *Total length of net set* = (30×250) = 7500 m

• *Length observed hauled* = (30×150) = 4500 m

Number of panels observed / total length of net (m)

Sampling strategies

•**Example:** Calculated total catch raised by percentage observed:

number of each species observed divided by % of net observed

Species Observed	YFT	SKJ	KAW	LOT	GUT	SFA
No. Obs	20	37	145	200	89	23
% of total	0.6	0.6	0.6	0.6	0.6	0.6
Calculated total catch per species	33	62	242	333	148	38

Sampling strategies

- Length measurements
- factors influencing size range of the catches in gillnets
 - net selectivity (mesh size and net tension (hanging ratio))
 - shoaling fish
 - variable catch rates

Sampling strategies

- Length measurements
- Sampling position and sample selection
- Large industrial vessels
 - factory deck where fish are processed for freezing. sampling station close to where the fish come into the factory
- Smaller open deck vessels
 - Where fish temporarily held before transfer to hold (*This could be in bins or baskets or sections of the deck partitioned of with planks*)

Sampling strategies

- Length measurements
- Stratified Sampling Protocol *allows for the varied catch rates*
- Measure fixed number of target species in different size categories to get a representative sample for length
- Practical stratified sampling
- Select a number of fish of same species BUT randomly for length
- Measure until a clear length mode is achieved (up to 100 fish)
- If this is not evident on either of the extreme sizes then a higher number of fish should be measured.*

Sampling strategies

- Length measurements
- For Example:*
- 100 Kawakawa and 100 Longtail tuna
- The length frequency shows a narrow length mode*
- Notably this would indicate a highly selective net with a high hanging ratio.*

Length (cm) (FL)	KAW	LOT
33	0	
34	0	
35	0	
36	2	
37	12	0
38	38	1
39	41	2
40	3	12
41	4	38
42	0	44
43	0	3
44		0
45		
46		
Total measured	100	100

Sampling strategies

- Length and Catch Composition (mixed species and proportional sampling)
 - sample a fixed number (or volume) at intervals
 - samples must be collected before its sorted if this is possible
- Sort the sample to relative species level and then record length frequencies per species
- The number of species and number per species sampled should provide indication of
 - the relative catch composition (relative number per species)
 - the relative length frequency of the different species.

END - *IOTC SFO TR 16*

THANK YOU

[Insert here logos from partners other than CCP]