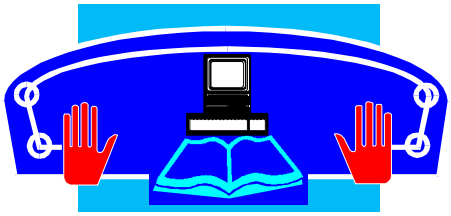

Northwest Territories Exploratory Fishery Program
Type of Study: Exploration / Stock Assess.
Date of Report: 1990
Author: Canada-fisheries & Oceans(dfo)
Catalogue Number: 3-14-12

DATA COLLECTION

The evaluation of an Exploratory Fishery depends on how well the data were collected. This means that great care should be taken when collecting and recording data. The following explanation is a step-by-step Procedure.

INSHORE FISHERY SET RECORD
(see enclosed COPY)

A set record must be filled out every time gear is set. A separate record must be filled out for every piece of gear set (eg. 1 record for every longline or line of shrimp traps set).

SET NO.: Sequential number of set record for the project.

DATE: dd.mm.yy

VESSEL: Name or type of vessel.

RECORDER: Name of person filling out the set record.

LOCATION: Indicate latitude and longitude and/or include a short description of the location (eg. 2 miles SE of Peale Point). Use place names from navigational charts, not local names. You could also include a map with the location of each set marked by SET NO. .

MIN. DEPTH: Minimum depth over area fished, in meters. (Note if other unit of measurement used)

MAX. DEPTH: Maximum depth over area fished, in meters. (Note if other unit of measurement used)

SET DEPTH: Depth at which gear is set, in meters. (Note if other unit of measurement is used)

TOW SPEED: Nautical miles per hour. (Note if other unit of measurement used)

GEAR: Specify type and dimensions of gear used as indicated.

SET TIME: Start: Time at which You finish setting out the gear .

SET TIME: End: Time at which You begin to haul in the gear.

SET TIME: Duration: Length of time gear is fishing.

Recording Total Catch:

In some cases it will not be feasible to count all the shrimp or shellfish caught. For example, many thousands of shrimp or scallops may be caught in a single haul. In cases such as this, the catch can be measured by volume or weight, if a suitable scale is available. Volume can be measured by loading the catch into containers of known volume (eg. 5-gallon buckets, fish boxes, etc.). If You do not know the volume of the container You want to use, measure it using a container of known volume. If any catch is recorded as volume, a minimum of 10 samples must be counted in order to derive a volume-to-number conversion factor. For example, if shrimp catch is measured by pouring the shrimp into l-gallon buckets, a minimum of 10 buckets must be counted. These counts should be recorded on a separate sheet and submitted at the end of the fishery.

i. Shrimp: Identify to species if possible. Record number, weight or volume, depending on abundance. Indicate units.

ii. Scallops, Other Shellfish: Identify to species. Record number, weight or volume, depending on abundance. Indicate units.

iii Finfish: Identify to species. Record number and weight. If the catch is too large to measure total weight, estimate the weight as best you can.

iv. Incidental Catches: Identify to species if possible. For shrimp and shellfish, record number, weight or volume, depending on abundance. For finfish, record number. Record any catches of marine mammals or seabirds, and whether they were killed or released alive.

No. Sampled-Frozen: Number or weight of specimens frozen or preserved in some other way.

NO. Sampled-Lng/Wt: Number of specimens measured and weighed.

No. Sampled-Autopsy: Number of specimens on which full sampling was done, ie. length, total weight, sex, maturity, stomach contents, otoliths or other aging structure retained.

SEAR DAMAGE: This can be permanent or temporary damage. For example, a longline might be retrieved with some of the hooks tangled (temporary damage), or a trawl might be ripped (permanent damage). Use scale O-5 (described on the Set Record) to indicate the effect you think the damage may have had on the catch.

NO. HOOKS LOST For longline sets, number of hooks lost.

COMMENTS: Any other observations, such as weather, currents, bottom type, water clarity, problems encountered, etc.

GENERAL SAMPLING INSTRUCTIONS

It is essential that at least 100 specimens of each dominant or commercially important species from the total catch be sampled (except shrimp- see below). If sufficient time is available, additional full or partial (eg just length and weight) may be carried out.

Sampling involves recording the species, length, weight, sex and maturity of each specimen, and retaining a structure such as an otolith, scale or shell to be used later for aging the specimen.

Random Sampling:

The data and samples taken in an Exploratory Fishery must be truly representative of the catch. Therefore, samples must be selected randomly from the catch. Do not pick and choose the fish to be sampled; this invariably results in an unrepresentative or "biased" sample. With finfish, it is usually easiest to sample a few fish from each set until the required number of samples is taken. Select the fish to be sampled by scooping or raking the required number of fish into a box or small pile, then sampling the contents of the box or pile. Do not select the fish individually from the catch. With shellfish or shrimp, scoop a sample from the catch into a suitably sized container, then sample the contents of the container.

Labelling Samples:

It is very important that samples be labelled completely and correctly. Samples are most easily labelled using the sample envelopes provided for Exploratory Fisheries, filled out with the appropriate information. Aging structures such as otoliths may be placed inside the envelopes (do not seal the envelopes). For other samples, such as whole shrimp or shells, the envelope should be placed inside the bag containing the samples. Bags should also be labelled on the outside with an indelible marker.

All information reccrded on sample labels should also be recorded on a SAMPLE RECORD SHEET (coPY enclosed). Keep a separate record for each species sampled and for each gear type/size. For example, if you are using longlines and' gillnets, separate records should be kept for the cod caught with each gear type.

The following information must be indicated on all labels and sample record sheets:

Sample No. : A different number must be assigned to each fish in the series, eg. 1, 2, 3,... The number should run in sequence for the duration of the fishery. Keep a separate sequence for each species and for each gear type/size. ,

Date: Date of sampling.

Location: Refer to SET RECORD, ie. Set Record 3 (Location should be indicated on SET RECORD).

Species: Common name.

Gear Type/Size: Describe, as per SET RECORD.

Sampling Finfish:

The following measurements and observations should be made. Record the information on sample labels and sample record sheets.

Fork Length: If the tailfin is forked, length in millimetres (mm) from the tip of the snout to the shortest fin ray at the fork of the tail fin (Figure 1, solid line). If the tailfin is not forked, measure from the tip of the snout to the longest ray on the tail fin (Figure 1, dashed line).

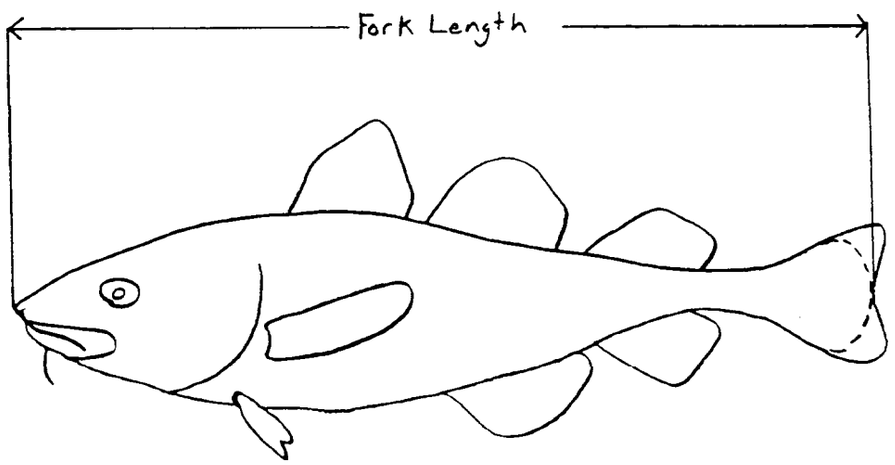

Figure 1: Measuring Fork Length.

Weight: Weigh whole fish before dissection, as soon after capture as possible. Note units.

Sex and Maturity: Dissect the fish and use the attached summary sheet to assign a sex and maturity code (see Appendix I). If You feel you do not have time to use the full maturity code, or if You find it too difficult with the species You are working on, simply record sex as Male - M, Female - F, Unknown - U.

Remove Otoliths: The otoliths are a pair of small white bones found at the base of the brain. They are enclosed in clear fluid-filled capsules. Otoliths are used to determine the age of the fish.

The best method of removing the otoliths depends on the species of fish being sampled:

Cod: Cut through the top of the skull along a line from the top of the eyes to the top of the gill covers (see Figure 2). Pull up the resultant flap. The large otoliths should be visible just behind the brain. Remove with tweezers.

Greenland Halibut (Turbot): Cut through the top of the skull along a line from the dorsal eye to the dorsal edge of the gill covers (see Figure 2). Pull up the resultant flap. The large, irregularly shaped otoliths should be visible on either side of the brain. Remove with tweezers. Careful , they are very delicate!

Other Species: Try one of the above methods, or contact Your nearest DFO office for specific instructions.

Clean the otoliths by rubbing them between your fingers. Place the otoliths loose in the envelope labelled for that fish. Do not seal the envelope.

Remarks: Note any peculiarities such as deformities, parasites, damaged tail or running eggs and sperm, etc.

Sampling Shellfish:

Sampling should be carried out at each promising bed. Take at least 100 whole animals from the catch and put them in a plastic bag. Put the label inside the bag, seal it, label the bag on the outside and freeze the samples as soon as possible.

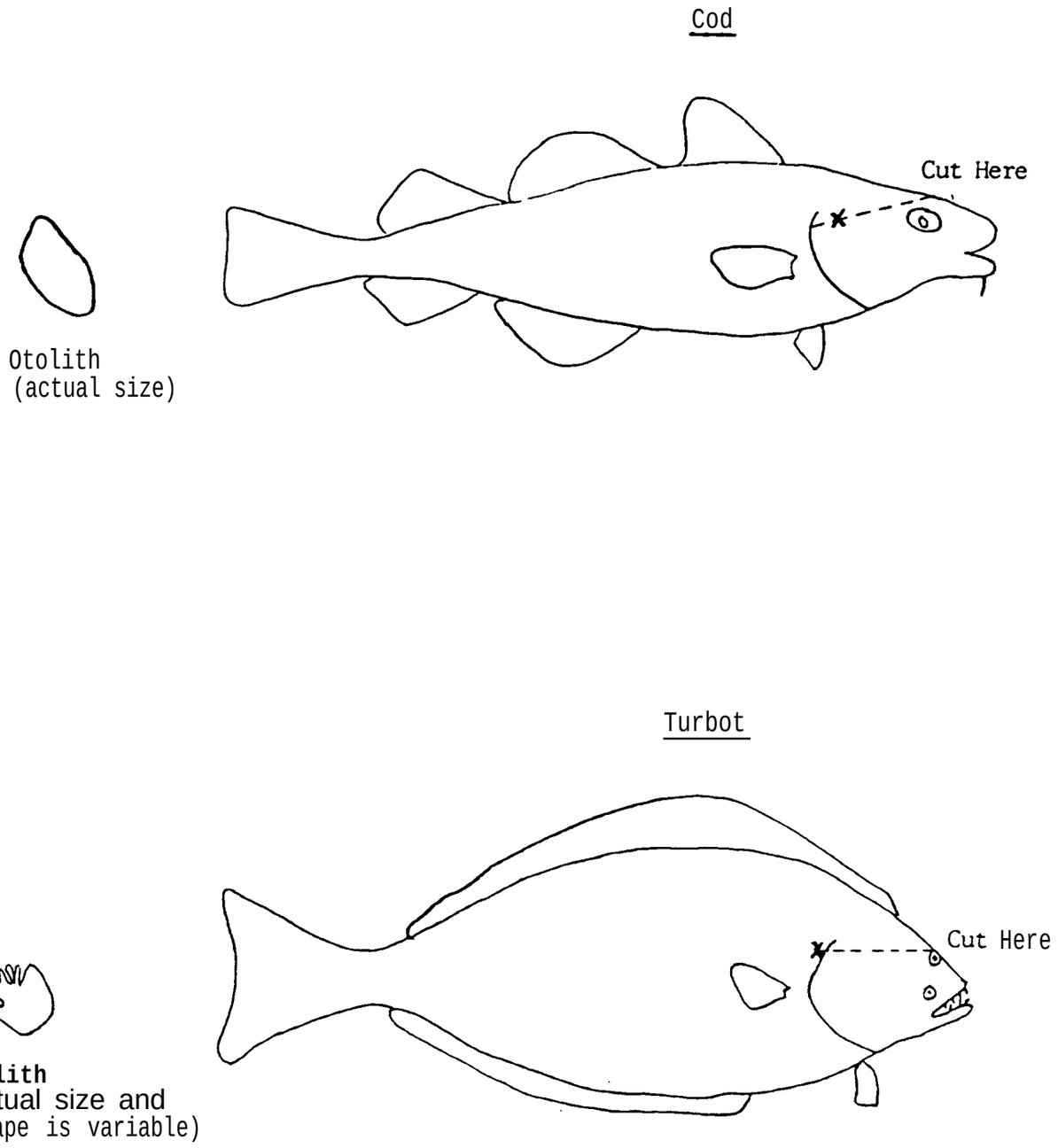

Figure 2: Removing otoliths from cod and turbot.

Sampling Shrimp:

Sampling should be carried out in each area where shrimp are caught in significant numbers. Take a 2 kg (about 5 lb) sample from the catch and bag the sample, placing the label inside the bag. Seal the bag, label it on the outside and freeze the sample as soon as Possible.

REPORTING RESULTS

Immediatly **following the completion of the exploratory fishery, a report of the results should be made. The report should include copies of all** SET RECORDS and SAMPLE **RECORD SHEETS, and any** volume counts made. **Total harvest of the** fishery must also be reported. **Send the report and samples to:**

Department of Fisheries and Oceans,
Attention: Area Management Biologist,

P.O. Box 1871,	P.O. 90X 2310,	P.O. BOX 158,
INUVIK, N.T. ,	HAY RIVER, N.T.	IQALUIT, N.T.
XOE OTO	XOE ORO	XOA OHO
(403) 979-3313	(403) 874-2331	(819) 979-6274

In response, we **will send you an evaluation of the Exploratory** Fishery within **6 months of receipt of data and samples.**

If you **have any questions about these instructions, or require more specific information, please contact the OFO Area Biologist in Your area.**

INSHORE FISHERY SET RECORD

SET NO.____ P —OF —

DATE:_____ UESSEL:_____ RECORDER:_____

LOCATION: latitude ____°____'N, longitude —0—' ii).

MIN. DEPTH:____ m
MAX. DEPTH-m
SET DEPTH: —m
TOW SPEED: — kts

GEAR: Longline, ____ hooks.
Gill Net, —' mesh, —' long H —' deep.
— Drags, —"rings, —" wide x —"deep.
— Traps, —" mesh, _____ bait.
Oredge, —" mesh, — "wide H —" deep.
Trawl, —" mesh, —' wide x —' deep

SET T! ME: Start_____am/pm End_____am/pm Duration_____

Species	Total Catch			No. Sampled		
	No.	Wt. ( )	Vol.( )	Frozen	Lng/Wt	Autopsy
Shrimp						
Gr. Halibut						
Arc. Cod						
Atl. Cod						
Gr. Cod						
Scallops						
Clams						

GEAR DAMAGE:_____

0 - No damage
1 - Minimal, no effect on catch
2 - Minor, little effect on catch
3 - Significant effect on catch
4 - Major effect on catch
5 - Extreme, no catch

NO. HOOKS LOST-

COMMENTS:_____

Government of Canada / Gouvernement du Canada

Fisheries and Oceans / Pêches et Océans

FISH AND MARINE MAMMAL MANAGEMENT DIVISION

SAMPLE RECORD SHEET

DATE

DAY	MONTH	YEAR

LAKE/STREAM/LODGE

SPECIES | FISHERY

MESH SIZE/GEAR

NUMBER	SAMPLE NUMBER	FORK LENGTH (mm)	ROUND WEIGHT (9)	DRESSED WEIGHT (9)	AGE	MAT/SEX			REMARKS
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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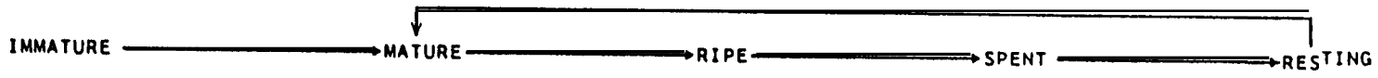
30									

RECORDER

Append x 1. ⊓ descr ption ⌀f the re at ve stages o matur ty used f⌐r northern fishes.

MATURITY FLOW CHART



FISH MATURITY CODE

Maturity Stage		Fema e		Ma e
Immature (virgin)		-Ovarie≥ ⌀ranular in texture -ha⊓d and triangular in shape -⌀p t⌀ ⊏fu'l length of body cavity -ω emb⊣_ne firm -egg≥ _is. inguishab e	≡	-Testes long and granular -tubular and scalloped shape -up to full body length -putty like firmness
Mature	2	-Current year spawner -ovary fills body cavity -eggs near full size but not ⌀ose -not expelled by pressure	7	-Current year spawner -testes large and lobate -white to purplish color -centers may be fluid -milt not expelled by pressure
Ripe	3	-Ovaries greatly extended & f bo⌀y cavity -eggs full size and transparent -eggs expelled by slight pressure	8	-⌣,e⊏tes full size -ω h, .e and lobate -ω i. . expelled by ≡ igh pressure
Spent	4	-Spawning complete -ovaries ruptured and flaccid -seed eggs visible -some retained eggs in body cavity	9	-Spawning complete -testes flaccid with s⌀me mi t -blood vessels obvious -testes violet-pink in co or
Resting	5	-Ovary 40-50% of body cavity -membrane thin, loose, & semi-transparent -healed from spawning -seed eggs apparent with few atret c e⌀gs -some eggs may be retained in body c⊏v⋅ty	10	-Testes tubular, less ⌀ba e⋅ -healed from spawning -no fluid in center -usually full length -mottled and purplish n c⌀ or
Unknown (virgin)	⌀	-cannot be sexed -gonads long or short & thin -transparent or translucent		
Unknown (non-virgin)		-rest'ng 'f⊐h -has spawne⌀ but gonads regenerated -sexing not poss⋅ble		