# Protocols for the sampling of commercial catches of marine fish and invertebrates <br> in the Gulf of St. Lawrence 

Canadä

## CONTEXT

The sampling of commercial catches of marine fish and invertebrates is one of the main tools used by the Department of Fisheries and Oceans (DFO) to achieve its mandate regarding the assessment of these resources. The implementation of the sampling program is ensured by specialized personnel. One of their functions is to collect biological data related to all species of marine groundfish, pelagic fish and invertebrates landed in the various maritime communities.
The commercial data delivery for fishing activities conducted in the Gulf of St. Lawrence is the result of DFO interregional agreements for commercial catch sampling, while taking into account each region's resource status responsibilities. The protocols, like the sampling plans which are re-examined annually, are standardized in consultation with assessment biologists responsible for each exploited stock.
This document presents the protocols for the collection of biological data for commercial catches of marine species in the Gulf of St. Lawrence and is structured according to fish and invertebrate species groups. For each species, the sampling protocols are illustrated in the form of shortened data sheets on which the species code, the type of form, the main procedure guidelines, the sampling stratification criteria as well as the biological material collection techniques for detailed laboratory examination are presented. Forms and detailed directives to complete these are also available. The codes and procedures particular to each type of sampling, the definition of fishing zones as that of the landing districts are also available.

FISH
Data sheets
Sampling forms
Directives - forms
Summary of protocols

## INVERTEBRATES

Data sheets
Sampling forms
Directives - forms
Summary of protocols

## SAMPLING FORMS - FISH

Port sampling
Accuracy of $1.0 \mathrm{~cm}, 1.0 \mathrm{~mm}$ and 0.1 mm
Accuracy of 0.5 cm
At-sea sampling
Accuracy of $1.0 \mathrm{~cm}, 1.0 \mathrm{~mm}$ and 0.1 mm
Accuracy of 0.5 cm

## DIRECTIVES - SAMPLING FORMS (FISH)

## Port sampling

At-sea sampling

## SAMPLING FORMS - INVERTEBRATES

Port sampling
Waved Whelk
Sea cucumber
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.
At-sea sampling
Waved Whelk
Sea cucumber
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.

## DIRECTIVES - SAMPLING FORMS (INVERTEBRATES)

Port sampling
Waved Whelk
Sea cucumber
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.
At-sea sampling
Waved Whelk
Sea cucumber
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.
Data sheets
Capelin - Additional taxonomic information
Atlantic Halibut - Additional taxonomic information
Greenland Halibut - Additional taxonomic information
Atlantic Herring, divisions 4RS - Additional taxonomic information
Atlantic Herring, division 4T
Yellowtail Flounder - Additional taxonomic information
Atlantic Mackerel - Additional taxonomic information
White Hake - Additional taxonomic information
Atlantic Cod, divisions 3Pn4RS - Additional taxonomic information
Atlantic Cod, division 4T
American Plaice - Additional taxonomic information
Witch Flounder - Additional taxonomic information
Winter Flounder - Additional taxonomic information
Redfish sp. - Additional taxonomic information
Windowpane - Additional taxonomic information

## Description of a data sheet - Fish

| Species name |  |
| :--- | :--- |
| CODE: species code <br> (Waite 1983) | Species illustration |
| Fishing zone: | PRAFO divisions (Halliday and Pinhorn 1990) to which the data <br> sheet applies. <br> Type of sampling (port or at-sea). |
| Sampling protocol: | The form corresponding to the sampled species as well as <br> the directives attached to it, according to the type of <br> sampling. <br> The number of fish required per sample. |
| SELECT: | Indication on the need for determining or not the sex for the <br> sampled species. |
| SEX: | The grouping and the type of length measurement required <br> for the sampled species. |
| MEASURE: | The selection criteria for the collection of otoliths, spines or <br> for the preservation of specimens. <br> The preservation method for the collection of specimens, <br> otoliths or spines. |
| COLLECT: |  |


| CAPELIN <br> CODE: 0064 | Photo: F. Grégoire |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4RST <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: | A maximum of 150 fish per tow for as many tows as possible per trip. |
| port: | Select randomly around 150 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. The male can be distinguished by its secondary sex characteristics, such as its lateral line and its anal fin that are larger during spawning season. |
| MEASURE: | The total length by gripping the caudal lobes and round to the nearest 1.0 mm . |
| COLLECT: | 1 fish by 5.0 mm length-class per sex. |
| PRESERVE: | Each fish frozen separately in plastic bags labeled with the sex and the length. The bags are placed in waxed cartons labeled according to the instructions. |


| ATLANTIC HALIBUT CODE: 0030 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4RST <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for as many tows as possible per trip. <br> Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. At port, only if the fish has not been eviscerated. |
| MEASURE: | the fork length and round to the nearest 1.0 cm . |
| COLLECT: | No. |
| PRESERVE: | No. |


| GREENLAND HALIBUT CODE: 0031 |  <br> Photo : C. Nozères |
| :---: | :---: |
| Fishing zone: Sampling protocol: | 4RST <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 150 fish per tow for as many tows as possible per trip. <br> Select randomly around 150 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. At port, only if the fish has not been eviscerated. |
| MEASURE: | The fork length and round to the nearest 1.0 cm . |
| COLLECT: | No. |
| PRESERVE: | No. |


| ATLANTIC HERRING CODE: 0060 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4RS <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 150 fish per tow for as many tows as possible per trip. <br> Select randomly around 150 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | No. |
| MEASURE: | The total length by gripping the caudal lobes and round to nearest 0.5 cm . |
| COLLECT: | 55 fish selected randomly, excluding individuals that have been measured. |
| PRESERVE: | The fish frozen in waxed cartons labeled according to the instructions. |


| ATLANTIC HERRING CODE: 0060 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\underline{4 T}$ <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for as many tows as possible per trip. <br> Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | No. |
| MEASURE: | The total length by gripping the caudal lobes and round to the lowest 0.5 cm . |
| COLLECT: | 2 fish by 0.5 cm length-class among the measured fish. |
| PRESERVE: | The fish frozen in waxed cartons labeled according to the instructions. |


| YELLOWTAIL FLOUNDER CODE: 0042 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\underline{4 T}$ <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change after with each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for as many tows as possible per trip. <br> Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. At port, only if the fish has not been eviscerated. |
| MEASURE: | The total length and round to the nearest 1.0 cm . |
| COLLECT: | 1 otolith by 1.0 cm length-class per sex. |
| PRESERVE: | The otoliths in envelopes labeled according to the instructions. |


| ATLANTIC MACKEREL CODE: 0070 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4RST <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change after with each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 150 fish per tow for as many tows as possible per trip. <br> Select randomly around 150 fish from the overall landing. the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | No. |
| MEASURE: | The fork length and round to the nearest 0.5 cm . |
| COLLECT: | 2 fish by 0.5 cm length-class. |
| PRESERVE: | The fish frozen in waxed cartons labeled according to the instructions. |


| WHITE HAKE CODE: 0012 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: Sampling protocol: | $4 \mathrm{~T}$ <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for as many tows as possible per trip. <br> Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | No. |
| MEASURE: | The total length and round to the nearest 1.0 cm . |
| COLLECT: | 1 otolith by 1.0 cm length-class per sex. |
| PRESERVE: | The otoliths in envelopes labeled according to the instructions. |


| ATLANTIC COD CODE: 0010 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4RS, 3Pn <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 150 fish per tow for as many tows as possible per trip. <br> Select randomly around 150 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | No. |
| MEASURE: | The fork length and round to the nearest 1.0 cm . |
| COLLECT: | 3 otoliths by 3.0 cm length-class. |
| PRESERVE: | The otoliths in envelopes labeled according to the instructions. |


| ATLANTIC COD CODE: 0010 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\underline{4 T}$ <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for as many tows as possible per trip. <br> Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | No. |
| MEASURE: | The fork length and round to the nearest 1.0 cm . |
| COLLECT: | 1 otolith by 1.0 cm length-class. |
| PRESERVE: | The otoliths in envelopes labeled according to the instructions. |


| AMERICAN PLAICE CODE: 0040 | Photo : C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4T <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for a as many tows as possible per trip. <br> Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. At port, only if the fish has not been eviscerated. |
| MEASURE: | The total length and round to the nearest 1.0 cm . |
| COLLECT: | 1 otolith by 1.0 cm length-class per sex. |
| PRESERVE: | The otoliths in vials containing glycerin and labeled according to the instructions. |


| WITCH FLOUNDER CODE: 0041 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4RST <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 fish per tow for as many tows as possible per trip. <br> Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. At port, only if the fish has not been eviscerated. |
| MEASURE: | The total length and round to the nearest 1.0 cm . |
| COLLECT: | 1 otolith by 1.0 cm length-class per sex. |
| PRESERVE: | The otoliths in envelopes labeled according to the instructions. |


| WINTER FLOUNDER CODE: 0043 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: | 4RST |
| Sampling protocol: | at-sea or port sampling |
| PROCÉDURES |  |
| USE: |  |
| at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: |  |
| at-sea: | A maximum of 250 fish per tow for as many tows as possible per trip. |
| port: | Select randomly around 250 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: |
|  | 250 fish $\div$ by the number of categories $=$ the number of fish to measure by category. |
| SEX: | Yes. At port, only if the fish has not been eviscerated. |
| MEASURE: | The total length and round to the nearest 1.0 cm . |
| COLLECT: | 1 otolith by 1.0 cm length-class per sex. |
| PRESERVE: | The otoliths in envelopes labeled according to the instructions. |


| REDFISH <br> CODE: 0023 | Photo: C.Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 4 RST, 3Pn4Vn from January to March (Unit 1) at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: <br> SELECT: <br> at-sea: <br> port: <br> SEX: <br> MEASURE: <br> COLLECT: <br> PRESERVE: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. <br> A maximum of 150 fish per tow for as many tows as possible per trip. <br> Select randomly around 150 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. <br> Yes. At port, only if the fish has not been eviscerated. <br> The fork length and round to the nearest 1.0 cm . <br> Count the number of soft rays in the anal fin of the first 50 fish measured. <br> No. |


| WINDOWPANE CODE: 0143 | Photo: P. Goudreau |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $4 \mathrm{~T}$ <br> port sampling |
|  | PROCÉDURES |
| USE: <br> port: <br> SELECT: <br> port: <br> SEX: <br> MEASURE: <br> COLLECT: <br> PRESERVE: | Complete the form according to the related directives. <br> Select randomly around 150 fish from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: <br> 150 fish $\div$ by the number of categories $=$ the number of fish to measure by category. <br> Yes. At port, only if the fish has not been eviscerated. <br> The total length and round to the nearest 1.0 cm . <br> No. <br> No. |

Directives related to the forms - Fish (at-sea sampling)


Fishing effort: determination of the fishing effort by gear type used.

## Example:

gillnet (GN): number of gillnets used in each haul.
bottom otter trawl (OTB): tow duration (number of hours) during which the trawl was fishing.
longline (LL): number of longlines used in each haul.
jigger (LHM): number of jiggers used multiplied ( $x$ ) by the number of hours fished.

Catch weight: total weight, in kilograms, of the sampled species catch (before discarding).

Sample weight: total weight, in kilograms, of all the measured fish noted on the form. The value can be exact or estimated.

Group: code for accuracy and units of measurement for the measured fish noted on the form:
$1.0 \mathrm{~cm}: 1.0 \mathrm{~mm}: 3$
$0.5 \mathrm{~cm}: \quad 2 \quad 0.1 \mathrm{~mm}: 4$
Type of measurement: type of measurement used.
Fishing site: position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.

Seq. no: sequential number of the collected spines or otoliths for each lengthclass, according to the stratification criteria described in the data sheets. This number is unique for the sample.

Length: length of the measured fish according to the procedures described in the data sheet for the sampled species. For species requiring otoliths collection grouped by 3.0 cm length-class, measurements must be recorded on the form using a length-class stratification for which the first interval is from 0-2.0 cm.

Count/Sex for each measured fish, draw a vertical line (|) in the space corresponding to its length and sex (illustrations flatfish). Note the sex as follows:

M: male $\quad$ : female $\quad$ : unsexed
Total: total number of measured fish for each length-class, per sex (when applicable).

No. of measured fish:

No. of otoliths/ spines:

No. of frozen
fish:
Notes:
total number of preserved otoliths noted on the form according to the procedures described in the data sheets.
total number of frozen fish according to the procedures described in the data sheets.
space provided for comments.

## Directives related to forms - Fish (port sampling).


Sampled cat.: code for the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be described
in the notes): ..... 9
Cat. weight: total weight, in kilograms, of the category from which the sampledspecies fish specimens have been selected.
Sample weight: total weight, in kilograms, of all the measured fish noted on the form. The value can be exact or estimated.
Sampled status: status of the sampled species:
round: ..... 1
gutted: ..... 2
gutted, head off: ..... 3
bobtailed: ..... 4
bled: ..... 5
split: ..... 6
others (to be described in the notes): ..... 9
Group: code for accuracy and units of measurement for the measured fish notedon the form:
$1.0 \mathrm{~cm}: \quad 1$ 1.0 mm: ..... 3
$0.5 \mathrm{~cm}: \quad 2$ 0.1 mm: ..... 4
Type of measurement: type of measurement used
Seq. no: sequential number of the collected spines or otoliths for each length-class, according to the stratification criteria described in the data sheets.This number is unique for the sample.

| Length: | length of the measured fish according to the procedures described in the data sheet for the sampled species. For species requiring otoliths collection grouped by 3.0 cm length-class, measurements must be recorded on the form using a length-class stratification for which the first interval is from $0-2.0 \mathrm{~cm}$. |
| :---: | :---: |
| Count/Sex | for each measured fish, draw a vertical line (I) in the space corresponding to its length and sex (illustrations flatfish). Note the sex in the following way: |
|  | $M$ : male $\quad$ F: female $\quad$ : unsexed |
| Total: | total number of measured fish for each length-class, per sex (when applicable). |
| No. of measured fish: | total number of measured fish noted on the form. |
| No. of otoliths/ spines: | total number of preserved otoliths noted on the form according to the procedures described in the data sheets. |
| No. of frozen fish: | total number of frozen fish according to the procedures described in the data sheets. |
| Notes: | space provided for comments. |

Limits of the NAFO fishing unit areas (Halliday and Pinhorn 1990). See the map.
NAFO: Northwest Atlantic Fisheries Organization

| UNIT AREA | DESCRIPTION |
| :---: | :---: |
| 4Tf | Magdalen Islands area |
| 4Tm | Restigouche to Port-Daniel Est |
| 4Tn | Pointe-au-Maquereau to Cap-de-Gaspé |
| 4To | *Cap-de-Gaspé to Capucins |
| 4Tp | Ste-Flavie to Quebec to Colombier |
| 4Tq | Les Méchins to Métis and Betsiamites to Pointe-des-Monts |
| 4Si | Area west to Anticosti Island |
| 4Ss | Area south to Anticosti Island |
| 4Sz | *Pointe-des-Monts to rivière Moisie |
| 4Sy | *Rivière Moisie to Natashquan |
| 4Sv | Kégaska to Tête-à-la-Baleine |
| 4Sw | Baie-des-Moutons to Blanc-Sablon |
| 4Ra | *Blanc-Sablon to Pointe Riche |
| 4Rb | *Pointe Riche to Pearl Island |
| 4Rc | *Pearl Island to Cape St George |
| 4Rd | *Cape St George to Cape Ray |
| 3Pn | *Cape Ray to Burgeo |
|  | * Locality included in the zone. |

NAFO unit areas (Adapted from Halliday and Pinhorn 1990).


## Types of measurements for marine fish sampling.



Photo : C. Nozères
(1) Total length:
from the forward end of the head to the end of the longest caudal fin ray, except for herring and capelin for which the rays must be brought back on the longitudinal axis by gripping the tail.
(2) Fork length:
from the forward end of the head to the cartilaginous end of the shortest ray or median ray of the caudal fin.
(3) Standard length:
from the forward end of the head to the end of the caudal peduncle.

Illustrations of the sexual characteristics of flatfish (Adapted from Kulka and Firth 1985).

| IMMATURE |  | MATURE |
| :---: | :---: | :---: |
| $\stackrel{\text { 山 }}{\stackrel{\text { ® }}{\Sigma}}$ |  | anterior part slender <br> whitish gonad, firm no posterior lobe |
|  |  |  |

Description of a data sheet - Invertebrates
DATA SHEETS
Waved Whelk - Additional taxonomic information
Sea cucumber - Additional taxonomic information
Common Razor Clam - Additional taxonomic information
Hyas Crab - Additional taxonomic information
At-sea
Port
Rock Crab - Additional taxonomic information
Snow Crab - Additional taxonomic information
Inshore - At-sea
Inshore - Port
Offshore - At-sea
Offshore - Port
Northern Shrimp - Additional taxonomic information
American Lobster - Additional taxonomic information
Surf Clam sp. - Additional taxonomic information
Soft Shell Clam - Additional taxonomic information
Green Sea Urchin - Additional taxonomic information
Scallop sp. - Additional taxonomic information
At-sea
Port

## Description of a data sheet - Invertebrates.

| Species name <br> CODE: species code (Waite 1983) | Species illustration |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | Zones of the fishery management plan to which the data sheet applies. <br> Type of sampling (port or at-sea). |
|  | PROCEDURES |
| USE: | The form corresponding to the sampled species as well as the directives attached to it, according to the type of sampling. |
| SELECT: | The number of individuals required per sample. |
| SEX: | Indication on the need for determining or not the sex for the sampled species. |
| MEASURE: | The grouping and the type of length measurement required for the sampled species. |
| COLLECT: | The selection criteria for the preservation of specimens. |
| PRESERVE: | The preservation method for the collection of specimens. |


| WAVED WHELK CODE: 4211 | Photo: Y. Dufresne |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\underline{1} \text { to } 15$ <br> at-sea or port sampling |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | All the whelks of a pot for as many pots as possible per trip. <br> Select randomly around 150 whelks from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of whelks to sample by category is defined by the following rule: <br> 150 whelks $\div$ by the number of categories $=$ the number of whelks to measure by category. |
| SEX: | No. |
| MEASURE: | The maximal height of the shell and round to the nearest 1.0 mm . |
| COLLECT: | No. |
| PRESERVE: | No. |

Directives related to the form - Waved Whelk (at-sea sampling).
Coded by: first cell: $\quad M=D F O$, sea
following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé
GS = South Gaspé
IM = Magdalen Islands
last three cells: first sampler initials.
Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species, regardless of the fishing location.
Date: sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).

Landing district:
Fishing zone and ground:

Landed weight:

Gear:
Total no. of pots:

Mesh size:

Catch weight

Pot seq. no.: sequential number of the pot hauling, as determined by the fisher.
Depth: depth, in meters, of the site where the gear has been fishing.
Soaking time number of days during which the pot was soaked.
code of the district where the sampled species was landed.
the fishing zone in the first three cells. The fishing ground in the last four.
total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.
code of the gear used by the fisher.
total number of hauled pots corresponding to the landing.
size, in millimeters, of the pot stretched mesh.
total weight, in kilograms, of the sampled species catch (before discarding).
Sample weight: total weight, at the nearest 0.1 kilogram, of all the measured whelks noted on the form. The value may be exact or estimated.
Fishing site: position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Height: maximal height of the shell measured according to the procedures.
Count/Sex: for each measured whelk, draw a vertical line (I) in the space corresponding to the height. Write I for the sex.
Total: total number of measured whelks for each height-class, per sex.
No. measured total number of measured whelks noted on the form.
No. smashed total number of smashed whelks in the sample that could not be measured.
Notes: space provided for comments.
Directives related to the form - Waved Whelk (port sampling).
Coded by: first cell: $\mathrm{Q}=\mathrm{DFO}$, port
following two cells: sampled region code.

sampled region code.
last three cells: first sampler initials.

first sampler initials.
Species: sampled species code according to the data sheets.

sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species, regardless of

each sampler gives a unique number to each sample by species, regardless ofthe fishing location.
Date: sampling date (DD MM YY).

sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.

name of the fishing vessel that caught the sampled species.
CFV no.:when number not available).
Landing district: code of the district where the sampled species was landed.

code of the district where the sampled species was landed.
Fishing zoneground:
Landed weight:

total weight, in kilograms, of the sampled species commercial landing.
Gear:
Total no.of pots:
No. of potsper sling:Soaking time
No. of cat.:
CN = North Shore
ES = Estuary

ES = Estuary
GN = North Gaspé
GS = South Gaspé
IM = Magdalen Islands

CN $=$ North Shore the fishing location.
when number not available).
the fishing zone in the first two cells. The remaining cells are left blank. Notice: Landing = catch - discard.
code of the gear used by the fisher.
approximation of the total number of hauled pots corresponding to the landing.
average number of pots per sling.
average number of days during which all the pots were soaked.
total number of categories recorded in the landing (when applicable).
NB the category is designating a bunch of whelks selected from the catch according exclusively to commercial criteria.
Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be described
in the notes): ..... 9
Cat. weight: total weight, in kilograms, of the category from which the sampled whelks havebeen selected.
Sample weight: total weight, at the nearest 0.1 kilogram, of all the measured whelks noted onthe form. The value can be exact or estimated.
Height: maximal height of the shell measured according to the procedures.
Count/Sex: for each measured whelk, draw a vertical line (I) in the space corresponding tothe height. Write I for the sex.
Total: total number of measured whelks for each height-class, per sex.
No. measured total number of measured whelks noted on the form.No. smashed
Notes:
total number of smashed whelks in the sample that could not be measured.

## Waved Whelk fishing zones.



Type of measurement for Waved Whelk sampling.
WAVED WHELK

| SEA CUCUMBER <br> CODE : 6611 | Photo: J.-P. Dallaire |
| :---: | :---: |
| Fishing zone: Sampling protocol: | $A, B, C$ et 3A at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | Around 150 individuals per visited fishing site. <br> Select randomly around 150 individuals from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of whelks to sample by category is defined by the following rule: <br> 150 individuals $\div$ by the number of categories $=$ the number of individuals to measure by category. |
| SEX: | No. |
| MEASURE: | Out of water, the sea cucumber is capable of changing shape by stretching or by becoming flaccid at rest. Therefore, it is important to measure the length when the individual is contracted and that it adopts a rather rounded form with the tentacles retracted. The maximum length is rounded up to the nearest 5.0 mm . |
| COLLECT: | No. |
| PRESERVE: | No. |

Directives related to the form - Sea cucumber (at-sea sampling).

| Coded by: $\quad$ first cell: | $M=$ DFO, sea |
| :--- | :--- |
|  |  |
|  | $O=$ Observer, sea |

following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé
GS = South Gaspé
$\mathrm{IM}=$ Magdalen Islands
last three cells: first sampler initials.
Landing district: code of the district where the sampled species was landed.
Sample no.: each sampler gives a unique number to each sample by species, regardless of the fishing location.
Seq. no. of tow: sequential number of the tow, as determined by the fisher.
Date:
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).
Gear: note the gear code according to the following descriptions:
dredge/runner sea cucumber LGS
dredge other DRB
diving PLO
Species: sampled species code according to the data sheets.
Depth: depth, in meters, of the site where the gear has been fishing.
Speed: speed, in knots, at which the dredge was towed for the sampled tow.
No. of baskets in tow:
Tow weight: total weight, in kilograms, of the species commercial landing in the sampled tow.
Notice: Landing = catch - discard.
Fishing site: $\quad$ starting and ending position of the sampled tow: latitude and longitude (ddmm.mm), starting and ending time of the sampled tow, tow duration: number of minutes during which the sampled dredge was fishing.
Notes: space provided for comments.

| Bottom type: | type of bottom determined according to the presence of mud, sand or <br> rocks (<5 cm, between 5 and 20 cm or $>20 \mathrm{~cm}$ ) in the sampled tow. |
| :--- | :--- |
| Bycatch <br> species: | number of individuals of other species counted in the sampled tow <br> (green urchins, Hyas crabs, rock crabs, snow crabs, scallops, whelks, sea <br> stars sp.) |
| No. measured | total number of measured individuals noted on the form. |
| Total number <br> of counted indiv. <br> in tow: | total number of individuals in the sampled tow. May differ from No. <br> measured if all individuals have not been measured. |
| Length: | maximal length of an individual measured according to the procedures. |
| Count: | for each measured individual, draw a vertical line (I) in the space <br> corresponding to the maximal length. |
| Total: | total number of measured individuals for each length-class. |

Directives related to sea cucumber (port sampling).


## Sea cucumber fishing zones.



Type of measure used for the sampling of sea cucumber.


| COMMON RAZOR CLAM CODE: 4301 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: Sampling protocol: | 1 to 3 <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled haul. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 150 clams per haul for as many hauls as possible per trip. <br> Select randomly around 150 clams from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of clams to sample by category is defined by the following rule: <br> 150 clams $\div$ by the number of categories $=$ the number of clams to measure by category. |
| SEX: | No. |
| MEASURE: | The maximal anteroposterior length of the shell and round to the nearest 1.0 mm . |
| COLLECT: | No. |
| PRESERVE: | No. |

Directives related to the form - Common Razor Clam (at-sea sampling).
Coded by: first cell: $M=D F O$, sea
O = Observer, sea
following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé
GS = South Gaspé
$\mathrm{IM}=$ Magdalen Islands
last three cells: first sampler initials.
Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species,regardless of the fishing location.
Date: sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, novessel or when number not available).
Landing district: code of the district where the sampled species was landed.
Fishing zoneand ground:
Magdalen Islands: ..... 1
Gaspé: ..... 2
North Shore : ..... 3
The fishing ground is noted in the last four cells.
Landed weight: total weight, in kilograms, of the sampled species commercial landing.Notice : Landing = catch - discard.
Gear: note the gear code according to the following description:
standard dredge (boat) ..... DRB
hydraulic dredge (without a conveyor) ..... DHY
hydraulic dredge (with a conveyor) ..... DHYC
manually picked ..... CMA

| Total no. of tows/pans: | total number of tows or of collected pans at the time of picking, corresponding to the landing. |
| :---: | :---: |
| Total width of the dredge: | total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m . |
| Seq. no. of tow/pan: | sequential number of the tow or of the filling of pan, as determined by the fisher. |
| Depth: | depth, in meters, of the site where the gear has been fishing. |
| Tow/pick duration: | number of minutes during which the sampled dredge was fishing or number of minutes spent by the harvester to fill the sampled pan. |
| Tow/pan weight: | total weight, in kilograms, of the tow/pan (before discarding) for the sampled species. |
| Sampled fraction of tow/pan: | sampled fraction, in percent, of the tow/pan. <br> NB a tow may be done with more than one dredge. |
| Fishing site: | position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available. |
| Length: | the maximal anteroposterior length of the shell measured according to the procedures. |
| Count: | for each measured clam, draw a vertical line (I) in the space corresponding to the shell length. |
| Total: | total number of measured clams for each length-class. |
| No. of measured clams: | total number of measured clams noted on the form. |
| Notes: | space provided for comments. |

Directives related to the form - Common Razor Clam (port sampling).


| No. of cat.: | total number of categories recorded in the landing (when applicable). |
| :---: | :---: |
|  | NB the category is designating a bunch of clams selected from the catch according exclusively to commercial criteria. |
| Sampled cat.: | code of the commercial category sampled: |
|  | unsorted: 0 |
|  | very small: 1 |
|  | small: 2 |
|  | medium: 3 |
|  | large: 4 |
|  | very large: 5 |
|  | others (to be described in the notes): |
| Cat. weight: | total weight, in kilograms, of the category from which the sampled clams have been selected. |
| Sample weight: | total weight, at the nearest 0.1 kilogram, of all the measured clams noted on the form. The value can be exact or estimated. |
| Length: | the maximal anteroposterior length of the shell measured according to the procedures. |
| Count: | for each measured clam, draw a vertical line (I) in the space corresponding to the shell length. |
| Total: | total number of measured clams for each length-class. |
| No. of measured clams: | total number of measured clams noted on the form. |
| Notes: | space provided for comments. |

## Type of measurement for Common Razor Clam sampling,

## COMMON RAZOR CLAM



Photo: S. Hurtubise

| HYAS CRAB <br> CODE: 2521 (H. araneus) <br> 2527 (H. coarctatus) | Hyas araneus Photo: A. Chevrier |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\frac{12 \text { to CN-4 }}{\text { at-sea }}$ |
| PROCEDURES |  |
| USE: <br> at-sea: | Complete the form according to the related directives. Change form after each sampled pot. |
| SELECT: <br> at-sea: | All the crabs from a pot for as many pots as possible per trip. |
| SEX: <br> at-sea: | Yes. |
| MEASURE: <br> at-sea: | 1. the carapace maximal width for males and females and round to the nearest 1.0 mm . <br> 2. the right claw maximal height for males only and round to the nearest 0.1 mm . <br> If the right claw is missing, use the left claw. |
| COLLECT: | No. |
| PRESERVE: | No. |



## Directives related to the form - Hyas Crab (at-sea sampling).

Coded by:

Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species, regardless of the fishing location.

Date: sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).

Landing district: code of the district where the sampled species was landed.
Fishing zone and ground:

Landed weight:

Gear:
Mesh size: size, in millimeters, of the stretched mesh of the pot.
Seq. no. of the pot
Depth:
Soaking time number of days, at the nearest 0.1 day, during which the pot was soaked.

Fishing site: position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.

Sex: sex of the measured crabs. Note the sex as follows:
$M$ : male $\quad F$ : female

Carapace width carapace maximal width measured according to the procedures.
Claw height claw maximal height measured according to the procedures.
Carapace condition: (1) Clean: immaculated exoskeleton, carapace with no epibiont, iridescent claws.
(2) Intermediate: hard exoskeleton slightly marked with scars, presence of small epibionts on the carapace, claws more or less iridescent.
(3) Dirty: exoskeleton dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws.

Species: write $\mathbf{A}$ if Hyas araneus or $\mathbf{V}$ if Hyas coarctatus.
Missing legs: status of legs according to the codification presented below with respect to the sequence.

NB leave blank if no leg is missing, regenerated or broken by handling.
$M$ : missing $\quad R$ : regenerated $\quad C$ : broken by handling
Maturity stages maturity stage of females, eggs development as well as clutch status.
Notes:
space provided for comments.

## Directives related to the form - Hyas Crab (port sampling).


Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be describedin the notes):9
Cat. weight: total weight, in kilograms, of the category from which the sampled crabshave been selected.
Weight: weight, in grams, for each male only.
Carapace width carapace maximal width measured according to the procedures.
Claw height
Carapace condition:

| (1) Clean: | immaculated exoskeleton, carapace with no <br> epibiont, iridescent claws. |
| :--- | :--- |
| (2) Intermediate: | hard exoskeleton slightly marked with scars, <br> presence of small epibionts on the carapace, <br> claws more or less iridescent. |
| (3) Dirty: | exoskeleton dirty, marked with scars, <br> important presence of bryozoans and/or <br> epibionts on the carapace, drab claws. |Species: $\quad$ write $\mathbf{A}$ if Hyas araneus or $\mathbf{V}$ if Hyas coarctatus.Missing legs:

status of legs according to the codification presented below with respectto the sequence.
NB leave blank if no leg is missing, regenerated or broken by handling.
M: missing $R$ : regenerated C : broken by handling
Notes: space provided for comments.

## Hyas Crab fishing zones.



| ROCK CRAB CODE: 2513 | Photo: S. Hurtubise |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 12A to 17C <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled pot. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | All the crabs of a pot for as many pots as possible per trip. <br> Select randomly around 150 crabs from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of crabs to sample by category is defined by the following rule: <br> 150 crabs $\div$ by the number of categories $=$ the number of crabs to measure by category. |
| SEX: <br> at-sea: <br> port: | Yes. <br> No. |
| MEASURE: | The maximal width of the carapace (spine to spine) using a modified vernier caliper (with plates). Round to the nearest 1.0 mm . |
| COLLECT: | No. |
| PRESERVE: | No. |

Directives related to the form - Rock Crab (at-sea sampling).

Pot type: code for the type of pot:
(1) standard wooden pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 50 \mathrm{~cm}$.
(2) standard metal pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 50 \mathrm{~cm}$.
(3) standard plasticized composite pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 50 \mathrm{~cm}$.
(4) conical pot, rock crab.
(5) wooden pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 42 \mathrm{~cm}$.
(6) wooden pot of which the length, the width and the height are respectively of $124 \mathrm{~cm} \times 92 \mathrm{~cm} \times 50 \mathrm{~cm}$. This pot is characterized by the presence of two parlours.
(9) others (to be described in the notes).

Activity code CA / CR:
for each hauled pot (CA) and each measured crab (CR), note:

## CA:

S : standard pot (with no anomaly).
P: lost pot.
B: blocked pot.
D: defective pot.

## CR:

M: crabs present in the pot and measured.
N : crabs present in the pot but not measured.
A: no crab in the pot.
Width: carapace maximal width measured according to the described procedures.
Sex: sex of the measured crab. Note in the following way:
M: male F: female
Eggs: note the presence or absence of eggs for females in the following way:
$0: \quad$ absence of eggs
1: presence of eggs
Carapace condition: (1) carapace still soft at the abdomen level, although the dorsalsurface is hard, walking legs still soft and cracking but hardenedclaws.
(2) hard crab with a recent carapace, clean and iridescent, white abdomen, no epiphyte, very sharp dactyls.
(3) hard crab with a drab carapace, yellowed abdomen and rounded dactyls.
(4) hard crab, drab carapace covered with algae and hydrozoa, yellow-beige abdomen with a dirty aspect and dactyls end used and blackened.
NB The conditions 1 and 2 are associated with crabs having moulted in the current year.
No. of measured crabs:
total number of measured crabs noted on the form.
Notes: space provided for comments.

## Directives related to the form - Rock Crab (port sampling).

| Coded by: | first cell: <br> following two cells: |
| :---: | :---: |
|  | last three cells: |
| Species: | sampled species co |
| Sample no.: | each sampler giv regardless of the fis |
| Date: | sampling date (DD |
| Vessel name: | name of the fishing |
| CFV no.: | commercial fishing vessel or when num |
| Landing district: | code of the district |
| Fishing zone and ground: | the fishing zone in |
| Landed weight: | total weight, in kil Notice: Landing = |
| Community code | code of the commu |
| Gear: | code of the fishing |
| Total no. of pots | approximation of landing. |
| No. of pots per sling/area: | average number of |
| Soaking time | average number of |
| No. of cat.: | total number of cat |
|  | NB the category is according exclusive |

Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be described
in the notes): ..... 9
Cat. weight: total weight, in kilograms, of the category from which the sampled crabs have been selected.
Sample weight: total weight, in kilograms, of all the measured crabs noted on the form. The value can be exact or estimated.
Width: carapace maximal width measured according to the described procedures.
Carapace condition: (1) carapace still soft at the abdomen level, although the dorsalsurface is hard, walking legs still soft and cracking but hardenedclaws.
(2) hard crab with a recent carapace, clean and iridescent, white abdomen, no epiphyte, very sharp dactyls.
(3) hard crab with a drab carapace, yellowed abdomen and rounded dactyls.
(4) hard crab, drab carapace covered with algae and hydrozoa, yellow-beige abdomen with a dirty aspect and dactyls end used and blackened.

## NB The conditions 1 and 2 are associated with crabs having moulted in

 the current year.No. of measured crabs:

Notes:
total number of measured crabs noted on the form.
space provided for comments.

## Rock Crab fishing zones.



| Codes | Descriptions | Codes | Descriptions |
| :---: | :---: | :---: | :---: |
| 1 | Anse-à-Brillant | 40 | Port-Cartier |
| 2 | Anse-à-Valleau | 41 | Port-Daniel |
| 3 | Baie-Comeau | 42 | Rivière-Portneuf |
| 4 | Baie-Trinité | 43 | Rimouski |
| 5 | Blanc Sablon | 44 | Rivière-au-Renard |
| 6 | Bonaventure | 45 | Rivière-au-Tonnerre |
| 7 | Brador | 46 | Rivière-Madeleine |
| 8 | Cap-aux-Meules | 47 | Rivière-Saint-Paul |
| 9 | Cap-des-Rosiers | 48 | Ruisseau Chapados |
| 10 | Carleton | 49 | Sept-Îles |
| 11 | Cloridorme | 50 | St-Georges-de-Malbaie |
| 12 | Étang-du-Nord | 51 | St-Godefroi |
| 13 | Gascons | 52 | St-Joachim-de-Tourelle |
| 14 | Godbout | 53 | Ste-Anne-des-Monts |
| 15 | Grande-Entrée | 54 | Ste-Thérèse de Gaspé |
| 16 | Grande-Rivière | 55 | Tête-à-la-Baleine |
| 17 | Grande-Vallée | 56 | Vieux-fort |
| 18 | Grosse Île | 57 | Pointe Sud (Île d'Anticosti) |
| 19 | Harrington | 58 | Baie du Renard (Île d'Anticosti) |
| 20 | Havre-Aubert | 59 | Miguasha |
| 21 | Havre-aux-Maisons | 60 | Sandy Beach (Gaspé) |
| 22 | Havre-Saint-Pierre | 61 | Anse-à-Beaufils |
| 23 | Île d'Entrée | 62 | Baie-Johan-Beetz |
| 24 | Kégaska | 63 | Chandler |
| 25 | La Romaine | 64 | St-Siméon (Bonaventure) |
| 26 | La Tabatière | 65 | Anse-au-Griffon |
| 27 | Les Escoumins | 66 | New-Richmond |
| 28 | Les Méchins | 67 | Rivière Caplan (Caplan) |
| 29 | Matane | 68 | Ruisseau Leblanc (Caplan) |
| 30 | Middle Bay | 69 | Cap-Chat |
| 31 | Millerand | 70 | Caraquet |
| 32 | Mingan | 71 | Shippagan |
| 33 | Mont-Louis | 72 | Lamèque |
| 34 | Natashquan | 73 | Port au Choix |
| 35 | Newport | 74 | Port Saunders |
| 36 | Old Harry | 75 | Black Dove Cove |
| 37 | Paspébiac | 76 | Grande Grave |
| 38 | Pointe-au-Loup | 77 | Tadoussac |
| 39 | Pointe-Basse |  |  |


| CODE | FISHING AREA |
| :--- | :--- |
|  | Belle Anse |
| 2 | Est de la Romaine |
| 3 | L'île to Godi aux îles to Gode |
| 4 | L'île du Grand Rigolet |
| 5 | Ouest de la Romaine |
| 6 | Est de Tête-à-la-Baleine |
| 7 | Tête-à-la-Baleine |
| 8 | Baie du Renard (Île d'Anticosti) |
| 9 | Ouest de Baie des Moutons |
| 15 | Baie Plaisance |
| 16 | St-Georges-de-Malbaie |
| 30 | Bonaventure |
| 31 | Maria-Carleton* |
| 32 | Carleton-St-Omer* |
| 33 | St-Omer-Miguasha |
| 34 | Grande-Rivière |
| 35 | Anse-au-Griffon |
| 36 | St-Maurice-de-l'Échouerie |
| 37 | Petit-Cap |
| 38 | Cap-des-Rosiers |
| 39 | Anse-à-Brillant |
| 40 | Rivière-au-Renard |
| 41 | Saint-Godefroi |
| 42 | Sainte-Thérèse-de-Gaspé |
| 43 | Chandler |

Type of measurement for Rock Crab sampling.


Photo: S. Hurtubise

| SNOW CRAB <br> CODE: 2526 | Photo: I. Bérubé |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\frac{12 \mathrm{~A} \text { to } 17}{\text { at-sea }}$ |
|  | PROCEDURES |
| USE: <br> at-sea: | Complete the form according to the related directives. Change form after each sampled pot. |
| SELECT: <br> at-sea: | All the crabs from a pot for as many pots as possible per trip. |
| \|SEX: <br> at-sea: | Yes. |
| MEASURE: <br> at-sea: | 1. the carapace maximal width for males and females and round to the nearest 1.0 mm . <br> 2. the right claw maximal height for males only and round to the nearest 0.1 mm . <br> If the right claw is missing, use the left claw. |
| COLLECT: | No. |
| PRESERVE: | No. |


| SNOW CRAB CODE: 2526 | Photo: I. Bérubé |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $\text { 12A to } 17$ <br> port |
|  | PROCEDURES |
| USE: <br> port: <br> SELECT: <br> port: | Complete the form according to the related directives. <br> Select randomly around 150 crabs from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of crabs to sample by category is defined by the following rule: <br> 150 crabs $\div$ by the number of categories $=$ the number of crabs to measure by category. |
| SEX: <br> port: | No. |
| MEASURE: port: | 1. the carapace maximal width for males only and round to the nearest 1.0 mm . <br> 2. the right claw maximal height for males only and round to the nearest 1.0 mm . <br> If the right claw is missing, use the left claw. |
| COLLECT: <br> PRESERVE: | No. <br> No. |


| SNOW CRAB CODE: 2526 | Photo: I. Bérubé |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 12 <br> at-sea |
|  | PROCEDURES |
| USE: <br> at-sea: <br> SELECT: <br> at-sea: <br> SEX: <br> at-sea: <br> MEASURE: <br> at-sea: <br> COLLECT: <br> PRESERVE: | Complete the form according to the related directives. Change form after each sampled pot. <br> A total of 40 males and 10 females by pot for as many pots as possible per trip. <br> Yes. <br> 1. the carapace maximal width for males and females using a modified vernier caliper (with plates). Round to the nearest 1.0 mm . <br> 2. the right claw maximal height for males only using a modified vernier caliper (with plates). Round to the nearest 0.1 mm . <br> If the right claw is missing, use the left claw. <br> No. <br> No. |

## Directives related to the form - Snow Crab (at-sea sampling).



\(\left.$$
\begin{array}{ll}\text { Missing legs: } & \begin{array}{l}\text { status of legs according to the codification presented below with respect } \\
\text { to the sequence. }\end{array}
$$ <br>
\& NB leave blank if no leg is missing, regenerated or broken by handling. <br>

\& M: missing \quad R: regenerated \quad C: broken by handling\end{array}\right]\)| Maturity stages | maturity stage of females, eggs development as well as clutch status. |
| :--- | :--- |
| Notes: | space provided for comments. |

## Directives related to the form - Snow Crab (port sampling).



| Sampled cat.: | code of the commercial category sampled: |  |
| :---: | :---: | :---: |
|  | unsorted: | 0 |
|  | very small: | 1 |
|  | small: | 2 |
|  | medium: | 3 |
|  | large: | 4 |
|  | very large: | 5 |
|  | others (to be described in the notes): |  |
| Cat. weight: | total weight, in kilograms, of the category from which the sampled crabs have been selected. |  |
| Carapace width | carapace maximal width measured according to the procedures. |  |
| Claw height | claw maximal height measured according to the procedures. |  |
| Carapace condition: | (1) Clean and soft: | soft and immaculated exoskeleton, carapace with no epibiont, iridescent claws. Approximate age of the carapace if in terminal molt, 0-5 months. |
|  | (2) Clean and hard: | hard and immaculated exoskeleton, carapace with no epibiont, iridescent claws. Approximate age of the carapace if in terminal molt, 5 months -1 year. |
|  | (3) Intermediate: | hard exoskeleton slightly marked with scars, presence of small epibionts on the carapace, claws more or less iridescent. Approximate age of the carapace if in terminal molt, 8 months - 3 years. |
|  | (4) Dirty and hard: | exoskeleton hard, dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws. Approximate age of the carapace if in terminal molt, 2-5 years. |
|  | (5) Dirty and soft: | soft exoskeleton, dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws. Approximate age of the carapace if in terminal molt, 4-6 years. |

Missing legs: status of legs according to the codification presented below with respect to the sequence.

NB leave blank if no leg is missing, regenerated or broken by handling.
M: missing
$R$ : regenerated
C : broken by handling

Notes:
space provided for comments.

Snow Crab fishing zones.


| CODE | POTS |
| :---: | :---: |
| FPO | Unspecified |
| FPOA | Pyramidal 6', 2 cones |
| FPOB | Pyramidal 6', 4 cones |
| FPOC | Conical 6', 2 cones |
| FPOD | Conical 6', 4 cones |
| FPOE | Conical 8', 2 cones |
| FPOF | Conical 8', 4 cones |
| FPOG | Japanese 4' |
| FPOH | Rectangular 5'x 5' |
| FPOI | Rectangular 6'x 6' |
| FPOJ | Nordik 99 |
| FPOK | Conical 5' |
| FPOL | Conical 6' |
| FPOM | Conical 7', 1 cone |
| FPON | Conical 7', 2 cones |
| FPOO | Igloo $6^{\prime}$ |
| FPOP | Conical (high-cone) $\mathrm{D}=105 \mathrm{~cm}, \mathrm{~d}=81 \mathrm{~cm} \mathrm{H}=86.4 \mathrm{~cm}$ |
| FPOQ | Conical 6.5', 1 cone |
| FPOR | Conical 6.5', 2 cones |
| FPOS | Conical 6.5', 4 cones |
| FPOT | Conical $4^{\prime}$ |
| FPOU | Conical 8', 1 cone |
| FPOZ | Mixed and others |

Parameters used for Hyas Crab or Snow Crab sampling.
(front view of the claw)

| MATURITY FOR <br> FEMALES | EGG DEVELOPMENT | CLUTCH STATUS |
| :--- | :--- | :--- |
| 1: immature <br> 2: mature (Hyas) <br> 2: primiparous (Snow crab) <br> 3: multiparous (Snow crab) | 3: black <br> 4: light orange <br> 2: dark orange (rust, begins to | C: complete <br> I: incomplete (evidence of <br> missing eggs to the naked eye) |
| IMMATURE: | Small female with no egg. The abdomen is not covering the entire legs' <br> area. The gonopores (2 openings below the abdomen leading to the <br> sperm pores) are closed. |  |
| PRIMIPAROUS: | Female to her first clutch. Female with eggs or empty case. The carapace <br> is smooth, without organism. No traces of wear or grasp on the carapace. |  |
| MULTIPAROUS: | Female having carried out more than one clutch, with eggs or empty case <br> and having a worn carapace and traces of grasp. |  |


| NORTHERN SHRIMP CODE: 2210 | Photo : C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 8 to 12 <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the label according to the related directives. Each label in two copies, one inside the waxed carton and the other kept for ends of compilation. |
| SELECT: <br> at-sea: <br> port: | A maximum of 250 shrimps by tow for as many tows as possible per trip. <br> 3 kg of shrimps from the last tow of the trip. |
| SEX: <br> at-sea: <br> port: | Yes. <br> No. |
| MEASURE: <br> at-sea: <br> port: | The maximal length of the cephalothorax and round to the nearest 0.1 mm . <br> No. |
| COLLECT: <br> at-sea: <br> port: | No. <br> 3 kg of shrimps from the last tow of the trip. |
| PRESERVE: <br> at-sea: <br> port: | No. <br> 3 kg of shrimps frozen in waxed cartons labeled according to the instructions. |

Directives related to the form - Northern Shrimp (at-sea sampling).

Seq. no. of the tow: sequential number of the tow, as determined by the fisher.
Depth: depth, in meters, of the site where the gear has been fishing.
Fishing effort: effort according to the gear used.
Example:
Shrimp trawl (TXS): number of hours during which the trawl was effectively fishing for the sampled tow.
Catch weight: total weight, in kilograms, of the sampled species catch (before discarding).
Sample weight: total weight, to the nearest 0.1 kilogram, of all the measured shrimps noted on the form. This value can be exact or estimated.

| Fishing site: | position of the sampled tow: latitude and longitude (ddmm.mm) or <br> Loran-C coordinates if latitude and longitude are not available. |
| :--- | :--- |
| Length: | the maximal cephalothorax length measured according to the procedures. |
| Count/Sex: | for each measured shrimp, draw a vertical line (I) in the space <br> corresponding to the cephalothorax length and to the sex. Note the sex <br> in the following way: <br> M: male F: female |
| Total: | total number of measured shrimps for each length-class, per sex. |
| No. measured <br> shrimp: | total number of measured shrimps noted on the form. |
| Notes: | space provided for comments. |

## Directives related to the label - Northern Shrimp (port sampling).


Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be describedin the notes): 9
Cat. weight: total weight, in kilograms, of the category from which the sampledshrimps have been selected.

Northern Shrimp fishing zones.


## Type of measurement used for Northern Shrimp sampling.

NORTHERN SHRIMP


Photo: S. Hurtubise

Oblique cephalothorax length:
From the posterior part of the orbit eye to the posterior middorsal margin of the cephalothorax.

Illustrations of the Northern Shrimp sexual characteristics.


Photo: S. Hurtubise

| AMERICAN LOBSTER CODE: 2550 | Photo: R. Morneau |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | 15A to 22 <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled sling. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | All the lobsters from a pot for as many pots as possible per trip. <br> Select randomly around 250 lobsters from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of lobsters to sample by category is defined by the following rule: <br> 250 lobsters $\div$ by the number of categories $=$ the number of lobsters to measure by category. |
| SEX: <br> MEASURE: | Yes. <br> The cephalothorax maximal length of the males and females and round to the nearest 1.0 mm . |
| COLLECT: <br> PRESERVE: | No. <br> No. |

Directives related to the form - American Lobster (at-sea sampling).


Sling seq. no. sequential number of the sling, as determined by the fisher.

## or

Fishing area no. note the fishing area code associated with the sampled site. NB The fishing area number is used for all the catching techniques other than the sling.

Soaking time number of days during which the pot was soaked.
Fishing site: position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.

Pot no.: sequential number of the pot, as determined by the fisher.
Pot type: code for the type of pot:
(1) standard wooden pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 50 \mathrm{~cm}$.
(2) standard metal pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 50 \mathrm{~cm}$.
(3) standard plasticized composite pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 50 \mathrm{~cm}$.
(4) conical pot, rock crab.
(5) wooden pot of which the length, the width and the height are respectively of $92 \mathrm{~cm} \times 71 \mathrm{~cm} \times 42 \mathrm{~cm}$.
(6) wooden pot of which the length, the width and the height are respectively of $124 \mathrm{~cm} \times 92 \mathrm{~cm} \times 50 \mathrm{~cm}$. This pot is characterized by the presence of two parlours.
(9) others (to be described in the notes).

Activity code
C / H: for each hauled pot (C) and each measured lobster (H), note:
C:
S: standard pot (with no anomaly).
P: lost pot.
B: blocked pot.
D: defective pot.
H:
M: lobsters present in the pot and measured.
N : lobsters present in the pot but not measured.
A: no lobster in the pot.
Length: the cephalothorax maximal length measured according to the procedures.

| Sex: | sex of the measured lobsters. Note the sex in the following way: <br> M: male |
| :--- | :--- |
| Mat.: | maturity stage of the eggs. |
| V-notch: | the V-notch is a "V" shaped mark that fishers (in Gaspé only) do on the <br> uropod of the egg-bearing females in order to identify these more easily <br> the following year and to put back those lobsters again to water. This <br> measurement aims at protecting the females that one knows as <br> reproductive, to increase the quantity of eggs released in the <br> environment. The presence of a V-notch is noted with the code 1. |
| No. measured | total number of measured lobsters noted on the form. <br> lobsters: |
| Notes: | space provided for comments. |

Directives related to the form - American Lobster (port sampling).
Coded by: first cell: $\mathrm{Q}=\mathrm{DFO}$, port
following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé
GS = South Gaspé
IM = Magdalen Islands
last three cells: first sampler initials.
Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species,regardless of the fishing location.
Date: sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, novessel or when number not available).
Landing district: code of the district where the sampled species was landed.
Fishing zoneand ground:
Landed weight: total weight, in kilograms, of the sampled species commercial landing.
the fishing zone in the first three cells. The remaining cells are left blankNotice: Landing = catch - discard.
Community code code of the community where the lobster was landed.
Gear:
code of the fishing gear used by the fisher.
Total no. of pots approximation of the total number of hauled pots corresponding to thelanding.
No. of pots
per sling/area:
Soaking time
average number of pots by sling or by fishing area.
average number of days during which all the pots were soaked.

| No. of cat.: | total number of categories recorded in the landing (when applicable). <br> NB the category is designating a bunch of lobsters selected from the <br> catch according exclusively to commercial criteria. <br> code of the commercial category sampled: |
| :--- | :--- |
| Sampled cat:: | unsorted: <br> very small: <br> canner: <br> market: <br> jumbo: <br> very large: <br> others (to be described |
| Cat. weight: | in the notes): <br> total weight, in kilograms, of the category from which the sampled <br> lobsters have been selected. |
| Length: | total weight, in kilograms, of all the measured lobsters noted on the form. |
| The value can be exact or estimated. |  |
| Count/Sex | the cephalothorax maximal length measured according to the procedures. |
| for each measured lobster, draw a vertical line (I) in the space |  |

## American Lobster fishing zones.



Description of the American Lobster fishing grounds (Gaspé).

| FISHING GROUND | DESCRIPTION |
| :---: | :---: |
| 17 A | From Port Menier wharf to Brick river (exploratory). |
| 17 B | * From Brick river to the east and skirting Anticosti Island north shore up to Port Menier wharf. |
| 19 A | From the east point of Orléans Island to Cap Blanc. |
| 19 B | * From Cap Blanc to Cap Nord-Est. |
| 19 C | * From Cap Nord-Est to Cap Gaspé. |
| 20 A 1 | * From Cap Gaspé to the Gaspé's museum point. |
| 20 A 2 | * From the Gaspé's museum point to Barachois river. |
| 20 A 3 | * From Barachois river to Percé Rock's obelisk. |
| 20 A 3a | From the point of Cap Blanc to Cap Barré including Bonaventure Island. |
| 20 A 4 | * From Percé Rock's obelisk to Bilodeau road. |
| 20 A 5 | * From Bilodeau road to Anse-à-Beaufils wharf. |
| 20 A 6 | * From Anse-à-Beaufils wharf to Legriec brook. |
| 20 A 7 | * From Legriec brook to Ste-Thérèse wharf. |
| 20 A 8 | * From Ste-Thérèse wharf to the western bound of Ste-Thérèse. |
| 20 A 9 | From the eastern bound of Grande-Rivière to Grande-Rivière old wharf. |
| 20 A 9a | * From Grande-Rivière old wharf to Ste-Adélaïde bridge. |
| 20 A 10 | * From Ste-Adélaïde bridge to Chandler bridge. |
| 20 B 1 | * From Chandler bridge to Pointe-à-Maquereau. |
| 20 B 2 | * From Pointe-à-Maquereau to Chapados brook. |
| 20 B 3 | * From Chapados brook to iron old wharf road. |
| 20 B 4 | * From iron old wharf road to point aux loups marins (Assels wharf road). |
| 20 B 5 | * From point aux loups marins (Assels wharf) to Robinson silo (Shigawake). |
| 20 B 6 | From Shigawake municipal dump road to Debbie Hall's house. |
| 20 B 7 | From Medar Chapados house to New-Carlisle iron wharf. |
| 20 В 8 | * From New-Carlisle iron wharf to Bonaventure wharf. |
| 21 A | * From Bonaventure wharf to Cascapédia river bridge. |
| 21 B | * From Cascapédia river bridge to Pointe-à-la-Garde church (Harrisson brook). |
|  | * Location included in the ground's limit. |

American Lobster fishing grounds (Magdalen Islands).


## Type of measurement used for American Lobster sampling,



Illustrations of the American Lobster sexual characteristics.


American Lobster egg maturity stages.

| STAGE | DESCRIPTION |
| :---: | :---: |
| 0 | No egg. |
| 1 | The eggs are uniform and spherical, with an average diameter of 1.0 to 1.5 mm . Their colouring is black coal. They just have been laid. |
| 2 | The eggs are spherical or slightly ovoid with an average diameter of 1.5 mm by 1.7 mm . Their colouring varies from olive green to dark green. Towards the end of stage 2, the embryo becomes visible as is the milky green-blue disk at the animal pole. |
| 3 | The eggs are now ovoid with an average diameter of 2.0 mm by 2.3 mm . Their colouring is lighter than the other stages (beige, pink, orange, yellow). The embryo completely fills the egg and the eyes are visible. At the appearance of the criteria of stages 2 and 3, you mentally fix a limit which you will respect thereafter. It is not important to differentiate precisely the stages 2 and 3, it is a subjective data. On the other hand, the stage 1 is definitely distinguishable. |
| 9 | Undefined. |


| SURF CLAM SP CODE: $\begin{aligned} & \frac{\text { Atlantic }}{4317} \\ & \frac{\text { Stimpson }}{4355} \end{aligned}$ |  |
| :---: | :---: |
| PROCEDURES |  |
| USE: <br> at-sea: <br> port: | Complete the form according to the related directives. Change form after each sampled tow. <br> Complete the form according to the related directives. |
| SELECT: <br> at-sea: <br> port: | A maximum of 150 clams by tow for as many tows as possible per trip. <br> Select randomly around 150 clams from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of clams to sample by category is defined by the following rule: <br> 150 clams $\div$ by the number of categories $=$ the number of clams to measure by category. |
| SEX: | No. |
| MEASURE: | The shell maximal anteroposterior length and round to the nearest 1.0 mm . |
| COLLECT: | No. |
| PRESERVE: | No. |

Directives related to the form - Surf Clam sp. (at-sea sampling).

| Coded by: | first cell: following two cells: | $\begin{aligned} & \mathrm{M}=\mathrm{DFO}, \text { sea } \\ & \mathrm{O}=\text { Observer, sea } \\ & \text { sampled region code. } \\ & \mathrm{CN}=\text { North Shore } \\ & \mathrm{ES}=\text { Estuary } \\ & \mathrm{GN}=\text { North Gaspé } \\ & \mathrm{GS}=\text { South Gaspé } \\ & \mathrm{IM}=\text { Magdalen Islands } \end{aligned}$ |
| :---: | :---: | :---: |
|  | last three cells: | first sampler initials. |
| Species: | sampled species cod | ing to the data sheets. |
| Sample no.: | each sampler giv regardless of the fis | ique number to each sample by species, ation. |
| Date: | sampling date (DD |  |
| Vessel name: | name of the fishin | at caught the sampled species. |
| CFV no.: | commercial fishing vessel or when nu | number (999999 for combined vessels, no available). |
| Landing district: | code of the district | e sampled species was landed. |
| Fishing zone and ground: | the fishing zone in in the last four cells. | three cells. The fishing ground is noted in |
| Landed weight: | total weight, in kil <br> Notice : Landing = | of the sampled species commercial landing. discard. |
| Gear: | note the gear code | to the following description: |
|  | manually picked | CMA |
|  | hydraulic dredge | DHY |
| Total no. of tows: | total number of tow | ponding to the landing. |
| Total width of the dredge: | total width of a dre and round to the n | tiplied by the total number of used dredges 1 m . |
| Seq. no. of tow: | sequential number | $w$, as determined by the fisher. |
| Depth: | depth, in meters, of | where the gear has been fishing. |
| Tow duration: | number of minutes | which the sampled dredge was fishing. |
| Tow weight: | total weight, in kilo species. | f the tow (before discarding) for the sampled |
| Sampled fraction of tow: | sampled fraction, in | , of the tow. |
|  | NB a tow may be | more than one dredge. |

Fishing site: position of the sampled tow: latitude and longitude (ddmm.mm) orLoran-C coordinates if latitude and longitude are not available.
Length: shell anteroposterior length measured according to the procedures.
Count: for each measured clam, draw a vertical line (I) in the spacecorresponding to the length of the shell.
Total: total number of shells measured for each length-class.
No. measured clams: total number of measured clams noted on the form.
No. smashed clams: total number of smashed clams in the sample that could not be measured.
Notes: space provided for comments.
Directives related to the form - Surf Clam sp. (port sampling).
Coded by: first cell: $\mathrm{Q}=\mathrm{DFO}$, port
following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé
GS = South Gaspé
$\mathrm{IM}=$ Magdalen Islands
last three cells: first sampler initials.
Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species,regardless of the fishing location.
Date: sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, novessel or when number not available).
Landing district: code of the district where the sampled species was landed.
Fishing zoneand ground:
Landed weight:
Gear: note the gear code according to the following description:
the fishing zone in the first three cells. The remaining cells are left blank.
total weight, in kilograms, of the sampled species commercial landing.Notice: Landing = catch - discard.
manually picked ..... CMA
hydraulic dredge ..... DHY
Total no. of tows: total number of tows corresponding to the landing.
No. of cat.: total number of categories recorded in the landing (when applicable).
NB the category is designating a bunch of clams selected from the catchaccording exclusively to commercial criteria.
Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be describedin the notes):9
Cat. Weight: total weight, in kilograms, of the category from which the sampled clamshave been selected.
Sample weight: total weight, to the nearest 0.1 kilogram, of all the measured clams noted on the form. The value can be exact or estimated.
Length: shell anteroposterior length measured according to the procedures.
Count: corresponding to the length' of the shell.
Total: total number of shells measured for each length-class.
No. measured clams: total number of measured clams noted on the form
No. smashed clams total number of smashed clams in the sample that could not bemeasured.
Notes: space provided for comments.

## Surf Clam sp. fishing zones



Type of measurement used for Surf Clam sp. sampling.


Photo: S. Hurtubise
maximal anteroposterior length

| SOFT SHELL CLAM <br> CODE: 4318 |  |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $1 \text { to } 3$ <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea or manually pick: <br> port: <br> SELECT: <br> at-sea or manually pick: <br> port: <br> SEX: <br> MEASURE: <br> COLLECT: <br> PRESERVE: | Complete the form according to the related directives. Change form after each sampled haul. <br> Complete the form according to the related directives. <br> A maximum of 150 clams by haul/pan for as many hauls/pans as possible per trip. <br> Select randomly around 150 clams from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of clams to sample by category is defined by the following rule: <br> 150 clams $\div$ by the number of categories $=$ the number of clams to measure by category. <br> No. <br> The shell maximal anteroposterior length and round to the nearest 1.0 mm . <br> No. <br> No. |

Directives related to the form - Soft Shell Clam (at-sea sampling).
Coded by: first cell: M = DFO, sea O = Observer, sea
following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
last three cells: first sampler initials.
Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species, regardless of the fishing location.
Date: sampling date (DD MM YY).
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no. commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).
Landing district: code of the district where the sampled species was landed.
Fishing zone and ground:
Landed weight: total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.
Gear: note the gear code according to the following description:
standard dredge (boat) ..... DRB
hydraulic dredge (with no conveyor) ..... DHY
hydraulic dredge (with a conveyor) ..... DHYC
hydraulic rake ..... RHY
manually picked ..... CMA

| Total no. of tows/pans: | total number of tows or of collected pans at the time of picking, corresponding to the landing. |
| :---: | :---: |
| Total width of the dredge: | total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m . |
| Seq. no. of tow/pan | sequential number of the tow or of pan filling, as determined by the fisher. |
| Depth: | depth, in meters, of the site where the gear has been fishing. |
| Tow/pick duration: | number of minutes during which the sampled dredge was fishing or number of minutes spent by the harvester to fill the sampled pan. |
| Tow/pan weight: | total weight, in kilograms, of the tow/pan (before discarding) for the sampled species. |
| Sampled fraction of tow/pan: | sampled fraction, in percent, of the tow/pan. |
|  | Notice: A tow may be done with more than one dredge. |
| Fishing site: | position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available. |
| Length: | shell anteroposterior length measured according to the procedures. |
| Count: | for each measured clam, draw a vertical line ( $\mid$ ) in the space corresponding to the length of the shell. |
| Total: | total number of shells measured for each length-class. |
| No. measured clams: | total number of measured clams noted on the form. |
| No. smashed clams: | total number of smashed clams in the sample that could not be measured. |
| Notes: | space provided for comments. |

Directives related to the form - Soft Shell Clam (port sampling).
Coded by:

first cell:following two cells:last three cells:
sampled species code according to the data sheets. Species:
each sampler gives a unique number to each sample by species,regardless of the fishing location.
Date:
Vessel name: name of the fishing vessel that caught the sampled species.
CFV no.: commercial fishing vessel number (999999 for combined vessels, novessel or when number not available).
Landing district: code of the district where the sampled species was landed.
Fishing zoneand ground:Landed weight: total weight, in kilograms, of the sampled species commercial landing.Notice : Landing = catch - discard.
Gear:
note the gear code according to the following description:
standard dredge (boat) ..... DRB
hydraulic dredge (with no conveyor) ..... DHY
hydraulic dredge (with a conveyor) ..... DHYC
hydraulic rake ..... RHY
manually picked ..... CMA
Total no. of tows/pans:No. of cat.: total number of categories recorded in the landing (when applicable).
NB the category is designating a bunch of clams selected from the catchaccording exclusively to commercial criteria.
Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be described
in the notes): ..... 9
Cat. weight: total weight, in kilograms, of the category from which the sampled clamshave been selected.
Sample weight: total weight, at the nearest 0.1 kilogram, of all the measured clams notedon the form. The value can be exact or estimated.
Length: $\quad$ shell anteroposterior length measured according to the procedures.
Count: for each measured clam, draw a vertical line (I) in the spacecorresponding to the length of the shell.
Total: total number of shells measured for each length-class.
No. measured clams: total number of measured clams noted on the form.
No. smashed clams: total number of smashed clams in the sample that could not be measured.
Notes: space provided for comments.

Description of the soft shell clam's shellfish areas in Québec.

| Region | Fishing zone | Area's number | Area's name |
| :---: | :---: | :---: | :---: |
| Îles-de-la-Madeleine |  | A-01 | Île d'Entrée |
| Îles-de-la-Madeleine |  | A-02 | Plage Sandy Hook |
| Îles-de-la-Madeleine |  | A-03.1 | Baie du Bassin |
| Îles-de-la-Madeleine |  | A-04 | Bassin/Étang-des-Caps |
| Îles-de-la-Madeleine |  | A-05 | Plage de l'Ouest |
| Îles-de-la-Madeleine |  | A-06 | Caps de l'Étang-du-Nord et de Fatima |
| Îles-de-la-Madeleine |  | A-07 | Dune du Nord (extérieur) |
| Îles-de-la-Madeleine |  | A-08.1 | Plage de la Pointe de l'Est |
| Îles-de-la-Madeleine |  | A-08.2 | Île Boudreau |
| Îles-de-la-Madeleine |  | A-08.3.1 | L'intérieur du Bassin aux Huîtres |
| Îles-de-la-Madeleine |  | A-08.3.2 | La Bluff |
| Îles-de-la-Madeleine |  | A-08.4 | Île de la Grande Entrée, ouest |
| Îles-de-la-Madeleine |  | A-09.1 | Île de la Grande Entrée, nord |
| Îles-de-la-Madeleine |  | A-09.2 | Baie Clarke |
| Îles-de-la-Madeleine |  | A-09.3 | Anse au Sable |
| Îles-de-la-Madeleine |  | A-09.4 | Baie de la Grosse Île |
| Îles-de-la-Madeleine |  | A-09.5 | Centre de la lagune de Grande Entrée |
| Îles-de-la-Madeleine |  | A-10.1.1 | Pointe Keating |
| Îles-de-la-Madeleine |  | A-10.1.2 | Sud du Grand Étang |
| Îles-de-la-Madeleine |  | A-10.1.3 | Est de Pointe-aux-Loups |
| Îles-de-la-Madeleine |  | A-10.1.4 | Pointe-aux-Loups |
| Îles-de-la-Madeleine |  | A-10.2 | Dune du Nord (intérieur) |
| Îles-de-la-Madeleine |  | A-11 | Lagune de la Grande Entrée, sud |
| Îles-de-la-Madeleine |  | A-12.1 | Plage de la Dune du Sud |
| Îles-de-la-Madeleine |  | A-12.2 | Buttes Pelées |
| Îles-de-la-Madeleine |  | A-13 | Pointe-Basse |
| Îles-de-la-Madeleine |  | A-14.1 | La Petite Baie |
| Îles-de-la-Madeleine |  | A-14.2 | Lagune du Havre aux Maisons, sud |
| Îles-de-la-Madeleine |  | A-14.3 | Centre de la lagune du Havre aux Maisons |
| Îles-de-la-Madeleine |  | A-15.1.1 | Cap Vert |
| Îles-de-la-Madeleine |  | A-15.1.2 | Lagune du Havre aux Maisons, nord |
| Îles-de-la-Madeleine |  | A-15.1.3 | Lagune du Havre aux Maisons, nord-est |
| Îles-de-la-Madeleine |  | A-15.2 | Baie du Cap Vert |
| Îles-de-la-Madeleine |  | A-15.3 | Baie du Sud (pédalo) |
| Îles-de-la-Madeleine |  | A-16.1.1 | Pointe du Havre aux Maisons |
| Îles-de-la-Madeleine |  | A-16.1.2 | Chenal du Havre aux Maisons |
| Îles-de-la-Madeleine |  | A-16.2.1.1 | Camping du Gros-Cap |
| Îles-de-la-Madeleine |  | A-16.2.1.2 | Plage des chalets |
| Îles-de-la-Madeleine |  | A-16.2.2 | Plage du Gros Cap |
| Îles-de-la-Madeleine |  | A-17.1 | Plage de La Martinique |
| Îles-de-la-Madeleine |  | A-17.2 | Anse Painchaud |
| Îles-de-la-Madeleine |  | A-17.3 | Anse à Cadet |
| Îles-de-la-Madeleine |  | A-17.4 | Dune Sandy Hook |
| Îles-de-la-Madeleine |  | A-18.1 | Pointe des Canots |
| Îles-de-la-Madeleine |  | A-18.2 | Baie du Havre aux Basques |
| Bas-Saint-Laurent |  | K-01 | Kamouraska |
| Bas-Saint-Laurent |  | K-02 | Anse Sainte-Anne |
| Bas-Saint-Laurent |  | B-01.1 | Anse du Portage |
| Bas-Saint-Laurent |  | B-01.2 | Saint-Patrice |
| Bas-Saint-Laurent |  | B-01.3 | Anse au Persil |


| Region | Fishing zone | Area's number | Area's name |
| :---: | :---: | :---: | :---: |
| Bas-Saint-Laurent |  | B-01.4 | Saint-Georges-de-Cacouna |
| Bas-Saint-Laurent |  | B-02.1 | Presqu'île Le Gros Cacouna |
| Bas-Saint-Laurent |  | B-02.2 | Cacouna-Sud |
| Bas-Saint-Laurent |  | B-02.3 | Cacouna-Est |
| Bas-Saint-Laurent |  | B-02.4 | Île Verte |
| Bas-Saint-Laurent |  | B-02.5 | Îlet du Chasseur/Îlet de l'Habenaria |
| Bas-Saint-Laurent |  | B-02.6 | Anse Verte |
| Bas-Saint-Laurent |  | B-02.7 | Anse de l'Isle Verte/Isle-Verte (village) |
| Bas-Saint-Laurent |  | B-02.8 | Saint-Éloi-Station/Ile aux Pommes |
| Bas-Saint-Laurent |  | B-02.9 | Batture de Tobin |
| Bas-Saint-Laurent |  | B-02.10 | Île aux Basques |
| Bas-Saint-Laurent |  | B-03.1 | Îlets D'Amours |
| Bas-Saint-Laurent |  | B-03.2 | Pointe des Riou |
| Bas-Saint-Laurent |  | B-03.3 | Cap à l'Aigle |
| Bas-Saint-Laurent |  | B-03.4 | Île du Bic |
| Bas-Saint-Laurent |  | B-03.5 | Baie du Ha! Ha! |
| Bas-Saint-Laurent |  | B-03.6 | Anse à l'Orignal |
| Bas-Saint-Laurent |  | B-03.7 | Havre du Bic |
| Bas-Saint-Laurent |  | B-03.8 | Cap du Corbeau |
| Bas-Saint-Laurent |  | B-04.1 | L'Anse-au-Sable/Île Saint-Barnabé |
| Bas-Saint-Laurent |  | B-04.2 | Rimouski-Est |
| Bas-Saint-Laurent |  | B-05.1 | Sainte-Anne-de-la-Pointe-au-Père |
| Bas-Saint-Laurent |  | B-05.2 | Anse au Lard/Sainte-Luce |
| Bas-Saint-Laurent |  | B-05.3 | Anse au Coques |
| Bas-Saint-Laurent |  | B-05.4 | Ruisseau Lechasseur-Vaillancourt |
| Bas-Saint-Laurent |  | B-05.5 | Sainte-Flavie, ouest |
| Bas-Saint-Laurent |  | B-06.1 | Sainte-Flavie, est |
| Bas-Saint-Laurent |  | B-06.2 | Baie Mitis |
| Bas-Saint-Laurent |  | B-06.3 | Anse du Petit Mitis |
| Bas-Saint-Laurent |  | B-07 | Saint-Ulric/La Grande Anse |
| Bas-Saint-Laurent |  | B-08.1 | Matane/Petit-Matane |
| Bas-Saint-Laurent |  | B-08.2 | Cap à la Baleine |
| Bas-Saint-Laurent |  | B-09.1 | Anse du Crapaud |
| Bas-Saint-Laurent |  | B-09.2 | Petits-Méchins |
| Gaspésie-rive Nord |  | B-10.1 | Capucins |
| Gaspésie-rive Nord |  | B-10.2 | Petits-Capucins |
| Gaspésie-rive Nord |  | B-10.3 | Le Cap |
| Gaspésie-rive Nord |  | B-10.4 | Cap-Chat, ouest |
| Gaspésie-rive Nord |  | B-10.5 | Cap-Chat-Est/Pointe Sainte-Anne |
| Gaspésie-rive Nord |  | B-11.1 | Anse de Sainte-Anne-des-Monts |
| Gaspésie-rive Nord |  | B-11.2 | Tourelle |
| Gaspésie-rive Nord |  | B-11.3 | Cap-au-Renard |
| Gaspésie-rive Nord |  | B-11.4 | Pointe Bourdage |
| Gaspésie-rive Nord |  | B-11.5 | Ruisseau-à-Rebours |
| Gaspésie-rive Nord |  | B-12.1 | Rivière-à-Claude |
| Gaspésie-rive Nord |  | B-12.2 | Mont-Saint-Pierre |
| Gaspésie-rive Nord |  | B-12.3 | Mont-Louis |
| Gaspésie-rive Nord |  | B-12.4 | L'Anse-Pleureuse |
| Gaspésie-rive Nord |  | B-13.1 | Gros-Morne |
| Gaspésie-rive Nord |  | B-13.2 | Manche-d'Épée |
| Gaspésie-rive Nord |  | B-13.3 | Madeleine-Centre |
| Gaspésie-rive Nord |  | B-13.4 | Rivière-la-Madeleine |


|  | Region | Fishing zone |
| :--- | :--- | :--- |
| Gaspésie-rive Nord | B-14.1 | Area's name |
| Gaspésie-rive Nord | B-14.2 | Petite-Vallée |
| Gaspésie-rive Nord | B-14.3 | Pointe-à-La-Frégate |
| Gaspésie-rive Nord | B-14.4 | Baie de Cloridorme |
| Gaspésie-rive Nord | B-14.5 | Cloridorme |
| Gaspésie-rive Nord | B-14.6 | Saint-Yvon |
| Gaspésie-rive Nord | B-15.1 | Portage-Saint-Hélier |
| Gaspésie-rive Nord | B-15.2 | Pointe-Jaune (village) |
| Gaspésie-rive Nord | B-15.3 | Petit-Cap, ouest |
| Gaspésie-rive Nord | B-16.1 | Rivière-au-Renard-Ouest |
| Gaspésie-rive Nord | B-16.2 | L'Anse-à-Fugère |
| Gaspésie-rive Nord | B-16.3 | L'Anse-au-Griffon-Nord |
| Gaspésie-rive Nord | B-16.4 | L'Anse-au-Griffon |
| Gaspésie-rive Nord | B-16.5 | Jersey Cove |
| Gaspésie-rive Nord | B-16.6 | Cap-des-Rosiers |
| Gaspésie-rive Nord | B-16.7 | Cap Bon Ami |
| Gaspésie-Baie-des-Chaleurs | C-01 | Cap à la Baleine |
| Gaspésie-Baie-des-Chaleurs | C-02 | Anse de l'Église |
| Gaspésie-Baie-des-Chaleurs | G-03 | Le Havre |
| Gaspésie-Baie-des-Chaleurs | G-10.4.1 | Pointe de l'Ile St-Siméon |
| Gaspésie-Baie-des-Chaleurs | G-11.2 | G-01.2 |


| Region | Fishing zone | Area's number | Area's name |
| :---: | :---: | :---: | :---: |
| Gaspésie-Baie-des-Chaleurs |  | G-12 | New-Carlisle West |
| Gaspésie-Baie-des-Chaleurs |  | G-13 | Paspébiac-Ouest |
| Gaspésie-Baie-des-Chaleurs |  | G-14.1 | Paspébiac |
| Gaspésie-Baie-des-Chaleurs |  | G-14.2 | Hope-Town |
| Gaspésie-Baie-des-Chaleurs |  | G-14.3 | Gignac |
| Gaspésie-Baie-des-Chaleurs |  | G-15 | Pointe Trachy |
| Gaspésie-Baie-des-Chaleurs |  | G-16 | Saint-Godefroi |
| Gaspésie-Baie-des-Chaleurs |  | G-17 | Anse Shigawake |
| Gaspésie-Baie-des-Chaleurs |  | G-18 | Anse Sullivan |
| Gaspésie-Baie-des-Chaleurs |  | G-19 | Port-Daniel-Ouest |
| Gaspésie-Baie-des-Chaleurs |  | G-20.1 | Baie de Port-Daniel |
| Gaspésie-Baie-des-Chaleurs |  | G-20.2 | Barachois de Port-Daniel |
| Gaspésie-Baie-des-Chaleurs |  | G-20.3 | L'Anse McInnes |
| Gaspésie-Baie-des-Chaleurs |  | G-20.4 | Gascons |
| Gaspésie-Baie-des-Chaleurs |  | G-21.1 | Newport |
| Gaspésie-Baie-des-Chaleurs |  | G-21.2 | Baie du Grand Pabos |
| Gaspésie-Baie-des-Chaleurs |  | G-21.3 | Baie du Petit Pabos |
| Gaspésie-Baie-des-Chaleurs |  | G-21.4 | Sainte-Thérèse de Gaspé |
| Gaspésie-Baie-des-Chaleurs |  | G-22.1 | Anse à Beaufils |
| Gaspésie-Baie-des-Chaleurs |  | G-22.2 | Percé |
| Gaspésie-Baie-des-Chaleurs |  | G-22.3 | Île Bonaventure |
| Gaspésie-Baie-des-Chaleurs |  | G-22.4 | Coin du Banc |
| Gaspésie-Baie-des-Chaleurs |  | G-22.5 | L'estuaire de la rivière du Portage |
| Gaspésie-Baie-des-Chaleurs |  | G-22.6 | L'estuaire de la rivière Malbaie |
| Gaspésie-Baie-des-Chaleurs |  | G-22.7 | Ruisseau Laflamme |
| Gaspésie-Baie-des-Chaleurs |  | G-22.8 | Mal-Bay |
| Gaspésie-Baie-des-Chaleurs |  | G-22.9 | Pointe Saint-Pierre |
| Gaspésie-Baie-des-Chaleurs |  | G-22.10 | Île Plate |
| Gaspésie-Baie-des-Chaleurs |  | G-23.1 | Ruisseau Duguay |
| Gaspésie-Baie-des-Chaleurs |  | G-23.2 | Prével |
| Gaspésie-Baie-des-Chaleurs |  | G-23.3 | Anse Brillant |
| Gaspésie-Baie-des-Chaleurs |  | G-24.1 | Plage Haldimand |
| Gaspésie-Baie-des-Chaleurs |  | G-24.2.1 | Estuaire de la rivière Saint-Jean Ouest |
| Gaspésie-Baie-des-Chaleurs |  | G-24.2.2 | Estuaire de la rivière St-Jean Est |
| Gaspésie-Baie-des-Chaleurs |  | G-24.3 | Barre de Sandy Beach |
| Gaspésie-Baie-des-Chaleurs |  | G-24.4 | L'est du chantier naval |
| Gaspésie-Baie-des-Chaleurs |  | G-25.1 | Havre de Gaspé |
| Gaspésie-Baie-des-Chaleurs |  | G-25.2 | Bassin du Sud-Ouest de Gaspé |
| Gaspésie-Baie-des-Chaleurs |  | G-26.1 | Anse aux Cousins |
| Gaspésie-Baie-des-Chaleurs |  | G-26.2 | Cortéreal |
| Gaspésie-Baie-des-Chaleurs |  | G-26.3 | Estuaire de la rivière Darmouth |
| Gaspésie-Baie-des-Chaleurs |  | G-27.1 | Fontenelle |
| Gaspésie-Baie-des-Chaleurs |  | G-27.2 | Penouille |
| Gaspésie-Baie-des-Chaleurs |  | G-27.3 | Presqu'île Penouille |
| Gaspésie-Baie-des-Chaleurs |  | G-28 | Forillon, ouest |
| Saguenay |  | S | Saguenay |
| Côte-Nord |  | P-04 | Baie-Saint-Paul/Saint-Irénée |
| Côte-Nord | 1A | P-03 | La Malbaie |
| Côte-Nord | 1A | P-02.3 | Anse d'Herbe/Saint-Fidèle |
| Côte-Nord | 1A | P-02.2 | Port au Saumon |
| Côte-Nord | 1A | P-02.1 | Port au Persil |
| Côte-Nord | 1A | P-01.6 | Rivière-Noire/Pointe aux Quilles |


| Region | Fishing zone | Area's number | Area's name |
| :---: | :---: | :---: | :---: |
| Côte-Nord | 1A | P-01.5 | Baie des Rochers |
| Côte-Nord | 1A | P-01.4.2 | Anse du Chaufaud aux Basques |
| Côte-Nord | 1A | P-01.4.1 | La Petite Crique |
| Côte-Nord | 1A | P-01.3 | La batture aux Alouettes |
| Côte-Nord | 1A | P-01.2 | Pointe-au-Bouleau/Pointe aux Alouettes |
| Côte-Nord | 1A | P-01.1 | Baie Sainte-Catherine |
| Côte-Nord | 1A | N-01.1.1 | Baie de Tadoussac |
| Côte-Nord | 1A | N-01.1.2 | Pointe aux Vaches |
| Côte-Nord | 1A | N-01.1.3 | Baie du Moulin à Baude |
| Côte-Nord | 1A | N-01.1.4 | Baie des Petites Bergeronnes |
| Côte-Nord | 1A | N-01.2.1 | Baie des Grandes Bergeronnes |
| Côte-Nord | 1A | N-01.2.2 | Batture à Théophile (Batture de Bon-Désir) |
| Côte-Nord | 1A | N-01.3 | Baie de Bon-Désir (Cran Noir) |
| Côte-Nord | 1A | $\mathrm{N}-02.1$ | Baie des Escoumins |
| Côte-Nord | 1A | $\mathrm{N}-02.2$ | Îles Penchées |
| Côte-Nord | 1A | $\mathrm{N}-02.3$ | Baie des Bacon |
| Côte-Nord | 1A | N-03.1.1 | Saint-Paul-du-Nord |
| Côte-Nord | 1A | N-03.1.2 | Pointe à Émile |
| Côte-Nord | 1A | N-03.2.1 | Pointe à Boisvert |
| Côte-Nord | 1A | N-03.2.2 | Pointe de Mille-Vaches |
| Côte-Nord | 1A | N-03.2.3 | La Grande Savane |
| Côte-Nord | 1A | N-03.2.4 | Portneuf-sur-Mer |
| Côte-Nord | 1A | N-03.2.5 | Sainte-Anne-de-Portneuf |
| Côte-Nord | 1A | N-03.2.6 | Banc (Barre) de Portneuf |
| Côte-Nord | 1A | $\mathrm{N}-03.3$ | Forestville |
| Côte-Nord | 1A | $\mathrm{N}-04.1 .1 .1$ | Baie des Chevaux |
| Côte-Nord | 1A | $\mathrm{N}-04.1 .1 .2$ | Embouchures de la rivière Laval et du ruisseau Jean Raymond |
| Côte-Nord | 1A | $\mathrm{N}-04.1 .2 .1$ | Banc Marie-Marthe (Île Laval) |
| Côte-Nord | 1A | $\mathrm{N}-04.1 .2 .4$ | Île Laval |
| Côte-Nord | 1A | N-04.1.2.2 | Baie Didier Sud |
| Côte-Nord | 1A | $\mathrm{N}-04.1 .2 .3$ | Baie Didier Nord |
| Côte-Nord | 1A | N-04.1.3 | Baie des Plongeurs |
| Côte-Nord | 1A | N-04.2.1 | Battures aux Gibiers |
| Côte-Nord | 1A | N-04.2.2 | Cran à Gagnon |
| Côte-Nord | 1A | N-04.3 | Rivière Blanche |
| Côte-Nord | 1A | N-04.4.1 | Anse du Colombier |
| Côte-Nord | 1A | N-04.4.2 | Anse à Norbert |
| Côte-Nord | 1A | N-04.5.1 | Anse Noire |
| Côte-Nord | 1A | N-04.5.2 | Îlets Jérémie |
| Côte-Nord | 1A | N-04.6 | Pointe à Michel |
| Côte-Nord | 1A | N-05.1.1 | Banc des Blancs (Banc des Canadiens) |
| Côte-Nord | 1A | N-05.1.2 | Pointe de Pessamit |
| Côte-Nord | 1 C | N-05.1.3.1 | Réserve Pessamit Sud (Bersimis) |
| Côte-Nord | 1 C | N-05.1.3.2 | Réserve Pessamit Nord (Bersimis) |
| Côte-Nord | 1 C | N-05.2.1 | Ragueneau Ouest |
| Côte-Nord | 1B | N-05.2.2 | Ragueneau Est |
| Côte-Nord | 1B | N-06.1.1 | Pointe-aux-Outardes (ouest) |
| Côte-Nord | 1B | N-06.1.2 | Pointe-aux-Outardes (est) |
| Côte-Nord | 1B | N-06.2.1 | La Grosse Pointe |
| Côte-Nord | 1B | N-06.2.2 | Battures de Manicouagan |
| Côte-Nord | 1B | N-06.3 | Pointe Paradis |
| Côte-Nord | 1B | $\mathrm{N}-07$ | Rivière Manicouagan |


| Region | Fishing zone | Area's number | Area's name |
| :---: | :---: | :---: | :---: |
| Côte-Nord | 1B | N-08.1.1 | Baie des Anglais |
| Côte-Nord | 1B | N-08.1.2 | Anse Saint-Pancrace |
| Côte-Nord | 1B | N-08.1.3 | Rivière Mistassini |
| Côte-Nord | 1B | N-08.2.1 | Franquelin |
| Côte-Nord | 1B | N-08.2.2 | Anses à Frigault |
| Côte-Nord | 1B | $\mathrm{N}-08.3$ | Baie Saint-Nicolas |
| Côte-Nord | 1B | N-09.1.1 | Baie des Molson |
| Côte-Nord | 1B | N-09.1.2 | Godbout |
| Côte-Nord | 1B | N-09.1.3 | Pointe-des-Monts |
| Côte-Nord | 2 | N-09.2 | Pointe-à-Poulin |
| Côte-Nord | 2 | $\mathrm{N}-10.1 .1$ | Baie-Trinité |
| Côte-Nord | 2 | $\mathrm{N}-10.1 .2$ | Pointe aux Morts |
| Côte-Nord | 2 | $\mathrm{N}-10.2$ | Anse des Îlets Caribou |
| Côte-Nord | 2 | N-11.1.1 | Pointe-aux-Anglais |
| Côte-Nord | 2 | N-11.1.2 | Rivière-Pentecôte, ouest |
| Côte-Nord | 2 | $\mathrm{N}-11.1 .3 .1$ | Rivière-Pentecôte, est |
| Côte-Nord | 2 | $\mathrm{N}-11.1 .3 .2$ | Anse Chouinard |
| Côte-Nord | 2 | N-11.1.4 | Baie des Homards |
| Côte-Nord | 2 | $\mathrm{N}-11.2$ | Baie des Sables |
| Côte-Nord | 2 | $\mathrm{N}-11.3$ | Baie des Îles de Mai |
| Côte-Nord | 2 | $\mathrm{N}-12.1$ | Baie à Lévesque |
| Côte-Nord | 2 | $\mathrm{N}-12.2$ | Port-Cartier |
| Côte-Nord | 2 | $\mathrm{N}-12.3$ | Baie Sainte-Marguerite, ouest |
| Côte-Nord | 2 | $\mathrm{N}-12.4$ | Baie Sainte-Marguerite, au large |
| Côte-Nord | 2 | N-13.1.1 | Rivière-Sainte-Marguerite |
| Côte-Nord | 2 | N-13.1.2 | Plage Sainte-Marguerite |
| Côte-Nord | 2 | $\mathrm{N}-13.2$ | Baie des Sept Îles |
| Côte-Nord | 2 | $\mathrm{N}-14.1$ | Baie de la Boule |
| Côte-Nord | 2 | $\mathrm{N}-14.2$ | Les Îles Corossol, Manowin et Dequen |
| Côte-Nord | 2 | $\mathrm{N}-14.3$ | Les Îles Grande et Petite Basque |
| Côte-Nord | 2 | N-14.4.1 | Les Îles Grosse et Petite Boule |
| Côte-Nord | 2 | N-14.5 | Les Cayes de l'Est |
| Côte-Nord | 2 | N-15.1.1 | Baie des Forges |
| Côte-Nord | 2 | N-15.1.2 | Rivière Moisie |
| Côte-Nord | 2 | $\mathrm{N}-15.2$ | Rivière aux Loups Marins |
| Côte-Nord | 2 | $\mathrm{N}-15.3$ | Baie de Moisie, au large |
| Côte-Nord | 2 | $\mathrm{N}-16.1$ | Rivière Pigou |
| Côte-Nord | 2 | $\mathrm{N}-16.2$ | Rivière à la Chaloupe |
| Côte-Nord | 2 | N -16.3 | Banc Manitou |
| Côte-Nord | 2 | N -16.4 | Rivière au Bouleau |
| Côte-Nord | 2 | N-17.1.1 | Sheldrake |
| Côte-Nord | 2 | N-17.1.2 | Rivière Sheldrake |
| Côte-Nord | 2 | $\mathrm{N}-17.2$ | Jupitagon |
| Côte-Nord | 2 | $\mathrm{N}-17.3$ | Banc Magpie |
| Côte-Nord | 2 | $\mathrm{N}-18.1$ | Rivière Saint-Jean |
| Côte-Nord | 2 | $\mathrm{N}-18.2$ | Baie de Mingan |
| Côte-Nord | 2 | N -18.3.1 | Mingan |
| Côte-Nord | 2 | N-18.3.2 | Embouchure de la rivière Mingan |
| Côte-Nord | 2 | N-18.3.3 | Estuaire de la rivière Mingan |
| Côte-Nord | 2.1 | $\mathrm{N}-18.4$ | Rivière Mingan |
| Côte-Nord | 2.1 et 2.2 | N-18.5.1 | Anse à Butler |
| Côte-Nord | 2.2 | N-18.5.2 | Rivière Romaine |


| Region | Fishing zone | Area's number | Area's name |
| :---: | :---: | :---: | :---: |
| Côte-Nord | 2.3 | N-19.1 | Pointe aux Morts |
| Côte-Nord | 2 | $\mathrm{N}-19.2$ | Anse à Nadeau |
| Côte-Nord | 2 | N-19.3.1 | Île du Havre, ouest |
| Côte-Nord | 2 | N-19.3.2 | Île du Havre, est |
| Côte-Nord | 2 | N-19.4 | Pointe aux Esquimaux |
| Côte-Nord | 2 | N-20.1.1 | Havre-Saint-Pierre |
| Côte-Nord | 2 | N-20.1.2 | Caps Blancs |
| Côte-Nord | 2 | N-20.1.3 | La Grande Rivière |
| Côte-Nord | 2 | $\mathrm{N}-20.1 .4$ | Cap Ferré |
| Côte-Nord | 2.4 (partie de $\mathrm{N}-20.2$ ) | N-20.2 | Île Saint-Charles |
| Côte-Nord | 2 | $\mathrm{N}-20.3 .1$ | Île à la Chasse |
| Côte-Nord | 2 | $\mathrm{N}-20.3 .2$ | Baie Nickerson |
| Côte-Nord | 2 | $\mathrm{N}-20.4$ | Baie de la Grande Hermine |
| Côte-Nord | 2 | $\mathrm{N}-20.5$ | Pointe Tanguay, ouest |
| Côte-Nord | 2 | $\mathrm{N}-21.1$ | Baie Quetachou |
| Côte-Nord | 2 | N-21.2 | Baie Jalobert |
| Côte-Nord | 2 | N -22.1.1 | Petites Rivières |
| Côte-Nord | 2 | N-22.1.2 | Aguanish |
| Côte-Nord | 2 | $\mathrm{N}-22.2 .1$ | Île Michon Ouest |
| Côte-Nord | 2 | N-22.2.2 | Île Michon Est |
| Côte-Nord | 2 | $\mathrm{N}-22.3$ | Rivière Natashquan |
| Côte-Nord | 2 | $\mathrm{N}-22.4$ | Pointe de Natashquan |
| Côte-Nord | 3 | $\mathrm{N}-23.1$ | Havre de Kegaska |
| Côte-Nord | 3 | $\mathrm{N}-23.2$ | Baie aux Huîtres |
| Côte-Nord | 3 | $\mathrm{N}-23.3$ | Baie de Kegaska |
| Côte-Nord | 3 | N-24.1 | La Romaine |
| Côte-Nord | 3 | N-24.2 | Île Kaminahkunakahit |
| Côte-Nord | 3 | $\mathrm{N}-25$ | Chevery |
| Côte-Nord | 3 | N-26 | Tête-à-la-Baleine |
| Côte-Nord | 3 | N-27 | Mutton Bay |
| Côte-Nord | 3 | $\mathrm{N}-27.1$ | Havre de l'Aigle |
| Côte-Nord | 3 | $\mathrm{N}-28$ | Saint-Augustin |
| Côte-Nord | 3 | N-29 | Vieux-Fort |
| Côte-Nord | 3 | $\mathrm{N}-30$ | Baie Salmon |
| Côte-Nord | 3 | $\mathrm{N}-30.3$ | Baie des Cinq Lieues |
| Côte-Nord | 3 | $\mathrm{N}-31$ | Middle Bay |
| Côte-Nord | 3 | $\mathrm{N}-31.1$ | Baie des Belles Amours |
| Côte-Nord | 3 | N-32 | Anse Deep Cove |
| Côte-Nord | 3 | N-33 | Île du Bassin |
| Côte-Nord | 3 | N-34 | Blanc-Sablon |
| Anticosti |  | T-01 | Port-Menier |
| Anticosti |  | T-02 | Baie Sainte-Claire |

## Type of measurement used for Soft Shell Clam sampling.



| GREEN SEA URCHIN <br> CODE: 6411 | Photo: C. Nozères |
| :---: | :---: |
| Fishing zone: <br> Sampling protocol: | $1 \text { to } 15$ <br> at-sea or port sampling |
|  | PROCEDURES |
| USE: <br> at-sea or manually pick: <br> port: <br> SELECT: <br> at-sea or manually pick: <br> port: <br> SEX: <br> MEASURE: <br> COLLECT: <br> PRESERVE: | Complete the form according to the related directives. Change form after each sampled haul. <br> Complete the form according to the related directives. <br> A maximum of 150 urchins by haul/dive for as many hauls/dives as possible per trip. <br> Select randomly around 150 urchins from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of urchins to sample by category is defined by the following rule: <br> 150 urchins $\div$ by the number of categories $=$ the number of urchins to measure by category. <br> No. <br> The shell maximal width (diameter) and round to the nearest 1.0 mm . <br> No. <br> No. |



Fraction of sampled sampled fraction, in percent, of the pot, tow or harvest by diving. pot/tow/dive:

Notice: A tow may be done with more than one dredge.
Fishing site: position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.

Width:
Count: for each measured urchin, draw a vertical line (I) in the space corresponding to the width of the shell.

Total: total number of urchins measured for each width-class.
No. measured urchins:

Notes:
total number of measured urchins noted on the form.
space provided for comments.
Directives related to the form - Green Sea Urchin (port sampling).
Coded by: first cell: $\quad \mathrm{Q}=\mathrm{DFO}$, port
following two cells: sampled region code.
CN = North Shore
ES = Estuary
GN = North Gaspé
GS = South Gaspé

$$
\mathrm{IM}=\text { Magdalen Islands }
$$

last three cells: first sampler initials.
Species: sampled species code according to the data sheets.
Sample no.: each sampler gives a unique number to each sample by species,regardless of the fishing location.
Date: sampling date (DD MM YY).Vessel name: name of the fishing vessel that caught the sampled species.CFV no.: commercial fishing vessel number (999999 for combined vessels, novessel or when number not available).
Landing district: code of the district where the sampled species was landed.
Fishing zoneand ground:
Landed weight:
Gear:
note the gear code according to the following description:
pots ..... FPO
diving ..... PLOTotal no. of total number of pots, of tows or of dives (all divers combined)pots/tows/dives:No. of cat.: total number of categories recorded in the landing (when applicable).NB the category is designating a bunch of urchins selected from the catchaccording exclusively to commercial criteria.
Sampled cat.: code of the commercial category sampled:
unsorted: ..... 0
very small: ..... 1
small: ..... 2
medium: ..... 3
large: ..... 4
very large: ..... 5
others (to be described
in the notes): ..... 9
Cat. weight: total weight, in kilograms, of the category from which the sampledurchins have been selected.
Sample weight: total weight, at the nearest 0.1 kilogram, of all the measured urchinsnoted on the form. The value can be exact or estimated.
Width: shell maximal width measured according to the procedures.
Count: for each measured urchin, draw a vertical line (I) in the spacecorresponding to the width of the shell.
Total: total number of urchins measured for each width-class.
No. measuredurchins:total number of measured urchins noted on the form.
Notes: space provided for comments.

## Green Sea Urchin fishing zones.



## Type of measurement used for Green Sea Urchin sampling.



Photo: M. Beaudoin

Shell maximal width

| SCALLOP SP CODE: |  |
| :---: | :---: |
| Fishing zone: Sampling protocol: | $15 \text { to } 20$ <br> at-sea sampling |
|  | PROCEDURES |
| USE: <br> at-sea: | Complete the form according to the related directives. Change form after each sampled tow. |
| SELECT: <br> at-sea: | A maximum of scallops by tow for as many tows as possible per trip. |
| SEX: <br> at-sea: | No. |
| MEASURE: at-sea: | The shell maximal height, from the hinge to the opposite end and round to the nearest 1.0 mm . |
| COLLECT: at-sea: | 2 top shells per 1.0 mm height-class per species, excluding the shells of dead scallops. |
| PRESERVE: at-sea: | The washed shells frozen in waxed cartons labeled according to the instructions. |


| SCALLOP SP <br> CODE: <br> $\frac{\text { Giant }}{\mathbf{4 3 2 1}}$ $\frac{\text { Iceland }}{4322}$ |  |
| :---: | :---: |
| Fishing zone: Sampling protocol: | 15 to 20 port sampling |
|  | PROCEDURES |
| USE: <br> SELECT: | The form according to the related directives. <br> muscles: <br> Select randomly around 150 muscles from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of muscles to sample by category is defined by the following rule: <br> 150 muscles $\div$ by the number of categories $=$ the number of muscles to weigh by category. <br> shells: <br> Select randomly around 150 shells from the overall landing. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of shells to sample by category is defined by the following rule: <br> 150 shells $\div$ by the number of categories $=$ the number of shells to measure by category. |
| SEX: |  |
| MEASURE: | muscles: <br> The weight of each muscle and round to the nearest 1.0 g . shells: <br> The shell maximal height, from the hinge to the opposite end and round to the nearest 1.0 mm . |
| COLLECT: | No. |
| PRESERVE: |  |

Directives related to the form - Scallop sp. (at-sea sampling).


| Catch weight: | total tow weight (before discarding) for the sampled species. This value <br> may be related to scallops in the shell and will be noted in kilograms or <br> can be associated to shucked meats and will be noted to the nearest 0.1 <br> kilogram. |
| :--- | :--- |
| Fraction of |  |
| sampled tow: | sampled fraction, in percent, of the tow. |
| Fishing site: | Notice: A tow may be done with more than one dredge. <br> position of the sampled tow: latitude and longitude (ddmm.mm) or <br> Loran-C coordinates if latitude and longitude are not available. |
| Height: | shell maximal height measured according to the procedures. <br> for each measured scallop, draw a line (/) if alive or a plus (+) if dead, in <br> the space corresponding to the height-class. Dead scallops are only <br> those empty of their contents whose two shells are still connected at the <br> base by their ligament. The scallop remains open when held in our <br> hands. It will reopen itself if closed (as castanets). The inside of the <br> shell is clean as the epibionts have not yet had the time to settle. <br> Moreover, the ligament hoding both shells is almost not damaged. The <br> simple shells (one valve only) must not be measured nor counted. Dead <br> scallops are used to estimate the natural mortality that has occurred <br> during the previous year. |
| Total : | Alive (/) - Dead (+):total number of measured scallops for each height-class by separately <br> counting the alive and dead scallops. <br> No. measured: <br> No. frozen: <br> total number of measured scallops noted on the form. |
| Notes: | total number of frozen shells according to the procedures. |
| space provided for comments. |  |

## Directives related to the form - Scallop sp. (port sampling).



| Sampled cat:: | code of the commercial category sampled: |
| :--- | :--- |
|  | unsorted: |
|  | very small: |
|  | small: |
|  | medium: |
|  | large: |
| very large: |  |
| others (to be described |  |
| in the notes): |  |$\quad$| total weight of the category from which the sampled scallops have been |
| :--- |
| selected. This value may be related to scallops in the shell and will be |
| noted in kilograms or can be associated to shucked meats and will be |
| noted to the nearest 0.1 kilogram. |
| total weight, at the nearest 0.1 kilogram, of all the measured scallops |
| noted on the form. The value, accurate or estimated, is associated only |
| with scallops in the shell. |

Scallop sp. fishing zones.


## Type of measurement used for Scallop sp. sampling



## REFERENCES

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Description of the Quebec landing districts (DFO 1984) See the map.

| DISTRICT | CODE | DESCRIPTION |
| :---: | :---: | :---: |
| L'ISLET | 401 | Anse-à-Gilles to Pointe-Rouge |
| KAMOURASKA | 402 | *Pointe-Rouge to Saint-André |
| RIVIÈRE-DU-LOUP /RIMOUSKI | 403 | Notre-Dame-du-Portage to Sainte-Flavie |
| MATANE | 404 | *Sainte-Flavie to Capucins |
| GASPÉ-NORD | $\begin{aligned} & 405 \\ & 406 \\ & 407 \end{aligned}$ | Cap-Chat to Rivière-à-Claude <br> *Rivière-à-Claude to Saint-Hélier <br> Pointe-à-la-Renommée to Petit-Cap |
| GASPÉ-SUD | $\begin{aligned} & 408 \\ & 409 \\ & 410 \\ & 411 \end{aligned}$ | Petite-Rivière-au-Renard to Cap-Gaspé <br> *Cap-Gaspé to Pointe-Saint-Pierre <br> *Pointe-Saint-Pierre to Brèche-à-Manon river <br> *Brèche-à-Manon river to Pointe au Maquereau |
| BONAVENTURE | $\begin{aligned} & 412 \\ & 413 \\ & 414 \\ & 415 \end{aligned}$ | *Pointe au Maquereau to Paspébiac <br> New Carlisle to Grande-Cascapédia <br> *Grande-Cascapédia to Pointe de Miguasha <br> *Pointe de Miguasha to rivière Restigouche |
| CHARLEVOIX | 416 | Cap-Tourmente to Saguenay river |
| SAGUENAY | $\begin{aligned} & 417 \\ & 418 \end{aligned}$ | *Saguenay river to Betsiamites river <br> *Betsiamites river to Sainte-Marguerite river |
| DUPLESSIS | $\begin{aligned} & 419 \\ & 420 \\ & 421 \\ & 422 \\ & 423 \\ & 424 \\ & 425 \end{aligned}$ | *Sainte-Marguerite river to Pigou river <br> *Pigou river to Havre-Saint-Pierre <br> *Havre-Saint-Pierre to Kegaska river <br> *Kegaska river to Baie-des-Moutons <br> *Baie-des-Moutons to Saint-Paul river <br> *Saint-Paul river to Blanc-Sablon <br> Anticosti Island |
| ÎLES-DE-LA MADELEINE | $\begin{aligned} & 426 \\ & 427 \\ & 428 \end{aligned}$ | Havre-aux-Maisons Island, Grande Entrée Island, Grosse Île, Brion Island, East Island, Shag Island Havre-Aubert Island, Entrée Island Cap-aux-Meules Island |
| * Location included in the district. |  |  |

Location of landing districts in Quebec.


Fishing ground grid and coding (Adapted from DFO 1997b).


Fishing gear codes

| CATEGORY | CODE | GEAR TYPE |
| :---: | :---: | :---: |
| TRAWL | TBB OTB OTB1 OTB2 GRL1 GRL2 PTB OTM OTM1 OTM2 PTM TXS | Beam trawl <br> Bottom otter trawl (unspecified) <br> Bottom otter trawl (side) <br> Bottom otter trawl (stern) <br> Bottom otter trawl (side with grid) <br> Bottom otter trawl (stern with grid) <br> Bottom pair trawl <br> Midwater trawl (unspecified) <br> Midwater trawl (side) <br> Midwater trawl (stern) <br> Midwater pair trawl <br> Shrimp trawl |
| SEINE NETS | $\begin{aligned} & \text { SDN } \\ & \text { SSC } \\ & \text { SPR } \\ & \text { PS } \\ & \text { SB } \\ & \text { LA } \end{aligned}$ | Danish seine Scottish seine Pair seine Purse seine Beach seine Lampara |
| GILLNETS | GN GNS GND | Gillnet (unspecified) Gillnet (set or fixed) Gillnet (drift) |
| HOOKS AND LINES | LL <br> LLS <br> LLD <br> LLG <br> LHP <br> LHM <br> LX | Longline (unspecified) <br> Longline (set or fixed) <br> Longline (drift) <br> Handline <br> Manual jigger <br> Mechanical jigger <br> Hook and line (unspecified) |
| TRAP AND LIFT NETS | FIX <br> FPN <br> FPO <br> FYK <br> FWR | Trap (unspecified) Open trap (cod, herring) Pot (crab and lobster) Hoop net Weir |
| DREDGES | DHY <br> DHYC <br> DRB <br> DRH <br> LGS <br> RHY | Hydraulic dredge (without conveyor) <br> Hydraulic dredge (with a conveyor) <br> Dredge (boat) <br> Dredge (hand) <br> Dredge/runner sea cucumber <br> Hydraulic rake |
| OTHER GEARS | $\begin{aligned} & \text { CMA } \\ & \text { HAR } \\ & \text { MIS } \\ & \text { NK } \\ & \text { PLO } \end{aligned}$ | Manually picked <br> Harpoon <br> Miscellaneous <br> Unknown <br> Diving |

## Identification of samples

1. VIAL: (identification label)
a) sample number
b) vessel name

|  | front |  | back |
| :---: | :---: | :---: | :---: |
| a) | 001 | h) |  |
| b) | Olympic |  | M |
| c) | 20-11-94 |  |  |
| d) | 0040 | i) | 42 cm |
| e) | 408 |  |  |
| f) | LLS | j) | \#23 |
| g) | 4Sy |  |  |

## 2. OTOLITH ENVELOPE:

a) sample number
b) date
c) species, district, gear, fishing zone
d) vessel name (or fisher)
e) sex
f) maturity (when applicable)
g) fish length
h) otolith number

## 3. WAXED CARTON: (For frozen specimens)



The specimens must be frozen as soon as possible.

| FRENCH NAME | SCIENTIFIC NAME | $\begin{aligned} & \text { ENGLISH } \\ & \text { NAME } \end{aligned}$ | OTHER NAMES USED |
| :---: | :---: | :---: | :---: |
| Flétan de l'Atlantique | Hippoglossus hippoglossus | Atlantic Halibut | Halibut |
| Flétan noir | Reinhardtius hippoglossoides | Greenland Halibut | Turbot |
| Limande to queue jaune | Limanda ferruginea | Yellowtail Flounder | Queue jaune, Sole |
| Merluche blanche | Urophycis tenuis | White Hake | Merluche, Barbue |
| Morue franche | Gadus morhua | Atlantic Cod | Cabillaud, Codfish |
| Plie canadienne | Hippoglossoides platessoides | American Plaice | Sole |
| Plie grise | Glyptocephalus cynoglossus | Witch Flounder | Grey sole |
| Plie rouge | Pleuronectes americanus | Winter Flounder | Black back |
| Sébaste | Sebastes sp. | Redfish | Poisson rouge Perche |
| Turbot de sable | Scophthalmus aquosus | Windowpane | Brill, <br> Spotted flounder |
| Capelan | Mallotus villosus | Capelin | Caplin |
| Hareng de l'Atlantique | Clupea harengus harengus | Atlantic Herring | Hareng, Sardine |
| Maquereau bleu | Scomber scombrus | Atlantic Mackerel | Maquereau |
| Groundfish |  | Pelagics |  |


| FRENCH NAME | SCIENTIFIC NAME | ENGLISH NAME | OTHER NAMES USED |
| :---: | :---: | :---: | :---: |
| Crabe Hyas | Hyas araneus <br> Hyas coarctatus | Atlantic Lyre Crab <br> Arctic Lyre Crab | Crabe araignée Crabe violon |
| Crabe commun | Cancer irroratus | Atlantic Rock Crab | Crabe de roche, Tourteau |
| Crabe des neiges | Chionoecetes opilio | Snow Crab | Crabe |
| Crevette nordique | Pandalus borealis | Northern Shrimp | Crevette |
| Homard d'Amérique | Homarus americanus | American Lobster | Homard |
| Buccin commun | Buccinum undatum | Waved Whelk | Bourgot, Buccin |
| Couteau de l'Atlantique | Ensis directus | Atlantic Jackknife Clam | Couteau, rasoir |
| Mactre de l'Atlantique | Spisula solidissima | Atlantic Surf Clam | Palourde commune |
| Mactre de Stimpson | Mactromeris polynyma | Arctic Surf Clam | Palourde de Stimpson |
| Mye commune | Mya arenaria | Soft Shell Clam | Coque, Mye |
| Pétoncle géant | Placopecten magellanicus | Sea Scallop | Coquille St-Jacques |
| Pétoncle d'Islande | Chlamys islandica | Iceland Scallop | Pétoncle |
| Concombre de mer | Cucumaria frondosa | Sea cucumber | Holothurie |
| Oursin vert | Strongylocentrotus droebachiensis | Green Sea Urchin | Oursin |
| Crustaceans | Shellfish | Echinoderms |  |

Summary of the fish sampling protocols.

| SPECIES | CODE | LENGTH | ACCURACY | SEX | MEASURE | OTOLITHS | FISH SAMPLE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAPELIN | 0064 | total | 1.0 mm | yes | 150 | at the laboratory (MLI) | 1 per 5.0 mm per sex |
| ATLANTIC HALIBUT | 0030 | fork | 1.0 cm | yes | 250 | no | no |
| GREENLAND HALIBUT | 0031 | fork | 1.0 cm | yes | 150 | no | no |
| ATLANTIC HERRING | 0060 | total | 0.5 cm | no | $\begin{gathered} 150 \text { (4RS) } \\ 250 \text { (4T) } \end{gathered}$ | at the laboratory (MLI) | 4T: 2 by 0.5 cm <br> 4RS: 55 randomly |
| YELLOWTAIL FLOUNDER | 0042 | total | 1.0 cm | yes | 250 | 1 oto. by 1.0 cm per sex | no |
| ATLANTIC MACKEREL | 0070 | fork | 0.5 cm | no | 150 | at the laboratory (MLI) | 2 by 0.5 cm |
| WHITE HAKE | 0012 | total | 1.0 cm | no | 250 | 1 oto. by 1.0 cm | no |
| ATLANTIC COD | 0010 | fork | 1.0 cm | no | $\begin{aligned} & 150 \text { (3Pn4RS) } \\ & 250 \text { (4T) } \end{aligned}$ | 4T: 1 oto. by 1.0 cm 4RS, 3PN: 3 oto. by 3.0 cm | no |
| AMERICAN PLAICE | 0040 | total | 1.0 cm | yes | 250 | 1 oto. by 1.0 cm per sex | no |
| WITCH FLOUNDER | 0041 | total | 1.0 cm | yes | 250 | 1 oto. by 1.0 cm per sex | no |
| WINTER FLOUNDER | 0043 | total | 1.0 cm | yes | 250 | 1 oto. by 1.0 cm per sex | no |
| REDFISH SP. | 0023 | fork | 1.0 cm | yes | 150 | no | no |
| WINDOWPANE | 0143 | Total | 1.0 cm | yes | 150 | no | no |

Summary of the invertebrates sampling protocols.

| SPECIES | CODE | LENGTH/WEIGHT | ACCURACY | SEX | MEASURE | MATURITY | SPECIMEN SAMPLE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| HYAS CRAB | $\begin{gathered} 2521 \\ \text { or } \\ 2527 \end{gathered}$ | -carapace maximal width <br> -right claw maximal height <br> -weight | 1.0 mm <br> 0.1 mm $1.0 \mathrm{~g}$ | yes | 150 | -carapace condition -eggs | no |
| ROCK CRAB | 2513 | carapace maximal width | 1.0 mm | yes | 150 | -carapace condition -eggs | no |
| SNOW CRAB | 2526 | -carapace maximal width <br> -right claw maximal height | 1.0 mm <br> 0.1 mm | yes | 150 | -carapace condition -eggs | no |
| NORTHERN SHRIMP | 2210 | no | no | no | no | no | ~ $\mathbf{3} \mathbf{~ k g}$ from the last tow of the trip. |
| AMERICAN LOBSTER | 2550 | cephalothorax maximal length | 1.0 mm | yes | $\begin{aligned} & \text { All (at sea) } \\ & 250 \text { (port) } \\ & \hline \end{aligned}$ | eggs | no |
| WAVED WHELK | 4211 | shell maximal height | 1.0 mm | no | 150 | no | no |
| ATLANTIC <br> JACKKNIFE CLAM | 4301 | maximal anteroposterior length | 1.0 mm | no | 150 | no | no |
| ATLANTIC SURF CLAM | 4317 | maximal anteroposterior length | 1.0 mm | no | 150 | no | no |
| STIMPSON SURF CLAM | 4355 | maximal anteroposterior length | 1.0 mm | no | 150 | no | no |
| SOFT SHELL CLAM | 4318 | maximal anteroposterior length | 1.0 mm | no | 150 | no | no |
| GIANT SCALLOP | 4321 | -shell maximal height -weight | $\begin{gathered} 1.0 \mathrm{~mm} \\ 1.0 \mathrm{~g} \\ \hline \end{gathered}$ | no | $\begin{gathered} \hline \text { All (at sea) } \\ 150 \text { (port) } \end{gathered}$ | no | 2 by 1.0 mm |
| ICELAND SCALLOP | 4322 | -shell maximal height -weight | $\begin{gathered} \hline 1.0 \mathrm{~mm} \\ 1.0 \mathrm{~g} \\ \hline \end{gathered}$ | no | $\begin{gathered} \hline \text { All (at sea) } \\ 150 \text { (port) } \end{gathered}$ | no | 2 by 1.0 mm |
| SEA CUCUMBER | 6611 | maximal length | 5.0 mm | no | 150 | no | no |
| GREEN SEA URCHIN | 6411 | shell maximal width | 1.0 mm | no | 150 | no | no |

Sampling and assessment responsibilities by species in the Gulf of St. Lawrence.

| Species/NAFO Division(s) or Location | Sampled by the region of: | Assessment responsibility assigned to the region of: |
| :---: | :---: | :---: |
| American Plaice, 4T | Quebec/Gulf | Gulf |
| Atlantic Cod, 3Pn4RS | Quebec/Newfoundland | Quebec |
| Atlantic Cod, 4T | Quebec/Gulf | Gulf |
| Atlantic Halibut, 4RST | Quebec/Gulf/Newfoundland | Quebec |
| Atlantic Herring, 4RS | Quebec/Newfoundland | Quebec |
| Atlantic Herring, 4T | Quebec/Gulf | Gulf |
| Atlantic Mackerel, Northwest Atlantic | Quebec/Gulf/Newfoundland/ Maritimes | Quebec |
| Capelin, 4RST | Quebec/Newfoundland | Quebec |
| Greenland Halibut, 4RST | Quebec/Gulf/ Newfoundland | Quebec |
| Redfish sp., unit 1 | Quebec/Gulf/ Newfoundland | Quebec |
| White Hake, 4T | Quebec/Gulf | Gulf |
| Witch Flounder, 4RST | Quebec/Gulf/ Newfoundland | Gulf |
| Winter Flounder, 4T | Quebec/Gulf | Gulf |
| Windowpane, 4T | Quebec | Gulf |
| Yellowtail Flounder, 4T | Quebec/Gulf | Gulf |
| American Lobster, Quebec | Quebec | Quebec |
| Common Razor Clam, Quebec | Quebec | Quebec |
| Green Sea Urchin, Quebec | Quebec | Quebec |
| Hyas crabs sp., Quebec | Quebec | Quebec |
| Northern Shrimp, Gulf | Quebec/Gulf/Newfoundland | Quebec |
| Rock Crab, Quebec | Quebec | Quebec |
| Scallop sp., Quebec | Quebec | Quebec |
| Sea cucumber, Quebec | Quebec | Quebec |
| Snow Crab, Quebec inshore | Quebec | Quebec |
| Snow Crab, Southern Gulf | Quebec/Gulf | Gulf |
| Soft Shell Clam, Quebec | Quebec | Quebec |
| Surf Clam sp., Quebec | Quebec | Quebec |
| Waved Whelk, Quebec | Quebec | Quebec |

Fish
Invertebrates
NAFO: Northwest Atlantic Fisheries Organization.

