Biological Sampling Work Instructions

Syllabus

This manual contains work instructions for conducting biological sampling at ports within the Northeast Region of the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (Fisheries). This manual contains the standards to be followed by all Port Agents and NOAA Fisheries Contractors engaged in biological sampling at the port level, the authorities and instructions for data collection, and detailed descriptions of sampling by species.

1.0 Stock Areas In The Northeast Area

Species Name	Stock Area Name	Stock Area Region
American Lobster	South of Cape Cod – Long Island	538, 539, 611
American Lobster	Georges Bank – Mid Atlantic	520-526, 533, 534, 537, 540
American Lobster	Gulf of Maine	510-515
American Plaice	Gulf of Maine – Georges Bank – Scotian Shelf	464, 465, 510-526, 551, 552, 561, 562
American Plaice	Southern New England – Mid Atlantic	530-543, 600-639
Angler (Goosefish)	Gulf of Maine – Northern Georges Bank	510-515, 521-523, 561
Angler (Goosefish)	Southern Georges Bank – Mid Atlantic	524-526, 537-543, 562, 600-639
Atlantic Cod	Georges Bank – Mid Atlantic	520-639
Atlantic Cod	Gulf of Maine – Scotian Shelf	464, 465, 510-515
Atlantic Croaker	Southern New England – Mid Atlantic	530-543, 600-639
Atlantic Herring	Georges Bank – Southern New England	520-526, 561, 562, 530-539
Atlantic Herring	Gulf of Maine	510-515
Atlantic Mackerel	Gulf of Maine – Mid Atlantic	500-639
Black Sea Bass	Southern New England – Mid Atlantic	530-543, 600-639
Bluefish	Gulf of Maine – Mid Atlantic	500-639
Butterfish	Georges Bank – Mid Atlantic	520-639
Cusk	Gulf of Maine – Mid Atlantic	500-639
Haddock	Georges Bank – Southern New England	520-562
Haddock	Gulf of Maine – Scotian Shelf	464, 465, 510-515
Haddock	Mid Atlantic	600-639
Ocean Pout	Gulf of Maine – Mid Atlantic	500-639
Ocean Quahog	Gulf of Maine – Mid Atlantic	500-639
Pollock	Gulf of Maine – Georges Bank – Scotian Shelf	464, 465, 500-639
Red Crab	Gulf of Maine – Mid Atlantic	500-639
Redfish	Gulf of Maine – Georges Bank – Scotian Shelf	464, 465, 510-526, 561, 562
Red Hake	Gulf of Maine – Northern Georges Bank	510-523, 561
Red Hake	Southern Georges Bank – Mid Atlantic	524-539, 562, 600-639

Scup	Georges Bank – Mid Atlantic	520-639
Sea Scallop	DE – MD – VA	620-629
Sea Scallop	Georges Bank – Northeast Peak	561, 562
Sea Scallop	Georges Bank – Southeast Part	525
Sea Scallop	Gulf of Maine	510-515
Sea Scallop	Great South Channel	521, 522, 526
Sea Scallop	New York Bight	610-616
Sea Scallop	Southern New England	530-539
Sea Scallop	VA – NC	630-639
Shad	Gulf of Maine – Mid Atlantic	500-639
Shrimp	Gulf of Maine	510-515
Silver Hake	Gulf of Maine – Northern Georges Bank	510-523, 561
Silver Hake	Southern Georges Bank – Mid Atlantic	524-539, 562, 600-639
Spiny Dogfish	Gulf of Maine – Mid Atlantic	510-515, 600-639
Squid (Illex)	Gulf of Maine – Mid Atlantic	500-639
Squid (Loligo)	Gulf of Maine – Mid Atlantic	500-639
Summer Flounder	Georges Bank – Mid Atlantic	520-639
Surf Clam	Gulf of Maine – Mid Atlantic	500-639
Tilefish	Georges Bank – Mid Atlantic	520-639
Weakfish	Southern New England – Mid Atlantic	530-539, 600-639
White Hake	Gulf of Maine – Southern New England	464, 465, 500-562
White Hake	Mid Atlantic	600-639
Windowpane	Gulf of Maine – Georges Bank	464, 465, 510, 515, 521, 522, 525, 542, 543, 551, 552, 561, 562
Windowpane	Southern New England – Mid Atlantic	526, 530-539, 600-639
Winter Flounder	Georges Bank	522, 525, 542, 543, 551
Winter Flounder	Gulf of Maine – Scotian Shelf	464, 465, 510-515
Winter Flounder	Southern New England – Mid Atlantic	521, 526, 530-541, 600-639
Witch Flounder	Gulf of Maine – Georges Bank	464, 465, 510-526, 551, 552, 561, 562
Witch Flounder	Southern New England – Mid Atlantic	530-543, 600-639
Yellowtail	Cape Cod	514, 521
Yellowtail	Georges Bank	522, 525, 551, 552, 561
Yellowtail	Gulf of Maine	510-513, 515
Yellowtail	Mid Atlantic	600-639
Yellowtail	Southern New England	526, 537-539
Yellowtail	Scotian Shelf	464, 465

2.0 Market Categories/Culling and the "Small Sample"

Some species of fish are separated or "culled" by size or market category at sea while being unloaded, or after transshipment to another site such as an auction. Culling is practical because of differences in prices for fish of different sizes.

Requirements for samples by market category/fishing area/gear for a sampling area are updated annually and can be found on the NEFSC's BSMDBS website.

2.1 Requirements for Sampling Species by Market Category or Cull

When sampling species by market category or cull, adhere to the following requirements:

- When a species is culled, each cull or market category must be sampled individually.
- Whether the species to be sampled is culled or is not normally culled (herring, whiting mackerel, etc.), the sampler must be able to identify the vessel landing the fish and the fishing area where the species were caught.
- Market categories for a single sample must not be combined.
- If market categories are landed separately but combined on the weighout, a sample must not be taken. If a sample was inadvertently taken before this information was available, the sample must be discarded.
- If there are too few fish in an individual catch to sample by species or market category, the sampler must never combine the catch of two or more vessels to make up the required amount, even if they know the fish are from the same sampling area.

2.1.1 Requirements for Sampling Species in a "Small Sample"

There are instances where a "small sample" can be justified. A small sample is a sample in which the required number of fish cannot be obtained from any single vessel's landings. The rules to follow for this are:

- If a regulated species is landed in a quantity smaller than required in this manual, a sample containing fewer length measurements is appropriate.
- Age samples should still consist of one fish per 1.0-centimeter (cm) interval for all lengths in the sample (the "1.0-cm rule").
- If a small sample is all that is available, the sampler should try to meet the required number of lengths for a full sample of this species by obtaining additional small samples from other trips when they become available but must not be combined in the field. Small samples should be recorded in the same manner as a full sample.

3.0 Unloading Techniques and Sampling

Unloading techniques are different in nearly every port. The unloading method dictates when and how sampling is performed. In **Figure 3-1,** each point in the unloading process is numbered. The numbers are used on the Length Sample Form (**Figure 6-1**) to indicate sampling method. Fish can be sampled at any point in the operation providing the rules for sampling sorted fish are observed.

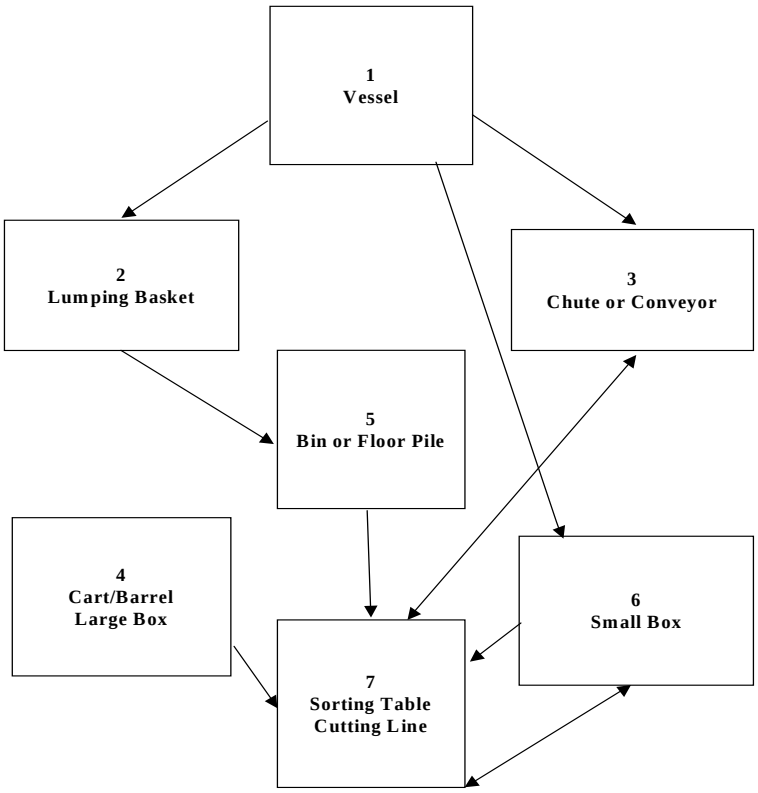


Figure 3-1

3.1 Rules for Sampling Sorted Fish

1. **Vessel or Hold Samples** — Vessel, or hold samples, are least desirable for industrial species because of the problem of sampling bias. If food fish must be sampled from the hold of a vessel, each market category must be sampled in the manner described below in

method number 6 if the fish have been culled at sea and separated by market category in the hold.

2. **Basket Samples** — As fish are being unloaded from the lumping (unloading) basket, the sampler fills a sample basket/box by either scooping the fish from the pile, or by unloading fish from the lumping basket into the sample container. If the latter method is used, a portion of fish from three or four lumping baskets must be included in the sample. Fish from no less than three lumping baskets must be measured. Baskets are selected from the first, middle, and last part of the load. This is the preferred method for unsorted or unculled species such as redfish and silver hake. This sampling method is also recommended when fish are sorted on the boat before unloading and are resorted before weighout.

3. **Chute Samples** — Fish that are passed through chutes or conveyors during or after unloading can be sampled by removing individual fish from the chute or conveyor until sufficient fish to complete the sample have been taken. To ensure a random sample is obtained, sample fish from different parts of the load by allowing adequate time intervals between selections of fish. The cautions regarding sorted fish apply here as well.

4. **Cart, Barrel, or Large Box Samples** — For these samples, randomly select a cart, barrel, or large box into which sorted or unsorted fish have been placed for sampling. It is preferred that a portion of the fish in the sample is measured from three or more containers. Caution must be used in selecting fish from these containers for measurement so that no selection bias is introduced. Note the number of containers sampled on the sample form.

5. **Bin or Floor Pile Samples** — Sometimes fish are deposited in bins or on floor piles to await processing. If the boat that caught the fish is known and the boat captain was interviewed, these fish may be sampled. Fish must be scooped randomly from the bin or floor pile until sufficient fish are placed in the sample basket to meet the sampling requirements. No less than three scoops (using a shovel) from three different points on the pile must be taken. When fish are handled in the plant in this manner, they are usually unsorted. When the fish are sorted by size, do not sample unless the sizes appear separately on the weighout.

6. **Small Boxed Fish Samples** — This method refers to plastic 100-pound fish totes or waxed cardboard boxes of various sizes. All fish in one box must be measured. If the number of fish in an individual box is not sufficient to meet the sampling requirements,

   several boxes may have to be measured. In a sorted landing, one or more boxes of each size or market category must be sampled.

7. **Sorting Table or Cutting Line —** If sampling is at the cutting line or sorting table, every fifth fish must be selected as they are dumped onto the table or cutting line, as described above in number 3.

4.0 Measuring Fish for Length

Most fish are measured by fork length. Fork length is the distance between the tip of the snout and the fork in the tail. Some species that have no pronounced fork in the tail are measured by midline length while other species have specific methods for measurement that are covered in **Section 2.0**.

Fish are measured by using a special measuring board with punch strips, reusable plastic strips (its use is best shown by demonstration) or by recording data on field PC's (eSampling). Generally, fish are measured to the nearest 1.0-centimeter (cm). For example, a fish measuring between 10.5 and 11.4 cm would be 11.0 cm, and a fish measuring between 25.5 cm and 26.4 cm would be 26 cm. Redfish, yellowtail, lobster, and crabs are separated by sex before measuring and each sex group is recorded separately on the Length Sample Forms (**Figure 6-1**). Additionally, biological data can be sampled using the Allegro system.

4.1 Procedures for Using Punch Strips

There are four procedures for measuring fish by using punch strips.

1. **Using the Finfish Punch Strip for Fish 0-60 cm in Length.**

   a) Enter the name of the vessel, date landed, and species-market category on the finfish punch strip by writing with pencil (even if it is wet) or scratching with an awl (**Figure 4-1**).

   b) If the sample is to be sexed, use a punch strip with a line down the middle. Write males above the line and females below the line and punch male fish on the upper portion and female fish below the line.

   c) Insert the punch strip into the slot on the measuring board until it contacts the end plate of the board. If the strip is loose, put a crimp in the strip to keep it from moving. To crimp the strip, insert it part way into the slot and bend it down slightly. A thumbtack may also be used to anchor the punch strip.

   d) Take the fish to be measured and place the nose against the end of board and make a punch mark with an awl at the midline end of the tail or at the fork.

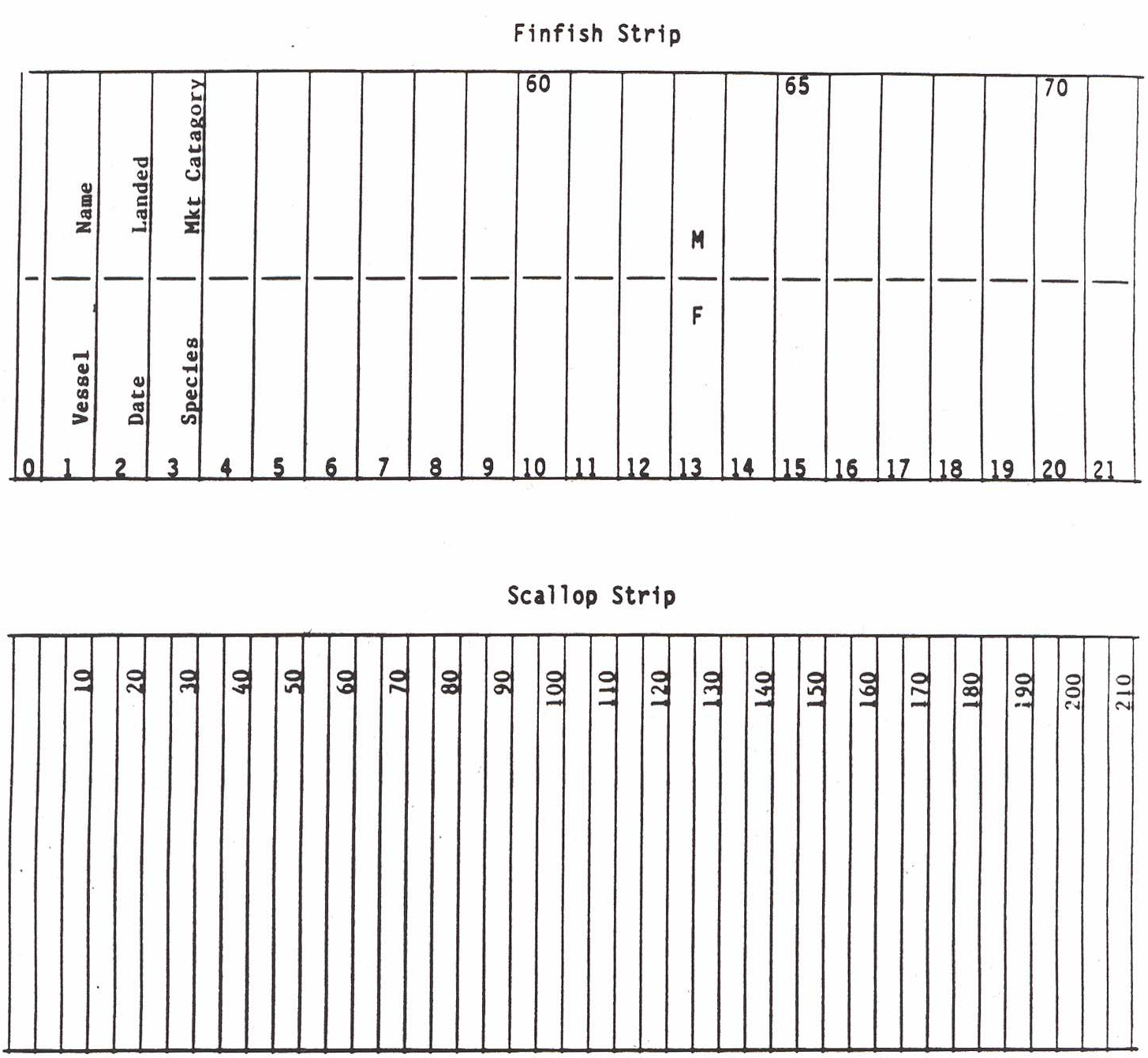


Figure 4-1 Diagram of a Finfish Strip and Scallop Strip

e) Punch every fish in the sample on the strip and take age samples in the usual manner (see **Section 9.0** for specifics). Each time an age sample is taken, a scratch must be made at that interval to keep track of the number of age samples per interval taken (at least one age sample per 1.0-cm interval; the 1.0-cm rule).

f) Once the sample is completed, add the number of punch holes in the interval to get the number of fish. If the hole is punched on a line, determine which side the greater part of the hole is on and assign it to that interval. Do not move fish or angle the awl to avoid hitting a line as this could introduce a bias.

2. Using the Finfish Strip for Fish >60 cm in Length.

a) For fish >60 cm in length, the finfish strip must be adjusted (**Figure 4-1**). For example: If the fish are between 60-100 cm, align the arrow at the 10-cm interval on the finfish strip with the 60-cm mark of the meter stick and write "60"on the top of the strip to indicate the starting point. The numbers 65, 70, 75, 80, etc. can also be written to indicate reference points. Proceed as before in number 1 above.

3. Using the Plastic Strip

a) The plastic strip is reusable and should not be punched with an awl. The plastic strip is most often used for measuring white hake as they are generally landed headless and are difficult to accurately measure using the aluminum strip (see **Section 9.12**). Use a grease pencil or a carpenter's pencil to record information on the strip. Once all data is transferred onto the Length Sample Form (**Figure 6-1**), all marks can be cleaned off the strip with a household cleanser.

NOTE:

The "Hake Strip" cm intervals are ⅔ of a cm to account for the headless state.

4. Using the Scallop Strip

a) Use the scallop punch strip's 5-millimeter (mm) groupings (see number 1 above) to measure scallops (**Figure 4-1**). These strips can be used to record two separate samples if the sampler is careful to record measurements on either end of the strip.

b) Insert the strip into the end of the board and punch out the scallop measurement. Ensure that the awl is not angled; keep it perpendicular to the board. Add the number of holes per interval and transfer the information to the sea scallop column on the Length Sample Form (**Figure 6-1**). When using a scallop measuring board, the use of scallop punch strips is optional.

c) The aluminum punch strip used for finfish sampling is also acceptable for measuring scallops; however, it is important to remember the 5-mm groupings for this species.

NOTE:

1. Retain all finfish and scallop punch strips used for recording samples for 3 years. These strips provide hardcopy records of the samples in case any questions arise later regarding a sample. After 3 years, recycle the strips properly.

2. If the strip is a little loose, it can move. Watch the strip to make sure that it does not shift.

3. Sometimes a fish will be off the strip. In this case, measure the fish on the meter stick and write the length on the strip. All the lengths must be punched or written (if the fish is off the strip) on the punch strip.

5.0 eSampling Biological Data Protocol

The following protocols should be used when using the Allegro system to eSample biological data.

1. **Getting Started, prior to leaving the office**

   a) Turn on the Allegro system (bottom right corner of unit).
   →Select **START**.
   →Select **PROGRAMS**.
   →Select **FISHSAMPLING** and select **OK**, (wait about 30 seconds for the program to fully load and become active) this brings up the **HEADER DATA** table.

2. **Header Data Collection**

   a) **DATE** is automatically filled based on the time and date set on the Allegro. If the date is not current, select **NEW** on the top toolbar. If the date is still incorrect you will need to reset the date on the Allegro (touch the clock on the screen and select the correct date and time).

   b) Press the **F2** key to drop down **PORT** list and select the correct sampling port.

   c) Press the **F1** key—presents full screen table view of header data.

   d) Fill in **HEADER DATA** as appropriate, use the **TAB** key to toggle between fields or **ENTER** key to enter a value.

NOTE:

The minimum amount of data need for these fields would be (**Port**, **Ves1**, **NES3**, **NES4**, **AgeS**, **Sam1**, **Sam2**, **FPC#**, **E.Fish**) **ALL** of these fields have **DROP DOWN** lists by

using the **F2** key. **E.Fish** sets the biological template to the estimated number of fish you will sample and is not changeable once selected for an individual sample; you may set this to a higher level to prevent having to weigh a partial box while sampling.

   e) Press the **F1** key—returns to data sheet view of header data.

3. **Biological Data Collection**

   a) Press the **F5** key (ViewFishList) and wait 15 seconds for appropriate 4 column data sheet to load.

b) Select from the **ACCESSIBLE FIELDS SETTING** menu (pop-up), if it does not pop-up, select **FILE** then **ACCESIBLE FIELDS**, check fields you want to **SKIP** (**AGE TAKEN**—counts the number of age structures and identifies which fish they were gathered from, **WEIGHT**—this field is to gather individual lengths, **SEX**—if sexing is not required).

c) Select **SET**. The following data fields can then be entered:

SEX field will only accept **0 – unknown**, **1 – Male**, **2 – Female**, and will auto advance to the next cell upon selecting the value.

AGE TAKEN will only accept **0 - not taken**, **1 – taken**, and will auto advance to the next cell upon selecting the value(use this selection for special studies).

LENGTH(cm) will accept a value with 4 digits (1234). Select **ENTER** to advance to the next cell.

WEIGHT(lbs) will accept a value with 7 digits (1234567). Select **ENTER** to advance to the next cell—typically the next fish to be sampled (individual weights may be needed for special studies).

Repeat the process as needed to gather required data for the sample.

Most samples will only require a **LENGTH** value to be entered. Enter the value and select **ENTER** to move to the next **LENGTH** field.

d) After all lengths have been gathered, place the **T_S_WEIGHT** into the **WEIGHT** column. For a sexed sample, enter **1** for **MALE** in the **SEX** column and place the weight for all of the males into the **WEIGHT** cell. Then go to the next line and enter **2** for **FEMALE** in the **SEX** column and place the weight for all of the females into the **WEIGHT** column.

e) This sample is complete. Select **F5** (**ViewHeaderList**)

4. Next or New Sample

a) Select **NEW** from the **HEADER** to create another sample header.

b) Press the **F1** key and repeat the entire above process from the ***** place.

5. Saving Data or Ending the Sampling Event

a) When a sampling event is complete select **FILE** from the top toolbar.
→Select **EXIT**.
→Select **YES**.

The sample file will name itself upon exiting (**DATE-PORT-FPC#**). For example:

20041208-220101-5 (for December 8, 2004 in Portland, ME using PC# 5)

If another sample from the same port on the same day is to be done after exiting the program you will have to rename the previous file to avoid over-writing that sample. To rename a file on the Allegro:

1. Select **MY DOCUMENTS**.
2. Single tap (highlight) on file to be renamed.
3. Select **FILE** from top toolbar.
4. Select **RENAME**—Rename the sample file, possibly by adding an a, b, c, etc. to the end of the name.
5. Press **ENTER** on the Keypad.

NOTE:

All data should be saved to a disc and saved for three years for future reference. Any and all issues should be reported to the Biological Sampling Coordinator.

6.0 Length Sample Form

The Length Sample Form (**Figure 6-1**) is used to record length frequency data for all species (*i.e.,* the lengths and the number of specimens at each length for the biological samples taken [one species per form]). It is also used to indicate how many individuals were selected for aging. For a sample where sexes must be differentiated, the Length Sample Form is divided into two sections, one for males and one for females. The section on the right side of the form is set aside for recording shell height frequencies for sea scallops. Entries as numbered and shown in **Figure 6-1** are presented in **Figure 10-1**.

The Length Sample Form is designed for entry into the CODES system. The computer can automatically transfer weighout entries for the shaded items on the form, from the weighout record into the computer length record of the form.

If a whole length sample is frozen for later processing, a Length Sample Form must be completed with the word **FROZEN** written in red across the face of the form. This will aid in accounting for samples. The Length Sample Form must then be sent to:

NOAA Fisheries
166 Water Street
Woods Hole, MA 02543-1097
(508) 495-2000
FAX (508) 495-2258

NOAA Fisheries - Length Sample Form

																								Sea Scallops	
																								Height	No.
Docn																									
Vessel-1 Name																									
Vessel-1 Code																									
Vessel-2 Name																									
Vessel-2 Code																									
Year																									
Month																									
Day Landed																									
Species Name (Mkt Cat)																									
Species Code																									
Sampling Method																									
Sex Code																									
Scales		Oto's		Other																					
M		F		Tot																					
Landed Weight																									
Disposition: Disc=0,Kept=1																									
Sex	Sample Weight																								
Male																									
Female																									
Total																									
Comments:																									

Males - if sexed						Females - if sexed					
0		0		0		0		0		0	
1		1		1		1		1		1	
2		2		2		2		2		2	
3		3		3		3		3		3	
4		4		4		4		4		4	
5		5		5		5		5		5	
6		6		6		6		6		6	
7		7		7		7		7		7	
8		8		8		8		8		8	
9		9		9		9		9		9	
0		0		0		0		0		0	
1		1		1		1		1		1	
2		2		2		2		2		2	
3		3		3		3		3		3	
4		4		4		4		4		4	
5		5		5		5		5		5	
6		6		6		6		6		6	
7		7		7		7		7		7	
8		8		8		8		8		8	
9		9		9		9		9		9	
0		0		0		0		0		0	
1		1		1		1		1		1	
2		2		2		2		2		2	
3		3		3		3		3		3	
4		4		4		4		4		4	
5		5		5		5		5		5	
6		6		6		6		6		6	
7		7		7		7		7		7	
8		8		8		8		8		8	
9		9		9		9		9		9	
Tot		Tot		Tot		Tot		Tot		Tot	

Finfish measured in cm., shellfish in mm.

Sea Scallops Height	No.
20-25	
25-30	
30-35	
35-40	
40-45	
45-50	
50-55	
55-60	
60-65	
65-70	
70-75	
75-80	
80-85	
85-90	
90-95	
95-100	
100-105	
105-110	
110-115	
115-120	
120-125	
125-130	
130-135	
135-140	
140-145	
145-150	
150-155	
155-160	
160-165	
165-170	
Total	

Figure 6-1. Length Sample Form

6.1 Information Needed to Complete the Length Sample Form

Item	Entry
1. Docn	The document number that appears on the related weighout.
2. Vessel-1 Name	The name of the vessel landing the catch.
3. Vessel-1 Code	The code of the vessel landing the catch.
4. Vessel-2 Name	The name of the vessel that was paired, or involved, in the catch.
5. Vessel-2 Code	The code of the vessel that was paired, or involved, in the catch.
6. Year	The year landed.
7. Month	The month landed.
8. Day Landed	The day landed.
9. Species Name (Mkt Cat)	The name and market category of the species sampled.
10. Species Code	The 4-digit species code of the species sampled.
11. Sampling Method	The code for the method used to sample the vessel's catch: 1=vessel or hold; 2=basket or bushel; 3=chute or conveyor; 4=cart, barrel, or large box; 5=bin, floor pile; 6=small box; and 7=sorting table.
12. Sex Code	The code(s) for the sex (es) of the sample, as follows: unsexed=0; male=1; female=2; and males & females=1/2.
13. Scales, Oto's, Other	Check the appropriate box to indicate what structures were taken for aging.
14. M, F, Tot	The number of males and/or females and the total, or the number of unsexed, from which age structures were taken, in the appropriate boxes.
15. Landed Weight	The landed weight of the market category sampled, in thousands of pounds to one decimal place (*e.g.,* 3500 lbs = 3.5).
16. Disposition	The catch from which the sample was taken: discarded=0 and kept=1.
17. Sample Weight: Males	The weight of the males in the length sample to the nearest pound.
18. Sample Weight: Females	The weight of the females in the length sample to the nearest pound.
19. Sample Weight: Total	The total weight of the length sample to the nearest pound.
20. Length	Precede the number in the length column with the proper number(s) to identify the tens and/or hundreds.
21. Number-at-length	Indicate the number-at-length in the blank box adjacent to the length.

7.0 Scale and Otolith Samples

Fish taken for aging are selected so that at least one fish for each 1.0-cm interval (as observed in the length sample; the 1.0-cm rule) is represented by a fish of that length in the age sample. This is called a stratified sub-sample. Record the length on each Scale Envelope and, for sexed samples, record the sex on each Scale Envelope.

Scales are needed from specific areas for certain fish types. **Figure 7-1** shows these areas on a round (cod/haddock type) and a flat (flounder) fish. If scales cannot be found in the areas designated, scales can be taken from other areas of the fish with the area sampled indicated on the Scale Envelope.

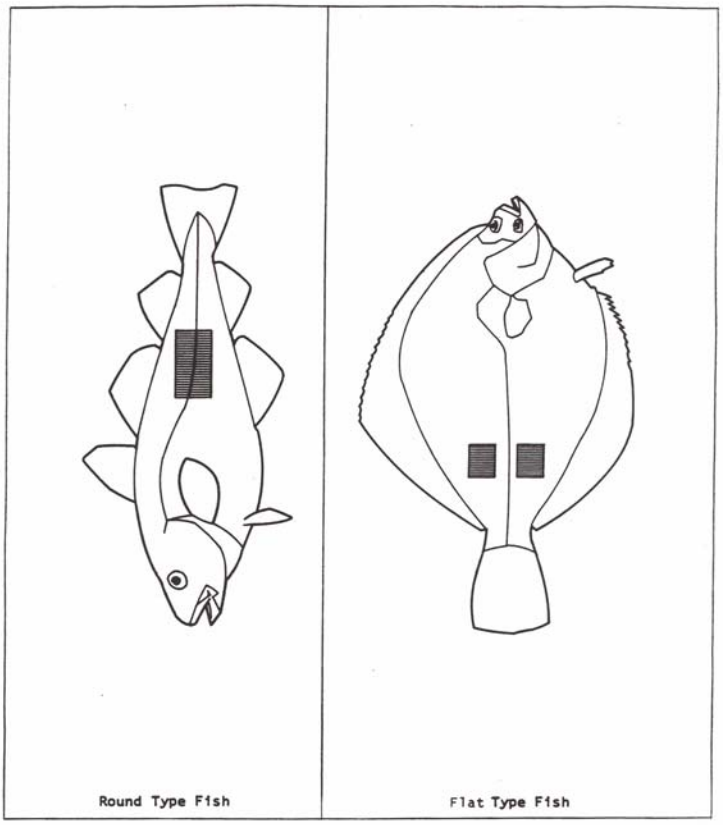


Figure 7-1. Areas for Scale Removal in Round or Flat Fish

7.1 Scale Sampling Procedure

Before removing scales from a fish:

1. Firmly scrape the slime and mucus away with the scale knife. If this is not done, the scales will rot in the envelopes, rendering the sample useless.

2. After scraping away the slime, first clean the knife and then scrape against the grain of the scales until 10 or 20 scales have been removed from the fish.

3. Place these scales between the leaves of a slip of paper and then put them in the Scale Envelope, remembering to indicate the length of the fish on the envelope and sex (if sex is required).

4. Repeat this procedure with each fish.

7.2 Otolith Sampling Procedure

Removing otoliths may best be explained by demonstration.

1. It is important to remember that there is a thin membrane or sac surrounding each otolith. This membrane must be removed before putting the otolith in the Scale Envelope. If the membrane is not removed, it will harden upon drying making the otolith difficult to read.

2. Each pair of otoliths belongs in a separate Scale Envelope.

7.3 Age Structure Envelopes

The age structures removed from an individual specimen are placed in an Age Structure Envelope and the information given below is entered on one header envelope for each sample and sex sample (**Figure 7-2**). The length and, if appropriate, the sex must be indicated on every Age Structure Envelope. If samples are frozen for later processing, they must be labeled with the same information required on the header envelope. The required Scale Envelope header information is presented in **Table 7-4**

DOCN # _____
Vessel Name _____
Port _____
Date_____
Area_____
Species Name_____
Mkt. Cat. _____
Length _____
Sex un_____ M _____ F _____
Catch Disposition 0_____ 1 _____
VTR #_____
Name _____

Figure 7-2. Age Packet Envelope Header

7.4 Scale Envelope Header Information to be Entered on the Age Structure Envelope

Item	Entry
1. Docn.	The document number that appears on the related weighout.
2. Vessel Name	The name of the vessel landing the catch.
3. Port	The name of the port where the catch was landed.
4. Date	The date the catch was landed.
5. Area	The Northeast Marine Fisheries Information System area in which the catch was made.
6. Species Name	The name of the species sampled.
7. Mkt. Cat	The market category of the species sampled.
8. Length	The length of the individual from which the sample was taken.
9. Sex	The sex of the individual from which the sample was taken.
10. Catch Disposition	Indicate whether the catch from which the sample was taken was: discarded = 0 or kept = 1.
11. Name	The name of the sampler.
12. VTR	The vessel trip report number.

8.0 Biological Sample Monitoring Database (BSMDBS) Data Entry Protocol

The following protocol has been established for entering data into the BSMDBS.

8.1 BSMDBS Data Entry Protocol

1. **Entering Biological Sample Data on BSMDBS**

b) Enter the Northeast Fisheries Science Center (NEFSC)Web Site
http://dbs.wh.whoi.edu/bsmdbs/
→Select the **WEB-BASED DATA ENTRY** icon.
→Select **DATA ENTRY FORMS**.
→Enter your **USERNAME**, **PASSWORD** and **DATABASE**.
→Verify that the year is correct (2005).
→Select **BIOLOGICAL SAMPLE ENTRY** (wait a few seconds).

c) Header Information. *This data cannot be changed after its creation, in the field.* For Header Information enter the **NAME** of individual entering the sample (Last, First), **PORT NAME** (port where sample is being entered) and **TALLY DATE** (date which sample is being entered [03/15/2005]).

d) Sampler Data must be recorded.
→Enter the **Sampler ID1 (P43) #** of individual that took the sample and press **ENTER**. If applicable, enter the **Sampler ID2 (P48) #** of the individual that assisted with the sample and press **ENTER**. If a new sampler is needed, select the **NEW SAMPLER** button and follow instructions.

e) Biosample Header Information is then entered into the **PORT SAMPLE TALLY**

SHEET). The following header information fields must be entered:

PERMIT is the **6 digit Permit Number** (123456 [**Hull Number** and **Vessel Name** will be filled automatically]).

DATE LANDED is the **Date the catch was landed** (3/14/2005). Complete year must be entered.

PORT is the port landed **6 digit Port Code** (123456) of the port where sample was taken.

NESPP3 is the **3 digit Species Code** (123) for the species sampled.

MKT CAT is the **Market Category**, which is the **4th digit** of the **4 digit Species Code** (1).

LENGTHS is the **Number of Total Lengths** (###) taken in the sample.

AGES is the **Number of Ages** (##) taken for the sample; enter **0 if none taken**.

STOCK AREA (use drop down menu) is completed only if data was available to sampler.

NE GEAR is the **3 digit Gear Code** (123) used by the vessel.

NEMAREA is the **3 digit Statistical Area** (123), and is used if data was available to the sampler.

DATA SOURCE is how trip data was gathered (VTR, Interview).

VTR LOG# is the **Trip ID** acquired from dealer at the point of sampling.

DOCN is the number assigned by using **first number of 1 site code per office**.

f) With the header data entered select **SAVE**, below **DOCN** and then use the < button to toggle back to original header entry

g) Select **ENTER LENGTHS**, which opens the **BIOSAMPLES LENGTHS FORM**.

h) With date from the **BIOSAMPLES LENGTHS FORM**, verify that the **Tally #**, **Sample #**, **Species** and **MktCat** are correct.

Enter the following fields using the correct codes:

SEX will accept values from **0 to 2**. If sexed, enter **MALES** first, see m) below for **FEMALES**

0 – Unsexed
1 – Male
2 – Female

CATDISP will accept values of **0 or 1**.

0 – Discard
1 – Kept

WGTSAMP it the total weight of sample or for individual sex, if sexed.
SAMPMETH is the method of sampling; values accepted are from **1 to 7**.

1 – Vessel
2 – Lumping Basket
3 – Chute or Conveyer
4 – Cart/Barrel/Large Box
5 – Bin or Floor Pile
6 – Small Box Fish
7 – Sorting Table or Cutting Line

AGESTRCT is the age structure sampled; values accepted are from **0 to 6**.

0 – None
1 – Scales
2 – Otoliths
3 – Shells
4 – Pen
5 – Vertebra
6 – Organism

AREASAMP is the stock area captured from **VTR** or **Interview**.

AREASRC is the method in which **AREASAMP** was gathered; values accepted are from **0 to 3**.

0 – Unknown
1 – Weigh-Out
2 – Interview
3 – Port Agent's Best Guess

LENGTH is the length measurement (the centimeter or mm interval).

NUMLEN is the number of lengths for the adjacent **LENGTH** value.

i) Select **SAVE** on the **BIOSAMPLES LENGTHS FORM** to save the length sheet.

j) Select **EXIT** on the **BIOSAMPLES LENGTHS FORM** to return to the header information.

k) Select **SAVE** to save the entire sample and start a new sample.

l) Select **EXIT** to exit the system after entering all of your samples

m) **<u>For SEXED samples</u>** select **ENTER LENGTHS**. Verify that the **Tally #**, **Sample #**, **Species** and **MktCat** are correct.

n) Enter the biological data from either sex of the sample and select **SAVE.**

o) Follow the below sequence to add the other **SEX** record:
Adding a Second Sex Record

Since **SEX** and **CATDISP** are part of the primary key, data for more than one sex can be entered by entering separate records for each sex. The user must enter the first **SEX** record and save it. Then the **Top Menu** must be used to enter the second **SEX** record (see image below).

Top Menu

This is done by performing the following:

The cursor must be in the **SEX** field. Next, from the **Top Menu**, select the **RECORD** option, then **INSERT** (which will clear out the fields). Then, again from the **RECORD** option, select **DUPLICATE**. This will put the data from the last record into this new record. Now change the the sex and whatever else needs to change (except the **Header Information**). Then select **SAVE** from the bottom button bar to save the second **SEX** record. Both records should then be in the database. This can be verified by putting the cursor in the **SEX** field and using the **UP** and **DOWN** arrow to see all the records for that header combination.

p) Select **SAVE** to save this sexed record

q) Select **EXIT** to leave the length form

2. Updating Biological Sampling Data on BSMDBS

b) Enter the NEFSC Web Site.
→Select the **Web-Based Data Entry** button.
→Enter your **USERNAME**, **PASSWORD**, **DATABASE**
→Verify that the year in which the sample was taken is correct.
→Select **Biological Sample Update**.

c) Select the **ENTER QUERRY** button and enter the following fields:

PERMIT is the **6 digit Vessel Permit Number** (123456)

DATE LANDED is the **Date the catch was landed** (3/14/2005)

d) Select the **EXECUTE QUERRY** button. Sample data for this vessel and date will appear (this will take a few seconds).

e) Update sample data accordingly in appropriate fields (**STOCK AREA**, **NEMAREA**, **DATA SOURCE**, **VTR LOG #**, **LENGTH DATA**, etc.)

f) To update another sample from the same vessel on the same date, select the > button.

g) To save updates for this vessel and date, select **SAVE**.

h) To add or edit lengths, select the **ENTER LENGTHS** button.

i) Length data form (BIOSAMPLES LENGTHS FORM):
SEX will accept values from **0 to 2**. If sexed, enter **MALES** first. Refer back to m) in the above **Entering Biological Sample Data on BSMDBS** section for **FEMALES**
0 – Unsexed
1 – Male
2 – Female

CATDISP will accept values of **0 or 1**.
0 – Discard
1 – Kept

WGTSAMP it the total weight of sample or for individual sex, if sexed.

SAMPMETH is the method of sampling; values accepted are from **1 to 7**.
1 – Vessel
2 – Lumping Basket
3 – Chute or Conveyer
4 – Cart/Barrel/Large Box
5 – Bin or Floor Pile
6 – Small Box Fish
7 – Sorting Table or Cutting Line

AGESTRCT is the age structure sampled; values accepted are from **0 to 6**.
0 – None
1 – Scales
2 – Otoliths
3 – Shells
4 – Pen
5 – Vertebra
6 – Organism

AREASAMP is the stock area captured from **VTR** or **Interview**.

AREASRC is the method in which **AREASAMP** was gathered; values accepted are from **0 to 3**.
0 – Unknown
1 – Weigh-Out

2 – Interview
3 – Port Agent's Best Guess

LENGTH is the length measurement (the centimeter or mm interval).

NUMLEN is the number of lengths for the adjacent **LENGTH** value.

r) Select **SAVE** on the **BIOSAMPLES LENGTHS FORM** to save the length sheet.

s) Select **EXIT** on the **BIOSAMPLES LENGTHS FORM** to return to the header information.

j) For **SEXED** samples, refer back to m) in the above **Entering Biological Sample Data on BSMDBS**.

k) To update another sample from a different vessel go to and select the **ENTER QUERRY** button and start the process again from step c) above.

Repeat steps until all samples are updated with appropriate data.

NOTE:
Ongoing projects may have additions to this protocol and should be adhered to, to preserve the quality of the data and its flow (i.e. enter area fished in comments section for Cod, Haddock, Yellowtail and Black Back).

8.2 VERIFICATION and AUDIT PROCESS

To verify the entered sample data go to the BSMDBS homepage at
http://dbs.wh.whoi.edu/bsmdbs/
→Select **REPORTS** and choose your sampling area, the current month, and verify year is correct.
→Select the **LENGTH SAMPLES LIST** button. This displays ALL length data entered for the selected area for the given year.
→Review your data and make corrections as needed, through the **UPDATES** screen. scrolling to the bottom of the report provides a summary that will indicate if errors have occurred.

8.3 Biological Sample AREA and VTR# Assignment Flow (Figures8-1 and 8-2)

1. These data are assumed to be perfect matches as entered by the Center staff using the CAREA.

2. With a landing date three days to either side of the sampled date but with a date sailed definitely prior to the sampled date. Also review the VTR for the correct SPECIES, LBS LANDED and DEALER. If questionable assume yes and continue through the matrix for verification in DAS and DER. http://www.nefsc.noaa.gov/veslog/test/index.html

3. 60 days should be an adequate time frame to have the VTR submitted(45 days), scanned and entered into VESLOG

4. Some species may not require the use of a DAS. ALL TRIPS landing American Plaice, Atlantic Cod, Atlantic Halibut, Haddock, Ocean Pout, Offshore Hake, Pollock, Red Hake, Redfish, Silver Hake, White Hake, Windowpane Flounder, Winter Flounder, Witch Flounder, Yellowtail Flounder, Red Crab and Monkfish from the EEZ as well as Scallop-limited access vessels REQUIRE DAS usage. http://les1 'DAS Report'

5. A DAS record that matches the VESLOG VTR (date sailed/landed). http://www.nefsc.noaa.gov/veslog/test/index.html

6. To determine landings you may use the LES1 site or a query tool on ER_MV (CUDA1). Query by DATE and DNUM (DEALER NUMBER) or PERMIT (VESSEL PERMIT). http://les1 'Mults Catch Report'

7. This data will be entered onto the BSM by the field staff through the updates screen prior to sending the ages to the Center. Gather the CAREA by using the website (provided by NEFSC) http://nefsc.noaa.gov/loranconv/latlonarea.pl

8. To determine whether a vessel has an active FEDERAL Permit us this site: http://les1 'Permit History'

9. Based on local knowledge, time of year, fishery dependent and other resources.

10. Verification of a research cruise. http://les1 'IVR EFP & Research Reports'

11. Use the 'Table for Assigning Stat Area' to label the biological data.

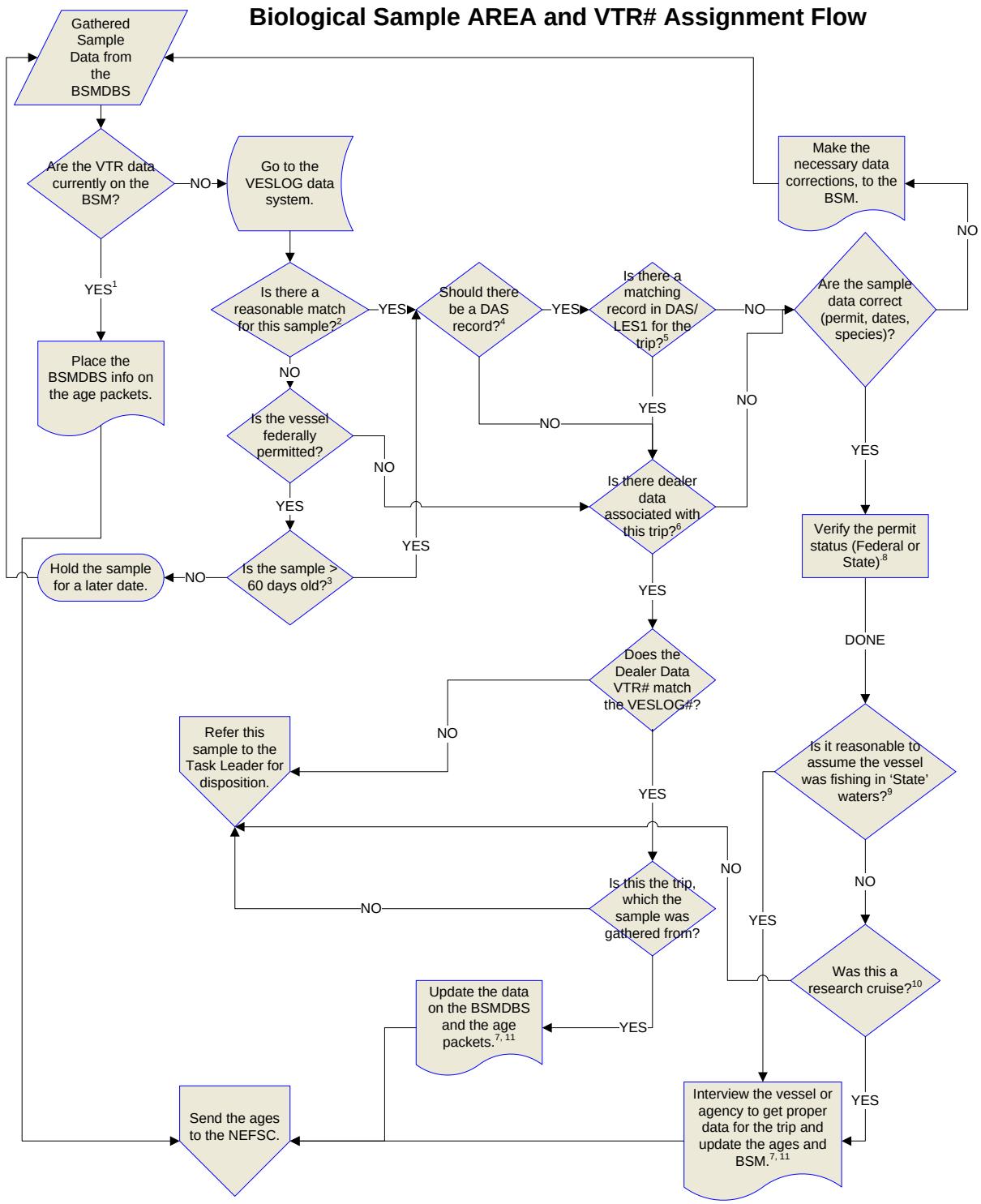


Figure 8-1 Biological Sample AREA and VTR# Assignment Flow

Assiging a Statistical Area to Biological Data Using Multiple VTR's.

	511	512	513	514	521	522	525	526	533	534	537	538	539	541	542	543	561	562	611	612	613	614	615	616	62#s	63#s
511	511	510	510	510	500	500	500	500	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
512	510	512	510	510	500	500	500	500	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
513	510	510	513	510	500	500	500	500	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
514	510	510	510	514	500	500	500	500	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
521	500	500	500	500	521	520	520	520	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
522	500	500	500	500	520	522	520	520	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
525	500	500	500	500	520	520	525	520	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
526	500	500	500	500	520	520	520	526	500	500	500	500	500	500	500	500	500	500	0	0	0	0	0	0	0	0
533	500	500	500	500	500	500	500	500	533	530	530	530	530	500	500	500	500	500	0	0	0	0	0	0	0	0
534	500	500	500	500	500	500	500	500	530	534	530	530	530	500	500	500	500	500	0	0	0	0	0	0	0	0
537	500	500	500	500	500	500	500	500	530	530	537	530	530	500	500	500	500	500	0	0	0	0	0	0	0	0
538	500	500	500	500	500	500	500	500	530	530	530	538	530	500	500	500	500	500	0	0	0	0	0	0	0	0
539	500	500	500	500	500	500	500	500	530	530	530	530	539	500	500	500	500	500	0	0	0	0	0	0	0	0
541	500	500	500	500	500	500	500	500	500	500	500	500	500	541	540	540	500	500	0	0	0	0	0	0	0	0
542	500	500	500	500	500	500	500	500	500	500	500	500	500	540	542	540	500	500	0	0	0	0	0	0	0	0
543	500	500	500	500	500	500	500	500	500	500	500	500	500	540	540	543	500	500	0	0	0	0	0	0	0	0
561	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	561	560	0	0	0	0	0	0	0	0
562	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	560	562	0	0	0	0	0	0	0	0
611	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	611	610	610	610	610	610	600	600
612	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	610	612	610	610	610	610	600	600
613	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	610	610	613	610	610	610	600	600
614	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	610	610	610	614	610	610	600	600
615	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	610	610	610	610	615	610	600	600
616	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	610	610	610	610	610	616	600	600
62#	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	600	600	600	600	600	600	62#s	600
63#	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	600	600	600	600	600	600	600	63#s

In the event a sampled trip has multiple vessel trip reports associated with it you will need to use the above table to assign a correct area code to it. Review all VTR's, from this trip, to determine if the species sampled is present on both or all VTR's. If the species sampled does NOTappear on more than one VTR then that VTR will be used, solely, in assigning the AREA to the sampling data. If the species appears on two or more of the VTR's then those VTR's must be used to assign the AREA. If the CAREA from the VTR's are different then the table (see above) shall be used in assiging the correct code.

Figure 8-2 Biological Sample AREA and VTR# Assignment Flow

9.0 Sampling Requirements by Species

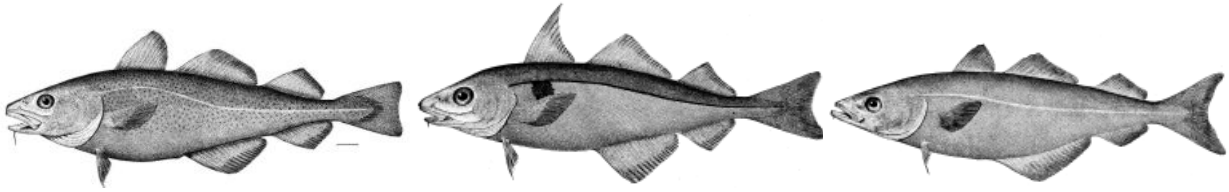
A summary of sampling requirements, by species, is noted with each below. For species not specifically referenced, a basic sample of 100 fish measured from each market category per month must be taken and 25 fish must be selected on a stratified basis for aging (with the exception of shellfish). When selecting fish for aging, at least one fish for each 1.0-cm interval as represented in the length sample must be contained in the age sample (the 1.0-cm rule).

Each market category will be considered a separate sample. The number of fish and age structures (otoliths or scales) required per sample are shown in the species specific tables that accompany the individual work instructions. When selecting fish for aging, at least one fish for each 1.0-cm interval as represented in the length sample must be contained in the age sample (the 1.0-cm rule).

For other finfish, not specifically discussed here, a basic sample of 100 fish measured from each market category per month, with 25 fish selected on a stratified basis for aging (using the 1.0-cm rule) are taken until procedures are developed for the species.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9.1 Cod, Haddock, and Pollock



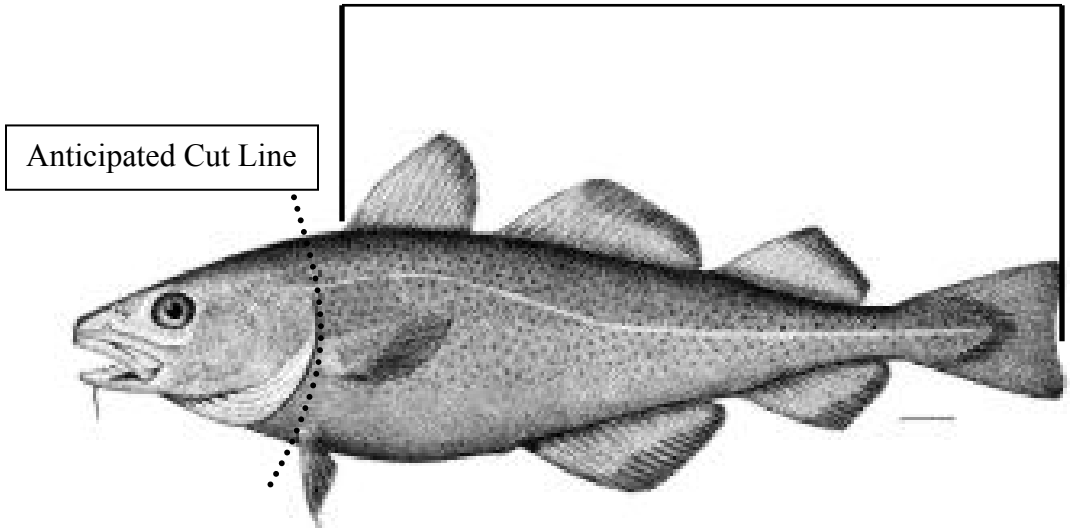
Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
COD	WHALE	81	0	100	N		20		
COD	LARGE	81	1	100	N		20		
COD	MARKET	81	3	100	N		20		
COD	SCROD	81	4	50	N		10		
COD	UNCLASSIFIED	81	5	100	N		20		
COD	STEAKER	81	6	100	N		20		
COD	SNAPPER	81	7	50	N		10		
COD	UNCLASSIFIED	81	8	100	N		20		
HADDOCK	LARGE	147	0	100	N		50		
HADDOCK	SCROD	147	5	50	N		25		
HADDOCK	SNAPPER	147	6	100	N		50		
HADDOCK	UNCLASSIFIED	147	7	100	N		50		
HADDOCK	UNCLASSIFIED	147	9	100	N		50		
POLLOCK	UNCLASSIFIED	269	1	100	N		20		
POLLOCK	STEAKER	269	2	100	N		20		
POLLOCK	MEDIUM DRAWN	269	3	100	N		20		
POLLOCK	LARGE ROUND	269	4	100	N		20		
POLLOCK	UNCLASSIFIED	269	5	100	N		20		
POLLOCK	LARGE DRAWN	269	6	100	N		20		
POLLOCK	SMALL ROUND	269	7	100	N		20		
POLLOCK	SMALL DRAWN	269	8	100	N		20		

When sampling age structures of cod, haddock and pollock, only one otolith from each fish is typically required and it must not be crystallized or broken. Both otoliths can be taken if time allows so that the second otolith can be archived for future genetic study or age and growth work. Both age structures should be packaged in the same envelope when forwarding them to the NEFSC.

9.1.1 Steaker Cod Biological Sampling Protocol

In an attempt to classify and account for all market categories within species that are landed a protocol for Steaker Cod, landed 'headless', has been developed. These landings can be very seasonal in nature and may be localized within a few ports, depending on market conditions.

The length required is achieved by using a centerline measurement from the point of attachment of the first Dorsal Fin to the centerline of the caudal fin, *see below*. Place the 'Steaker Cod' on the board with the anterior insertion of the first dorsal fin aligned with the 0-cm mark and gather your length from the center-line of the caudal fin. The aggregate weight of the sample is then recorded and there will be no resulting age structures as the head has been removed, there may be exceptions to the age rule and they should be gathered when available.

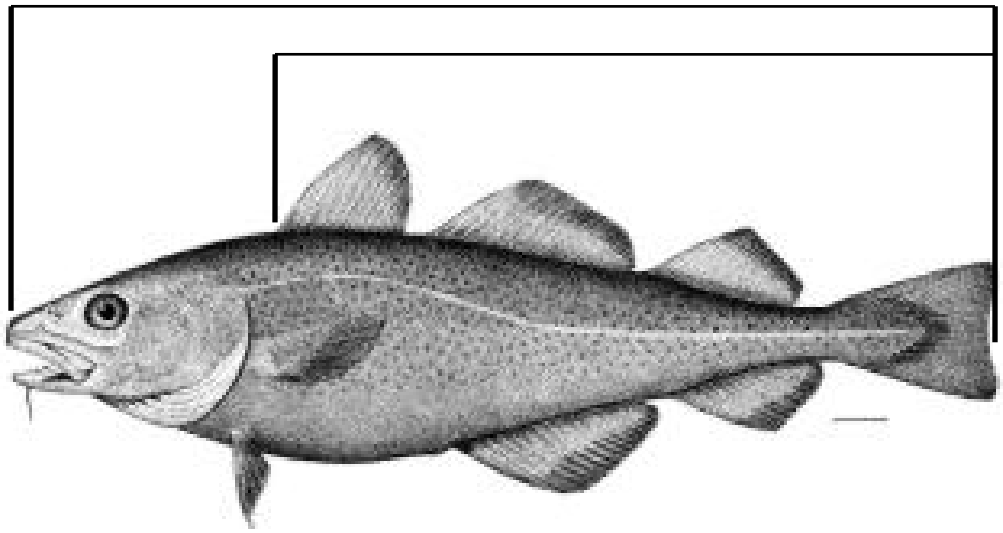


The typical sample definitions pertain to this market category and a sample is made up from 100 fish lengths with an aggregate weight. The NESPP3 is 081 with a MKT CAT of 6 (NESPP4 = 0816).

9.1.2 Whole / Steaker Cod Biological Sampling Protocol

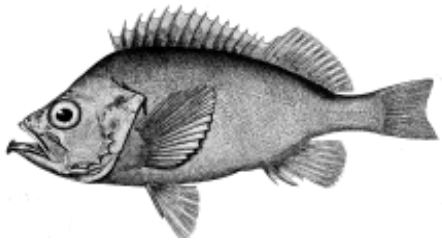
In an attempt to develop a conversion factor for 'Steaker Cod' data are needed from port sampling activities. This protocol is for all market categories of Atlantic Cod. When setting up the Allegro Fish Sampling software, the reflective market category is for the whole fish and on the biological data page the weight field should be left unchecked as to allow each weight field to be used. The sample weight can be entered in the comments field or at the end of the sample in the next 'blank' weight field.

To gather the necessary data you should place the fish on the board with the head end at 'zero' and gather the centerline length for the entire specimen. Place the CM value in the LENGTH field and PRESS enter on the Allegro, which advances you to the 'weight field' which is now being used to capture the 'anticipated steaker' length. Flip the fish so the caudal fin is at 'zero and record where the anterior insertion of the first dorsal fin aligned, you may use a ruler or straight edge to ease of reading (only gather the 'Anticipated Steaker Length' in this manner).



When entering the sample into the BSMDBS treat it as a 'normal' Cod sample and attribute the data to the usual market category for a 'whole' fish. DO NOT ENTER the STEAKER DATA into the BSM. Keep the sample's data intact, where the two lengths correspond with each (an spreadsheet will be developed to capture and report the data).

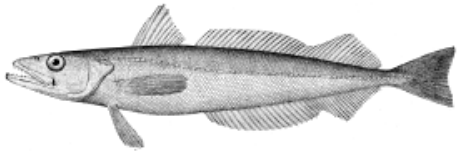
9.2 Redfish



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
REDFISH	UNCLASSIFIED	240	0	100	Y		20		otos: 10Male+10Female
REDFISH	LARGE	240	1	100	Y		20		otos: 10Male+10Female
REDFISH	SMALL	240	2	100	Y		20		otos: 10Male+10Female

A redfish length sample consists of 100 fish sorted by sex. Select a minimum of 10 males and 10 females from the length sample for extracting otoliths with at least one fish per 1.0-cm interval (the 1.0-cm rule).

9.3 Silver Hake

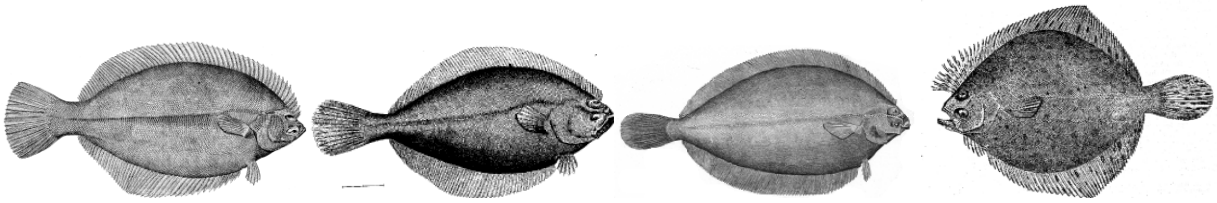


Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
HAKE, SILVER	ROUND	509	0	100	N				
HAKE, SILVER	KING ROUND	509	1	100	N				
HAKE, SILVER	SMALL ROUND	509	2	100	N				
HAKE, SILVER	DRESSED	509	3	100	N				
HAKE, SILVER	JUVENILE	509	4	30	N				
HAKE, SILVER	LARGE ROUND	509	5	100	N				

A silver hake sample consists of 100 measured fish. No age structures or sexing of fish is required.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

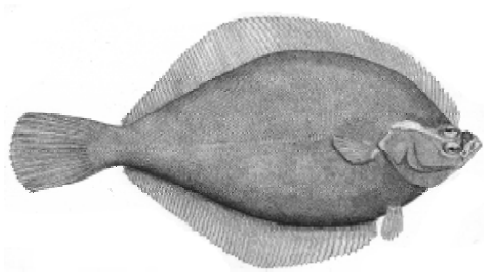
9.4 Black Back, Dab, Grey Sole, and Windowpane Flounder



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
FLOUNDER, AM. PLAICE	UNCLASSIFIED	124	0	100	N		25		
FLOUNDER, AM. PLAICE	LARGE	124	1	100	N		25		
FLOUNDER, AM. PLAICE	SMALL	124	2	50	N		10		scales if otos not avail
FLOUNDER, AM. PLAICE	JUMBO	124	3	100	N		25		
FLOUNDER, AM. PLAICE	MEDIUM	124	4	100	N		25		
FLOUNDER, AM. PLAICE	PEEWEE	124	5	50	N		10		scales if otos not avail
FLOUNDER, SAND-DAB	UNCLASSIFIED	125	0	100	N	25			
FLOUNDER, SAND-DAB	LARGE	125	1	100	N	25			
FLOUNDER, SAND-DAB	SMALL	125	2	100	N	25			
FLOUNDER, WINTER	UNCLASSIFIED	120	0	100	N	25			
FLOUNDER, WINTER	LEMONSOLE	120	1	100	N	25	25		otos (preferred)
FLOUNDER, WINTER	LARGE	120	2	100	N	25	25		otos (preferred)
FLOUNDER, WINTER	SMALL	120	3	50	N	10			
FLOUNDER, WINTER	X-LARGE	120	4	100	N	25	25		otos (preferred)
FLOUNDER, WINTER	LARGE/MIX	120	5	100	N	25	25		otos (preferred)
FLOUNDER, WINTER	MEDIUM	120	6	100	N	25			
FLOUNDER, WINTER	PEEWEE	120	7	50	N	10			
FLOUNDER, WITCH	UNCLASSIFIED	122	0	100	N		25		
FLOUNDER, WITCH	LARGE	122	1	100	N		25		
FLOUNDER, WITCH	SMALL	122	2	50	N		10		scales if otos not avail
FLOUNDER, WITCH	LARGE	122	3	100	N		25		
FLOUNDER, WITCH	MEDIUM	122	4	100	N		25		
FLOUNDER, WITCH	PEEWEE	122	5	50	N		10		scales if otos not avaiL

Measure 100 fish from each market category landed (except small) and take 25 age samples from each market category sample, making sure that at least one fish from each 1.0-cm interval represented in the length sample is also represented in the age sample (the 1.0-cm rule). No separation by sex is necessary for these species. For the small market category, measure 50 fish and take 10 age samples with at least one age per 1.0-cm interval.

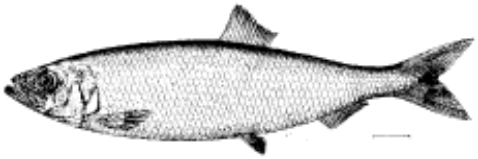
9.5 Yellowtail



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
FLOUNDER, YELLOWTAIL	UNCLASSIFIED	123	0	100	Y	30			scales: 15Male+15Female
FLOUNDER, YELLOWTAIL	LARGE	123	1	100	Y	30			scales: 15Male+15Female
FLOUNDER, YELLOWTAIL	SMALL	123	2	100	Y	30			scales: 15Male+15Female

Separate 100 yellowtail into males and females and measure and record separately. Sex determination is performed by the candling method (best learned by demonstration). Each market category is treated as a separate sample. Fifteen fish of each sex are selected for aging according to the 1.0-cm rule.

9.6 Sea Herring



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
HERRING, ATLANTIC	UNCLASSIFIED	168	5		N			50	

A sea herring sample consists of 50 fish frozen for later age and growth work by the Maine Department of Marine Resources (DMR). It is not necessary to do length frequencies at the ports. The sea herring are randomly selected from the catch and placed in the herring boxes supplied by the Maine DMR. Ensure that all requested information printed on the box is completed. If more than one box is needed for the 50 (+) fish sample, tape the boxes together and number (1 of 2, 2 of 2, etc.) Plastic bags may be used if the boxes are not available and each bag must be identified with all the information required on the Scale Envelope.

Before sampling, determine the identity of the vessel, catch location, and date fished. Obtain the federal Vessel Trip Report (VTR) logbook serial number (located in upper right hand corner of VTR) for the trip and include it in the sample information. This serial number will be used as the "vessel trip identifier." If the VTR is not available, the sampler should conduct a standard interview and, at the very least, obtain the minimal data elements of vessel name, number (federal or state), and date sailed.

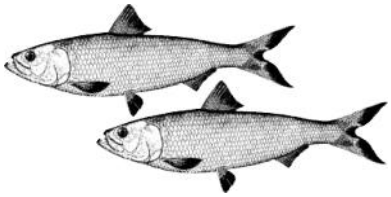
For ports south of Boston, Massachusetts, the frozen sea herring samples will be forwarded to the NOAA Fisheries NEFSC for transshipment to the Maine DMR lab in Boothbay, Maine.

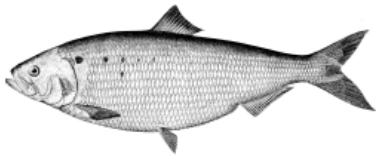
Send the samples to:
Age and Growth - Jay Burnett
NOAA Fisheries NEFSC
166 Water Street
Gloucester, MA 02543-1097
(508) 495-2000
FAX (508) 495-2258
Jay.Burnett@noaa.gov

Kohl Kanwit - Maine Department of Marine Resources
P.O. Box 8
West Boothbay Harbor, Maine 04575
(207) 633-9500
FAX (207) 633-9579

If sea herring samples must be purchased, the sampler will contact the Biological Sampling Coordinator for instruction.

9.7 Other Herring





Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
SHAD, AMERICAN	BUCK	347	1	100	N		25		
SHAD, AMERICAN	UNCLASSIFIED	347	4	100	N		25		

If other species of herring are mixed in with sea herring, and it is possible to obtain 50 fish, identify them by specie(s) and clearly identify this on the sample box (or bag) and follow the instructions for recording and shipping sea herring samples.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9.8 Mackerel

Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
MACKEREL, ATLANTIC	UNCLASSIFIED	212	0	100	N			25	
MACKEREL, ATLANTIC	LARGE	212	1	100	N			100	
MACKEREL, ATLANTIC	SMALL	212	2	100	N			25	
MACKEREL, ATLANTIC	MEDIUM	212	3	100	N			25	
MACKEREL, ATLANTIC	EXTRA LARGE	212	4	100	N			100	

A length sample of mackerel consists of 100 randomly selected fish from which a minimum of 25 fish are taken for aging. Stratification for selecting fish for aging is as follows:

1.0-cm Interval	Number of Fish/1.0-cm Interval
≤35	1 or more
>35	2 or more

It is very important that an age sample be taken with every length sample (per fish if necessary). Fish selected for aging must be packaged with the information required on the Scale Envelope using a manila tag or equal substitute. The fish must be frozen for later processing at:

NOAA Fisheries NEFSC
166 Water Street
Woods Hole, MA 02543-1026
(508) 495-2000
FAX (508) 495-2258

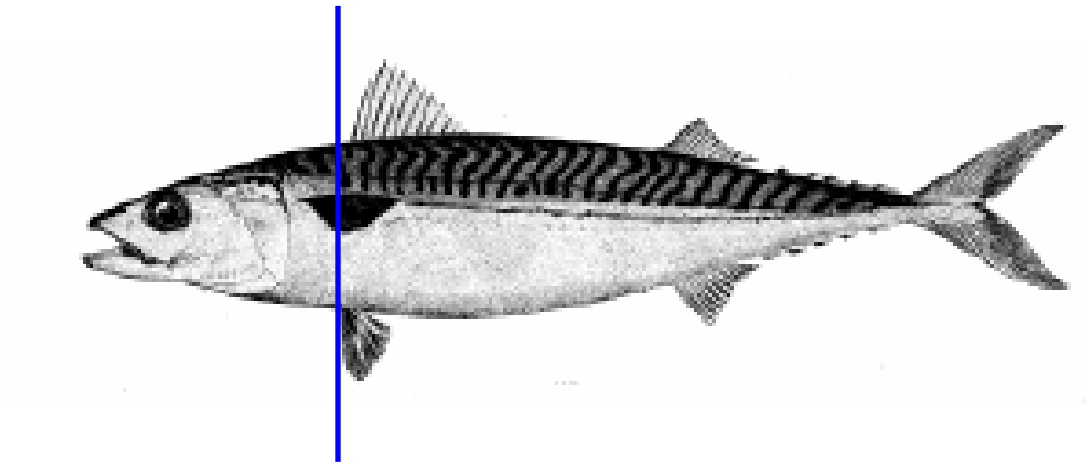
If the fish are sorted by market category prior to sampling, then a length sample of each market category is necessary.

If there is less than the required number of fish for aging per 1.0-cm interval, all fish available in that interval are taken. Indicate on the Length Sample Form the number of fish frozen ("OTO" column).

9.8.1 Alternate Atlantic Mackerel Age Structure Gathering Protocol

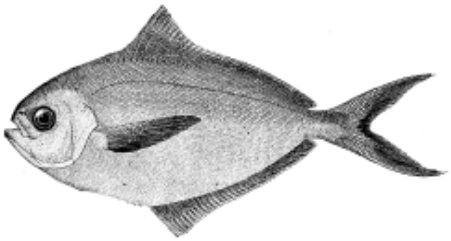
In an effort to better characterize the catch the NEFSC has requested 100 fish be frozen for LRG and X-LRG market category samples. This procedure requires more freezer space and increases the size and weight of the packages being shipped to the NEFSC from the Field Offices, to a near unacceptable level.

An alternative method of age structure gathering has been developed. Record the length, on a slip of paper (fork length, cm) in pencil (grease or lead), sever the head behind the pectoral fin, in a vertical fashion from the dorsal to the ventral surface (see diagram below), put the documented length into the mouth and place the head in a plastic bag or create a bag for each length interval and place all of the similar frequencies in the appropriate bag with a slip of paper noting the length for that bag. Severing the head in this manner should leave enough tissue for the age processors to get a grip on when they remove the otoliths. After the sample is complete, discard or return the headless carcass to the vessel or dealer. Carefully place the bagged heads or frequency bags into a 'clean' larger plastic bag, *Ziploc* is preferred, and squeeze out the air so the heads cannot bounce around (this could result in the dislodging of the paper slip) also place a copy of the samples header information in the larger 'clean' bag. Freeze your sample and ship it to the NEFSC when appropriate.



Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9.9 Butterfish



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
BUTTERFISH	LARGE	51	0	100	N			25	
BUTTERFISH	UNCLASSIFIED	51	1	100	N			25	
BUTTERFISH	JUMBO	51	2	100	N			25	
BUTTERFISH	LARGE/MIX	51	3	100	N			25	
BUTTERFISH	MEDIUM	51	5	100	N			25	
BUTTERFISH	SMALL	51	6	100	N			25	
BUTTERFISH	SUPER SMALL	51	7	100	N			25	
BUTTERFISH	SUPER SUPER SMALL	51	8	100	N			25	

The length sample for butterfish consists of 100 randomly selected fish from which a minimum of 25 fish for an age sample are taken according to the following stratification:

1.0-cm Interval	Number of Fish/1.0-cm Interval
≤14	2 or more
≥15	3 or more

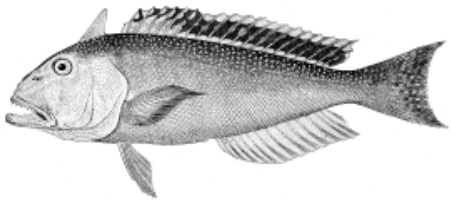
If there is less than the required number of fish for aging in any 1.0-cm interval, all fish available in that interval are taken. If butterfish are landed unculled and then sorted into market categories, the sample of fish must be taken randomly as the fish are off-loaded, prior to culling. However, when the fish are culled into size groups at sea, or if sampling in the port occurs after the fish are sorted by size, then a sample of each market category must be taken. Whenever possible, sample the fish prior to sorting. Purchase the sample of fish if necessary.

Fish selected for aging are packaged, labeled with the information required on the Scale Envelope, and frozen for later processing at:

NOAA Fisheries NEFSC
166 Water Street
Woods Hole, MA 02543-1026
(508) 495-2000
FAX (508) 495-2258

If the fishermen are cooperative, try to obtain a random sample of the fish retained at sea, as well as a sample of the discard, using white plastic buckets (a half bucket of fish should be more than sufficient). Randomly select 100 fish from each bucket and process them as a regular sample.

9.10 Tilefish

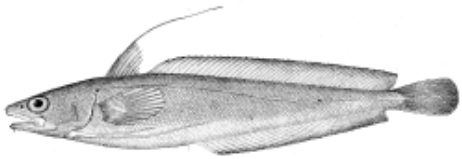


Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
TILEFISH, GOLDEN	UNCLASSIFIED	446	0	100	N		20		
TILEFISH, GOLDEN	LARGE	446	1	100	N		20		
TILEFISH, GOLDEN	MEDIUM	446	2	100	N		20		
TILEFISH, GOLDEN	SMALL	446	3	100	N		20		
TILEFISH, GOLDEN	KITTENS	446	4	100	N		20		
TILEFISH, GOLDEN	EXTRA LARGE	446	5	100	N		20		

A length sample of tilefish consists of 100 randomly selected fish. If the fish are sorted by market category prior to sampling, then sampling by market category is necessary. Twenty otoliths for aging must be taken for each length sample following the 1.0-cm rule.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9.11 Red Hake

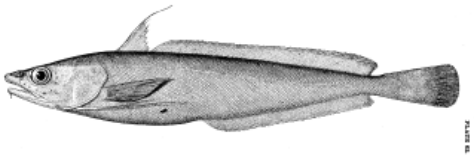


Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
HAKE, RED	UNCLASSIFIED	152	0	100	N				

A length sample of red hake consists of 100 randomly selected fish. If the fish are sorted by market category prior to sampling, then sampling by market category is necessary. Weigh and measure by sex if possible. No age structures are required.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9.12 White Hake



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
HAKE, WHITE	UNCLASSIFIED	153	0	100	N		25		
HAKE, WHITE	SMALL ROUND	153	1	100	N		25		
HAKE, WHITE	SMALL GUTTED	153	2	100	N		25		
HAKE, WHITE	UNCLASSIFIED	153	3	100	N		25		
HAKE, WHITE	LARGE ROUND	153	4	100	N		25		
HAKE, WHITE	MEDIUM ROUND	153	5	100	N		25		
HAKE, WHITE	LARGE DRAWN	153	6	100	N		25		
HAKE, WHITE	MEDIUM DRAWN	153	7	100	N		25		
HAKE, WHITE	SMALL DRAWN	153	8	100	N		25		
HAKE, WHITE	UNCLASSIFIED	153	9	100	N		25		

White hake are one of the more difficult species to sample as they are usually landed without the head. If they are sorted by market category, each market category is considered as a separate sample.

The reusable plastic strip is the preferred method (**Figure 2-1**). Align the edge of the plastic strip at the 0-cm mark on the sampling board. Place the white hake on the board with the cut end at 0 or align the anterior insertion of the first dorsal fin with the 0-cm mark. Total lengths can then be marked directly on the strip using a grease pencil or soft carpenter's pencil. After completing the sample, the marks may be washed off using a household cleaner making the strips reusable. If the "Hake Strip' is not available place follow the above procedure and then multiply your lengths by 1.334 to get the corrected length that shall be recorded in the BSM. It is expected you will have a zero value every 3 intervals.

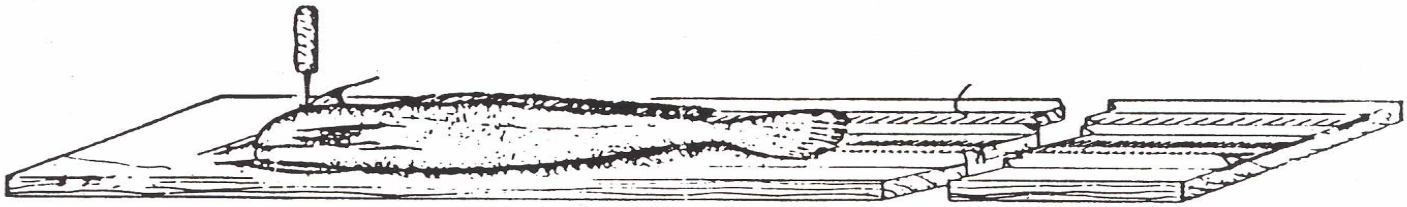
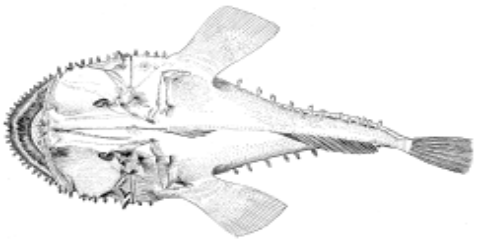


Figure 9-1. Drawing Depicting the Use of a Plastic Strip for Measuring White Hake

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9-13 Anglerfish or Monkfish



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
ANGLER (GOOSEFISH)	TAILS, ONLY	12	0	100	N		25		otos: 25 vertebrae
ANGLER (GOOSEFISH)	TAILS, LARGE	12	1	100	N		25		otos: 25 vertebrae
ANGLER (GOOSEFISH)	TAILS, SMALL	12	2	100	N		25		otos: 25 vertebrae
ANGLER (GOOSEFISH)	UNCLASSIFIED	12	4	100	N		25		otos: 25 vertebrae
ANGLER (GOOSEFISH)	PEEWEE	12	6	100	N		25		otos: 25 vertebrae
ANGLER (GOOSEFISH)	GUTTED, WHOLE	12	8	100	N		25		otos: 25 vertebrae

Anglerfish (or Monkfish) is another species usually landed without the head and can also prove difficult to measure. They are usually culled into market categories and each market category is treated as an individual sample. (See **Appendix G** for sampling area and gear request.).

Anglerfish/Monkfish must be measured from the first Post-cephalic Dorsal Fin Spine to the end of the Caudal Fin. The punch strip works best for measuring anglerfish. The conversion back to total length is performed when the samples are processed at the NOAA Fisheries NEFSC in Woods Hole, Massachusetts. **Figure 9-2** should aid in determining the proper measuring technique. The preferred method is to place the caudal fin at zero and determine where the first post-cephalic spine meets the body of the fish. If the skin has separated from the body, lift the spine and look under the skin to determine the point of contact.

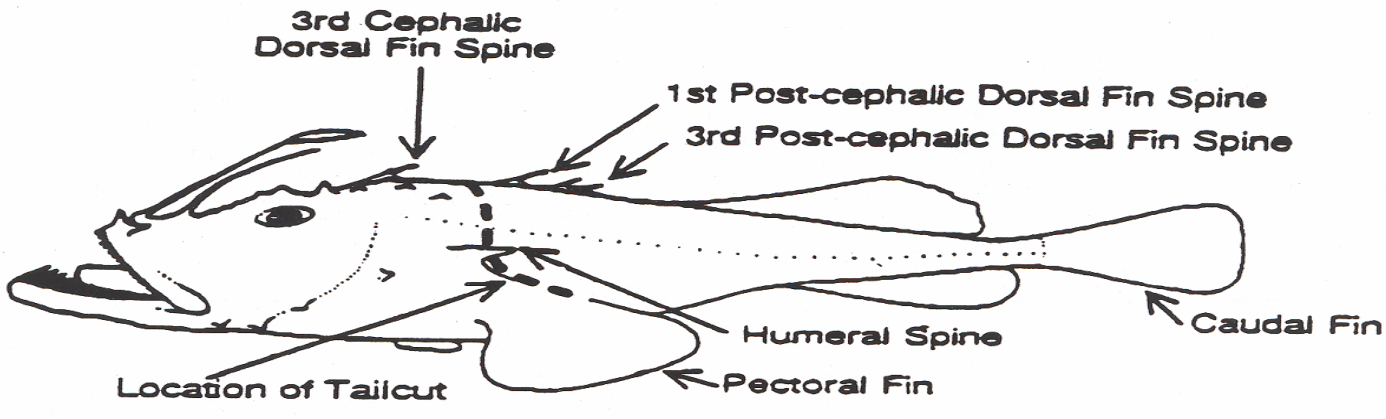
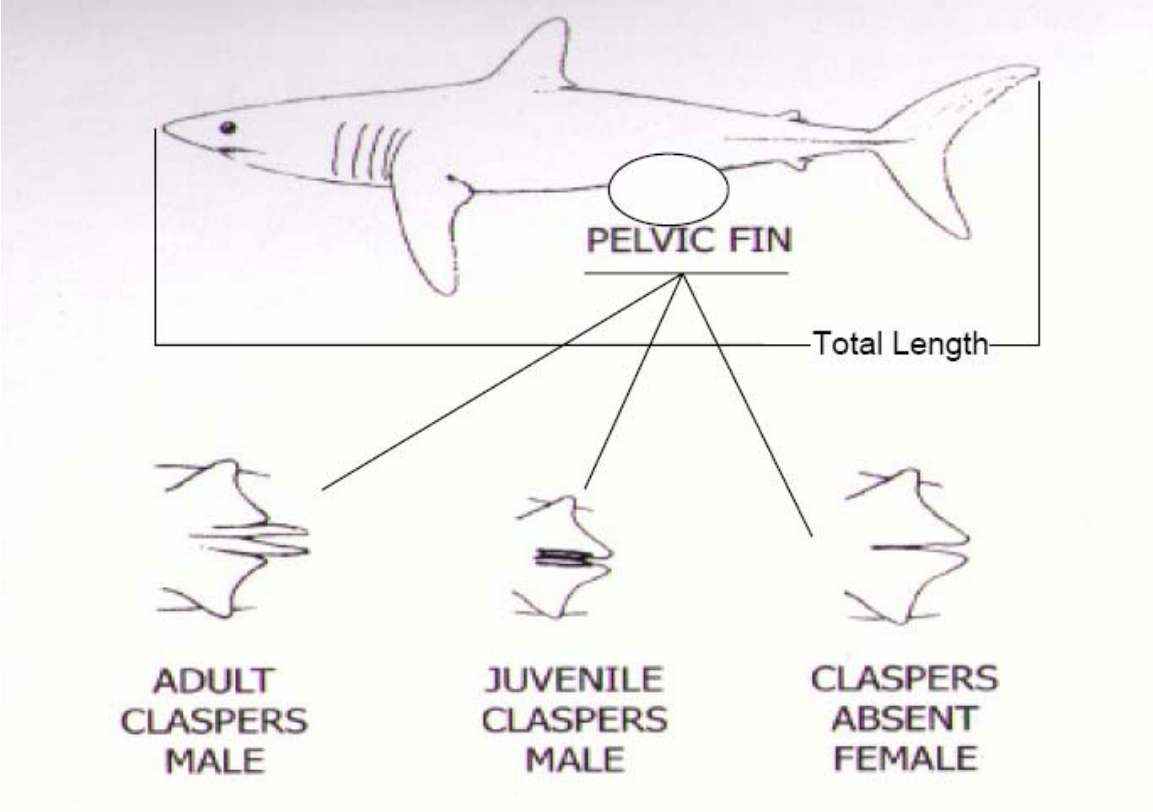


Figure 9-2. Diagram of an Anglerfish

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9-14 Spiny Dogfish

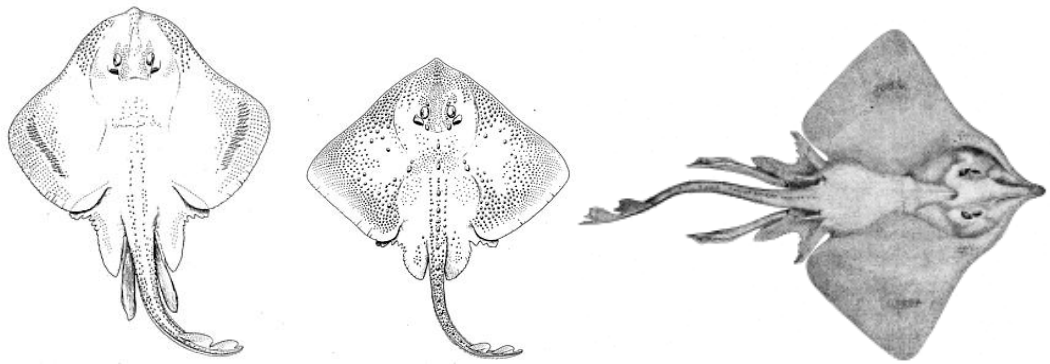


Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
DOGFISH, SPINY	DRESSED	352	0	100	Y				
DOGFISH, SPINY	ROUND	352	1	100	Y				
DOGFISH, SPINY	GUTTED	352	3	100	Y				

A Spiny Dogfish length sample consists of 100 fish sorted by sex. No age structures are requested, at this time. Total lengths are gathered with the caudal fin in the upright 'natural' state. Sex determination is performed by viewing the pelvic fin area and checking for claspers *(see above)*.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

9-15 Winter, Thorny and Barndoor Skate



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units	Remarks
SKATES, WHOLE	UNCLASSIFIED	365	0	300					LBS	
SKATES, WINGS	UNCLASSIFIED	365	1	300					LBS	

Winter, Thorny and Barndoor Skates can be landed either whole or as wings. Additionally, these skates can be either culled or un-culled by species. Both market categories (whole or wings) shall be treated as an individual sample. A sample consists of 300 lbs. for whole skate and/or 300 lbs. for skate wings (small samples less than 300 lbs. can be accepted).

Samples must be taken at the following ports, at the following frequency:

Sampling Port	Sampling Frequency
Portland, ME	Monthly
New Bedford, MA	Weekly
Chatham, MA	Weekly
Point Judith, RI	Weekly
Cape May, NJ	Monthly
Other Ports	Monthly

In addition to counts and weights, the following trip level data must be collected with all skate samples:

- Port, Permit, Vessel Name, Date Sampled, NEGEAR, Total Wing Count
- Total Sample Weight, SamplerID1, SamplerID2, Counts by Species
- Weights by Species, Dealer Name, Dealer Number

For recording data on punch strips, the strips should be divided up in to quadrants that are correctly labeled with one quadrant per species. One hole will be used to denote one individual wing or whole skate. The correct weight must be assigned to each species collected on the punch strip.

Data collected using the Allegro system must be carefully entered as the only accessible fields

are SEX and LENGTH. To enter data into the Allegro system, species will be assigned to the SEX field using 0 = Winter, 1 = Thorny, and 2 = Barndoor as species assignments. Enter a number from the range 0-2 in the SEX field for correct species. In the LENGTH field, enter 1 to note an individual wing or whole skate. Assign the correct total weight for each species by then entering the species number (0-2) in the SEX field and entering the corresponding weight into the LENGTH field.

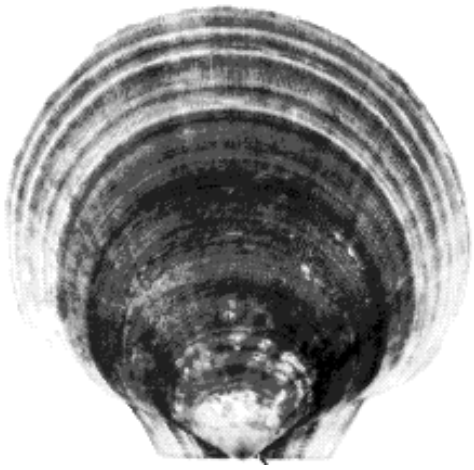
9.15.1 Procedure for Un-culled Skate Wings
For unculled skate wing samples, a total count of individual wings must be recorded with the total weight of wings in the sample. Additionally, the wings must be sorted by species to record the count and weight of wings for individual species.

9.15.2 Procedure for Culled Skate Wings
Culled skate wings require that the total number and weight of wings in the sample be recorded along with the number and weight of individual species. Additionally, culled wings must be checked to determine if the cull is correct. If not, the un-culled procedure for skate wings must be followed.

9.15.3 Procedure for Un-culled Whole Skate
For unculled skate wing samples, a total count of individual wings must be recorded with the For unculled whole skate, a total count of individuals must be recorded with the total weight of skate in the sample. Additionally, individuals must be sorted by species to record the count and weight for individual species.

9.15.4 Procedure for Culled Whole Skate
Culled whole skate require that the total number and weight of individuals in the sample be recorded along with the number and weight of individual species. Additionally, culled whole skate must be checked to determine if the cull is correct. If not, the un-culled procedure for whole skate must be followed.

9.16 Sea Scallop



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
SCALLOP, SEA	UNDER 10	800	2	200	N				
SCALLOP, SEA	11-20 CO	800	3	200	N				
SCALLOP, SEA	21-30 CO	800	4	200	N				
SCALLOP, SEA	31-40 CO	800	5	200	N				
SCALLOP, SEA	41-50 CO	800	6	200	N				
SCALLOP. SEA	51-60 CO	800	7	200	N				
SCALLOP, SEA	61+ COUNT	800	8	200	N				
SCALLOP, SEA	UNCLASSIFIED	800	9	200	N				

To obtain scallop samples, ask the vessel captain if he would place 200 (top valve only) shells from the last tow of each trip in a plastic tote or special box provided by the NOAA Fisheries. These boxes of shells will be picked up at the end of each trip and measured by the sampler.

A special measuring board or strips are provided for measuring scallops, although the standard aluminum punch strips and measuring board can be used (see **Section 1.3**). The method used for measuring scallops is shown in **Figure 9-3**.

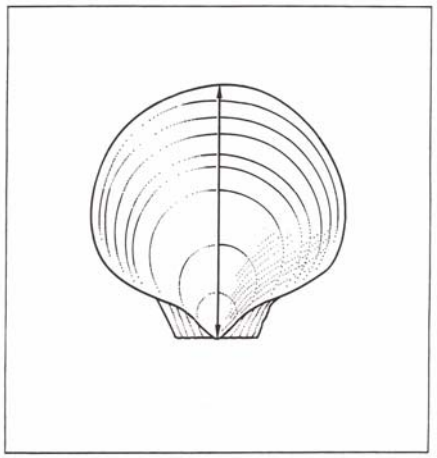
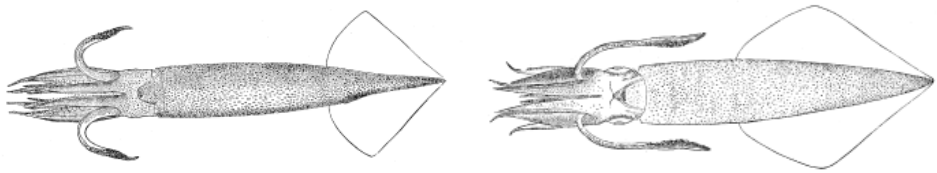


Figure 9-3. Scallop Measurement

9.17 Squid



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
SQUID (ILLEX)	UNCLASSIFIED	802	0	100	N				
SQUID (ILLEX)	SMALL ROUND	802	1	100	N				
SQUID (ILLEX)	MEDIUM ROUND	802	2	100	N				
SQUID (ILLEX)	LARGE RO	802	3	100	N				
SQUID (ILLEX)	TUBE UNC	802	4	100	N				
SQUID (ILLEX)	TUBE SMALL	802	5	100	N				
SQUID (ILLEX)	TUBE MEDIUM	802	6	100	N				
SQUID (ILLEX)	TUBE LARGE	802	7	100	N				
SQUID (LOLIGO)	UNCLASSIFIED	801	0	100	N				
SQUID (LOLIGO)	LARGE	801	1	100	N				
SQUID (LOLIGO)	SMALL	801	2	100	N				
SQUID (LOLIGO)	MEDIUM	801	3	100	N				
SQUID (LOLIGO)	SUPER SMALL	801	4	100	N				
SQUID (LOLIGO)	EXTRA LA	801	5	100	N				

Squid are separated into species (loligo or illex, **Figure 9-4**) and are measured by mantle (body) length. Each species is measured and recorded separately on Length Sample Forms (**Figure 1-3**). When squid are separated into market categories (both species), samples by market category are taken and noted on the Length Sample Form. One hundred (100) of each species must be included from each sample when both species occur in the landing. The weight of each group measured is recorded on the Length Sample Form. Note separate squid sampling requirements in **Appendix F** for individual port areas.

NOTE: Industry supplied cull data is widely available but should not be considered a substitute

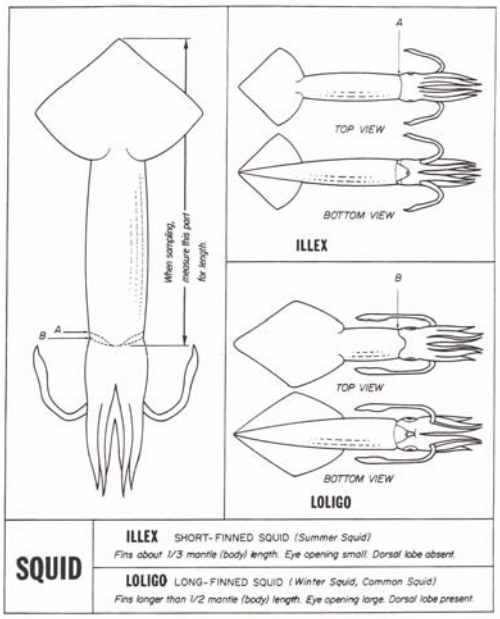
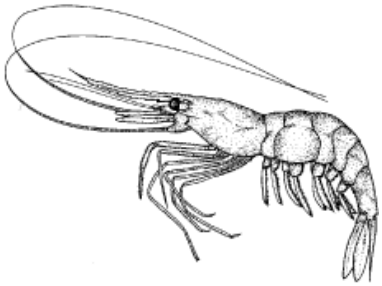


Figure 9-4. Measurement and Identification of Squid

9.18 Shrimp



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
SHRIMP (PANDALID)	UNCLASSIFIED	736	0		N			1	QT

The fishery for Northern Shrimp (*Pandalus borealis*) is a seasonal fishery. During the season, weekly sampling of shrimp landings will be conducted in Rockland, Maine; Portland, Maine; and Gloucester, Massachusetts and other ports when shrimp landings are significant. A shrimp sample will consist of a 1-quart sample taken from different parts of the catch, preferably the first and the last part to be unloaded. (A scoop fashioned from a plastic 1-quart container with the bottom removed works well for this.)

The subsamples must be packaged, labeled, and frozen with the information required on the Scale Envelope **(Figure 7-2)** Because this species is managed under the Northern Shrimp Section of the Atlantic States Marine Fisheries Commission, the individual state fisheries agencies for Maine, New Hampshire, and Massachusetts process the biological samples of shrimp and the federal sampler will have to arrange to get samples to these state agencies.

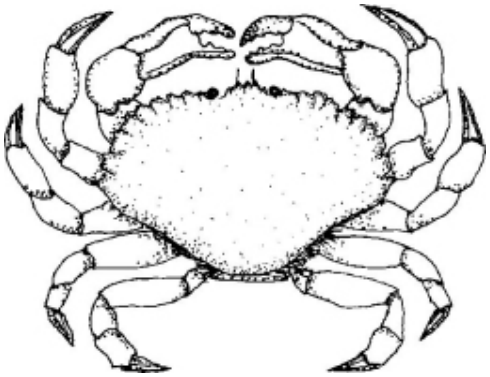
If the samples must be purchased from the vessel, the sampler will be reimbursed by submitting a voucher for payment (NOAA Form 34-6) to the cashier at the NOAA Fisheries Northeast Regional Office (NERO).

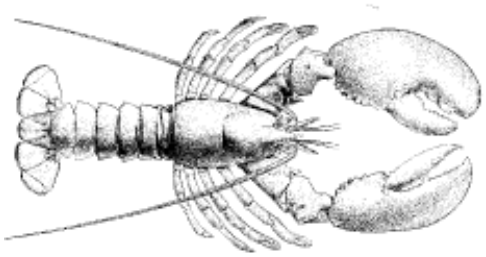
NOAA Fisheries NERO
One Blackburn Drive
Gloucester, MA 01930
(978) 281-9304
FAX (978) 281-9333

Complete a Length Sample Form (**Figure 6-1**) for each sample taken; mark "**FROZEN"** in red across the face of the form, and send the completed form to:

NOAA Fisheries NEFSC
166 Water Street
Woods Hole, MA 02543-1026
(508) 495-2000
FAX (508) 495-2258

9.19 Crab and Lobster





Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
CRAB, RED	UNCLASSIFIED	710	0	100	Y				
CRAB, UNKNOWN	UNCLASSIFIED	713	0	100	Y				identify species
LOBSTER, AMERICAN	UNCLASSIFIED	727	0	100	Y				
LOBSTER, AMERICAN	SMALL	727	2	100	Y				
LOBSTER, AMERICAN	SELECT	727	3	100	Y				
LOBSTER, AMERICAN	LARGE	727	4	100	Y				
LOBSTER, AMERICAN	JUMBO	727	5	100	Y				

Generally, crabs or lobsters are unloaded into plastic totes or wooden crates. One hundred (100) individuals or a minimum of two containers will be sampled per trip, however, if the large cage-type containers are used for unloading, the 100 individuals must be measured from one or several cages and the lengths recorded on the Length Sample Form (**Figure 6-1**).

Each sex will be recorded on the Length Sample Form separately. As with other species, all market categories landed will be sampled. Males and females are recorded separately. **Figures 9-5, 9-6, and 9-7** can be used for the identification of red, rock, and Jonah crabs, respectively. **Figure 9-8** shows the method for measuring lobsters. Differences between the male and female Jonah and rock crabs are similar to that shown for the red crab.

A caliper (calibrated in millimeters; the standard used for shellfish) is used for measuring crab and lobster. The Length Sample Form will accommodate millimeter measurements and the sampler must note millimeters on the form.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

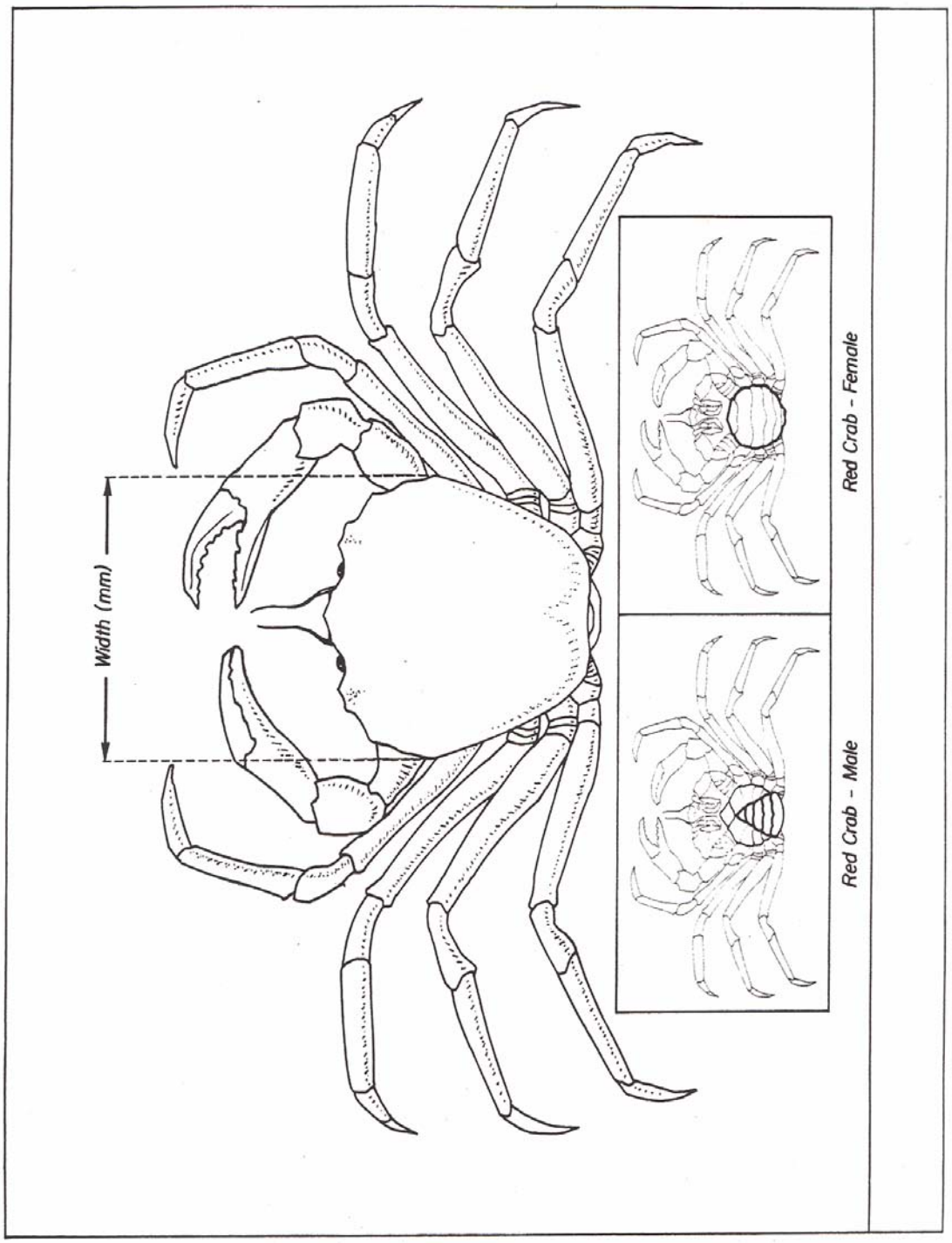


Figure 9-5. Measuring and Sexing Red Crabs

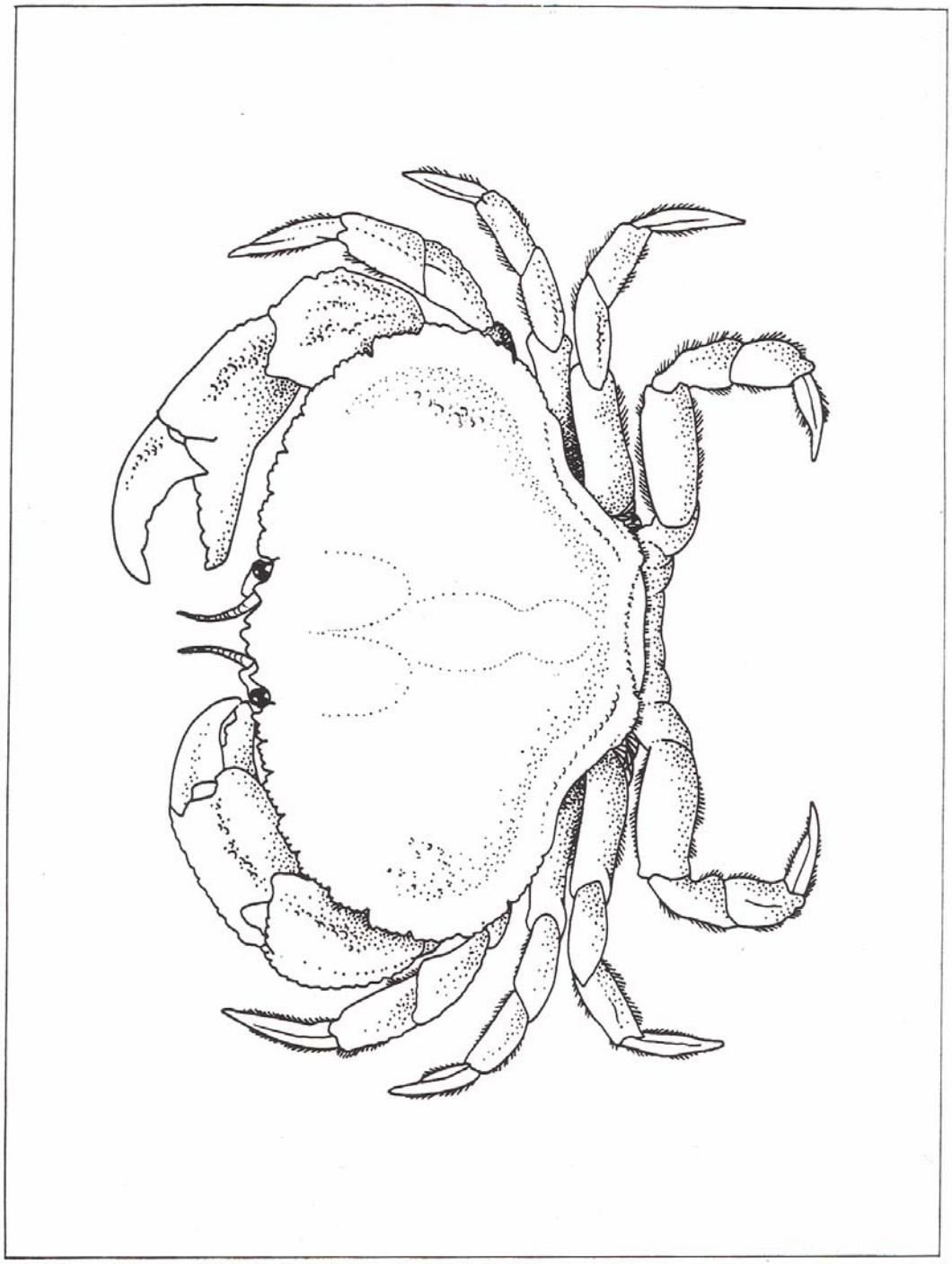


Figure 9-6. Diagram of a Rock Crab

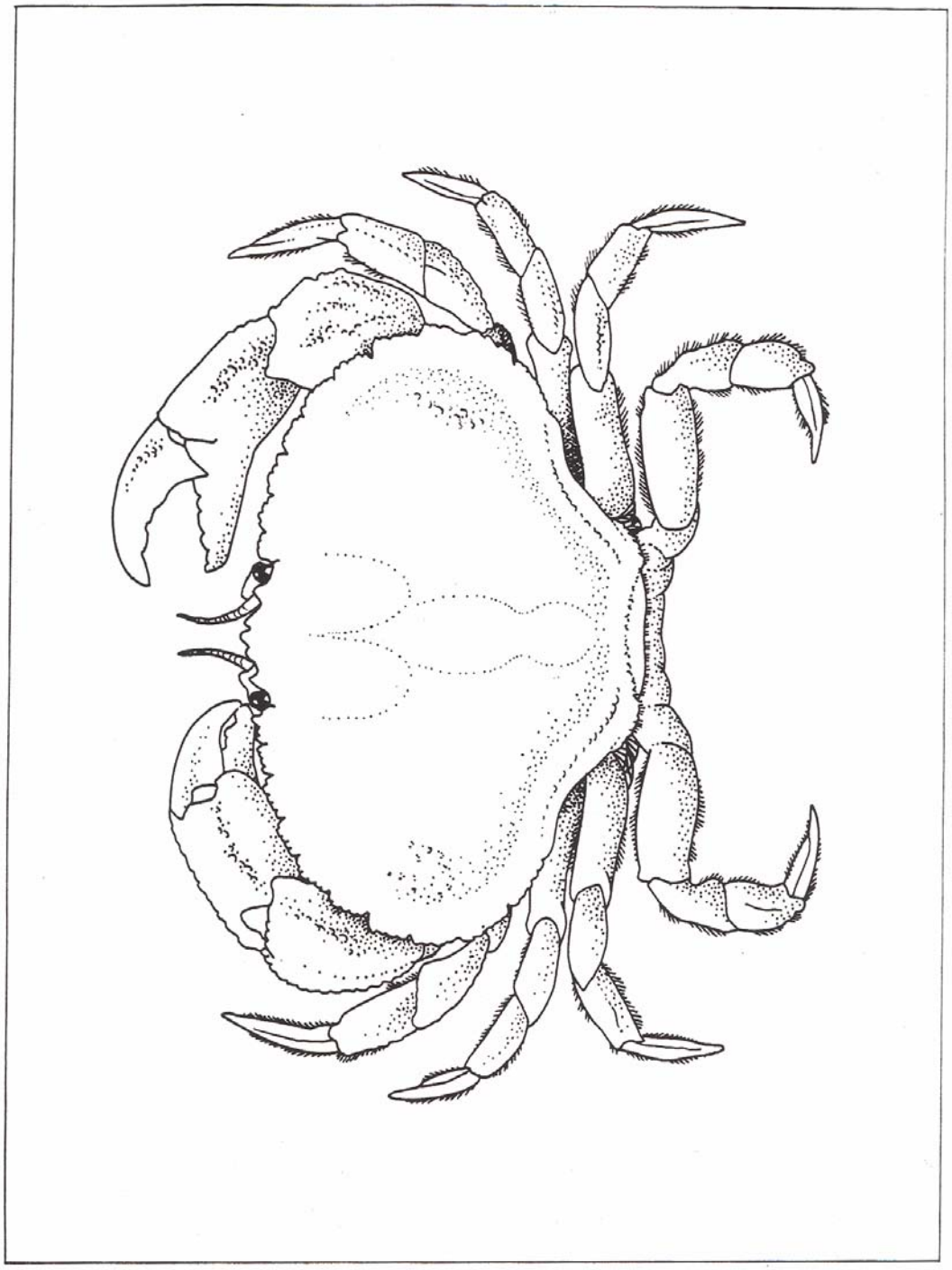


Figure 9-7. Diagram of a Jonah Crab

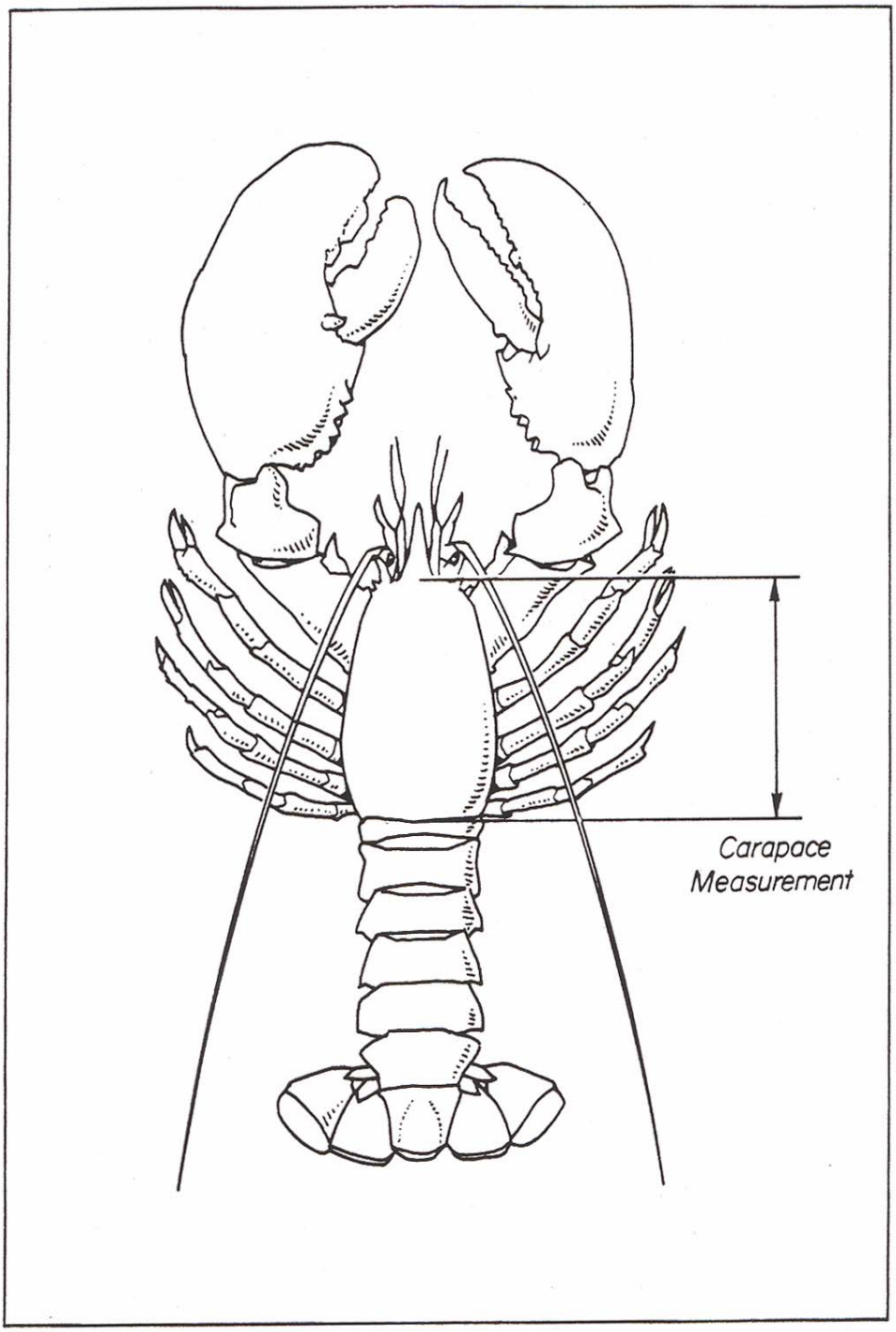
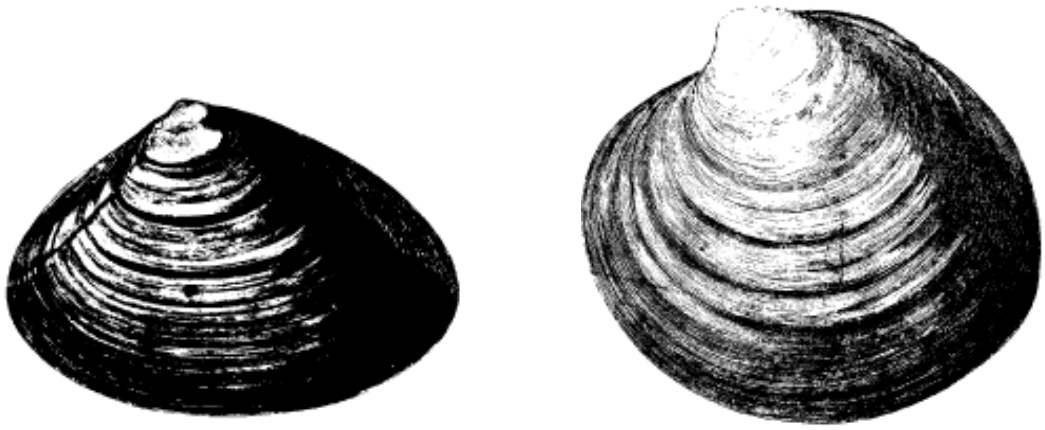


Figure 9-8. Diagram of Lobster Measurement

9.20 Surf Clam and Ocean Quahog Sampling



Species Name	MKT NAME	NESPP3	MKT CAT	Lengths	Sexed	Scales	Otos	Freeze	Units Remarks
CLAM, SURF	UNCLASSIFIED	769	0	30	N				
QUAHOG, OCEAN	UNCLASSIFIED	754	0	30	N				

A surf clam or ocean quahog sample consists of 30 clams, measured to the nearest 1.0 mm as shown in **Figure 9-9**. Sub-sampling is not required, however the sample must be made up of 30 clams that have been randomly selected from different cages. The best method for selecting clams to sample is to take six (6) clams from five (5) different cages. The sampler should retain a copy of the sample.

A sampler should attempt to interview the vessel captain and record the information on the Length Sample Form (**Figure 6-2**). At a minimum, the sampler should obtain the name of the vessel the sample is from, the date landed, and the name of the dealer. (A copy of the vessel's logbook for the sampled trip or the vessel's name and number and date sailed would be most desirable.

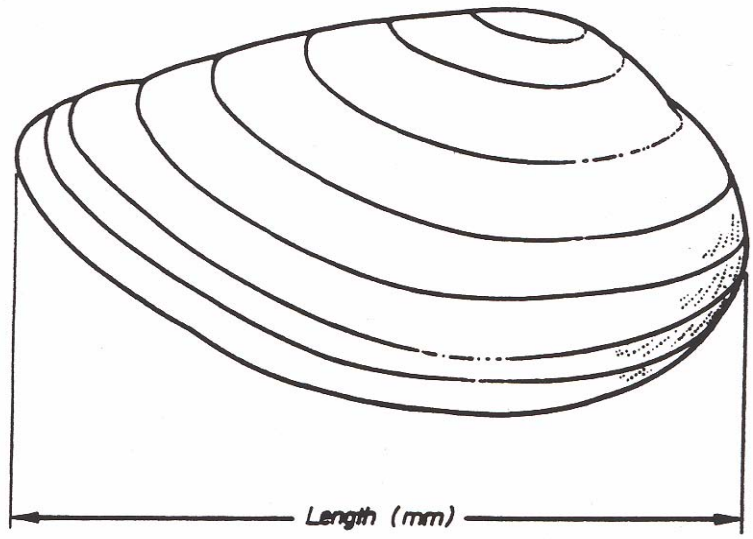


Figure 9-9. Clam Measurement

9.21 Discard Samples

Occasionally, a port sampler may be requested to conduct a "discard sample." Discard samples are defined as samples of fish or shellfish that are discarded by fishermen because they are too small or undesirable for the market. Discard samples are taken to obtain information on year class strength and estimates of pre-recruit mortalities. Discard samples are sorted by species and then handled or processed in the same manner as a regular sample with each species being recorded separate forms. Discard is sampled dockside as fish are culled, at sea by a special sea sampler, or by asking a vessel captain to save discard for sampling ashore. To sample discard ashore, ask the fishermen to fill special boxes placed aboard their cooperating vessels with fish or shellfish they would generally throw overboard after culling at sea. Discard boxes should be placed aboard vessels when logs or interviews indicate that discard of a particular species is significant.

Because of the numerous regulations by species concerning the number of fish legally obtained on board the vessel as well as legal size limits by species, the sampler should ensure proper clearances have been obtained, by or for the vessel, before sampling. Clearances are obtained from the NOAA Fisheries Regional Administrator's Office for federal waters and the individual state fisheries agencies inside state waters.

9.22 Special Samples

At any time, if special samples are requested without specific instructions on how to collect the sample, follow the standard procedures for sampling as described in **Section 2.0** of this manual, and always use the manual's standard procedures for labeling the sample.

9.23 Industrial Sampling

Samples of fish from industrial landings (fish used for reduction) are used to determine species composition. Occasionally, they are used to determine length and age composition. Generally, a vessel fishing for industrial fish will separate food fish from the catch to sell separately.

Most industrial fish are landed in ports located in New Bedford, Port Judith, and Gloucester, Massachusetts. Industrial fish are sampled from two locations; from the hold before they are unloaded and from the conveyor as they are unloaded. Procedures for sampling from these locations are given below.

9.23.1 Procedures for Sampling Industrial Fish

- **Hold Sampling**: When sampling from the hold, two 1-bushel baskets are scooped from the catch, each bushel from a different part of the load. This method is <u>least desirable</u> and should not be undertaken unless it is impossible to sample from the conveyor.

- **Conveyor Sampling:** A conveyor sample is taken from a chute or conveyor as the fish are being pumped out of the hold. As the fish pass down the chute or conveyor, a scoop

of fish is taken every few minutes until the two 1-bushel sub-samples are filled. Conveyor sampling is the preferred method of sampling and must be performed whenever possible.

- **Bushel Sampling**: Each bushel (sub-sample) is processed and the data recorded separately. The fish are sorted into species groups and the individuals are measured. The total weight of each species group is recorded on the Length Sample Form along with the number of fish in each group.

9.23.2 Mixed Trips (Industrial)

Occasionally a captain does not unload industrial fish after each trip but will save the catch from several trips before unloading. Many times these mixed trips are from different grounds and have a different species composition. These trips should not be sampled.

9.23.3 Pure Trip (Industrial)

A "pure trip" of industrial fish refers to a pure catch. If the catch of industrial fish is made up of one species (95% pure menhaden, pure eelpout, etc.) it must not be sampled. The species is recorded on the weighout as menhaden for reduction, or eelpout for reduction rather than "other for reduction."

9.23.4 Sampling Area and Vessel Requirements for Industrial Sampling

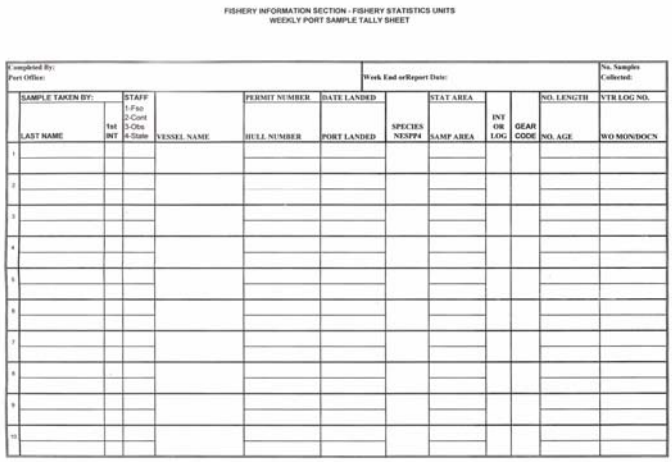
For each sampling area, a minimum of five samples per month must be taken. In addition, each vessel involved in industrial fishing must be sampled at least once each month. Each vessel fishing industrial fish must be interviewed every time it lands.

Note: When a species mix is noted the identified species must be broken out and recorded as a separate sample with a notation in the COMMENTS field, on the BSMDBS, that the samples were gained from the same landing.

10.0 The Port Sample Tally Sheet

The Port Sample Tally Sheet (**Figure 10-1**), if required by the Sampling Coordinator or stated in the contractual agreement, should be completed bi-weekly. Elements of the report are presented in **Table 10-1**.

If required, the Port Sample Tally Sheet should be delivered to the Sampling Coordinator or the Contracting Officer's Technical Representative (COTR) of the project.


FISHERY INFORMATION SECTION - FISHERY STATISTICS UNITS
WEEKLY PORT SAMPLE TALLY SHEET

Completed By:
Port Office:
Week End or Report Date:
No. Samples Collected:

SAMPLE TAKEN BY:		STAFF		PERMIT NUMBER	DATE LANDED		STAT AREA			NO. LENGTH	VTR LOG NO.
LAST NAME	1st INT	1-Fed 2-Cont 3-Obs 4-State	VESSEL NAME	HULL NUMBER	PORT LANDED	SPECIES NESPP4	SAMP AREA	INT OR LOG	GEAR CODE	NO. AGE	WO MON/DOCN
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Figure 10-1. Port Sample Tally Sheet

Table 10.1. Elements of the Port Sample Tally Sheet

Entry	Description
Sampler ID	Sampler name.
Port Office	The Port Office reporting the sample.
Report Date	Period of time the report covers (*e.g.,* January 1 to January 31).
Number of Samples	Number of samples completed in the report.
Vessel Name	The vessel from which the fish were sampled (*e.g.,* F/V *Pontos*).
Vessel Permit	List the vessel's 6-digit permit number (*e.g.,* 410154).
Date Landed	The date fish were landed, when known, otherwise date sampled.
Species	Name of fish sampled (*e.g.,* scup, winter flounder, silver hake).
Market Category	Market size (*e.g.,* large, jumbo, pin, kitten).
Port Landed	Port where fish were packed out (*e.g.,* Portland, Chatham, Greenport).
Area Fished	Three-digit statistical area where fish were caught (*e.g.,* 616, 613). Leave blank if unknown.
Int or Log	If area fished is obtained from interview, list "INT", if area is not obtained list "LOG" and a search of the VTRs will be made to determine the area.
Gear	NOAA Fisheries gear code that identifies gear used to catch sampled fish (*e.g.,* 050).
Number Lengths	Total number of fish measured in a sample.
Number Ages	Total number of age samples taken.
VTR log#	Leave blank. This may change when dealers report unique trip ID.
Month Docn.	Document number used to enter report with sampled fish into the CODES system. Often this document number is not known at the time of the report. When the document numbers are known resubmit the complete Port Sampling Tally Sheet.

11.0 Species Codes (see the BSMDBS)
12.0 Conversion Factors (see the BSMDBS)
13.0 Gear Codes (see the BSMDBS)
14.0 State, Port, and County Codes (see the BSMDBS)
15.0 Biological Sampling Requirements (see the BSMDBS)

16.0 List of Acronym

BSMDBS	Biological Sample Monitoring Database System
CODES	Commercial Data Entry Subsystem
COTR	Contracting Officer's Technical Representative
DMR	Department of Marine Resources
eSampling	Electronic Data Sampling
FIS	Fishery Information System
NEFSC	Northeast Fisheries Science Center
NERO	Northeast Regional Office
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
VTR	Vessel Trip Report