

MARINE MAMMAL LIFE HISTORY FORM

INTRODUCTION

The Marine Mammal Life History Form (MMLH) is used to record the biological data from specimens processed by observers. Emphasis is on obtaining baseline reproductive data of coastal marine mammal species for which little information is available. These data are used to estimate age at sexual maturity, birth rates, gestation periods, calving interval, life span and sex ratios. The life history data together with the mortality and population abundance data will be used to ascertain whether changes in population abundance are due to activities of the fishery.

The MMLH is designed for volume specimen processing in the field, allowing the observer to write a minimum of information by checking off blocks in the upper "field" section of the form. The related shaded blocks are coded after review and verification of the forms and the collected specimen parts by lab personnel. Collected specimen materials are processed in the lab, and the data are then recorded in the lower "lab" section of the MMLH.

GENERAL INSTRUCTIONS

Whenever possible, collect the entire carcass of cetaceans, sea otters, Steller sea lions, and fur seals. Assign each animal a specimen number, identify the species (or stock if appropriate), determine sex, measure total length, maximum girth, flipper length (pinnipeds only), and collect a tissue biopsy. Record this information on the MMLH.

If the whole carcass is collected, mark the "YES" box next to carcass under the section "Were these Collected?". Otherwise dissect the specimen and collect the requested specimen material. Dissection techniques may be reviewed in *Small Cetacean Dissection and Sampling*: NOAA-TM-NMFS-SWFC-198.

If you cannot collect a particular sample or measurement, explain why in the ADDITIONAL COMMENTS section.

Complete only the "In Field" portion of the form. Do not mark the shaded boxes.

Dissection priority is as follows:

Sex
Length
Girth
Rear Flipper Length (pinnipeds only)
Carcass
Head
Gonads (ovaries or testes)
Teeth
Tissue Biopsy
Stomach
Blubber
Adrenals
Fetus
Fetus Biopsy
Other - Check special instructions

DATA ELEMENTS

Specimen Number: Record your three letter code and consecutive four digit number for each specimen biopsied, sexed and measured, collected whole or dissected.

Cruise Number: Record the unique ten digit number assigned by the Logistics Coordinator.

Date: Date the net was tended or retrieved. Record the last two digits of the year, the two digits representing the month, and the two digits representing the day.

Set Number: Sets are numbered consecutively for each observed trip beginning with 01. If you board the vessel in the middle of a trip, begin the number sequence for the observed sets with 01, not with the number of the sets that the vessel has already completed.

Latitude: Record the degrees (two digits), minutes (two digits) and tenths of latitude at the time of capture.

Longitude: Record the degrees (three digits), minutes (two digits) and tenths of longitude at the time of capture.

Species: Record the scientific name of the specimen.

Sex: Mark the box representing the sex of the specimen.

Length: For cetaceans, record to the nearest centimeter, the length from the tip of the upper jaw to the notch of the tail fluke. For pinnipeds, record to the nearest centimeter, the length from the tip of the snout to the end of the tail.

Note: If the animal cannot be straightened out due to rigor mortis, record the curvilinear length along the animal's backbone.

Curvilinear: If the length of the animal was determined by a curvilinear measurement mark the "Y" box, if not mark "N".

Girth: For cetaceans, record to the nearest centimeter the girth measured just anterior to the leading edge of the dorsal fin. For *Lissodelphis borealis* and pinnipeds, measure girth at the axilla, just posterior to the insertion of the flippers.

Rear Flipper Length: For PINNIPEDS, record the distance in centimeters from the anterior insertion of the **right** rear flipper to the tip of the first toe.

Lactating: Is there any indication of lactation? Mark the appropriate box. If the specimen is a male, leave this box blank.

Fetus M/F: Mark the appropriate box indicating the sex of any fetus ≥ 25 cm.

Fetus Length: Record in centimeters and tenths the length of any fetus ≥ 25 cm.

Note: If the animal cannot be straightened out due to rigor mortis, record the curvilinear length along the animal's backbone.

Curvilinear: If the length of the fetus was determined by a curvilinear measurement mark the "Y" box, if not mark "N".

Were These Collected?

Mark the box or boxes for each specimen processed indicating which items you have collected. If the question is not relevant to the sex of the specimen, leave the boxes blank.

Carcass: Did you tag and store the whole specimen in the ship's freezer or cooler?

Head: Did you collect, tag and package the head? Leave blank if the whole carcass was collected.

Teeth: Did you remove, tag and store a jaw sample? Leave blank if the head or carcass was collected.

Stomach: Did you remove, tag, package and place the stomach in a cooler or freezer? Leave blank if the whole carcass was collected.

Blubber: Did you collect a 10 cm by 10 cm section of skin, blubber and underlying muscle? (cetacean, dorsal side - pinniped, ventral side) Leave blank if the whole carcass was collected.

Tissue Biopsy: Did you cut a 2 cm by 4 cm section of skin or use a biopsy dart to collect a sample? (cetacean, dorsal body surface - pinniped, rear flipper)

Ovaries: Did you remove the reproductive tract with ovaries intact, tag the left horn of the uterus, and store in the cooler or freezer? Leave blank if the whole carcass was collected.

Fetus: Did you collect a fetus <25cm long? Leave blank if the fetus was ≥ 25 cm or the whole carcass was collected.

Fetus Biopsy: Did you collect a skin biopsy from a processed fetus ≥ 25 cm?

Testis: Did you remove, tag and store the right testis with epididymis? Leave blank if the whole carcass was collected.

Adrenals: Did you collect the adrenal glands from this specimen? Leave blank if the whole carcass was collected.

Other: Did you collect any items not specifically listed? Describe what you collected in the ADDITIONAL COMMENTS section. Leave blank if the whole carcass was collected.

Photos: Did you take any photographs of this specimen? Record the camera and frame numbers in the ADDITIONAL COMMENTS section.

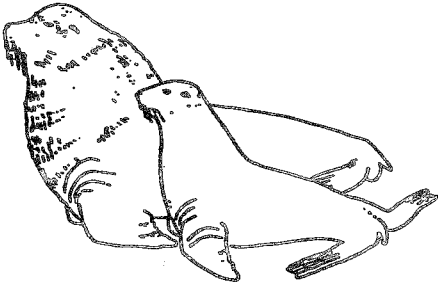
Identification

Diagnostic Characteristics: List at least five of the diagnostic characteristics you used to identify this animal.

Sketch: Sketch the features you saw and used to identify this animal.

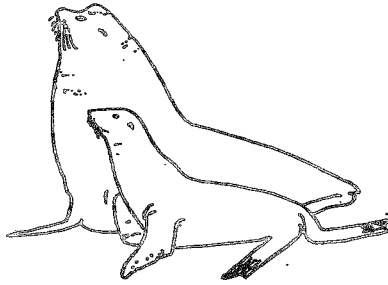
ADDITIONAL COMMENTS: Use this section to record any supplemental information pertinent to this specimen.





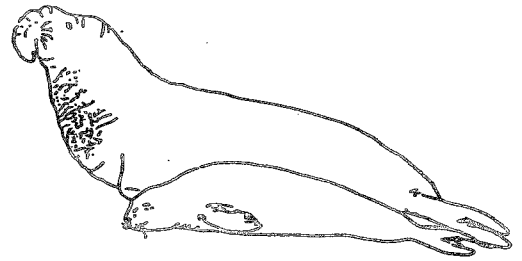
Steller Sea Lion
(Eumatopias jubatus)

M. to 13'/1800#; F. to 9'/600#; external ear flaps; long foreflippers; gap between 4th and 5th post canine teeth; short, stiff hair, brown to blonde; no distinct sagittal crest.



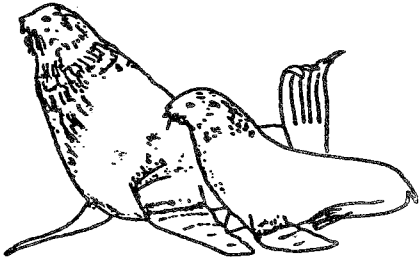
California Sea Lion
(Zalophus californianus)

M. to 8'/800#; F. to 6'/600#; external ear flaps, long foreflippers; M. prominent sagittal crest-light top knot; short, stiff hair, dark brown to light tan.



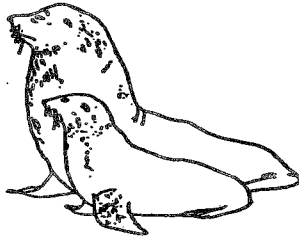
Northern Elephant Seal
(Mirounga angustirostris)

M. to 16'/4000#; F. to 10'/2000#; M. large, pendulous nose; F. "roman nosed"; short foreflippers; hind flippers angled backwards; 1st and 5th hind toes noticeably longer than others; minute ear hole; 4 incisors upper jaw.



Northern Fur Seal
(Callorhinus ursinus)

M. to 7'/650#; F. to 5'/130#; very long hind flippers; short, pointed snout; fur on foreflippers stops abruptly at wrist; soft underfur/course guard hairs; external ear flaps.



Guadalupe Fur Seal
(Arctocephalus townsendi)

M. to 8.5'/650#; F. to 6'/270#; very long hind flippers; fur extends onto foreflippers; "collie-like" face-dished in profile; soft underfur/course guard hairs; external ear flaps.



Harbor Seal
(Phoca vitulina)

M./F. to 6'/300#; spotted/blotchy coat-variable coloration; short foreflippers; hind flippers angled backwards; large ear hole; sharp nails near ends of toes; round head; 6 incisors upper jaw.

ADDITIONAL COMMENTS:

SIGHTING RECORD

INTRODUCTION

This form is used to record sightings of **live** marine mammals, turtles and protected seabirds and to document any interactions between these animals and the fishing vessel or gear. It is not used to record seabird sightings, with one important exception. Any and all sightings of **Brown Pelicans** (during fishing activity only) are recorded on the form. This form should also be used to document any interactions between **Brown Pelicans** with the fishing gear. Documentation of marine mammal, turtle and pelicans with fishing gear and vessels is used to quantify incidental or intentional take of these animals. These data are also used for analyses of distribution.

Interaction data are high priority items. However, documentation of interactions should not compromise the data you collect on marine mammals and turtles captured by the gear.

Marine mammal, turtle and protected seabird sighting data for animals not interacting with the gear or vessel are low priority. Do not allow searching for marine mammals to interfere with observing fishing activities or documenting interactions between animals and the gear.

GENERAL INSTRUCTIONS

This form documents an interaction or sighting involving as many as three species of animals. If several species are in the area, but do not form a group, they should be treated as separate sightings or interactions. In this case, complete a separate data form with a unique sighting number for each cohesive group of animals. If the sighting or interaction involves more than three species, use additional forms as needed. In this case, record the same sighting number on each additional form.

Sighting

A sighting is the initial observation of a single marine mammal or turtle or a group of marine mammals or turtles. A group is defined as an association of animals behaving in a similar or unified manner. Groups may contain several different species of animals engaged in similar behaviors or traveling together (e.g. a school of dolphins traveling as a cohesive group in the same direction; a number of sea lions and white-sided dolphins milling and feeding together over the same area; or a diffuse group of Risso's dolphins traveling in the same direction or milling over the same general area).

Separate sightings may include situations where distinct groups of animals pass each other or cross paths during their individual activities. Defining a sighting can be very subjective at times, especially if animals are moving between groups or groups are splitting and fusing. Generally, in these situations, you would begin another sighting form if a new, distinct group of animals came into play. With experience, you will be able to sense cohesiveness within marine mammal groups.

Turtles infrequently associate in groups. If several turtles are visible in the same area, classify them as a single sighting or interaction and describe the association in the Narrative Section.

Brown Pelicans will frequently be at the docks, in the harbor or you may see them on the way to the fishing ground. If the gear is not in the water and fishing is not occurring, do not report these sightings. Brown Pelican sightings should only be reported while the fishing gear is deployed.

Interaction

An interaction occurs when marine mammals, turtles or protected seabirds come within 100 meters of the boat or net. In the situation where a sighting becomes an interaction, the sighting and the interaction are considered one event. Evidence of animals interacting with the gear or catch includes: observation of animals at the net; animals stealing fish from the net; and evidence of fresh marine mammal damage to the catch. Use as many data forms as necessary to document the event; all forms receive the same sighting number.

DATA ELEMENTS

Trip Number: The unique ten digit number assigned by the Logistics Coordinator.

Sighting Number: The consecutive two digit number corresponding to this sighting or interaction. Begin with sighting 01 on each observed trip.

Date: The date this sighting or interaction occurred. Record the four digits of the year, the two digits representing the month, and the two digits representing the day of the month.

Set Number: This set number is the same as the set number recorded on the Gear and Set Data form for this set. If the vessel activity is other than net retrieval, leave this field blank.

Position: The position of the vessel at the time of the sighting. If the net is being retrieved, the position may be obtained from the Gear and Set Data form. Record the degrees (two digits), minutes (two digits), and tenths of a minute (one digit) of latitude. Record the degrees (three digits), minutes (two digits), and tenths of a minute (one digit) of longitude. If latitude and longitude are not

available on board the vessel, use the Narrative Section to record information which will allow you to determine the position later at the field office.

Loran: If latitude and longitude are not available, record the loran readings for this sighting on the line below the prompt.

Time Begin: Record the local 24 hour time when the interaction or sighting begins. If a sighting becomes an interaction, record the time at which the sighting became an interaction in the Narrative Section.

Time End: Record the local 24 hour time when the interaction or sighting ends.

Vessel Activity: Record the activity of the vessel at the time of sighting:

- ☼ **1 - Net Retrieval -** During net retrieval only. Must have a set number.
- ☼ **2 - Net Set -** During net setting or while net is set.
- ☼ **3 - Drifting -** Drifting, not fishing.
- ☼ **4 - Motoring**
- ☼ **5 - Other.** Describe any other activity in the Narrative Section.
- ☼ **6 – Trolling –** Vessel is actively trolling with jigs
- ☼ **7 – Pole and Line Fishing –** Vessel is actively fishing with pole & line

Gear Encounter: If you observe behavior that would lead you to believe the species recorded above is interacting with the gear or catch, record a "Y" for yes in this box; if not, record an "N" for no.

Closest Distance to Vessel: Record in meters, the closest distance any animal came to the vessel during the time of the sighting or interaction.

Closest Distance to Gear: Record in meters, the closest distance any animal came to the fishing gear during the time of the sighting or interaction.

Deterrents

Firearm: If the vessel operator uses any firearm as a deterrent, record a "Y" for yes; if not, record an "N" for no. Describe the use of this deterrent and the animal's reaction to it in the Narrative Section.

Seal Bomb: If the vessel operator uses seal bombs as a deterrent, record a "Y" for yes; if not, record an "N" for no. Describe the use of this deterrent and the animal's reaction to it in the Narrative Section.

Other: If the vessel operator uses any other form of deterrent, record a "Y" for yes; if not, record an "N" for no. Describe the use of this deterrent and the animal's reaction to it in the Narrative Section.

Species 1

Species Name: Record the common name of the first species observed. If this is not known, print "unidentified" coupled with the closest taxonomic classification you are certain pertains to the animal (e.g., unidentified phocid).

Species Code: Record the code from the Species Code list.

Best Estimate: Record your best estimate of the number of individuals of this species (four digits).

High: Record your high estimate of the number of individuals of this species (four digits).

Low: Record your low estimate of the number of individuals of this species (four digits).

Injured: Record the number of individuals of this species (three digits) that are clearly injured as a result of an interaction.

Note: An injured animal is one that has sustained an obvious physical injury. Levels of injury may range from potentially life-threatening (cranial gunshot wound) or serious (profuse bleeding, loss of limbs, loss of an eye, gunshot wound) to moderate (limited bleeding with associated tissue loss, broken limbs). An injured animal may lie at the surface, breathing irregularly. It may appear to swim abnormally, listing to one side, or weakly swimming at or near the water's surface. Animals that are released from the net with netting attached should be classified as injured. If you categorize an animal as injured, describe its injuries in the Narrative Section.

If the animal releases itself or is released from the net by fishermen and can swim normally, it should not be recorded as injured. It is likely that the animal will have minor cuts and abrasions from entangling in the net. Describe the extent of these superficial injuries in the Narrative Section.

Dead: Record the number of animals of this species that are clearly dead as a result of this interaction.

Note: Any animal in an obvious post mortem state is defined as dead. Dead animals will show a lack of muscular activity and may float passively at or below the water's surface. Marine mammals and turtles are very robust and have a tremendous healing capacity. Unless you actually see an animal die of its injuries, classify it as injured.

List Identifying Characteristics: List all identifying characteristics you saw which led to your identification of this species.

Sketch Identifying Characteristics: Sketch the animal using the identifying characteristics you observed to make your species identification.

Narrative

Describe concisely the behavior of the animals during the sighting or interaction. In the case of an interaction, describe carefully the use of any deterrents. Include times of particular events, or observations. Use this section to explain any information that you feel could not be adequately documented in the coded information on the front of the form.

Species 2

Species Name: Record the common name of the second species observed. If this is not known, print "unidentified" coupled with the closest taxonomic classification you are certain pertains to the animal (e.g., unidentified phocid).

Record data elements Species Code, Best Estimate, High, Low, Injured and Dead as described for Species 1 above.

List Identifying Characteristics: List all identifying characteristics you saw which led to your identification of this species.

Sketch Identifying Characteristics: Sketch the animal using the identifying characteristics you observed to make your species identification.

Species 3

Species Name: Record the common name of the second species observed. If this is not known, print "unidentified" coupled with the closest taxonomic classification you are certain pertains to the animal (e.g., unidentified phocid).

Record data elements Species Code, Best Estimate, High, Low, Injured and Dead as described for Species 1 above.

List Identifying Characteristics: List all identifying characteristics you saw which led to your identification of this species.

Sketch Identifying Characteristics: Sketch the animal using the identifying characteristics you observed to make your species identification.

Additional Notes/Sketches

Use this section for notes or sketches that could not be included in the Narrative Section or boxes for diagrams.



Sighting Record

TRIP NUMBER - - SIGHTING # DATE (YYYY MM DD) SET NUMBER

Position - Latitude Position - Longitude Loran: _____

Deg. Min. Deg. Min.

Time Begin Time End Vessel Activity 1- Net Retrieval 5- Other
2- Net Set 6- Trolling
3- Drifting 7- Pole & Line
4- Motoring Gear Encounter (Y/N)

Closest Distance to Vessel Meters Closest Distance to Gear Meters Deterrent(s) Used (Y/N) Fire arm Seal Bomb Other

Species 1 _____ Species Name _____ Sp. Code

Best Estimate High Low Injured Dead

List Identifying Characteristics:

Sketch Identifying Characteristics:

Narrative:

Species 2

Species Name

Sp. Code

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Best Estimate

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High

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Low

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Injured

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Dead

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List Identifying Characteristics:

Sketch Identifying Characteristics:

Species 3

Species Name

Sp. Code

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Best Estimate

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High

--	--	--	--

Low

--	--	--	--

Injured

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Dead

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List Identifying Characteristics:

Sketch Identifying Characteristics:

Additional Notes / Sketches:

SPECIMEN COLLECTION

GENERAL INSTRUCTIONS

Process dead animals in the following order: cetaceans, pinnipeds, sea otters, sea turtles, sea birds, fish and invertebrates.

Specimen numbers are to be assigned only to specimens that have been sexed and measured or biopsied while in the water.

The priorities of sample collection are as follows:

- ☼ Collect data on sex, length, girth, flipper length from all marine mammal specimens.
- ☼ Collect the entire carcass of cetaceans, sea otters, Steller sea lions, and fur seals.
- ☼ If the entire carcass cannot be collected, bring back the heads of cetaceans, Steller sea lions, and fur seals.
- ☼ Collect gonads, teeth, tissue biopsy, stomachs, blubber and underlying muscle, adrenal glands from all dissected marine mammals.
- ☼ Collect fetus <25 cm and skin biopsy from fetus > or = 25 cm.
- ☼ Collect tissue biopsies and photos from all sea turtles. Collect descriptive and tag data on sea turtles. Discard all sea turtles after processing; retain any tags.
- ☼ Discard all seabirds, even if you are unable to identify them.
- ☼ Record fish and invertebrate measurements of the species specified on the Fish and Invertebrate Data Form.
- ☼ Record and collect shark measurements, gonads and vertebrae.
- ☼ Record and collect billfish measurements. Take photographs of striped marlin, blue marlin, black marlin, sailfish, and shortbilled spearfish.

COLLECTION REQUIREMENTS

Each sample is to be individually tagged and labeled. The label is to have the following information: specimen number, species of animal, cruise number, and sample identification (e.g. stomach). If many samples are collected from the same animal and placed into a common plastic bag, ensure that each part is properly tagged and labeled. Label the plastic bag with a large tag clearly stating its contents.

Label whole specimens with tags through the lower jaw, inside the blow hole, and the anus. Carve the specimen number into the carcass if possible.

Straight line body lengths are measured using a measuring stick and calipers; a measuring tape is used for curvilinear body measurements.

Biopsy samples: Collect a section of skin tissue, 2 cm by 4 cm, from each marine mammal and place it into the vial, being sure all tissue is submerged. Leave off as much blubber as possible. Vials contain dimethyl sulfoxide (DMSO). Avoid contact with this solution. Although DMSO is not toxic, it can be an irritant that will penetrate skin and draw other chemicals along with it.

- a. Use a fresh blade and gloves for each sample taken to avoid contamination of the samples.
- b. Insert a label with the specimen number, cruise number, and species of animal written with a pencil into the collection vial.
- c. Label the outside of the vial with a permanent marker.
- d. Store at room temperature. **Do Not Freeze.**

Cetaceans

Tag carcasses or samples with the appropriate specimen number. A specimen number is assigned to all animals that are at least biopsied, or measured and sexed, and have data recorded on a life history form. Fetuses are assigned the same specimen numbers as their mothers. Append an "F" to fetal biopsy specimen numbers.

Dissection methods are described in *Small Cetacean Dissection and Sampling: A Field Guide*: NOAA-TM-NMFS-SWFC-198.

Whenever feasible, collect the whole animal. If the whole dolphin or porpoise cannot be retained, retain the head. Do not remove a jaw section and take all other required samples.

If circumstance prohibits collection of the entire head, collect the jaw along with the other required samples.

Pinnipeds

Whenever feasible, collect the entire carcasses of Steller sea lions, northern fur seals and Guadalupe fur seals.

Head: If the entire carcass can not be collected, collect heads from Steller sea lions, northern fur seals and Guadalupe fur seals. Collect heads from all tagged or branded pinnipeds.

Teeth: Collect undamaged the upper and lower canine teeth. To insure that the entire canine root is collected, the jaws should be cut between the 3rd and 4th post- canine (premolar) teeth on both the left and right sides. Another reference point for this cut is just in front of the orbital arch (the eye socket) and angled slightly back. The jaw section can be stored dry or frozen. Do not place the jaw in formalin or alcohol. **Note:** Teeth and jaw samples from cetaceans are collected and preserved using a different method.

Blubber: Collect a 4 inch square section of skin, blubber and underlying muscle from the **ventral** side of the animal. Do not take blubber from the head or limbs. Wrap the sample in aluminum foil (shiny side out) and place in a plastic bag with the specimen label both inside and on the outside. Put the sample in the freezer or cold storage. Do not put the sample in formalin or alcohol.

Stomach: Collect stomachs from all pinnipeds. Make sure the bag is labeled both inside and out with the specimen number. Freeze as soon as possible. Do not store in alcohol or formalin.

Sea Turtles

Biopsy samples: Collect a section of skin tissue, 2 cm by 4 cm, from each sea turtle. Skin dorsal of the hind flippers is the preferred area to biopsy. However, if for some reason it is not possible to sample this region, skin in the ventral pectoral area, at the base of the front flippers, may be used. Place the skin tissue into a Whirl-Pak plastic bag. Add ordinary table salt, being sure to cover all tissue.

- a. Use a fresh blade and gloves for each sample taken to avoid contamination of the samples.
- b. Insert a label with the specimen number, cruise number, and species of animal written with a pencil into the collection vial.
- c. Label the outside of the Whirl-Pak bag with a permanent marker.

