

Wildlife Inventory Plan
Alaska Maritime National Wildlife Refuge
Protocol #25

Version 1.3

Parameter: Miscellaneous (camp log, weather, flowering chronology, dead things)

PROCEDURES – CAMP LOG/CALENDAR

Data collection.—It is important to keep a record of daily activities, events, findings, etc. You should fill in a daily calendar with work completed that day (this should be work actually accomplished; if you have a planning calendar, make sure you keep a separate one for what really happened; Figure 1). Calendars not only help you keep track of what you did when (days can run together in the field!) but also provide a valuable resource to future crews for planning. Some crews also write in a log book or a computer file and enjoy having a creative output, writing detailed and entertaining descriptions of their daily adventures (Figure 2). The log may be kept by the camp leader or crews may alternate who writes the log every night. If handwritten, writing in both the calendar and the log *must be legible*.

Data analysis.—Camp logs/calendars are stored in Homer files for reference.

PROCEDURES - WEATHER

Data collection.—Every day, record weather conditions using a weather summary form (Figure 3) or similar computer file (Figure 4). Depending on what environmental measuring equipment you have at your camp, record wind speed and direction, cloud cover, precipitation, temperature, barometric pressure, and sea state.

Data analysis.—At some camps, temperature data are summarized for the annual report. Otherwise, weather data is stored in Homer files for reference.

PROCEDURES - FLOWERING CHRONOLOGY

Data collection.—Keep track of when plant species first come into bloom over the course of the season to provide an idea of vegetative timing. This is generally done incidentally while conducting other work, hiking, etc. If you cannot identify a flowering plant in the field, take a photo or collect a sample to identify with reference materials back at camp. On some islands, photo guides made by past field crews are available. In addition, it is helpful to refer to the flowering chronology table in the annual report to see which plant species have been identified at your site in past years. Record data on a flowering chronology data form (Figure 5) or directly into a similar spreadsheet on the computer.

Note that data depends somewhat on timing of field crew activities (i.e., if a plant only grows on the south side of the island and crews only go there a couple of times all summer), especially for uncommon or inconspicuous plants, so flowering dates give only the roughest guide of actual phenology.

Data analysis.—List all first flowering date records in the flowering chronology table in the annual report.

PROCEDURES - WHAT TO DO WITH DEAD THINGS

Birds: When you find dead birds, the amount of time required to collect information or preserve specimens can range from nothing to a few moments to many hours. If you determine it is worthwhile and you have the time, record at least a few basic things. The decision of how much additional time, if

any, to invest in a dead bird will depend on the condition of the carcass and the value of the information collected. In general, if you find a rare Asian vagrant or other unusual bird, you will want to document it more exhaustively than you would a common bird. However, preparing bird specimens can be quite time consuming, so consult with the Wildlife Biologist before devoting an inordinate amount of effort to it. Below is an outline of increasing levels of effort to assist you in determining how to deal with dead birds:

- 1) Collect a tissue sample for the University of Alaska Museum following the instructions in Figure 6. This is a very simple and quick operation, and constitutes a valuable contribution to their tissue bank.
- 2) Collect a tissue sample as above and take external measurements. If the species is normally measured during banding or other procedures, be sure to include the entire suite of measurements normally taken. Measure everything you can think of, and note the condition of the carcass, to aid in interpretation of soft part measurements. If at all possible, attempt to determine the sex of the bird. This may involve a bit of dissection. Fill out the form in Figure 7 as applicable.
- 3) Collect a tissue sample and take external measurements as above, and preserve the skeleton by removing as much meat from the bones as possible and letting the bones dry out so they don't rot. Fill out the form in Figure 8 as applicable.
- 4) Do all of the above and prepare a study skin. This will probably not be feasible unless someone in the camp has previous experience.

Sea lions and other pinnipeds: Determine species and sex and record the measurements indicated in Figure 7. Body length should be measured as the straight line distance from the tip of the snout to the tip of the tail, with the animal chest down and the tape held over but not touching the body. Girth is measured as the circumference of the animal just behind the front flippers. Refer to the diagrams (Figure 8) for additional measurements to take.

Collect the skull if feasible; if not, collect whiskers, a small (about 2" square) piece of skin with hair, 2 hind toenails, and teeth (particularly a right upper canine). These should be allowed to air dry before being packed away. If the animal is tagged, collect the tag. Be sure to describe and photograph any brands you observe.

Whales and other cetaceans: Fill in as completely as possible a *Cetacean Data Record* (Figure 9), being sure to carefully follow the instructions (Figure 10). In addition to taking as many measurements as you can, be sure to take a series of photographs of the animal, particularly of the head, genital region, pigmentation patterns, teeth/baleen, and appendages.

Human remains: Should you encounter human remains (rare but it can occur), it is important to adhere to strict guidelines. Do NOT remove the remains unless instructed to do so; proper authorities must be notified. You can NOT keep any human remains under any circumstances. Refer to the specific guidelines for human remains in your protocol collection.

July 2011						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1 GWGU Prod Corm count #3 Murre prod 1st Murre egg	2 Murre Prod HOPU pop count #1 changed proppce
3 Day off 1st PAWR fledgling!	4 Beautiful day! TUPU Prod HOPU count #2 Happy 4th!	5 ANMU Prod HOPU Count #3	6 Fog + Rain STPE Chron 1st FTSP chick!	7 Beautiful Day Murre Prod Gull Prod HOPU count #4 BLOY	8 Gale-Fog/Rain Data Entry Protocol Reading	9 HOPU count #5 COASST
10 Fog + Rain Gull Prod BLOYS	11 TUPU Prod	12 Fog + Rain ANMU Prod Fogged out - Murre Prod STPE Prod	13 Beautiful Day STPE Chron + Prod Gull Prod	14 Murre Prod BLOYS HOPU Count #6	15 FOG! TUPU Prod HOPU count - fogged out	16 Rain Fog Gull Prod HOPU Count #7
17 Murre pop count #1 HOPU nest search Corm Prod 1st BCCO chick	18 Gale! Rain + Fog Data Entry Cabin clean up	19 Rain + Fog Gull Prod TUPU Prod *Tigilax Resupply* 1st TUPU chick	20 Nice Day! STPE Chron TUPU Prod 1st LHSP chick	21 Rain + Fog Gull Prod BLOYS	22 Joanna's B-day Rain + Fog Weather Day Data Entry	23 Nice Day Murre Prod Murre pop count #2 COASST Gull Prod
24 Beautiful Day w/ Rain TUPU/HOPU Prod 1st HOPU chick	25 Fog + Rain Gull Prod BLOYS Data Entry Began calculations	26 Beautiful Day ANMU Prod STPE Prod Corm chick count #1 Murre Pop Count #3	27 Beautiful Day STPE Chron + Prod	28 Beautiful Day Murre Prod Gull Prod Murre Pop Count #4 TUPU Prod	29 Beautiful Day TUPU/HOPU Prod	30 overcast/Fog Gull Prod - Final Data Entry
31 Day off	* No GWGU chick regurge - Jeff					

✓ * 5-7 HOPU counts by 21 July
 ✓ * 5-7 Murre pop counts after 16th through mid-Aug
 ✓ * TUPU Prod - 1st week July
 ✓ * HOPU Prod - mid July

Figure 1. Example field camp calendar to record daily activities.

7-5-07

Awoke this morning to a beautiful day with hardly any wind... perfect for a quick skiff ride to Ugamak to drop them off. Spent the afternoon doing a HOPU/PIGU count and checking gull nests. Lots happening with the gull nests; many should be hatched by next visit. Saw a parakeet auklet this morning and 3 harbor porpoises pass by last night in front of camp. Have been inspecting moores regularly, but only plot that seems to regularly have birds is plot 3.

7-6-07

We have another competitor for the nicest day of the season yet... a little foggy but perfectly calm and sunny for part of the day. Checked TUPU plots → looks like about 25 occupied artificial burrows and we found 11 natural burrows on plot C. Got our first G W G U chick regeneration from old camp beach and finished the day by checking STPE non-chrons 9 and 20. Caught 2 rock sole and 1 greenling tonight... Mummy nummy!

7-7-07

We almost felt foreign as the yellow orb in the sky dazzled us for the day. It actually felt like summer. Spent the majority of the day on gulls. Many of our productivity plot nests hatched, and the rest should be close behind. Got 5 food loads from chicks on gull mountain, and spent considerable time on SW slope in the afternoon looking for other chicks with little success. After talking with Jeff, we decided it would be better to wait until the chicks are at least a week

Figure 2. Example page from field camp log.

Daily Weather Log										
	Island: _____				Month: _____			Year: _____		
Date	Wind		Seas		Landable at camp?	Temperature (C)		Barom. (mb)	Prevailing sky conditions (clear/overcast/fog/rain)	Comments
	direction	speed	direction	height		high	low			
1										
2										
3										
4										
5										
6										
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30										
31										

Additional comments:

Figure 3. Example datasheet for recording weather conditions.

CHOW_2012_Weather.xlsx - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Date	High (°F)	Low (°F)	High (°C)	Low (°C)	Start Wind (knots)	Direction	Stop Wind (knots)	Direction	Mean Wind (Knots)	Wind Daily Max	Sky	Precip?	Precip (inches)	Precip (cm)	> 5 Hr Sun?	Notes
17	3-Jun	64	40	17.8	4.4	10	NW	20	SE	15	20	clear	N			Y	
18	4-Jun	51	38	10.6	3.3	15	SE	15	SE	15	15	clear→drizzle	Y			Y	sun ended 10:00
19	5-Jun	59	41	15.0	5.0	15	W	15	W	15	15	partly cloudy	N			Y	trace precipitation
20	6-Jun	64	37	17.8	2.8	15	E	15	E	15	15	clear	N			Y	
21	7-Jun	59	43	15.0	6.1	10	W	10	W	10	10	overcast→rain	Y			N	
22	8-Jun	50	41	10.0	5.0	10	W	10	W	10	10	overcast→light rain	Y			N	
23	9-Jun	53	39	11.7	3.9	5	Var	5	Var	5	5	fog/light rain→mostly cloudy	Y			N	
24	10-Jun	66	37	18.9	2.8	3	SW	10	SW	7	10	clear	N			Y	
25	11-Jun	64	41	17.8	5.0	10	SW	15	SW	13	15	clear	N			Y	
26	12-Jun	63	40	17.2	4.4	20	SW	10	SW	15	20	overcast→clear	N			Y	
27	13-Jun	69	45	20.6	7.2	5	SW	15	SW	10	15	clear	N			Y	
28	14-Jun	56	40	13.3	4.4	5	NE	15	NE	10	15	fog→overcast	N			N	
29	15-Jun	60	45	15.6	7.2	30	NE	30	NE	30	30	mostly cloudy	N			N	periods of mostly s
30	16-Jun	62	45	16.7	7.2	25	W	25	W	25	25	clear	N			Y	
31	17-Jun	69	47	20.6	8.3	10	W	10	W	10	10	clear	N			Y	
32	18-Jun	69	45	20.6	7.2	10	W	10	W	10	10	clear	N			Y	
33	19-Jun	67	41	19.4	5.0	15	W	15	W	15	15	clear→cloudy	Y			Y	trace precip after 1
34	20-Jun	73	41	22.8	5.0	15	W	15	W	15	15	clear	N			Y	
35	21-Jun	67	45	19.4	7.2	5	W	15	W	10	15	clear	N			Y	
36	22-Jun	64	48	17.8	8.9	20	S	10	W	15	20	fog→clear→light rain	Y			Y	trace rain
37	23-Jun	52	47	11.1	8.3	10	S	20	E	15	20	fog→rain	Y	0.45	1.1	N	first real rain of sea
38	24-Jun	55	46	12.8	7.8	10	E	10	E	10	10	overcast→mostly cloudy	N			N	
39	25-Jun	56	45	13.3	7.2	20	W	20	W	20	20	cloudy	Y			N	light mist for <1 hr
40	26-Jun	69	45	20.6	7.2	10	W	5	W	8	10	clear	N			Y	
41	27-Jun	66	42	18.9	5.6	10	W	10	W	10	10	clear	N			Y	
42	28-Jun	69	45	20.6	7.2	10	W	10	S	10	10	overcast→drizzle	Y			N	

Figure 4. Example spreadsheet for recording weather conditions on Chowiet Island.

Flowering Chronology		Island: _____	Year: _____
Family	Scientific name	Common name	First seen in flower
Lycopodiaceae	<i>Lycopodium selago selago</i>	Club moss	
	<i>L. annotinum annotinum</i>		
Athryiaceae	<i>Cystopteris fragilis fragilis</i>	Fragile fern	
	<i>Athyrium filix-femina cyclosorum</i>	Lady fern	
Graminae	<i>Poa spp.</i>		
	<i>Leymus arenarius mollis</i>	Rye grass	
	<i>Calamagrostis spp.</i>		
	<i>Festuca rubra aucta</i>		
	<i>Phleum commutatum americanum</i>		
Cyperaceae	<i>Carex spp.</i>	Sedges	
Juncaceae	<i>Luzula multiflora multiflora</i>		
	<i>L. multiflora Kobayashii</i>		
	<i>Juncus spp.</i>		
Liliaceae	<i>Fritillaria camtschaticensis</i>	Chocolate lily	
Orchidaceae	<i>Platanthera convallariaefolia</i>	Bog orchid (green)	
	<i>P. dilatata</i>	Bog orchid (white)	
	<i>Listera cordata</i>	Heart-leaved twyblade	
	<i>Dactylorhiza aristata</i>	Purple orchid	
Salicaceae	<i>Salix arctica</i>	Willow	
Polygonaceae	<i>Oxyria digyna</i>	Mountain sorrel	
	<i>Rumex fenestratus</i>	Wild rhubarb	
	<i>Polygonum viviparum</i>	Alpine bistort	
Portulacaceae	<i>Claytonia sibirica</i>	Spring beauty	
Caryophyllaceae	<i>Honckenya peploides major</i>	Sea beach	
	<i>Cerastium beeringianum</i>	Chickweed	
	<i>Sagina saginoides</i>	Pearlwort	
Ranunculaceae	<i>Aconitum maximum</i>	Monkshood	
	<i>A. delphinifolium delphinifolium</i>	Monkshood	
	<i>Ranunculus grandis</i>	Buttercup	
	<i>Anemone narcissiflora villosissiflora</i>	Anemone	
	<i>Caltha palustris asarifolia</i>	Marsh marigold	
Cruciferae	<i>Draba hyperborea</i>	Cliff hanger	
	<i>D. borealis</i>	Northern rockcress	
	<i>D. aleutica</i>		
	<i>Cochlearia officialis oblongifolia</i>	Scurvygrass	
	<i>Cardamine umbellata</i>	Bittercress	
Saxifragaceae	<i>Parnassia Kotzebuei</i>	Grass-of-Parnasus	
	<i>Saxifraga punctata insularis</i>	Brook saxifrage	
	<i>S. bracteata</i>	Bracted saxifrage	
Rosaceae	<i>Sibbaldia procumbens</i>	Creeping sibbaldia	
	<i>Potentilla villosa</i>	Cinquefoil	
	<i>Rubus arcticus</i>	Nagoon berry	
	<i>Geum macrophyllum</i>	Large-leaved avens	
Leguminosae	<i>Lupinus nootkatensis</i>	Lupine	
Geraniaceae	<i>Geranium erianthum</i>	Wild geranium	
Violaceae	<i>Viola Langsdorffii</i>	Violet	
Onagraceae	<i>Epilobium glandulosum</i>	Willowherb	
	<i>E. angustifolium</i>	Fireweed	
Umbelliferae	<i>Heracleum lanatum</i>	Cow parsnip	
	<i>Angelica lucida</i>	Wild celery	
	<i>Ligusticum scoticum-Hultenii</i>	Beach lovage	
	<i>Conioselinum chinense</i>	Hemlock parsley	
Ericaceae	<i>Rhododendron camtschaticum</i>	Kamchatka rhododendron	
Empetraceae	<i>Empetrum nigrum (first ripe berries)</i>	Crowberry	
Primulaceae	<i>Trientalis europaea</i>	Starflower	
	<i>Primula cuneifolia saxifragifolia</i>	Primrose	
Gentianaceae	<i>Gentiana amarella acuta var. plebeja</i>	Gentian	

Figure 5. Example datasheet for recording flowering chronology data.

DMSO-EDTA-salts tissue buffer

University of Alaska Museum
Division of Birds

Thanks for your willingness to take tissue samples on birds found dead when there is no way to save anything else (because of lack of refrigeration, for example). Although we'd prefer to receive whole birds whenever possible, tissue samples constitute a valuable resource for genetic studies and can easily be taken when it is not possible to save the rest of the specimen. The UA Museum has the largest repository of tissues from Alaska birds, and this collection is used regularly by researchers worldwide.

Directions for use:

- Mince no more than 1 cc of tissue (0.5-1.0 mL), place in buffer vial, shake to mix. Can be stored at room temperature. Do NOT put in so much that you fill the vial - this is too much, and the tissue rots because it isn't adequately buffered. I generally fill from the "ML" to just below the "3.6" mark.
- Write date, locality, and species name (be sure of identification!) on the vial in indelible ink.
- Clean implements between birds to prevent contamination across sampled individuals.

Questions? Don't hesitate to ask:

Kevin Winker
Curator of Birds
University of Alaska Museum
907 Yukon Drive
Fairbanks, AK 99775-6960
907-474-7027; fksw@uaf.edu

And thanks!

Figure 6. Instructions for collecting tissue samples from dead birds and mammals.

Specimen Collection Form

Collector: _____ Catalog Number: _____

Species: _____ Date (mm/dd/yy): _____ Time (24 hr): _____

Location: _____
(location, latitude, longitude, elevation)

Soft part colors: Irides _____ bill _____ mouth lining _____
feet _____ tarsi _____ bare skin _____

Age: Immature _____ Adult _____

Fat condition: None Trace Light Moderate Heavy Very Heavy

Ova: Diameter of largest follicle (mm): _____ Color: White Yellow Orange
Oviducal egg: L X W (mm) _____ Mass (g) _____
Background color _____ Shell markings _____

Ovary: L X W (mm) _____ Color if other than white _____

Brood patch: None Defeathered Vascularized Edematous Hyperplastic Recovered

Testis: L X W (mm) _____ (left) Color if other than white _____
Vascularization: Absent Present

Cloacal Protuberance: Absent Present
Size: Inconspicuous Moderate Large

Stomach contents: _____

Molt: Primaries _____
Secondaries _____
Retrices _____
Body _____

Specimen Treatment: _____
Methods: _____

Habitat: _____

Parasites: _____

Miscellaneous: _____

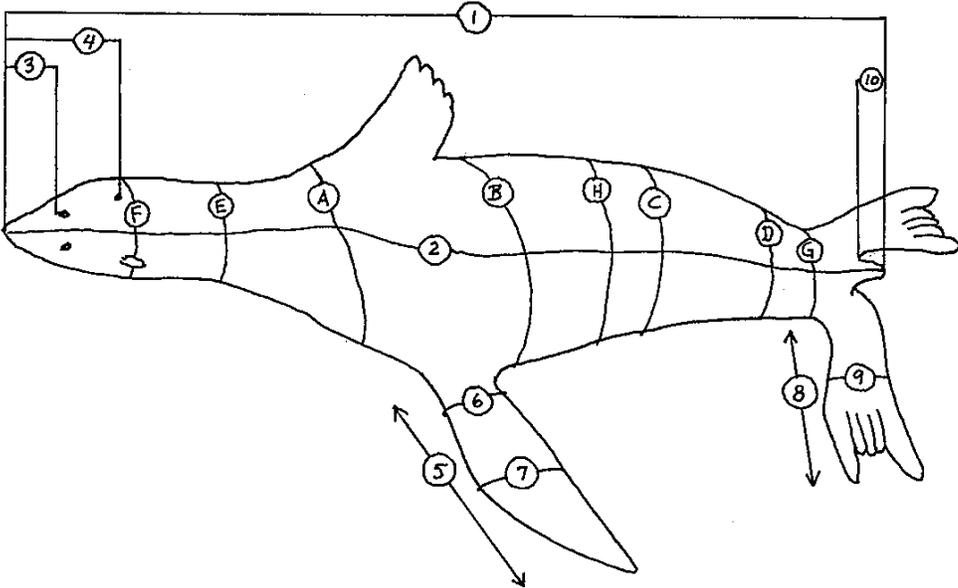
Morphometrics:
Diagonal tarsus (mm) _____ Straight tarsus (mm) _____
Wing chord (flat/bent)(mm) _____ Mass (g) _____
Total length (mm) _____

Figure 7. Specimen collection form for dead birds and mammals.

Pinniped necropsy form

Species: _____ Specimen number: _____
 Sex: Male Female (Circle one) Tagged: Yes No (Circle one)
 Date of take or stranding: _____ Tag color and number: _____
 Collection date: _____ Tag type: _____
 Location: _____
 Reporting source: _____
 Condition of animal: _____
 Photo record: Roll number: _____ Frames: _____
 Circumstances of take or stranding: _____

Measurements (cm)		Length from		Blubber depths	
		Girth	girth to tail	dorsal	lateral
		(cm)	(cm)	(mm)	(mm)
1. Total length: _____					
2. Curvilinear length: _____					
3. Eye length: _____	A. Shoulder: _____				
4. Ear length: _____	B. Axillary: _____				
5. Anterior length of foreflipper: _____	C. Umbilical: _____				
6. Axillary flipper length: _____	D. Hips: _____				
7. Widest foreflipper width: _____	E. Neck: _____				
8. Anterior length of hindflipper: _____	F. Ears: _____				
9. Widest hindflipper width: _____	G. Ankles: _____				
10. Tail length: _____	H. Sternum: _____				



Specimens collected (circle): skull whiskers 2 hind toenails skin right upper canine tooth

Figure 8. Necropsy form for sampling dead piniipeds.

CETACEAN DATA RECORD	
species _____	field no. _____ cat. no. _____
Date, time stranded or captured _____	sex _____ length _____ date, time of data _____
observer _____	locality _____
EXTERNAL DATA (specify units of measure used _____)	
photographs or drawings _____	
tooth or baleen counts: left upper _____ right upper _____	l. lower _____ r. lower _____
diameter largest tooth, length longest baleen plate _____	color of baleen _____
ectoparasites _____	
number of throat or ventral grooves _____	weight of specimen _____
MEASUREMENTS, BODY (specify units of measure used _____)	
2. snout to center of eye..... _____	16. snout to end of ventral grooves _____
3. snout to apex of melon..... _____	13. snout to genital slit..... _____
15. projection of lower jaw..... _____	14. snout to anus..... _____
4. length of gape..... _____	1. total length, snout to notch... _____
5. snout to ear..... _____	17. blubber thickness, mid-dorsal.. _____
6. center of eye to ear..... _____	18. blubber thickness, mid-lateral. _____
7. center of eye to angle of mouth. _____	19. blubber thickness, mid-ventral. _____
8. eye to blowhole (center)..... _____	21. girth at axilla..... _____
9. snout to center of blowhole(s).. _____	21a. girth at eye..... _____
20. length of throat grooves..... _____	22. maximum girth..... _____
10. snout to flipper..... _____	23. girth at anus..... _____
11. snout to tip of dorsal fin..... _____	23a. girth _____ cm before notch..... _____
12. snout to center of umbilicus.... _____	
MEASUREMENTS, APERTURES (specify units of measure used _____)	
24. eye:.....height _____ length _____	27. blowhole(s): length _____ width _____
25. length mammary slits: r. _____ l. _____	28. diameter ear opening: r. _____ l. _____
26. length genital slit _____ anal slit _____	
MEASUREMENTS, APPENDAGES (specify units of measure used _____)	
29. flipper length (anterior.....) _____	33. length of dorsal fin base..... _____
30. flipper length (posterior)..... _____	34. width of flukes..... _____
31. maximum width of flipper..... _____	35. length of flukes..... _____
32. height of dorsal fin..... _____	36. depth of fluke notch..... _____
INTERNAL DATA (specify units of measure used _____)	
stomach contents (type and quantity) _____	
internal parasites (see checklist) _____	
vertebral epiphyses: open _____ mm; closed, visible _____ closed, invisible _____	
gonads: weight r. _____ l. _____ dimensions (LxWxD) r. _____ l. _____	
pregnant? _____ fetus length _____ sex _____ lactating? _____ sperm in epididymus? _____	
thickness of mammary gland _____ diameter corpus luteum _____ diameter uterine horn _____	
SPECIMEN COLLECTION CHECKLIST	
teeth or baleen..... _____	bullae..... _____ liver sample..... _____
stomach contents..... _____	ectoparasites..... _____ kidney sample..... _____
gonads..... _____	endoparasites..... _____ skull..... _____
mammary gland..... _____	blubber sample..... _____ skeleton..... _____
ear plugs..... _____	muscle sample..... _____ fetus..... _____
	other..... _____
Remarks _____	

Figure 9. Data form for sampling dead cetaceans.

INSTRUCTIONS

The metric system is preferred for measurements. If this is not used, the units must be specified. All measurements are taken in a straight line (as indicated on the diagram) with the exception of number 8, which is a curvilinear measurement. Note that measurements are taken from the tip of the upper jaw (snout), not the lower. If the snout is damaged, measure from the fluke notch. The ear is hard to locate, but may be found by shaving away the dark epidermis in the area of the ear. The ear canal is pigmented and will stand out against the white dermis. Throat grooves are short grooves found on the throat of beaked, sperm and gray whales; ventral grooves are long grooves found on balaenopterid whales. Ventral grooves should be counted between the flippers. The easiest way to take girths is to measure them from the middle of the belly to the middle of the back and double the measurement. Number 23a is the girth of the tailstock and is taken any convenient distance anterior to the fluke notch.

Vertebral epiphyses are read by making a tangential cut near an intervertebral joint, in the mid-thoracic region, exposing the epiphyseal joint and noting whether the epiphysis is fused to the body of the vertebra. For gonad dimensions, L is the longest dimension, W the widest dimension perpendicular to L, and D is the dimension perpendicular to both L and W. Weight of ovaries includes that of any corpora lutea. Pregnancy may be indicated by a large corpus luteum, dilated and vascular uterine horn, vaginal mucus or a fetus. The flat diameter of the uterine horn is measured at mid-length of the horn. In adult males the epididymus should be cut and checked for a milky fluid indicating the presence of sperm.

Photographs are extremely important, particularly lateral views of whole animals. Details of the head, genital region, pigmentation patterns, teeth or baleen, and appendages should also be taken. Specimens should be frozen or preserved in 10% neutral formalin, except stomach contents, which should be well washed and preserved in 70% alcohol. Skeletal elements should be fleshed and dried. Salt will help deter maggots and bacteria. Do not bury specimens unless there is no alternative. Be careful of loose teeth, bullae, hyoids and pelvic bones (which are located in the muscle near the anus). Enter mode of preservation (10% F., 70% Alc., dry, etc) on checklist.

The following areas should be checked for parasites. If there are none, enter no; if present, enter yes and detail on other side; if not examined, enter N E.

eye _____	air sinuses _____	intestine _____	bile duct _____
mouth _____	esophagus _____	rectum _____	kidney reniculi _____
genital slit _____	forestomach _____	trachea _____	kidney main duct _____
anal slit _____	main stomach _____	lungs _____	urinary bladder _____
nasal passages _____	pyloric stomach _____	liver _____	blubber _____
			muscle _____

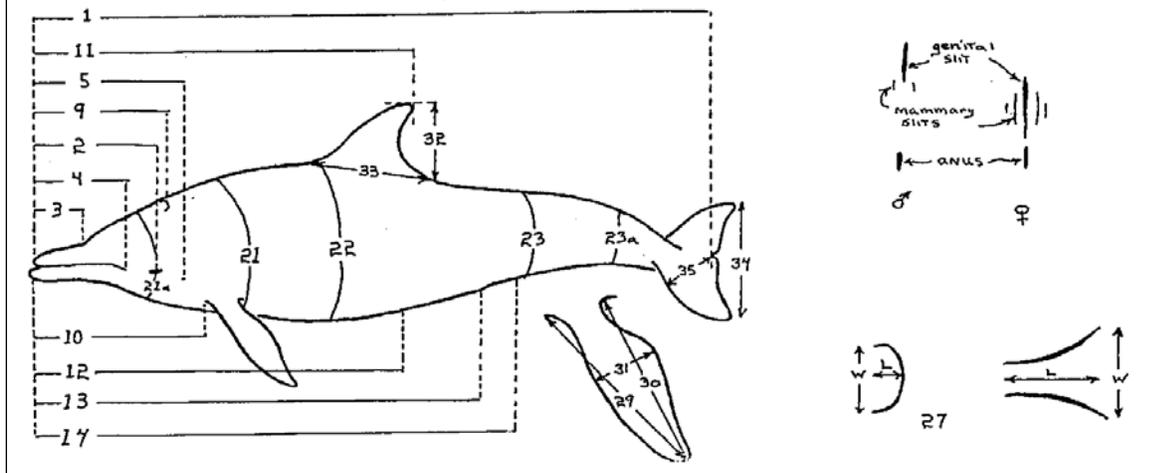


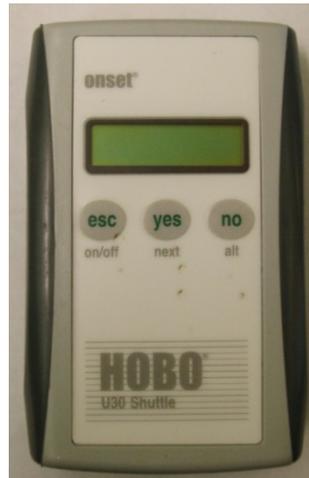
Figure 10. Instructions for sampling dead cetaceans.

Attachment A. Buldir Island specifics Hobo Automated weather station

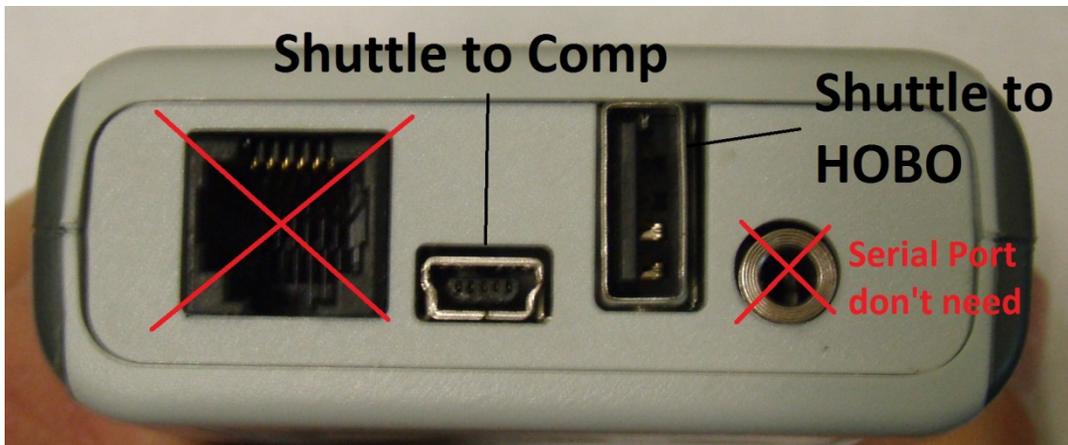
The HOBO weather station is a fully automated weather machine that is simple to operate.

1. **Install the HOBO weather machine software.** Make sure that the software is installed on your laptop before proceeding.
2. **Configure the shuttle and software.** Information is transferred between the HOBO automated weather station and the software on your computer through a device called a Shuttle. It "shuttles" the data between the two devices.

A. This is the shuttle:



The shuttle is the ONLY way you can communicate with the HOBO weather station - so be nice to it. The top of the shuttle looks like this:



There is only one cable, but 2 port options, for the shuttle. When you want to plug the shuttle into the computer, you place the mini-B USB cable into the (Shuttle to Comp) port. When you want to plug it into the HOBO you use the (Shuttle to HOBO) port.

B. Configuring the shuttle and computer:

Make sure your computer time is synched with a known standard and correct.

Plug the USB into the shuttle to comp(uter) port and plug the other end into the computer. Wait for the software and computer to recognize each other. (Hint if it doesn't show up when you plug it into the computer try holding all three shuttle buttons down to reset the device. If it still doesn't work you may need to contact onset.)

Now open up the HOBO software. Go to "device" and select "manage shuttle".

Synchronize the time of the shuttle device to your computer, if necessary. You can also download any data previously saved on the shuttle.

There are options for changing how the HOBO weather station logs data. Ensure the intervals for logging are **1 sample time per hour for 24hours of each day.**

To make sure it is working correctly, test your shuttle and computer connection a couple of times before leaving the office and your connection to tech support!

3. **Downloading the data.** At your study site, the weather station should have been logging all winter long. To download the data with the shuttle the first thing you need to do is take the shuttle and the cable out to the HOBO station. The HOBO has a white plastic box on it with clips. Unhook the clips and open it up.



Plug the small mini- B end of the USB cable into the HOBO station and the full-sized USB end into the shuttle.

Press the shuttle's on/off button and the shuttle should turn on.

The shuttle will ask you if you want to (Y) Find Device or (N) Shuttle Info. Press the "yes" button and it should find the HOBO.

The shuttle will ask if you want to download the data. Press yes and you should see a status bar showing your download status.

Once this is done it will ask you do you want to restart the logger (weather station)? **This is a very important step.**

If you press "no" it will continue to log.

If you press "yes" it will stop the HOBO from logging further data.

If you do press "yes" by accident it will prompt you and ask you "are you sure?" Just press "no" if you didn't want to. If you accidentally pressed "yes" and shut the HOBO down - don't worry. The shuttle will have returned to the main menu. From there, click "yes" for find device and it will then ask you if you want to launch the logger (HOBO). Click "yes" and it should begin logging once again. Confirm the logger is recording data by checking that the green LED in the box under the word logging is lit.

4. Processing the data. The data are now on the shuttle and you can take it back to the computer. Plug the shuttle into the computer and open up the HOBO software. Now go to "manage shuttle". Click on "offload data" and save it as a file name with the Island and dates of coverage in the filename. To make sure it worked go to File->Open Datafile and find the data you just saved. Open it and scroll through the dates at the top to make sure it logged for the right amount of time. For the first download you should have data from August of the previous year until the day you retrieved the data. You will do one more download close to the day you leave.

If for some reason one of the sensors on the weather station doesn't seem to be reporting good information you can go back out with the shuttle and check the status of all of the sensors to make sure they are working. **You may need to oil up the wind gauge. If it gets too much salt in it then it won't spin and you will get a bunch of zeros for wind data.**

That's it! This is a very brief overview of how to get the data off of the HOBO. If anything goes awry the best option is to read the shuttle instructions and they tell you how to do most things. If you have software questions go to the Help menu and click HOBOWare help. As long as you don't tamper with setting very few bad things can happen.

Protocol Revision History Log

Revision Date	Changes made	New version #
April 2017	Renumbered protocol from #27 to #25	1.3
April 2015	Added Attachment A for Buldir automated weather station operating instructions.	1.2
April 2014	Changed font to Arial, added revision history log, replaced revision date with version # on first page, added protocol # to first page, changed page number format to include protocol #,	1.1
May 2013	Protocol developed in standardized format from historic protocols	1.0
