

Comments/Notes	Include any unusual things you see on the cetacean, found when sampling the cetacean or is in the surrounding area.

Freshwater Cetacean Post-mortem Field Guide

A guide to post-mortem procedures to be completed in the field.

1. Why carry out a post-mortem?

The examination of dead cetaceans (dolphins, porpoises and whales) and the collection of biological samples is vital to gain information on the population, to understand what is causing mortality and to detect any outbreaks of disease. It is of huge value to the scientific community and will help design appropriate conservation strategies to protect a species.



2. How to use this booklet

This booklet shows you how to take the most important measurements and samples of a dead cetacean while in the field. It is important that the guide is followed carefully and measurements/samples are taken in exactly the same way and from exactly the same place for each post-mortem, so that the data can be compared.



- ### 3. Why do we take certain samples / measurements?
- Initial measurements** are taken to help understand the dynamic of the cetacean population in the region.
 - Blubber thickness** is taken to see how healthy the cetacean is and to determine its nutritional status.
 - Skin** is taken for DNA analysis to see how related cetaceans are to each other.
 - Blubber** is taken to look at the effect of pollution, specifically the presence of organochlorines and man-made contaminants.
 - Muscle** is also taken to look at the effect of pollution and contaminants.
 - Teeth** are taken to estimate age by counting growth rings.
 - Blood** is taken to see if the cetacean had an infection.

4. Health and Safety

Cetaceans can carry **diseases** that humans are able to catch, some of which are very dangerous. It is important to follow these instructions to reduce the chance of infection.

During post-mortem:

- Always wear gloves and a plastic apron when handling carcasses.
- Do not touch your eyes, nose or mouth when completing a post-mortem.

After post-mortem:

- Wash your hands and exposed skin with antibacterial soap.
- Sterilise all equipment used.
- Dispose of gloves / plastic apron properly after each post-mortem.

5. Equipment needed

Basic:

- 10 m measuring tape
- 15 cm ruler
- Digital camera
- Waterproof pen and pencil
- Sharpener and rubber
- Thin permanent marker
- Box of nitrile gloves
- Plastic aprons
- Antibacterial soap

For sampling:

- Pieces of clean fabric
- Box of large ziplock plastic bags (re-sealable)
- Box of small ziplock plastic bags (re-sealable)
- Aluminium Foil
- Post-mortem knife blade x3
- Post-mortem knife handle
- Measuring callipers
- Pliers
- 10 ml plastic specimen tube

6. Equipment set up

Make sure the equipment is collected together in a box or bag so it's ready when a cetacean is found. Before you take any samples, it is important to be prepared and to have all the equipment ready:

- Roll out the clean fabric and place all equipment onto it.
- Cut 5 pieces of foil to around the size of an A4 piece of paper (this is to wrap around the blubber and muscle samples to prevent contamination)
- Take 16 small ziplock plastic bags out (two bags for each sample) and label each one with:
 - * Date (*dd/mm/yyyy*)
 - * A unique reference number for this post-mortem
 - * The type of sample (*S=Skin, T=Teeth B=Blubber, M=Muscle, BL=Blood*)
 - * The sample number

Summary table for samples taken on cetacean number: _____

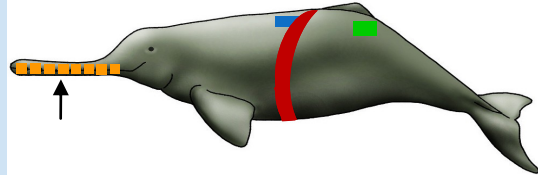
Once you have taken a sample and it is in the labelled plastic ziplock bag, tick it on the table below and write down the label used.

Sample	Need foil?	Label on ziplock plastic bag	Taken?
Skin 1	No	__/__/___-___- S1	
Skin 2	No	__/__/___-___- S2	
Blubber 1	Yes	__/__/___-___- B1	
Blubber 2	Yes	__/__/___-___- B2	
Muscle 1	Yes	__/__/___-___- M1	
Muscle 2	Yes	__/__/___-___- M2	
Teeth 1	No	__/__/___-___- T1	
Teeth 2	No	__/__/___-___- T2	
Blood 1	No	__/__/___-___- BL1	
Blood 2	No	__/__/___-___- BL2	

Sample	Recording in mm's	Taken?
Blubber thickness top	mm	
Blubber thickness middle	mm	
Blubber thickness bottom	mm	

8. Taking Samples - STEP 6: TEETH SAMPLES x 8

- Using pliers or the post-mortem knife, take out 8 teeth. (If the cetacean has only just died, it might be easier to take one whole lower jaw from the cetacean). (Fig.13)
- Put 4 teeth into each labelled plastic ziplock bag (labelled T1 and T2). (If the cetacean does not have 8 teeth, take as many as possible and put into 2 bags)
- Put each bag into another ziplock bag to prevent contamination.

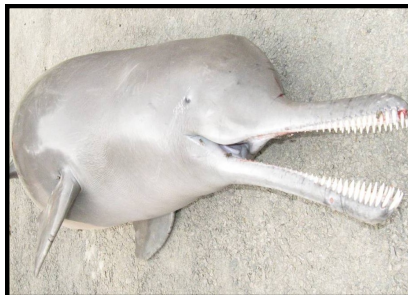


9. Storage of samples

- Place the 10 bags of samples (2 x skin, 2 x blubber, 2 x muscle, 2 x teeth, 2 x blood) into one large plastic ziplock bag and label with the date and the cetacean unique reference number.
- Make sure that all appropriate recording has been completed on this post-mortem field guide and fill in the summary table on the next page
- Place the bag of samples into a cool box or portable freezer if possible, otherwise try to keep as cold as possible.

10. Return from the field

- Freeze the samples at - 20oC until they can be analysed.
- Put all information from the post-mortem field guide onto an excel spread sheet for post-mortems in your region.
- Coordinate with the nearest suitable laboratory to store and analyse the samples.



7. Initial Measurements - STEP 1: SITE AND CARCASS DESCRIPTION

Species (if known): _____

Date:(dd/mm/yyyy) _____ / _____ / _____

Location: _____

Description of site: _____

Description of cetacean: _____

Post mortem completed by: _____

7. Initial Measurements - STEP 2: PHOTOGRAPHS

Take the following photographs:

- The area around the cetacean
- Left hand side
- Right hand side
- Left side of head
- Right side of head
- Teeth on the right jaw bone
- Top of the cetacean
- Bottom of the cetacean
- Just the genital slits
- Marks/scratches/holes
- Anything unusual

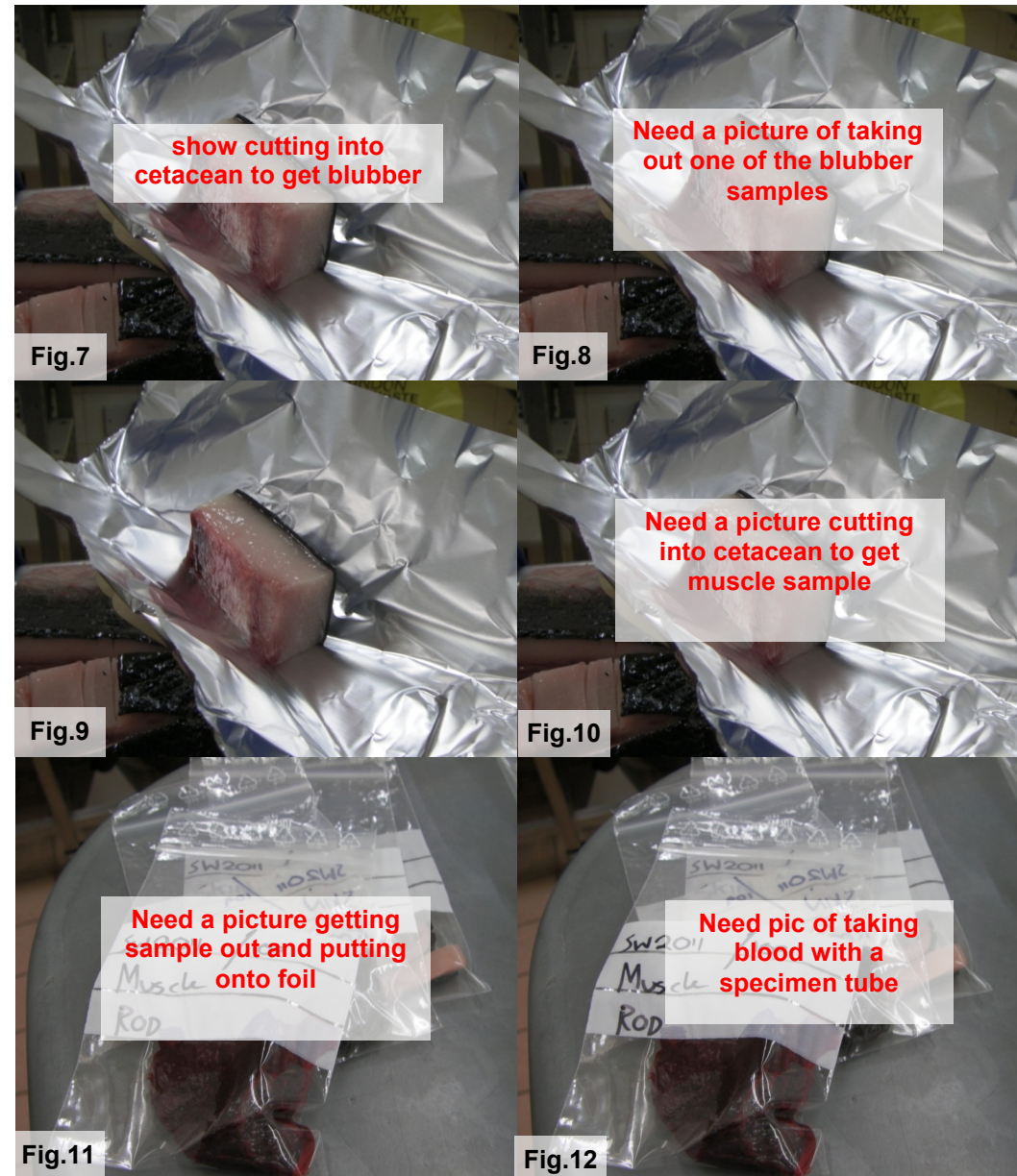
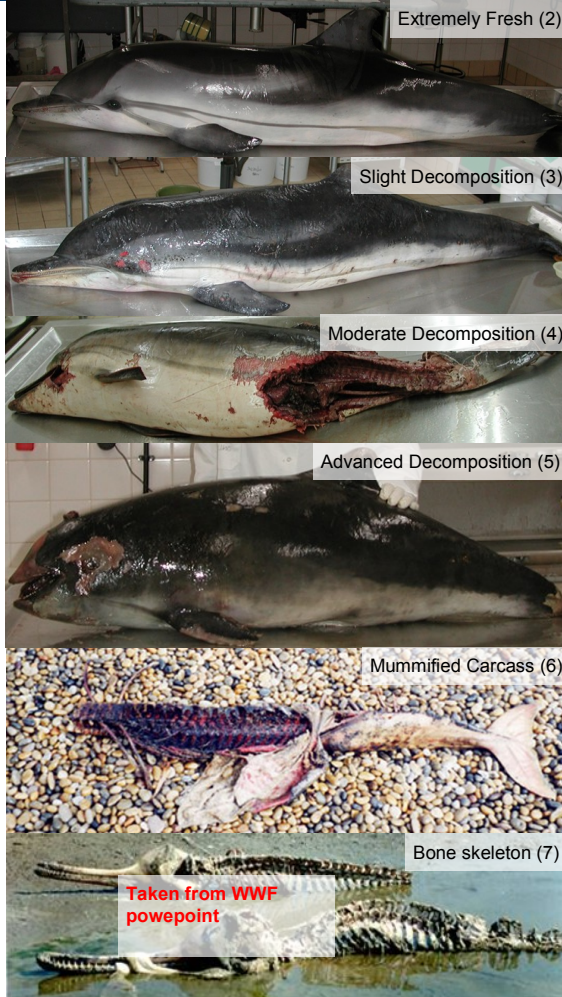


- Make sure the 15 cm ruler is included in every photograph to provide scale (see photograph).
- Take as many photographs of marks / wounds as you can.
- Hold the camera steady and use flash when it is dark.

7. Initial Measurements - STEP 3: CETACEAN CONDITION

Study the cetacean and choose **one** of the categories that best matches what the cetacean looks

- 1. Live**
(becomes code 2 at death)
- 2. Extremely fresh**
(just died, no bloating, little damage by scavengers)
- 3. Slight decomposition**
(slight bloating, blood moving into blubber, holes starting to form, skin cracked, some decomposition)
- 4. Moderate decomposition**
(bloated, skin peeling, penis may be extended, severe damage by scavengers)
- 5. Advanced decomposition**
(very bloated, skin peeling, holes in the body, some bones exposed, parts missing)
- 6. Mummified carcass**
(bones with skin around it)
- 7. Bone skeleton**
(only bones, no soft tissue)



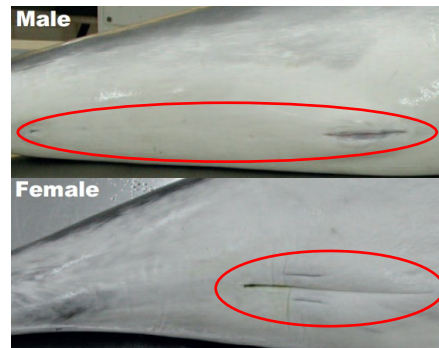
7. Initial Measurements - STEP 4: CETACEAN GENDER

You can tell the sex of a cetacean by looking at the genital slits underneath the body.

Male: has a long genital slit then a separate hole near the base of the tail (the anus).

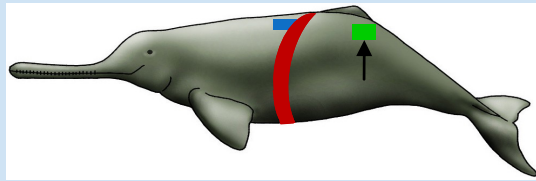
Female: has a long genital slit with 2 shorter slits either side of it (mammary glands).

Male — - **Female** = =



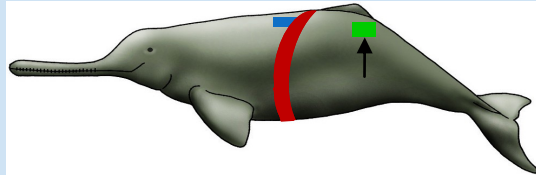
8. Taking Samples - STEP 3: BLUBBER SAMPLES x 2

- Cut a 5cm x 10cm rectangle (same size as the skin sample) just below and to the back of the dorsal fin. (Fig.7)
- When cutting: go deeper than before, make sure you are cutting at right angles to the body and go all the way to the muscle (red in colour).
- Take two 5cm x 5cm blubber samples from this rectangle (make sure it has skin on the top and a bit of muscle underneath) (Fig.8).
- Wrap each square of blubber in a separate piece of foil, to prevent it from being contaminated (Fig.9).
- Put each wrapped blubber sample into a labelled plastic ziplock bag (labelled B1 and B2).
- Put each bag into another ziplock bag to prevent contamination.



8. Taking Samples - STEP 4: MUSCLE SAMPLES x 2

- In the rectangular hole left from the blubber sample, cut out two 5cm x 5cm squares of muscle (both 3cm deep) (Fig.10).
- Take out and wrap each square of muscle in a separate piece of foil to prevent it from being contaminated (Fig.11)
- Put each into a labelled plastic ziplock bag (labelled M1 and M2). You will end up with two bags, each with a muscle sample in it.
- Put each bag into another ziplock bag to prevent contamination.

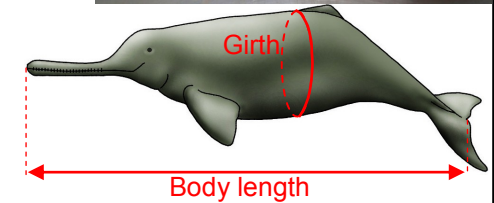


8. Taking Samples - STEP 5: BLOOD SAMPLES x 2

- Collect 20 ml of blood in two 10 ml plastic specimen tubes from where the muscle samples were taken (Fig.12)
- Label each tube (BL1 and BL2) and put each into a separate labelled plastic ziplock bag.

7. Initial Measurements - STEP 5: CETACEAN MEASUREMENTS

- Use the 10m measuring tape.
- **Body length:** measure beside the animal (not going along it's back) from the tip of its beak to the middle notch of its tail.
- **Girth:** place the tape perpendicular to the cetacean on the ground, roll the cetacean onto the tape, feed the tape underneath its stomach, then roll the cetacean back to an upright position to measure just before the dorsal fin (see photo).



Body length: _____ cm

Girth: _____ cm

7. Initial Measurements - STEP 6: NUTRITIONAL STATE

Stand at the front of the cetacean and look down towards it's tail. Choose a category which **best describes** how the body looks.

- 1. Good:** body is rounded and the cetacean looks healthy.
- 2. Medium:** top of the body is flattened.
- 3. Poor:** top of the body looks hollow, may be able to see the outline of some ribs.
- 4. Too decomposed:** the body is very bloated and decomposed, so you cannot tell the nutritional state.



From this point onwards, the field guide describes how to take **tissue samples** from the cetacean. If the cetacean is too decomposed to cut into, please move to STEP 5 of this section.

8. Taking Samples - STEP 1: BLUBBER THICKNESS MEASUREMENT

- Lie the cetacean on its right hand side.
- Cut a vertical line down the left hand side of the body, from just in front of the dorsal fin (at the top) to the bottom of the cetacean (Fig.1).
- Cut a second line 2cm beside it (so that it is parallel) and cut the top and bottom of this to make a long rectangle.
- Pull out this long rectangle of blubber, detaching it from the muscle as you go (Fig.2) and lay it on top of the cetacean or on the clean piece of fabric.
- Measure and record the thickness of the blubber (white section) in 3 places: 5cm from the top of the rectangle, in the middle of the rectangle and 5cm from the bottom of the rectangle (Fig.3).
- Record this in the table on the last page.

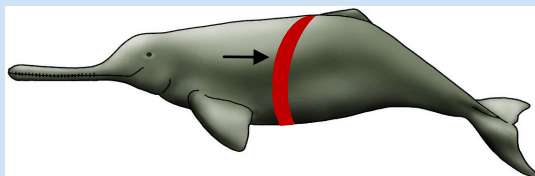


Fig.1



Fig.2



Fig.3



Show cutting out the 5cm x 10cm rectangle with skin on

Fig.4



Show 1 skin sample being taken off

Fig.5



Show bagged up skin sample

Fig.6

8. Taking Samples - STEP 2: SKIN SAMPLES x 2

- Go to the top left hand side of the rectangle of muscle left on the cetacean that was exposed after the blubber thickness measurement.
- Cut a 5 cm x 10cm rectangle beside the exposed muscle towards the cetaceans head (Fig.4)
- Take 2 skin samples by lightly cutting this 5cm x 10cm rectangle in half to make two 5cm x 5cm skin samples (Fig.5).
- Carefully put each skin sample into a labelled plastic ziplock bag (labelled S1 and S2). You will end up with two bags, each with a skin sample. (Fig.6)
- Put each bag into another ziplock bag to prevent contamination.

