

# **DRAFT**

# **Programmatic Environmental Assessment**

for  
Fisheries Research Conducted and Funded by the  
Northeast Fisheries Science Center

**December 2014**

## **Appendix D**

### **Northeast Fisheries Science Center Protected Species Biological Sampling Guide**



**Prepared for the National Marine Fisheries Service by:**

**URS Group**

**700 G Street, Suite 500**

**Anchorage, Alaska 99501**



# **Northeast Fisheries Science Center Protected Species Biological Sampling Guide<sup>1</sup>**

<sup>1</sup> Excerpted from Northeast Fisheries Science Center Observer Program Biological Sampling and Catch Estimation Manual 2013; 16 December 2013



## STURGEON SAMPLING

### Genetic Sample Collection Instructions

#### For all sturgeons

1. Photograph, including something for scale
2. Biosample<sup>1</sup>:  
Cut the tip of the dorsal fin off to about the size of a dime  
Place sample in vial (one vial per fish)  
Put parafilm around each cap to prevent leaking  
Label each vial with the following:  
TRIPID,  
Haul number, and  
IAL sequence number

Wipe knife clean between samples to avoid cross contamination, using a clean cloth or paper towel  
Store samples at room temperature and send in with your trip

3. Scan for PIT Tags on entire sturgeon (if issued a PIT tag scanner) If present, record the PIT tag number in the tag number field on the Individual Animal Log
4. See *Sturgeon Identification* cheatsheet for more details on identification and photograph requirements.

#### Photographs to take

- Whole fish in profile
- Underside of head (mouth)
- Top of head
- Post-dorsal fin lateral view
- Post-dorsal fin dorsal view
- Post-anal scutes ventral view
- Any wounds, marks, scars, or damage

**Figure 23:** Atlantic Sturgeon on deck.



<sup>1</sup> Sampling permits not effective as of date of printing. Please reference the most recent sturgeon sampling memos for up-to-date information.

## Recording Sturgeon on the Individual Animal Log

1. Obtain a measured fork length and actual weight, if possible
2. **Provide detailed ID characteristics in the comments section**, as well as detailed description of animal condition (*e.g.*, injuries, bruises)
3. If a DNA sample was taken, BIOSAMP (Y/N) should be marked as 1 (Yes)
4. Record the presence or absence of tags (including PIT tags),  
If present, record tag number and tagging program name and contact information  
In comments, record whether or not a sturgeon was scanned, regardless of the presence/absence of a PIT tag

### ID Characteristics to Note

- Width of inside lips compared to interorbital width
- Presence/absence of bony plates between base of anal fin and lateral row of scutes
- Presence/absence of body plates post-dorsal fin above lateral plates
- Complex/simple pattern of ventral post-anal scutes/plates

**NOTE:** In 1994, sturgeon were stocked in the Hudson River, New York. These fish were marked by removing their left pelvic fin. Today these fish would be near 6 feet in length. Should you come across a large sturgeon that is missing its left pelvic, in addition to the above protocols, please photograph the missing fin and comment on the Individual Animal Log.

## STURGEON SAMPLING

## MARINE MAMMAL SAMPLING PROTOCOLS

### Precautions When Handling Marine Mammals

Marine mammals can carry microbes which may cause illness in humans and other animals.

#### Safety measures to prevent illness and infections

- Use common sense!
- Wear gloves and other protective gear when handling animals and specimens.
- Wash hands and areas of contact thoroughly after contact.
- Clean/wash gear thoroughly after each use.
- Report any animal bite, scratch, or other significant exposure to marine animal blood, saliva, or excretions.
- Tell your physician that you work with marine animals

### Marine Mammal Samples

Minimum sampling requirements should always be collected. **Whole animals** should be collected whenever possible. If whole animal cannot be retained, collect **head/jaw**.

Sample priorities after collection of above tissue when additional sampling is feasible should be:

stomach	fetus
blubber	kidney
muscle	heart
liver	

On ASM trips, no samples are required. However, whole samples may be retained as time and space allow.

- Live animals:
1. Photograph and video
  2. Describe identifying characteristics and condition, including any visible wounds
  3. Release and comment on behavior and any gear remaining on animal

**DO NOT TAG LIVE ANIMALS**

- Dead animals:
1. Collect DNA Sample (2"x2") from trailing edge of dorsal fin (cetaceans) or rear flipper webbing (pinnipeds)  
*See Submitting Large Samples on page 36*
  - \*2. Tag, using **yellow** marine mammal carcass tag  
Apply around tail stock (cetaceans)  
or hind flipper (pinnipeds)
  - \*3. Photograph, including something for scale
  - \*4. Describe identifying characteristics and condition, including any visible wounds
  5. Collect Body Measurements (shown on next page):  
7 for cetaceans (bottlenose = 11), 4 for pinnipeds
  6. Collect Body Temperature
  7. Determine Sex
  - \*8. Release and comment on behavior (e.g., sank immediately) and any gear remaining on animal

**ASM Trips:** Complete only steps marked with an asterisk (\*)  
(tag, photograph, describe, release)

**Tagged animals (alive or dead):** record tag number and photograph, if possible

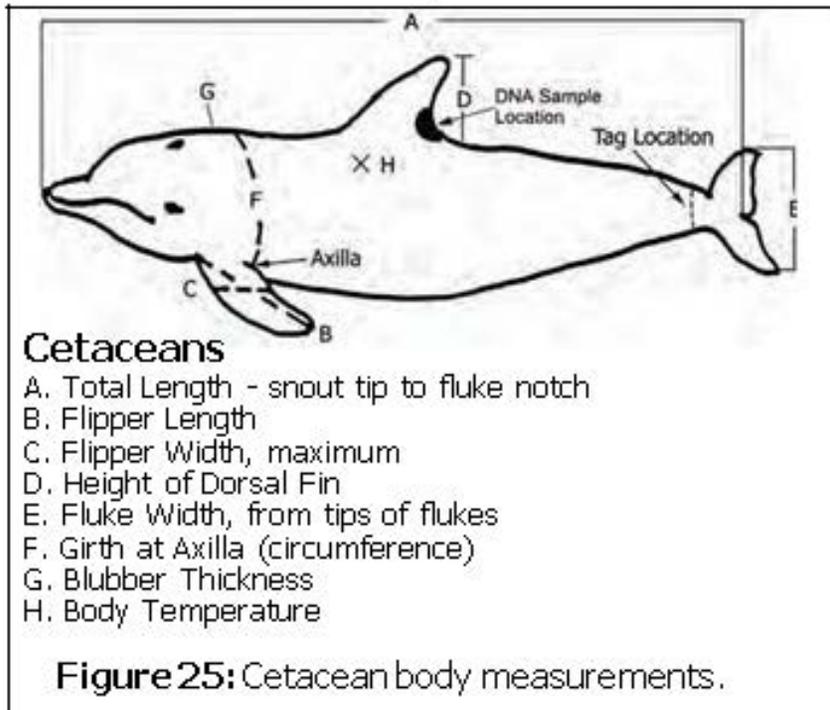
- Photographs to take
- ← Entire animal on **all** sides
  - ← Close-up of gear entanglement
  - ← Close-ups of the head and teeth
  - ← Genital area
  - ← Any wounds, marks, scars, or damages
  - ← Close-up of dorsal fin on both sides (cetaceans)
  - ← Any tags, new or existing



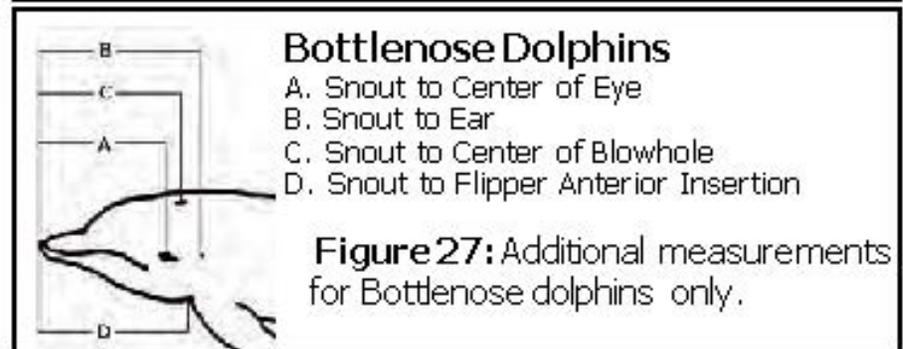
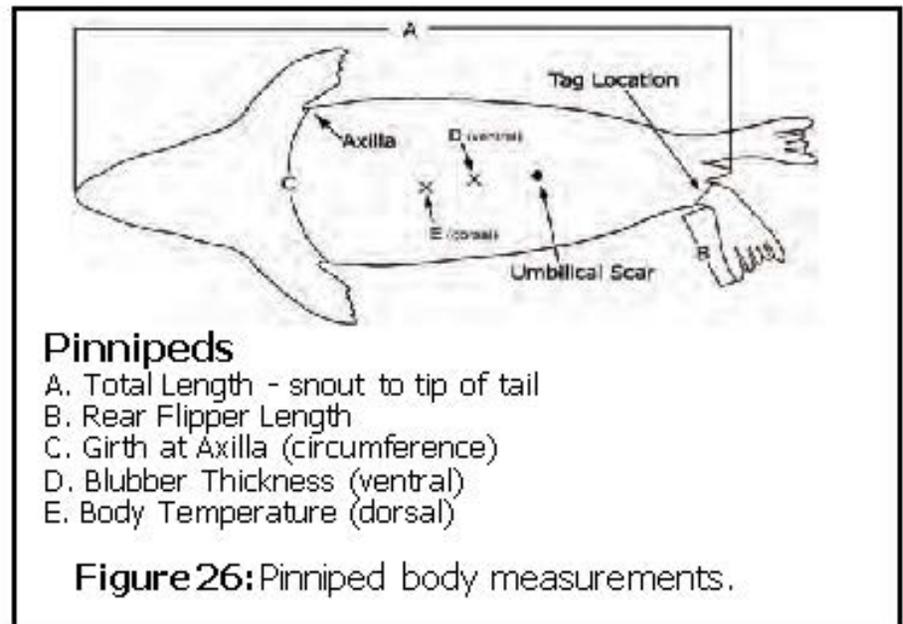
## MARINE MAMMAL SAMPLING PROTOCOLS

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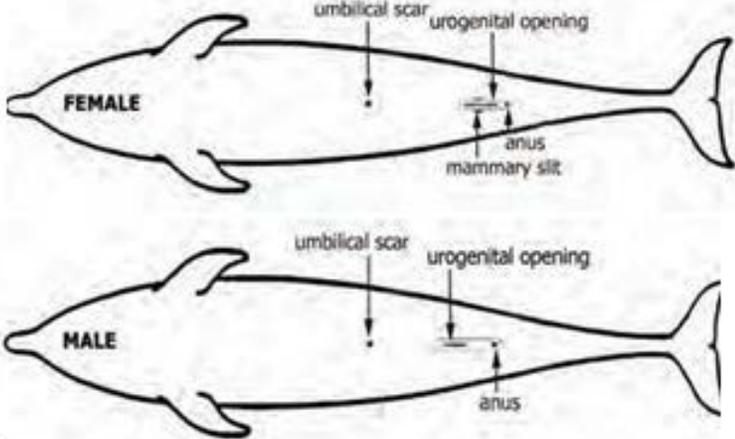
### Marine Mammal Body Measurements



All measurements must be taken in a straight line (*i.e.*, not curved with the body) except girth  
Blubber thickness: include skin layer  
Body temperature: insert probe about 1" deep



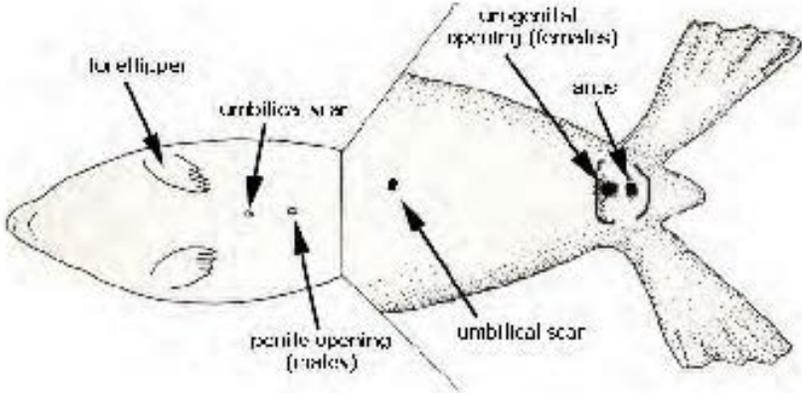
## Marine Mammal Sex Determination



The diagram shows two cetaceans, a female and a male, from a dorsal perspective. The female is labeled 'FEMALE' and has an umbilical scar, a urogenital opening pointing forward, an anus, and a mammary slit. The male is labeled 'MALE' and has an umbilical scar, a urogenital opening pointing backward, and an anus.

**Cetaceans**  
Probe the urogenital opening  
Female: forward, towards the head  
Male: backward, towards the fluke

**Figure 28:** External sex characteristics of cetaceans.



The diagram shows a pinniped from a dorsal perspective with its rear flippers stretched wide apart. Labels include: foreflipper, umbilical scar, urogenital opening (females), anus, penis opening (males), and umbilical scar.

**Pinnipeds**  
Stretch the rear flippers very wide apart at base of tail  
Look inside the outer (urogenital) opening  
Female: 2 distinct inner openings (anal and vaginal)  
Male: 1 inner opening (anal)

**Figure 29:** External sex characteristics of pinnipeds.

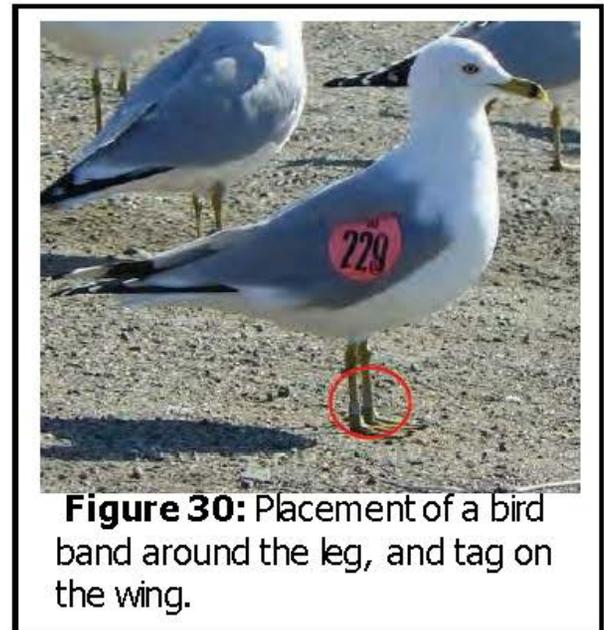
## MARINE MAMMAL SAMPLING PROTOCOLS

## SEA BIRD SAMPLING PROTOCOLS

- Live animals:
1. Photograph and video
  2. Describe identifying characteristics and condition, including any visible wounds
  3. Check for the presence of bands  
Record band number and photograph, if possible
  4. Release and comment on behavior and any gear remaining on animal  
Release away from gear, with vessel slowed  
Lower bird by hand as close to water as possible, releasing hold of the head last

- Dead animals:
1. Photograph, including something for scale
  2. Describe identifying characteristics and condition, including any visible wounds
  3. Check for the presence of bands  
Record band number and retain, if possible
  4. Retain whole seabird, if possible  
Only retain 'dead, fresh' animals; otherwise release
- NOTE:** If birds cannot be retained whole, collect 20-30 breast feathers ('dead, fresh' animals only). Samples should be bagged and labeled with Tyvek tags (see page 36).

- Photographs to take
- Overall dorsal
  - Overall ventral
  - Close-up of beak/head
  - Any bands or tags
  - Any wounds, marks, scars, or damage



## SEA TURTLE SAMPLING PROTOCOLS

### Sampling Requirements (all turtles)

1. Photograph and video, including something for scale
2. Describe identifying characteristics (see box at right) and condition, including any visible wounds
3. Check for the presence of tags  
Record tag number and photograph, if possible
4. Body Measurements (3, curvilinear)
5. Biopsy/tissue (genetic) sample  
*Live Animals:* Biopsy (if >25 cm notch-to-tip)  
*Dead Animals:* Retain whole animal, if possible; otherwise biopsy
6. Tag with Inconel tag(s) on rear flipper(s)  
*Live Animals:* 2 tags (if >26 cm notch-to-tip)  
*Dead Animals:* 1 tag
7. Scan for PIT tags on flippers and all soft tissues  
(if issued a PIT tag scanner)
8. If alive or comatose, attempt resuscitation  
If obviously dead (*e.g.*, damaged shell, severely wounded),  
release

**ASM Trips:** Complete only steps 1, 2, and 3 (photograph, describe, check for tags, resuscitate/release)

#### Photographs and video to take

- Close-ups of head:
  - Pre-frontal scute pattern
  - Top of head
  - Each side (left/right)
- Overall dorsal
- Overall ventral
- Any bands or tags
- Any wounds, marks, scars, or damage

#### Identification Criteria

- Vertebral scute count
- Lateral scute count
- Inframarginal scute count
- 1 pair of prefrontal scales?
- Overlapping scutes?
- Dorsal Color

## SEA TURTLE SAMPLING PROTOCOLS

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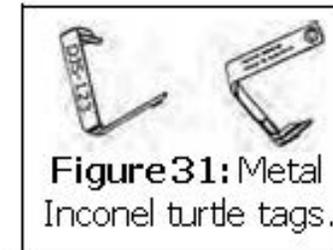
### Inconel Tag Location

Tag along trailing edge of rear flipper

*Leatherback Turtles:* 5cm (~2") from base of tail

*All Other Turtles:* soft tissue between body and first scale

Approximately 1/3 of the tag should overhang body after it is attached



**Figure 31:** Metal Inconel turtle tags.

### Biopsy Location

Just outside (away from the body) of the tag location

One crescent shape biopsy per rear flipper (2 total)

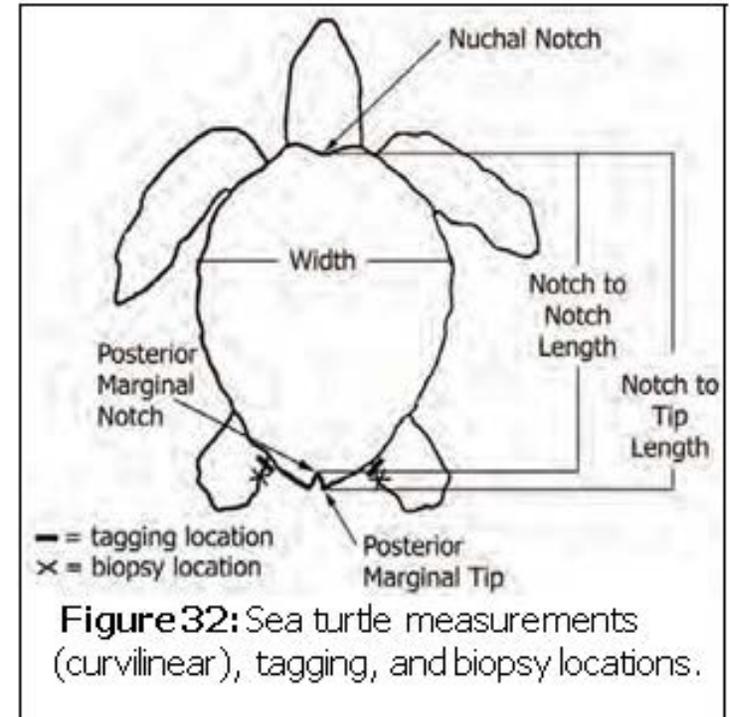
### Other Tags

*Dead Turtles ONLY*

Metal Inconel tags: record tag number and information, leave on animal.

Any other tag (metal, plastic, satellite, etc.): remove from the animal and retain.

Tag number and information should still be recorded for all tags.



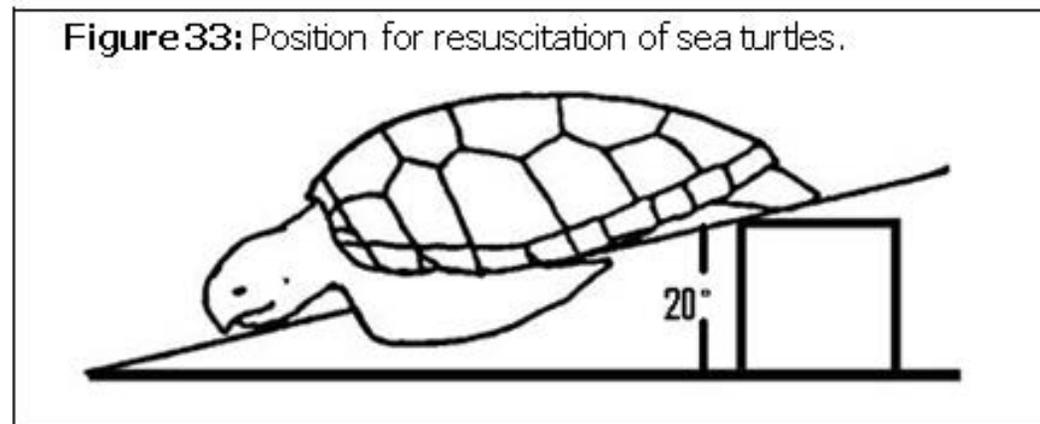
**Figure 32:** Sea turtle measurements (curvilinear), tagging, and biopsy locations.

## Resuscitation

Resuscitation must be attempted on sea turtles that are comatose or inactive, but not dead. **Do not assume that an inactive turtle is dead.** The onset of rigor mortis is often the only definitive indication that a turtle is dead.

1. Place the turtle right side up (on the bottom shell or plastron)
2. Elevate the hindquarter 20° for a period of 4 up to 24 hours
3. Protect from environmental conditions
4. Periodically rock the turtle from side to side (left to right) by holding the outer edge of the carapace and lifting one side about 3 inches.
5. Reflex Test: Lightly touch the upper eyelid, soft tissues surrounding the nose, or pinch the tail or flippers periodically to see if there is a response

Those that revive and become active must be **released over the stern** of the boat when **fishing gear is not in use**, when the **engine gears are in neutral** position, and in areas where they are unlikely to be recaptured or injured by fishing gear or vessels. Sea turtles that fail to respond to the reflex test or fail to move within several hours (up to 24, if possible) should be returned to the water in the same manner.



## SEA TURTLE SAMPLING PROTOCOLS

