



NECROPSY EXAMINATION REPORT

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CCSN Number: CCSN04-191-Dd

Accession Number: NA

Tag#: NA

Species: *Delphinus delphis*

Storage prior to necropsy: 40°F(chiller)

Date of death: 09/06/04 (12:25)

Recovery Date: 09/06/04

Necropsy Date: 09/08/04 (07:58)

Sex: F **Length:** 207 cm **Age (est):** adult

Weight: 80 kg **Condition:** 1 (euth)

Lat./Long.: 41 37.59 N/ 70 19.11 W

Location: Squaw Island, Hyannisport

HISTORY-

Animal stranded at Squaw Island, Hyannisport, MA. Animal was moving in small circles, rolling and listing to the right side. The animal made an odd sound – vocalized pig roaring sound. The animal was euthanized at 12:25. Blood sampling occurred before and after euthanasia. At 15:00, the animal was transported to the Shore Lab



at the Woods Hole Oceanographic Institution (WHOI) and placed into the chiller (40°F) with head in grey bucket and garbage bags of ice surrounding head.

On 09/07/04 at 13:00, the animal was transported (head on ice) to the CT facility at WHOI, and a CT was performed on the head, ears, and whole body. At 16:40, Eric Montie from WHOI transported the animal (w/ head in grey bucket and garbage bags of ice surrounding head) to the Massachusetts Eye and Ear Infirmary (MEEI) at Massachusetts General Hospital (MGH) for MR imaging on a

Siemens Volume Zoom, 4 row detector, 1.5 Tesla machine. The MRI was completed from 19:09 – 21:42.

The animal (with ice on head) was then transported to the Shore Lab (WHOI) and placed into the chiller (40°F) with ice surrounding head on 09/08/04 at 00:30. The necropsy commenced on 09/08/04 at 07:58.

For details of blood sampling, CT and MR imaging, and necropsy sampling for E. Montie, see Appendix 1

NECROPSY OBSERVATIONS

External exam

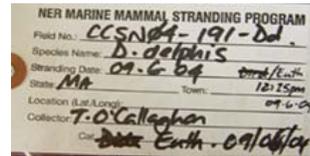
Body condition: Slightly thin. Healed pox-like marks on right lateral side of hourglass marking (see lesions).



Integument: Rake marks cover various areas all over body. Superficial (see wounds).

Hair: NA

Nostrils/Blowhole: clear, NSF.

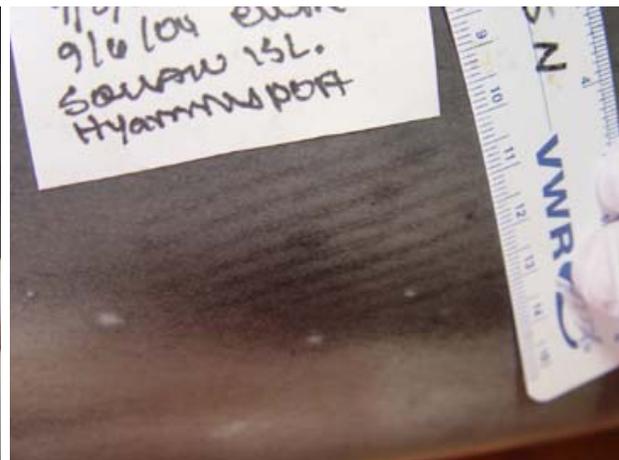
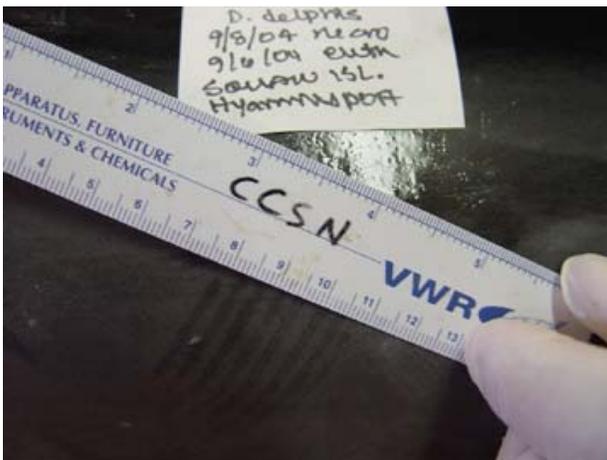


Mouth: Small raised lesions (3) on upper right lip (see lesions). Sampled in 10% NBF. Otherwise NSF.

Eyes: NSF

Ears: NE internally- skull and skeleton retained. External pin hole NSF.

Wounds: Several superficial rake marks over various areas of body.

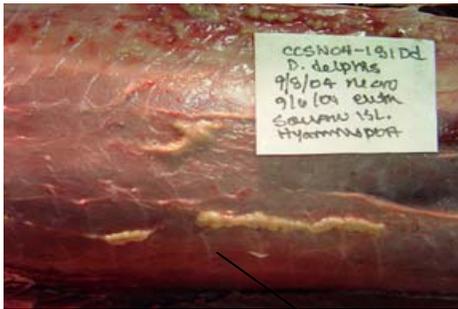


Lesions: Mouth: Total of 4 raised bump lesions only on right side of mouth on the upper lip. One appears ulcerated while the others appear healed. Healed pox-like lesion marks on the right side of the body along the hourglass marking. Several small ½ cm in diameter marks are dark around the edge and lighter white in the center.



Musculo/Skeletal System

Blubber: Creamy white, normal blubber layer. Thin with no hemorrhaging. Copious amounts of phyllobothrium in the blubber layer around the genital opening and mammary slits. Possible parasite also found beneath blubber layer lateral to dorsal fin on left side. Elongated, cream colored with distinct elongated worm like form. Some of these forms appear to consist of small round bubble forms connected together. There was only one area in the blubber where this was found.



Muscle: NSF. Dark red, healthy, not tacky.

Diaphragm: NSF, dark maroon.

Skeletal: NSF.

Circulatory System

Pericardium: Intact, clear- NSF.

Heart: NSF. Clotted blood present, normal. No serum clots.

Vessels: NSF

Pulmonary System

Trachea: No contents, tissue white, NSF

Bronchi: Mucus present in bronchioles going to left lung. Left lung also collapsed, dark red. Blood present in lower bronchioles.

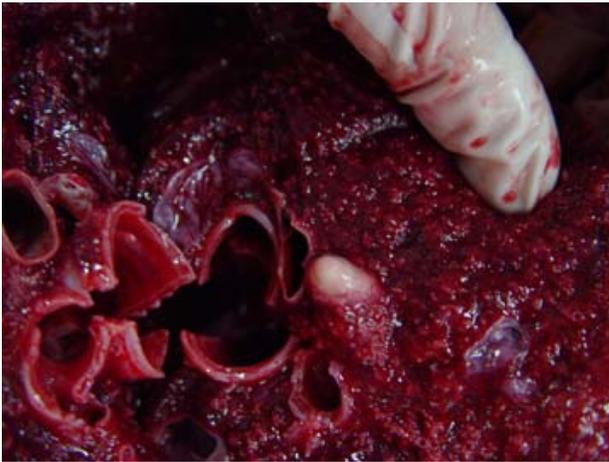
Lungs: Left lung is collapsed, dense, dark red and contains small white nodular cyst like growths. Most likely encysted lung worm; 7 present in left lung. Most are on the surface of the left lung. No consolidation present. The right lung is spongier, more normal in texture and color (pink). Cyst-like capsules also present in right lung which are more internal than on the left lung; 6 present. Right lung emphysematous in texture “rice crispy crunch”.



Collapsed left lung with scalpel pointing to white nodules



White nodule inside left lung in the upper layer of parynchyma of lung is solid, cartilaginous in texture.



Encapsulated nodule in right lung along the bronchiole leading into the lung.



Same nodule in right lung showing spongy normal tissue in comparison to collapsed right lung.

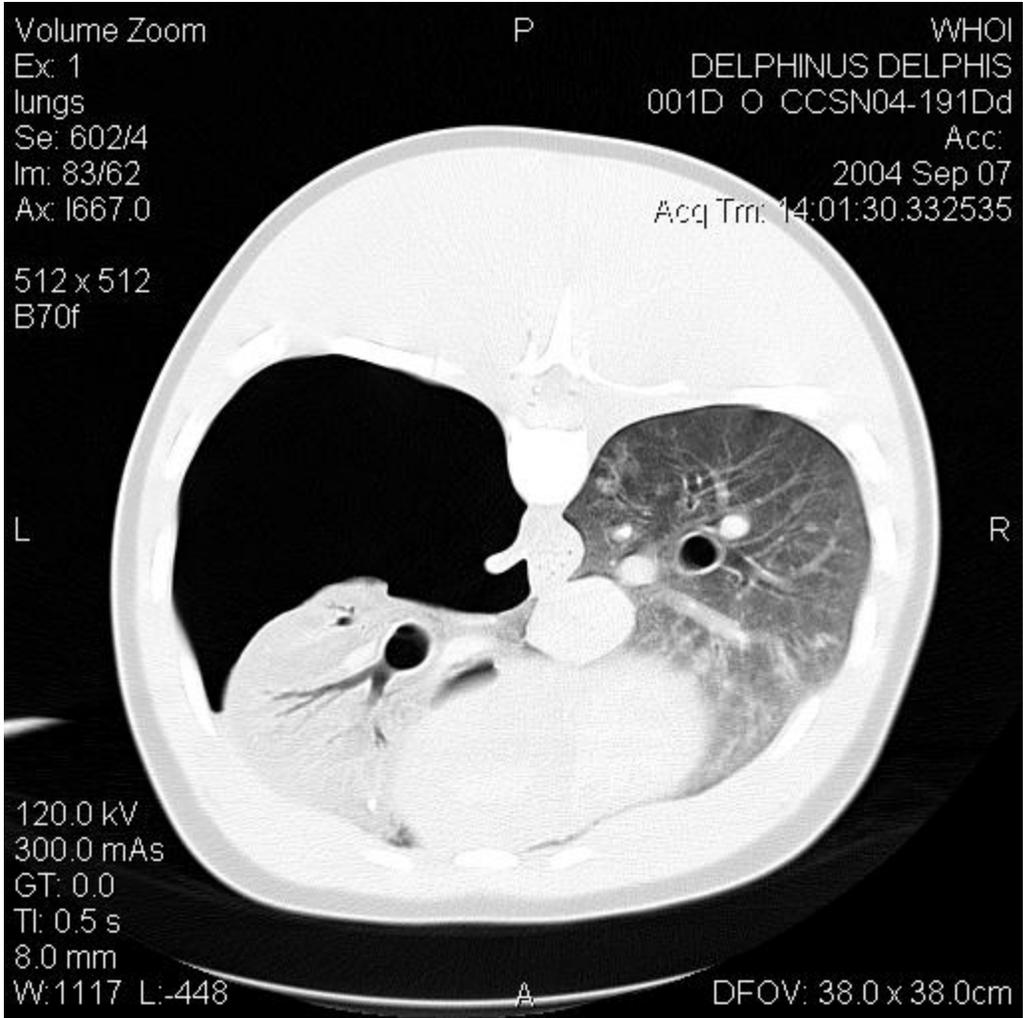


Figure. CT image depicting collapsed left lung. (CT images provided by Eric Montie, MIT/WHOI)

Gastro Intestinal System

Esophagus: Completely dry tissue. No contents. Tissue NSF.

Stomach: Forestomach- very clean, white internally no contents. Main stomach is empty as well, dark purple in color internally. Pyloric stomach filled with liquid (not opened).

Intestine: Copious amount of brown liquid present through the upper intestine, to the mid intestines near the mesenteric lymph. No hard parts found. Mucous coating in small intestines, small off white to brown oval spots within mucous.

Colon: Mustard yellow coating internally.

Liver: 2659.2 g. NSF. Color brown/maroon normal throughout. No significant findings in tissue or portal veins.

Gall Bladder: NA

Pancreas: NSF. Pink, chewing gum texture and color.

Urinary/Reproductive Systems

Kidneys: Good differentiation of medulla and cortex and each reniculi. Firm, not reactive. The reniculi of the right kidney appear slightly less attached to each other than in the left.

Bladder: Empty, tissue NSF pink/cream color.

Ovaries/Testes: Ovaries look immature- both small and equal in size. Pale white throughout. Monorygma along side the uterus, appears as if denting the uterus.

* Mammarys: dark mustard brown color in both mammarys. Retained in histo suites.

* Uterus- tissue inside uterus contains raised tissue/bumps- saved in histo with ovary samples for A. Westgate.

Lymphatic System

Spleen: NSF, small (appx. 4 cm diameter) round dark purple in color. Inside tissue normal.

Scapular Lymph node: NE

Mesenteric Lymph node: Slightly reactive; yellow tinge internally with a slight darker gray color than expected externally.

Endocrine System

Adrenals: R- not found.

L- 4.5 cm l x 1.8 cm w x 0.5 cm h. Unusually glossy. Appears slightly reactive internally. Very distinct differentiation between medulla and cortex. Pin point center.

Thyroid: Dark red

Central Nervous System

Spinal cord: White and firm.

Brain:

MRI Exam

A Fast Spin Echo provided T2 weighted MR images that suggested a necrotic region with dimensions 0.7 cm x 0.4 cm located in the ventral region of the left thalamus (see Figure). Little CSF fluid noted in MR images. For details of the MR exams and acquisition protocols, see Appendix 1.

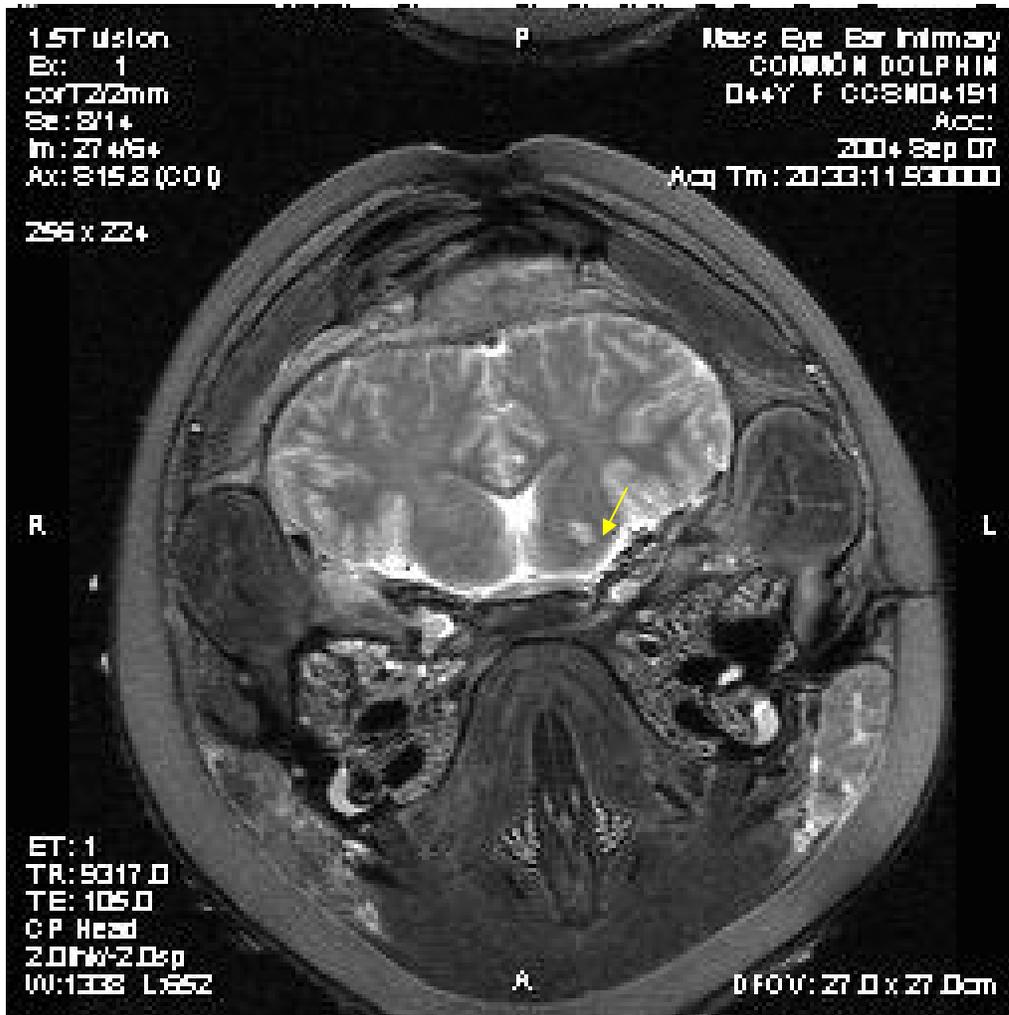


Figure. A T2 weighted MR image. The yellow arrow indicates a possible necrotic region of the left thalamus. (MR images provided by Eric Montie, MIT/WHOI).

External Exam

CSF sample attempted. Some fluid collected (approximately 4 mL). The fluid had a reddish tinge. The external exam of the brain appears normal. Total brain weight = 936.0 g.



Internal Exam

The brain was sectioned in the coronal plane, 1-2 cm in thickness from rostral to caudal (see Appendix 3 for details) (Figure). Section #6 revealed a yellow, necrotic region in the ventral part of the left thalamus (see Figure). A sample was collected for histopathology.



Figure. The brain was sectioned into 13 slices. The sectioning was completed in the coronal plane, 1-2 cm in thickness from rostral to caudal (see Appendix 3 for details). Section #6 contained the necrotic region. (*Brain sectioning completed by Eric Montie, MIT/WHOI*)

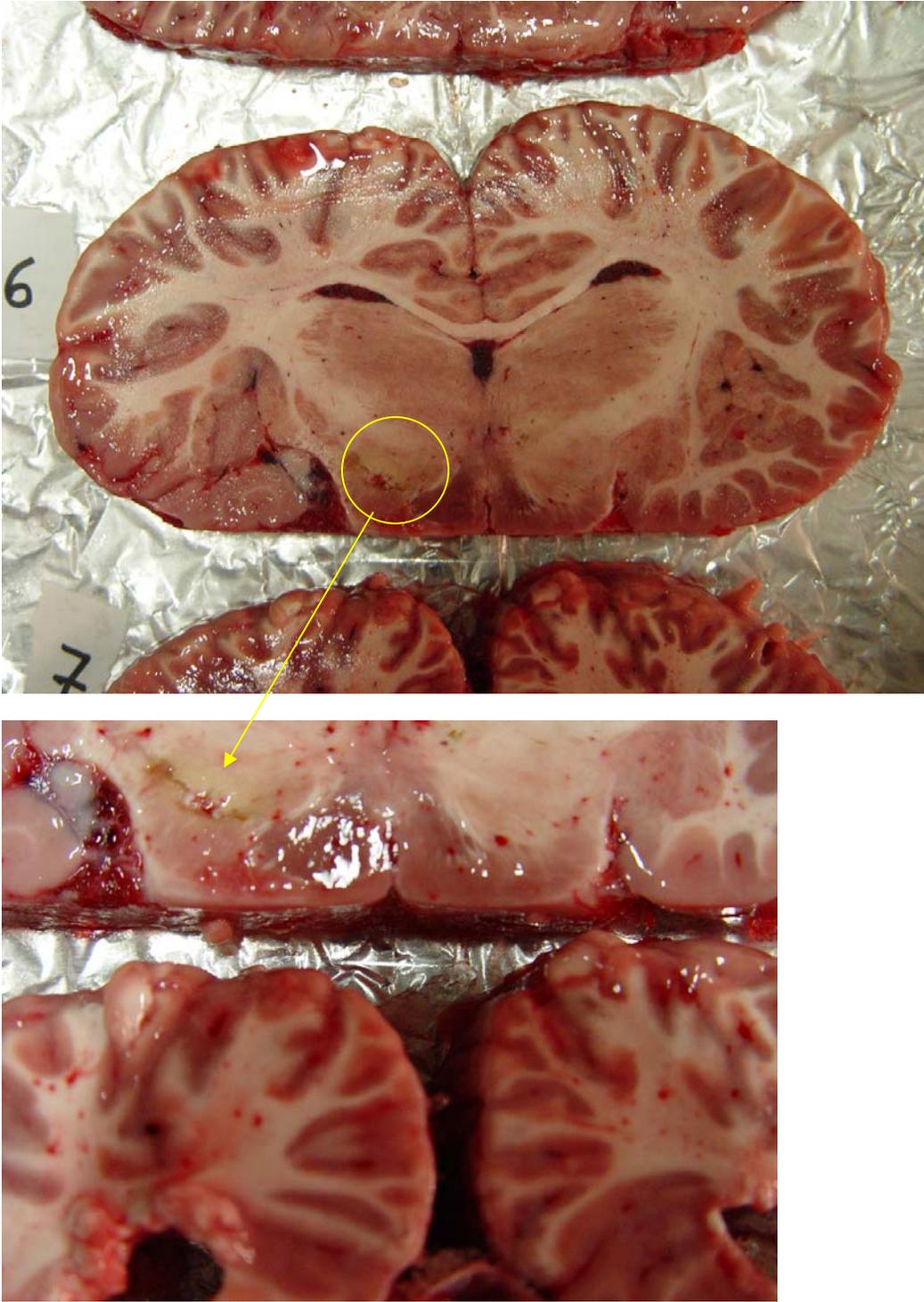


Figure. Yellow, necrotic region in ventral part of left thalamus.

Pterygoid Sinus: High load of *Nasitrema* spp. in both right and left pterygoid sinus with brown fluid throughout. Fluid and parasites lead distally extending through to the upper jaw and cavity above palate.

Other

Peritoneal cavity: NSF

Retroperitoneal tissue:
emphysematous.

Thoracic cavity: NSF

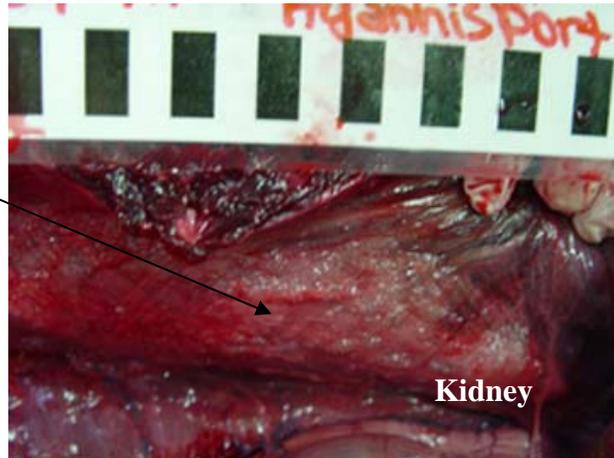
Parasites

Monorygma present at lower GI, reproductive area and bladder.

Phyllobothrium copious (high load) only around blubber layer at genital slit and anal region.

Nasitrema spp. in right and left pterygoid sinus cavities.

Encysted lung worm in both right and left lungs.



SUMMARY/Differential Diagnosis from Gross Exam:

This animal was euthanized due to its poor health at the time of stranding. The collapsed left lung could explain the “listing to one side” and “guttural roaring sound” observed pre-mortem. It is not clear whether the nodules/parasites found in the lung contributed to the condition of the lung, as only one was collapsed and nodules were found in both. The emphysematous tissue and yellow mucus in the lung provide evidence for some type of respiratory infection. The severe load of parasites in the pterygoid sinuses could also contribute to the behaviours noted at stranding as could the lesion found in the brain. Final diagnosis pending upon histology results and parasite I.D.

CARCASS DISPOSITION:

Skeleton for T. French

Soft Tissue for Baker Commodities

PROSECTORS (list)

Andrea Bogomolni

Necropsy Coordinator

Cape Cod Stranding Network, Inc. (CCSN)

Eric Montie
Joint Program PhD Candidate
Massachusetts Institute of Technology / Woods Hole Oceanographic Institution

Misty Nelson
NMFS / CCSN volunteer

SAMPLES/Disposition
(See attached list for CCSN Archive)

1. **E. Montie**- See attached form for additional samples collected.
2. **E. Teuten and Chris Reddy** - All blubber 11 kg
3. **A. Westgate**- Teeth frozen, skin frozen, blubber frozen and both ovaries in 10% NBF- left notched.
4. **Mass Histo** – Suite and left hemisphere histology samples to be sent out.
5. **E. Meagher**- Morphometrics data sheet
6. **R. Williams** – Parasites in ETOH.
7. **T. O’Callaghan**- Fluke, flippers, dorsal fin for tagging study w/ Jim Rice NEAQ

PHOTOS/VIDEO

Roll#	Frames:	Description:
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		CCSN Shore lab digital photos
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		CT and MR images (E. Montie, WHOI).
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ASSOCIATED DATA SHEETS

1. **Cetacean data record.**
2. **Human Interaction Protocol**
3. **Necropsy examination report (hand written notes)**
4. **CCSN sampling inventory sheet**
5. **Eric Montie (from WHOI) sample collection form**
6. **5 separate pages of notes: 1) Notes on plasma sampling and MRI; 2) Notes on brain sectioning; 3) Notes on sample list for Eric Montie.**

Montie Sample Ids, CCSN04-191Dd, 09/06/04 - 09/08/04

WHOI #	SPECIES	SOURCE	TISSUE	FIELD ID	SAMPLE DATE	SAMPLE COMMENTS	SAMPLE VIAL	STORAGE	SAMPLE LOCATION	USE
EWM04-0243	D. delphis	CCSN	Plasma	CCSN04-191Dd	09/06/04	stranding	15mL Teflon vial	-80	Hahn -80; bottom shelf	chem analysis
EWM04-0243	D. delphis	CCSN	Plasma	CCSN04-191Dd	09/06/04	stranding	5mL cryovial	-80	Hahn -80; bottom shelf	Hormone analysis
EWM04-0243	D. delphis	CCSN	Red blood cells	CCSN04-191Dd	09/06/04	stranding	Green tube in falcon	-80	Hahn -80; bottom shelf	Chem analysis
EWM04-0243	D. delphis	CCSN	red blood cells	CCSN04-191Dd	09/06/04	stranding	green tube in falcon	-80	Hahn -80; bottom shelf	chem analysis
EWM04-0243	D. delphis	CCSN	skin-blubber	CCSN04-191Dd	09/08/04	stranding	20mL vial	10% NBF	Shore lab; my formalin box	histology / IHC
EWM04-0243	D. delphis	CCSN	skin-blubber	CCSN04-191Dd	09/08/04	stranding	Aluminum foil	-80	Hahn -80; bottom shelf	biochem / mol
EWM04-0243	D. delphis	CCSN	Blubber	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem analysis
EWM04-0243	D. delphis	CCSN	Blubber	CCSN04-191Dd	09/08/04	stranding	Aluminum foil	-80	Hahn -80; bottom shelf	chem analysis
EWM04-0243	D. delphis	CCSN	CSF	CCSN04-191Dd	09/08/04	stranding	7 mL Teflon vial	-90	Hahn -80; bottom shelf	Chem analysis
EWM04-0243	D. delphis	CCSN	thyroid gland	CCSN04-191Dd	09/08/04	stranding	20mL vial	10% NBF	Shore lab; my formalin box	Histology / IHC
EWM04-0243	D. delphis	CCSN	thyroid gland	CCSN04-191Dd	09/08/04	stranding	Teflon bag	-80	Hahn -80; bottom shelf	Chem analysis
EWM04-0243	D. delphis	CCSN	thyroid gland	CCSN04-191Dd	09/08/04	stranding	Aluminum foil	-80	Hahn -80; bottom shelf	Biochem / mol
EWM04-0243	D. delphis	CCSN	Liver	CCSN04-191Dd	09/08/04	stranding	20mL vial	10% NBF	shore lab; my formalin box	Histology / IHC
EWM04-0243	D. delphis	CCSN	Liver	CCSN04-191Dd	09/08/04	stranding	Aluminum foil	-80	Hahn -80; bottom shelf	Chem analysis
EWM04-0243	D. delphis	CCSN	Liver	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	Chem analysis
EWM04-0243	D. delphis	CCSN	Liver	CCSN04-191Dd	09/08/04	stranding	Aluminum foil	-80	Hahn -80; bottom shelf	mol /biochem
EWM04-0243	D. delphis	CCSN	Frontal cortex	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Cerebellum white	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Cerebellum grey	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Corpus call / choroid	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Hippocampus	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Hypothalamus	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Pituitary gland	CCSN04-191Dd	09/08/04	stranding	teflon bag	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 03	CCSN04-191Dd	09/08/04	stranding	Aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 04	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 05	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 06	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 07	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 08	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain sect 09	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Whole brain 11-13	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	chem / mol /biochem
EWM04-0243	D. delphis	CCSN	Lesion - L thalamus	CCSN04-191Dd	09/08/04	stranding	20 mL vial	10% NBF	Lab bench	Histology
EWM04-0243	D. delphis	CCSN	Right thalamus	CCSN04-191Dd	09/08/04	stranding	20 mL vial	10% NBF	Lab bench	Histology
EWM04-0243	D. delphis	CCSN	Teeth	CCSN04-191Dd	09/08/04	stranding	aluminum foil	-80	Hahn -80; bottom shelf	Life History

Appendix 1: CCSN04-191Dd E. Montie Sampling Comments**Sampling Times:**

Sample	Date	Time
Blood (alive)	09/06/04	12:15
euthanized	09/06/04	12:25
Blood (dead)	09/06/04	12:30
Blood spun	09/06/04	19:00
red blood cells	09/06/04	19:00
CT imaging	09/07/04	13:00
MR imaging	09/07/04	19:09
skin-blubber	09/08/04	09:15
CSF	09/08/04	10:30
thyroid	09/08/04	10:45
liver	09/08/04	11:30
brain	09/08/04	12:15

Blood Sampling

A blood sample from the fluke was obtained at 12:15 on 09/06/04 by Kristen Patchett (CCSN). However, only one green tube was collected because the animal began to thrash. At 12:25, the animal was euthanized and a heart stick was completed postmortem and three green tubes of blood were collected. All blood tubes were stored in a refrigerator before spinning. At 15:00, the animal was transported to the Shore Lab at the Woods Hole Oceanographic Institution (WHOI) and placed into the chiller (40°F) with head in grey bucket and garbage bags of ice surrounding head. At 19:00, blood was spun and plasma collected. Plasma was stored at -20°F for one day and then transferred to -80.

CT and MR Imaging

On 09/07/04 at 13:00, the animal was transported (head on ice) to the CT facility at WHOI, and a CT was performed on the head, lungs, ears, and whole body. At 15:00, the animal was transported (head on ice) back to the Shore Lab and morphometrics were completed, including body weight. The pectoral fins were removed in order for the head (Girth at blowhole = 75.8cm; Girth at anterior insertion of pectoral fin = 88.8 cm) to fit in the head coil (circumference = 80.11cm), and the dorsal fin was removed in order for the body to fit into the MRI bore. Gauze pads were placed in regions where appendages were removed and the animal was double bagged. At 16:40, Eric Montie from WHOI transported the animal (w/ head in grey bucket and garbage bags of ice surrounding head) to the Massachusetts Eye and Ear Infirmary (MEEI) at Massachusetts General Hospital (MGH) for MR imaging on a Siemens Volume Zoom, 4 row detector, 1.5 Tesla machine. The MRI was completed from 19:09 – 21:42. The animal's head was placed into the head-coil. The following exams were completed by Julie Arruda.

- 1) **T1 contrast** (Sagittal orientation; TR=675ms; TE=12ms; Flip angle=70°; No.slices=19; Thickness=5mm; FoV=400mm; Matrix=192x256).
- 2) **Fast Spin Echo of Whole Brain** (T2 weighted and Proton Density acquired in two separate scans to cover the whole brain; Coronal orientation; TR=9317ms; TE=15ms/105ms; Flip angle=180°; No.

slices=32; Thickness=2mm; Shiftmean=-22.0mm; Matrix=224x256; FoV=270mm; No.Acq=4; Pixel size= 1.05mmx1.05mm; Rel S/N=1.27; Scan Time=20min 3 sec).

- 3) Fast Spin Echo of Mid-Sagittal Region** (T2 weighted and Proton Density acquired in sagittal orientation in order to measure mid-sagittal corpus callosum area; TR=3000ms; TE=15ms/105ms; Flip angle=180°; No. slices=9; Thickness=3mm; Matrix=224x256; FoV=370mm; Rect. FoV=7/8; No.Acq=4; Pixel size= 1.45mmx1.45mm; Rel S/N=3.57).
- 4) 3DSPGR** (Coronal orientation; TR=15ms; TE=7ms; Flip angle=8°; No.slabs=1; Slab thickness=141mm; Eff. Thickness=1.5mm; No. partitions = 94; Matrix = 256 x 256; FoV = 250mm; No. Acq = 2; Pixel size = 1.09mm x 1.09mm; Rel. S/N=2.46; Scan Time = 14min 37 sec.

Necropsy Sampling

The animal (with ice on head) was then transported to the Shore Lab (WHOI) and placed into the chiller (40°F) with ice surrounding head on 09/08/04 at 00:30. The necropsy commenced on 09/08/04 at 07:58. Little CSF sample was collected (approximately 4mL). Collected only for chemical analysis, no cryovial sample. Slight blood contamination in CSF. The thyroid was difficult to find and was accidentally cut at the posterior end. However, the posterior portion was dissected and added to the anterior portion for a total weight. The brain was removed from the skull at 12:15 and placed into the -80.

Appendix 2: CCSN04-191Dd Organ weights

Organ	Weight
Total	80.00 kg
skin-blubber	11.602 kg
thyroid	16.00 g
liver	2659.2 g
pituitary	1.2 g
brain	936.0 g

Appendix 3: CCSN04-191Dd Brain Dissection (Completed by E. Montie)

A. Methods

1. The whole brain was removed on 09/08/04 at 12:15, placed inside a teflon bag, wrapped in aluminum foil, and then frozen in -80 freezer from 13:00 to 19:00. A new method was used to remove the brain from the skull. A stryker saw was used to cut across the occipital condyles into the exoccipital, then along the temporal crest, across the frontal and into the maxilla, then following the border between the maxilla and premaxilla, then across the nasal. The anterior portion of the skull was pried upwards and the brain was nicely removed and sat inside the cut skull. This avoided holding the brain with hands. See figure 1.
2. Sampling for chemical analysis
 - a) The whole brain was removed from the freezer at 19:00 on 09/08/04 and allowed to partially thaw for better sectioning

(the brain was quite frozen). (See Figure 2). Tray was set up with dry ice underneath. Acetone washed tray. Placed acetone-hexane washed aluminum foil on top of tray, with teflon sheets on top.

- b) Sectioned with acetone-hexane rinsed brain knife. Sectioned rostral to caudal. 1-2 cm in thickness. In between sectioning slices, wiped off knife with chem-wipe and rinsed with acetone. After sectioning, removed top teflon sheet and discarded.
- c) Photos were taken with CCSN's camera and downloaded to CD.

B. Results

1. Sectioned whole brain into 13 sections. Section #7 was about 2cm in thickness (in future, should limit section thickness to approximately 1cm). See Figure 3 for photos of sections. Photographs for each individual section exist but are not included in this necropsy report.
2. Sections 01 and 02 were saved as frontal cortex in one teflon bag. See figure 4.
3. Corpus callosum and choroid plexus (red tissue) was removed from sections 5, 6, and 7. For section 7, the slice was turned over in order to remove ROI. See figure 5.
4. Hypothalamus was removed from section 6 and the backside of section 7. See figure 6.
5. Hippocampus was removed from section 6 and the backside of section 7. See figure 7.
6. Cerebellum grey matter was removed from sections 10, 11, 12, and 13. There was some white matter contamination. See figure 8.
7. Cerebellum white matter was removed from sections 10, 11, and 12; did not take sample from section #8. See figure 8.
8. In section 6 and the backside of section 7, there were some indications of pathology. Ventral to left thalamus noted a region approximately 1cm in length that seemed necrotic (tissue appeared more yellow than surrounding tissue). Sampled the lesion and placed in 10% NBF. Also, sampled the same ROI on the right sided and placed in 10% NBF. See necropsy report for photos.
9. Archived sections 3, 4, 5, 6, 7, 8, 9. There was no tissue left from section #10. Sections 11, 12, and 13 were combined and were composed primarily of brainstem.
10. All brain regions were placed in teflon bags and stored at -80°C .

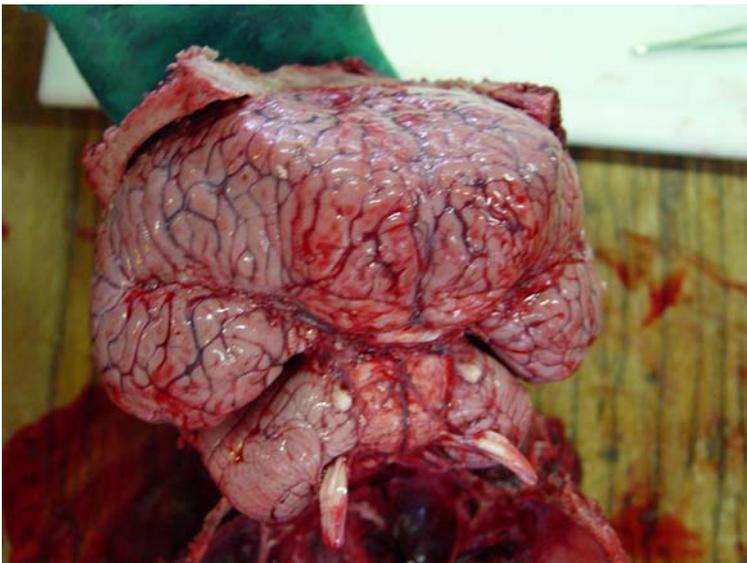
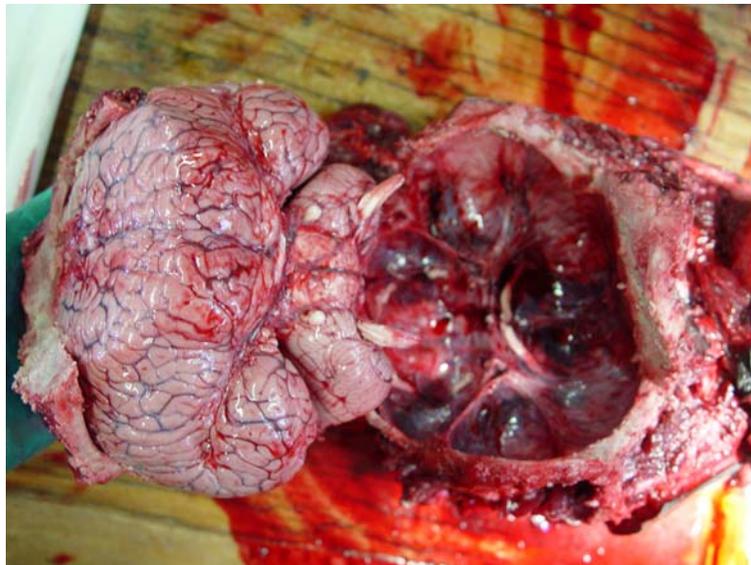


Figure 1. New method for removing brain from skull.

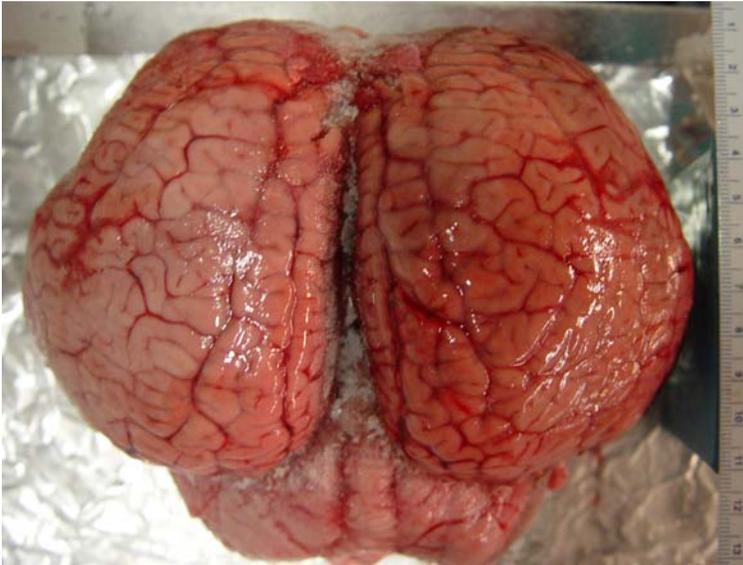


Figure 2. Brain ready for sectioning.

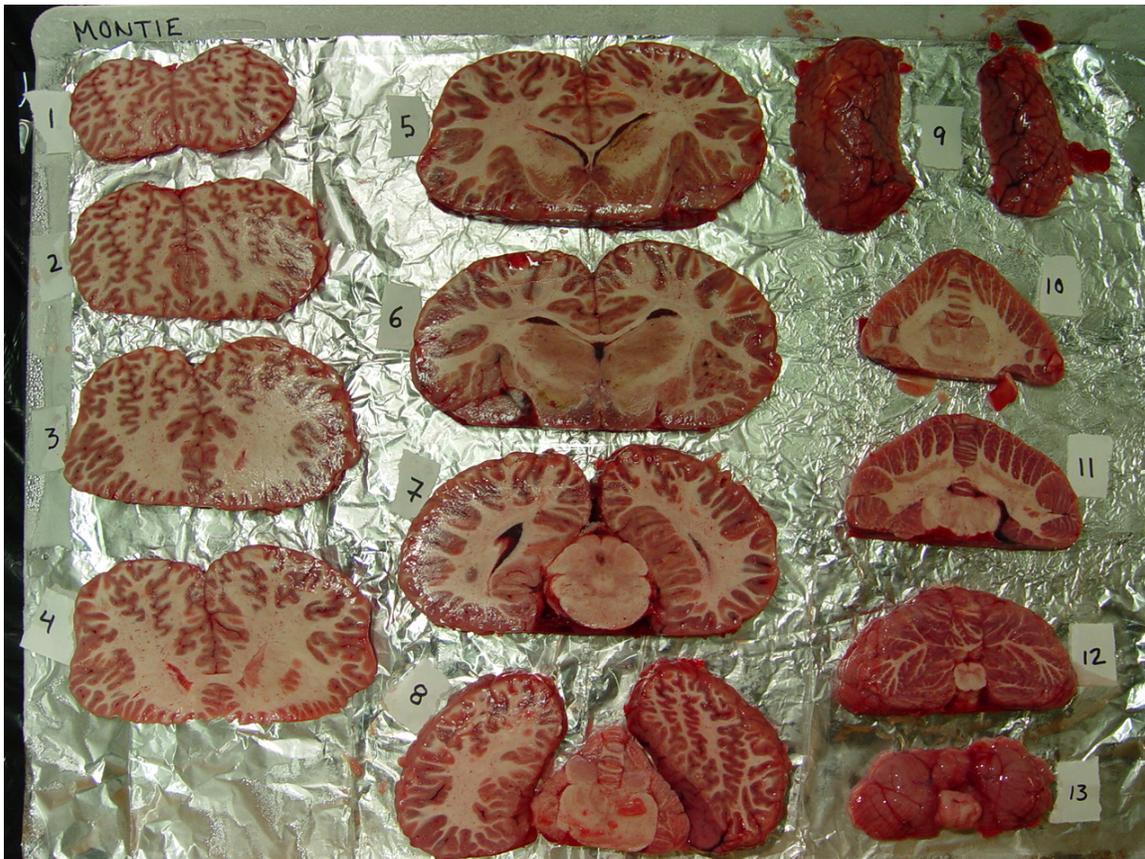


Figure 3. The whole brain was sectioned in the coronal plane from rostral to caudal and produced 13 slices 1-2 cm in thickness. Photographs for each individual section exist but are not included in this necropsy report.

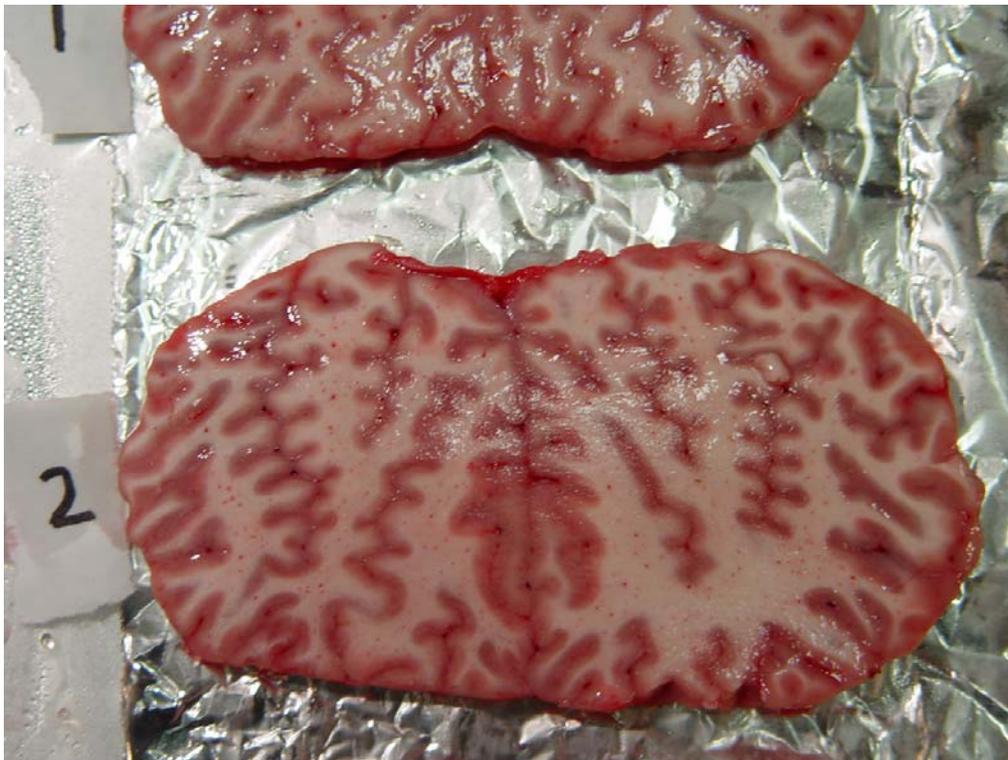


Figure 4. Sections 01 and 02 were saved as frontal cortex in one teflon bag.



Figure 5. Corpus callosum and choroid plexus sampling of sections 5, 6, and 7.

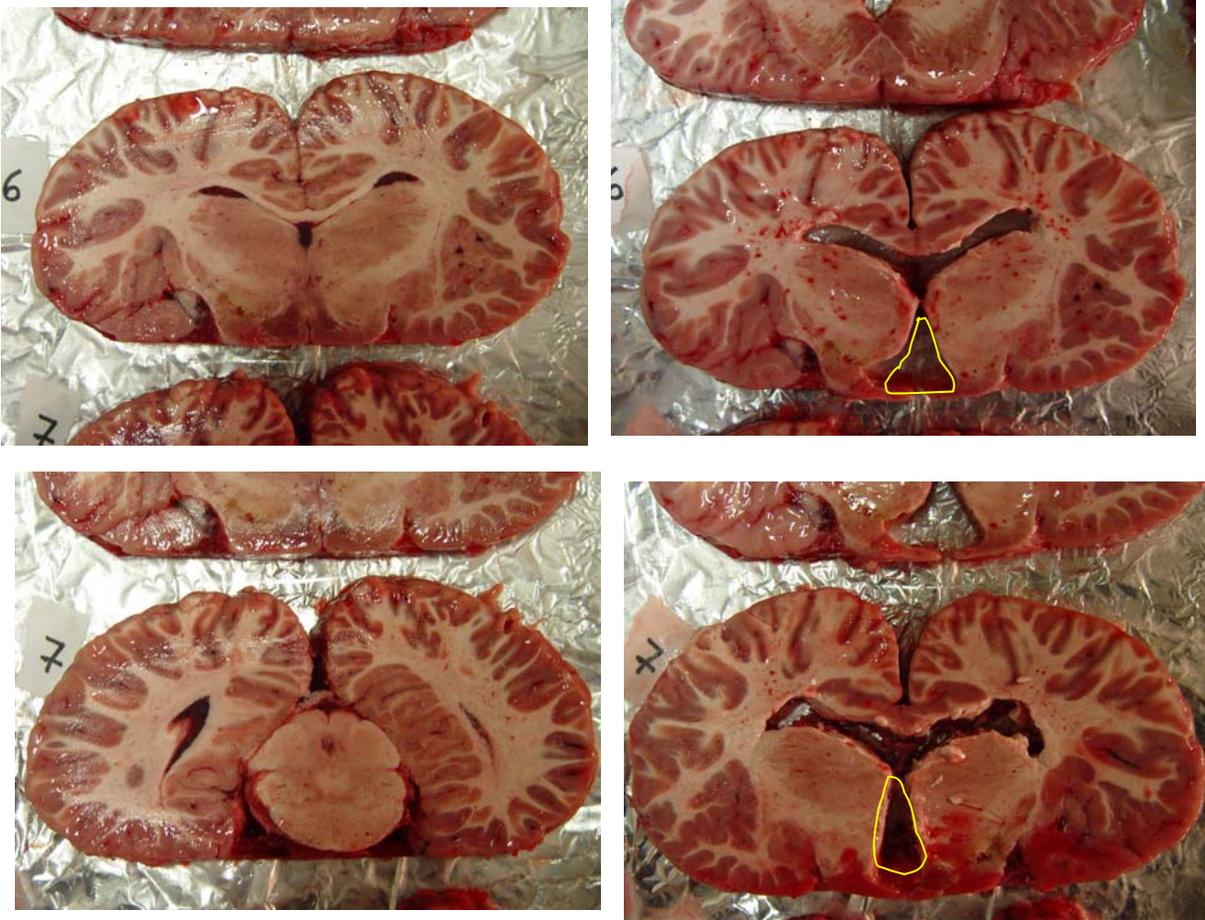


Figure 6. Hypothalamus sampling of sections 6 and 7, marked by yellow line. Because section 7 was thick (approximately 2 cm), it was turned over for hypothalamus sampling.

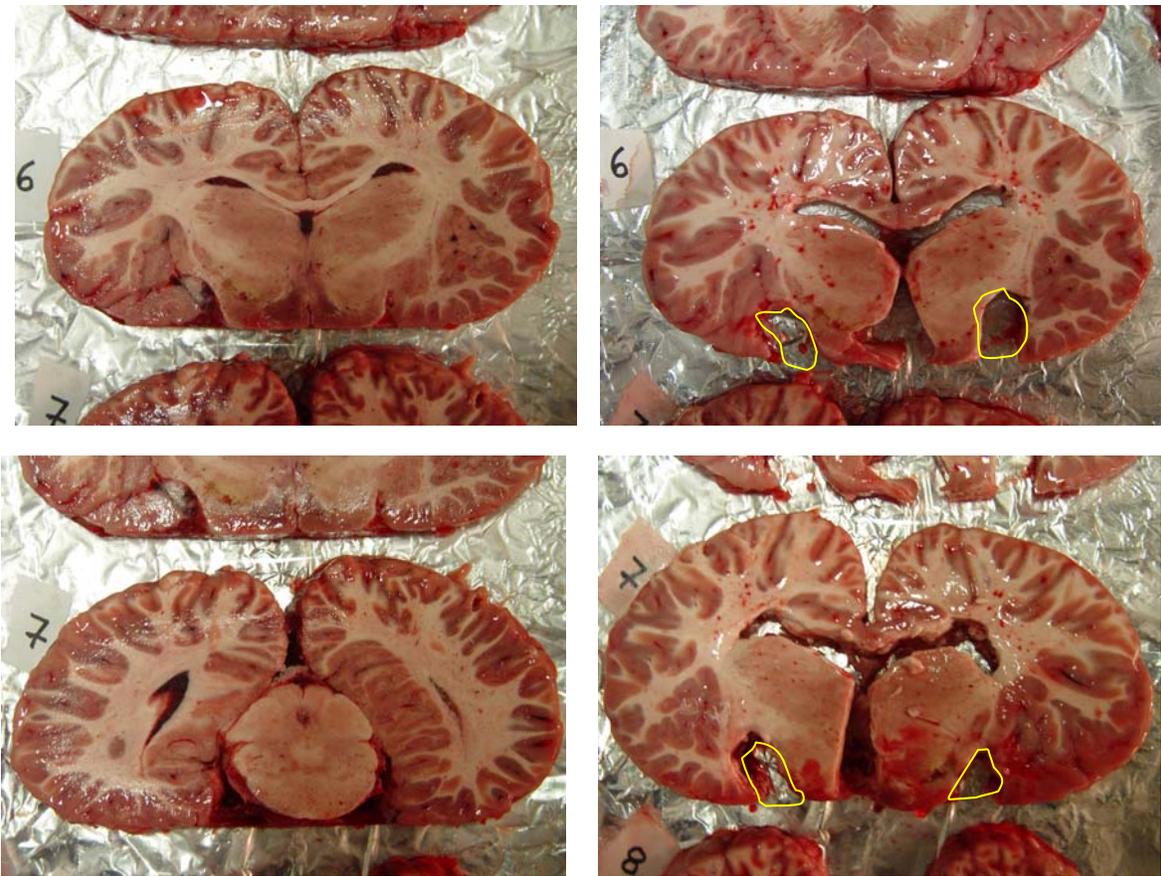


Figure 6. Hippocampus sampling of sections 6 and 7, marked by yellow line. Because section 7 was thick (approximately 2 cm), it was turned over for hippocampus sampling.

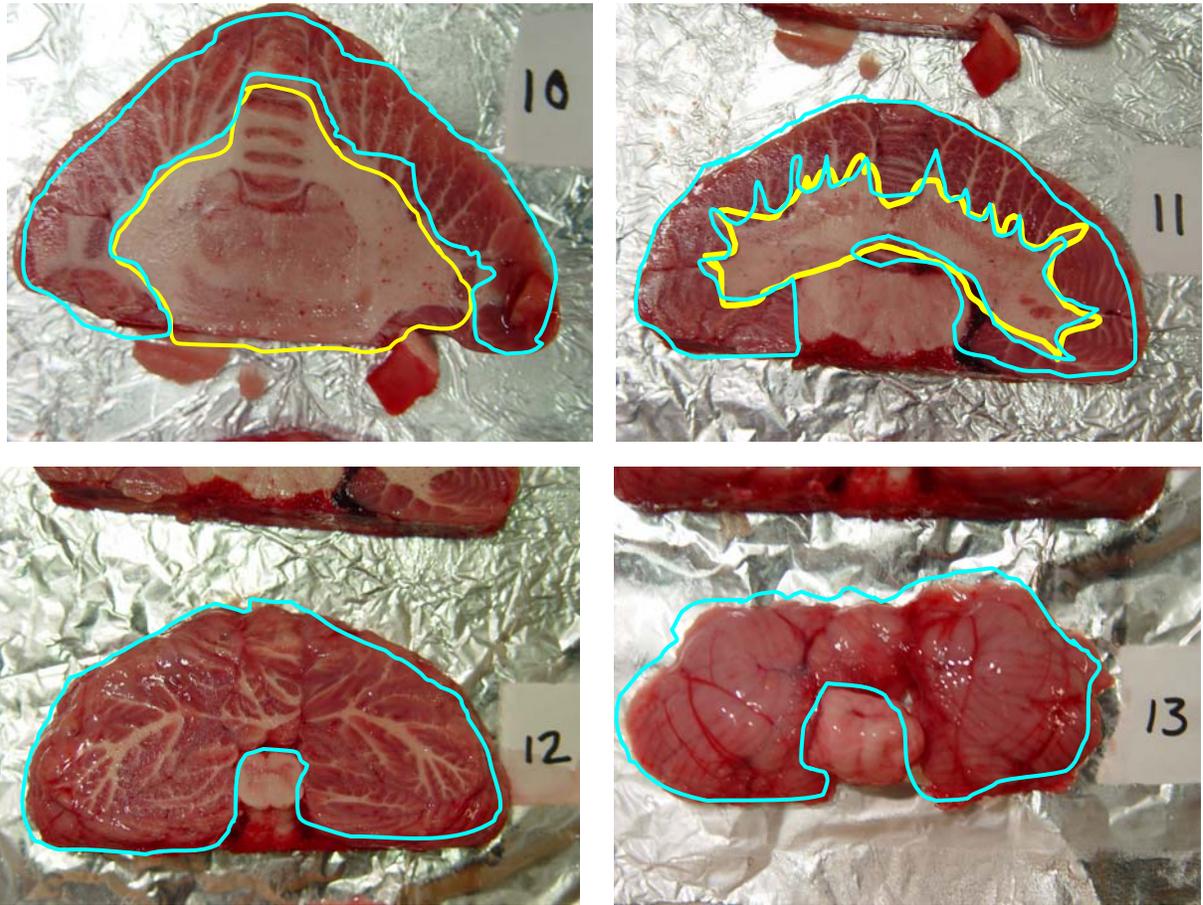


Figure 7. Cerebellum white and grey matter sampling of sections 10 – 13. Aqua blue demarcates grey matter sampling, while yellow demarcates white matter sampling.