

# Institute of Veterinary, Animal and Biomedical Sciences

## PATHOLOGY REPORT

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| Submitter's Ref.: | Date Sent: 21/02/2014 | Accession No.: 50583 |
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TO: Department of Conservation  
Dunedin

|                                   |           |               |                    |
|-----------------------------------|-----------|---------------|--------------------|
| Species: Cetacean (1)             | Sex: Male | Age: Subadult | Breed: Pilot Whale |
| ID: None                          | At Risk:  | Affected:     | Dead: 1            |
| Owner: Department of Conservation |           | Prev. Acn.:   | Type: Post Mortem  |

### HISTORY

This whale was observed alive but exhibiting abnormal behaviour on the evening of 20th February off Kaka Point. The whale eventually stranded himself on the rocks and died.

The head was removed on 21st February and taken to the Marinoto Clinic for CT scanning. The remainder of the post mortem was conducted the following day, 22nd February.

### GROSS FINDINGS

- Total length: 4350mm
- Snout to dorsal fin: 2200mm
- Snout to anus: 2650mm
- Snout to origin of flipper: 700mm
- Snout to blowhole: 370mm
- Flipper length: (external): 900mm (internal): 720mm
- Fluke width: 1100mm
- Length of rostrum: 30mm
- Length of gape: 390mm
- Height of dorsal fin: 300mm
- Axillary girth: 2100mm
- Length of genital slit: 260mm

This was a subadult male Long-Finned Pilot Whale in poor to moderate body condition, with reduced hypaxial/epaxial muscle mass and blubber thickness.

There were multiple skin abrasions on the tip of the snout, ventral jaw and leading edges of both flippers; the underlying blubber was exposed and reddened. No obvious vertebral or rib fractures were noted. The abdominal and thoracic cavities, as well as the pericardial sac contain fairly large amounts of clear, serosanguinous fluid.

The glandular portion of the stomach contained ~ 100 squid beaks as well as half a dozen soft, spongy red, ribbon-like objects (~10-15cm in length and 30-40mm in width). The intestinal tract contained small amounts of dull orange mucoid material but was otherwise devoid of digesta.

The trachea contained copious amounts of frothy white fluid while the lung parenchyma was deep red and oozed large amounts of similar material.

Small amounts of slightly turbid brown fluid were present in both pterygoid sinuses, while the right pterygoid sinus also contained a moderate amount of clear, bubbly-to- foamy material. Both these sinuses also contained upward of 20-30 slender nematodes (up to ~25mm in length). Several small tangled masses of similar nematodes were present in the tympanic bulla of the left ear. No parasites were present in the nasal diverticula.

No other obvious abnormalities were noted on gross post mortem.

**HISTOPATHOLOGY**

Most tissues show a moderate degree of autolysis and post mortem bacterial overgrowth which limits critical interpretation.

Lung: multiple bronchi and bronchioles contain small to moderate amounts of granular, pale eosinophilic material and small numbers of foamy macrophages. Autolysis precludes further evaluation.

Bearing in mind the autolysis, sections of heart, liver, kidney, lymph node, skeletal muscle, pterygoid sinus mucosa and juvenile/subadult testis show no obvious abnormalities.

Sections of brain still to be evaluated.

**DIAGNOSIS**

Uncertain cause of stranding (see comments).  
Pulmonary oedema

**COMMENTS**

This was a subadult male Pilot Whale which was a little on the skinny side. Gross and histological evaluation of many of the internal organs did not show any obvious abnormalities such as an inflammatory or infectious process. Histological evaluation of the brain is still to take place as this will require special processing to look for potential gas and fat emboli.

Parasites (possibly round worms) were found in the air-sinuses of the head and the middle ear. The air-sinuses of the head and middle/inner ear of pilot whales are used for echolocation which is essential for catching food and navigation. Anything that interferes with the proper functioning of these structures could therefore have a negative impact on the animal's health.

Parasites in the air-sinuses and ear have been blamed as a cause of pilot whale strandings. However there is some debate as to how much damage these parasites actually cause, as they can be found in the air-sinuses and ears of perfectly healthy whales. In this particular animal the presence of these parasites had not caused obvious histological evidence of irritation and inflammation of the sinus lining.

Injuries caused by seismic-related activity are also seen in the echolocation producing and receiving structures of the head and brain. These include haemorrhages and blood clots in the air-sinuses, the fatty tissue around the lower jaw and ears, the melon and the brain. A detailed dissection of these structures was carried out on this whale and none of these changes were observed. No obvious abnormalities were observed on CT examination of this whale's head but because of the sheer size of the head, there were some issues with getting proper images.

So although we cannot completely exclude seismic injury as a cause of this pilot whale's stranding, I think it unlikely. As mentioned before, histological sections of the brain have not yet been undertaken as this requires special processing to look for gas and fat emboli (which have been reported to occur in cetaceans suffering seismic injury).

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