

Institute of Veterinary, Animal and Biomedical Sciences

PATHOLOGY REPORT

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TO: Department of Conservation
Napier

Species: Cetacean (1)	Sex: Female	Age: Adult	Breed: Pygmy Sperm Whal
ID: Adult female	At Risk:	Affected: 2	Dead: 2
Owner: Department of Conservation	Prev. Accn.:	Type: Post Mortem	

HISTORY

The adult female was found alive but stranded in the surf near Te Awanga, Hawke's Bay on the 27th May 2014. The animal was euthanased with a gunshot wound to the head. A male calf washed ashore dead not long after the adult female was removed from the beach. Post mortem examination was performed on the afternoon of Wednesday 28th May at the Department of Conservation depot near the Napier Airport.

GROSS FINDINGS

- Total length: 3100mm
- Upper jaw to origin of dorsal fin: 1600mm
- Tip of upper jaw to anus: 2130mm
- Tip of upper jaw to genital slit: 2050mm
- Length of genital slit: 150mm
- Tip of upper jaw to insertion of flipper: 630mm
- Tip of upper jaw to blowhole: 390mm
- Length of gape: 200mm Dorsal fin height: 160mm Dorsal fin length: 360mm Fluke width: 800mm Deep of notch: 50mm
- Flipper length (internal): 400mm (external): 500mm
- Flipper width: 200mm
- Blubber depth (dorsal): 50mm (lateral): 40mm (ventral): 40mm

This was an adult pregnant and lactating female in good body condition, with good blubber thickness and hypaxial/epaxial muscle mass. She was in a good state of preservation within minimal skin sloughing/slippage.

There were numerous skin and superficial blubber excoriations with associated reddening along the ventral and lateral aspects of the body (including the point of the snout) likely associated with being washed about in the surf. There was a 30mm in diameter ballistic entry wound to the right lateral head, halfway between the right eye and the origin of the right flipper.

Small numbers (less than 10) cestode larvae (*Phyllobothrium* or *Monorygma* spp) were present in the blubber layer. No obvious anatomical distribution was noted.

On cut surface the lung parenchyma was deep red and oozed a large amount of white frothy fluid, which was also present throughout the entire trachea. The parenchyma of the left lung was a deeper red than the right lung (hypostatic congestion).

Both the squamous and glandular portions (compartments 1 and 2) of the stomach contained large numbers (>100) of nematodes as well as ~12 squid beaks, a similar number of squid or fish lens as well as ~6 tapered cylindrical opaque rubbery structures (possibly squid arms/ tentacles) and soft, spongy red, ribbon-like objects (possibly remnants of squid epidermis). Nematodes measured up to 80-100mm in length and floated free within the stomach lumen. There were six discrete circular erosions/ulcers (up to 15mm in diameter) in the squamous portion of the stomach. Compartment 3 contained approximately 500mls of turbid, granular light brown fluid. The distal intestine contained multiple segments of well-formed dark brown faeces.

The left ovary contained a 40 x 10 x 10mm corpus luteum while the right ovary appeared quiescent. The left uterine horn contained a 35-40mm in length foetus accompanied by clear foetal membranes and containing clear fluid.

Examination of the acoustic structures of the head (acoustic fat, pterygoid sinuses, periotic fat and the melon) revealed no obvious gross abnormalities. The pterygoid sinuses were empty and no parasites were observed. There were multiple fractures of the bones at the base of the right jaw (due to ballistic injury). There was a 20mm in diameter ballistic entrance wound through the left basioccipital bone into the brain.

No other abnormalities were noted on gross post mortem.

HISTOPATHOLOGY

Pending

DIAGNOSIS

Euthanasia (gunshot wound)

Unknown cause of stranding

Pulmonary oedema

COMMENTS

This was an adult pregnant and lactating female in good body condition and in a good state of preservation. Apart from a ballistic wound to the head (euthanasia), on visual inspection there was no indication of major trauma or an underlying disease process that might help explain why the animal stranded.

There was severe pulmonary oedema and congestion (fluid in the lung); this is likely due to the stress of stranding and progressive shock as blood starts to pool in the lungs and the cardiovascular system starts to shut down. This results in fluid from the bloodstream (minus the red blood cells) being squeezed/forced out into the small airways of the lung. This fluid then mixes with the small amount of fluid normally present in the lung (this is called surfactant) and the result is the formation of white frothy/foamy fluid and this is termed pulmonary oedema. This will prevent proper oxygen and carbon dioxide exchange in the lung. I think with this amount of fluid in the lung, it would be difficult for this animal to have survived if she had been refloated.

Parasites were observed in the stomach but it is common to find parasites in various organs of wild cetaceans. Since this animal was in good body condition it seems unlikely the stomach parasites were doing this animal too much harm. It has been suggested that these nematodes can in fact aid in digestion by invading the softer tissues of prey items. Several squid beaks were found in the stomach of this whale. Squid beaks are very difficult for the whale to completely digest and are often retained in the stomach and then regurgitated after a period of time. There seems to be some debate as to how long squid beaks are retained in the stomach so it is difficult to say how long ago this whale had eaten.

Injuries reportedly caused by seismic-related activity are seen in the echolocation producing and receiving structures of the head and brain. Abnormal changes 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 (except for the brain) was carried out on this whale and none of these changes were observed. The brain was not examined due to the large amount of damage that will have been produced by euthanasia via gunshot. So although we cannot completely exclude seismic injury as a cause of this pilot whale's stranding, it seems unlikely.

Histological (microscopic) examination of many of the internal organs will be performed to see if that can reveal any more information as to why this animal may have stranded.

File Nos.:

Students:

Date:

Pathologist:

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