Institute of Veterinary, Animal and Biomedical Sciences

PATHOLOGY REPORT

Submitter's Ref.:	Date Sent: 19/02/2014	Accession No.: **50531**

TO: Department of Conservation
Invercargill

Species: Cetacean (1)	Sex: Female	Age: Juvenile	Breed: Orca
ID: Orca Calf	At Risk:	Affected: 9	Dead: 9
Owner:		Prev. Accn.:	Type: Post Mortem

HISTORY
Department of Conservation got a call Tuesday afternoon (11th February) about seven dead and two live orca, bleeding and bashed up on rocks. Observer contacted on the beach and confirmed ID as Orca and that all had died by 6pm – nine orca dead.

Helicopter sent in to collect smallest orca, take skin samples and photographs. Smallest orca placed in a chiller overnight, then freezer- sent to Massey for post mortem examination.

GROSS FINDINGS
The Orca arrived at Massey University at approximately 12pm on Wednesday 19th February. The calf was frozen. The tail was removed (~1200mm in length) so the body caught be maneuvered into the CT machine. Only the head, to near the level of the origin of the flippers could fit into the CT machine. The CT scan was performed on the afternoon of the 19th February. The body was left to thaw and the post mortem was continued on Friday the 21st, but was still partially frozen; the remainder of the post mortem was completed on Monday 24th of February (the body was almost completely thawed at this stage). This included a repeat CT scan of the thawed head (which was removed from the body at this point) as well as removal of the brain.

Body weight: 520kg
Total body length: 3280mm
Snout to anus: 2310
Snout to genital slit (mid): 2230
Length of genital slit: 185mm
Length of mammary slit (right): 35mm
Length of mammary slit (left): 30mm
Length of flipper: (right): 40mm
Width of flipper (right): 220mm
Dorsal fin height: 700mm
Dorsal fin length (base): 310mm
Snout to corner of mouth: 440mm
Corner of mouth to blowhole: 75mm
Fluke width: 755mm
Length of notch: 40mm
Blubber depth (dorsal: 40mm), (lateral: 35mm), (ventral: 30mm).

This was a female orca calf in good body condition, with good hypaxial/epaxial muscle mass and good blubber thickness.
Unfortunately due to freeze-thaw artifact, many of the soft tissues and internal organs were stained deep red, however there was no obvious evidence of major musculoskeletal trauma.

The lateral margins of the tongue were pleated.
All the compartments of the stomach were devoid of ingesta while the intestines contained a small amount of tan-orange mucoid material. A single nematode (~25mm in length) was present in the glandular compartment of the stomach.

A detailed examination of the head, including the brain, extramandibular and intramandibular fat, melon, peri-auditory acoustic fat deposits, pterygoid sinuses, ear and nasal diverticula was performed. No obvious abnormalities (such as blood clots or parasites in and around the pterygoid sinuses, nasal diverticula and ear) were noted, however, as mentioned above, freeze-thaw artifact may have masked more subtle changes.

HISTOPATHOLOGY
Liver: the majority of hepatocytes contain one or several small, fairly discrete clear intracytoplasmic vacuoles, possibly lipid.

Bearing in mind the freeze-thaw and autolytic artifact sections of heart, kidney, perisinusoidal (pterygoid) fat/muscle interface, tooth pulp, brain and proximal cervical spinal cord show no obvious abnormalities. Sections of lung, pulmonary lymph node and spleen show too much freeze-thaw and autolytic artifact to critically interpret.

DIAGNOSIS
Death due to stranding: no obvious underlying cause found.

COMMENTS
This was a female orca calf in good body condition with no obvious gross signs of major trauma or underlying disease.

Given her length (approximately 3.2 metres) and weight (just over 500kg) she may have been between 1-2 years of age and was probably not fully weaned from her mother. Although genetic results on these stranded orca are still being performed it seems plausible that this poor calf may have followed her mother onto the rocks.

Unfortunately there does not appear to be an obvious reason as to why these orca stranded themselves. Detailed necropsies could not be performed because of decomposition.
Although information about an animal's life history (eg age, sex, diet) can still be gathered from a decomposing animal, in terms of determining a cause of death or looking for underlying disease, these animals had been dead for too long.

A detailed examination of the head (including the brain and acoustic structures) of this calf was performed to look for signs consistent with seismic related injury. We did not find any obvious evidence of seismic-related injury but as mentioned before, decomposition and freeze-thaw artifact could have masked more subtle injury.

This animal's head was also put through a CT scanner when frozen and again when the head had thawed- no obvious changes associated with seismic injury were detected.

Histological exam of the internal organs did not show any evidence of an inflammatory process, however histological interpretation was limit due to the presence of freeze-thaw and autolytic artifact and post mortem bacterial overgrowth.

We are very grateful to all the Southland runanga (Waihopai Runaka, Te Runanga o Awarua, Te Runanga o Oraka Aparima and Hokonui Runaka) for the opportunity to come down and visit with the dead orca and for allowing us to perform a thorough necropsy on this female orca calf.

File Nos.:

Students:

Date: Pathologist:

Copy to: