Institute of Veterinary, Animal and Biomedical Sciences
Massey University

PATHOLOGY REPORT

Status: Final
Date: 06/10/2014
Type: Mortality

Submitter

Department of Conservation

Christchurch

Submission Details

Lab. Case/Spec ID:	**51361**
Submitter's Ref:	H250
Date Submitted:	03/10/2014
Date Received:	03/10/2014
Previous Case ID:	
WMD Case/Spec ID:	7446/1

Animal Details

Animal ID:	02102014NewBrighton
Animal Name:	W14-25Ch
Species:	*Cephalorhynchus hectori hectori*
Common Name:	Hector's Dolphin
Sex Class:	Male
Age Class:	Juvenile
Date Died:	

Epidemiology

Number Dead:	
Number at Risk:	
Number Sick:	
Number Submitted:	1

Growth and Development

Parameter	Result Description	Value	Date Measured	Age Group
Depth of Tail Notch		.025 m	04/10/2014	Juvenile
Dorsal Blubber Depth		25 mm	04/10/2014	Juvenile
Eye to Blowhole Length		.12 m	04/10/2014	Juvenile
Eye to Corner of Mouth Length		.035 m	04/10/2014	Juvenile
Girth at Anus		.69 m	04/10/2014	Juvenile
Girth at Eye		.46 m	04/10/2014	Juvenile
Girth at Flippers		.65 m	04/10/2014	Juvenile
Girth at Navel		.69 m	04/10/2014	Juvenile
Height of Dorsal Fin		.068 m	04/10/2014	Juvenile
Lateral Blubber Depth		24 mm	04/10/2014	Juvenile
Length of Base of Dorsal Fin		.17 m	04/10/2014	Juvenile
Length of Flipper		.135 m	04/10/2014	Juvenile
Length of Flukes		.08 m	04/10/2014	Juvenile
Snout to Anus Length		.725 m	04/10/2014	Juvenile
Snout to Corner of Mouth Length		.125 m	04/10/2014	Juvenile
Snout to Genital Slit Length		.635 m	04/10/2014	Juvenile
Snout to Origin of Dorsal Fin Length		.47 m	04/10/2014	Juvenile

Snout to Origin of Flipper Length	.265 m	04/10/2014	Juvenile
Total Length	1.05 m	04/10/2014	Juvenile
Ventral Blubber Depth	22 mm	04/10/2014	Juvenile
Width of Flipper	.06 m	04/10/2014	Juvenile
Width of Flukes	.275 m	04/10/2014	Juvenile
Weight	19.5 kg	04/10/2014	Juvenile

DIAGNOSIS
Severe myocarditis 1. Myocarditis

COMMENTS
This calf was in reasonable body condtion and had fed recently. Based on his body size it is likely that he was around a year of age, and so would probably still have been nursing from his mother. He seemed to have lost a large amount of blood from the skin wounds that were present, which would ultimately have contributed to his death, but would not have explained how he came to be in a position to suffer so much damage from scavengers. It is possible that he live-stranded and was attacked by scavenging species (birds or crabs for example) before he died, but there is no obvious cause of stranding. Tissues will be processed for histology to look for underlying disease.No convincing lesions of entanglement were found, but the skin damage that he had could have obscured subtle indentations, so entanglement can't be definitively ruled out in this case.

ADDENDUM (final diagnosis including histology results)
This calf had very severe heart disease. It is likely that the calf was weak due to compromise of heart function, causing him to live-strand or float and be attacked by scavengers. The microscopic changes in this calf are very similar to another Canterbury calf (H244). Toxoplasma is one possbile cause of heart lesions like this, although neither calf had the typical protozoans present on histology. Tissues from H244 have been tested for toxoplasma using immunohistochemistry, and were negative. Tissues from this current calf will also be tested in due course, and we'll do some special stains to see if there are any bacteria or fungi present in the heart lesions. This report will be further updated if these tests identify the cause of this disease.

GROSS PATHOLOGY
This dolphin is young (body length consistent with approximately 1 year of age), with fully erupted teeth and prominent lateral projections on the tongue but no fetal folds or fetal whiskers. The body has minimal decomposition change and is covered in unclotted blood. The right eye has been completely scavenged, and there is skin loss around both orbits. Almost all skin is affected by scavenging, with a multitude of curved to sinuous grooves 1-2 mm deep and up to 4 cm long, and numerous linear cracks and lacerations, the latter particularly on the tail stock and flippers. Many of the assumed scavenger wounds have haemorrhage around the margins, indicating that at least some of these wounds occurred while the dolphin was still alive. Despite this extensive superficial scavenging, there is no scavenging of the tongue or any internal organs, and minimal tissue loss around the anogenital orifice. The blubber depth of the calf shows good body condition, although the muscle mass is slightly lower than normal. The skeletal muscles are universally and moderately pale, possibly due to blood loss.
The lungs contain extremely large numbers of firm to gritty 1-2mm nodules, particularly over the pleural surface (assumed to be lungworm granulomas). A few lungworms are present in the terminal airways. The lungs are well inflated, with no foam or fluid in the airways.
The stomach contains a small amount of cloudy thick tan to brown fluid but no prey items. There are very large numbers of parasite cysts attached to the mucosa of the stomach, along with a moderate number of nematodes. The intestinal lymphatics are filled with chyle (indicating that the calf had fed (likely suckled) recently), and the distal intestines contain yellow/brown mucoid digesta.

HISTOPATHOLOGY
Histology summary:

1. Heart: Severe mulitfocal to coalescing necrotising and lymphoplasmacytic myocarditis
2. Lungs: Severe multifocal pulmonary granulomas (lungworm)