



NAAHTWG Slide of the Quarter (April - June 2008) – Amoebic gill disease in quinnat salmon (*Ocorhynchus tshawytscha*)

Case History

Submitted March 2008. Basic history of decreased feed intake over two weeks and increasing numbers of mortalities. Whilst some have had skin ulceration, the majority are unmarked 'morts', tending to be towards the smaller end of the size range on the farm.

6/8 pens- noticeably increased unmarked morts, 2/8 pens - reasonably unaffected. No obvious pen-to-pen spread; all affected pens appeared to suffer increased mortalities at a similar time.

Histopathology

All submitted organs display post-mortem artefact. The posterior gut displays sloughing of the epithelium; the splenic parenchyma has a slightly moth-eaten appearance, although general architecture appears normal. The kidney interstitial space appears loose, there is a relative increase in many Bowman's spaces and separation of tubular epithelial cells from basement membrane. The basement membrane in the capillary tuft of the glomerulus is quite apparent, but this is characteristic of many pacific salmon (see Figure 1).

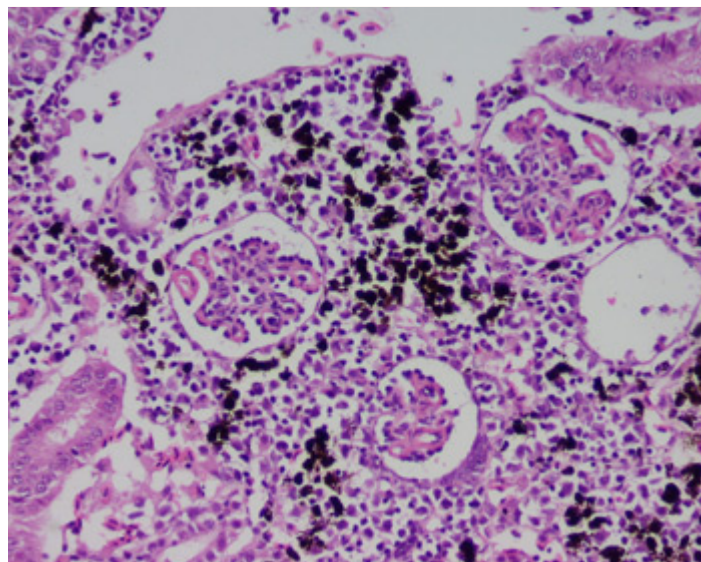


Figure 1

The gills display the most significant pathological changes (Figure 2). They are in generally poor condition, with fusion of many secondary lamellae. Interlamellar areas are filled with a loose cellular matrix, with haemorrhage



in some areas. There is evidence of lamellar oedema and respiratory epithelial cell hydropic swelling in areas. There is formation of cyst-like spaces between filaments.

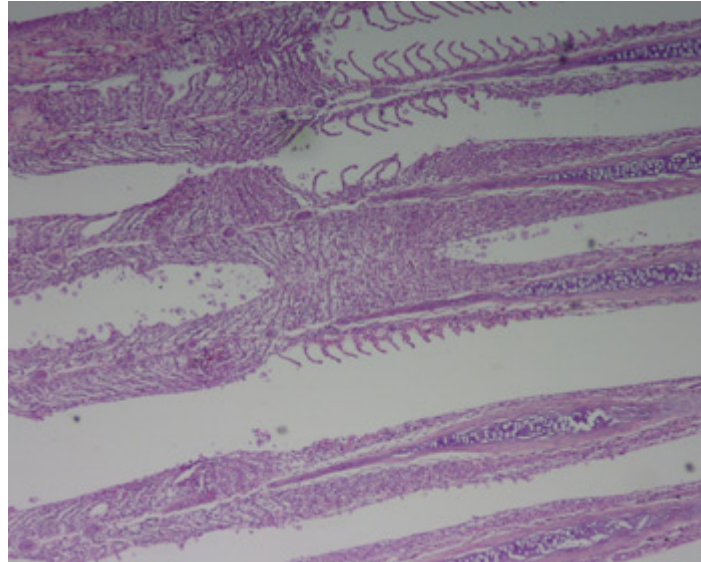


Figure 2

The hyperplastic epithelial surface is colonised by numerous purple-staining amoeboid cells with lacy vacuolated cytoplasm, multiple, cytoplasmic projections and obvious nucleus. Some organisms display nucleus and parasome, some display concentric banding in the nucleus (Figure 3).

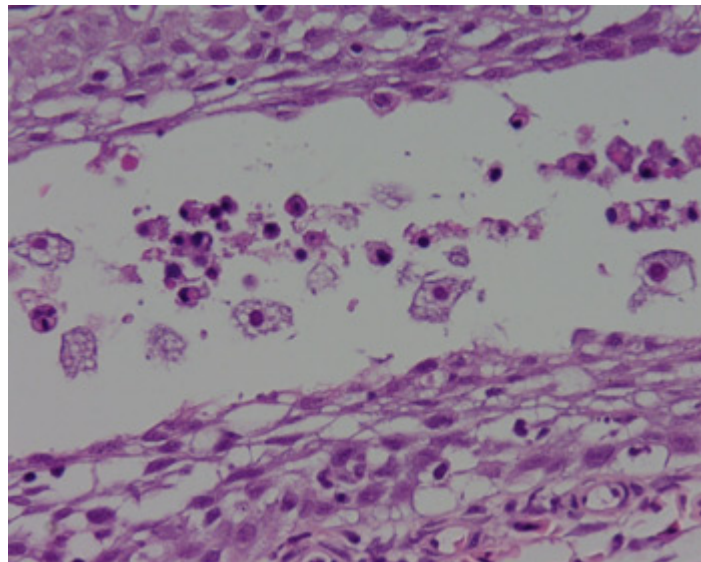


Figure 3

Diagnosis

Amoebic gill disease (AGD)



Causative agent

Neoparamoeba perurans- this identification is assumed, however studies have indicated *N. perurans* is present in New Zealand and has previously been associated with AGD lesions. (Young ND, Dykova I, Snekvik K, Nowak BF, Morrison RN (2008) *Neoparamoeba perurans* is a cosmopolitan aetiological agent of amoebic gill disease Dis Aquat Org 78(3), 217-223).