

Leatherjacket Die Off Sydney - May/ June 2004

Dr Tony Ross

Dead and dying juvenile leatherjackets identified by leatherjacket expert Dr Barry Hutchins of the WA Museum as *Paramonacanthus filicauda*, (the threadfin leatherjacket) have been examined by Dr Richard Callinan of NSW Fisheries Wollongbar and Dr Tony Ross of NSW Agriculture Menangle . The fish were 10 to 12 cm long and weighed 12 to 19 grams. They showed bilateral abraided dorsal skin between the dorsal and tail fins and ragged fins. Moribund fish were alive but swimming inverted. Some had bright red mottling on the lower jaw. Fish collected dead had heavy skin infestations of copepod parasites, but those collected alive did not.

Vibrio spp of bacteria were cultured from the affected skin and liver of moribund fish. However there was no histological inflammatory response in the liver. This suggests that the skin lesions which led to muscle necrosis, probable osmotic deregulation and death were colonised by *Vibrio spp* which spread to the liver as a terminal event. Other findings included empty gastro-intestinal tracts, enteric helminths and fatty livers. In some fish species fatty livers are normal and in others it is a sign of catabolism from starvation and disease. Efforts are being made to examine livers from unaffected live threadfin leatherjackets to determine the significance of the fatty livers in affected fish. There were pathological changes to some gills, hearts and gut of unknown significance which are being further investigated.

Dr Hutchins describes the natural habitat for this species as predominantly in the tropical sandy bays and river mouths of northern and eastern Australia down to Morton Bay Qld. He reports occasional "bumper" breeding seasons which result in very large numbers of juvenile threadfin leatherjackets moving out into deeper water and being swept south by the strong eastern ocean currents. Although omnivorous the food supply in the deep water column is thought to be poor. They are thin and become debilitated either then or when they head in shore to find that the already colonised shallow habitats cannot support them in their hundreds of thousands. Survival rates in normal seasons are only around 5 % and predation usually ensures that few are washed up on beaches.

Dr John Beumer of the Qld Fisheries Service reported similar large die-offs of the east coast of Fraser Island in March 2003 and again in March 2004. He described reports of similar repeated die-offs in leatherjackets (*Pervagor spilosma*) of the Hawaiian coastline.

Whilst the possibility of a highly contagious disease cannot be entirely ruled out, it is likely that the recent observation of leatherjackets washing up on Sydney's beaches was the latest in a series of occasional natural events culminating in the deaths of hundreds of thousands of a species of tropical leatherjacket. The Australian Museum's website has more information.

References:

- Hutchins J B (1997) Review of the monacanthid fish genus Paramonacanthus, with descriptions of 3 new species. Rec West Aust Mus Suppl 54:1-57 figs 1-32 [19].
- Threadfin Leatherjacket www.amonline.net.au/fishes/fishfacts/fish/pfilicauda.htm

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