Investigating the link between the dinoflagellate *Amyloodinium* sp.? and marine head and lateral line erosion (MHLLE) on *Zebrasoma scopas* (brown sailfin tangs)

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Abstract

Fish diseases are common in both commercial and personal aquariums, and captive fish are very susceptible to disease. The goal of my research was to determine if there is a link between a dinoflagellate and a serious fish disease, Marine Head and Lateral Line Erosion (MHLLE), which has been found to affect fishes in the Coral Reef Tunnel at the Newport Aquarium, Newport, Kentucky. I found a dinoflagellate, tentatively identified as *Amyloodinium* sp., which appeared to be associated with the diseased fishes. The dinoflagellate exists in association with marine sponges, protista, and other invertebrates and has proven difficult to isolate. It forms cysts and is resilient to known disease treatments. Water samples were cultured; the bacterial cultures show bacteria was an unlikely cause of MHLLE. The dinoflagellate was added to experimental tanks, which contained the dinoflagellate and healthy brown sailfin tangs, *Zebrasoma scopas*. The control tanks contained healthy *Z. scopas* only. Visual assessments using both a 35-mm and a digital camera were used to determine the progression of the disease; a compound microscope was used to determine if the dinoflagellate was present. Results thus far suggest that the dinoflagellate does cause MHLLE, either as a parasite or by producing a toxin.