

DERMAL FIBROMA IN A REDBAND PARROTFISH,
SPARISOMA AUROFRENATUM (VALENCIENNES)

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SHORT COMMUNICATION

**Dermal fibroma in a redband parrotfish,
Sparisoma aurofrenatum (Valenciennes)**

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The Hydrolab Habitat, National Underwater Laboratory 1, located in the head of Salt River Submarine Canyon east of Christiansted, St Croix, U.S. Virgin Islands is used for prolonged underwater research. During a study of isopod host specificity (Hydrolab Habitat mission 81-5), a redband parrotfish, *Sparisoma aurofrenatum* (Valenciennes), with a protrusion suspected of being a neoplasm was observed and photographed in the immediate vicinity of the Habitat. At the termination of the mission, this fish was collected by spearing at a depth of 15.2 m adjacent to the Habitat. The tumour was fixed intact in Bouin's solution.

The 221-mm total length, male fish had a hemispherical protuberance from right and left sides of the body immediately ventral to the dorsal fin (Fig. 1). Dissection revealed a solid, 20-mm diameter mass covered by skin (Fig. 2). The surface of a section through the middle of the tumour had a homogeneous colour and texture.

Sections of superficial and basal regions of the tumour and adjacent tissues were made from paraffin-embedded material and stained with haematoxylin and eosin (H&E), Van Gieson's, periodic acid-Schiff's and Masson's trichrome stains. Microscope slides of the tumour were deposited in the Registry of Tumors in Lower Animals, Smithsonian Institution, Washington, D.C., U.S.A. (RTLA 2492). The tumour was composed of randomly-oriented bundles of fibrous tissue. It was covered by normal skin and was dorsal to the trunk skeletal muscle (Fig. 3). Cells were spindle-shaped with long, narrow nuclei and long cytoplasmic processes (Fig. 4). Collagen, stained by Van Gieson's and Masson's stains, was abundant and evenly distributed. Cartilage and calcified tissues were absent. The lesion was diagnosed as a fibroma.

The tumour tissue merged with connective tissue of the dermis and myosepta but could be distinguished by the greater density of these normal tissues (Fig. 5). One scale near the lesion edge appeared to have been enveloped by the tumour. Although the boundary between the fibroma and adjacent connective tissues was not distinct in some areas, there was no indication of invasiveness. Mitoses were scarce and no metastases were found.

Fibromas are common neoplasms in fishes and have been reported in several species

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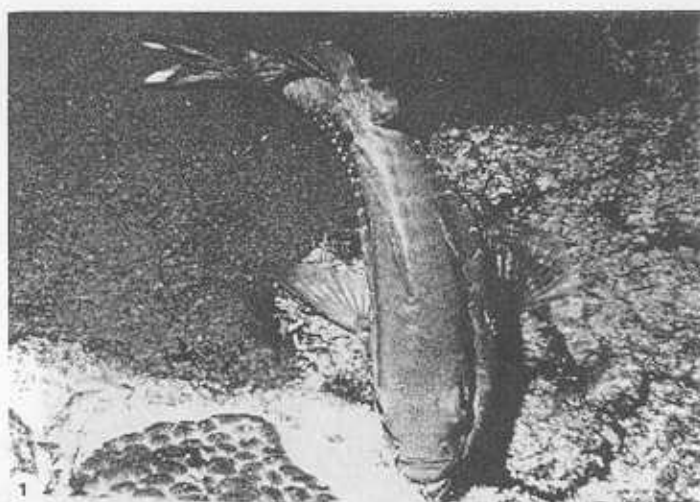


Figure 1. A male redband parrotfish, *Sparisoma aurofrenatum*, with a tumour photographed near a coral head immediately adjacent to the Hydrolab Habitat (photograph by Lucy Bunkley Williams).

(Wellings 1969); however, we know of no neoplasms reported for a Scaridae species or for a fish collected in the Caribbean region. Sigel (1971) reported that tumours, except for lymphocystis, were rarely seen in fish from the subtropical Atlantic. However, fish tumours have been reported from the Dry Tortugas and Bimini Islands, areas near the Caribbean (Lucké 1938, 1942; Tavalga 1951). Because of the popularity of scuba diving in Caribbean waters, numerous fishes are observed alive by sport divers and biologists. One of us (E.H.W.) has spent in excess of 1000 logged hours scuba diving to examine closely marine fishes for external parasites off Puerto Rico, Bermuda, U.S.



Figure 2. Sagittal section of the tumour after fixation in Bouin's solution.



Figure 3. Fibroma of randomly-oriented bundles of fibrous tissue. Normal skin covers the tumour surface (H&E, $\times 90$).

and British Virgin Islands, central and southern Bahamas, Dominican Republic, Jamaica, Barbados, Trinidad, Tobago, Curacao, Bonaire, Columbia, Panama and south Florida. During these dives, only two fishes other than the one described in the present report have been observed with externally expressed tumours. These other tumours have not been diagnosed and will be reported elsewhere. Among thousands of redband parrot-



Figure 4. Central area of the fibroma with long cells oriented in different planes (H&E, $\times 532$).

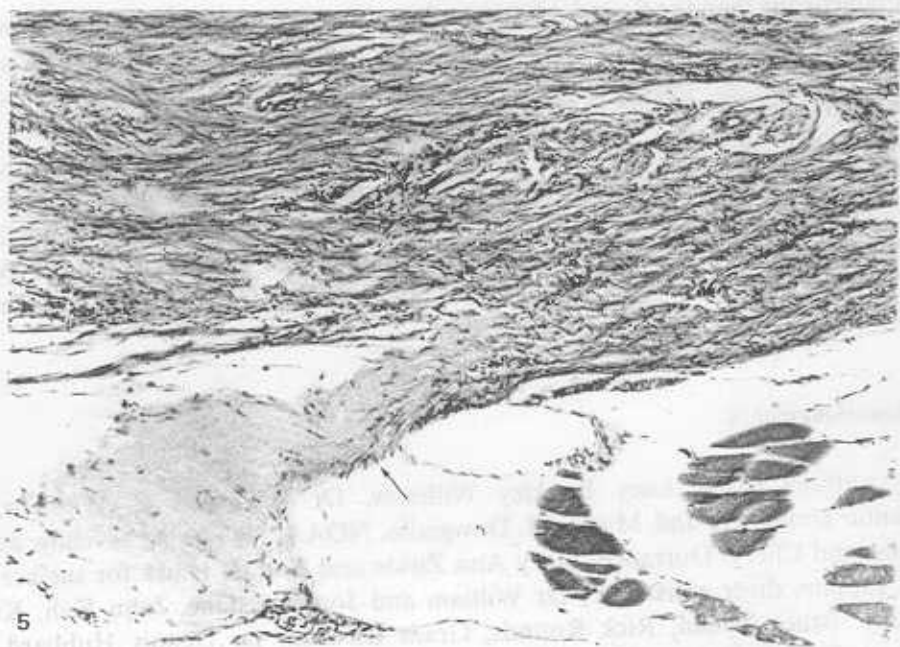


Figure 5. Basal region of the fibroma connecting to a myosepta (arrow) that is more dense and less cellular than the tumour (H&E, $\times 132$).

fish observed during dissertation research involving this species in Puerto Rico and St Croix, only one case of a possible tumour was noted by Ileana Clavijo of the University of Puerto Rico at Mayaguez (personal communication). This was a small protuberance on the posterior premaxillae of an uncollected specimen with an injured jaw.

The Hydrolab Habitat at St Croix has been the site of almost continuous scientific observation since 25 May 1978, but fishes with tumours have not been previously reported from the Hydrolab area. Many projects involved observation of fishes adjacent to the Habitat, and two missions (24–31 July 1978 and 5–18 October 1980) involved close examination of redband parrotfish. None of the redband parrotfish in the vicinity of the Hydrolab had externally visible tumours during 9–15 October 1980, approximately 6 months prior to collection of the specimen described in the present report (Ileana Clavijo, personal communication). The tumour may have developed in a local redband parrotfish during this six-month period or in a shorter time, as intermediate research teams did not note the presence of this conspicuous lesion. Also, the fish with the tumour could have moved into the Hydrolab area. Clavijo (unpublished data) followed individual redband parrotfish in an area near Puerto Rico for periods from 12 days to 20 months, averaging 5 months. Assuming a similar turnover rate for the Hydrolab area, there would be nothing unusual about the redband parrotfish with the tumour being a recent immigrant.

Overstreet & Edwards (1976) indicated that a fibroma in a southern flounder, *Paralichthys lethostigma* Jordan and Gilbert, was related to the presence of a nematode. No parasites were associated with the redband parrotfish tumour, which was more

homogeneous than the flounder fibroma that contained a parasite. No attempt was made to establish a viral aetiology, which has been suggested for fibrosarcomas of walleyes, *Stizostedion vitreum* (Mitchill) (Walker 1969). Chemical carcinogens are probably less common at the Hydrolab site than in more industrialized areas but cannot be eliminated as a cause of the tumour. Because of the location of the tumour on the fish and the large number of experiments conducted with fishes in the Hydrolab Habitat area, the possibility of a fish tag being associated with the lesion was considered. However, no fish tagging involving redband parrotfish has occurred in the area (Dennis Hubbard, West Indies Laboratory, St Croix, personal communication) and no trace of a tag was found in the fish.

Acknowledgments

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