

Short Note

A hagfish at Salmon Bay, McMurdo Sound, Antarctica?

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While installing some experiments in the extremely dark conditions at Salmon Bay in the extreme south-western part of McMurdo Sound in December 1988, a white patch was observed and photographed, and in the dark, it was assumed to be another example of the nemertean *Parborlasia corrugatus* (McIntosh, 1876) responding to the release of sperm from *Laternula elliptica* (King & Broderip, 1831) and foraging on the clam (Dayton *et al.* unpublished data). Lacking underwater lights on that dive, the animal

was not observed, and only recently the photograph was retrieved and it was realized that the animal was not a nemertean, but looked like a hagfish (Fig. 1). The basis of this diagnosis was the presence of a dorsal fin, myomeres and mucus pores. The idea was discounted, as hagfish have never been observed in the high Antarctic despite over a century of extensive use of seal and fish baited traps that surely would have attracted hagfish; however, after consulting several leading fish (Phil Hastings, Joe Eastman



Fig. 1. Possible hagfish at 30 m in Salmon Bay in 1988. The white patch is *Laternula elliptica* sperm. Chemosenses are the dominant sensory modality in hagfishes, and therefore homing in on the clam sperm would be expected feeding behaviour. The diameter of the urchin and cross section of the nemertean in the background are both *c.* 6–8 cm, demonstrating the rather small size of the suspected hagfish.

and Bo Fernholm) and invertebrate (Greg Rouse, Nick Holland, Rick Brusca and Julian Gutt) experts in late 2017, there was a consensus that the animal must be a hagfish.

Because of the frilly structures (hypothesized to be remnants of slime coming from the slime glands on the anteroventral part of the body) and the fact that hagfish have never been observed in McMurdo Sound despite more than a century of trapping and over 50 years of scuba diving and surveys by remotely operated underwater vehicle, the diagnosis is not definitive. Indeed, the only Antarctic record is a single hagfish, *Myxine australis* Jenyns, 1842, collected from the South Shetland Islands in 1924 (Fernholm 1990). However, Zintzen *et al.* (2011), with accompanying video, reported a New Zealand slender hagfish, *Neomyxine* sp., going down burrows in a very similar manner, and the Salmon Bay specimen does resemble *Neomyxine* spp. (Zintzen *et al.* 2015, fig. 6). Note that these small hagfish would probably slip through most net meshes, which may explain their absence in trawls. The photograph is presented here with the hope that future researchers will be aware of the photograph and the possible existence of hagfish at this latitude and that they will report further sightings or, hopefully, collect a specimen.

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Author contributions

PKD took the photograph and wrote the paper, and KH provided technical assistance with the photograph, manuscript preparation and submission.

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