



The goldrim surgeonfish (*Acanthurus nigricans*; Acanthuridae) from Diego Garcia, Chagos Archipelago: first record for the central Indian Ocean

MATTHEW T. CRAIG

Hawaii Institute of Marine Biolog, P.O. 1346, Kaneohe, HI 96744, USA. E-mail: mtcraig@hawaii.edu

The goldrim surgeonfish (also known as the whitecheek surgeonfish in the aquarium trade), *Acanthurus nigricans* (Linnaeus), is a common and widespread member of tropical reef fish communities throughout the Pacific Ocean. It has been reported at low densities at Cocos (Keeling) and Christmas Islands in the eastern Indian Ocean. Named *nigricans* for its characteristically dark body color, the species usually inhabits shallow depths on the outer reef crest just below the surge zone, but has been observed as deep as 67 m (Chave and Mundy, 1994). The species feeds on filamentous algae (Randall, 2001). In this paper I report the first occurrence of *Acanthurus nigricans* in the central Indian Ocean (Chagos Archipelago) and provide information on its biogeography and hybridization with *A. leucosternon* Bennett.

Acanthurus nigricans (Linnaeus, 1758)

Chaetodon nigricans Linnaeus, 1758

Acanthutut aliala Lesson, 1831

Acanthurus glaucopareius Cuvier, 1829

While collecting reef fishes at Diego Garcia Atoll on the southern end of the Chagos Archipelago (7°18' S, 72°24' E), British Indian Ocean Territory (BIOT) in March 2008, a solitary *A. nigricans* was observed in a hole on the wall of a precipitous drop-off near Cannon Point in approximately 20m water depth. Recognizing the importance of this record, the author collected the individual using a pole spear and photographed the specimen upon returning to the diving platform (Figure 1). The individual was 93mm SL, and was presumed to be a stray as none had been observed on previous dives. On several subsequent dives, however, the species was observed, photographed, and collected at two other locations around the atoll (Barton Point and Horseburgh Point). The three sites lie on separate sides of the atoll indicating that the species is not restricted to any one location at Diego Garcia (Figure 2) and is an uncommon but not rare member of the ichthyofaunal community. In total, 10 specimens were collected and sampled for genetic analysis, while several others were observed but not collected. Those not collected spanned a wide size range (~80mm – ~130mm) indicating that multiple year classes were present. Two specimens were deposited as vouchers at the Bishop Museum, Honolulu, Hawaii, and Scripps Institution of Oceanography Marine Vertebrates Collection, La Jolla, California (BPBM 40895, SIO 08-95).

It is noteworthy that *A. nigricans* is a member of the *Acanthurus achilles* species complex known for their propensity to hybridize (Randall and Frische, 2000). The four species in this complex (*A. achilles* Shaw, *A. japonicus* Schmidt, *A. leucosternon* Bennett, and *A. nigricans*) are thought to hybridize where their distributional ranges overlap. Marie et al. (2007) confirmed the existence of the hybrid *A. leucosternon* x *A. nigricans* from Cocos (Keeling) and Christmas Islands (eastern Indian Ocean) using genetic techniques. At Diego Garcia, one individual was observed and collected (SIO 08-95) which displayed the color pattern described by Randall and Frische (2000) and Marie et al. (2007) as this hybrid. Although yet to be confirmed genetically, we presume this to be the case and document the presence of this hybrid at Diego Garcia. Following the collecting trip, the author was provided with a photographic record of a recently transformed juvenile *A. leucosternon* x *A. nigricans* hybrid from Maldives by Mr. John Coppolino. This marks the first record of the hybrid at Maldives and may indicate the presence of *A. nigricans* as well.

Diego Garcia is a small atoll situated on the southernmost end of the Great Chagos Bank (Figure 2, inset). This area, which is the southerly portion of the Maldivic/Laccadive ridge, is a scattered series of atolls and banks separated by water depths of 500–2000m. The Chagos Archipelago is one of the most isolated in the world, separated by approximately