

Iconography of Haliotidae of Southern Africa

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ABSTRACT The five living species of Haliotidae found in Southern African waters are discussed in detail, descriptions are provided, and a series of images illustrate the variability in color and pattern of these species and a differential diagnosis photographic plate is provided.

KEYWORDS Haliotidae, South Africa.

INTRODUCTION

The combined ranges of the five South African *Haliotis* species extend from approximately the False Bay coast near Cape Town, to northern Natal (Figure 6). Two of the five abalone species (*Haliotis midae* Gmelin, 1791, and *H. spadicea* Donovan, 1808) are very common, the first having been commercially fished for many years; a third species (*H. parva* Linnaeus, 1758) is much less common and is quite popular with *Haliotis* shell collectors due to its bright and colorful shell patterns; while the remaining two taxa (*H. queketti* Smith, 1910, and *H. alfredensis* Bartsch, 1915) are quite small (the first <50 mm, the second <80 mm), are uncommon to rare, and are highly sought by shell collectors. These five South African abalone species are individually discussed below.

Abbreviation of Collections: **MJC:** Mark Jones Collection, New Zealand. **DDC:** Dwayne Dinucci Collection, Auburn, California, USA. **RKC:** Robert Kershaw Collection, Narooma, NSW, Australia. (All other shells in Buzz Owen Collection).

SPECIES ACCOUNTS

***Haliotis midae* Linnaeus, 1758.** (Figure 1)

One of the world's six to seven largest abalone species attaining a size in excess of 230 mm, though not common over 200 mm primarily due to extreme fishing pressure and a severe poaching problem.

Description. Shell large (to 234 mm MJC), somewhat elongate, slightly arched, hardly convex, medium weight to heavy. Spire low, visible in ventral view. Holes small, round, strongly raised, usually 7-10 open. Dorsal surface with tightly spaced, narrow, sharp, radial lamellae. Lamellae may be discontinuous between suture and row of holes (lamellae are often not present on juveniles <30 mm). Columella in anterior part of medium width forming acute angle between row of holes and columella proper, in posterior part forming broad convex shelf protruding over margin of shell, which forms ledge below row of holes. Color uniform; often rust red from east coast, and frequently white from west coast (these differences are caused by changes in algae consumed). Spire region usually eroded by scouring or boring organism, showing blueish nacre. Nacre with milky base color, patches

with blue and green pigment color, and irregular dark conchiolin deposits. Nacre in spire region usually without red pigment. Muscle scar with indistinct border, broad spiral striation, and irregular crenulation.

***Haliotis spadicea* Donovan, 1808.** (Figure 2)

The second most common abalone species in South Africa, often called the “blood spotted abalone”, is found in shallow subtidal areas and is distributed widely from Jeffreys Bay south to Cape of Good Hope. This species has a very pronounced region of reddish pigment in spire areas in both dorsal and ventral surfaces. Usually dark reddish brown to almost black in color, it does not appear to show indications of diet influenced banding, but has strong genetic whitish irregular markings, particularly in younger stages of growth.

Description. Adults: Shell medium sized (to 105 mm RKC), elongate oblong, light to medium weight, arched, convex. Shell inflated around spire. Spire little elevated, somewhat visible in ventral view. Anterior margin characteristically undulating. Holes large, round, flush with surface of shell, usually 6–9 open. Dorsal surface smooth, with spiral depression between suture and row of holes. Some with irregular radial folds. Columella narrow. Color uniformly rust, between row of holes and columella radial banding in washed out rust and light blue. Nacre with light blue tint, in area of spire usually red pigment color. No muscle scar.

***Haliotis parva* Linnaeus, 1758.** (Figure 3)

The most common of the three smaller highly colored abalone species prized by collectors. Occasional specimens may be confused with *H. alfredensis*, but the strong mid-dorsal raised rib differentiates it. *Haliotis alfredensis* sometimes shows a very slightly raised area in the mid-dorsal region, but is much less pronounced than *H. parva*. Shells that appear to show

characteristics intermediate between these two species are known, but are extremely rare. Confirmation of hybrid status awaits study of an animal, which thus far remains unknown.

Description. Shell small to medium size (to 59 mm: DDC), lightweight, little arched, little convex, somewhat elongated, anterior margin slightly curved. Holes medium sized, round, elevated, usually 4–7 open. Dorsal surface with fine spiral threads. Threads subdivided into minute rectangular areas giving slightly scaly appearance. Single, spiral, rounded ridge at approximately $\frac{2}{3}$ to $\frac{3}{5}$ from the suture towards row of holes. A blunt ledge occurs between row of holes and columella. Columella narrow to medium width. Coloration variable: usually mottled in two colors; colors include brown, dark and light red, dark and light green, cream, off-white; blotchy mottling or with triangular elements. Unicolor specimens also known. Rarely, specimens will illustrate areas of diet banding. Solid orange specimens regularly encountered. Nacre bright white. No muscle scar.

***Haliotis queketti* Smith, 1910.** (Figure 4)

This species is considered by many to be the world’s most beautiful species of *Haliotis* due to its extreme variations in color and genetic patterns and markings.

Description. Shell small to medium sized (to 52 mm: BOC), rounded, lightweight, little arched, little convex. Spire strongly elevated, fully visible in ventral view. Holes medium sized, round, strongly elevated and tubular, usually 4–5 open. Dorsal surface occasionally with somewhat weak spiral ridge approximately in the middle between suture and row of holes, with regular radial folds from suture to spiral ridge, with faint spiral cords, occasionally with scaly ribs. Area between row of holes and columella with approximately four distinct

ledges bearing crenulations to scaly ribs, the dorsal most being the largest. Lateral area in smooth transition to columella. Color blood red, orange, dark green with cream prosocline rays, or with blotches, often in radial arrangements; banding pattern between row of holes and columella. Solid orange specimens occasionally encountered. Nacre blue with strong magenta sheen, with radial markings and usually with spiral depression. No muscle scar.

***Haliotis alfredensis*: Bartsch, 1915.** (Figure 5) Easily the rarest and most sought by collectors of all South African *Haliotis*, this species was long listed as *H. speciosa*, Reeve, 1846, due to a mistake in the literature made sometime in the 19th century. Owen discovered the error on a visit to the British Museum of Natural History in 2005. The syntypes of *H. speciosa* actually represent a species that is distributed in the Dakar area of Senegal, West Africa. This left the East African Transkei coast species with the later name *H. alfredensis* placed on it by Bartsch in 1915.

Description. Shell small to medium sized (to 79 mm: BOC), oval, medium weight, little arched, little convex. Spire little elevated, somewhat visible in ventral view. Holes medium sized, round to oval, somewhat elevated, usually 6–8 open. Dorsal surface with fine, somewhat irregularly spaced spiral threads, with a subtle spiral depression a little closer to the row of holes than to suture. Color dull red, brown, and sepia, with blotches of white, cream, or green; occasionally with finely mottled spiral bands; some specimens unicolor, solid orange form very rare. Columella narrow. Nacre bright with steel-blue sheen, usually with indistinct spiral depression. No muscle scar.

DISCUSSION As noted, a genetic solid orange color phase exists with three of these abalone species, *H. parva*, *H. queketti*, and *H.*

alfredensis. This solid orange color phase is most commonly observed with *H. parva* (perhaps as often as 10%), and less often found in *H. alfredensis* and *H. queketti*. Four specimens of this color phase are illustrated in the center rows of their species respective figures. This color phase has not been observed with either *H. midae* or *H. spadicea*.

A sixth abalone species, *H. pustulata* Reeve, 1846, may exist in the extreme northern part of South Africa; in the Durban area and at Park Rynie, along the coast of Natal. (Alwyn Marais, Werner Massier, Dawn Brink, and Steve Browning, personal communications). However, *H. pustulata* is generally recognized as a western Indian Ocean species and the few shell fragments, whole beach shells, and one or more live-taken specimens of this species found in the past 30 years suggest that it is extremely rare in this southern most extreme of the species' range.

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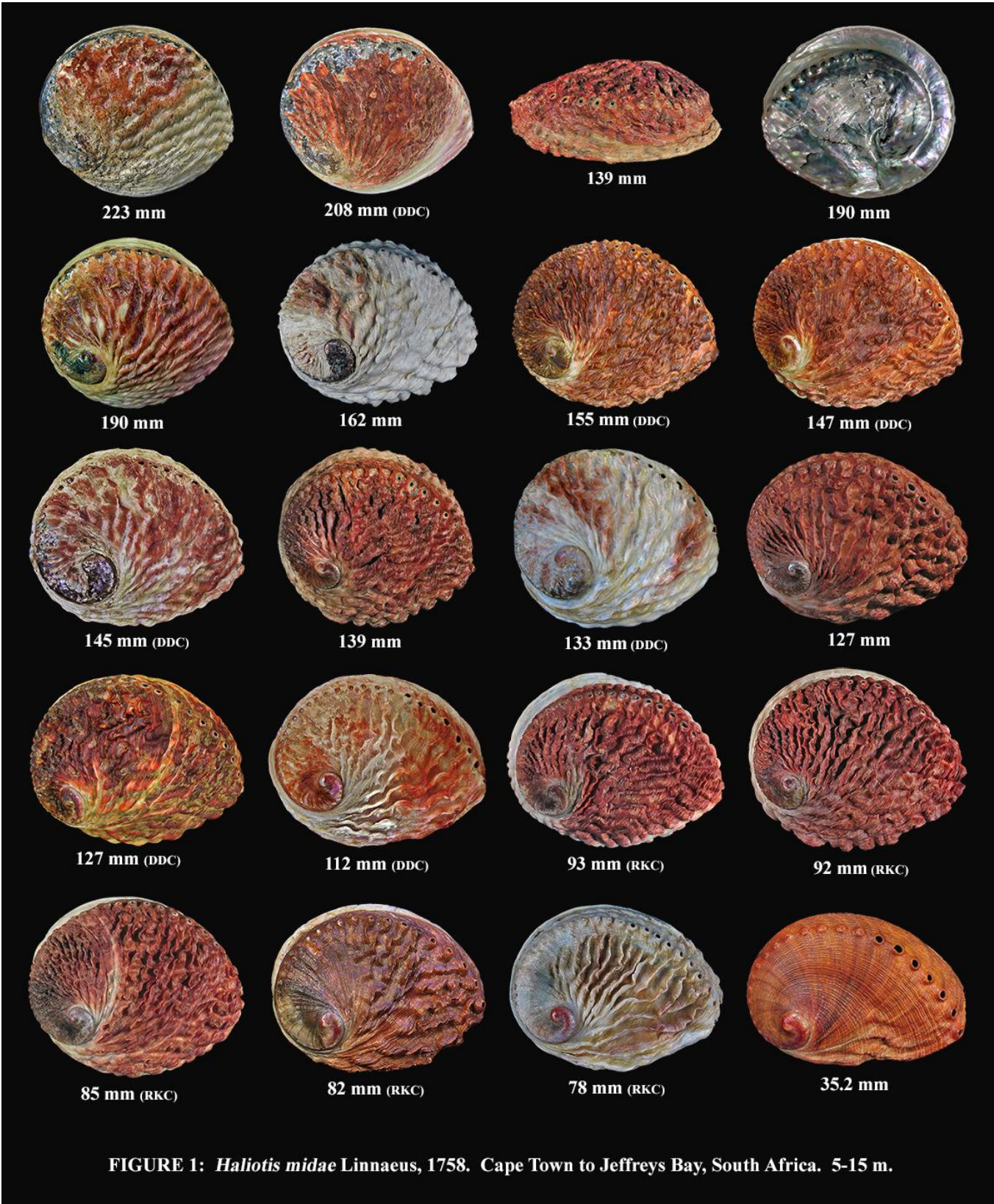


FIGURE 1: *Haliotis midae* Linnaeus, 1758. Cape Town to Jeffreys Bay, South Africa. 5-15 m.









