

factor in preventing the head fold of the amnion from migrating in the usual manner. The same phenomenon is found in Schreiber's long-fingered bat, where mesoderm activity in the tail region is advanced to that in the pro-amniotic region. In one of the younger embryos, prior to splitting of the mesoderm, the mesoderm layer in the tail region is composed of more than one layer while it is still single-layered in the pro-amniotic region. This, together with the fact that splitting of the mesoderm is initiated over the posterior side of the embryo would suggest that mesoderm migration into the tail region is more advanced compared to the situation in the pro-amniotic region.

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First record of the sea anemone *Metridium senile* from South Africa

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A sea anemone new to the South African fauna is reported from Table Bay Harbour and is identified as *Metridium senile*. The population was probably introduced from Europe and although well established, appears to be restricted to the harbour area.

Numerous exotic species have been either deliberately or accidentally introduced into terrestrial and freshwater ecosystems throughout South Africa, often with severe ecological consequences (MacDonald, Kruger & Ferrar 1986). By contrast, relatively few marine introductions have been documented (Griffiths, Hockey, Van Erkom Schurink & Le Roux 1992) and only two such species have established significant naturalized populations. These are the Mediterranean mussel, *Mytilus galloprovincialis*, which is now the dominant intertidal invertebrate along the west and southwestern coasts of the country (Van Erkom Schurink & Griffiths 1991), and the European shore crab, *Carcinus maenas*, which is locally abundant in Table Bay, but remains restricted to a few sheltered sites elsewhere (Griffiths *et al.* 1992).

In September 1995 one of us (CES) recorded the presence in Table Bay Harbour of a colony of sea anemones with lobed oral discs fringed by abundant, feathery tentacles — features inconsistent with any previously known anemone from the region. We subsequently photographed and collected several individuals from the Alfred Basin. Fully extended anemones were salmon pink in colour, with a column approximately 100 mm in height and 30 mm in diameter. The oral disc was expanded into five elongate lobes and fringed with extremely numerous, short 'feather-duster'-like tentacles. Specimens collected alive and held under laboratory conditions contracted to about 30 × 30 mm and maintained shorter lobes on the disc (Figure 1). These features undoubtedly identify the specimens as belonging to the genus *Metridium*, within the monogeneric family Metridiidae, a group not previously recorded from southern Africa.

Sea anemones of the genus *Metridium* are common from the littoral zone to depths of several hundred metres along both east and west coasts of North America and along the Atlantic coast of Europe (Fautin *et al.* 1989). Populations have also been reported from Japan (Uchida 1938) and Argentina (Riemann-Zurneck 1975). Systematic relationships within the genus have long been a subject of confusion, some

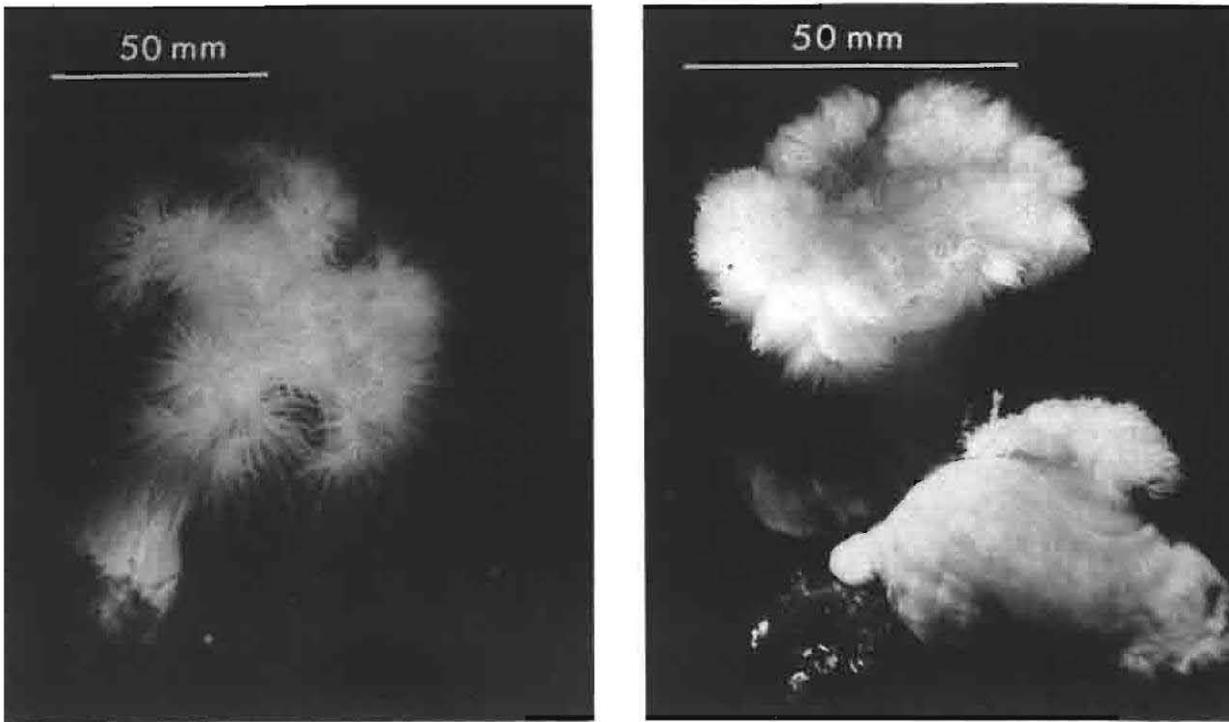


Figure 1 *Metridium senile* fully extended *in situ* in Table Bay Docks (left) and both partially expanded and fully deflated under aquarium conditions (right).

authors recognizing a single, highly variable species (*M. senile*), and others a variety of localized species or morphs (Fautin *et al.* 1989). The current situation is that three distinct species have been established on the basis of a combination of morphological and biochemical genetic evidence (Bucklin & Hedgecock 1982). The characteristics of these species — *M. giganteum*, *M. senile* and *M. exilis* — are compared by Fautin *et al.* (1989). *M. giganteum* is usually opaque-white in colour, has a relatively elongate column and a stiff, strongly-lobed oral disc surrounded by fluffy-looking tentacles. It reproduces sexually and is usually solitary, occurring subtidally along the Pacific coast of North America. As the name implies the species grows to a very large size — up to 200 mm column diameter and 1 m in height! *M. exilis* is orange to pink, does not have lobes on the oral disc and reproduces primarily by longitudinal fission, so that it is usually found in clonal groups. It is restricted to the intertidal zone of Pacific North America and does not exceed 18 mm in height. The third and most widespread species, *M. senile*, is polymorphic in colour and has flaccid lobes on the oral disc. It reproduces both sexually and asexually and is common in shallow sheltered habitats on both sides of the North Atlantic, with outlying populations in Japan and Argentina. The species attains 100 mm in height. Based on these descriptions the South African material reported here can clearly be attributed to *M. senile*.

The population of *M. senile* in Table Bay Docks is located on loose, silt-laden boulders and other objects, such as old motor car tyres and even plastic bags, projecting through the soft sediments on the floor of the older Victoria and Alfred Basins over a depth range of 6–12 m. The area surveyed contained at least several hundred specimens arranged individually or in small groups at a density of up to ca 10 per m². All

were salmon pink in colour. The overall extent of the colony could not be established because of the poor visibility, intense boat traffic and otherwise difficult diving conditions in the dock area, but no records have yet been reported from outside the harbour. The source and date of introduction can only be speculated on, but it appears likely that the species was introduced from Europe, like the European shore crab and Mediterranean mussel. Given the ability of *M. senile* to reproduce by pedal laceration, and the uniform colour of South African specimens, the population could have originated from a very small founder colony, or even a single individual.

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