

South Georgia and the South Sandwich Islands - Corals

When people think of corals they often picture the famed shallow water reefs that live in tropical waters. In fact there is a vast wealth of coral thriving in cooler and deeper waters all around the globe. Rather than relying on the sun and energy from symbiotic algae in their tentacles, as shallow water corals do, deep water corals waft their tentacles through the cool ocean waters sifting marine snow (organic particles made of dead organisms that fall from shallow waters) and zooplankton for sustenance. There are actually more coral species found in deep than shallow water though much less is known about their ecology, reproduction, or even where exactly they are found.

Most corals require hard or rocky seabed to attach to and the ample rocky seafloor and cool productive waters around Antarctica are ideal for this purpose. The seafloor surrounding South Georgia and the South Sandwich Islands seems to provide a particularly good habitat for corals to settle onto and the productive waters provide a rich food supply for growth. Consequently a wealth of coral has been recorded from these waters.

Deep-water corals are quite varied; black corals, hard corals, soft corals, lace corals and octocorals all live in deep water, some to depths of more than 5 km. Black corals, confusingly, tend to have bright orange or white polyps; they are so named as their skeleton is black. Hard corals have a solid calcium carbonate skeleton whereas soft corals have just small scales of calcium carbonate embedded in their tissues, making them very flexible. Lace corals, such as the one represented on the 90p stamp, are a type of hydroid with a hard skeleton and can look very similar to hard corals. Octocorals are defined by having polyps with eight ('octo' means eight) tentacles. In the deep water around Antarctica, families of octocorals tend to have polyps covered in plates of calcium carbonate and it is the structure and shape of these plates that define different species. Three unidentified octocoral species of the *Thouarella* and *Paragorgia* genera are represented in the 55p, 65p and £1.10 stamps. The difficult task of telling different species apart explains why the corals represented in this stamp set are without species names. Many new species of corals have been described from Antarctica in recent years and there are many more to come.

Deep-sea corals, in common with their shallow water cousins, provide homes to hundreds if not thousands of different species of starfish, brittlestars, worms, sponges and other invertebrates. There is also evidence that some fish species favour deep-sea coral habitats, though much more research is required to assess the exact link between fish and coral. This does, however, make coral protection an important consideration in fisheries management as coral can be destroyed by fishing gears that contact the seabed, such as bottom trawls and longlines and fish may need this coral habitat for part of their life cycle e.g. as a feeding ground or for egg attachment. Coral protection is especially important in light of the fact that many deep-sea corals are very slow growing and extremely long lived, making recovery from damage a process measured in centuries. Recently a black coral was aged at over 4250 years old, making these corals some of the oldest living creatures on earth.

At the Institute of Zoology (Zoological Society of London) a collaborative project with the Marine Resources Assessment Group, funded by the U.K.'s Natural Environment Research Council (NERC) is discovering new species from samples that are caught as by-catch in the Patagonian toothfish long-line fishery around South Georgia. DNA sequences are used to identify samples with different genetic fingerprints known as "DNA barcodes", from those of known species; these samples are then investigated morphologically and many have been identified as new to science. On a wider scale, DNA barcoding results can also be used to highlight hotspots of octocoral diversity and provide useful information for fisheries and conservation managers. For more details see: www.zsl.org/michelletaylor.

Text provided Michelle Taylor, MSc, Zoological Society of London and Imperial College London.

Technical Details

Designer	Andrew Robinson
Printer	Cartor Security Printing
Process	Stochastic lithography
Values	55p, 65p, 90p, £1.10p
Stamp size	35mm x 35mm
Perforation Gauge	13 per 2cm
Release date	9 November 2009
Production Co-ordination	Creative Direction (Worldwide) Ltd

Credits:

Photography by Lindsay Jones/MRAG except for the 65p value by Dr David Barnes/BAS

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