

Ross Sea Sponges

One hundred and twenty five demosponge species are known from the Ross Sea in the Antarctic, 49 of which have been recorded in Terra Nova Bay. The most common species are *Tedania charcoti*, *Axociella nidificata*, *Calyx arcuarius*, *Isodictya erinacea*, *I. cactoides*, *I. conulosa*, *Gellius rudis*, *Gellius* spp., *Myxilla elongata* and *Phorbas glaberrima*. Two of the 49 species we found are new for Antarctica: *Eспериopsis informis* and *Isodictya conulosa*. Most of the sponges were collected at 70–120m depth.

The success of sponges in habitats characterized by fluctuating food supply during the year is difficult to understand. In fact, in winter, low nutrient conditions in the water column could represent a metabolic constraint for a filter feeder. A possible explanation could be the direct uptake of diatoms that manage to live for a long time within the sponge tissues. Sponges, therefore, by transferring energy from the water column to the benthos, play a key role in the Antarctic environment. An unusual physical phenomenon has been detected, by studying the sponge/diatom association: spicules conduct light as natural optical fibers. Sponges, and particularly hexactinellids, greatly affect sediment quality by forming mats, up to 1.5-m thick, because their siliceous spicules take a very long time to dissolve.

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