

CORAL SPAWNING

Picture in your mind a coral reef: clear turquoise water, a myriad of brightly coloured fish, a spectacular array of plants and animals of all shapes and colours, miniature branching forests. Coral reefs are among the most diverse natural communities on earth and are rivalled only by tropical rainforests in the number of plants and animals which exist together.

Surrounding the Lowendal Islands are numerous fringing reefs and reef patches of varying sizes and shapes. The builders of these reef patches are tiny tentacled animals, or polyps, which are related to such diverse forms as jellyfish, hydroids and sea anemones.

Corals are unique in the animal world in that they have evolved the ability of extracting calcium carbonate (limestone) from the surrounding seawater and depositing it to form hard skeletons, the foundations of a coral reef. Corals, and consequently reefs, grow by budding or cloning new polyps. However, the corals would not be able to grow if they did not live in a mutually beneficial relationship with minute single-celled algae which live within the cells of the coral polyp.

As mind boggling as the development of a coral reef can be, even more amazing is the once-a-year, synchronized mass spawning of millions of egg and sperm bundles by entire coral colonies.

Corals have developed into imaginative reproducers and have evolved several methods for reproduction: the most important means is by sexual reproduction.

Because corals are immobile, they obviously cannot move into sexual contact. So how do they overcome this minor problem?

Simple. The corals release gametes (eggs and sperm) directly into the water for external fertilization. Not only does fertilization occur, but genetic mixing and dispersal are helped.

If all the corals decided to release gametes indiscriminately, chances are that very few eggs and sperm would get together. To overcome this problem, the corals synchronize themselves to the correct day: the main triggering devices are darkness and a neap tide.

But how do the corals know which night and which tide? Corals around the Lowendals (in fact most of Western Australian coral reefs) wait for sunset during full moon when the tides are at their weakest (neap tide)

But which full moon? To solve this problem, corals choose the time of the year when the water temperature increases with the advent of the Leeuwin Current.

The result of this synchronized spawning is one of the most dramatic, energetic and tumultuous of marine events.

Around the reefs of Western Australia, spawning occurs in March on the 8th and 9th day after the full moon. The best way to observe this phenomenon is to pop into the water just after sunset and wait. Patiently.

Suddenly, you become enveloped in a cloud of red water.

Millions of pinkish red egg-and-sperm bundles have been vigorously ejected out of the mouths of corals into the water. These bundles break apart and the mass hit and miss frenzy of the right egg meeting the right sperm begins.

Simultaneously, a mass of red, writhing marine worms (polychaetes) appear from nowhere, feeding frantically on the egg bundles adding to the overall plethora of activity.

After the awed excitement dies, you may wonder what happens next. Approximately 24 hours after fertilization, a planula larvae is formed which both swims actively and passively drifts, for hours, days, weeks, sometimes months.

Eventually, the larvae detects a suitable hard substrate (presumably by chemical means) and settles. Once settled, the larvae begins to deposit its limestone skeleton thus contributing to the expansion of the reefs around the islands.

