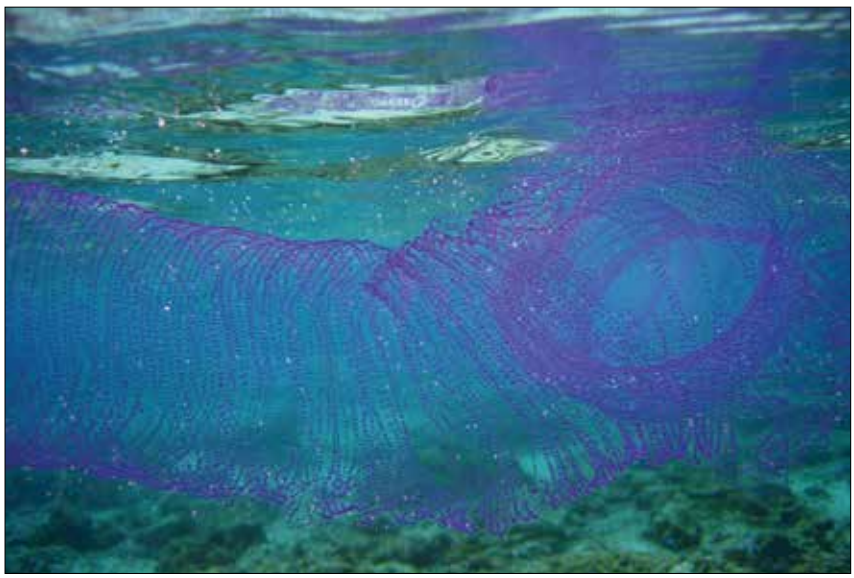

Diamondback squid (*Thysanoteuthis rhombus*)

Discoveries can be made in a multitude of ways. New species do not often leap out and announce themselves, and it can take years of experience to firstly recognise that something is potentially new, then to undertake the necessary research to prove it is in fact unique.

New species are often found in herbarium and museum collections many years after they were collected. Most biological surveys aim to maximise the collecting outcome by gathering all of the species that are present in a particular area. If specimens belong to taxonomic groups for which no immediate expertise is available, they may sit unidentified for years.

The subject of the present article does not belong to a herbarium or museum collection, and is not a new species, but certainly fits the narrative of a discovery, even if it is only a personal revelation, a mystery that has puzzled me for many years.

In February 2006, I was participating in a marine biology survey of Scott Reef, more than 300 kilometres off the coast of north-west Western Australia on the edge of the continental shelf. Scott Reef is massive reef system comprising two separate atolls, the horseshoe shaped South Reef and the slightly smaller, circular North Reef. Combined, the two reefs and their lagoons cover an area of approximately 250 square kilometres.

Towards late afternoon I was snorkelling at high tide on the reef flat, in around two-or-three-metre depth water, when I noticed an unusual spiral organism, something I had never seen before, floating just beneath the surface. Curiosity suitably aroused, I approached it slowly, taking photos as I went.

Close viewing didn't help me identify this strange creature, which bore a striking resemblance to a 'slinky', the children's toy. It was about two metres long, composed of a long strand, coiled into a spiral of about 15 centimetres diameter. I took several general shots, and then also some macro images of the structure of the strands.

Thinking that what I was seeing was so distinctive that someone will know what it is, I headed back to the boat, sure that my strange creature would be easily identified. Back on board I showed people my images, to a universal response of 'no idea'.

The macro shots showed that the strands were clear (probably mucilage) and contained thousands of spherical bodies, which I guessed might be eggs. But what might have laid them? It must surely have been something large to produce an egg mass of this size.

Like most people, I sought an answer in books and on the internet. Initially it was thought to be a pyrosome, a rather odd looking free-floating colonial tunicate that can reach a remarkable size of up to 18 metres long, but the structure was totally wrong.

I posted the images to various sites and was offered some suggestions, but eventually these also settled on eggs of an unknown source. My searching did reveal other images of the same spiralled egg mass, some with suggestions that it was a stinger to be avoided.

Recently I was browsing an underwater photography magazine and happened across an almost identical image of my mystery organism. It was identified as a pyrosome, but knowing this to be wrong my search for an identity was reinvigorated. To my surprise, this time I hit on the answer.

They are the eggs of the diamondback squid (*Thysanoteuthis rhombus*), a large squid that can grow up to one metre in length and 24 kilograms total body weight. These squid are found worldwide in tropical and subtropical seas. They have a unique social organisation (for squid), living throughout their life cycle in couples of similar sizes.

Encountering their eggs is a rare event. One of the articles I read noted that only a couple of dozen such egg masses had been recorded worldwide. So, mystery finally solved, and I can count myself among the select few that have seen these things in the wild.

Above Egg mass of the diamondback squid, Scott Reef.
Photo – John Huisman