



# Hopes Rise For Coral Sea Reefs

Billy Sinclair & Katrina Farrell

## A voluntary stop on commercial fishing of the Coral Seas off Queensland offers hope that this unique underwater environment can be conserved. Ayr SAC man Billy Sinclair and local journalist Katrina Farrell file this report ...

A UNIQUE announcement made in May 2007 was greeted with a great deal of enthusiasm among the dive community here in Queensland. The agreement, between dive boat operators and the Coral Sea Fishers Association means commercial trawlers will no longer take fish from Osprey, Bougainville, Flora, Dart and Herald's Surprise reefs, effectively leaving them to recreational fishing and dive boat operators. In an unprecedented step, one of the largest commercial fishing groups operating in the Coral Sea has voluntarily given up

As an added extra, some of the things you don't see on TV can make seamounts important from a diversity and conservation perspective.

The Coral Sea Islands Territory includes a group of small and mostly uninhabited tropical islands and reefs in the Coral Sea, northeast of Queensland. Covering in excess of 780,000 km, this area offers some of the most exhilarating and pristine diving in the world.

The islands were charted back in the early 1800s and were extensively mined for guano in the 1870s, but a lack of fresh water sources terminated any long-term role they may have had. They became the Coral Sea Islands Territory in 1969, prior to that, they had been regarded as part of Queensland. Distinct from the Great Barrier Reef with which we are all familiar (and which still belongs to Queensland) - the outer edge of the GBR forms the boundary with the

Coral Islands Territory.

Overall, there are around 30 distinct reefs and atolls in the Coral Islands Territory, ranging in size from a few kilometers to 2,500km<sup>2</sup> (Lihou Reef, the second largest atoll in the world). While many of these atolls form important nesting areas for seabirds and turtles, one of their best facets is most frequently hidden below the surface.

This whole area is renowned for its big fish, amazing diversity and excellent visibility. Tie that together with the fact that they lie well outside the GBR and are too far for most of the dayboats to reach, these atolls and reefs represent some of

the last truly wild places to dive off the coast of Australia.

Given their isolated geography and the fact that they are in the open ocean, not part of the barrier reef lagoon system, these reefs consistently have excellent visibility (usually over 30m, frequently over 50m). These underwater mountains rising from the seafloor to the ocean's surface are usually hotbeds of marine life.

As they stand clear of the seabed (at depths often exceeding 1000m, they concentrate water currents and upwellings (where cold, nutrient-rich, deepwater moves up along the steep sides of the seamount). In these strong and very localised currents and upwellings, the biomass of plankton is often high and combined with the constant influx of prey organisms, means that they can attract large numbers of fish - of all shapes and sizes!

Globally, fish catches are in decline and have been since the early 1980s. Consensus opinion is that the world's fish stocks across continental shelves are in serious danger of overfishing (due to a combination of bad management practices and increased fishing pressure and capability). This in turn creates increased pressure on new fishing grounds.

*continued on Page 29*



*Manta ray*



*sweet lips in formation*

fishing rights on reefs important to tourist operators!

This agreement has come about as a formalisation of a gentleman's agreement between the Coral Sea Fishers Association (CSFA) and Andy Dunstan from adventure and research vessel Undersea Explorer, a member of the Cod Hole and Ribbon Reef Operators Association (CHARROA).

These sites, which require a serious investment in time and effort to reach, represent drift, wall and reef diving at its best. They include drift dives along vertical walls over 1000m deep and coral gardens that stretch further than the diver can see; and the smallest of nudibranchs to the huge potato cod. You can also see the graceful and balletic manta ray, the explosive power of the grey, silky, tiger and hammerhead sharks, and the chaotic milling shoals of reef fish dancing in the currents.

Sights that you only see on television!



*Hammerhead sharks*

# Hopes Rise For Coral Sea Reefs



*Spanish ODancer*



*Filefish*



*Olive seasnake*



*Brightly coloured nudibranch*



*Barracuda*



*Mating nudibranchs*

## HOPES RISE FOR CORAL SEA REEFS

continued from Page 25

This has been a matter of record for the Atlantic cod fishery for years. Australia is not immune to this phenomenon. The Coral Sea fishery covers an area in excess of 92,000km<sup>2</sup> and a broad range of finfish are targeted including; tropical snappers *Lethrinidae*, and emperors *Lutjanidae*, several species of cod, damselfish, butterflyfish, angelfish, wrasse, anemone fish, surgeonfish, blennies and gobies, trochus shell *Trochus niloticus* and tropical rock lobster *Panulirus ornatus*. There is no overall stock status recorded as most stocks are not assessed.

Globally, seamounts are becoming more and more important as potential 'new' fishing grounds and such a heavy impact on a previously pristine ecosystem could prove catastrophic. Such deepwater fisheries tend to display a 'boom and bust' pattern and crash within a decade as stocks are eradicated - as was shown with the orange roughy *Hoplostethus atlanticus* fisheries off New Zealand.

Generally the species targeted at seamounts have a very low overall abundance, but aggregate there as part of their life cycle strategy, e.g. for spawning. They are often long-lived, slow growing, late maturing (at ~30 years), and have low reproductive potential, so it could be decades before these localised stocks recover.

As part Head of Central Queensland University's Marine Molecular Genetics group, I access Osprey Reef as the main site for our work on nautilus - the cephalopod relative of the octopus, cuttlefish and squid that is basically a swimming snail with extreme diving capabilities!

Nautilus - *Nautilus pompilius*, along with siphonophores and angler fish, is one of the ocean's weird creatures. Cephalopod translates as 'head-foot' and nautilus literally fits that description. The head of this amazing animal protrudes from the classically curved shell and is surrounded by up to 96 small tentacles. They are found at depths of 200-400m, scouring the rocky slopes for detrital matter and hunting for small crustaceans.

The nautilus shell (which many of us are familiar with from shell shops and internet sites) is an amazing feat of engineering - it forms a delicate spiralling series of chambers which are used both as accommodation for the animal but also to control its buoyancy in the water column - a skill at which it leaves even the best of us in awe! The structural engineering of the shell allows the animal to descend to depths of 700-800m in search of food, a mate, shelter etc. Beyond that depth, the external pressure on the shell becomes too great and it can implode.

Now, the main problem with nautilus is its shell. Not through any design flaw,



The potato cod

but through human desire to own one. Fishing for nautilus is big business, especially in the Philippines, where the Sulu sea is almost completely devoid of nautilus (each fisherman catching upwards of 1,500 animals per week for shell export).

Linking back to the announcement of no commercial fishing by the Coral Sea fishermen around these reefs is crucial to the ongoing stability and survival of the nautilus population around sites such as Osprey, Shark and Bougainville Reefs.

The animals at Osprey are thought to number around 7,500 - a number which could easily be wiped out by commercial fishing. If this were to happen, it could essentially mean the end of these unique animals at Osprey - the surrounding water is over 1,000m deep and the animals don't like open ocean swimming (they are easy prey for sharks and groupers etc.). In effect, the existing animals are essentially imprisoned here and there is not significant migration from other reefs to continually sustain the population in the face of fishing pressure.

So, from this agreement between what appear to be disparate groups, significant progress has been made in maintaining (as divers from all over the world can testify) the marine life found at sites like Osprey, Shark and

Bougainville reefs and it will hopefully be with us for a long time to come.

*Billy is head of the Marine Molecular Genetics group at Central Queensland University, in Queensland and still a member of Ayr Sub Aqua Club and still misses the wrecks of the Clyde. Katrina is a journalist working in the Gold Coast, Queensland*

The remarkable nautilus

