

Bremer Bay's Albino Dragon



Well, he received a surprise on a dive in April this year. In the bay's teeming temperate waters an unusual juvenile albino leafy seadragon appeared. Yes, you read right! While there hasn't been a chance to check the DNA profiling of this particular little dragon, there's plenty of photographic evidence. Along with the albino was another youngster with the normal pinkish hue they're born with. They were hovering together, much the same size and appeared to be siblings. What combination of factors or parentage has produced the little oddity isn't known, but he's an outstanding little dragon.

Craig was escorting a couple of divers in search of leafy dragons and spotted two adults. While the divers were watching and photographing them from a few metres away, Craig noticed a peculiar white-ish shape in the distance. Finning closer, he discovered it was a totally white young leafy seadragon. The striking white vertical stripes of the standard leafy merge into their usual khaki green and yellowish body colour. Because it was so

pale, this little fellow's stripes were barely visible.

Craig's been observing dragons at this site since 2001. In December 2003 he found a couple of pregnant male leafies, the first seen in this region for nearly three years. The female or females responsible for assisting with these pregnancies haven't been sighted. 'Albie' is still resident in the same area, but can be a little reclusive. He can be spotted but just as you turn to get your buddy's attention and look back, he's disappeared!

This group of youngsters, Albie, Pinkie and siblings are now about or 15 centimetres (6 inches) long, still well short of their adult size of double that and sometimes more. Those who, like Craig, still tend to use the old pre-metric dimensions agree that the adult leafy dragon's here, with their long flowing appendages, often reach 18 inches or more. Divers are often surprised at their size, imagining them to be smaller, more like a seahorse. Masters of camouflage, they live in and around seaweed and seagrass beds, drifting along

above the weed, snacking on mysid shrimp most of the day.

These photos clearly show Albie is quite different from the standard leafy dragon colouration. These images haven't been digitally enhanced in any way - we don't know how to - but also because they were taken on a standard 35mm print film in an MX10 camera. The sea conditions on the day were surgy and photography difficult, hence the incomplete picture with some lower appendages not visible.

Bremer Bay almost guarantees you'll see seadragons on most dives. Whether they're shore or boat dives, the Bay seems to have the perfect oceanic environment for dragons to thrive.

It's been a humbling experience to watch these creatures grow and develop. To observe their ballet-like synchronised greeting ritual (which both weedy and leafy seadragons perform around mating season) is pure magic. We've shot video of their amazing swimming ability and their manoeuvrability in strong surge and current, which rather disputes some of the

AS MANY SPORTDIVING MAGAZINE READERS CAN VERIFY, PARTICULARLY THOSE WHO'VE BEEN THERE, BREMER BAY UNASHAMEDLY BOASTS OF BEING AUSTRALIA'S SEADRAGON CAPITAL. DURING THE EIGHT YEARS THE DIVE SHOP HAS BEEN OPERATING HERE, CRAIG HAS DONE COUNTLESS DIVES OBSERVING BOTH WEEDY AND LEAFY DRAGONS AND DOCUMENTED THEIR BEHAVIOURS AND RITUALS. HE'S EVEN COUNTED THEM – BUT THEN, HE'S ONE OF THOSE METICULOUS DIVE INSTRUCTORS WHO STILL LOGS HIS EVERY DIVE!

:: KIRSTY MORRISON



AN UNUSUAL ADDITION TO THE BAY'S

LEAFY SEADRAGONS HAS BEEN DISCOVERED!

literature available. Certainly to look at, both species appear to have little means of propulsion in the way of fins, and, unlike most fish, have a body shape which appears unsuited to swimming. Don't be fooled by their apparent fragility – both weedies and leafies use their appendages much like ailerons on an aircraft to dive or race upward toward the surface. They can easily outswim a diver and can disappear without a trace into the weedy seabed.

We're watching and monitor Albie and his siblings to see if their colours change over time and maturity. Albie is still an albino, albeit now with a vague yellowish tinge. The more normal pinkish hued juvenile has also altered his colouration, getting closer to the normal yellowish/nappy poo colour of adult leafies.

Slowly over time, generally via word of mouth, more and more divers are visiting Bremer Bay for the seadragons. Japanese divers in groups of five or six have driven the 520 kilometres down from Perth, done a dive with the dragons (photographing madly), then driven back to Perth on the same day! Their extraordinary determination to see leafy seadragons on a very limited time schedule is admirable!

A keen Scottish diver has been back twice already to photograph the dragons and basket stars. Widely travelled, he thinks Bremer Bay has some of the best diving he's ever done, and says he'll be back next year as well. Many more European divers visit. Other travelling divers, meeting in backpackers lodges and youth hostels swap stories of diving experiences. Many tell of Bremer Bay's seadragons and fantastic diving. They describe the effusive and enthusiastic dive instructor called Craig whose love and knowledge of sea dragons is awesome. His passion has led to visitors acquiring an enormous amount of information about the species.

But most visiting divers prefer a more leisurely approach. While the seadragon's are Craig's personal specialty, the diving in Bremer is spectacular. There's huge patches of plate corals a quarter-acre in size, nooks and hidey holes where fish of all sizes dart out and back. Fabulous black coral fronds and bright red gorgonian fans sway gently in the current. Then there's soft corals of every colour, nudibranchs and ascidians...

First time divers are always amazed at the diversity of fish species and the enormous size of the schools – particularly reef dwelling varieties, more often thought of as found only in tropical waters, that have happily adapted to the southern coast temperate waters. I've been told of a leatherback turtle living in the waters off Albany – who'd have to be geographically challenged as he should be two thousand kilometres north in the warm waters off Exmouth – yet he's lived happily among a group of seals there for the last few years.

So if you'd like to share experiences with an albino leafy seadragon and all the other special wonders of Bremer, then get your act together. The next time you're sourcing somewhere different to go for a dive, think of the south coast of Western Australia. The town's logo is 'Bremer Bay... beautiful naturally'. That pretty much sums up this patch of paradise.



At mating time the female transfers eggs, which the male fertilizes and 'clutches' in specific cup-shaped depressions along his tail. There the embryos develop over approximately two to three weeks. Initially bright orange, the eggs are soon covered with a thick mat of weed-like substance. We think this is to hide the developing eggs from potential predators.

We assume the juveniles are from that batch of eggs, which matured and hatched in late December 2003, making them about 4-5 months old when Craig first found them. Of the hundreds of eggs the male carries, few seem to actually develop to maturity and the mortality rate is extremely high. This small group is something of a rarity, with three, four or sometimes five juveniles all hanging around the same general vicinity.

We're cautious about revealing the specific habitats of these dragons – the old saying 'once bitten, twice shy' applies to us in spades! In 2000 a popular Western Australian outdoor television program came to film 'our' seadragons. Craig proudly took the cameraman and presenter to a site where he knew they congregated. This site had large numbers of both weedy and leafy dragons using a dense patch of sargassum, kelp and ribbon weed for both protection and a great food source. The commentator later mentioned that without Craig pointing the dragons out to them, they'd never have found them. Until you get used to seeing them, their camouflage is such that they appear to be a piece of floating weed. Within a few weeks of this program going to air, Craig took a French photojournalist to the same spot, only to discover that the dragons had disappeared. From a population approaching 30 individual leafy dragons two weeks earlier, only one was found. Of the dozens of weedy dragons at that same site, only a few remained.

Our observation over time has verified the normal range these species inhabit is limited to a few hundred metres. No adverse weather conditions occurred in the intervening time period to have been a factor in this loss - the only

conclusion we could come to was that they'd been poached. Unfortunately dragons fetch a tidy sum on the black market, generally for private aquarium collectors. Though we were severely disappointed and angry, there was nothing anyone could do. The dragons had gone from that site.

It's taken more than three years for leafy dragons to reappear in roughly the same vicinity. There are now three or four pairs, perhaps more, so it seems likely that the population will return over time.

Even with the utmost vigilance, it's impossible to prevent all poaching. We hope that by showing divers these awesome creatures in the wild and increasing the public profile of these uniquely Australian fish species it will help protect them from unscrupulous poachers. We promote the motto 'take nothing but pictures and leave nothing but bubbles'.

As spring approaches, male and female seadragons pair. The female develops around 300 orange eggs in her lower abdominal cavity. The lower half of the tail on the male begins to form fine blood vessels near the surface, swells and looks wrinkled. About 120 small pits or 'egg cups' then develop on the tail, the eggs are transferred from the female and fertilised. Though the transfer hasn't yet been observed, it's thought to occur in the dark pre-dawn hours. Dragon Searchers in Tasmania are using infra-red video equipment to try and observe egg transfer and other breeding behaviour of weedy seadragons. Jervis Bay in particular is home to a large colony of 'weedies' which are a favourite attraction of divers. Local dive operators such as Oceantrek have been diving with weedy seadragons for a number of years and have built up an impressive amount of knowledge about their biology and behaviour. This is highly valuable information.

The male carries the eggs for an incubation period of about 4 weeks. The young hatch over several days to aid dispersal and avoid competition for food amongst the young. At birth, seadragons are around 20mm long and often differently coloured to the adults. The young are preyed upon by fish, crustaceans and sea anemones and live in different places to the adult seadragons. Juveniles are fast growing, reaching 20cm after one year and a mature length after about two years. It is not known how long wild seadragons live. In captivity it is thought that they can live for about 5 to 7 years. Seadragons, along with all other fish, have ear bones, or otoliths, that show growth rings. New rings are continuously produced throughout the seadragon's life so dead, beach-washed wild specimens are very important as it may be possible to age the carcasses from these growth rings, aiding better understanding of seadragons in the wild. General health and changing growth rates can also be determined from seadragon otoliths.

DRAGON SEARCH

www.dragonsearch.asn.au

THE DRAGON SEARCH SIGHTING FORM IS DOWNLOADABLE FROM THIS SITE

The weedy seadragon *Phyllopteryx taeniolatus* and its southern dwelling cousin the leafy seadragon *Phycodorus eques* are members of the family Syngnathidae, which also includes seahorses and pipefish. Syngnathid means literally 'tube-snouted' in Latin, referring to the long slender mouth common to these species.

There are 32 different species of seahorse and over 170 species of pipefish worldwide, but there are only two species of seadragon, and they are only found in Australian southern temperate waters.

- Leafy seadragons have been recorded from Geraldton, Western Australia and in specific areas along the southern Australian coastline to Wilsons Promontory in Victoria.
- Weedy seadragons are found from Geraldton, Western Australia, along the southern Australian coastline and up to Port Stephens in New South Wales.

Both inhabit rocky reefs, seaweed beds, seagrass meadows and structures colonised by seaweed. They're usually seen individually but are sometimes seen in groups in shallow coastal waters down to about 50 metres, but are mostly spotted between 4 and 10 metres. Seadragons are thought to move out into slightly deeper water as they get older.

Young seadragons are preyed upon by fish, crustaceans and sea anemones. Some are caught as bycatch in trawling nets.

Adult seadragons appear to have very few natural predators - the greatest threat to their continued existence appears to be people. Leafy seadragons are also widely sought in the aquarium fish trade but their dietary and other needs make them almost impossible to keep. Seadragons have an extremely low reproductive rate compared with other fish and it is unlikely that more than one or two hatchlings grow to sexual maturity in the wild. Destruction of habitat such as seagrass meadows and kelp

beds, as well as pollution, could have dramatic effects on seadragon numbers. They may also be threatened by illegal poaching for the aquarium trade. Unfortunately, Weedy Seadragons are notoriously difficult to keep in captivity - most animals taken from the wild die very quickly.

DRAGON SEARCH AIMSTO -

1. Increase understanding, awareness and appreciation of syngnathid fish and the need for their protection and conservation.
2. Actively promote habitat protection and species conservation through the abatement of threats affecting the marine environment and syngnathid fish.
3. Establish a pilot program of community-based monitoring and a database that can be used as an aid to increase knowledge and define key habitat areas for syngnathids.
4. Instil community pride and awareness for our unique marine environment and wildlife.

The Dragon Search project is supported across the states through the Marine and Coastal Community Network (MCCN), Threatened Species Network (TSN) and the Australian Marine Conservation Society (AMCS). Almost 20 organisations are directly involved Australia-wide. A research team from Griffith University is using photographs to identify facial patterns of individual leafy seadragons and sonic tagging techniques to learn more about their ecology and territorial behaviour. You can contribute too - photographs need to be high quality and show well-lit close-ups of the face. Also photograph or video seadragons at sites you dive regularly to try and identify individuals. Observations of activity at night are also valuable.

WHY SURVEY SEADRAGONS?

Only recently have threats to marine biodiversity been recognised. These threats relate indirectly or directly to development of coastal areas and pollution or exploitation by

humans. There are numerous examples of marine mammals and birds that have become extinct or threatened but little is known about the vast majority of marine invertebrates and fish (Jones and Kaly 1995), or their status. Most research on fish in Australia is on commercial species - little is known of even the most common non-commercial species. Divers who know their local areas and dive spots often see changes and the seadragon monitoring program aims to encourage divers to be pioneering researchers.

Many recreational divers already record seadragon sightings in their dive logs and many other people observe beach-washed marine flora and fauna. It's simple to transfer relevant information on seadragons to the Dragon Search sighting sheets. It is also great to make regular checks of the same sites for information on trends in seadragon abundance over time. Even if you don't see seadragons, that can be useful too, especially if you've seen them at the site before. But safety comes first - organise your underwater surveys as you would any other dive.

Seadragon Links

To learn more or to record a seadragon sighting check out the Dragonsearch web-site. A great place to see seadragons is at the AQWA Aquarium of Western Australia at Hillarys in Perth, Western Australia, or your own state aquarium. Another interesting site is a web directory called Seahorse and Sea Dragon Central which lists many other good sites.

The weedy seadragon is fully protected under NSW law by the NSW Fisheries Management Act. Additionally all Syngnathids in Australia fall under the Commonwealth Wildlife Protection Act, requiring special permits for their export. The World Conservation Union (IUCN) lists weedy seadragons as data deficient, meaning that insufficient information is available to make an assessment of the species' risk of extinction.