

Submission to the Senate enquiry into the spread of climate-related marine invasive species.

From: Eaglehawk Dive Centre

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Tasmania

I submit this in reference to part (d) of the terms of reference:

the importance of tackling the spread of invasive urchin 'barrens' to help facilitate marine ecosystem restoration efforts (such as for Tasmanian Giant Kelp *Macrocystis pyrifera*);

Mick Baron is my name. I have lived/dived Tasmania's coast for 50 years starting as a young boy spearfishing in my childhood playground around Penguin, Tasmania. I soon learned that taking photos (and later, video) was a much more fulfilling experience of the marine world.

In 1991 I formed a partnership and established the Eaglehawk Dive Centre out of Pirates Bay, Eaglehawk Neck, Tasmania.

We have witnessed the dramatic changes in our truly unique marine ecosystem, especially in the last ~10 years or so.

As you are well aware we used to have some of the most productive giant kelp (*Macrocystis pyrifera*) beds anywhere in the world. In our small area of operation – 20km either side of Pirates Bay, Eaglehawk Neck we had up to a dozen large kelp forests. Now there are NONE - the last disappeared from Munro Bight (between Cape Hauy and Cape Pillar) during the heatwave in the summer of 2015/16).

We are actively involved with the Institute of Marine and Antarctic Science in a reseedling programme in an attempt to re-establish some semblance of a forest (Indeed, we/they are utilising a permit I obtained about 5 years ago in association with a marine biologist friend). See the following Guardian story for a worthy summary of this project.

<https://www.theguardian.com/australia-news/2022/mar/13/really-worth-a-crack-bringing-tasmanias-giant-kelp-forests-back-from-the-brink>

After some basic fact finding in the last two years, we are reasonably confident that this years out-planting can re-establish some semblance of a small, visually appealing, forest.

It is a labour intensive process having limited diving time in an arduous environment which is performed by a few dedicated divers who have seen these drastic changes first hand.

The 'seedlings' are being supplied by Sea Forest Limited, Triabunna and we have had interest from The Nature Conservancy to facilitate upscaling of efforts.

Notwithstanding the complexities involved with preparing suitable substrate, collecting/growing the 'propagules' (baby plants), one of the major concerns is the ever increasing/exploding numbers of the invasive Long-spined sea urchin, *Centrostephanus rodgersii*.

We attempt to 'clear' the replanting areas of these urchins before planting, but as mentioned, it is an arduous task for a small team of volunteers. Community participants (dive clubs) have expressed interest in the project and can be organised to help 'cull' this species.

Our regularly visited dive tourism sites are also threatened so we attempt to clear these small zones at opportunistic intervals.

However, it is not just in the small experimental plots and our regularly visited dive tourist sites that these urchins need 'culling'. They are now present in HUGE numbers along our coast and are a very real threat to our marine ecosystem – indeed, it may already be too late!

What it really needs is a species specific 'virus', but that is only wishful thinking.

From a dive operator perspective the goal is to attempt to keep a few areas free of these urchins to allow some semblance of 'naturalness' to return. Optimally, 'no-take' areas (i.e. marine protected areas) really need to be established. We've all been down this road with the Bruny Bioregion Protected area discussion with futile results.

This requires a significant effort from divers and repetitive clearances on a regular basis.

If these urchins can be removed from an area, they can return after resettlement of larvae from the water column that can spread vast distances. Apparently, they establish small 'home ranges' but don't re-invade areas from where they have been removed. So, there can be several years between local removal and re-appearance of juveniles – seemingly temperature related. Re-establishing local predators or creating ongoing pressure from commercial divers seems important to keep a lid on urchin re-invasion. Re-establishing giant kelps beyond local dive sites also seems to require dedicated commercial divers removing urchins and re-seeding kelp to achieve meaningful restoration.

In November, 2019 The Guardian produced a very apt story about the decline in robustness of the marine environment down the east coast of Tasmania. The link is as follows:

<https://www.theguardian.com/environment/ng-interactive/2020/feb/24/the-dead-sea-tasmanias-underwater-forests-disappearing-in-our-lifetime>