BRUNY BIOREGION

HIGH PRIORITY MARINE PARKS REASSESSMENT

Remnant Giant kelp forest, Photo: Jun Zhang

MARINE LIFE NETWORK

Facebook: At the “Tasmanians for Marine Parks” site,

Instagram: tasmanians_for_marine_parks,

Website: http://marinelife.org.au,

Email: moremarineparks@gmail.com

Bruny BioregionReassessment

What is the Bruny Bioregion

The Bruny Bioregion encompasses the South East coast of Tasmania.

Pied Oystercatcher, Photo: Jun Zhang

What Scientists have said about the natural values of the bioregion

Dr Karen Parsons –

Dr Parsons - "… has a particularly convoluted coastline with an abundance of islands, peninsulas, embayments and estuaries that create a huge diversity of habitats and spectacular coastal scenery. It has the highest localised level of marine endemism in Tasmania, and probably Australia, and is a hotspot for endemic handfishes, seastars, molluscs and algae.

Wave exposure is particularly variable in this bioregion, with exposed southern shores having towering sea cliffs and complex sea caves eroded by pounding seas, while the many sheltered environments contain Tasmania's widest range of sandy coastal features. Clear oceanic water influences much of the exposed coast, however two large and strongly stratified drowned river valley estuaries (Derwent and Huon) have major effects on marine communities through changes in water clarity, light penetration, salinity and nutrient levels.

The Bruny Bioregion currently has by far the largest number of declared Marine Protected Areas … only two of the 16 include adequately protected 'no take' zones. This bioregion supports distinctive reef and soft-sediment faunas on the basis of the high number of endemic species and inclusion of many cold-adapted species not found further north. The northern boundary of the Bruny Bioregion reflects the average position of the interface between warm nutrient-poor East Australian Current waters and colder nutrient-rich subantarctic waters, and hence the region has distinctive cold-temperate marine communities.

Other distinctive features include a high reef species richness that is second only to Maria Island , the largest forests of the Giant Kelp and other cold-adapted algal species in Australia, the most significant nursery habitat in the state for the commercial School Shark, and also the largest beds of cool-temperate seagrasses. Endemic species include some of the most highly restricted marine animals and macroalgae in Australia; for example the Critically Endangered Spotted Handfish is found only in the Derwent Estuary, the Vulnerable Live-bearing Seastar is known from a total area of just 3 ha, and three potentially endangered species of red algae have been identified from only one or two sites.

Migratory and resident shorebirds utilise two major networks of mudflat sites, one including an internationally significant Ramsar wetland, while seabird populations include the largest Tasmanian population of the Fairy Prion and 99% of the Tasmanian population of the Sooty Shearwater.

The south-east coast provides an important migration path for two Endangered whale species, includes records for over 70% of all cetacean species recorded within Tasmania, and contains six major fur seal haul-out sites. “

Cathedral Cave, Photo: Jun Zhang

What Should have happened to protect the bioregion

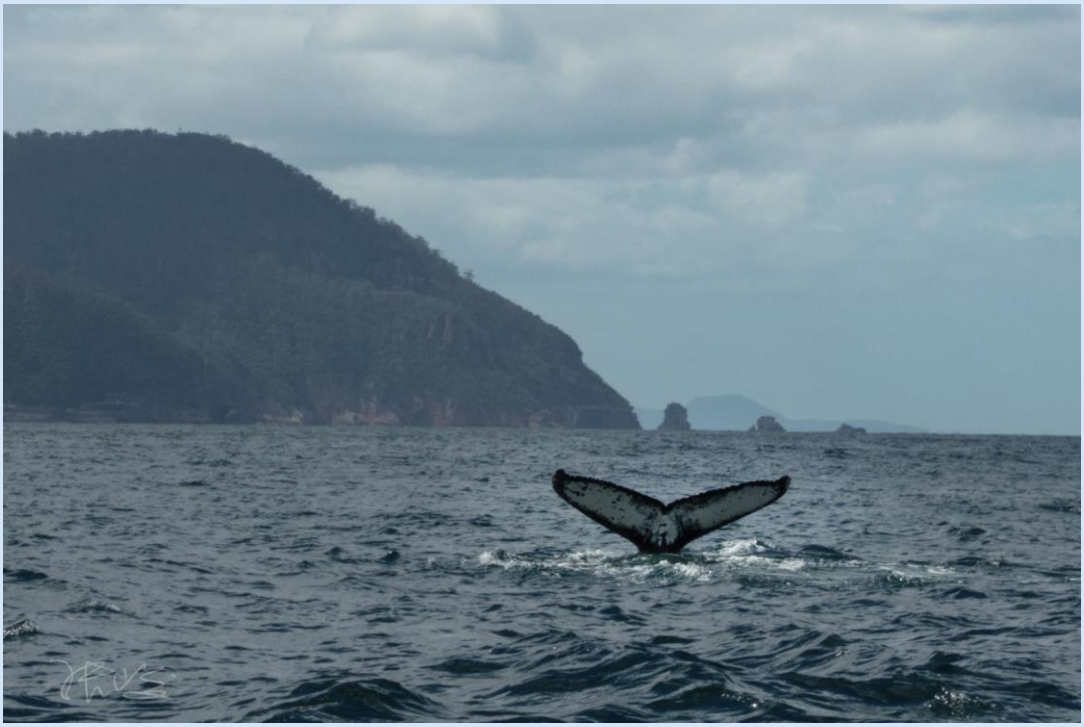
In 2008, after an exhaustive public hearing process, areas known for their special natural values were picked out. The second stage of the process was then to select the level of protection each area would need to protect those natural values from their principal threats. Some would have affected fishing and others not.

What Happened

In the Bruny Bioregion, the Tasmanian government largely ignored these recommendations and proclaimed these areas as IUCN IV conservation areas to avoid offending fishermen (because they have no restrictions on fishing). These kinds of reserves don't usually provide much of value in terms of environmental protection. Where they protect a bird habitat from physical damage, they might work if enforced.

A study by scientist John Turnbull found that fully protected MPA areas have well-documented outcomes, including increased fish diversity and biomass. Partially protected areas had no more fish, invertebrates, or algae than open areas; were poorly understood by coastal users; and were not perceived to have better marine life than open areas. Basically, they did nothing.

They argued that partially protected areas act as "red herrings" in marine conservation because they create an illusion of protection and consume scarce conservation resources yet provide little or no social or ecological gain over open areas. Fully protected areas, by contrast, have more fish species and biomass and are well understood, supported, and valued by the public. They are perceived to have better marine life and be improve over time They argued that conservation outcomes can be improved by upgrading partially protected areas to higher levels of protection including conversion to fully protected areas.



Humpback off Tasman Peninsula, Photo: Jun Zhang

Draughtboard Shark, Photo: Mike Jacques

Bruny (SE Tas - Incomplete, often low protection conservation zones)

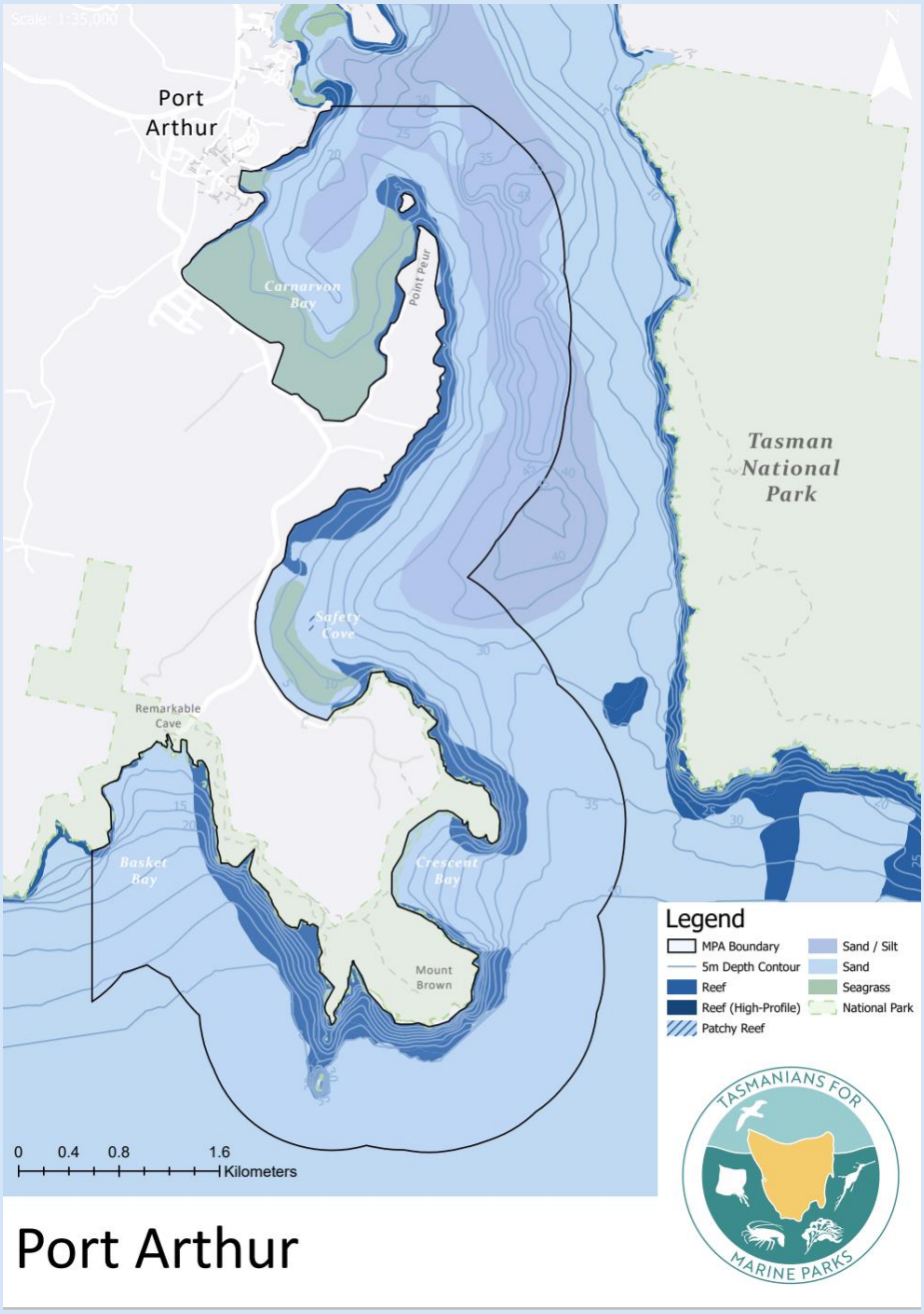
Area	Current protection	Source of protection recommendation	Proposed future protection

Derwent River	marine conservation reserve	Bruny Bioregion RPDC enquiry	Protects wetlands, Adequately protected
Opossum Bay,	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	Bruny Bioregion RPDC enquiry	Protects multiple values including handfish, IUCN IV has not prevented any activity that we are aware of and is arguably being inadequately enforced. Should consider IUCN II national park.
South Arm peninsula,	marine conservation reserve	Bruny Bioregion RPDC enquiry	Protects bird aggregations, Adequately protected
Port Arthur (Carnarvon Bay– Remarkable Cave)	unprotected	High Value Site – Nowhere else on earth report	Protects multiple values, should be an IUCN II national park, particularly as eastern Tasman was not protected adequately.
Waterfall Bay-Fortescue,	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	High Value Site – Nowhere else on earth report, Eaglehawk Dive Centre	Protects multiple values, should be zoned with some areas upgraded to IUCN II national park (e.g. Fortescue and Waterfall Bay. The coastline from Fortescue Bay to Waterfall Bay and including Hippolyte Rocks contains near pristine habitats and is renowned as a world class diving and ecotourism destination, spectacular sea cliffs, unique cave systems, steep drop offs, rich sponge gardens and diverse marine life. The continental shelf break occurs unusually close to shore, providing habitat for deepwater species. This region also contains populations of Threatened endemic handfishes. The spectacular sea caves in Waterfall Bay support complex invertebrate assemblages.
Tinderbox	Recent extension of existing Marine Reserve) -		completed
Ninepin Point	Recent extension of existing Marine Reserve) -		completed
Port Cygnet,	marine conservation reserve	Bruny Bioregion RPDC enquiry	Protects bird habitat, Adequately protected.
Cape Bruny– Cloudy Bay (including Cloudy Lagoon)	marine conservation reserve only	Prof. Graham Edgar recommendation, Bruny Bioregion RPDC enquiry, Eaglehawk Dive Centre	A large estuary with oyster leases although they do not appear to cause significant environmental issues. Adequately protected.

Central Channel,	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	Bruny Bioregion RPDC enquiry	A large area, but it should be considered for IUCN II national park, it is slightly absurd that the area is still open to aquaculture. The recent collapse of flathead stocks has reduced the conflict with recreational fishermen.
Simpsons Pt,	"marine conservation reserves"	High Value Site – Nowhere else on earth report, Bruny Bioregion RPDC enquiry	Protects bird habitat, Adequately protected.
Roberts Point	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	High Value Site – Nowhere else on earth report, Bruny Bioregion RPDC enquiry	Protects multiple values, should be upgraded to IUCN II national park.
Huon estuary, and Offshore Reefs (Ninepin Point, Butts Reef, Zuidpool Rock, Arch Rock	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	High Value Site – Nowhere else on earth report, Bruny Bioregion RPDC enquiry	Protects multiple values, should be upgraded to IUCN II national park.
Slopin Island,	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	Bruny Bioregion RPDC enquiry	Protects multiple values, should be upgraded to IUCN II national park.
Monk Bay,	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	Bruny Bioregion RPDC enquiry	Protects multiple values, should be upgraded to IUCN II national park.

Hippolytes,	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	High Value Site – Nowhere else on earth report, Bruny Bioregion RPDC enquiry.	IUCN IV has provided no protection from its principal threats, protects multiple values, should be zoned with some areas upgraded to IUCN II national park (e.g. Hippolytes and Needle Rock and surrounds) Offshore, the Hippolyte Rocks are surrounded by clear waters and deep reefs dominated by soft red algae below 35 m and diverse sponge gardens below 50 m. They provide an important haul-out site for the Australian Fur Seal, as well as breeding habitat for numerous seabirds. The area is poorly protected and completely open to fishing pressure
Pitt Water/Orielton Lagoon Ramsar site	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values		Protects bird habitat, Adequately protected
Southport Lagoon	"marine conservation reserves" need more public discussion about the zoning/restrictions that are needed to adequately protect the area's values	Rated Class A estuary, pristine with high environmental values.	Protects pristine high value estuary, should be upgraded to IUCN II national park

Boundaries of Proposed new Port Arthur MPA



Derwent River, Jun Zhang

More information on the natural values of under protected areas

The Huon Estuary Entrance and Offshore Reefs "...where the dark tannin-stained freshwater of the Huon Estuary meets the cold, nutrient-rich seawater from the Southern Ocean provides a highly unusual marine environment that is distinct from other areas of the Bruny Bioregion. Reduced light penetration in the water column results in species 'compression' with depth, whereby typical shallow water plant and animal species occur in very narrow bands near the surface, and are quickly replaced by species usually found in deeper water. Diversities of fish and invertebrates are high14, including a particularly high richness of filter feeding invertebrates (e.g., sponges, gorgonians, soft corals, ascidians, bryozoans, hydroids and seawhips), a large range of unusual red algal species, and many fish species more typical of the deep water habitats of Tasmania's east coast.

High Value Sites – Bruny Island Headlands (Roberts Point, Simpsons Point) and Tinderbox These sites lie within the sheltered waters of the D'Entrecasteaux Channel in an area extending between the distinctive Derwent and Huon River systems. Water clarity is intermediate to the tannin-influenced waters of the Huon and the clearer oceanic waters towards the south of Bruny Island, providing unique environmental conditions and hence unusual marine communities. Small populations of the Wonder Cowry (*Umbilia hesitata*) – one of the largest, most ancient and beautiful of the cowries – occur in shallow depths where they can be enjoyed by divers, whilst elsewhere in Australia this species is only known from

deepwater trawl samples. The Wonder Cowry appears to have become extinct from many other locations in Tasmania and south-east Australia, adding to the high value of local populations.

Spider Crab, Photo: Jun Zhang

High Value Site – Pitt Water / Orielton Lagoon Pitt Water is a unique open estuary within the Bruny Bioregion that has been subject to considerable human disturbance but nevertheless has a host of important natural values that have persisted and simply cannot be overlooked. Included is an internationally significant Ramsar wetland that is particularly important for migratory shorebirds such as the Endangered Eastern Curlew, Bar-tailed Godwit, Common Greenshank, Curlew Sandpiper and Red-necked Stint. The mudflats in Barilla Bay and Orielton Lagoon are primary feeding areas for resident and migratory shorebirds, while additional mudflats to the south at Five Mile Beach have recorded the highest densities of benthic invertebrates in southeast Tasmania, averaging at more than 11,000 animals per m2. Pitt Water is also noted as being one of the most significant areas of saltmarsh in Tasmania and contains a range of threatened plant species. This estuary has been designated a Shark Refuge Area, with studies revealing Upper Pitt Water to be the most significant pupping ground for commercial School Sharks in the state. Extensive seagrass beds dominated by eelgrasses in Lower Pitt Water provide additional nursery habitat for sharks and other fish species, while

rocky shores support the largest population of the endemic and Threatened Live-bearing Seastar. The relatively deep and narrow entrance to this estuary is characterised by strong currents and contains beds of sponges and other filter feeding invertebrates.

High Value Sites – Tasman Peninsula South and East Coasts (Fortescue Bay – Waterfall Bay, Hippolyte Rocks and Port Arthur) The picturesque Tasman Peninsula includes magnificent coastal scenery above the water that is equally reflected below, represented by some of the largest areas of complex subtidal reef in Tasmania. The coastline from Fortescue Bay to Waterfall Bay and including Hippolyte Rocks contains near pristine habitats and is renowned as a world class diving destination due to its clear waters, spectacular sea cliffs, unique cave systems, steep drop offs and diverse marine life. The continental shelf break occurs unusually close to shore, providing habitat for deepwater species such as the Southern Bluefin Tuna and Albacore15. Some reef habitats extend to 100 m depth and are subject to high currents, resulting in rich sponge gardens that start at about 33 m in the clear waters of this region. Submaximally exposed habitats to around 20 m support some of the most persistent and important forests of Giant Kelp in Tasmania, while this region also contains populations of Threatened endemic handfishes and commercially important species including Blacklip Abalone, Southern Rock Lobster, and Striped Trumpeter. The spectacular sea caves in Waterfall Bay support complex invertebrate assemblages dominated by colourful sponges, soft corals, bryozoans, ascidians, zoanthids and anemones145. Offshore, the Hippolyte Rocks are surrounded by clear waters and deep reefs dominated by soft red algae below 35 m and diverse sponge gardens below 50 m. They provide an important haul-out site for the Australian Fur Seal and associated hunting ground for the Vulnerable Great White Shark, as well as breeding habitat for numerous seabirds.

Spotted Handfish Photo: Jun Zhang

Within a small area, Port Arthur contains a particularly high representation of the habitats within the Bruny Bioregion, having a highly varied geology and wave exposures ranging from moderate through to very sheltered. Rocky reef habitats support an estimated 219 species of algae, a diversity only known to be surpassed by the Tamar Estuary in the Boags Bioregion, as well as large and persistent Giant Kelp beds. Reefs are supplemented by areas of deep silty sand to 50 m depth in the middle of the port, hard shelly patches and large gravel/cobble beds which further add to the diversity of habitats available.

Depth profiling the Waterfall Bay–Fortescue Bay–Hippolytes area has revealed the presence of very deep waters close to the coast, and a number of interesting seabed features including massive dolerite and granite blocks 10–30 m high forming isolated mounds and ridges. This region includes some of the largest areas of complex subtidal reef in Tasmania.

Glass shrimp Photo: Mike Jacques

Threats

The general threats of significance to low lying or soft coastlines like estuaries and beaches are: [1]

- increased siltation resulting from land clearance and urban and rural runoff;
- increased nutrient loads resulting from marine farms, sewerage and agricultural use of fertilisers;
- foreshore development, dredging, habitats clearing and reclamation;
- modification to water flow through dams and weirs;
- acidification of rivers and heavy metal pollution from mines;
- the spread of introduced pest species;
- sea level rise and coastal erosion;
- wildlife displacement, disruption of social and feeding behaviour e.g. beach crowding, Pet impacts[2]; and
- microplastics and litter (particularly damaging to seabirds).

[1] Based upon, A Classification of Tasmanian Estuaries and Assessment of their Conservation Significance using Ecological and Physical Attributes, Population and Land UseG.J. Edgar1, N.S. Barrett2 and D.J. Graddon3, Ocean Rescue 2000

[2] Dr Eric Woehler, pers comms

On Harder coastlines like reef, or in the open sea,[3]

- climate change effects, ocean acidification, changes food supply, damage/changes to food availability e.g. plankton communities change, changing diseases, range extension, weather changes, extreme events;
- overfishing;
- invasive (feral) species;
- microplastics and litter (particularly damaging to seabirds);
- wildlife interactions – eg. boat strike on sea mammals;
- disruption of behaviour e.g. seismic testing;
- pollutants, excessive nutrients e.g. salmon farms, sewerage, stormwater;
- silt from erosion; and
- habitat damage- dredging and bottom trawling.

In such a highly urbanized and altered waterway, most of these threats apply in varying degrees to each of the sites. Fishing is a threat to all subtidal sites as this is an area of very heavy fishing pressure.

Who are We?

Marine Life Network (MLN) are ordinary people who volunteer their time to help protect and promote the wonders of Tasmania's ocean environment. The aims of Marine Life Network are to educate and advocate.

We do anything useful for the marine environment, but our main campaign at present is a campaign called "Tasmanians for Marine Parks". This campaign is trying to create a system of comprehensive, adequate and representative marine parks for Tasmania.

An effort has been made to recruit a broad a cross-section of the community from along the political spectrum. MLN is non-partisan, welcoming to everyone, and is not an affiliate of existing political parties.

[3] Based on media monitoring by Marine Life Magazine 2010 - 2020