



**Commonwealth of Australia**

**Inclusion of ecological communities in the list of threatened ecological communities under section 181 of the *Environment Protection and Biodiversity Conservation Act 1999* (EC 107)**

I, TONY BURKE, Minister for Sustainability, Environment, Water, Population and Communities, pursuant to paragraph 184(1)(a) of the *Environment Protection and Biodiversity Conservation Act 1999*, hereby amend the list referred to in section 181 of that Act by:

including in the list in the **endangered** category

Giant Kelp Marine Forests of South East Australia

as described in the Schedule to this instrument.

Dated this.....14.....day of.....August.....2012.....

TONY BURKE

Minister for Sustainability, Environment, Water, Population and Communities

## SCHEDULE

### Giant Kelp Marine Forests of South East Australia

The Giant Kelp Marine Forests of South East Australia is a unique coastal marine ecological community that extends from the ocean floor to the ocean surface, typically between 8 and 30 metres below sea level. The ecological community is characterised by the presence of a closed to semi-closed surface or subsurface canopy of *Macrocystis pyrifera* (giant kelp). *Macrocystis pyrifera* is the only species of kelp able to provide this three dimensional structure from the sea floor to the sea surface, so if giant kelp plants are lost or removed, the ecological community no longer exists. The giant kelp create a 'forest-like' structure inhabited by a diverse range of organisms across the benthic, pelagic and surface/sub-surface layers of the ecological community.

The Giant Kelp Marine Forests of South East Australia ecological community occurs on rocky substrata. Mature stands of giant kelp are restricted to hard substrata while the microscopic zoospore and embryonic stages are free living and found in the water column. The ecological community requires relatively clear water and a sea surface temperature typically in the range 5 to 20 °C.

The ecological community mainly occurs along the eastern and southern coastlines of Tasmania. Some patches of the ecological community may also occur in coastal waters off northern and western Tasmania, south eastern South Australia as far west as Margaret Bock Reef near Robe, and in Victoria as far east as Gabo Island. This distribution encompasses the Otway, Central Victoria, Two Fold Shelf, Boags, Freycinet, Bruny, Davey, Flinders and Franklin marine bioregions.

The Giant Kelp Marine Forests of South East Australia supports high levels of marine biodiversity because its three dimensional structure provides a range of habitats spanning the sea floor to the sea surface. The Giant Kelp Marine Forests of South East Australia may include other native algae species such as *Ecklonia radiata* (common kelp), *Phyllospora comosa* (cray weed) and *Durvillaea potatorum* (bull kelp) that may form a sub-canopy from approximately 0.5-2 m above the rocky substrata. Beneath this, there may also be understory algal layers of foliose macroalgae such as *Caulerpa* and *Plocamium* species, turf-forming red algae such as *Pterocladeilla capillacea*, and hard encrusting layers of red coralline algae.

A range of faunal species may be found in the Giant Kelp Marine Forests of South East Australia and occupy habitats on the sea floor, in the water column, or on the giant kelp plants or other macroalgae. Common herbivore or filter-feeding animals inhabiting the sea floor include: the molluscs *Haliotis rubra* (blacklip abalone); *H. laevigata* (greenlip abalone); *Turbo undulatus* (common warrener); the sea urchins *Heliocidaris erythrogramma* (purple sea urchin), *Holopneustes* spp. and *Amblypneustes* spp.; and the feather star *Cenolia trichoptera*. Predatory invertebrates typically found in the ecological community include: *Dicathais orbita* (dogwhelks); *Jasus edwardsii* (southern rock lobster);

*Octopus maorum* (octopus); and a variety of seastar species such as *Meridiastra calcar*, *Uniophora* spp. and *Coscinasterias calamaria*.

Fish associated with the ecological community may include: *Notolabrus tetricus* (blue-throated wrasse); *Olisthops cyanomelas* (herring cale); *Scorpius aequipinnis* (sea sweep); *Meuschenia freycineti* (sixspined leatherjacket); *Notolabrus fucicola*, *Pictilabrus laticlavius* and *Pseudolabrus mortonii* (wrasse spp.); *Acanthaluteres spilomelanurus* (bridled leatherjacket); *Aracana aurita* (Shaw's cowfish); *Caesioperca lepidoptera* (butterfly perch); *Trachinops caudimaculatus* (southern hulafish); and, *Pempheris multiradiata* (bigscale bullseye). Fish species such as *Latris lineata* (striped trumpeter), *Latridopsis forsteri* (bastard trumpeter), *Acanthopagrus australis* (yellowfin bream), *Girella tricuspidata* (luderick) and *Chrysophrys auratus* (snapper) may feed on the algae and small crustaceans on the reef beneath the kelp. *Phyllopteryx taeniolatus* (weedy or common sea dragon) occurs over rocky reefs throughout the distribution of the ecological community and has been found in association with giant kelp forests. Nationally threatened fish species associated with the ecological community include *Thymichthys politus* (red handfish) and *Brachiopsilus ziebelli* (Ziebell's handfish).

The key diagnostic characteristics for the Giant Kelp Marine Forests of South East Australia ecological community are:

- *Macrocystis pyrifera* plants form a marine forest with a canopy that reaches at or below the water surface;
- *Macrocystis pyrifera* plants growing on rocky substrata at a depth typically greater than eight metres below sea level;
- The ecological community is associated with cold water with mean sea surface temperature currently known to be within the range 5 to 20 °C;
- Locations receive moderate wave exposure;
- A diversity of marine species are associated with the ecological community from the seafloor, throughout the water column, to the sea surface; and
- Known distribution is restricted the Bruny, Freycinet, Davey, Boags, Franklin, Flinders, Otway, Twofold Shelf and Coorong bioregions (as defined by the 2006 version of the Integrated Marine and Coastal Regionalisation of Australia).