`KelpWatch'

Monitoring Giant Kelp Forests in Tasmania

Giant Kelp (or *Macrocystis*)

Giant Kelp (genus *Macrocystis*) or `String Kelp' are large, canopy forming plants which grow in dense beds along the inshore subtidal reefs of south-east South Australia, Victoria and Tasmania. Individual plants grow up to 30m tall, forming tall spectacular forests with the fronds providing a dense canopy which shade and modify understorey reef communities. In Australia, two species of *Macrocystis* occur: *Macrocystis angustifolia*, which occurs from Cape Jaffa (South Australia), along the coast of Victoria, to the sheltered north and north-west coast of Tasmania (from low tide level to 10m deep), and *M.pyrifera* which is restricted to the south-east and east coasts of Tasmania, occurring on submaximally or moderately exposed coasts (mainly in deeper water, 8-22m deep).

Giant Kelp forests are species / habitats of outstanding ecological and economic significance, representing areas of high biodiversity and productivity; and providing key habitats for the recruitment of economic shellfish species (ie. abalone, rocklobster). In addition, the large kelp plants themselves represent a major ecological keystone species, influencing the hydrological and light environment, and also, the recruitment of rocky inshore fish and invertebrates. Drift plants are important as food and for the dispersal of invertebrates, while, on shore, beach wrack plants represent an important nesting and foraging habitat for shorebirds (particularly migratory species). Giant Kelp forests are also of very high recreational and tourism value, providing one of the greatest diving experiences in temperate waters.

Decline of Giant Kelp

Tasmania has the largest forests of Giant Kelp in Australia. However, over the past 30 years there has been a dramatic decline in kelp forests (up to 95%), particularly along the eastern and southern-eastern coasts of Tasmania (Edgar 1997). Several factors have been implicated, including: marine pollution (particularly in the Derwent estuary and D'Entrecasteaux Channel); the introduction of the Japanese Kelp (*Undaria pinnatifida*) on the east coast of Tasmania, which has colonised many areas formerly occupied by *M.pyrifera* (Sanderson 1987); and increases in water temperature along the east coast of Tasmania, due to the increased influence of the warm-water, low-nutrient Eastern Australian Current (Sanderson 1997, Crawford *et al.*2000). Other potential causes of kelp loss include, commercial harvesting of kelp in the 1970s, coastal runoff, scallop dredging in the 1950s, and ecosystem changes due to fishing.

What is `KelpWatch' ?

`KelpWatch' is a community-based research and monitoring project aimed at assessing the current and past distribution and health of Giant Kelp forests in Tasmania. `KelpWatch' aims to understand and monitor the loss of Giant Kelp through:

(1) surveying the marine industries (fishing, diving, shipping) and general public for historical and anecdotal information of Giant Kelp distribution and health;
(2) establishing a photographic Giant Kelp database; and
(3) establishing a community-based field monitoring program to survey the distribution and health of Giant Kelp forests in Tasmania.

Giant Kelp Sighting Form – `Hard Copy' & `On-line'

The Giant Kelp sighting form is available as this `hard copy' or `on-line' web version. The `on-line' version will shortly be available at http://www.kelpwatch.tas.gov.au/. The `hard copy' form provides the ability to hand draw a map of the location of Giant Kelp (the `on-line' form provides a text field for detailed description of the site). There are questions for all kelp sightings and in addition, some specific questions for divers (SCUBA, snorkel).

(1) Essential details for all Giant Kelp sightings:

Name:

Address:

Phone:

Email:

Date of sighting:

Is this the first sighting form that you have sent to `KelpWatch' ? **Yes** ☐ **No** ☐

Are you available for a telephone or interview by researchers? **Yes** ☐ **No** ☐

Sighted while:

- ☐ **SCUBA diving**
- ☐ **Snorkelling**
- ☐ **Fishing**
- ☐ **Beachcombing**
- ☐ **Other**

If `Other' please explain….

Location of kelp sighting, including boundaries (draw map, if possible):

Nearest town or coastal landmarks (ie. headland, bay, road, etc.):

Further location details (if known) - **Latitude:** **Longitude:**

Chart/grid & map references (if known):

More location details of Giant Kelp bed, (eg. Giant Kelp beds seen 100m offshore in a north-easterly direction from Quarry Point, Prosser Bay. Beds extend approximately 800m x 250 m.)**:**

(2) Giant Kelp sightings by divers (SCUBA, snorkel):

Underwater visibility (m):

Approximate maximum height of Giant Kelp plants (m):

Approximate depth range of Giant Kelp bed/s (m), (eg. 15-25m)**:**

Condition of Giant Kelp plants (poor/moderate/healthy):

Geology and type of reef (if known), (eg. granite reef, with large boulders, caves.)**:**

Understorey species sighted:

- ☐ **calcareous/encrusting algae**
- ☐ **sea urchins**
- ☐ **foliose red & green algae (species present ?)**
- ☐ **large brown algae (species present ?)**
- ☐ **fish (species present ?)**

Feral species sighted (eg. Japanese Sea Kelp, Pacific Sea Star, Fan Worm, etc.)**:**

Other relevant information (eg. unusual species, pollution sources nearby)**?**

(3) Anecdotal Information, Photographs of Giant Kelp:

Do you have any photographs or slides of Giant Kelp forests and/or inhabitants (past, current), which could be loaned (and scanned) as part of a Giant Kelp photographic database ? Contributions will be acknowledged.

Yes ☐ **No** ☐

Do you have any anecdotal information on Giant Kelp in Tasmania (ie. past/current distribution, health, recruitment events, dieback, pollution impacts, etc.) ? Please comment:

More Information About `KelpWatch' ?

`KelpWatch' is a joint initiative by marine researchers of the Department of Primary Industries, Water and Environment (DPIWE) and the Tasmanian Aquaculture and Fisheries Institute (TAFI) – and is funded under the Commonwealth's Natural Heritage Trust, *`Coasts and Cleans Seas Program'*.

The project forms a key element of a major scientific program to assess the conservation status of Giant Kelp forests in Tasmania and identify ongoing threats to our forests - with a view to establishing, as a matter of urgency, a detailed conservation, monitoring and recovery program (using community participation, where possible). There are also ongoing scientific studies on Giant Kelp being undertaken by the University of Tasmania, and recovery trials being undertaken by the community group, `SeaCare'.

If you would like more information about `KelpWatch' and it's findings, or the `Giant Kelp Project' in Tasmania, please contact the address below or **alternatively, check out the new `KelpWatch' website at** http://www.kelpwatch.tas.gov.au/.

`KelpWatch' Contact Details

Once you have completed this questionnaire, please send, email, or simply telephone us at the following address:

Dr Karen Edyvane
`KelpWatch' (Giant Kelp Project)
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HOBART TAS 7000

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- Giant Kelp drawing courtesy of Jane McKenzie

`KelpWatch' is supported by the following organisations:

Tasmania

Tasmanian Aquaculture & Fisheries Institute
University of Tasmania

Natural Heritage Trust