

# Sea lettuce



**Sea lettuce is a naturally occurring green algae native to New Zealand.**

**In Tauranga Harbour its large blooms can be a nuisance and affect our environment.**

Sea lettuce is one of the *Ulva* species, a macrophyte (large algae) which grows in sheets two cells thick, usually less than 30 cm long but capable of growing much larger.

*Ulva* is rich in compounds such as vitamins A and B. Early Māori used the edible sea lettuce in cooking, and varieties of sea lettuce is still eaten today in salads and stews around the world. Fish, such as parore feed on sea lettuce.

## Why is it a problem?

Nuisance blooms of sea lettuce can affect the way our harbours and estuaries look, and also interfere with our use of the harbour.

Over summer months of bloom years, depending on wind and tides, sea lettuce can be torn away from its growth beds and accumulate on beach and foreshore areas. These large accumulations of sea lettuce then rot and smell offensive because of their high sulphur content. Rotting sea lettuce can produce enough hydrogen sulphide gas to be dangerous to health, and shouldn't be disturbed. Often the rotten lettuce with its distinctive black appearance, is concealed by fresh green sea lettuce.

When sea lettuce drifts around the harbour it can interfere with fishing nets and lines. It can also affect



*Sea lettuce, Tauranga Harbour*

commercial shipping at the Port of Tauranga, blocking cooling water intakes. It can smother and kill shellfish beds when it accumulates in large quantities.

## Why does it grow here?

The clear, shallow and temperate waters of the Tauranga Harbour, Maketū Estuary and Waihi Estuary provide an ideal habitat for sea lettuce.

Normally, there are low amounts of nutrients in our harbours and estuaries, but any increase in nutrients will increase growth rates. Nutrient levels can increase naturally, or as a result of land runoff or discharges.

## Are the blooms telling us that something's wrong in the harbour?

Sea lettuce blooms in Tauranga Harbour are controlled by natural events and are less clearly linked to nutrient runoff from land.

The sea lettuce blooms match the El Nino weather pattern, when persistent westerly winds drive coastal water offshore.

In these conditions deeper oceanic water wells up to replace the coastal water, bringing with it cooler nutrient-rich water which then enters the estuaries. It's this increase of nutrients and the temperature reduction that is the main cause of the blooms, rather than nutrients from the land around the harbour.

## Nuisance sea lettuce blooms can interfere with our use of the harbour.

The Regional Council continues to research any potential influence from land use near Tauranga Harbour. So far results show that blooms occur in years when fewer nutrients come off the land and sea temperature is cooler. Limited information from before 1990 means that we can't assess changes over longer periods of time. Other ecological or physical changes, like a reduction in the numbers of parore, can also play a minor role in long-term changes in bloom frequency.

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#### **Are the blooms being checked?**

Bay of Plenty Regional Council has been monitoring sea lettuce every two months since 1991, and we have completed extensive research into how sea lettuce grows in the harbour. Levels of nutrient in water and sea lettuce tissue are used, along with other information, to look at how environmental factors influence blooms. Further research, including modelling, has now begun. This will help us understand more about nutrient input to the harbour and identify other ways of managing it.

#### **Is anything being done to get rid of the blooms?**

Because sea lettuce occurs naturally and is largely driven by uncontrollable factors, the clean-up can be impractical and costly. The Regional Council supports the clean-up of popular recreational places, but only after careful consideration.

Tauranga City Council can help residents collect sea lettuce from the beaches in their local authority area. Tauranga City Council also uses funding assistance from the Regional Council to clean up next to harbour reserves and popular areas.

Western Bay of Plenty District Council removes nuisance accumulations of sea lettuce from public amenities, such as boat ramps, if people ask for them. The Regional Council funds clean-ups elsewhere in Western Bay District.



*Mount Beach sea lettuce*



*Kauri Point*



*Mount Beach sea lettuce*

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## **Sea lettuce can smother and kill shellfish beds when it accumulates in large quantities.**

Anyone can remove sea lettuce from beaches or the foreshore, but if the sea lettuce is to be used for any commercial purpose, they must get permission from the Ministry of Fisheries. Harvesting of waterborne sea lettuce requires a permit and may also require resource consent from Bay of Plenty Regional Council.

#### **Can sea lettuce be used for anything?**

Sea lettuce can be used as a garden or orchard mulch if used sparingly to avoid high levels of salt building up in the soil, killing sensitive plants. It can also be used to make compost, but needs to be thoroughly mixed with other compostable materials.

#### **For more information**

Visit [www.boprc.govt.nz/taurangaharbour](http://www.boprc.govt.nz/taurangaharbour)

Or contact: Bay of Plenty Regional Council  
Tauranga City Council  
Western Bay of Plenty District Council

phone 0800 884 880 email [info@boprc.govt.nz](mailto:info@boprc.govt.nz)  
phone 07 577 7000  
phone 07 571 8008

