

Sea Lettuce and the Garden

*Information about the preparation and benefits
of sea lettuce in the garden*



Tauranga HarbourWatch Inc.

www.taurangaharbourwatchinc.org

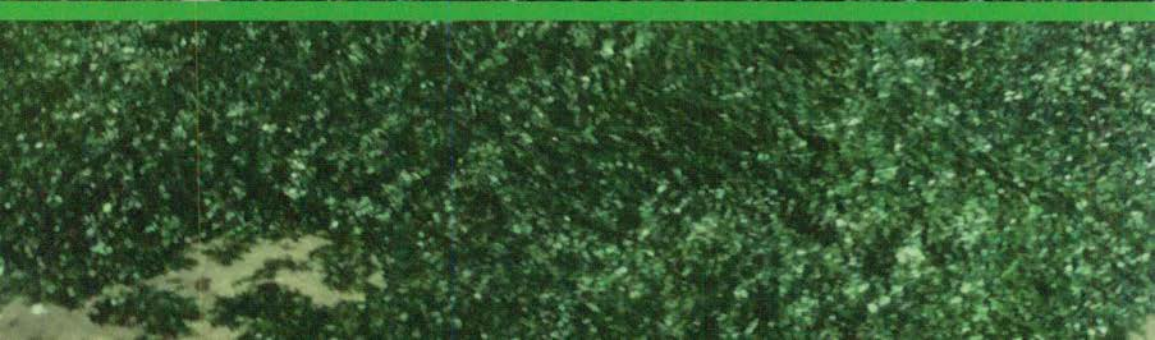
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What is sea lettuce?

Sea lettuce is a naturally occurring green algae that is native to New Zealand. It grows in sheets, and in Tauranga Harbour its large blooms can be a nuisance to people, water craft and structures and affect other animals and plants.

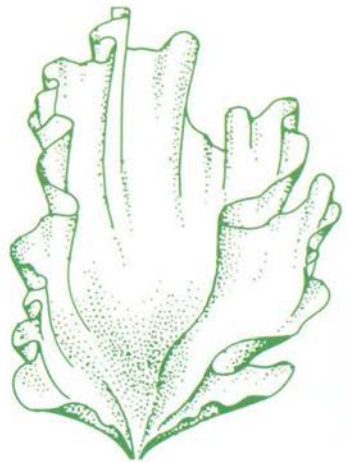
Sea lettuces are collectively grouped under the category of Ulva species.

Ulva is a macrophyte algae which grows in sheets two cells thick usually less than 30cm in length. Ulva is rich in compounds such as vitamin A and B.

Early Maori used the completely edible sea lettuce in cooking. Sea lettuce are still eaten today in salads and stews around the world. Fish, such as parore, feed on sea lettuce.

Composition (average)

Protein	18-24%
Carbohydrates	40-45%
Magnesium	2-3%
Sodium	1-2%
Fat	1-2%
Potassium	0.7-1%
Calcium	7000-8000 ppm
Iron	870-1370 ppm
Manganese	300-350 ppm
Iodine	200-250 ppm
Vitamin	A, C, B3, B12



Sourced from www.eurozone-invest.com/sealettuce.html



Where does sea lettuce grow?

In the Bay of Plenty Region sea lettuce can be found in

- Tauranga Harbour
- Maketū Estuary
- Waihi Estuary
- Ōhiwa Harbour

The clear, shallow waters of the Tauranga and Ōhiwa Harbours and Maketū and Waihi Estuaries provide an ideal habitat for sea lettuce.

Normally, the amount of nutrients in our harbours and estuaries is low, slowing sea lettuce growth. However large blooms do happen regularly in New Zealand and in temperate coastal waters of countries throughout the world.

How does sea lettuce live and reproduce?

Sea lettuce's cell composition and thin leaves allow it to absorb nutrients in sea water easily. It uses photosynthesis to produce energy and sugars.

Sea lettuce reproduces through 2 life stages:

- During the first stage the a-sexual sporophyte plant releases males and female gametes (sex cells).
- During the second stage the male and female gametes fuse together and form a sporophyte plant and the process begins again.

Because sea lettuce is able to perform photosynthesis and reproduce at such a high rate it can colonise areas quickly.

www.crd.bc.ca/watersheds/protection/wildlife-plants/sealettuce.htm



For best results when using sea lettuce in the garden or compost:

- Collect sea lettuce that is fresh, if it is already producing bad odours or has dried out, the sea lettuce will not have the same benefits for the garden.
- It is important that the sea lettuce is hosed down with fresh water to remove excess salt and sand before it is used in the garden.
- The sea lettuce must be mixed with other organic materials such as other organic plants matter to mitigate the effects of odours and carbon dioxide gas.
- The sea lettuce will decompose faster if it is chopped up first.

Benefits of using sea lettuce in the garden:

- It has a relatively high nitrogen and phosphorus content.
- It decays quickly in the soil.
- It can be used fresh or composted.
- It contains strong growth hormones to stimulate plant growth and development. These include auxins, gibberillins and cytokinens which contribute to plant growth responses.
- It increases the water retention capacity of the soil and plant resistance to water stress.
- It can stimulate the root systems of plants to further growth.
- It contains vitamin A, B and C, iron and iodine.



How to turn sea lettuce into a fertiliser

- Half fill a bucket or plastic drum/container with fresh sea lettuce.
- Top the container up with water and let it stand for around three months (which is the optimum time), however it can be used after a couple of weeks.
- Strain off the liquid, and add a cup full of this liquid to around 8 litres of water.
- The remaining mulch can be put on the compost heap.

How to compost sea lettuce

- Mix sea lettuce with other nitrogen rich organic materials. Common high-nitrogen compost ingredients include fresh grass, horse or cow manure, coffee grounds and vegetable scraps.
- Gather a variety of carbon-rich materials such as straw, dead leaves or dried grass.
- Spread a 30cm layer of carbon-rich organic materials.
- Place a 20cm layer of high-nitrogen materials over the carbon layer.
- Build your compost pile with alternating layers of carbon and nitrogen materials until it is three to four feet high.
- Wait for four to five weeks and then mix the layers. Continue aerating the compost by turning the layers once every seven to ten days and keep moist.



Sea Lettuce dumping

Analysis Report – Fergusson Park

Moisture	g/100g as rcvd	78
Ash	g/100g as rcvd	9.6
Total nitrogen	g/100g as rcvd	0.24
Total protein	g/100g as rcvd	1.5
Total fat	g/100g as rcvd	<0.10
Total carbohydrate	g/100g as rcvd	11
Soluble	g/100g as rcvd	1.3
Calcium	g/100g as rcvd	2.4
Magnesium	g/100g as rcvd	0.16
Potassium	g/100g as rcvd	0.094
Sodium	g/100g as rcvd	0.21
Phosphorus	g/100g as rcvd	0.014
Sulphur	g/100g as rcvd	0.27
Aluminium	mg/kg/ as rcvd	1200
Arsenic	mg/kg/ as rcvd	0.39
Boron	mg/kg/ as rcvd	14
Cadmium	mg/kg/ as rcvd	0.019
Caesium	mg/kg/ as rcvd	0.064
Chromium	mg/kg/ as rcvd	1.2
Cobalt	mg/kg/ as rcvd	0.15
Copper	mg/kg/ as rcvd	0.55
Iron	mg/kg/ as rcvd	710
Lead	mg/kg/ as rcvd	0.52
Lithium	mg/kg/ as rcvd	0.68
Manganese	mg/kg/ as rcvd	31
Mercury	mg/kg/ as rcvd	0.0039
Molybdenum	mg/kg/ as rcvd	0.15
Nickel	mg/kg/ as rcvd	0.31
Rubidium	mg/kg/ as rcvd	0.65
Selenium	mg/kg/ as rcvd	0.021
Silicon, Acid soluble	mg/kg/ as rcvd	16
Tin	mg/kg/ as rcvd	0.070
Vanadium	mg/kg/ as rcvd	1.0
Zinc	mg/kg/ as rcvd	4.5

Collecting Sea Lettuce

"Harbourwatch Inc and other community members can remove beach-cast sea lettuce without restriction (i.e. the need for a fishing permit) as long as it's not taken for the purpose of sale. The purpose of sale includes any 'post-processing' sale. For example, using sea lettuce to make a fertiliser or garden compost produce may only be done for personal use."

-Hon Phil Heatley
Minister of Fisheries and Agriculture
16 February 2011

References

- www.crd.bc.ca/watersheds/protection/wildlife-plants/sealettuce.htm
- www.eurozone-invest.com/sealettuce.html
- Maria C.Eyras, Cesar M. Rostagno and Guillermo E. Defosse (1998). Biological Evaluation of Seaweed Composting. *Compost Science and Utilisation*. www.yourfood.co.nz

Photo: Sea Lettuce
Mount Maunganui Beach 2010



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