

Noxious marine alga *Caulerpa taxifolia* in NSW

Aquatic Biosecurity & Risk Management Unit

What is *Caulerpa taxifolia*?

Caulerpa taxifolia (Caulerpa) is a bright green, fast growing alga that originates from tropical areas of the Indo-Pacific, including northern Australia. It is not native to NSW (except Lord Howe Island) and was first identified in mainland coastal locations in 2000. The first infestations probably came from aquaria as, prior to it being banned, Caulerpa had been a popular aquarium plant in Australia for many years. Caulerpa favours sheltered waters, such as estuaries and coastal lakes. Despite being a tropical marine alga, Caulerpa has the ability to establish and proliferate in cooler waters like those in NSW.

Why is it a problem?

Caulerpa is considered a pest in NSW because when introduced to new areas it can grow rapidly and densely to cover large areas of the seabed. This may reduce the availability of habitats, such as bare sand and native seagrasses, for native species. Caulerpa can also have adverse effects on native cockles (Gribben *et al.* 2008). Caulerpa is currently present in several coastal lakes and estuaries in NSW (check the I&I NSW website for the current distribution of Caulerpa). In NSW *Caulerpa taxifolia* is listed as a Class 1 noxious species under the *Fisheries Management Act 1994*, and possession and sale are illegal.

How to identify Caulerpa

- Caulerpa has light to bright green feather-like fronds that are attached to a main stem (stolon) that runs along the ground.
- The stolon can measure over 1 m long and has root-like structures called rhizoids to attach to the substrate.
- Caulerpa can be distinguished from other similar species by the characteristic branching pattern of the pinnules (small lateral branches on the fronds), which attach directly opposite each other on the fronds.

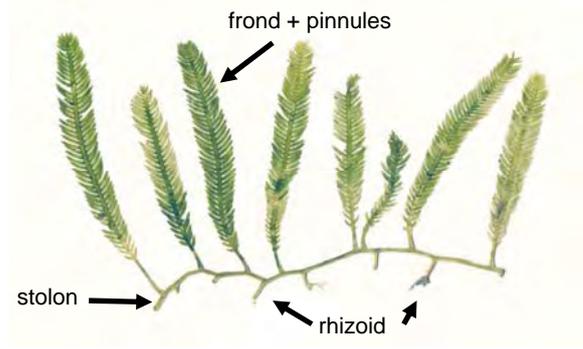


Figure 1. *Caulerpa*. Tim Glasby, I&I NSW

What is I&I NSW doing to control Caulerpa?

In 2009 I&I NSW released an updated Control Plan, which aims to limit further spread of Caulerpa and reduce the impacts of existing populations. This will be achieved through vector management, compliance and education, as well as the control and treatment of high priority areas and continued monitoring and research.



Figure 2. Applying salt to *Caulerpa* with a modified punt. Photo: James Sakker, I&I NSW

I&I NSW will continue to implement fishing closures to minimise the risk of *Caulerpa* being spread to new locations from both recreational and commercial netting activities.

Initial research on control methods for *Caulerpa* identified the application of salt as the most useful control tool, and many hundreds of tonnes have been applied to infestations in NSW. However, many factors can reduce the feasibility of this treatment technique, including the depth of the infestation, the area of the seabed that requires treatment and the extent of other native seagrass species intermingled with *Caulerpa*. Consequently, salt is now only used in limited circumstances.

What you can do to help

Caulerpa can be spread by fishing and boating activities. Propellers and anchors can cut the fragments into small pieces which can then colonise new areas. Any fragments of *Caulerpa* that end up on your fishing gear, nets or anchor well can remain viable for days. To help stop the spread of *Caulerpa* it is important to inspect your gear for fragments, and any found should be put in a sealed plastic bag and disposed of in a rubbish bin.

You can also get involved in local community groups that may be actively helping to control the spread of *Caulerpa*. Cooperative efforts have been beneficial in several areas, such as Wallagoot Lake. Contact your local council or I&I NSW Fisheries Office for information on activities in your area.



Figure 3. *Caulerpa* on boat gear. Photos: I&I NSW

Caulerpa research in NSW

A lot of research has been done, and continues, on *Caulerpa* in NSW. Some of the outcomes include:

- Native seagrass species *Posidonia australis* (*Posidonia*) and *Zostera capricorni* (*Zostera*) have shown resilience to *Caulerpa*, although small beds of *Zostera* may be vulnerable to the alga, particular in the presence of other disturbances (Glasby & Creese 2007).
- The numbers and species of fish and invertebrates can vary between *Caulerpa* and native seagrass beds, and native herbivores have been found to consume relatively little *Caulerpa* (Gollan & Wright 2006).
- There appear to be at least two genetic strains of *Caulerpa* in NSW, which indicates two separate incursions (Grewe *et al.* 2008).



Figure 4. *Caulerpa* in a NSW estuary. Photo: Tim Glasby, I&I NSW

References and further reading

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- Grewe PM, Murphy N, Ward B (2008). *Multilocus Genotyping to Assess Genetic Strain Identification of Caulerpa Taxifolia Populations in Australian Waters*. Report for Department of Agriculture Forestry and Fisheries by CSIRO Marine and Atmospheric Research, Hobart.
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Further information

www.industry.nsw.gov.au (go to Primary Industries)

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