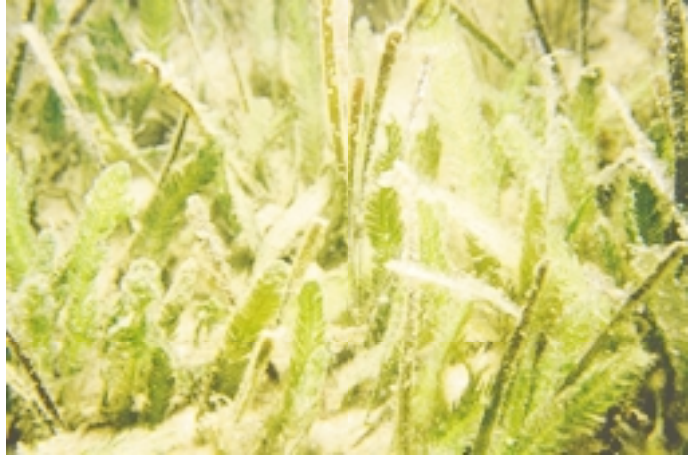


## Aquarium Caulerpa (*Caulerpa taxifolia*)

**Description:** *Caulerpa taxifolia* is a light green alga with creeping stolons from which arise erect leaf-like fronds. The unique features that distinguish *C. taxifolia* from other similar native temperate Australian *Caulerpa* species are branchlets that are (1) constricted at the base (where they attach to the midrib of each frond), (2) opposite in their attachment to the midrib (as opposed to alternating), and (3) curve upwards and taper at the apex. The aquarium clone is morphologically identical to native populations of this species. Native populations are known to reproduce sexually but this is unknown for the aquarium clone which is apparently only male. The alga mainly spreads vegetatively by growth of the stolons or by regeneration from plant fragments which may be as small as 1 square cm.



**Distribution:** *C. taxifolia* is a widespread tropical species found in the Atlantic Ocean (West Indies and African Coast), the Indian Ocean (Pakistan, Sri Lanka and NW Australia), and the Pacific Ocean (Philippines, Indonesia, Japan, New Caledonia and NE Australia). The aquarium clone is to date known only from the Mediterranean but the fact that native and introduced populations are difficult to distinguish makes it possible that some of the other known occurrences are also introductions. Native populations of the alga are found on reef flats and in seagrass meadows in sheltered or moderately wave-exposed areas, and in both polluted and pristine waters. In the Mediterranean, the aquarium clone is found on a wide variety of substrates including rock, sand, mud and seagrass meadow. Plants have been recorded as deep as 100 m but it occurs mostly at depths of 1-35 m where it can occupy up to 100% of the substratum.

**Impacts:** In the Mediterranean, the *C. taxifolia* aquarium clone can dominate areas it has colonised and poses a serious threat to native flora and fauna. It is able to outcompete native algae and displace invertebrate communities, and is considered a threat to native seagrass species (*Posidonia oceanica*). The alga contains toxins (caulerpenyne) that deter herbivorous animals. The alga is distasteful to fish and in affected regions of the Mediterranean, fish density has decreased and coastal fisheries production has dropped sharply.



**Current Status:** In 1984, a selectively bred clone of *C. taxifolia* was apparently released into the Mediterranean from an aquarium in Monaco. Since then the alga has spread rapidly, and by 1996 was estimated to cover over 3000 hectares of benthic habitat. The coasts of Monaco, France, Italy, Spain and Croatia are now infected by the alga. Strains resembling the aquarium clone have been identified in aquaria in a number of regions of the world and there is now a growing campaign to prevent its introduction to adjacent coastal waters. The aquarium clone has not yet been positively identified in Australian waters, however, populations of *C. taxifolia* are known from New South Wales (Lord Howe I., Port Hacking and Lake Conjola), Western Australia (Exmouth to Broome) and along the Queensland coast. The status (native or exotic) of these Australian populations remains uncertain. The aquarium clone of *C. taxifolia* hybrid has been used widely in the aquarium trade and could already be present in Australian aquaria. The risk of its introduction into Australian coastal waters is considered high.

**Distribution Vectors:** The aquarium clone of *C. taxifolia* can be spread by natural and anthropogenic vectors. Potential anthropogenic vectors include the aquarium trade, and infected recreational craft and commercial/recreational fishing vessels. Fragmentation is likely to be important in both the marginal spread of existing colonies and the formation of new colonies. Once established, the plant can be spread rapidly by tangling in nets, anchors and other equipment.