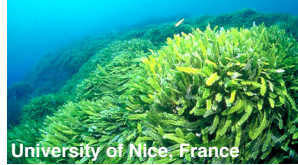


AQUATIC INVADERS



University of Nice, France



CA Sea Grant

COMMON NAME: Caulerpa seaweed

SCIENTIFIC NAME: *Caulerpa taxifolia* ((M. Vahl) C. Agardh, 1817)

NATIVE DISTRIBUTION: Northern Australia, the Indian Ocean, the east African coast, the western Pacific, Indonesia and the southwest Pacific, Hawaii, and the Caribbean.

U.S. distribution: In 2000, the aquarium strain of *Caulerpa* was first identified in the U.S. in Agua Hedionda Lagoon and Huntington Harbor in Southern California. Aggressive eradication efforts were undertaken, using chlorine. Eradication is believed to have been successful, but extensive monitoring continues to ensure its absence from each system. There is tremendous potential for the species to spread in the U.S., particularly along the Gulf Coast, the California Coast, and the southern Atlantic Coast. The inadvertent release of an “aquarium strain” of *Caulerpa* from the Monaco aquarium, and its subsequent invasion of the Mediterranean Sea in the 1980s, has gained significant attention. By 2001, the population covered over 30,000 acres of seafloor in the Mediterranean off the coasts of France, Spain, Italy, Croatia and Tunisia.

Habitat: *Caulerpa* is a unicellular marine green alga. It is found in the tropics in shallow lagoons and deeper coastal waters up to a depth of 45 m. Salinities below 10 ppt and above 38 ppt are lethal to the plant. In native populations, *Caulerpa* occurs in small patches. Although unicellular, *Caulerpa* develops “pseudo-organs” similar to roots, shoots and leaves of more complex plants. The plant consists of a horizontal stem-like rhizome that produces a series of colorless root-like rhizoids downward, anchoring the plant to the sea floor and responsible for absorbing food, water and nutrients. Branch-like “assimilators” shoot upward from the root-like rhizome composing the recognizable featherlike fronds which are the photosynthetic component of the plant.

Life cycle: Reproduction primarily occurs sexually in native populations. However, reproduction can also occur through asexual fragmentation, which can produce viable cloned plants.

Cool facts:

- It has earned the nickname “Killer Algae” due to its rapid invasion of the Mediterranean, and displacement of native species.
- *Caulerpa* creates toxic products during metabolism, a unique defense strategy against herbivores (plant eaters) and epiphytes (plants that grow on top of other plants).
- Toxins also are released into the water column, which can damage adjacent plant communities.

Pathways of invasion: Aquarium releases, and recreational boating activities.

Impacts: Caulerpa invasions have caused major ecological damage in the Mediterranean ecosystem by competing with other species for space and light, and emitting toxins into the water column. This results in the displacement of native communities, and the creation of dense uniform mats that impact benthic communities and eliminate important fish habitat for spawning and feeding. Negative impacts on commercial and recreational fishing, as well as tourism and scuba diving also have been substantial in the Mediterranean. Prevention and eradication measures have been expensive in the U.S.

Ways to prevent its spread:

- Never release any non-native organism into the environment.
- Preventing the transport of Caulerpa from infested waters into uninfested waters is the most effective way for containing its spread. Good boat hygiene is critical – boats that have been washed with warm, soapy water or mild bleach are less likely to spread non-natives.
- Report invasive species to local officials and the USGS online at <http://nas.er.usgs.gov/> or by calling 877-7867-267 (877-STOP-ANS).

These tips apply to ALL non-native species.

Don't forget: Use native plants in your aquarium, and clean your boat after each use.
