



## Background

Research funded by California Sea Grant contributed to the first successful eradication of an established population of the noxious seaweed *Caulerpa taxifolia*—the same seaweed that has destroyed the biodiversity of huge swaths of seafloor habitat in the Mediterranean Sea.

The success in eradicating *Caulerpa* from its two infestation sites in North America, both of which were in Southern California, was announced in 2004, six years after the initial infestation was discovered in a lagoon in Carlsbad.

The California legislature has reduced the likelihood of a second infestation by passing legislation banning the sale of nine *Caulerpa* species, many of which were commonly sold in stores at the time of the infestation. This legislation was based in large part on results of California Sea Grant research described below.

## Project

Prior to the state ban, California Sea Grant funded Steve Murray, now dean of the College of Natural Sciences and Mathematics at Cal State Fullerton, to document the availability of *Caulerpa* in aquarium stores in Southern California. To do this, Murray and then California Sea Grant Trainee Susan Frisch Zaleski visited 50 retail aquarium stores in Los Angeles, Orange and San Diego counties between November 2000 and August 2001. This survey covered virtually all salt-water aquarium retailers in San Diego and Orange counties and represented a random sampling of Los Angeles County's many stores.

At each store, all available *Caulerpa* species were bought and taken to a laboratory at California State University, Fullerton, where samples were identified, made into herbarium specimens and fast-dried in silica gel for possible future genetic analyses. In this way, 14 taxa in the genus *Caulerpa* were identified.

The number of stores selling each of these 14 was tallied, as was the number selling “live rock”—a piece of rock reef or living coral that can harbor living organisms. For this reason, live rock is a potential “vector” for spreading exotics and may be subject to future regulation.

## Results

At the time, *Caulerpa* species were being sold at more than 50% of stores. More than 90% sold live rock. Almost all stores that sold decorative seaweeds also carried *Caulerpa* species. In detail, 14% of stores were selling *Caulerpa taxifolia*; 18%, *C. serrulata* var. *humunii*; 14% *C. racemosa* and 14% *C. racemosa* var. *lamourouxii*.

## Impacts

On a national level, the findings from this project were incorporated into a federal *Caulerpa* management plan. On a state level, they went into crafting California Fish and Game Code 2300, which bans the sale, importation and possession of nine *Caulerpa* species, many of which were being sold at local stores in 2001, as documented by Murray and Zaleski. Locally, the findings led the City of San Diego to take a very proactive stance, as it decided to ban the sale and possession of all *Caulerpa* species.

Recently, USC Sea Grant supported a re-survey of stores that sold *Caulerpa* species during the initial 2001 survey. The survey showed that despite the ban, illegal *Caulerpa* species still are obtained easily.

## Public Education

Zaleski, now a USC Sea Grant Coastal Resources Specialist, is leading a “Don’t Release” campaign that explains safe ways to get rid of unwanted aquarium species. She and collaborators at USC Sea Grant and the U.S. Fish and Wildlife Service are also producing photographic seaweed identification cards that will help inspectors,

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retailers and others distinguish legal and illegal *Caulerpa* species, which can look very similar. Zaleski has also partnered with the University of Central Florida to create an “alternative seaweeds key,” which lists attractive, hearty, non-invasive alternatives to *Caulerpa*.

## Collaborators

California State University, Fullerton; USC Sea Grant; U.S. Fish and Wildlife Service; University of Central Florida

## Award

Dr. and Mrs. Donald B. Bright Environmental Scholarship, California State University, Fullerton

## Student

Susan Frisch Zaleski, M.S., Biology, California State University, Fullerton, CA

## Presentations

Symposium and 36th Annual Meeting, American Fisheries Society, California-Nevada Chapter, April 2002, Tahoe City, CA

Western Regional Panel on Aquatic Nuisance Species: Screening Process Workshop and Annual Meeting, January 2002, Las Vegas, NV

International *Caulerpa taxifolia* Conference, January 2002, San Diego, CA

*Caulerpa taxifolia*: Implementing a National Prevention Program, June 2001, San Diego, CA

Western Society of Naturalists Annual Meeting, November 2001, Ventura, CA

## For More Information

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## Photo Credits

(Front: left and center) Susan Zaleski (right) Phyllis Grifman,  
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