Macroalgae in Florida's Estuaries

Macroalgae (also known as seaweeds) are important, not well understood, and possibly increasing in Florida's estuaries. These aquatic organisms, which use light to make energy, hold clues to better understanding coastal waterways. Macroalgae can drift in the water column or grow attached to sand, seagrass, and other substrates. They provide food and habitat for wildlife, recycle valuable nutrients, and stabilize sediments. Rich in nutrients and pigments, humans use macroalgae as fertilizer, biofuels, and ingredients in beauty products.

Unfortunately, large macroalgal blooms can harm coastal ecosystems. Large blooms may shade seagrass meadows, which also need light to grow. Fisheries can suffer from decaying blooms that decrease oxygen in the water. While macroalgal blooms do not produce toxins that negatively affect humans or wildlife, large blooms may impact tourism and recreation.

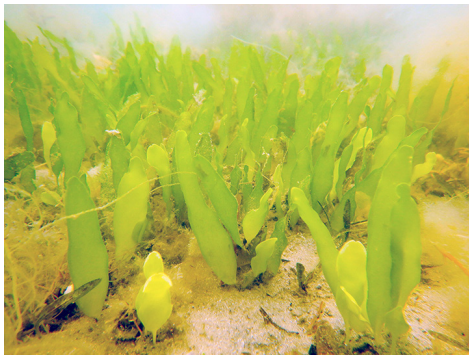
Common types of macroalgae in Florida

Drift algae

Many species of macroalgae float in the water column without attaching to the bottom or other substrates. These common species are beneficial unless they occur in large blooms, which can harm seagrass habitats by blocking sunlight and reducing oxygen availability.

Caulerpa

Caulerpa is a genus of macroalgae that grow attached to bay bottoms and other substrates. At first glance, many *Caulerpa* species look similar to seagrass and may have some similar benefits. However, some species of *Caulerpa* are non-native to Florida, some may out-compete seagrasses, and large *Caulerpa* areas provide fewer benefits for wildlife than seagrass beds.

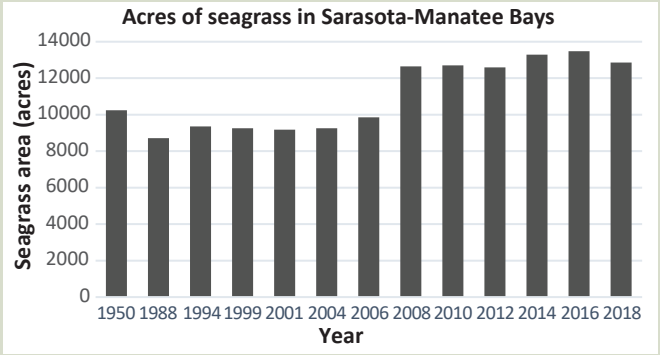


Lyngbya-like

Lyngbya-like "algae" are actually photosynthetic bacteria that have some similar characteristics to drift macroalgae. These organisms, which form in sediments, produce and trap so much oxygen that they rise to the surface of the water. Similarly to drift macroalgae, they can shade seagrasses. Unlike macroalgae, some *Lyngbya*-like species produce toxins that can be harmful to wildlife.

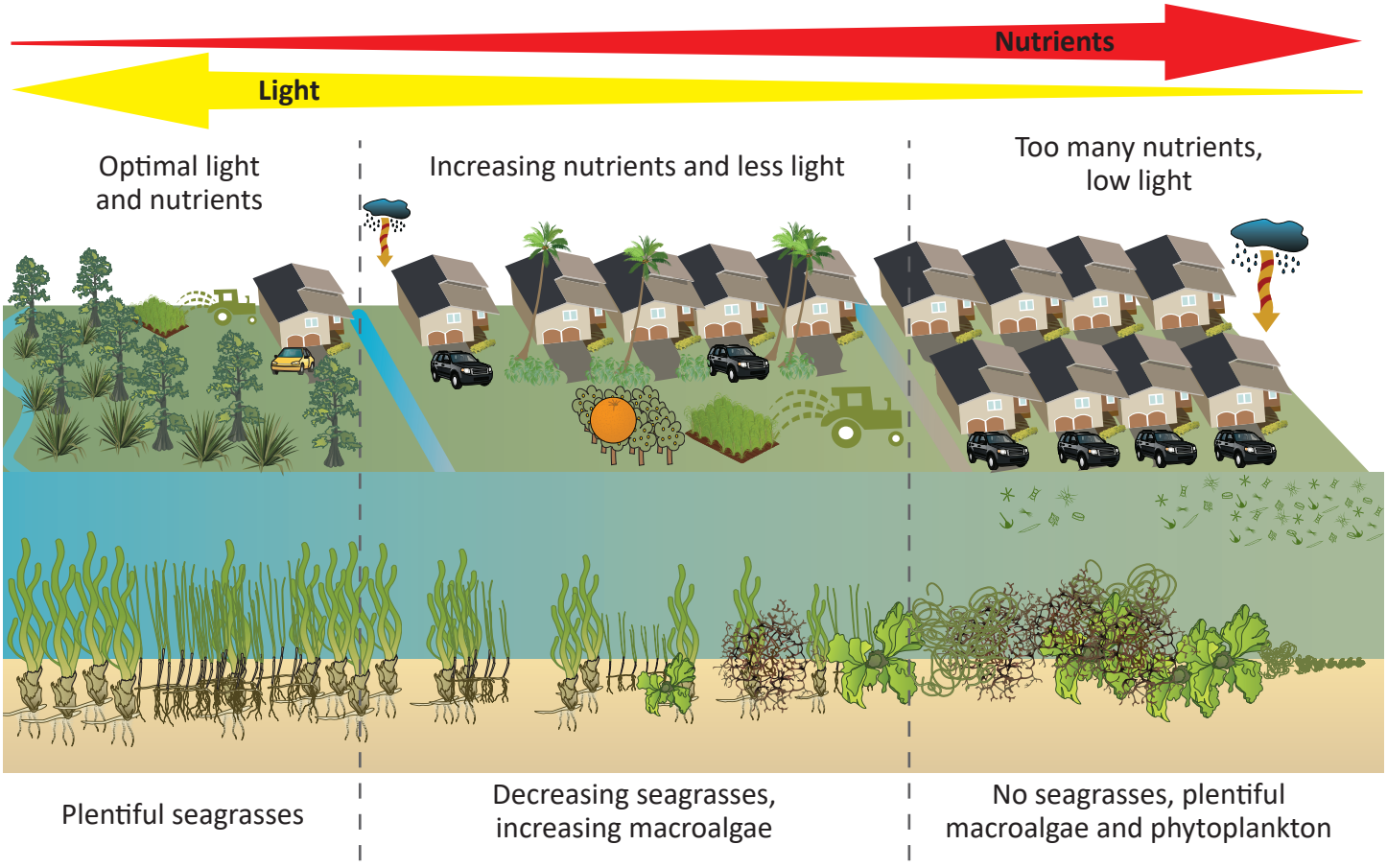
Nutrient diets work

Investments in wastewater and stormwater systems that reduce nutrients to coastal waters have worked to reverse ecosystem declines and bring back seagrass meadows across Florida. In Sarasota Bay, an estimated 46% reduction in nitrogen entering the Bay led to a 55% expansion of seagrass meadows by 2016 compared to 1988. Recent seagrass losses demonstrate the importance of continued dedication to keeping nutrient loads low.



Nutrient pollution drives macroalgal blooms

Too much macroalgae in coastal systems is often a symptom of nutrient pollution. Macroalgae can rapidly produce biomass in response to nutrient coming from the land. Increasing nutrients from development practices, like houses, stores, and roads, agriculture, and air pollution lead to macroalgae and phytoplankton blooms. This decreases light availability for seagrasses, smothers nursery habitats for baby crabs and fish, and decreases the oxygen available to fish and shellfish.



What you can do to help

#1 Reduce your nutrient footprint

- Support wastewater treatment upgrades in your area. Maintain your septic system.
- Adopt a Florida native or Florida-friendly yard that needs less fertilizer, if any at all.
- Always pick up pet waste, even in your own backyard.

#2 Support local initiatives that clean up waterways

- Volunteer for a local waterway cleanup, planting, or citizen science effort.
- Vote for legislation that curbs nutrient inputs to local waterways and reduces climate change.
- Donate time and money to local non-profits that protect the estuary near you.

This document was produced as a follow-up to the 2021 Florida Macroalgae Workshops. The steering committee for the workshops included representatives from these organizations:

Sarasota Bay Estuary Program — Restoring Our Bays
TBEP Tampa Bay Estuary Program — Partnership for a Healthy Bay
One Lagoon — One Community • One Voice
St. Johns River Water Management District
Sea Grant Florida
Southwest Florida Water Management District — WaterMatters.org · 1-800-423-1476
Coastal & Heartland National Estuary Partnership
Harbor Branch — Florida Atlantic University
UF IFAS Extension — University of Florida

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