

## **Stresses on seagrass**

Seagrasses represent a valuable part of Florida's marine environment. They provide shelter and a feeding ground for manatees, sea turtles, fish, crustaceans and other animals. For example, healthy seagrasses act as nursery grounds for pink shrimp, Caribbean spiny lobster, and stone crab which support a multi-million dollar fishing industry. In addition, seagrasses filter nutrients and particles out of water coming off the land. Without such filtering, potentially damaging levels could reach the coral reefs of the Florida Keys. Approximately 55% of Florida's seagrasses are found in Monroe County. Most of these seagrasses live in 850 square miles of backcountry creeks and the shallow interconnected basins of Florida Bay.

Like all plants and animals, seagrasses "do" best within a range of environmental conditions. Conditions outside this range, or stresses, can reduce their growth, hamper reproduction and lower their overall health. Think of heading up to New York City in the winter wearing your best Keys' clothes and you can imagine how stresses cause problems.

Factors that stress seagrasses include too little light, water that is too salty, too much sulfide (a sulfur compound) in the sediment, too many other plants competing for light, and even too much seagrass. For example, dense seagrass beds in very salty, warm water can use up most of the oxygen in the sediment. Lowered oxygen causes production of sulfide that is toxic to seagrasses. Shading represents another common stress for seagrasses. Increased inputs of nitrogen, phosphorus and other nutrients in runoff from the land can stimulate the growth of phytoplankton (single-celled plants) and algae (seaweeds). These plants "capture" or "block" the light before it reaches seagrasses, which stops seagrasses from photosynthesizing and creating the energy they need to grow and reproduce. Both of these stresses can make seagrasses vulnerable to disease, such as infection by the marine slime mold, *Labyrinthula*.

Many people still remember the die-off of Florida Bay's seagrasses in 1987 and the concerns about impacts on fishing and the ecosystem. Subsequent research has increased our knowledge of how seagrasses function and why they are important, but researchers have not identified the specific cause for the die-off. In fact, the die-off may have involved all of the stress related scenarios described above.

Since 1987, seagrasses in Florida Bay have generally recovered and stabilized, which leads scientists to believe the bay is doing "OK." However, scientists continue to monitor and study seagrasses, in part, so they can help set "restoration targets" and "performance measures" to guide the management of water flow created by the Comprehensive Everglades Restoration Plan (CERP).

The CERP will restore a more natural flow of water into Florida Bay. The water will flow through the Everglades National Park and enter via Taylor Slough (located on the southeastern corner of the Everglades), Shark River Slough (located on the western side of the Everglades) and flood canals. Managers will use restoration targets and

performance measures for Florida Bay, the Everglades and other parts of the south Florida ecosystem to guide, evaluate and adjust the quality, quantity, timing, and distribution of water to ensure that seagrasses and other parts of the system remain healthy.

In March, we celebrate the sixth annual "Seagrass Awareness Month" recognizing the importance of seagrasses to Florida's environment and economy and the ongoing threats to seagrass health, including loss of water quality and physical damage by boaters. We invite you to learn how you can help keep seagrasses healthy by identifying shallow water, using charts and other navigational aids, keeping track of tides, and minimizing damage if you run your boat onto a seagrass flat. For information on "Seagrass Awareness Month", visit <http://floridakeys.noaa.gov/edu/seagrassmonth/>.

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