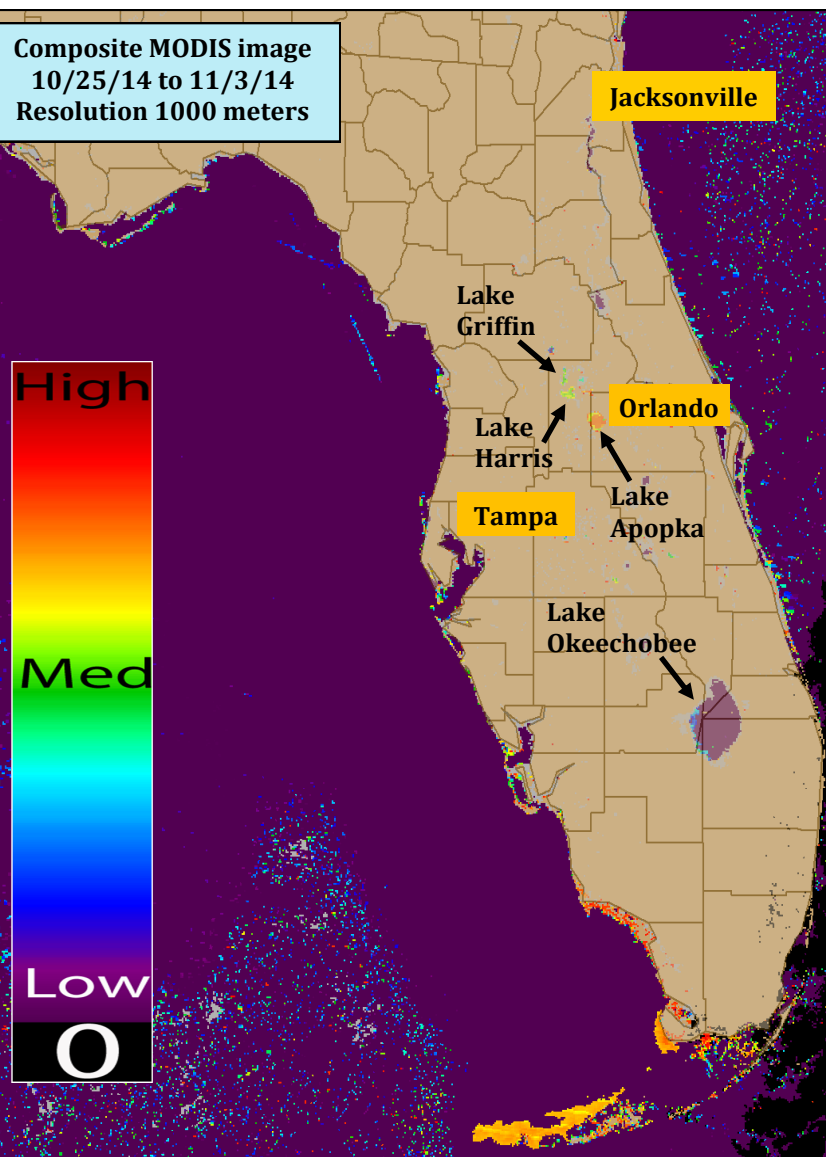


To report an illness related to a freshwater, estuarine, marine toxin or harmful algal bloom, please contact the Florida Poison Information Center at 1-800-222-1222.

Images/data are obtained from Florida Fish and Wildlife Research Institute, Florida Water Management Districts, National Oceanic and Atmospheric Administration (NOAA), NOAA National Climatic Data Centers and National Weather Centers. Support to produce this report comes from NOAA/NASA Contract NNN08ZDA001N.

Composite MODIS image
10/25/14 to 11/3/14
Resolution 1000 meters



CyanoHAB Conditions Report

- Lake Griffin and Lake Harris (Lake County) displayed medium estimated elevated chlorophyll-a concentrations.
- Lake Apopka (Orange/Lake Counties) displayed medium estimated elevated chlorophyll-a concentrations.
- Lake Okeechobee (Okeechobee/Glades/Hendry/Palm Beach/Martin Counties) displayed low to medium estimated elevated chlorophyll-a concentrations along the western portion of the lake.

Studies show Lagoon grass gained 12 percent

FLORIDA TODAY

By Jim Waymer

Published October 24, 2014 at 8:02 a.m. EDT

The Indian River Lagoon has grown a bit grassier, according to new data released this week. Seagrass increased by 4,700 acres, or 12 percent, between 2011 and 2013. Still, the bottom plant that provides a key barometer of the lagoon's overall health remains well below what it was just two years before an algae "superbloom" struck its deadly blow and killed some 47,000 acres of seagrass. New data from the St. Johns River Water Management District shows seagrass coverage in Volusia, Brevard and Indian River counties is still 39 percent less than what it was before the 2011 superbloom. Seagrass grew from just over 38,300 acres in that region in 2011 to more than 43,000 acres last year. But the increase may only reflect normal year-to-year variation, district officials said. "It's a good indicator, but we're cautious in that it's only one year," said Hank Largin, a district spokesman. "We'll have to see the longer-term data." District scientists also have yet to determine how much the improvement may have continued this year. The superbloom triggered a 60 percent loss of lagoon seagrass. That loss is suspected to have contributed to subsequent manatee, dolphin and other wildlife die-offs. Seagrass is the lagoon's prime nursery for fish and other marine life that helps drive \$3.7 billion in annual economic activity. Just two years before the 2011 superbloom, lagoon seagrass thrived at levels not seen since the 1940s. Restoration efforts finally seemed to be paying off, with some help from drought, which meant less polluting runoff into the waterway. But drought, coupled with record cold winter temperatures, also was among the major driving factors that fueled the superbloom and subsequent brown algae blooms, according to scientists at the University of Florida and the district. Extreme cold in December 2010 and January 2011 killed tiny marine organisms that graze on algae, allowing the superbloom to thrive, the researchers concluded in a recent research paper published last month in the journal *Estuaries and Coasts*. Drought also drove lagoon salt levels into the ideal range for the algae species that bloomed in recent years, the researchers concluded. As part of ongoing research, the water management district uses aerial photography to create seagrass maps of the lagoon. Photos are taken every two or three years to update the maps. Biologists also dive along the seagrass beds to verify information from the aerial photos.

Indian River Lagoon seagrass gain from 2011 to 2013 (Volusia County through Indian River County)

2013 — 43,083 acres 2011 — 38,320 acres Increase — 4,763 (12.4 percent)

Source: St. Johns River Water Management District

This article is available at <http://www.floridatoday.com/story/news/local/2014/10/23/studies-show-lagoon-grass-gained-percent/17786845/>.

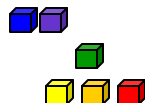
Marine Update: *Karenia brevis* Bloom

Red Tide Status - FWC/FWRI 11/5/2014: A bloom of the Florida red tide organism, *Karenia brevis*, has been detected in southwest Florida. *Karenia brevis* concentrations range from background to medium in the offshore and alongshore areas, and in the Pine Island Sound system (Charlotte and Lee counties). Other samples collected throughout Florida so far this week did not contain *K. brevis*.

Red Tide Health Effects - NOAA 11/6/2014: Not present to background concentrations of *K. brevis* are along the coast of **northwest Florida from Escambia to Taylor counties**. No respiratory irritation is expected there Thursday, November 6 through Monday, November 10. Not present to medium concentrations of *K. brevis* are along- and offshore portions of southwest Florida and not present concentrations are in the Florida Keys. The forecast for respiratory irritation is as follows: Very Low (Th-Sa, M) and None (Su) in **Southern Charlotte, bay regions**; Moderate (Th-Sa), Low (Su), and Very Low (M) in **Northern Lee**; Moderate (Th-Sa, M) and Low (Su) in **Northern Lee, bay regions**; Very Low (Th, Sa) and None (F, Su-M) in **Central Lee**; Very Low (Th-Sa, M) and None (Su) in **Central Lee, bay regions**; Moderate (Th-Sa) and Low (Su-M) in **Central Collier**; Low (Th-M) in **Central Collier, bay regions**; none expected (Th-M) in **all other SWFL County Regions**.

MODIS Images display a chlorophyll-a index generated with a Moderate Resolution Imaging Spectroradiometer provided by the National Aeronautics and Space Administration (NASA)

- Very low likelihood of a bloom
- May indicate clouds or missing data
- Low estimated chlorophyll-a concentrations
- Medium estimated chlorophyll-a concentrations
- Higher estimated chlorophyll-a concentrations



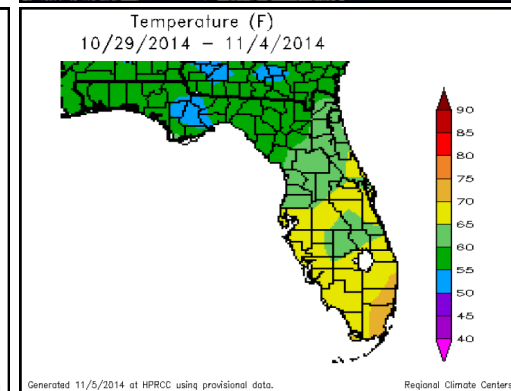
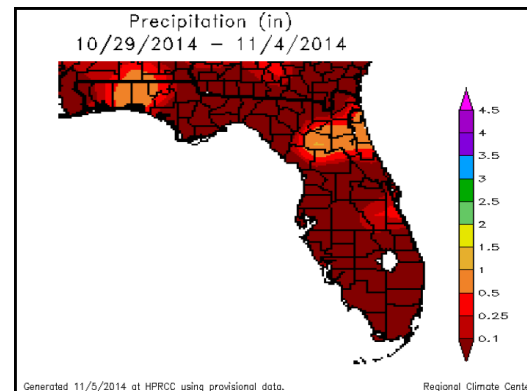
Interpreting Moderate Resolution Imaging Spectroradiometer Data

- The Moderate Resolution Imaging Spectroradiometer (MODIS) is deployed by NASA onboard the Terra (EOS AM) and Aqua (EOS PM) satellite. It passes over the Earth, collecting new imagery every 1-2 days.
- This imagery is used as a surveillance tool. Data collected by the MODIS sensor are used to generate a chlorophyll-a index, which is used to forecast harmful algal blooms. The results are not specific to any one HABs species, and should be followed-up with onsite field observations. Data is only suggestive of a potential HAB event.
- MODIS uses a spectral band that is much coarser than MERIS; therefore, only select larger water bodies in FL are visible using this technology.
- MODIS is better at depicting low to medium chlorophyll-a concentrations. Once a potential bloom is depicted, a switch in algorithms may be used to improve the visibility. MODIS has a few spectral bands, which have higher resolution that are more comparable to MERIS. However, these bands do not cover all of FL.
- Several environmental factors may affect how results can be interpreted. For example, areas with abundant aquatic vegetation may present with a high chlorophyll-a index resulting in a false positive bloom reading.
- The sensor identifies biomass near the surface (in the upper few feet of water). As a result, it may underestimate the total biomass for blooms that are mixed or dispersed through the water column.
- While patches of red or warm colors may indicate higher chlorophyll-a concentrations, these data have not been verified in most cases using ground-truth methods.

Weather Conditions: Precipitation and Temperature - 10/29/14 to 11/4/14

- Weather conditions can impact the duration and location of blooms and the satellite imagery shown in this report may no longer be relevant.
- Images represent the last image taken with a realization that blooms may have moved, dissipated or intensified.
- Cloud coverage can obscure imagery and create patches or gray areas on map and obscure bloom detection.

MODIS True Color Image
October 25, 2014



To review HABs satellite reports in the Gulf of Mexico and marine waters visit the NOAA Harmful Algal Bloom Operational Forecast System bulletin archive at:
<http://tidesandcurrents.noaa.gov/hab/bulletins.html>



For Individual Weather Station Data, visit:
<http://www.sercc.com/climate>

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