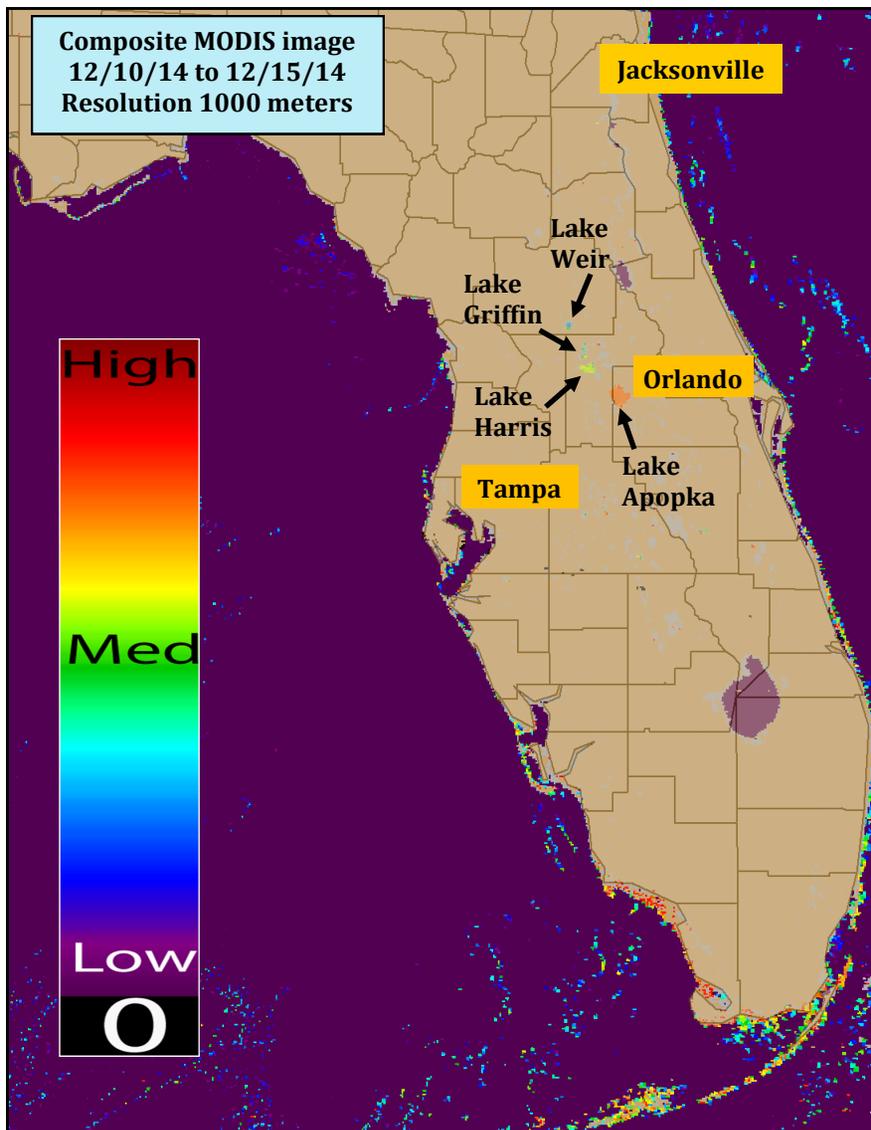


To report an illness related to a freshwater, estuarine, marine toxin or harmful algal bloom, please contact the Florida Poison Information Center at 1-800-222-1222.

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. This report was produced through a collaboration between the Florida Department of Health Water Toxins Program (WTP) and the NOAA Center for Coastal Monitoring and Assessment.



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

CyanoHAB Conditions Report

- Lake Weir (Marion County) displayed medium estimated elevated chlorophyll-a concentrations.
- Lake Griffin and Lake Harris (Lake County) displayed medium estimated elevated chlorophyll-a concentrations.
- Lake Apopka (Orange/Lake Counties) displayed medium to high estimated elevated chlorophyll-a concentrations.

DEP ADOPTS RESTORATION PLAN FOR LAKE OKEECHOBEE

DEP and stakeholders identify short- and long-term projects for water quality improvements
Released: December 16, 2014
Contact: DEP Press Office, 850-245-2112, DEPNews@dep.state.fl.us

TALLAHASSEE – The Florida Department of Environmental Protection has formally adopted an aggressive 10-year restoration plan, known as a basin management action plan or BMAP, covering Lake Okeechobee. The long-term restoration plan was carefully developed through a series of public meetings that included environmental groups, agricultural interests, local governments as well as the public. The plan identifies a set of strategies and projects to reduce nutrient pollution to the lake that represents more than a \$750 million investment and nearly 33-percent reduction in total phosphorous entering Lake Okeechobee over the next 10 years. Governor Rick Scott said, “I am proud DEP continues to collaboratively work with all stakeholders to protect the quality of Florida’s water. The creation of this restoration plan builds on the success of our \$880 million plan to protect the quality of water flowing into the Everglades. Restoring the waters of Lake Okeechobee and the Northern Everglades is a key step in preserving the greater Everglades Ecosystem for generations to come.”... Over the last two years, with the support of the South Florida Water Management District (SFWMD) and the Department of Agriculture and Consumer Services, DEP has conducted more than 10 public meetings to develop the final restoration plan. The BMAP identifies a variety of project types to relieve the lake of large influxes of nutrient-rich water, including dispersed water storage, nutrient reduction practices for urban and agricultural areas, and a number of cost-share projects using state financial assistance to accelerate restoration. “DEP’s BMAP effort delivers an important tool for the long-term restoration of Lake Okeechobee,” said SFWMD Assistant Executive Director Lennart Lindahl. “Based on sound science and extensive public input, this important BMAP will help protect South Florida’s largest inland water body.” The first five years of the plan cover a range of projects including the Kissimmee River Restoration Project, hybrid wetland treatment areas, dispersed water storage and stormwater treatment areas (STAs). The BMAP also identifies timeframes for the continued planning and development of longer-term projects over the next 10 years. “Audubon Florida worked closely with DEP on the Lake Okeechobee water quality plan and considers the plan an important step toward meeting state water quality standards,” said Audubon Florida Executive Director Eric Draper.... Located in the heart of the greater Kissimmee-Okeechobee-Everglades ecosystem, Lake Okeechobee is the largest freshwater lake in Florida and the second-largest freshwater lake within the contiguous United States. It is a valuable, multi-purpose waterbody that provides drinking water for urban areas, irrigation water for agricultural lands, recharge for aquifers and freshwater for the Everglades. With a contributing watershed of approximately 1,800 square miles, larger than the state of Rhode Island, it is vulnerable both to pollution from surrounding land uses and flooding.

The complete article is available at <http://content.govdelivery.com/accounts/FLDEP/bulletins/e1e723>.

Marine Update: *Karenia brevis* Bloom

Red Tide Status – FWC/FWRI 12/19/2014: *Karenia brevis*, the Florida red tide organism, was found in background concentrations in one sample collected alongshore of Lee County and in background to very low concentrations in two samples collected offshore of Monroe County. Additional samples collected throughout Florida this week did not contain *K. brevis*.

Red Tide Health Effects – NOAA 12/15/2014: There is currently no indication of *Karenia brevis* along the coast of southwest Florida, including the Florida Keys. **No respiratory irritation is expected Monday, December 15, through Monday, December 22.**

Check http://tidesandcurrents.noaa.gov/hab/beach_conditions.html for recent, local observations.

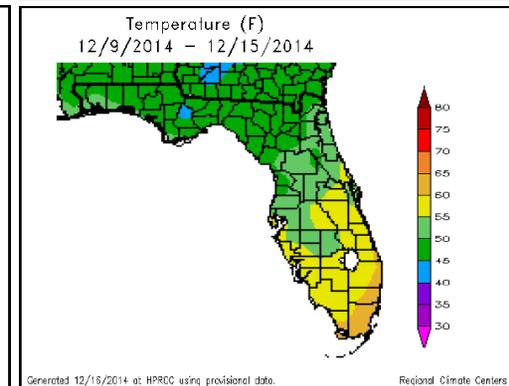
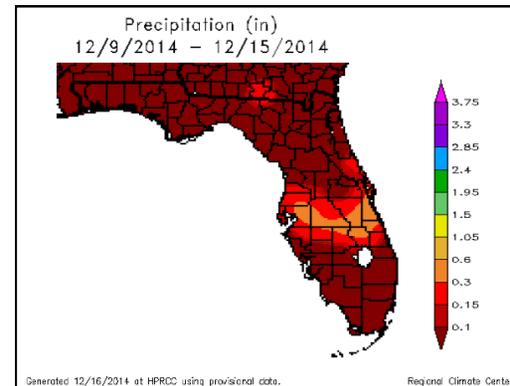
Interpreting Moderate Resolution Imaging Spectroradiometer Data

- 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 - 12/9/14 to 12/15/14

- 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 December 14, 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>

For information, please contact:
Laura Morse, Public Health Toxicology Program, at 850.245.4444 x 2080 or laura.morse@flhealth.gov