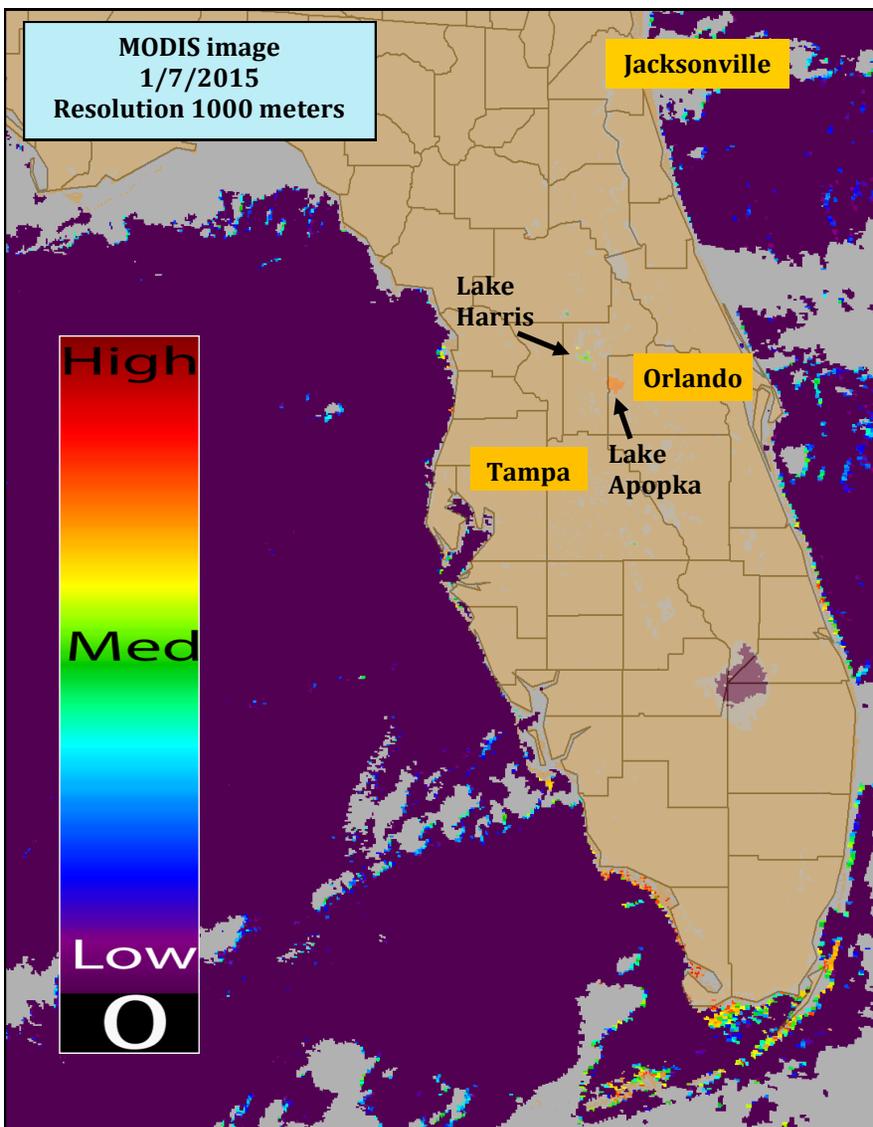


To report an illness related to a freshwater, estuarine, marine toxin or harmful algal bloom, please contact the Florida Poison Information Center at 1-800-222-1222.

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

- Due to cloud cover over much of the state during the imagery period, no composited MODIS image is available for this week's bulletin.
- As shown in the true color image on page 2, cloud cover was present during the imagery date of January 7, 2015, resulting in some difficulties with data interpretation.
- 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.

The Fate of Microcystins in the Environment and Challenges for Monitoring

toxins By Justine R. Schmidt, Steven W. Wilhelm and Gregory L. Boyer
Toxins 2014, 6, 3354-3387; doi:10.3390/toxins6123354

Abstract: Microcystins are secondary metabolites produced by cyanobacteria that act as hepatotoxins in higher organisms. These toxins can be altered through abiotic processes, such as photodegradation and adsorption, as well as through biological processes via metabolism and bacterial degradation. Some species of bacteria can degrade microcystins, and many other organisms metabolize microcystins into a series of conjugated products. There are toxicokinetic models used to examine microcystin uptake and elimination, which can be difficult to compare due to differences in compartmentalization and speciation. Metabolites of microcystins are formed as a detoxification mechanism, and little is known about how quickly these metabolites are formed. In summary, microcystins can undergo abiotic and biotic processes that alter the toxicity and structure of the microcystin molecule. The environmental impact and toxicity of these alterations and the metabolism of microcystins remains uncertain, making it difficult to establish guidelines for human health. Here, we present the current state of knowledge regarding the alterations microcystins can undergo in the environment.

The full text is available at <http://www.mdpi.com/2072-6651/6/12/3354/htm>.

Marine Update: *Karenia brevis* Bloom

Red Tide Status - FWC/FWRI 1/16/2015: *Karenia brevis*, the Florida red tide organism, was not detected in samples analyzed this week (1/8/2015 - 1/15/2015) throughout Florida. For additional information, see <http://myfwc.com/research/redtide/statewide/>.

Red Tide Health Effects - NOAA 1/12/2015: There is currently no indication of *Karenia brevis* along the coast of southwest Florida, including the Florida Keys. No respiratory irritation is expected alongshore southwest Florida, including the Florida Keys, Monday, January 12 through Tuesday, January 20. Check http://tidesandcurrents.noaa.gov/hab/beach_conditions.html for recent, local observations.

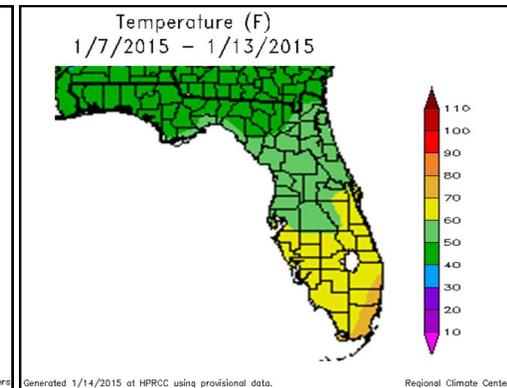
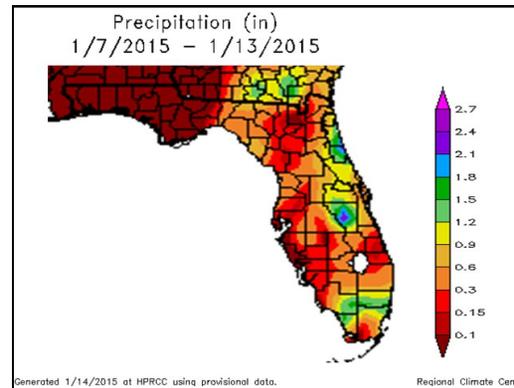
Interpreting Moderate Resolution Imaging Spectroradiometer Data

- 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 - 01/07/15 to 01/13/15

- 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
January 7, 2015



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:
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