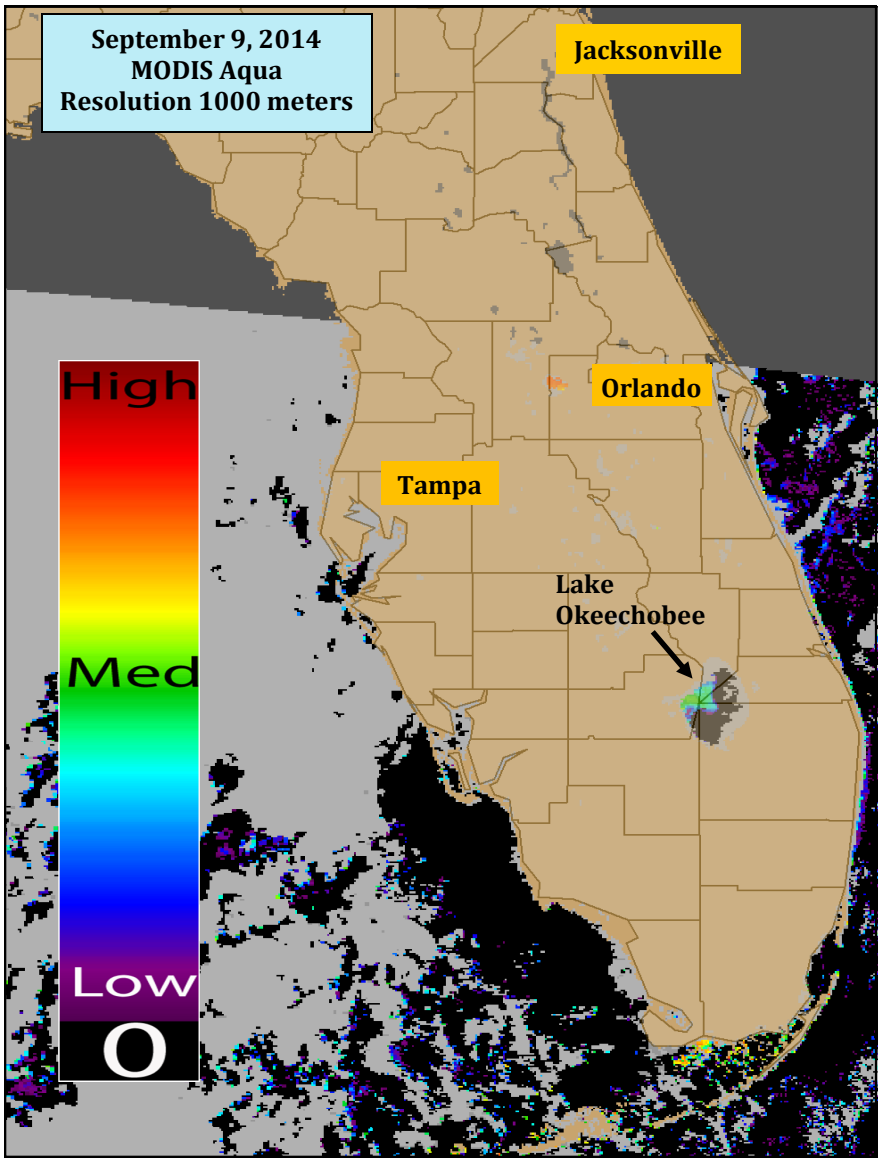
Inland Harmful Algal Blooms Health Bulletin: September 12, 2014

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 NNH08ZDA001N.



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

- As shown in the true color image on page 2, only a partial image of the state was available for evaluation.
- Cloud cover obscured much of the state making data collection and interpretation difficult.
- Glint was also prevalent around the state.
- Lake Okeechobee (Okeechobee/Glades/Hendry/Palm Beach/Martin Counties) displayed low to medium estimated elevated chlorophyll-a concentrations in the western portion of the lake.

After Toledo water scare, states ask EPA for help

TBO THE TAMPA TRIBUNE **By John Seewer, The Associated Press** **Published: September 7, 2014**

TOLEDO, Ohio — Algae that turned Lake Erie green and produced toxins that fouled the tap water for 400,000 people in Toledo are becoming a big headache for those who keep drinking water safe even far beyond the Great Lakes. But with no federal standards on safe levels for drinking algae-tainted water and no guidelines for treating or testing it either, water quality engineers sometimes look for solutions the same way school kids do their homework. "We are Googling for answers," said Kelly Frey, who oversees a municipal system in Ohio that draws drinking water from the lake. "We go home and spend our nights on the Internet trying to find how other places manage it. Spurred by the water emergency in Toledo that saw thousands lining up for water for two days in early August, a growing chorus is calling for the U.S. Environmental Protection Agency to create a national standard for allowable amounts of microcystin, the toxin that contaminated Toledo's water….Environmental regulators from Ohio, Indiana and Michigan met with U.S. EPA officials last month, asking the agency to press not only for clear water quality standards, but also a strategy for reducing the pollutants that help the algae thrive. But it may be several more years before the EPA is able to come up with a new benchmark because a great deal of study is still needed to determine how different amounts of the algae-related toxins affect people of all ages, said Craig Butler, director of the Ohio EPA…. The federal agency is working toward developing drinking water advisories and testing methods that would be released sometime next year and give treatment plants and states guidance for dealing with microcystin and another toxin, said Laura Allen, a U.S. EPA spokeswoman…. The complete article is available at *http://tbo.com/health/after-toledo-water-scare-states-ask-epa-for-help-20140907/*.

Marine Update: *Karenia brevis* Bloom

Red Tide Status – FWC/FWRI 9/12/2014: : A patchy bloom of *K. brevis* continues in the northeast Gulf of Mexico. Satellite images from the Optical Oceanography Laboratory at the University of South Florida show a surface bloom approximately 5 to 15 miles offshore between Dixie and northern Pinellas counties and less than 3 miles offshore of Cedar Key (Levy County). Concentrations in these areas range from background to medium. One sample collected alongshore of Sarasota County contained background concentrations of *K. brevis*. Forecasts for the next three days by the USF-FWC Collaboration for Prediction of Red Tides show little movement of the bloom patch located closest to the coast near Levy County. The bloom patch further offshore of Levy and Dixie counties is moving northwest, while the patch offshore of northern Pinellas, Pasco, and Hernando counties is moving to the north.

Red Tide Health Effects – NOAA 9/11/2014: *K. brevis* ranges from not present to medium concentrations along- and offshore portions of the coast from Dixie to Pinellas counties. *K. brevis* concentrations are patchy in nature and levels of human respiratory irritation will vary locally based upon nearby bloom concentrations, ocean currents, and wind speed and direction. Over the weekend, forecasted southeast to east winds may continue to promote northerly transport of the surface *K. brevis* concentrations. Forecasted winds will increase the potential for respiratory irritation at the coast of Levy County on Thursday and Saturday through Monday and at the coast of northern Pinellas County Thursday and Monday.

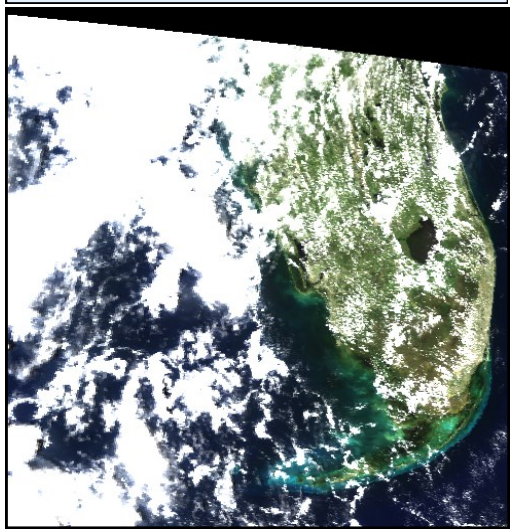
Interpreting Moderate Resolution Imaging Spectroradiometer Data

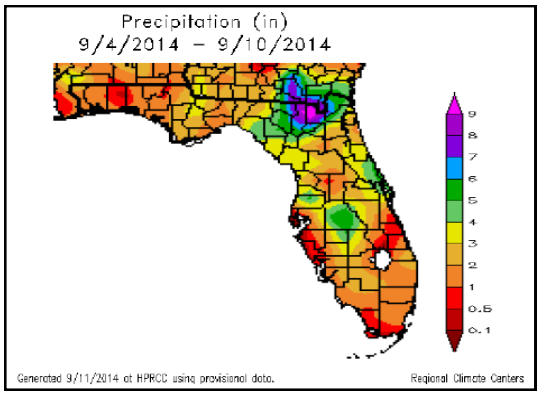
- The Moderate Resolution Imaging Spectroradiometer (MODIS) is deployed by NASA onboard the Terra (EOS AM) and Aqua (EOS PM) satellite. It passes over the Earth, collecting new imagery every 1-2 days.
- This imagery is used as a surveillance tool. Data collected by the MODIS sensor are used to generate 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.

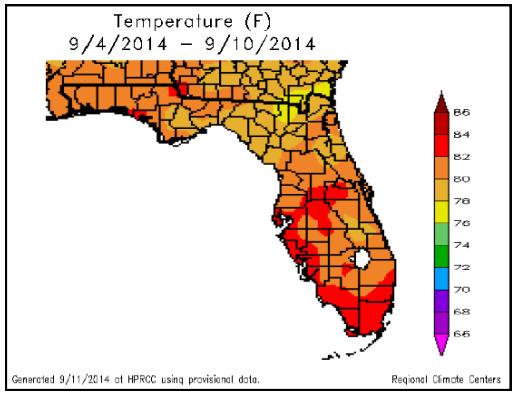
Weather Conditions: Precipitation and Temperature - 09/04/14 to 09/10/14

- 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.

September 9, 2014 MODIS Aqua True Color Image







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