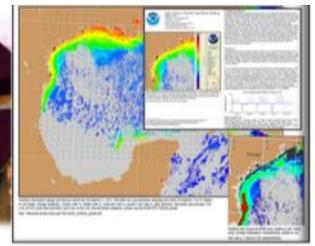


Photo credit: NOAA, TPWD, FWRI, WHOI



Issue 11 March 2015



NOAA HAB-OFS Newsletter

Welcome to the NOAA HAB-OFS Quarterly Newsletter. We are always happy to hear from you so please send your topic suggestions, questions, comments and feedback to hab@noaa.gov.

In this issue:

- *Coming Soon: Texas HAB-OFS Technical Report*
- *Southwest Florida 2014 Bloom Summary*

Coming Soon: First Texas HAB-OFS Technical Report, 2010-2014

To aid bloom response efforts, since October 1, 2010, the Harmful Algal Bloom Operational Forecast System (HAB-OFS) has provided the western Gulf of Mexico (GOMX) with operational forecasts for *Karenia brevis*. In order to continually improve the HAB-OFS, bulletin utilization and forecast quality (i.e. forecast accuracy, reliability and skill) are evaluated regularly. The HAB team is pleased to announce that a technical report detailing the results of the evaluation of HAB-OFS bulletins issued for Texas from October 1, 2010 to April 30, 2014 (BY2010-2014) will be published by the end of April. The report required extensive research, rigorous data review and statistical analyses.

Key Results from the Assessment:

- A total of 219 bulletins, 3 supplemental bulletins and 3 conditions updates were issued, requiring over 1500 forecast hours.
- **Utilization:** Product utilization was most likely underreported, but reports of utilization increased from only 3% in 2010 to 75% in 2014. This was due to an increase in awareness of the product over the course of four years and the launch of the HAB-OFS Facebook Page in the fall of 2012.
- **Bloom Detection:**
 - o Enhancements to satellite imagery products and increased sampling are needed.
 - *K. brevis* blooms often are indiscernible in satellite imagery due to resuspension at the Texas coast.
 - Limited data collection along- and offshore made it difficult to ground truth satellite imagery. Most data was collected in the bays where the chlorophyll anomaly product does not perform well.
 - o *Future work being considered:*
 - Modifications to the revised chlorophyll anomaly product to further remove resuspension.
 - Evaluation of higher resolution imagery to enhance HAB detection within the bays, such as chlorophyll products from the new European Space Agency's satellite, Sentinel-3, once available.
- **Respiratory Irritation Forecasts:**
 - o The forecasts with the greatest potential to protect public health, "moderate" and "high" level respiratory irritation forecasts, had the highest accuracy, reliability and skill of all forecasts issued.
 - o *Future work being considered:*
 - Explore ways to support GOMX Coastal Ocean Observing System and increase observational data.
 - Develop methods to cost-effectively measure the concentration of brevetoxin in the air and water and integrate that data into forecast procedures to increase accuracy and resolution.

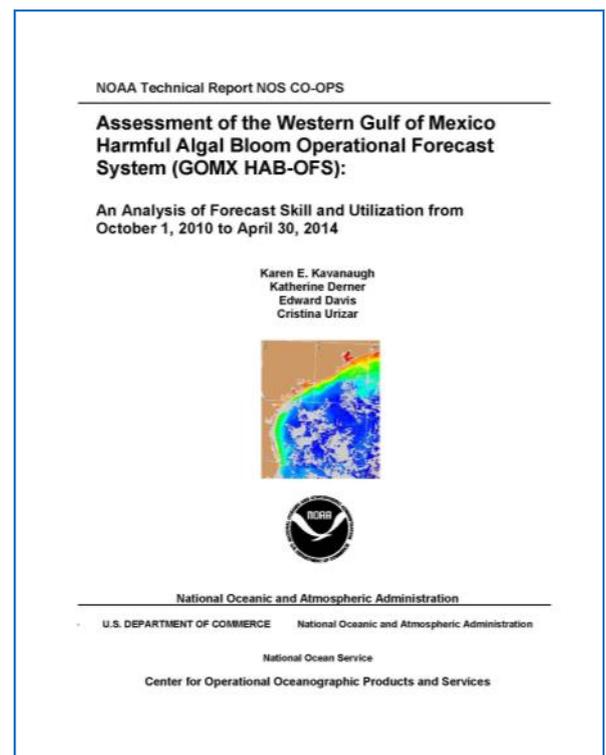


Figure 1: Assessment of Western Gulf of Mexico Harmful Algal Bloom Operational Forecast System: October 1, 2010 to April 30, 2014.

- **Forecasts of Transport Direction and Distance:**

- The limited ability to detect and monitor blooms in satellite imagery also made it difficult to assess forecasts of transport direction and distance.
- *Future work being considered:*
 - Investigate the use of the CO-OPS Northern GOMX Operational Forecast System model to enable higher resolution predictions of bloom movement and provide forecasts for Galveston Bay, an area where blooms frequently persist and where many water samples are collected.
 - Explore new modeling procedures to directly input the nowcast starting location into the General NOAA Operational Modeling Environment.

The results of this assessment will be used to guide enhancements to the operational forecast system with the goals of improving forecast quality through increased scientific understanding and the refinement of current forecast models. To read through our findings yourself when the report is published, visit the HAB-OFS [Publications](#) webpage.

Southwest Florida 2014 Bloom Summary

This season's bloom activity came to a close just in time to ring in 2015. In our [December issue](#), we highlighted the start of the Florida bloom season, with the development of a *Karenia brevis* bloom offshore northwest Florida in late July, only the third bloom reported on in this region since the HAB-OFS became operational in 2004. While the early months of the bloom season focused on the Big Bend region to Escambia County, a fragmented patch of the bloom drifted south and later propagated along- and offshore the coast of southwest Florida. In mid-August, sampling by Mote Marine Lab and the Florida Fish and Wildlife Research Institute (FWRI) confirmed very low to medium concentrations of *K. brevis* along- and offshore northern Pinellas and Sarasota counties.

By mid-October samples confirmed medium *K. brevis* concentrations offshore northern Lee County and bottom-water samples offshore Sanibel Island, which can lead to coastal intensification with the right conditions. By October 27th, FWRI sampling indicated the bloom had moved onshore and was present in the Pine Island Sound region. While concentrations did not linger in the Sound as is often the case, *K. brevis* concentrations were identified along- and offshore southern Lee County into November, when sampling also began detecting *K. brevis* in the Marco Island region of Collier County. Though the bloom cleared out of Collier County by Thanksgiving, it moved south towards the Keys and would linger offshore until the middle of December along with a larger feature present in satellite imagery just north of the Keys running from Marathon to Marquesas Key. The final *K. brevis* sample was collected north of the middle Florida Keys a week before Christmas and the HAB-OFS team resumed once-weekly bulletins just in time for the New Year.

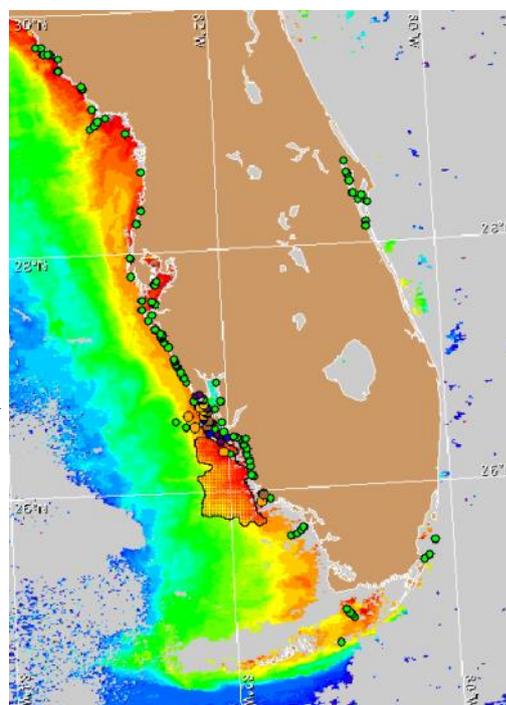


Figure 2: MODIS Aqua imagery from November 3, 2014, showing *K. brevis* concentrations and extent.

During the bloom in southwest Florida, Collier County was the most heavily impacted county with the highest *K. brevis* concentrations detected throughout all of southwest Florida, at 5.5million cells/L, detected offshore Barefoot Beach on November 8th. During this bloom, the HAB-OFS team produced 47 bulletins for northwest and southwest Florida as well as 6 Conditions Updates totaling approximately 636 hours of effort. This bloom also resulted in numerous fish kills along the southwest Florida coast as well as several reports of respiratory irritation in Lee and Collier counties.

Many Thanks to our Partners and Data Providers

<http://tidesandcurrents.noaa.gov/hab/contributors.html>

This newsletter was written and designed by:

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