

The Gulf of Mexico Harmful Algal Bloom Forecast

Enhancements to *Karenia brevis* (red tide) Forecast Products



Karenia brevis (red tide) forecast products for the Gulf of Mexico have been enhanced to provide up-to-date information on bloom location, severity, and respiratory impacts, specifically **respiratory irritation forecasts**, **satellite imagery**, and **bloom intensification forecasts**. The following information compares Legacy (pre-August 2021) and Next Generation (enhanced) products.

	Legacy product	Next Generation product
Distribution	Sent to bulletin subscribers twice weekly	Publicly available via the web-page and are automatically updated
Availability	Resource managers and academics	Anyone can subscribe to email alerts on model updates and bloom changes

Note: Starting August 2nd, alert subscribers will receive email notifications when important changes to the system occur or when there are significant changes in bloom conditions. For up-to-date, publicly available information and forecasts, please visit the forecast [web-page](#).

Respiratory Irritation Forecasts:

	Legacy product	Next Generation product
Forecast Product	Table and interactive map of forecasted respiratory conditions at daily intervals at the half-county-level (Fig. 1)	Interactive map of forecasted respiratory conditions at 3-hour intervals at the beach-level (Fig. 2)
Forecast Delivery	3-4 day projections generated manually on Monday and Thursday	Automatically generated at 3-hour intervals
Spatial Resolution	One forecasted value for each half-county, including Gulf and Bay regions, in SW FL	One forecasted value for each beach in SW FL
Temporal Resolution	Daily forecasts	3-hour forecasts
<i>K. brevis</i> cell counts	FWRI, MML, SCHD, and CCPCD	FWRI, MML, SCHD, CCPCD, SCCF, Pinellas County, and HABScope

FWRI = FL Fish and Wildlife Research Institute; MML = Mote Marine Laboratory; SCHD = Sarasota County Health Department; CCPCD = Collier County Pollution Control & Prevention Department; SCCF = Sanibel-Captiva Conservation Foundation

Fig. 1. Legacy product

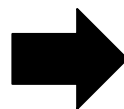
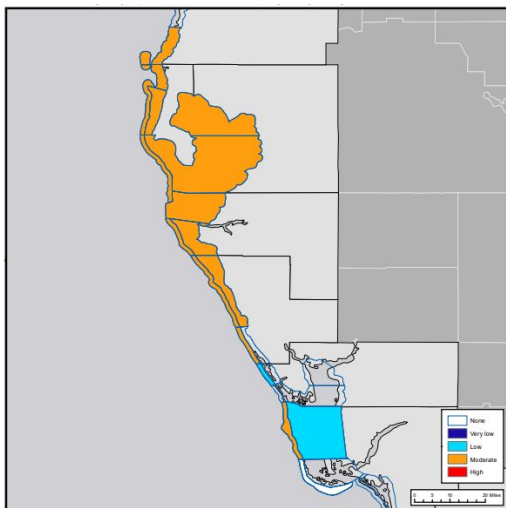
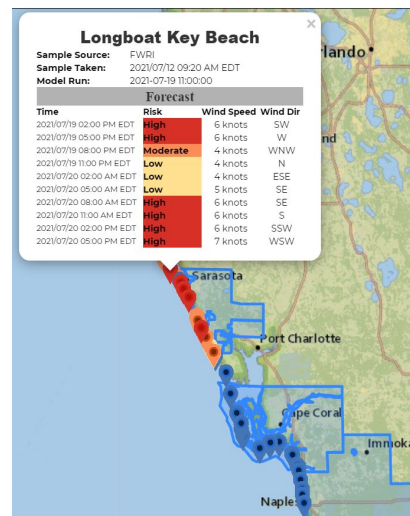


Fig. 2. Next Generation product



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Satellite Imagery:

	Legacy product	Next Generation product
Imagery Frequency	Sent out twice weekly in the bulletin	Posted daily as an 8-day composite image
Spatial Resolution	Covers coastal FL; displayed as an interactive map (Fig. 3)	Covers coastal FL; displayed as an interactive map (Fig. 4)
Satellite Algorithms	Identify blooms using high Chlorophyll-a fluorescence features	Identify blooms using high biomass fluorescence (red band difference, RBD)
<i>K. brevis</i> cell counts	FWRI, MML, SCHD, and CCPCD	FWRI, MML, SCHD, CCPCD, SCCF, Pinellas County, and HABScope

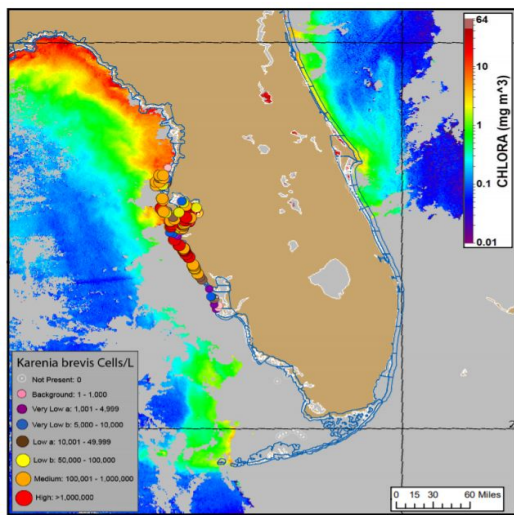


Fig. 3. Legacy product

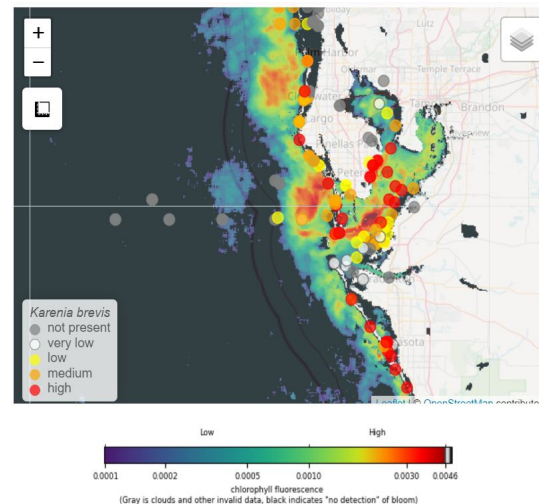
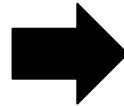


Fig. 4 Next Generation product

Bloom Intensification Forecast*:

Legacy product	Next Generation product
Description of bloom surface transport based on wind direction and upwelling (Fig. 5)	Figure of bloom intensification and movement at multiple depths based on a 3D model (Fig. 6)

* Currently for SW FL only

Forecasts:
Offshore winds forecast today and Friday (7/15-16) will minimize potential for respiratory irritation at the coast of southwest Florida. Variable winds forecast Saturday through Monday (7/17-19) will limit the potential for surface transport of *K. brevis* concentrations; however, periods of onshore winds during these days will promote the potential for respiratory irritation from Pasco to Charlotte counties.

Fig. 5. Legacy product

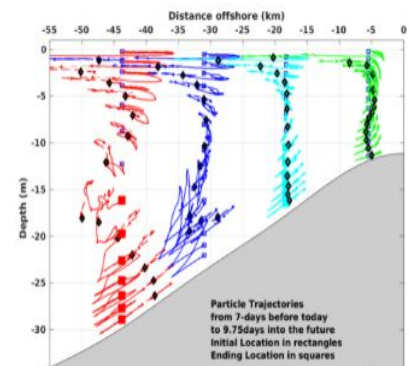
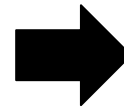


Fig. 6. Next Generation product

For more information or technical questions please contact HAB@noaa.gov