



CARICOOS Beach Water Quality Products



CARICOOS

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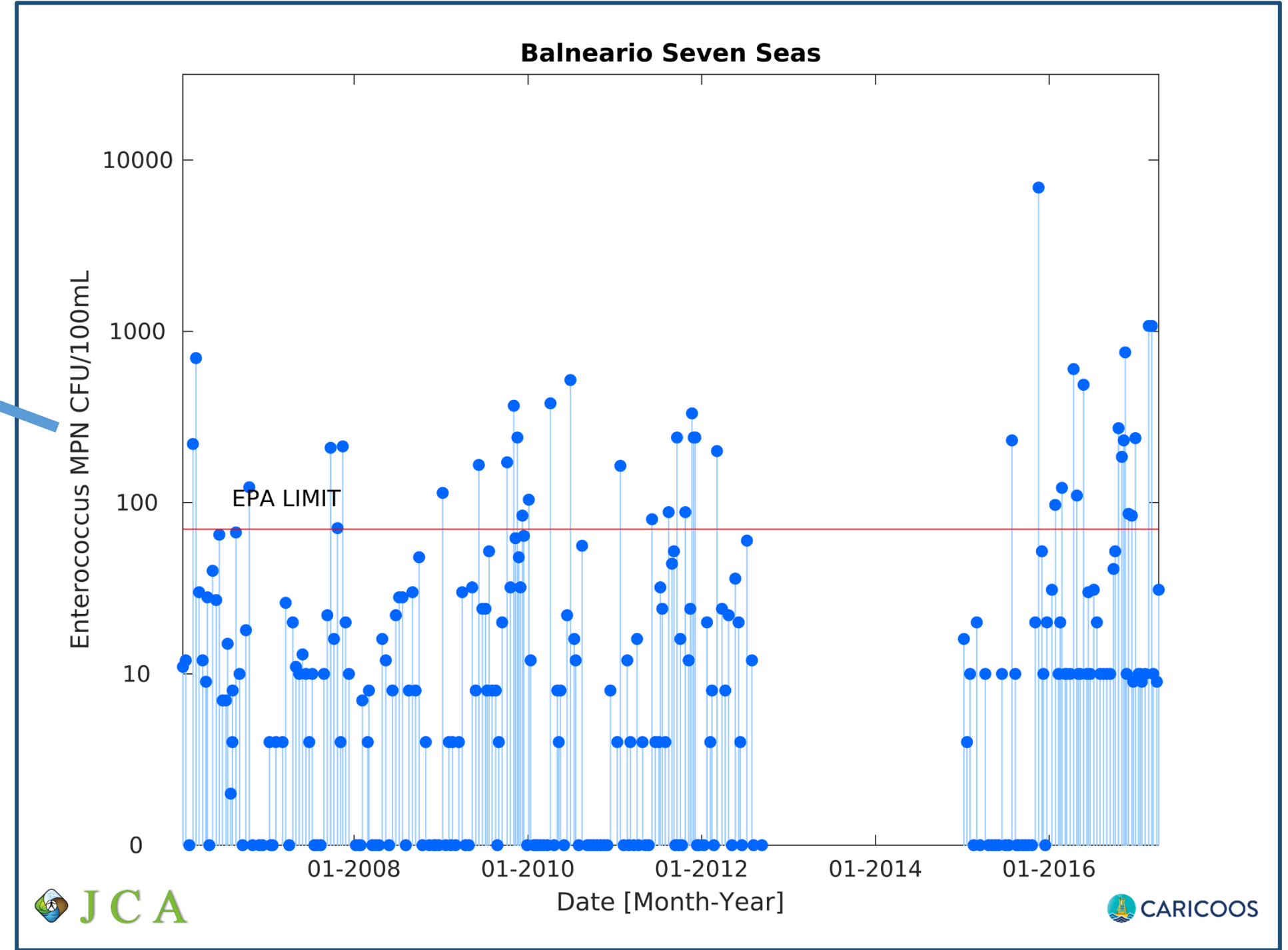
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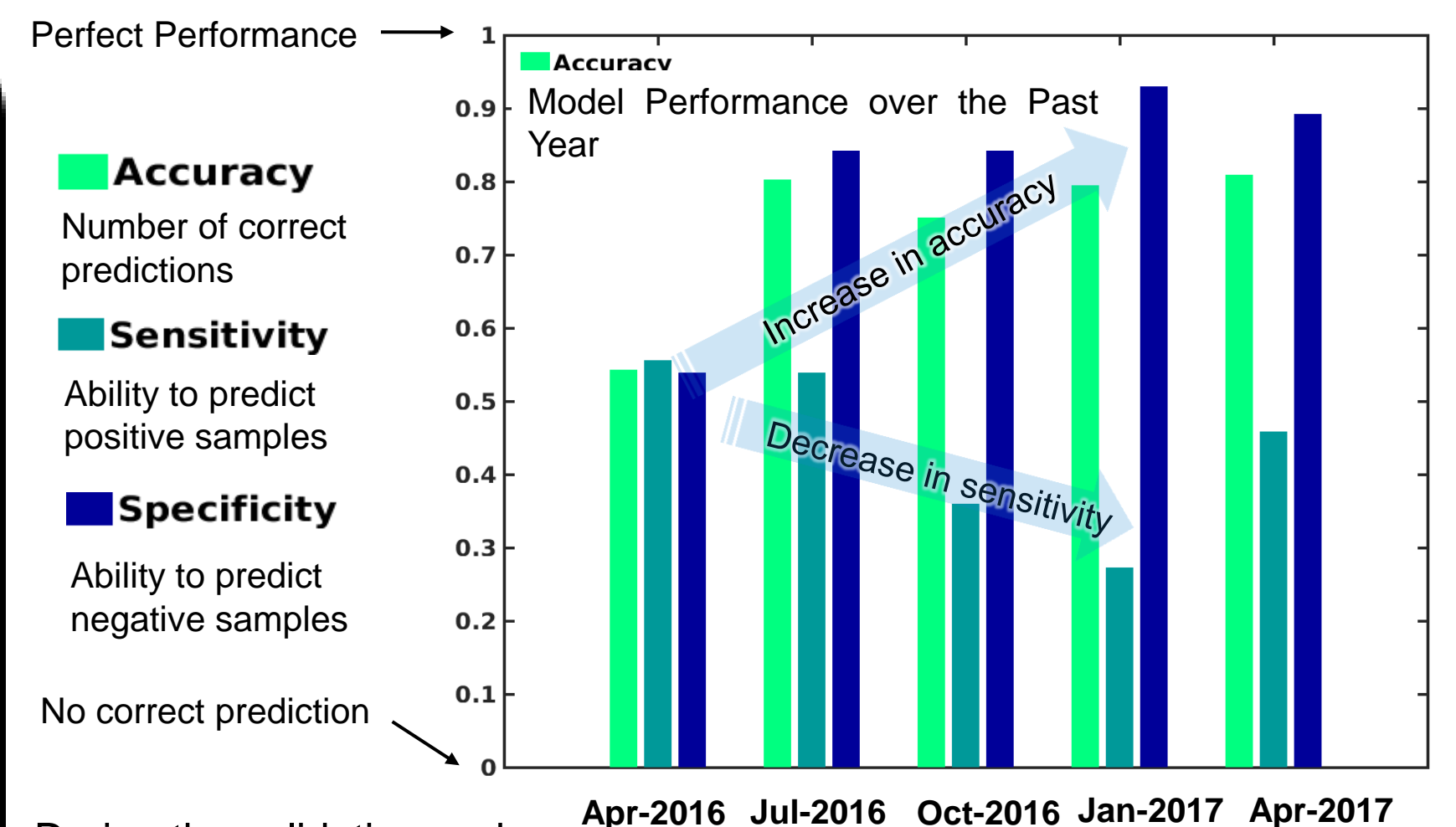
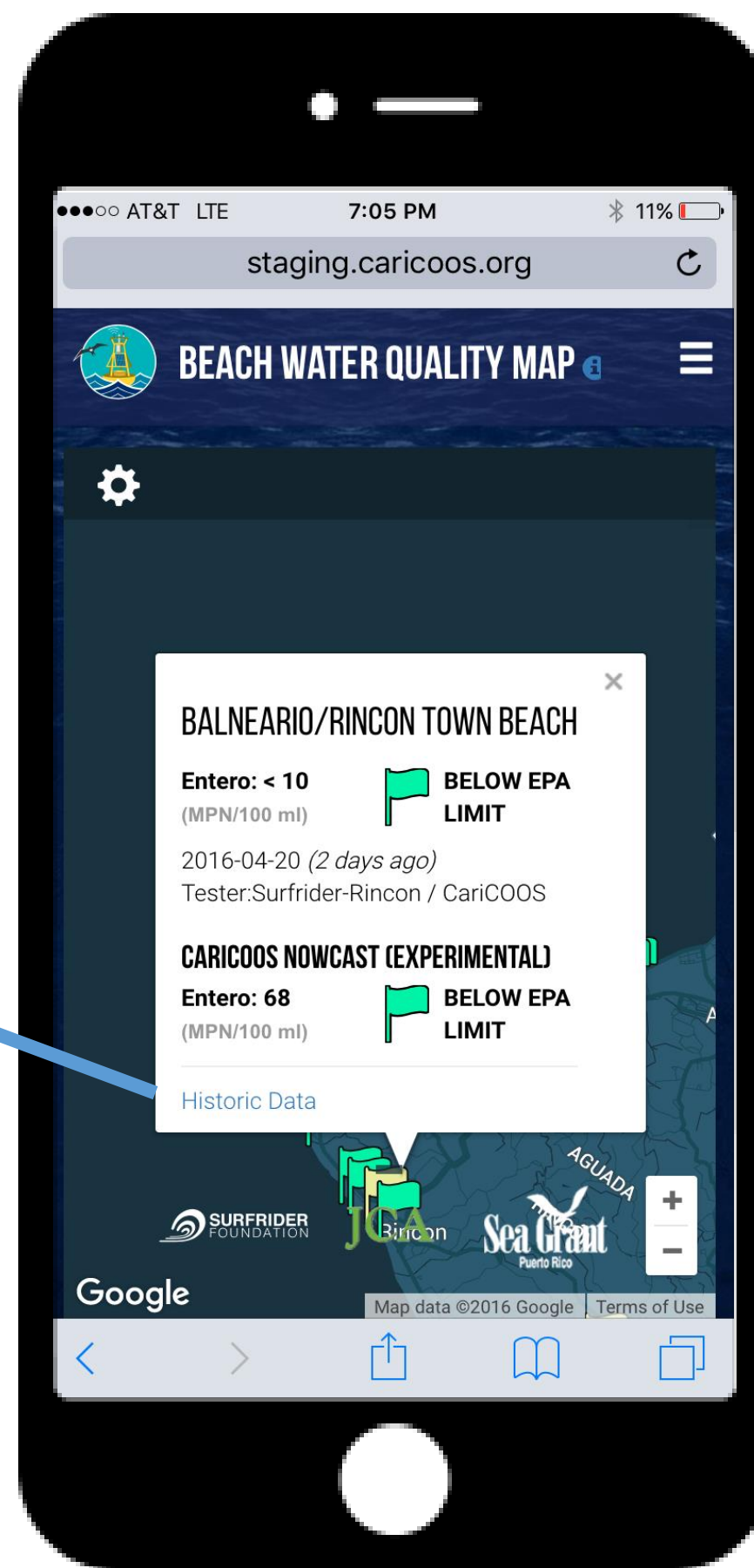
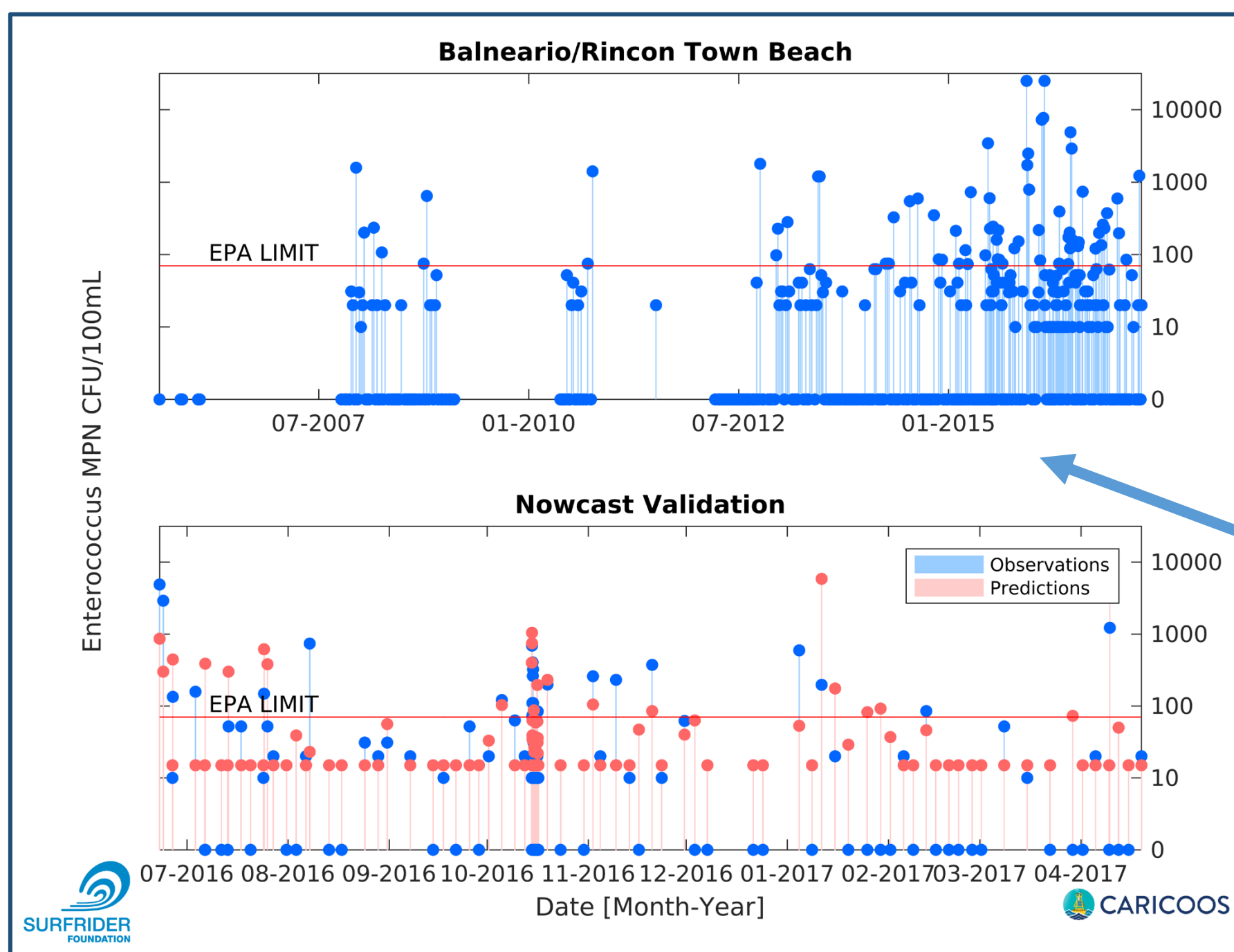
Beach Water Quality Map

Each flag represents a sampling site. Most of the west-side is sampled by Surfrider Foundation – Blue Water Task Force, while the rest of the island is sampled by the JCA. Clicking on the flags will show an info box with the latest sampling results. The “Historic Data” button provides a historic time series of all samples collected at the site.

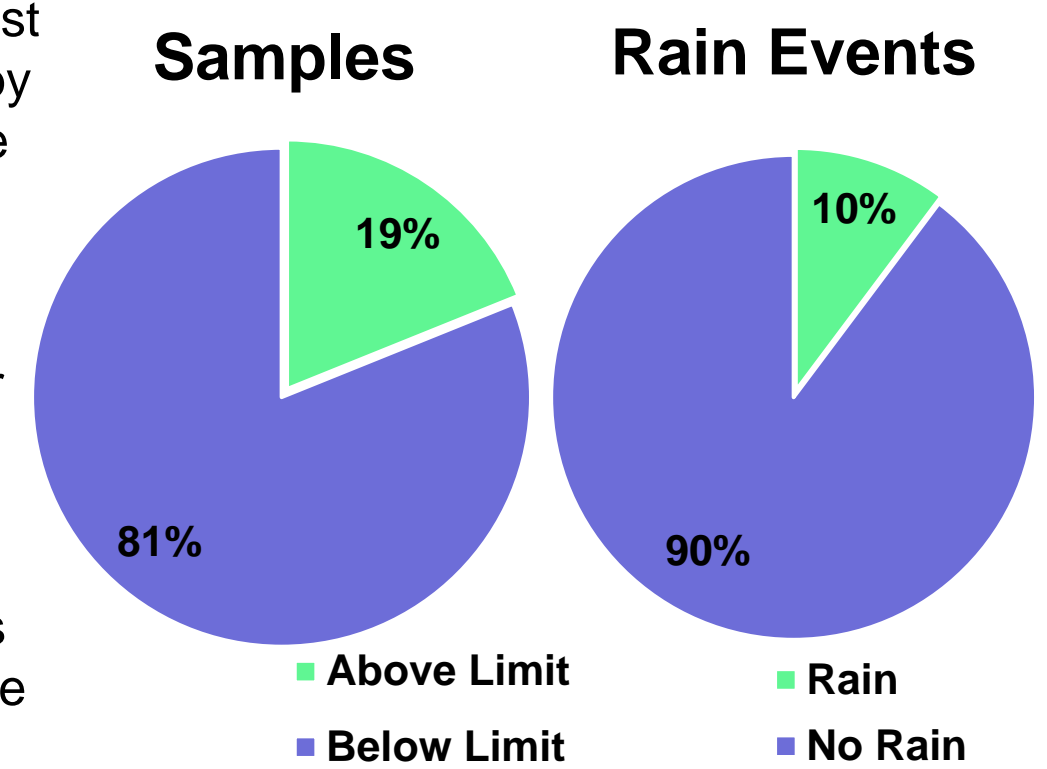


CARICOOS Beach Water Quality Nowcast - Rincón Public Beach

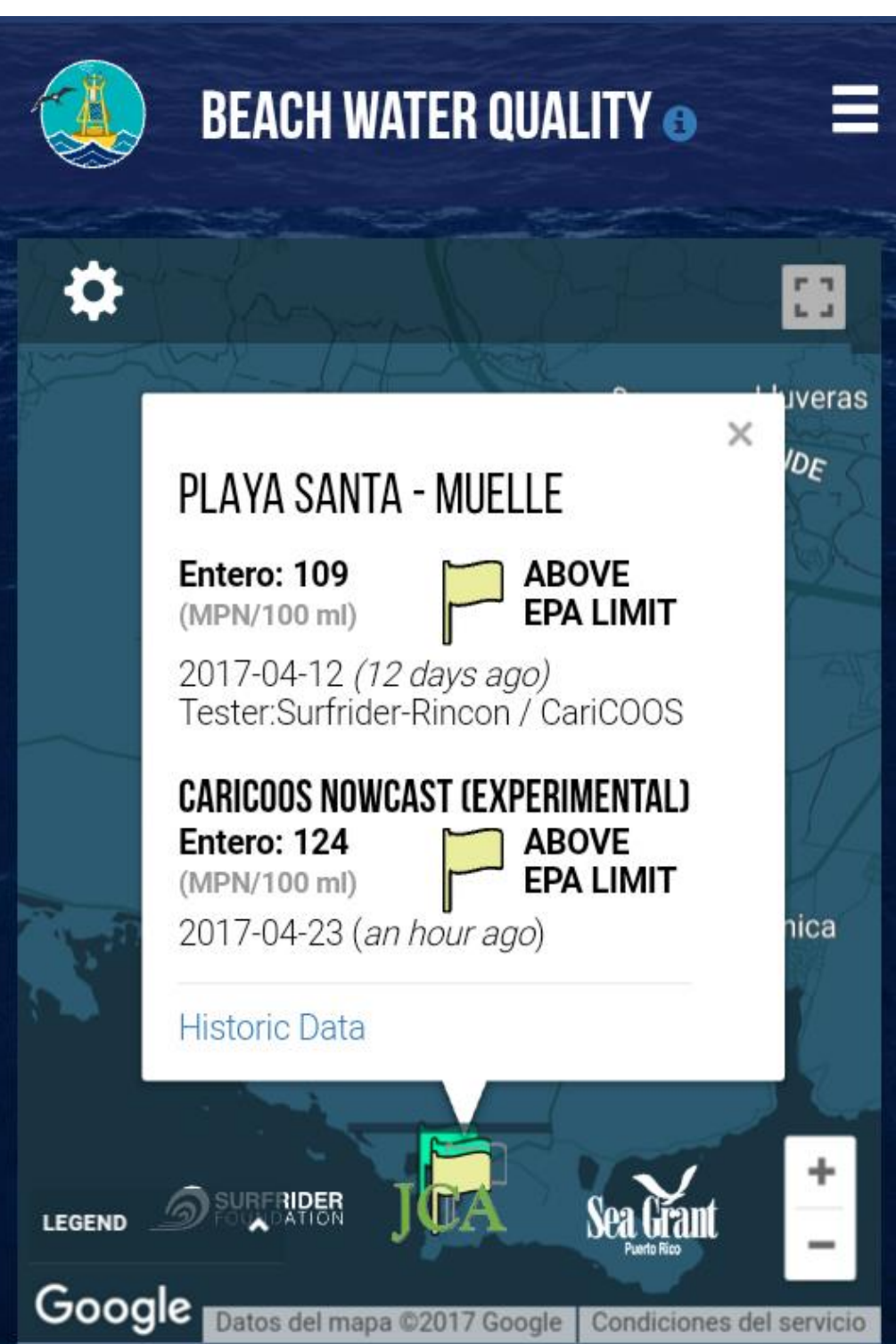
The Rincón Beach Water Quality Nowcast provides hourly estimates of Enterococci concentration at Rincón's Public Beach. This product has been providing data 24/7 since April, 2016. The product can be accessed by clicking the “Balneario” flag on the Beach Water Quality Map. Furthermore, users can assess its validation through the “Historic Data” link.



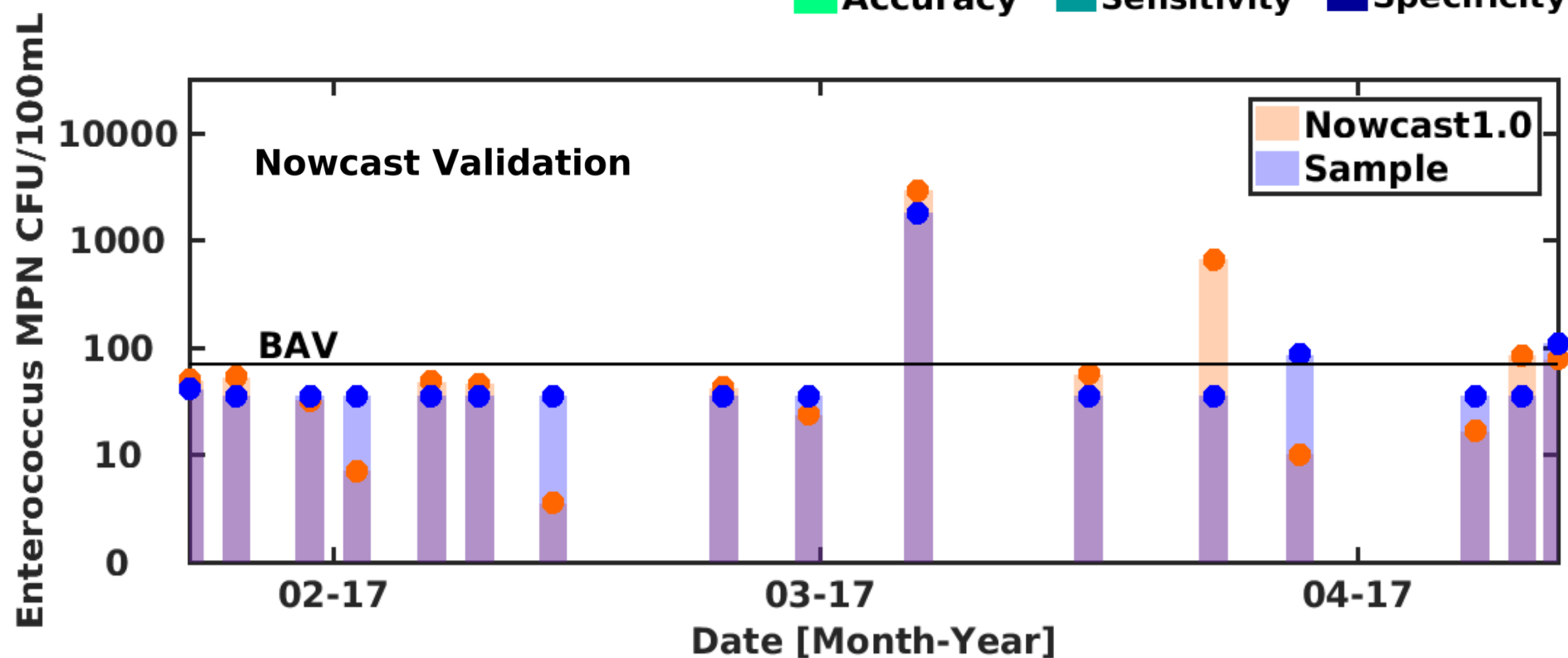
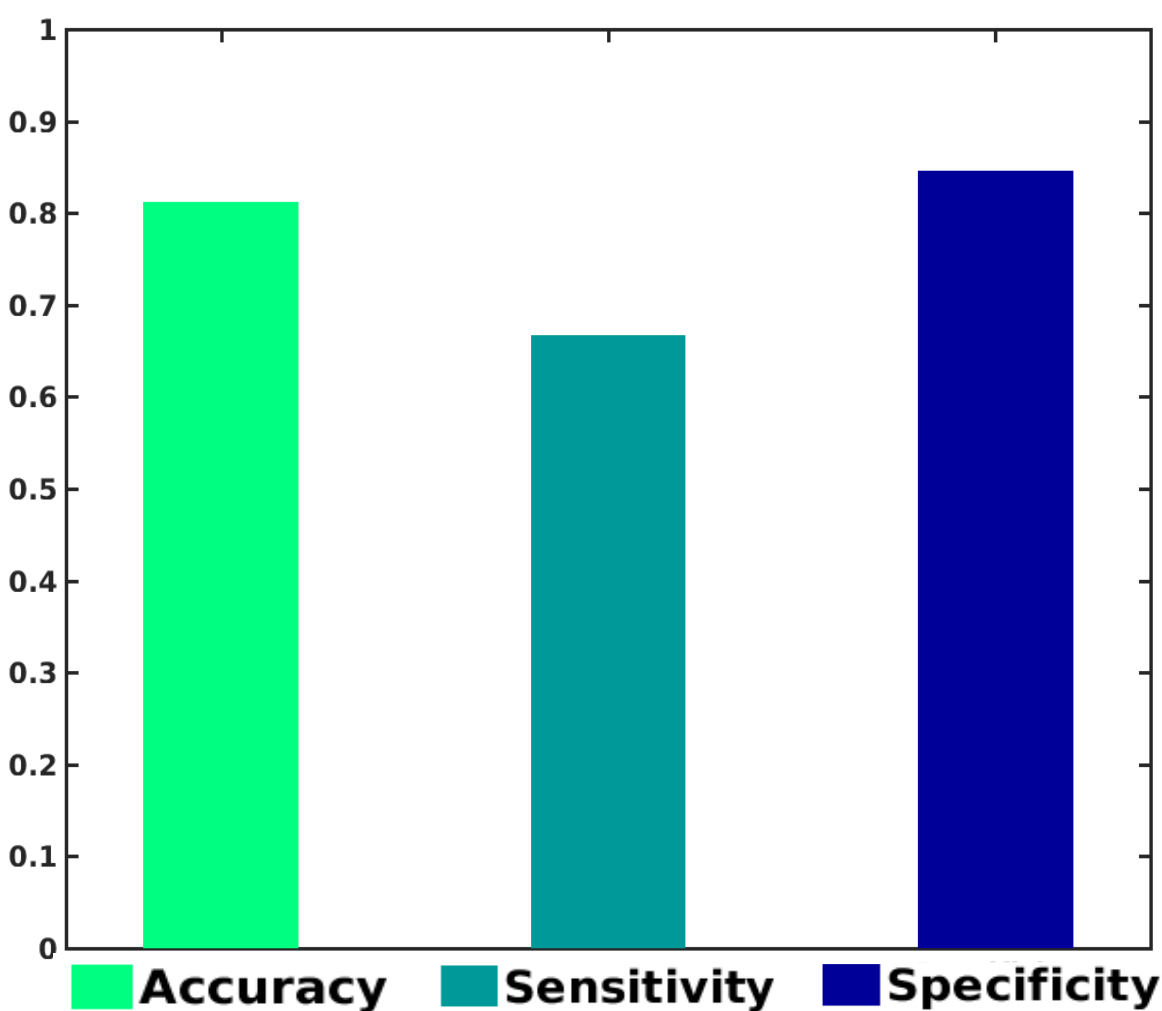
During the validation and fine-tuning period, the nowcast has increased its specificity by 50%. However, improving the model sensitivity has been a challenge, due in part to the fact that samples exceeding the EPA limit only account for 19% of the observations. Since rain is the highest correlator to bacteria levels, more data after rain events is needed to further increase the model sensitivity.



CARICOOS Beach Water Quality Nowcast - Playa Santa

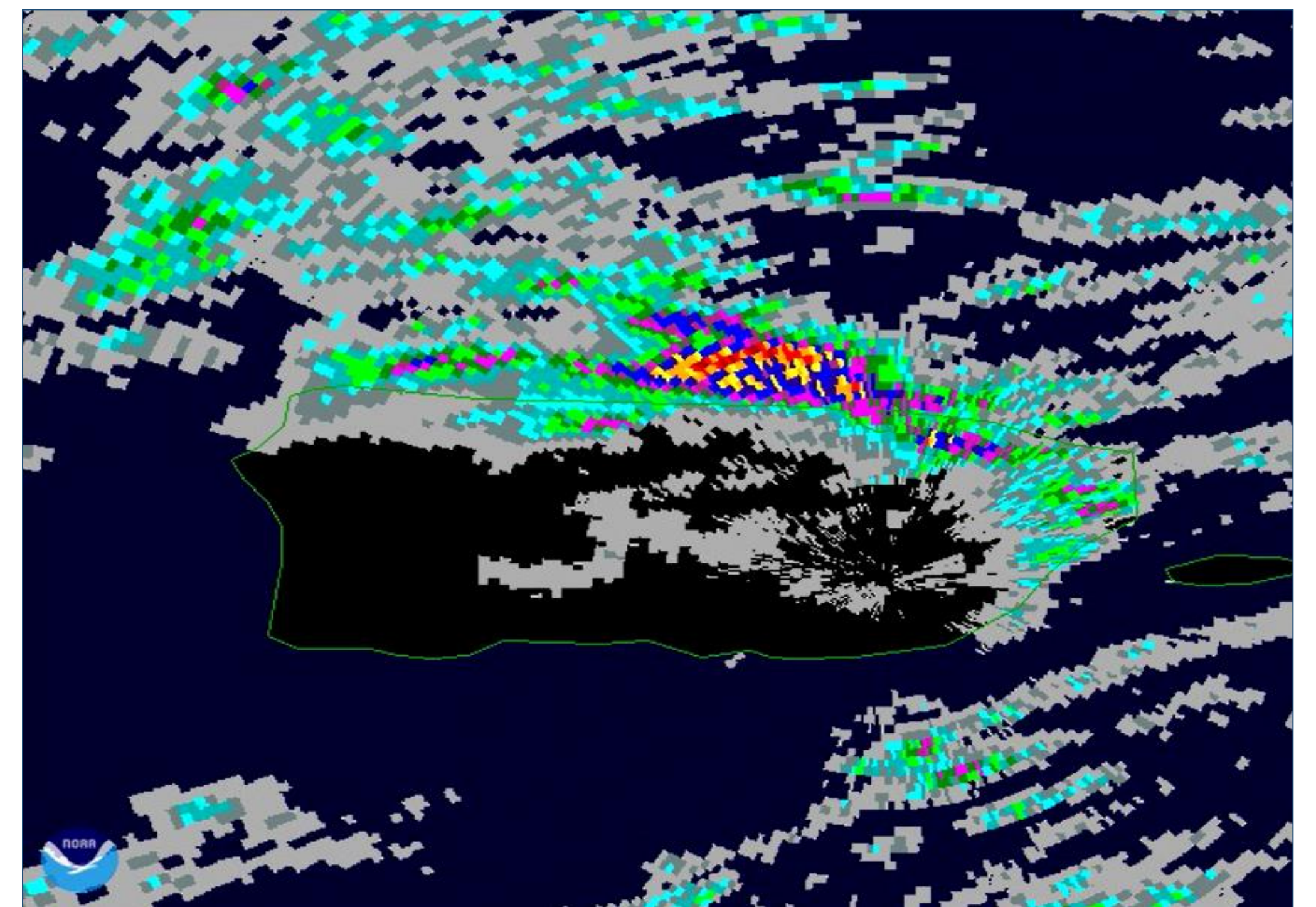


An experimental beach water quality nowcast has been developed for Playa Santa. It provides estimates of Enterococci concentration based on relative humidity, air temperature, solar radiation, and winds. So far, the model has been able to reproduce 67% of the positive samples, and 85% of the negative samples. Its overall accuracy is 81%. For more information on the site's water quality trends please see G. Gomez poster.



Future (Ongoing) Work

As part of an effort to develop several nowcast predictions in beaches across the island, we are exploring the use of NOAA precipitation products in our models. Given that precipitation is strongly correlated to exceedances, the successful implementation of NOAA radars will allow for the development of several nowcast products, especially in beaches that lack historic meteo-ocean data. We are first exploring this methodology in a nowcast currently under development for Crashboat, Aguadilla.



Acknowledgements

This work is supported by NOAA through IOOS. The authors are grateful to Steve Tamar and the Surfrider staff who voluntarily run an effective and highly organized beach water quality testing program. We also appreciate the staff at WFO San Juan, especially Ernesto Rodriguez and Carlos Anselmi, who are providing useful information on satellite precipitation products. We are forever grateful to the CAOSE team for the extensive help provided over the years.

