

Appendix 3. The NOAA HAB Bulletin and Recommended Improvements

The NOAA HAB Bulletin provides information on the location, extent, and potential for development or movement of *K. brevis* blooms in the Gulf of Mexico using SeaWiFS imagery, vector winds from buoys, NWS forecasts and field measurements from State agencies. Conditions are posted on the Web twice a week during the HAB season (late summer-fall). The goals of this program can be achieved more effectively in a collaborative effort to improve estimates of phytoplankton pigment fields (chlorophyll-a and diagnostic pigment ratios) by integrating all satellite based measurements of ocean leaving radiance (SeaWiFS, MODIS, OCM, OSMI, MERIS). Forecasts of where and when blooms are likely to develop and of their trajectories once developed can be improved by developing and validating multivariate empirical habitat models that predict the probability of that a bloom will occur based on environmental conditions and coupled, 3-D hydrodynamic-patch dynamic models. Improving the skill of nowcasts and forecasts can be effectively addressed by integrating data from existing satellites and *in situ* observation networks and by using OSSEs to guide cost-effective improvement in sampling schemes Gulf-wide.

These forecasts should ultimately include projections of toxicity of the blooms. These forecasts could then be coupled with predictions of wind and wave conditions and coastal GIS maps of human recreation and occupancy. This should enable prediction of animal and human health effects.