Red Tide Research Group

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MEMORANDUM

SUBJ: Formation of the non-profit "Red Tide Research Group"

This memorandum formally establishes the **Red Tide Research Group** as a *Florida* based 501(c)(3) organization dedicated to the application of advanced data science techniques *"to model, understand, predict, and combat the negative effects of harmful algae blooms (HAB) using big data techniques and a volunteer global network of data scientists and domain experts."*

Problem Statement

At a *minimum*, there have been 8,037 documented Harmful Algae Bloom (HAB) events since 1970. These HAB events occurred at over 3,700 sites in 102 countries worldwide with an average duration of 27 days (*Fig. 1*). The toxic effects of these HAB events included the poisoning of entire food chains from tiny shell fish to the pinnacle of apex predators – including humans.

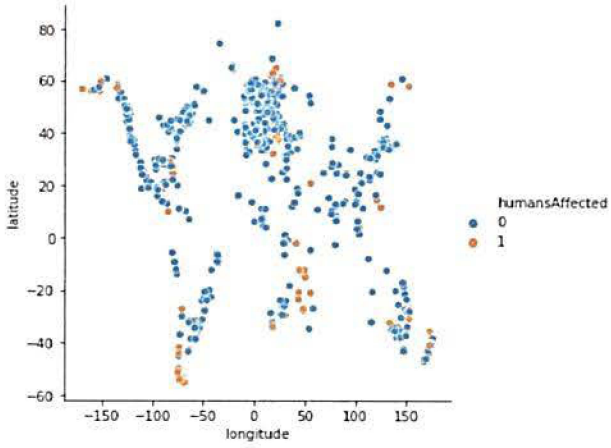

Figure 1: HAB Events Worldwide

Certainly, global efforts to study and mitigate HAB events is robust; but initial estimates from our data scientists suggests a compelling case for the application of *advanced data science* and *artificial intelligence* (AI) to the full spectrum of HAB ecosystems data. These data include the myriad of overlaps among environmental studies, wild-life and human ecosystems research, and the voluminous troves of unstructured social science data.

For instance, understanding how aquatic events, either in freshwater or saltwater, impact local economies is a data driven task well suited for large scale data-mining, natural language processing techniques, and machine learning approaches.

Mission Statement

"To model, understand, predict, and combat the negative effects of harmful algae blooms (HAB) using big data techniques and a volunteer global network of data scientists and domain experts."

Vision Statement

To presume a *solution* exists for such a *wicked* problem as HABs is naïve; but certainly a lot can be learned about the nature and behaviors of these global events using an open source collaborative big data science approach. Our vision is to do just that.

Scott Phillpott
President/CEO