MAPPING THE RISK OF HIGH CHLOROPHYLL AND HAB EVENTS IN THE CHESAPEAKE BAY: A DATA-DRIVEN APPROACH

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Abstract

Harmful algal blooms (HABs) are characterized as an event where photosynthetic algae grow at an unsustainable rate within the water. HABs can result in mass mortalities of shellfish and fish, hypoxic zones, and destroy habitats by shading aquatic vegetation thus ultimately impacting our economy and fisheries. A major contributing factor to HAB formation is eutrophication, the accumulation of excess nutrients, which the Chesapeake Bay is heavily impacted by due to its proximity to the coastline and it acting as a basin for multiple rivers that may potentially carry agricultural runoff. With this project, we aim to use the typical efforts to detect HABs which are *in-situ* ship surveys and satellite remote sensing to identify what areas of the Chesapeake Bay are prone to HABs, and compare the variability of chlorophyll detection of both of these methods. This combination is used because *in-situ* collection is both spatially and temporally scarce which allows for some high chlorophyll and HAB events to go unnoticed by current monitoring programs in the Chesapeake Bay so with the use of satellites we are able to collect almost real time, large-scale, and long-term monitoring of these identified hotspots.