2022 UiTM KEDAH

InDeLib 5

RECONNECT AND DISCOVER

Extended Abstract

International Innovation & Design in Library & Information Science Competition (InDeLib2022)

Organized by

Faculty of Information Management
UiTM Kedah Branch

Editors
Asmadi Mohammed Ghazali
Abd Latif Abdul Rahman

Universiti Teknologi MARA

5 th International Innovation & Design in Library & Information Science Competition (InDeLib2022)

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First Edition 2023

Perpustakaan Negara Malaysia

e ISBN 978-967-2948-46-9

9 789672 948469

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2022 InDeLib
5 th International Innovation & Design in Library & Information Science Competition (InDeLib2022)

PHYTOPLANKTON MAP

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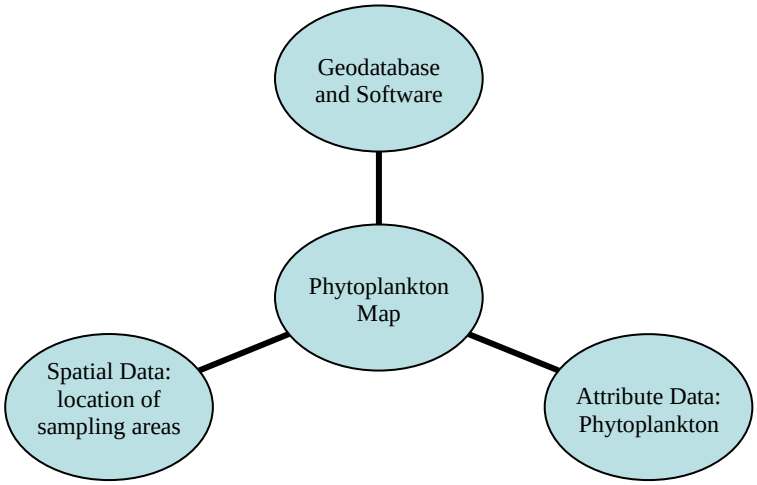
Abstract
Since they are net oxygen producers, phytoplankton contributes to the ocean's dissolved oxygen levels, which are necessary for fish, larger creatures, other plankton, and bacteria to breathe. Due to their importance for the earth, their distribution in our aquatic environment can be mapped. The objective of our innovation is to produce maps of phytoplankton. The name of our product is Phytoplankton Map. To date, there has not been any development of a phytoplankton map, especially in the Northern region of Malaysia, which gave extra advantages to our product. Phytoplankton Map will benefit many local, government and non-government users. Phytoplankton Map is consistent with the Sustainable Development Goals established by the United Nations SDG 14: "Life below water," SDG 2: "Zero hunger," SDG 3: "Good health and well-being," and SDG 13: "Climate action".

Keywords
Geodatabase, Marine, Map, Phytoplankton, Sustainable

Product Description
The Phytoplankton map consists of a geodatabase of phytoplankton species collected from the surface water of freshwater and saltwater ecosystem. For starters, our innovation project would cover an area of Pulau Tuba, Kedah. Information such as species name, size, photos etc., were added to the geodatabase. The map produced was digitized accurately using remote sensing imagery. The map produced can be in the form of digital or paper maps.

Phytoplankton Map consists of the integration of attribute data (species of phytoplankton), spatial data (the geolocation of sampling areas) and geodatabase and software (ArcGIS software). The figure below shows the integration of the requirement for developing the phytoplankton map.



Novelty and Uniqueness

There has yet to be any development of a phytoplankton map, especially in the northern region of Malaysia. Most phytoplankton species are reported in academic and non-academic journals using graphs and smart art. Thus, reports produced about phytoplankton to the public did not take advantage of the intelligence of geospatial technologies.

Benefit to Mankind

The primary producers that provide food for anything from minute, animal-like zooplankton to massive whales, phytoplankton constitute the basis of the aquatic food web. The plant-like organisms are also devoured by small fish and invertebrates, whom larger animals ultimately consume. Fishermen, for example, will benefit when using our product.

Furthermore, phytoplankton may signal an impending death or illness. The so-called "red tides", or toxic algal blooms, are caused by specific species of phytoplankton that create potent biotoxins. When eating contaminated seafood, these deadly blooms can also harm humans. Environmentalists and government bodies can use our product to monitor phytoplankton hot spots to control phytoplankton bloom, especially in Exclusive Economic Zones (EEZ), where most marine species live and are harvested by fishermen.

Potential Commercialization

Potential clients can be expected from locals (fishermen and hotel operators), government bodies (Department of Fisheries, Department of Environment, public universities, research department) and non-government bodies (Tourism players, marine culture operators etc.)

Acknowledgement

The authors gratefully acknowledge the generous assistance and support from the academic and non-academic staff for their contribution to this research and publication, especially to UiTM Marine Research Station (MARES); the Research Initiative Group (RIG): Ocean Research, Conservation and Advance (ORCA), and Integrative Natural Product Research; and the Faculty of Applied Sciences, Universiti Teknologi MARA, Perlis Branch, Arau Campus, 02600 Arau, Perlis, Malaysia.