Bio-GO-SHIP

Biological Global Ocean Ship-based Hydrographic Investigations Program

2024
NOPP Excellence in Partnering Award Winner

3	6	2	15
Funding Agencies	Partners	Years Funded	Publications

Bio-GO-SHIP Project

This pilot Bio-GO-SHIP project implemented mature technologies to measure key biological variables across GO-SHIP transects in three ocean basins and over 400 stations to start to address: (i) plankton biogeography; (ii) particle composition and elemental stoichiometry; (iii) the relationship between surface community structure and carbon sequestration; (iv) the link between surface processes and deep ocean biodiversity; and (v) how characteristic shifts in ocean plankton communities may be diagnostic of ocean changes. In the future, the Bio-GO-SHIP team plans to synthesize community feedback and transform best practices from the pilot phase of this project into sustained measurements on GO-SHIP cruises. The integration of Bio-GO-SHIP with GO-SHIP offers the potential to transform our understanding of hydrography, ocean ecosystems, the biogeochemical roles of plankton, and future changes to the oceans.

Achievements

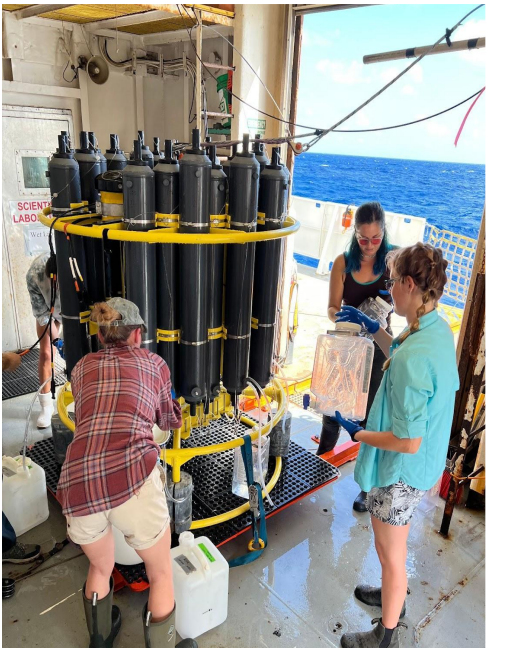
> Establishment of systematic ocean basin-wide patterns in plankton diversity, activity, and function through the collection of environmental DNA, RNA, and other parameters for the first time on three GO-SHIP transects in the Pacific, Atlantic, and Indian oceans.

> Development of novel approaches to using ocean plankton as "biosensors" of environmental change.

> Integration of in situ bio-optical and pigment measurements with satellite data, including NASA PACE, for remote sensing calibration and validation.

> Production of data management and protocol intercalibration best practices allowing for greater efficiencies as well as improved integration of data into the Global Biodiversity Information Facility (GBIF) and Ocean Biodiversity Information System (OBIS).

> Oceanographic and laboratory training of 13 students in cutting-edge scientific techniques.



NOPP EXCELLENCE IN PARTNERING AWARD

The NOPP Excellence in Partnering Award is given annually to recognize superior collaborative efforts among partners in coordinating an exemplary NOPP project. In 2024, the Bio-GO-SHIP project was bestowed with this honor due to its effective use of partnerships and considerable contribution to ocean science.

2024 EXCELLENCE IN PARTNERING AWARD WINNER

Biological Global Ocean Ship-based Hydrographic Investigations Program (Bio-GO-SHIP)

Piloting Bio-GO-SHIP on US cruises: Towards a global analysis of large-scale changes to ocean plankton systems

PROJECT GOAL

The pilot Bio-GO-SHIP seeks to further understand the role of plankton in global biogeochemistry and to expand biodiversity baselines across the ocean as part of GO-SHIP's sustained decadally-repeated observations of ocean physics and chemistry

3 Funding Agencies

6 Partners

2 Years Funded

15 Publications

ACHIEVEMENTS

1. Establishment of systematic ocean basin-wide patterns in plankton diversity, activity, and function through the collection of environmental DNA, RNA, and other parameters for the first time on three GO-SHIP transects in the Pacific, Atlantic, and Indian oceans.
2. Development of novel approaches to using ocean plankton as "biosensors" of environmental change.
3. Integration of in situ bio-optical and pigment measurements with satellite data, including NASA PACE, for remote sensing calibration and validation.
4. Production of data management and protocol intercalibration best practices allowing for greater efficiencies as well as improved integration of data into the Global Biodiversity Information Facility (GBIF) and Ocean Biodiversity Information System (OBIS).
5. Oceanographic and laboratory training of 13 students in cutting-edge scientific techniques.

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