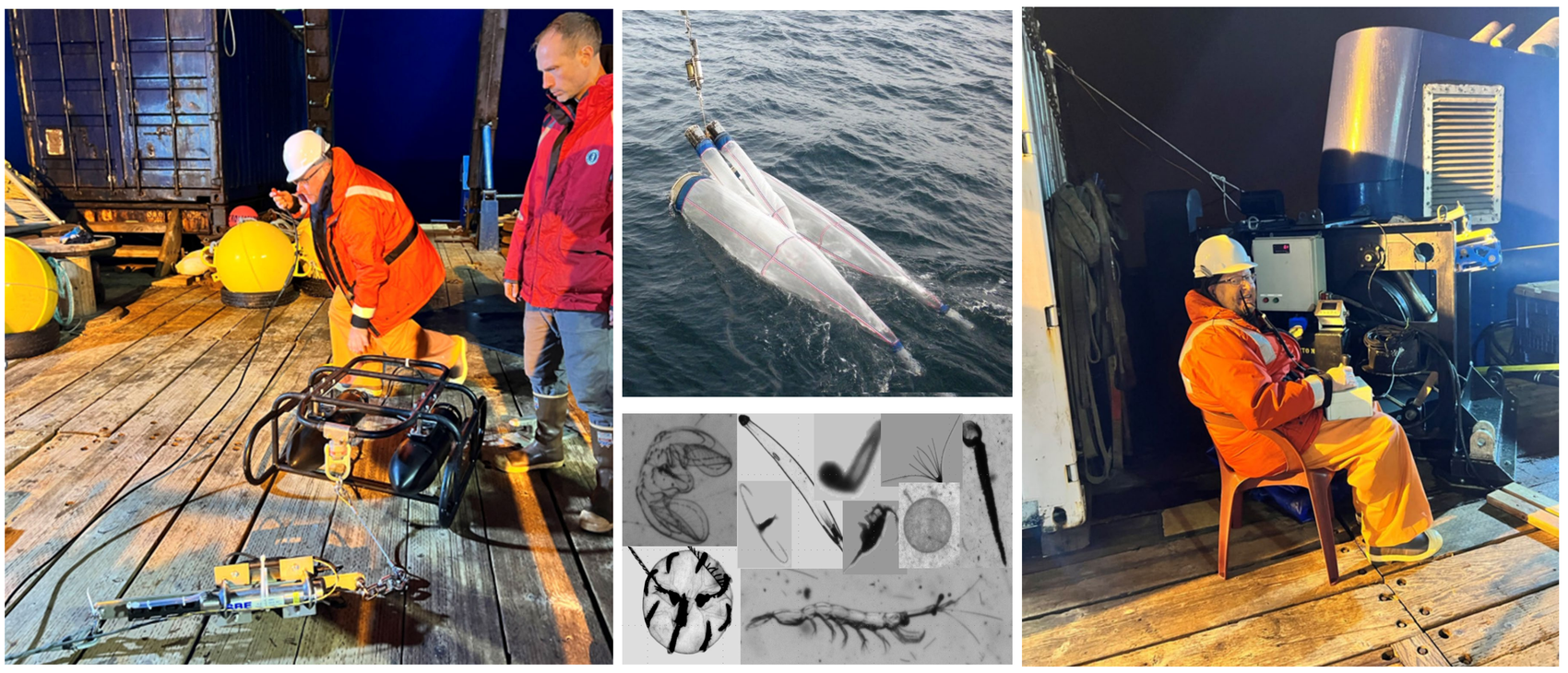
WOKING GROUP
WG-48

Term 2020-2024

Towards Best Practices Using Imaging Systems for Monitoring Plankton

Advancing plankton research for environmental monitoring by fostering best practices for underwater imaging systems.



KEYWORDS

Plankton analysis

Environmental monitoring

Imaging technologies

Collaboration

Facilitate knowledge

MORE INFORMATION

https://meetings.pices.int/members/working-groups/wg48

CONTACTS

Hongsheng Bi
University of Maryland Center for Environmental Science
hbi@umces.edu

David Kimmel
Alaska Fisheries Science Center, NOAA Fisheries
david.kimmel@noaa.gov

Xuemin Cheng
Tsinghua Shenzhen International Graduate School
chengxm@sz.tsinghua.edu.cn

Introduction

Welcome to our working group focused on advancing the field of underwater imaging systems for plankton monitoring. We are a collaborative and multidisciplinary team of researchers united by the shared goal of optimizing technologies for efficient and accurate assessment of plankton in marine environments to improve understanding ocean carbon cycle, food web structure and ecosystem-based management. Our mission is to establish best practices and facilitate knowledge sharing within the community. By harnessing the power of cutting-edge imaging technologies and artificial intelligence, we aim to contribute to rapid and accurate plankton biomass assessment, a better understanding of plankton dynamics, ultimately aiding in the preservation and sustainable management of our marine ecosystems.

The Issues

1. **Summarize underwater plankton imaging systems:** Summarize different types of underwater plankton imaging systems, highlighting their advantages and limitations.
2. **Review deep learning systems for automated plankton image analysis:** Summarize various plankton image processing algorithms.
3. **Best Practices Formulation:** Develop guidelines and protocols to standardize data collection, processing, and interpretation.
4. **Collaborative network**: Facilitate partnerships and collaborative research projects to broaden knowledge and expertise.
5. **Capacity Building**: Conduct workshops and engage early career researchers to enhance skills and awareness within the community.

Outcomes and Research Benefits

- **Enhanced Understanding:** Deeper insights into plankton behavior, distribution, and ecological roles, vital for marine ecosystem comprehension.
- **Optimized Technologies:** selecting the right imaging systems for precise and efficient plankton monitoring with different purposes.
- **Ecosystem Health Assessment:** Better assessment of marine ecosystem health through comprehensive plankton analysis, aiding in early detection of environmental changes.
- **Global Collaboration:** Encouraging collaboration and knowledge sharing among international experts, leading to a more holistic approach and enriched research outcomes.
- **Educational Advancement:** Contribution to educational resources, workshops, and engaging early career scientists, ensuring a continuous cycle of learning and skill development within the scientific community.

Updated May 2025 - v1