



Australia's National Science Agency

# International Nutrient Inter-Comparison Newsletter #10

Keep up to date on the facts, plans and people involved with the International Nutrient Inter-Comparison voyage (INIV) scheduled for June 2023

Photo: Dr Michio Aoyama (center)

We are less than 8 months from departure of INIV and continuing to move forward with the planning and logistics involved to deliver a successful voyage.

As communication to participants increases and the experimental documentation progresses, we look forward to sharing this journey with you.

## Welcome

Welcome to the tenth edition of the INIV newsletter. In this newsletter we pay tribute to life and contributions of Dr Michio Aoyama, recap the Experimental Planning and all participants meetings, and announce Ocean Decade endorsement of the project. We are looking for opportunities to engage with students and early career researchers – keep on reading to find out more. Don't forget to reach out with feedback or your thoughts.

## Voyage dates

The 2022-2023 RV Investigator schedule has now been released. **INIV** will proceed as voyage "IN2023\_V04" from the **5<sup>th</sup> to 18<sup>th</sup> of June 2023 to and from Hobart**. There will be a 2-day period of mobilisation prior to the voyage.

Letters of participation will be circulated in mid-November with the participation list to be confirmed in early December.

\*Note that the [Dark Mofo](#) event (June 8 – 22, 2023) in Hobart coincides with the return of the voyage and accommodation in Hobart will be limited. Please plan and book early.



2021 United Nations Decade of Ocean Science for Sustainable Development 2030

## Ocean Decade endorsement

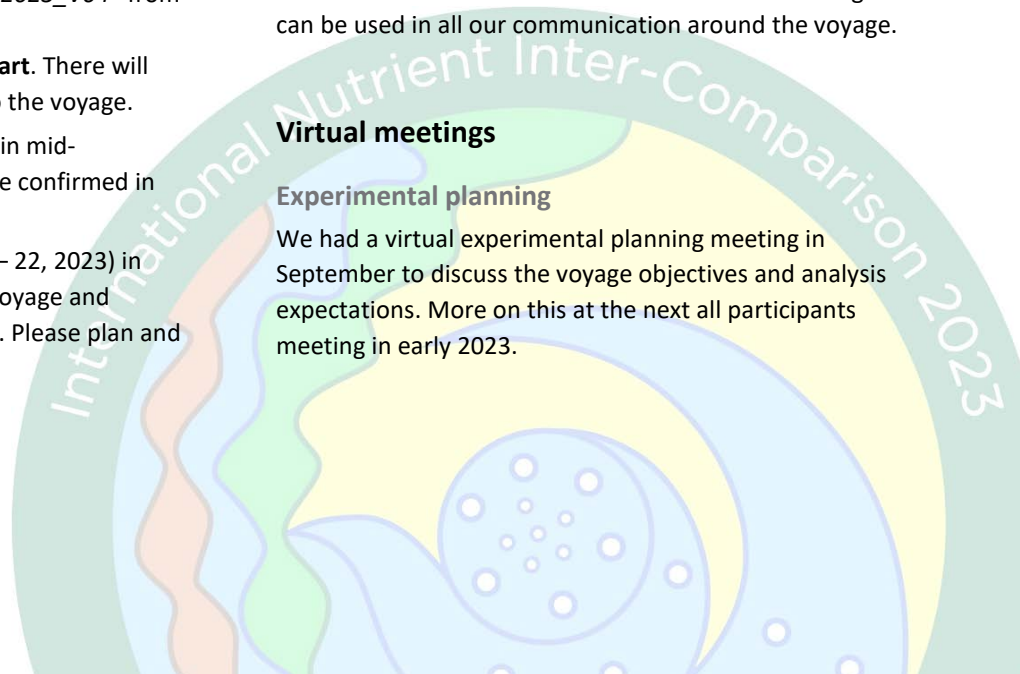
*"The science we need for the ocean we want."* – Ocean Decade Vision Statement

We are excited to announce that the INIV project is officially endorsed as an Ocean Decade activity. Decade Activities are carried out around the world as part of the collective effort to fulfil the Decade vision. This is a fantastic outcome for the INIV voyage and will significantly improve the visibility of the project globally around the world. It also means the Ocean Decade logo can be used in all our communication around the voyage.

## Virtual meetings

### Experimental planning

We had a virtual experimental planning meeting in September to discuss the voyage objectives and analysis expectations. More on this at the next all participants meeting in early 2023.





## **A tribute to the life and contributions of Dr Michio Aoyama**

*We were very lucky to have the chance to work with Michio in person and get to know him. Some of us only worked with him couple of years while others worked with him for a couple of decades. Even if we worked with him for decades, it was too short a time to spend with him. He gave anyone he worked with joy. It was an honor to see and learn how much he had a solid vision for the future of oceanography.*

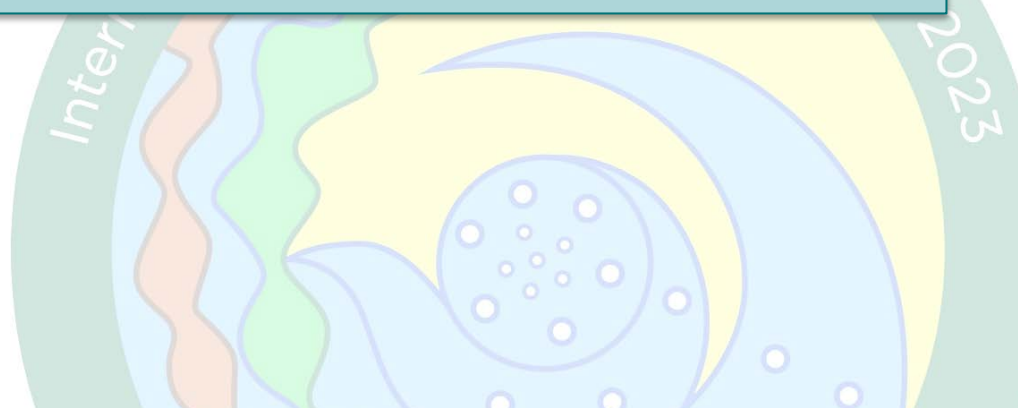
*Michio sought to reduce nutrient data uncertainty in shipboard nutrient analysis even though it had a lot of challenges. His enthusiastic energy brought a wide range of professionals together to make and distribute Certified Reference Materials (CRMs) for nutrients in seawater. Under Michio's leadership, the quality of CRMs improved nutrient comparability and are recognized and used worldwide (over 30 countries). Through workshops, intercomparison tests and international working group activities, Michio brought likeminded people together. The first meeting in Tsukuba Japan brought a group of nutrient scientists and technicians together. From there the group changed and grew. It led to many more meetings and hands on workshops all over the world. Through all the meetings, Michio and others were able to secure funding for IOC/ICES working group called SGONS (Study Group on Nutrient Standards). The work continued and 4 years of funding through the International SCOR working group programme was obtained and funded as SCOR WG#147 'Towards comparability of global nutrient data', with the acronym COMPONUT. The final output of the SCOR working group was a rewrite of the GO-SHIP nutrient manual, which was then reconfigured and published in the Frontiers journal and became the most downloaded paper they had ever had at that time. This has now become a legacy to all the effort and total vision and dedication of Michio over many years.*

*Michio was always so enthusiastic at conferences, meetings, and workshops. He knew the importance of discussions over good food and drinks after the meetings were over for the day. The group that Michio brought together gave us all a chance to meet and build lifelong friendships between colleagues. His great friendship to the colleagues within the science community will always be remembered, and his actions will act as an inspiration in the future.*

*Personally, Michio was always patient, helpful, and positive. He knew the importance of building an international reference database that can be used within world-wide nutrient laboratories and gave all his power to contribute to the community to improve our skills.*

*We will always remember his smile and infectious laugh. Now, we are the ones to lead the future to grow his planted "seed" in the ocean, and I hope that we can grow this with future collaboration.*

*---Malcolm Woodward, Susan Becker, Mariko Hatta, Karel Bakker, Cassie Schwanger, and others too many to name here*



## Virtual meetings (con't)

### All participant

In September it was great to see many of the faces that will be on the voyage in June 2023. We will continue to meet virtually periodically leading up to the voyage to discuss logistics and the final experimental plan.

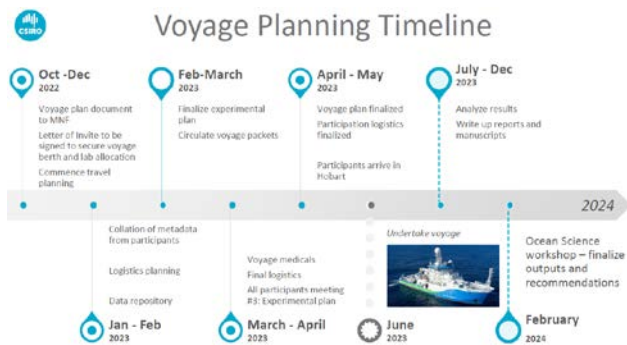


Figure 1: INIV big picture planning timeline

## Media and communication handles

At the onset of this project, a small team came up with the acronym INIV for the voyage. As we move closer to the main activity, we are asking for ideas for a social handle that represents the mission and participants involved in the project. Click the [link](#) to submit your suggestion. Think creatively! The winning entry will receive a prize.

## Meet the Hobart team



### Chief Scientist

**Andreas Marouchos**  
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### Project Management & Communication

**Cassie Schwanger**  
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### Experimental Design

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### Funding and Website

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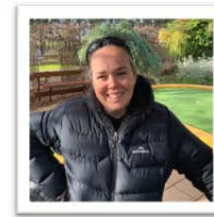
### Logistics

**Merinda McMahon**  
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### Voyage Planning

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### Voyage Documentation

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Figure 2: We figure it is time to introduce the Hobart team working behind the scenes to coordinate this project. As the voyage approaches, you will continue to hear from our team and, as always, reach out with questions.

## Nutrient Highlights



It is always exciting to share knowledge and the latest emerging methods. This month we draw your attention to a recent publication entitled "Real-time underway mapping of nutrient concentrations of surface seawater using an Autonomous Flow Analyzer." from Jian Ma from Xiamen University. Their research describes a new state of the art capability for portable underway nutrient measurements using the portable iSea-II. The article can be found here:

<https://doi.org/10.1021/acs.analchem.2c02000>.

## Student and ECR engagement opportunities

If you are a student or early career research (ECR) or know one that would like to be involved in the planning, output, and/or attendance of the voyage please reach out to the Hobart project team. Specific areas of interest for engagement include oceanography, biogeochemistry, data and statistics, and experimental planning.

## Participant Bios



**Martina Kralj**

**Role:** Technologist

**Organisation:** National Institute of Oceanography and Applied Geophysics (OGS)- Italy

**Days at sea:** 120

**Favourite voyage:**

It was my first cruise, in the Ionian Sea and I was still a student. We were sampling both water and sediment, characterizing the deepest Mediterranean area. During this voyage I discovered my passion for sea sailing. I will never forget the emotion I felt when I was surrounded by only water, isolated from the land and at the mercy of the weather.

**What interests you most about INIV?**

A unique opportunity to share information about methodology, learn improvements and a good starting point to generate a network of colleagues to facilitate the solution of everyday challenges connected to the analysis.



**Cassie Schwanger**

**Role:** Hydrochemist – Team Leader

**Organisation:** CSIRO

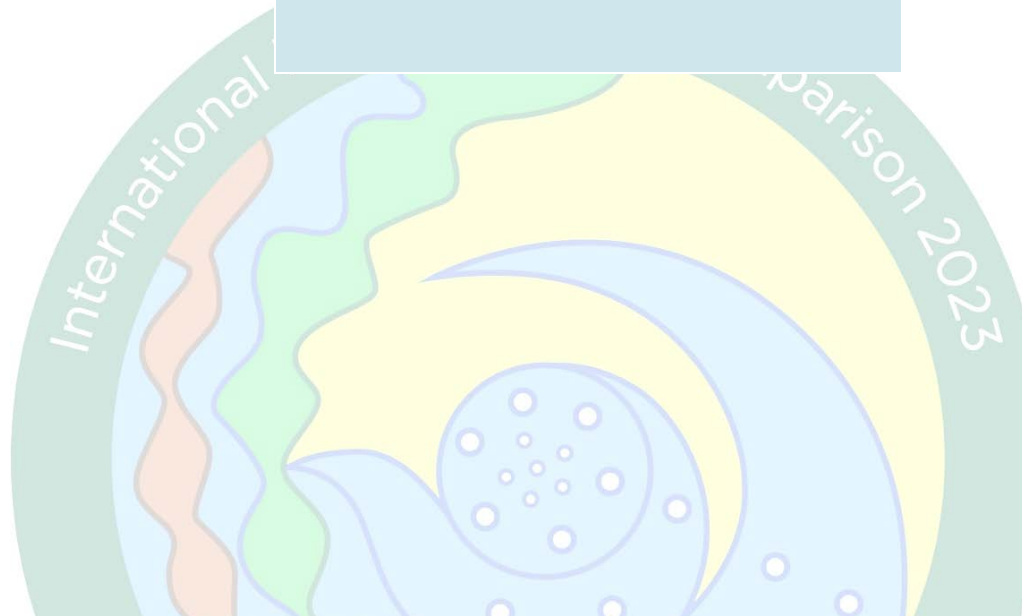
**Days at sea:** ~500

**Favourite voyage:**

I really enjoy the coastal trips I have been on looking at high spatial nutrient measurements. My first trip to the fjords in Chile is probably the highlight due to the remoteness and the unique experience it provided. The work was hard, we had to overcome a lot of issues, the weather was pretty damp, but the small team and like-minded attitudes made for a memorable trip. It was fun to get a taste of a new culture and the nature was beautiful (as was the data!).

**What interests you most about INIV?**

This is difficult for me as I feel like I have been living and breathing this project for a long time now and there is still a long way to go. There will be many highlights along the way. The top for me will be forming a community of analytical chemists and learning from each other. I am also excited about gathering the data and learning how best to interpret and present the data.



## Voyage Website

We have a website! Check it out for additional information about our voyage including voyage location, planning, getting involved, FAQ and more:

<https://wp.csiro.au/iniv>

## Contact Us

Please feel free to reach out to the CSIRO Hydrochemistry team at any time during the planning process: [iniv2022@csiro.au](mailto:iniv2022@csiro.au)



Photo: SCOR Working Group 147; Dr. Michio Aoyama (far right)

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### For further information

Hydrochemistry – National Collections and Marine Infrastructure (NCMI)

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