



# International Nutrient Inter-Comparison: Newsletter #7

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

Photo Credit: Deanna Shanahan

*INIV is an opportunity for global nutrient chemists to come together to gain first-hand knowledge and experience of measuring nutrients in the ocean.*

*The goal of this voyage is to enhance peer to peer communication while tackling a broader understanding of time-scale nutrient changes for the oceanographic community.*

## Welcome

Welcome to the seventh INIV newsletter. This month we discuss recent impacts to the project as a result of COVID-19 and present a new timeline of events and activities. This is our last newsletter of 2021 and we wish you all the very best for the holiday season and happy New Year.

## **Voyage Delayed until 2023**

Over the past few months, we have been in discussions with the Marine National Facility (MNF) – operators of the *RV Investigator* – regarding possible COVID

impacts to our voyage and exploring a range of mitigation strategies.

While Australia has fared well during the pandemic it has had a large impact on entry into the country for people as well as postage. After some serious consideration we have decided it is in the best interest of the project for us to defer the voyage to 2023 when the impacts from COVID should be less pronounced. We would like to thank all our participants and stakeholders for engaging with us as we manage this change during challenging times.



## Message from the Chief Scientist

Welcome all once again to our International Nutrient Inter-comparison voyage. I hope you have been finding these newsletters interesting and informative. I recently sat in on our two participant workshops and it was great to see the ongoing enthusiasm from all our participants.

The Engineering and Technology (E&T) program within CSIRO operating out of Hobart works to support science excellence in marine and atmospheric domains through innovative application of technology and in-field support. This is achieved through the exploration of new and novel methods of conducting our science and a culture of continuous improvement. Working with our colleagues from within Australia and overseas to share learnings and best practices in a central precept in this approach. The INIV program remains a priority project for the program and sits at the core of how we improve our work both within our Hydrochemistry team and more broadly. More broadly the voyage has been recognised by the science community as an important activity and we continue to work with stakeholders including GO-Ship, SOOS, UNDOS, IMOS and others to broaden this support and opportunities for impact.

The INIV project presents a unique opportunity for us to come together to define a voyage plan and body of work to best meet the needs of the nutrient community. During our voyage our project will remain the primary objective, affording us the opportunity to set the agenda, scheduling of ship activities and scope of work. I encourage you all to make the most

of this opportunity and think big about what can be achieved to best maximise the outcomes for all our participants and stakeholders. We encourage you all to participate and engage and welcome volunteers wishing to contribute or take leadership of specific areas of work.

I hope everyone is doing well and continues to stay safe while we manage the ongoing COVID pandemic. While we are all experiencing COVID differently at home, it was generated significant operational uncertainties for most of us and made forward science planning difficult. In Australia, international borders are only now beginning to open more broadly to visitors and its likely travel in and out of Australia will continue to be challenging for some months. Additionally, CSIRO like many of our partner agencies overseas continues to restrict international travel which has made face-to-face contact with all of you difficult. In anticipation of these challenges, we have been in discussions with the Marine National Facility (MNF) who operates the *RV Investigator* on possible options to defer our voyage. As we reported a few months ago, the MNF has granted us a one-year extension for our cruise which will hopefully be sufficient time for many of these uncertainties to abate. We will continue to monitor COVID rollout and look to adapt as best we can to the evolving situation. In the interim we hope you all continue to stay safe and stay in touch.

All the best during the upcoming holiday season and I hope you all have a very happy new year!

Regards,  
Andreas

## Virtual Meeting

Thank you to those that were able to dial into the participants virtual meetings in late November. This presented an opportunity to get to know each other and discuss the new timeline of the project. It was nice to put faces to names. We had over 16 participants from over 12 organisations. It provided opportunity to briefly look at the experimental plan and output objectives. We also took time to answer questions about the project and have updated the website with some of the [FAQ](#).

If you were unable to make it, we look forward to seeing you in our next catch up in early 2023. If you did not receive an invite but would like to take part in the planning and/or the voyage, please reach out to Cassie ([cassie.schwanger@csiro.au](mailto:cassie.schwanger@csiro.au)) to submit and Expression of Interest.

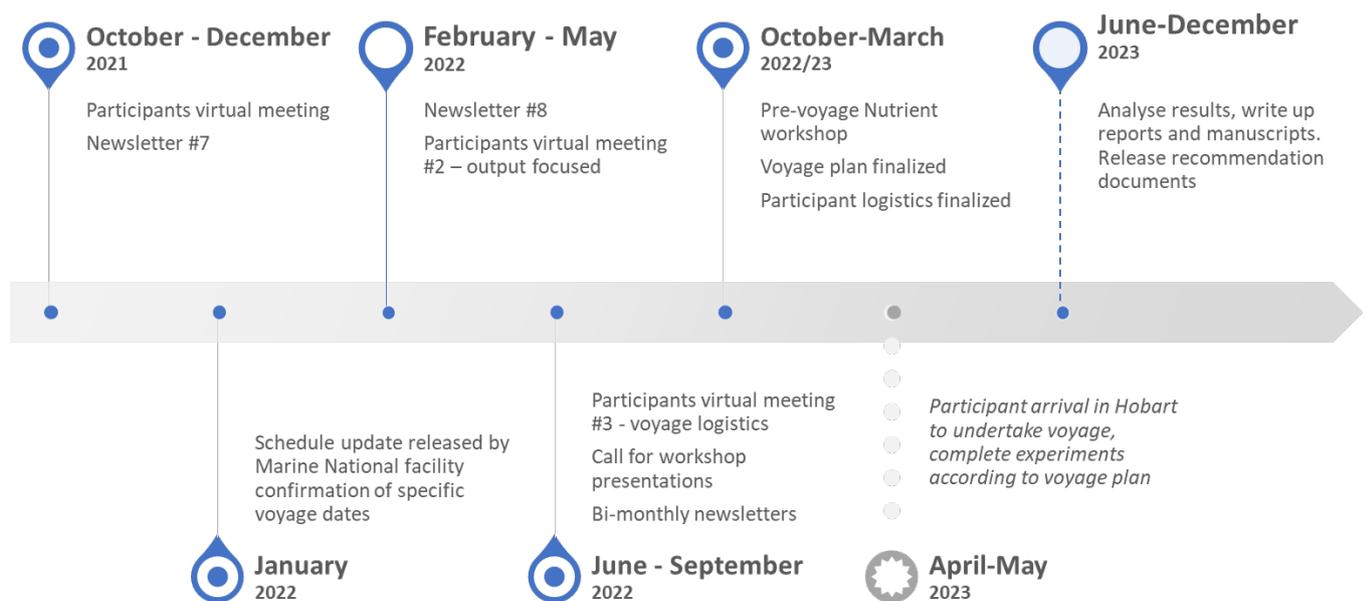


Figure 1. 2023 Nutrient Inter-Comparison timeline

## Shipping Q&A – Advice from the Experts



We have received some shipping guidance from Experts\* and have summarised them below. The main advice is as follows:

- (1) plan well in advance,
- (2) use a “door to door” shipping agent (your university or organisation might already have one), and
- (3) get insurance.

Shipping time used to be around 5-6 weeks from Europe to Australia. Due to the pandemic, we are currently looking more at 10-12 weeks. Generally, shipping a container is safer than shipping pallets. When planning, don't forget to consider the price and time of returning equipment after the voyage. Use strong wooden or aluminium boxes to ship your equipment and spares. When packing, keep in mind that your box might be dropped or tipped upside down during shipping.

It is important to consider shipping to Tasmania from Europe or the USA, complete the cruise and ship home, could mean the equipment being away for 6 months. Air freight is faster and safer, but generally a lot more expensive.

Hazardous equipment and dangerous goods must be shipped according to the International Maritime Dangerous Goods Code (IMDG). This equipment must be packed in correct tri-wall

shipping boxes and with absorbent material. Paperwork needs to be filled-out and signed by a qualified Hazardous Goods packer. Many companies can provide a service for transport of hazardous chemical advising on packing volume/weight regulations and paperwork. Many autoanalyzer chemicals are “non-regulatedz” which means they can be shipped with other equipment in boxes. Where possible, it is best to organize hazardous chemicals delivered to the country of voyage departure – especially when working with liquid based chemicals that do not require pre-weighing.

Additional Advice:

(1) List everything you need well in advance, review it, ask others to review this. This will help you in preparation and is required by your shipping agent. An example list will be circulated to participate early next year.

(2) Buy consumables and equipment well in advance of the voyage. Lead time can be longer expected (especially during a pandemic).

(3) Make a detailed chemical list noting pre-weigh size to send to a transport company or your onsite shipping expert. Be sure to overestimate by at least 10-20%. This will inform you if you need to break down our chemicals into smaller size and what needs to be packed and shipped separately.

(4) Take as many spares and consumables as you can. Plan for unexpected problems and ensure there is redundancy for when things are broken, damaged, expended, or vanish into a parallel universe without a trace. Murphy's Law states: If anything can go wrong, it will go wrong, therefore you must expect the unexpected.

*\*Special thanks to Malcolm Woodward and Susan Becker for sharing your knowledge.*

## Participant Bios



**Name:** Alicia Camac

**Role:** Senior Hydrochemist

**Organisation:** CSIRO

**Total days at sea:** 433 over 22 voyages.

**Favourite Voyage:** Mawson's centenary celebration in 2012 on RSV Aurora Australis. We spent a week parked in fast ice during the voyage. A safe area was fenced, and we were free to roam on the ice during the day. Several species of penguins came to us, and a group of us built an Igloo which was my ultimate highlight. Could it still be floating around? A trip on zodiacs for all greeted by whales and also seeing an incredible jadeberg on the way home topped off this fantastic experience. Science-wise it was intense and rewarding on the I9S hydrographic reference line, achieving world standard hydrochemistry data that I had personally worked toward for years.

**What interests you most about INIV:** There are not many people in Australia who measure nutrients at sea so I am looking forward to connecting with the wider international community. I hope to be more involved with this project and especially with the interesting experiments planned and by working together I am confident that we can produce some meaningful outputs and future connections.



**Name:** Jian Ma

**Role:** Professor

**Organisation:** Xiamen University

**Total Days at Sea:** ~ 150 on various research vessels

**Favourite Voyage:** It's hard to pick the favourite voyage because you can always get different exciting data on different voyages. In summer 2019, my first voyage on RV Tan Kah Kee (the name of the founder of Xiamen University) was the most enjoyable. We successfully tested the eight state-of-the-art automated underway analyzers, simultaneously measuring nanomolar macronutrients and micronutrients. It was also an outreach voyage for undergraduate students from different colleges. Teaching marine environmental science on the sea is a wonderful experience.

**What interests you most about INIV:** I have been working with seawater analysis for almost 20 years, of course, nutrients measurements is my favourite. Recently we developed and integrated syringe-pump-based environmental-water analyzer (ISEA), which exhibited advantages such as low consumption of reagents, portability, rapid start-up, autonomous functions with data processing and applicability within a broad salinity range. It is always essential to intercompare the performance of the new instrument with other widely accepted techniques, especially during the INIV in shipboard laboratory. I am looking forward to meeting the other participants (some are authors of my favourite papers!) during the voyage.

## Voyage Website

The voyage website is updated to reflect the deferment and new timeline of activities. Check it out for additional information about our voyage including voyage location, planning, getting involved, FAQ and more:

<https://wp.csiro.au/iniv2022/>

## 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)



The RV Investigator in Darwin

Photo: Tauri Minogue

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### For further information

Hydrochemistry – National Collections and Marine Infrastructure (NCMI)

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