



Forum for Operational
Oceanography

FOO 2021

Meeting Report

22 November - 1 December

Virtual

FOO Report 2021

The Australian Forum for Operational Oceanography (FOO) 2021 took place between 22 November and 1 December 2021. Due to the COVID-19 pandemic, this event was held virtually across four separate sessions. The event intended to reaffirm FOO's role in making Australia's maritime industries safer and more efficient and continue the excellent work established by the community at the three Forums held in 2015, 2017, and 2019.

Each of the sessions was attended by ~80 participants from across the four FOO pillars, with a total of 234 individuals registered for the event. While attendance was lower than the ~100-120 participants at face-to-face events, it was encouraging that new attendees not familiar with FOO joined the sessions and learned more about the Forum.

FOO Steering Committee

With some members stepping down from the FOO Steering Committee in the intersessional period, FOO now needs new members across all four pillars of the FOO community (Figure 1). Those interested should contact the IMOS Office (acting as the FOO Secretariat): imos@imos.org.au. FOO sincerely thanks the members that have recently stepped down from the Steering Committee.

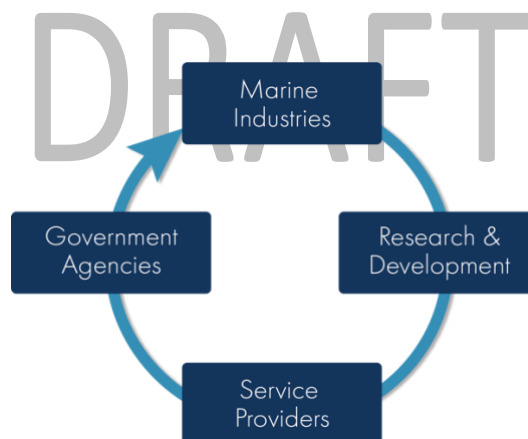


Figure 1: FOO Pillars

An update on FOO since 2019

The **FOO Surface Waves Working Group** has continued to meet regularly under the leadership of Mark Hemer (CSIRO). The group consists of members from across the FOO pillars. The group has helped define wind-wave research priorities, and there has been a review of data workflows and standards. The group has recently helped shape an Australian Research Data Commons (ARDC) project to produce a National Wave Data Archive (link [here](#)). This project aims to develop a national data asset of Australian in-situ wave observations and facilitate improved data delivery to national and international stakeholders. The project is expected to be completed in February 2023.

The Working Group is seeking more representation, particularly from the industry and service provider pillars, and those who are interested should contact the IMOS Office imos@imos.org.au.

Sponsors

The 2021 event ran without registration fees and at a low cost by the IMOS Office, allowing the sponsorship provided by CSIRO, the Bureau of Meteorology, and IMOS to be preserved for future FOO events.

Resources

The sessions are outlined below, with most presentation slides and FOO Spotlights available via the [FOO website](#).

Session 1: Waves and Currents

This panel session, chaired by Mark Hemer, gave insights into various themes and topics across the FOO pillars in the context of waves and currents. FOO 2021 was informed of:

- The applications of oceanographic modelling by the Australian Maritime Safety Authority and various models' strategic, tactical, and operational purposes (Paul Irving, Australian Maritime Safety Authority).
- The uses of metocean and environmental data by Star of the South Offshore Wind Development as part of environmental impact surveys (Martina Gassner and Jonas Jacobsen, Star of the South Offshore Wind Development).
- How commercial vessels use the information of waves and currents in oceanographic modelling to increase efficiencies in navigation (Roger Proctor, Tidetech).
- The uses of metocean data in simulation for research and development and safety risk assessment in port operations (Jeff Hawkins, Pivot Maritime International).
- An overview of operational oceanography at the Bureau of Meteorology and the various services offered (Chantal Donnelly, Bureau of Meteorology).
- An update on ocean forecasting using the Bluelink Relocatable Ocean-Atmosphere Model (ROAM) (David Griffin, CSIRO).
- The development of new digital engineering products to optimise the management of offshore energy infrastructure (Matt Rayson, University of Western Australia).

The discussions with the attendees focused on innovations in oceanographic models and their applications to industry and what new observations and data were going to be assimilated into these models.

Two session 'Spotlights' were contributed by Rafael Santana (National Institute of Water and Atmospheric Research), and Joshua Sixsmith and Natalie Lennard (Ausseabed). These Spotlights can be accessed from the session webpage [here](#).

Session 2: Climate, Marine Heatwaves and Temperature

This panel session, chaired by Jessica Benthuisen (Australian Institute for Marine Science (AIMS)) and Mark Doubell (South Australian Research and Development Institute), gave insights into the issues and impacts of climate, marine heatwaves and temperature in the operational oceanographic space. FOO 2021 was informed of:

- Perspectives on working with marine industries on climate extremes and adaptation on ocean data and modelling needs across time scales (Alistair Hobday, CSIRO).
- Applications of operational products for fisheries and aquaculture industries (Claire Spillman (BOM)).
- The uses of environmental data to inform stock assessment and fisheries management, particularly the Western Australian Shark Bay Blue Swimmer Crab Fishery (Arani Chandrapavan, Department of Primary Industries and Regional Development (WA)).
- Perspectives on ocean data and modelling needs for fishing operations (Martin Exel, Austral Fisheries).

The discussion with the attendees included questions about the coupling of biological change with physical information to inform industry; the urgency of how information gets from the research stage to practical implementation and use; and developments in models since the last FOO meeting in 2019.

Four session Spotlights were contributed to this session by Pete Strutton et al. (University of Tasmania et al.), Pallavi Govekar et al. (BOM and University of Reading), Jessica Bolin (University of the Sunshine Coast et al.) and Claire Spillman et al. (BOM and CSIRO). These Spotlights can be accessed from the session webpage [here](#).

Session 3: Megafauna Interactions with Industry

This panel session, chaired by Michele Thums (AIMS) and Rob Harcourt (Macquarie University), gave insights into the issue of megafauna interactions with industry. FOO 2021 was informed of:

- The exposure of marine megafauna to industry and other anthropogenic threats in the North-West of Australia (Luciana Ferreira (AIMS)).
- Information about the continental-scale Integrated Marine Observing System Animal Tracking Acoustic Telemetry network (Fabrice Jaïne, Sydney Institute of Marine Science).
- Information on a pilot study that deployed acoustic receivers on offshore infrastructure that detected previously tagged whale sharks and so ground-truthed the effectiveness of this approach to understand megafauna use of these structures and connectivity (Paul Thomson, University of Western Australia).
- An overview of how elephant seals and other animals are acting as oceanographers and delivering oceanographic data (Clive McMahon, Sydney Institute of Marine Science).
- The impacts of environmental variability on the Patagonian Toothfish (*Dissostichus elegonoides*) fishery (Stuart Corney, University of Tasmania).

The discussion with the attendees was chaired by Luke Smith (UWA) Sustainable marine-based industries: scientific knowledge needs to support robust environmental impact assessment and effective management mitigation approaches. There were particular areas of focus:

- Good quantitative understanding of spatial use – where are there potential interactions
- Scientific gaps – how do we support and manage industry to ensure these gaps are not serious impediments.
- How individual species respond to potential stressors such as noise, debris and habitat loss
- How do potential adverse impacts on individuals affect populations.

Participant discussions included research that overlaps various data for risk analyses, entanglement issues, and other mitigation techniques to avoid negative megafauna interactions with industry activities.

A session Spotlight was contributed by Kylie Scales (University of the Sunshine Coast), who spoke briefly to the topic. This Spotlight can be accessed from the session webpage [here](#).

Session 4: FOO 2021 and Beyond

This session gave a brief overview of the three previous sessions, celebrated the Spotlights, and discussed emerging themes and next steps. FOO 2021 was informed of:

- The national context within which FOO existed.
- The ongoing importance of integration and connectivity of the FOO pillars.
- The changing landscape of new and evolving ocean industries and technologies and the increasing need for data.
- Information about the next FOO event, hopefully in 2022 (COVID allowing), and the convergence of the FOO 2022 event with the Australian Coastal and Oceans Modelling and Observations Workshop. This would allow for discussions between the two inter-related communities, including modelling for heatwaves and extreme events and supporting decision-making on multiple temporal scales.
- Possible emerging themes for FOO 2022 included: emerging technologies, changing industries, the evolution of wave and current data.

The discussion with the attendees included an invitation to send ideas about FOO 2022 themes to the FOO secretariat [via this form](#) and an invitation to join the FOO Steering Committee to support the next event (see above).

Finally, the organisers of FOO wish to thank the chairs and panel members for their presentations and time and members of the IMOS Office/FOO Secretariat for their efforts. We look forward to seeing you at the next FOO event.



foo.org.au