

Proposal for an

IMOS National Working Group on Bio-optical Instrumentation and Observing: Towards a National Community of Practice

Overview:

Proposed Investment:	IMOS National Working Group on Bio-optical Instrumentation and Observing
Operating Institution:	UWA and/or IMOS
Co-convenors:	Dr Christine Hanson, The University of Western Australia, Perth WA Email: christine.hanson@uwa.edu.au ; Phone: 08 6488 7252 Dr Martina Doblin, University of Technology, Sydney NSW Email: martina.doblin@uts.edu.au ; Phone: 02 9514 8307
Other(s) key people involved:	Dr John Parslow, CSIRO Marine and Atmospheric Research, Hobart TAS

Background and Rationale

Bio-optical instrumentation is a key component to a number of IMOS facilities, and is critical to the goal of increasing our understanding of physical-chemical-biological linkages in coastal and oceanic Australian waters. Unlike standard physical measurements such as temperature and salinity, the calibration, validation and interpretation of data generated by these bio-optical instruments is not necessarily straight forward. Similarly, best use of these data in a national program across multiple facilities and for multiple uses requires nationally co-ordinated efforts.

To progress these issues, we suggest the formation of a national scientific Working Group (WG), with the broad mandate of tackling issues of national relevance related to bio-optical measurements and interpretation. The WG will bring together experts in various fields related to these goals, and will also operate across the various IMOS Facilities and Nodes. As IMOS operates nationally, we feel that the WG model will be the most efficient and focused way to build a broad consensus and capability on these matters, with the longer term view to developing and sustaining a Bio-Optical Community of Practice within IMOS.

The full background and development process for this proposal are documented in:

1 - Optical instrumentation: A national strategy for IMOS to integrated biology with physics. Prepared by Martina Doblin and posted to IMOS in Aug 09 (http://www.imos.org.au/wiki/National_Capability_for_Bio-Optics)

2 - Pre-proposal – IMOS National Working Group on Bio-optical Instrumentation and Observing. Prepared by Christine Hanson and posted to IMOS in Sept 09 (http://www.imos.org.au/wiki/NWG_BOIO)

The present document follows on from the above pre-proposal, and provides suggested terms of reference, the areas of expertise needed to meet the terms of reference, the suggested WG composition based on that required expertise, mode of operation, associated operational budget and request for IMOS support.

Proposed Terms of Reference

Interim terms of reference for the working group are proposed below. These will form the basis for discussion at the first meeting, where they will be modified as necessary and finalised. Specific outcomes and outputs will also be decided at the first meeting, and be progressively delivered after each WG meeting. These may include applications for competitive research funding using IMOS infrastructure, implementation of data processing protocols into the toolbox, canvassing opinion about specific data quality issues amongst the Community of Practice, and so on. Particular attention will be paid to informing the Community of Practice about WG progress, and obtaining their feedback on the WG's performance.

The interim terms of reference are:

- Develop an integrated and scientifically robust strategy for the calibration, validation and interpretation of single-wavelength fluorescence and scattering data, as currently collected by a number of IMOS facilities
- Develop a consensus regarding national priorities for incorporating more advanced bio-optical instrumentation within existing IMOS facilities
- Facilitate and improve links from bio-optical data streams to biogeochemical, ocean circulation and ecosystem models
- Advance integration of in situ bio-optical observations and satellite remote sensing, including strategies for the development of inter-calibration protocols and exercises
- Facilitate capacity building and knowledge transfer to data users in the form of workshops, research symposia, training programs, competitive grant proposals, linkages with international programs, and peer-reviewed publications and technical papers

Required Expertise

Specific expertise will be required to capably address the terms of reference listed above. The following key areas are suggested:

- Phytoplankton ecology and physiology
- Bio-optical measurements and interpretation
- Calibration of optical instruments
- Biogeochemical and ocean circulation modelling
- Inherent optical properties of seawater
- Remote sensing of coastal and oceanic waters

Working Group Composition

Members of this IMOS WG will provide their time as an in-kind contribution. The group will consist of 12 Full Members, who will be expected to contribute on-going time and effort to the working group operations and outcomes. The Full Members have been selected based on their abilities to provide the required expertise indicated above. The proposed Convenors would be responsible for the general organisational aspects of WG operations, but would not necessarily Chair the meetings (see Mode of Operation, below). The suggested membership is, in alphabetical order:

Dr Mark Baird (University of New South Wales)

Ms Lesley Clementson (CSIRO Marine and Atmospheric Research)

Dr Vittorio Brando/Mr Paul Daniel (CSIRO Land and Water)

Dr Arnold Dekker (CSIRO Land and Water)

Dr Martina Doblin (University of Technology, Sydney) , Co-convenor

Dr Peter Fearn (Curtin University of Technology)

Dr Christine Hanson (University of Western Australia), Co-convenor

Dr John Parslow (CSIRO Marine and Atmospheric Research)

Assoc Prof Peter Ralph (University of Technology, Sydney)

Dr Peter Stratton (University of Tasmania)

Dr Peter Thompson (CSIRO Marine and Atmospheric Research)

Dr Scarla Weeks (University of Queensland)

The WG composition will also include Associate Members who will be consulted and included in WG discussions, forming part of a broader Community of Practice. These members are encouraged to attend WG meetings, although would generally need to source their own travel funding. However, we propose that some funding be made available to support travel/accommodation for these members on an as-needed basis, particularly for student participants or those who may not be able to secure other funding sources.

Mode of Operation

We propose to convene the WG for a period of three years, with the expectation that after this, the IMOS Bio-Optical Community of Practice will be self-sustaining. The WG will operate through a series of focused meetings, with on-going work via correspondence. We suggest a total of 6 meetings – 3 meetings in Year 1, 2 meetings in Year 2, and 1 meeting in Year 3. Each meeting would tentatively be 2 days, excluding travel time.

Meetings will be held in locations that are most convenient to the majority of Members, thus minimising costs. Based on the potential membership list, Sydney and Hobart seem likely options, although other locations could be

considered. Wherever possible, WG meetings will be based around other 'meetings of opportunity' to limit costs, particularly where members would normally be sourcing additional funds for such meeting attendance. At this point, identified 'meetings of opportunity' are AMSA July 2010 in Wollongong, NSW and AMSA July 2011 in Perth, WA. However, to ensure equitable participation amongst all members, irrespective of location and institutional budgetary constraints, Full Members will always be eligible for 100% travel and accommodation support to attend WG meetings.

The 6 meetings will have specific themes, to ensure progress on the key priorities identified in the terms of reference. These themes would be finalised at the first meeting, and the Chair(s) for each meeting or theme would be selected by the group accordingly.

Tentative meeting schedule:

Meeting 1 – early 2010: Determine terms of reference and WG outcomes, including task prioritisation, planning and code of conduct for subsequent meetings

Meeting 2 – mid 2010 (July, Wollongong NSW)

Meeting 3 – late 2010

Meeting 4 – mid 2011 (July, Perth WA)

Meeting 5 – late 2011/early 2012

Meeting 6 – mid 2012 (July, AMSA location to be finalised but tentatively Launceston, TAS)