

Project Endorsement Form

The Steering Committee of IIOE-2 invites you to be a partner in the unique global scientific endeavour that is the Second International Indian Ocean Expedition (IIOE-2) and to submit a scientific activity to be considered for endorsement under IIOE-2.

Two key documents guide engagement in IIOE-2 (available at www.iioe-2.incois.gov.in): the IIOE-2 Science Plan (Hood et al., 2015) and the Strategic Framework for the Implementation of IIOE-2 (IPC, 2015). The Science Plan is ambitious and intentionally broad, providing a wide range of scientific themes for your consideration as potential research foci, at national and international scales for the Indian Ocean. The Science Plan includes reference to themes of coastal and regional interests to many Indian Ocean rim countries that may seek to pursue research under IIOE-2. The Implementation Strategy aligns with the Science Plan as a succinct 'guide' for the implementation of IIOE-2, with the specification and implementation of further detail to be overseen by the IIOE-2 Steering Committee.

The endorsement of a scientific proposal or a scientific activity by the IIOE-2 Steering Committee is a recognition of the proposal's or activity's alignment with the mission and objectives of IIOE-2, of its potential for contributing to an increased multi-disciplinary understanding of the dynamics of the Indian Ocean, and of its contribution to the achievement of societal objectives within the of the Indian Ocean region.

As the IIOE-2 develops and the number of participants, institutes and programs involved increases. IIOE-2 will provide the innovation, direction and coordination required to build a critical mass of multidisciplinary science and scientists towards this ambitious and globally important endeavour.

Considering the above and in order to facilitate the endorsement process, it is requested that proponents complete the Endorsement form (below) in English, 10 font Calibri. Please adhere to the length limits specified for the answers (however, you are free to provide additional information for any of the sections by way of addendums or provision of documents/materials, either in Section 6 or as attachments).

Please email your submission to the IIOE-2 Joint Project Office (JPO):

- Attention: Nick D'Adamo, IOC IIOE-2 Coordinator, Australia Node IIOE-2 JPO, iioe-2@bom.gov.au;
- CC to RajanSivaramakrishnan, Coordinator, India Node IIOE-2 JPO, : iioe-2@incois.gov.in

Queries may be directed to either of the two JPO focal points above.

IIOE-2 Joint Project Office (JPO)

Perth Australia Node
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Hyderabad India Node
Indian National Centre for Ocean Information Services
(INCOIS)
Pragathi Nagar
Hyderabad, Telangana 500 090, India.
Email: iioe-2@incois.gov.in

1. PROJECT TITLE

Full title	A coupled bio-physical, ecosystem-scale, examination of Australia's International Indian Ocean Expedition 110°E line
Acronym	Nil
Website	Nil
Keywords (up to 10, describing the project research)	110°E, physical oceanography, nutrients, biogeochemistry, bio-optics, microbes, phytoplankton, primary production, zooplankton, meso-pelagic fishes, food webs
New initiative or continuing programme?	New

2. APPLICANTS

Lead applicant / Project Leader / key research contact person:

First name	Lynnath
Last name	Beckley
Affiliation	Murdoch University
Postal address	Environmental & Conservation Sciences, School of Veterinary & Life Sciences, Murdoch University, 90 South Street, Murdoch 6150
Country	Australia
Telephone	+61-8-93606392
Email address	L.Beckley@murdoch.edu.au
Institutional or personal website	www.murdoch.edu.au

Other key participants / research team leaders: *(repeat as needed)*

First name	David
Last name	Antoine
Role in the project	Alternative Lead Principal Investigator for RV Investigator voyage
Affiliation	Curtin University
Country	Australia
Email address	david.antoine@curtin.edu.au
Institutional or personal website	www.curtin.edu.au/

N.B.: Please note that all these names and contact details will be added to the IIOE-2 membership database.

3. ABSTRACT– Brief description of the project: *(1/4 page maximum)*

This will be placed on the IIOE-2 Website after endorsement.

Over fifty years ago Australia contributed to the first International Indian Ocean Expedition by deploying Australian ships along 110°E (off Western Australia) in the south-eastern Indian Ocean to examine the physical, chemical and biological oceanography of this unusual part of the world's oceans. In view of climate change, and as part of the second International Indian Ocean Expedition, we will, in this voyage, put a multidisciplinary, world-leading complement of scientists on board the RV *Investigator* to undertake an integrated ecosystem study in the oceanic pelagic domain incorporating physical processes, nitrogen sources, primary productivity and food webs. The voyage will contribute to development of mathematical models of ocean ecosystems at this western extreme of Australia's Exclusive Economic Zone.

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4. LINKS TO IIOE-2 SCIENCE PLAN:(1/2 page maximum)

How do you anticipate your project to contribute to the IIOE-2 strategy and science delivery, with reference to which (either one or more) of the six IIOE-2 Science Plan themes that your project responds. Please state the specific issues and questions addressed by your project in the context of the IIOE-2 Science Plan themes and key issues.

- **Theme 1: Human Impacts** *How are human-induced ocean stressors impacting the biogeochemistry and ecology of the Indian Ocean?* Repeat of 110°E line occupied by Australia during first IIOE will provide a unique opportunity to examine change over five decades with respect to physics, chemistry and biology.
- **Theme 2: Boundary current dynamics, upwelling variability and ecosystem impacts** *How are marine biogeochemical cycles, ecosystem processes and fisheries in the Indian Ocean influenced by boundary currents, eddies and upwelling?* The 110°E line traverses temperate to tropical oceanic areas that are strongly influenced by the Leeuwin Current and its associated meso-scale features. We will examine the response across the oceanic ecosystem from physics to fish across thirty degrees of latitude.
- **Theme 4: Circulation, climate variability and change** *How has the atmospheric and oceanic circulation of the Indian Ocean changed since the 1960s? What impact does this have on biological productivity and fisheries?* We will examine the response across the oceanic ecosystem from physics to fish across 30 degrees of latitude.
- **Theme 6: Unique geological, physical, biogeochemical, and ecological features of the Indian Ocean** *How do the physical characteristics of the southern Indian Ocean gyre system influence the biogeochemistry and ecology of the Indian Ocean?* We will examine the 110°E line as part of the southern Indian Ocean gyre in an inter-disciplinary fashion using modern technology and build on the baseline data of the first IIOE.

5. REGION(S) OF STUDY

Provide a description of 'where' the research is to be conducted (for field based activities) and/or the region or regions to which the research pertains (you are encouraged to consider providing a figure as an addendum to your proposal).

Fremantle to 40°S 110°E to 11°S 110°E, then to 22°S 113°E (NW Cape) and back to Fremantle

6. TIMETABLE OF THE PROJECT

Start date: 2018	End date: 2020
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7. LINKAGES WITH OTHER PROJECTS / PROGRAMMES / INITIATIVES

Is the project part of a related national or multi-national activity?

If yes, provide the related activity title and website for reference, if available:

Australian initiative to revisit the 110°E line regularly occupied in the 1960s during the first IIOE.

Is your project part of, or affiliated to, another SCOR, IOC or IOGOOS activity or project?

If "yes", please indicate which activity or project:

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SIBER, Bio-Argo

8. DATA MANAGEMENT

1. Will new data be collected as part of this project (yes or no?)

Yes

2. Contact information if any, of the person in charge of the data management from whom the metadata can be accessed by interested IIOE-2 stakeholders.

Please note that for all IIOE-2-endorsed projects, IIOE-2 will have developed its own metadata portal. Once the project is endorsed, the project leader will be asked to provide the metadata information of the project.

Roger Proctor, Australian Ocean Data Network (AODN)

9. FUNDING

Please note that IIOE-2 strongly encourages funded/resourced projects. However, IIOE-2 may endorse projects yet to receive funding/resourcing if IIOE-2 endorsement can be clearly shown to significantly aid in prospects for funding/resourcing.

Has funding and resources to successfully achieve and undertake the project been obtained? Indicate the sources of funding and resources that have been approached and/or secured.

As voyage is planned for 2018/19, specific funding for field experiments will be applied for in 2017. Ship's time application on Australian MNF vessel RV *Investigator* has been applied for in 2018/19 funding round.

10. BENEFITS FROM IIOE-2 ENDORSEMENT (1/4 page maximum)

Specify why you are seeking endorsement and how the activity would benefit from endorsement, and how the IIOE-2 SC could assist in the implementation of your project.

We are seeking endorsement from IIOE2 as this project was the catalyst for developing the IIOE2 and conceptualised during the IIOE2 Science Plan writing period.

11. OPTIONAL: OTHER COMMENTS/INFORMATION/MATERIAL (length and detail may be at the discretion of and as deemed necessary by the applicant)

Please feel free to provide any other comments, information or materials that you feel relevant to your proposal for the IIOE-2 Steering Committee's information and benefit. You may provide this as general information or provide the additional comments/information/materials as relevant to any of the specific Sections above.

This is a multi-disciplinary project with leading oceanographers and bio-optics researchers from Australia, USA, New Zealand, France, Germany and Spain.

IIOE-2 Joint Project Office (JPO)



2nd International
Indian Ocean
Expedition
2015-2020



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