

Project Endorsement Form

1. PROJECT TITLE

Full title	The Large Marine Ecosystem of the Arafura Sea: What are the Physical Drivers?
Acronym	-
Website	http://apscience.org.au/projects/APSF_15_4/apsf_15_4.html
Keywords (up to 10, describing the project research)	Arafura Sea; Large Marine Ecosystem; Oceanography; Plankton Blooms; Upwelling
New initiative or continuing programme?	Continuing programme

2. APPLICANTS

Lead applicant / Project Leader / key research contact person:

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Last name	Kaempf
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Other key participants / research team leaders: (repeat as needed)

First name	Jochen
Last name	Kaempf
Role in the project	Chief Investigator
Affiliation	College of Science & Engineering, Flinders University
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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.

Coastal ecosystems are among the most productive ecosystems in the world and provide many services to human society. This project explores physical mechanisms that - during the Southeast monsoon - lead to the development of majestic phytoplankton blooms in the northwestern Arafura Sea extending a vast area of 200 km by 200 km.

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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.

This project addresses and contributes to three of the six themes of the IIO-2 Science Plan, namely Theme 6 (Unique geological, physical, biogeochemical, and ecological features of the Indian Ocean), Theme 2 (Boundary current dynamics, upwelling variability and ecosystem impacts) and Theme 3 (Monsoon Variability and Ecosystem Response). Specific questions addressed are:

- How does the shallow-water geologic setting of the Arafura Sea influence nutrient fluxes in the Arafura Sea (which is a key region of phytoplankton blooms in the Indonesian Seas)? (Theme 6)
- Which physical mechanisms trigger phytoplankton blooms in the Arafura Sea? (Theme 2)
- In how much is the ecosystem response in the Arafura Sea influenced by monsoon variability (Theme 3)

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).

Arafura Sea (see figure as addendum)

6. TIMETABLE OF THE PROJECT

Start date: 2016

End date: 2018

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:

The project is funded by the Australia & Pacific Science Foundation, see:
http://apsf.org.au/projects/APSF_15_4/apsf_15_4.html

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

If “yes”, please indicate which activity or project:

No

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8. DATA MANAGEMENT AND SHARING

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

No

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.

N/A

3. Recognizing the need for an initial period of exclusive data use, would you be willing to provide timely access to all data generated under this project and associated metadata in accordance with relevant national and funding agency data sharing policies? N/A

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.

The project is funded by the Australia & Pacific Science Foundation, see:
http://apscience.org.au/projects/APSF_15_4/apsf_15_4.html

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.

The main aim of this application is to contribute externally-funded research findings including high-quality publications (see appendix) to the IIOE-2 initiative, which also facilitates sharing of relevant scientific knowledge among the IO research community. At this stage, the applicant does not ask for assistance.

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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.

Relevant Publications:

Kämpf, J. (2015) Interference of wind-driven and pressure gradient-driven flows in shallow homogeneous water bodies. *Ocean Dynamics*, 65(11) pp. 1399-1410, doi: 10.1007/s10236-015-0882-2

Kämpf, J. (2015) Undercurrent-driven upwelling in the northwestern Arafura Sea, *Geophysical Research Letters*, 42, 9362 -9368, doi:10.1002/2015GL06616

Kämpf, J. (2016) On the majestic seasonal upwelling system of the Arafura Sea. *Journal of Geophysical Research*, 121(2), 1218–1228, doi: 10.1002/2015JC011197.

Kämpf, J., and P. Chapman (2016) *Upwelling Systems of the World: A Scientific Journey to the Most Productive Marine Ecosystems*. Springer International Publishing, 433 pages.

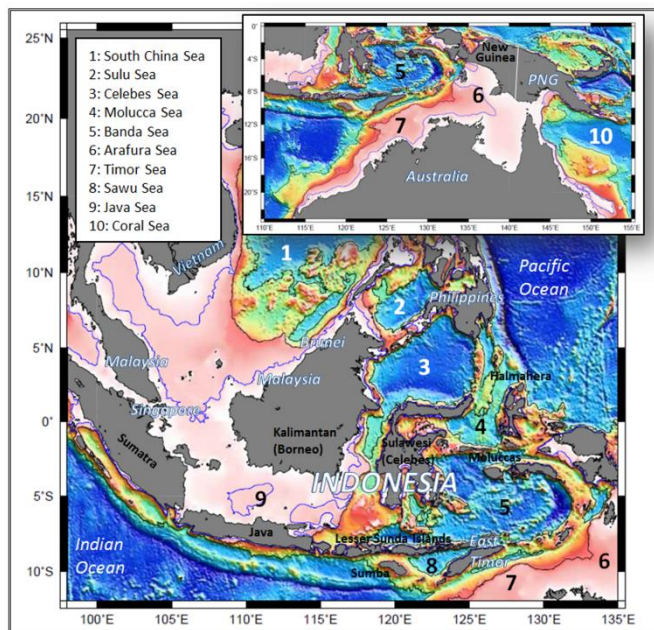


Figure: Bathymetry of the Indonesian Seas including the Arafura Sea. Image source: Liu & Dittert (2010). Taken from Kämpf and Chapman (2016).

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Indian Ocean
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2015-2020



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