Project Endorsement Form

1. PROJECT TITLE

Full title	Advancing Predictions of Marine Heatwaves
Acronym	
Website	https://wamsi.org.au/research/programs/marine-heatwaves/
Keywords (up to 10, describing the project research)	Observing, forecasting, predicting tools, extreme temperature events, Western Australia
New initiative or continuing programme?	New initiative

2. APPLICANTS

Lead applicant / Project Leader / key research contact person:

First name	Nicole
Last name	Jones
Affiliation	UWA
Postal address	35 Stirling Highway Crawley
Country	Australia
Telephone	-
Email address	Nicole Jones – nicole.jones@uwa.edu.au
Institutional or personal website	https://wamsi.org.au/research/programs/marine-heatwaves/

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

First name	Arani
Last name	Chandrapavan
Role in the project	Senior Research Scientist Climate Change
Affiliation	Department of Primary Industries and Regional Development
Country	Western Australia
Email address	arani.chandrapavan@dpird.wa.gov.au
Institutional or personal website	

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.

Western Australian marine ecosystems and dependent industries such as fisheries have endured prolonged, warm water events (marine heatwaves) that are projected to increase in frequency and duration with future ocean warming. Over the past decade, marine heatwaves of global significance have had substantial ecological and economic impacts along the Western Australian coastline. This project's overall objective is

to develop an advanced understanding and predictive tools to accurately forecast extreme temperature events and their impact on marine ecosystems along Western Australia, to empower management agencies and other stakeholders with the knowledge and tools to develop effective responses.

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.

IIOE-2 Science Plan Theme:
ST-4: Circulation, climate variability and change
ST-1: Human benefits and impacts

Project Objectives:

1. Synthesize historical information on WA Marine Heat Waves (MHW) and the response of key fishery species and associated habitats
2. Identify the key physical drivers of MHW in coastal waters along WA.
3. Develop and validate a sub-seasonal and seasonal ocean temperature statistical downscaling forecast technique for the WA coastal region.
4. Determine how key features of MHW (e.g., intensity, duration, extent) impact the abundance and recruitment of key fisheries species and associated habitats to establish predictive capacity to manage fisheries in future heatwave events.
5. Characterise regions of the WA coastlines that will be mostly likely to suffer from or be buffered from the extremes of marine heatwaves, to identify at risk or potentially resilient areas and inform future monitoring.
6. Determine the best platform and delivery mechanisms for the collation of the key forecast and real-time data products.

5. INTERNATIONAL COLLABORATION(S):

Is the project part of a related multi-national activity? **NO**
If No, would you welcome international collaboration in your project? **YES**

6. 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 either the coordinates of the area of studies or the coordinates of the planned cruise tracks, as well as a figure as an addendum to your proposal).

Coast of Western Australia

6. TIMETABLE OF THE PROJECT

Start date:	End date:
01/10/2022	30/04/2027

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:

Endorsed as part of the UN Decade of Ocean Science for Sustainable Development 2021 - 2030 https://www.coastpredict.org/advancing-predictions-of-marine-heatwaves-ocean-decade-id-wa-02/

Is your project part of, or affiliated to, another SCOR, IOC or IOGOOS activity or project?
If "yes", please indicate which activity or project:

GOOS

8. DATA MANAGEMENT AND SHARING

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.

Multiple data collectors and contributors to this project. Unable to provide endorsement from all contributors: University of Western Australia Department of Primary Industries and Regional Development Department of Biodiversity, Conservation and Attractions

Bureau of Meteorology
Edith Cowan University
Curtin University
Murdoch University
Australian Institute of Marine Science

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? **YES Data is already publicly available**

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.

Funding received from:

- The (WA) Department of Jobs, Tourism, Science and Innovation.
- The Indian Ocean Marine Research Centre Strategic Infrastructure Investment Fund
- The Jock Clough Marine Foundation and
- Fisheries Research and Development Corporation.
- Western Australian Marine Science Institution

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.

Share knowledge of work being undertaken in the Indian Ocean

11. OPTIONAL: CAPACITY DEVELOPMENT *(length and detail may be at the discretion of and as deemed necessary by the applicant)*

Please feel free to provide this information relevant to the capacity development component of this project.

The multi-disciplinary project team of 26 includes researchers in oceanography, marine ecology,

atmospheric science and data science from organisations including Bureau of Meteorology, Curtin University, Department of Biodiversity, Conservation and Attractions, Department of Primary Industries and Regional Development, Edith Cowan University, Murdoch University, and UWA

12. 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.

- https://wamsi.org.au/news/warning-of-marine-heatwave-impact-as-extreme-ocean-event-declared-off-western-australia/
- https://library.dpird.wa.gov.au/cs_marineheatwave/3/
- https://storymaps.arcgis.com/stories/f10c2e4f21df481abf580e1efca667d2
- https://wamsi.org.au/news/project-to-predict-and-manage-marine-heatwave-threats/

(Signature of the PI)