



# **EXMOUTH RESEARCH LAB**

## Expression of Interest Guide



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## Expression of Interest

The Oceans Focus Area is guided by the vision of returning the ocean to a healthy state, free from pollution and safeguarded for future generations. To realise this vision, the Minderoo Exmouth Research Laboratory (MERL) enables and supports cutting-edge marine science, conservation and education projects throughout the Indian Ocean and Indo-west Pacific, through provision of our world-class research facilities.

Expressions of Interest are being sought from researchers to use the facility on either a fully subsidised or partially subsidised basis.

### Eligibility

The research must have the capacity to contribute towards a scientific publication or a postgraduate thesis, or it must be a requirement of an undergraduate course. Researchers will generally, but not necessarily, have a university or research institute affiliation. Ultimately, the research must align with Minderoo Foundation's vision to create a society that values all people and natural ecosystems for a fairer future.

### Project requirements

- Proposals must be well developed, concise and high quality, and researchers must have a proven research or academic track record.
- Projects must be focussed on **Minderoo Oceans priority outcomes (see page 7)**.
- Projects must provide a clear path to impact, with detail given in the project proposal.
- Projects must align with the broader **Minderoo research principles (see page 12)**.
- Projects that lever multiple sources of funding will be given preference.
- Interdisciplinary projects that promote national and international collaborations with more than one institution will be favoured.
- Proposals that meaningfully add value to other Minderoo Focus Areas will be ranked highly (see "Our Work" section on the website <https://www.minderoo.org>).
- Projects must ensure that destructive sampling is avoided or minimised wherever possible, and that invasive tagging methods are accompanied by an eDNA component to support transition from tagging to non-invasive eDNA methodologies.



## Key Evaluation Criteria

- The activity clearly addresses one or more of the Oceans priority issues.
- The impact and influence the proposed activities have on the issue.
- Likelihood that the project will deliver the proposed outcome (includes quality and clarity of the proposal; suitability of methods/approach; proponent's track record and capacity, etc).
- The project involves strategic partnerships, preferably with overseas collaborators.
- Links to other Minderoo Focus Area have been considered in the project design.
- The project has potential to develop future capacity new technology or methods.

Please note, expressions of interest will be reviewed by an independent panel.

## Ethics approvals and permits

You must conduct your research in an ethical, diligent manner and in accordance with all laws, any policies of the Minderoo Foundation and Administering Institution regarding the conduct of research and any reasonable directions given by us to ensure the ethical, safe and diligent conduct of the project. It is the responsibility of the researcher to ensure that all necessary ethics approvals and permits required are in place before the project commences.

## Research agreement

The successful Administering Institution will be required to enter into a Grant and Collaborative agreement (GCA) with Minderoo Foundation and sign a User's Agreement.

## Research reporting and metrics

Grant recipients must provide Minderoo Foundation with an Initiation Report, Annual Report and a Final Report on the project and the findings. Templates of each will be provided.

Grant recipients must also list metrics for evaluating the impact of their research. Metrics can range from academic types to community-oriented types. Academic type metrics can include the number of anticipated peer-reviewed publications (including the quality of the journal). Community-orientated metrics may include unpublished reports submitted to natural resource management agencies recommending management improvements or recommendations relating to the current conservation status of a species. Community-orientated metrics can also include popular articles and community education activities relating to the research subject.



## Communication and promotion

When you submit an application, you are granting permission to be contacted for (but not limited to) operational feedback, public relations opportunities (such as commentary and interviews) and for inclusion on websites, social media, media releases and mentions in Minderoo announcements. Communicating the findings of the research project through conferences, forums and communication with Minderoo staff will be expected as appropriate. Wherever possible, the research should be published in open access academic journals; your project budget should include any costs in ensuring research is open source.

## Data use and sharing

Minderoo Foundation is committed to openly sharing data collected through the collaborative projects run from our facilities. We request that:

- data must be shared between researchers and institutions participating in the project and on open access data platforms where possible
- data must be made fully open access within one year of the end of the project
- papers must be published in open access form; costs need to be included in the budget
- research articles derived from the project must be likely to be accepted for publication in a high-impact journal within two years of the end of the project period.



## Fees for Service

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Please indicate the level of financial support required in your Expression of interest application using the [Budget template](#). The MERL base fees for service are provided in the table below. Support from Minderoo ranges from fully subsidised through to partially subsidised.

<b>Full access to aquaria and molecular labs</b>	<b>Amount (AUD)</b>
Researcher	\$125/day
Student or assistant	\$75/day
Commercial user	\$250/day
<b>Accommodation</b>	
Per person, per night	\$80/day
<b>Vessels</b>	
Mid-size vessel (1+4 pax, 1+ 5 pax)	\$500/day + fuel at cost
Skipper	\$350/day



## Oceans Priority Outcomes

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Minderoo's Oceans Focus Area is guided by the vision of *returning the ocean to a healthy state, free from pollution and safeguarded for future generations*. To achieve this we aim to support endeavours to expand Marine Protected Areas, end overfishing, eliminate the harmful effects of plastic, revolutionise ocean observing, support world-class marine science, educate the public and drive positive policy change. Priority themes and issues are given below. The list is not exhaustive – other issues will be considered if directly linked to the relevant priority theme.

### PRIORITY THEME: Expand Marine Protected Areas (MPA) and protect threatened species

Minderoo Foundation is a member of the Blue Nature Alliance, a global partnership to catalyse the conservation of 18 million sq km of ocean by 2025. Minderoo is committed to supporting the UN's initiative to protect and conserve at least 30 per cent of oceans by 2030. But we would like to see greater emphasis on fully protected MPAs as opposed to so-called partially protected MPAs. Fully protected MPAs offer the greatest potential to conserve biodiversity, maintain ecosystem function and save species from extinction. However, there is urgent need for research to describe the required coverage (areal extent) and configuration of fully protected MPAs to optimise their conservation benefits while minimising their impact on stakeholder livelihoods.

#### ISSUES:

- Determining the optimum size and configurations (networks) of MPAs to achieve long-term biodiversity outcomes at different scales (oceans, in exclusive economic zones (EEZ), in bioregions and in state or coastal waters).
- Documenting the ecological, social and economic benefits of sanctuary or no-take zones.
- Planning for MPAs in the high seas and to protect populations of pelagic and migratory species.
- Planning for MPA networks to protect critically endangered marine species (species listed as critically endangered will have priority over those listed as endangered or threatened).
- Evaluating the performance of MPAs.
- Examining the pros and cons of "other effective area-based management conservation measures".

### PRIORITY THEME: Plastic pollution and health

Minderoo Foundation recognises the risk of plastics to marine ecosystems and human health. Consequently, we have established a program of work that aims to eliminate the negative impacts of



plastics on environments and people. Minderoo has supported several projects to address this, including the Plastic Waste Makers Index, revealing the source of single-use plastics and their contribution to climate change, and the Plastic Health Map, a world first open-access database that maps research on plastic chemical exposure and human health impacts, providing policy, governance and scientific insights.

#### ISSUES:

- Measuring, mapping and identifying sources of ocean plastic pollution.
- Assessing impacts of ocean plastics on wildlife, economies and human health.
- Developing solutions for mitigating impacts of ocean plastic pollution.
- Developing alternatives to plastics or ways to phase out their use.
- Developing ways to safely dispose of plastic waste.

### PRIORITY THEME: Climate change

Scientific evidence clearly indicates that the Earth's atmosphere and oceans are warming, and that these changes are primarily due to greenhouse gases derived from human activities. These changes have, and will continue to have, negative consequences on marine ecosystems and human wellbeing. But there is still uncertainty as to how marine organisms will respond to increasing water temperatures and changing ocean chemistry over the medium to long-term. Some species may acclimatise and adapt better than others. State-of-the-art facilities at the MERL provide researchers with opportunities to test predictions in a highly controlled environment. These facilities have been designed by National Sea Simulator facilities in Townsville, Queensland, to provide capacity on the west coast to research reef restoration and adaptation under a changing climate.

#### ISSUES:

- Understanding and predicting biological and ecological responses to rapid climate change.
- Describing oceanographic changes because of climate change and consequences to coastal and open ocean ecosystems.
- Reef restoration and adaptation.
- Developing management strategies for rapidly changing ecosystems under a full range of climate change scenarios.
- Understanding and predicting the impact of climate change to the blue economy.
- Understanding the influence of climate change on carbon sequestration in the oceans.





## PRIORITY THEME: Healthy fisheries

Many global fisheries are under threat due to unsustainable fishing practices. Urgent action is required to rebuild and better manage fish and invertebrate stocks. To foster greater awareness of the status of global fish stocks, Minderoo Foundation has developed the *Global Fishing Index*, which is a global study of the health of fish stocks and state of fisheries governance in maritime countries around the world. This index complements current efforts to track progress towards Sustainable Development Goal 14.4 by expanding the scope, resolution and availability of fisheries data at the national level.

### ISSUES:

- Fish distribution, abundance, population structure and movements to directly inform stock management.
- Mechanism for improving fisheries governance and management, both nationally and in the high seas.
- Understanding impacts of fishing on populations of target and by-catch species.
- Developing options for rebuilding overfished populations.
- Mechanisms and policies to sustainably fish pelagic species.
- Methods for improving stock assessments of pelagic and migratory species.
- Evaluating the effectiveness of locally managed marine areas on sustainable fisheries.
- Evaluating the effectiveness of management of fisheries and by-catch in Australia's EEZ.

## PRIORITY THEME: Oceanomics

All organisms release samples of their unique DNA into the environment. Sources of DNA in the environment can be found in skin, hair and mucous. Environmental DNA (or eDNA) refers to DNA that can be extracted from environmental samples. The method does not require any obvious signs of the biological source material. This has obvious benefits for researchers trying to describe biodiversity in ocean environments. Given the considerable benefits of this technology, Minderoo Foundation has established eDNA analytical facilities at the MERL and on the vessel *Pangaea Ocean Explorer*.

### ISSUES:

- Using eDNA to identify areas for protection (spatial prioritisation plans), especially in pelagic environments.
- To establish baseline and document change in biodiversity from human actions.
- Detect low abundance species, especially threatened and endangered species.
- Application in stock assessment.



- Using eDNA to define ecosystem functionality and to determine which species are the major drivers of ecosystem function.
- Potential of eDNA to target the full species assemblage, and to facilitate the use of ecological network analysis. Network analyses can help identify sensitive groups that should be targeted in management or biomonitoring.
- Using eDNA to understand trophic functioning of protected versus unprotected areas.
- Using eDNA of stomach content to better understand trophic interactions.
- Using eDNA to document connectivity among populations.

## PRIORITY THEME: Education

One approach to achieving conservation outcomes is through education. Educating or raising the awareness of the public about conservation issues is vital to foster support to influence decision makers, such as politicians. The public must be informed and convinced of the importance of conservation programmes because conservation actions can be expensive, and the public will often be required to contribute to these actions, in part, through taxes.

### ISSUES:

- Raising community awareness of the importance of protecting the oceans and their wildlife.
- Fostering climate change literacy.
- Fostering plastic waste literacy.
- Communicating the ecological, educational, social and economic importance of sanctuary zones to the public.
- Raising awareness of Australia's endemic and iconic marine fish species, and the need to protect these species for future generations.

## DEMONSTRATING IMPACT

Minderoo will look favourably on projects that can demonstrate research impact in the Ningaloo region, the Indian Ocean and beyond. Research impact is the contribution that research makes to the economy, society, environment or culture, beyond the contribution to academic research.

Applicants are strongly advised to ensure the project has a clear and well-articulated impact with respect to the following:

- Management: management-based outcomes and results that will meaningfully contribute to our understanding of the priority outcomes.



- Environment: have direct implications for improved management, conservation and potentially restoration in the region.
- Research: use cutting-edge technology, or lead to technological advances.
- Community: contribute positively to the community through direct or indirect impacts, because marine resources are crucial for multiple community sectors.



## Minderoo Research Principles

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### Research for impact

Research must address well-defined relevant research questions. There must be clear linkages between your research questions and the impact outputs, and clear articulation of how those outputs contribute to the Minderoo Oceans vision.

### Quality and credibility are non-negotiable

The quality of the research process and outputs is directly connected to the credibility and impact of any resultant use of the research data, report, findings or recommendations. This includes:

- I. the objectivity, skill and impartiality of the process through which questions are framed, methodologies chosen, and the research design and implementation, as well as how data is shared and results communicated
- II. adherence to accepted academic standards in acknowledging the work of others, and providing quality sources and references
- III. replicability and transparency of methods with outputs subject to peer review.

### Safe and ethical

All research undertaken or supported by Minderoo that involves primary data collection from human (or animal) subjects, or the analysis of sensitive secondary data, must comply with Minderoo's ethics policy.

### Collaborative

Research that involves strategic partnerships is a great way to build Minderoo's reputation, credibility, influence and reach. Where possible, research should be used as a way to build capacity and should respect the intellectual contributions of each partner.

### Stretch to create value

To solve a problem that is proving intractable and make a "breakthrough impact", it will generally be necessary to set challenging goals and courageously and determinedly find new ways to answer old questions.



This might involve innovations in methodology, strategic collaborations, unusual or unexpected partnerships, taking a risk in trying something new or simply being the team which systematically tracks down every last detail that others have missed.

## Additional Information

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Budget template - Template for all expressions of interest applications

Facilities - A list of the facilities available to researchers at our state-of-the-art lab

Early-stage planning - Some considerations to take in account in the process of applying to use/using the lab

Working with us - Be aware of the support provided, requirements and project criteria for projects using the lab