## **EXPRESSION OF INTEREST**

Minderoo Foundation’s Flourishing Oceans initiative has as its goal *to return the oceans to a flourishing state by 2030*. To achieve this goal the Minderoo Exmouth Research Laboratory (**MERL**) 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 and research.

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.

## **Project Requirements**

* Projects must be focused on Minderoo research priorities (Attachment 2).
* Projects must detail a clear path to impact in the project proposal (Attachment 3).
* Projects must align with Minderoo research principles (Attachment 4).
* Proposals must be well developed, concise and high quality, and researchers must have a good track record in research.
* Projects that lever multiple sources of funding will be given preference.
* Projects that are collaborative will be favoured, i.e., those that include researchers from more than one institution and ideally collaborate across disciplines and countries.
* Proposals that meaningfully add value to other Minderoo initiatives will be ranked highly (<https://www.minderoo.org/about/#initiatives>).
* Projects must ensure that destructive sampling is avoided wherever possible.

## **Key Evaluation Criteria**

* Does the activity clearly address one or more of Flourishing Oceans’ priority issues?
* How much impact and influence will the proposed activities have on the issue?
* What is the 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.).
* Does the project involve strategic partnerships, preferably with overseas collaborators?
* Does the project link with other Minderoo initiatives?
* Will the project 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 Administering Institution regarding the conduct of research and any reasonable directions given by us in order 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 the Minderoo Foundation and sign a User’s Agreement.

## **Research Reporting and Metrics**

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

Grant recipients are also required to 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 talks relating to the research subject.

## **Communication and Promotion**

By submitting an application, consent is being given for contact 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 Foundation announcements. Communication of the findings of the research project through conferences, forums and communication with Minderoo staff will be expected as appropriate. Wherever possible, academic journal publications of the research should be on an open access basis.

## **Data Use and Sharing**

Minderoo 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 published in a high impact journal within two years of the end of the project period.

## **Attachment 1 - Expression of Interest**

|  |  |  |
| --- | --- | --- |
|  | **ITEM** | **DETAILS** |
|  | Project title |  |
|  | Administering Institution |  |
|  | Principal Investigator | *(1) first and last name*  *(2) position/title*  *(3) email address*  *(4) phone number*  *(5) physical/postal address* |
|  | Collaboration and key personnel |  |
|  | Period of project  Planned start and end |  |
|  | Research priorities |  |
|  | Alignment with Flourishing Oceans Strategic Priorities (Appendix 2) |  |
|  | Rationale for study  (max. 50 words) |  |
|  | Well defined (quantifiable/ measurable) research question(s) |  |
|  | Methods | *For each research question, list the steps to answer it. Consider the following aspects:*   * *Describe the experimental/sampling design.* * *What variables you will measure?* * *List the sampling procedures including sample unit and dimensions (if appropriate).* * *List and justify your sample size, if relevant.* * *List if a pilot study was used to evaluate your methods.* * *Include methods for sample and data collection in the field if applicable. Consider permit and ethics requirements.* |
|  | Analytical / graphical approaches and justification |  |
|  | QAQC procedures for data and procedures |  |
|  | How will you manage your data (metadata requirements) and how will you make it available as open source and to Minderoo? |  |
|  | Impact | *Explain how your research will impact on the following themes: management; environment; research and community (Attachment 3). For each explain:*   |  |  |  |  | | --- | --- | --- | --- | | ***Theme & Description*** | ***Who will benefit from your research? [list organisations]*** | ***How will they benefit?*** | ***How will you know they have benefitted?*** | | ***Management:***  *Management-based outcomes and results that will meaningfully contribute to understanding of the research priorities* |  |  |  | | ***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, as marine resources play a vital role for multiple sectors of the community in the local area* |  |  |  | |
|  | Research principles |  |
|  | Communications Plan | It is important to convey the importance and relevance of your research to a wide range of stakeholders, including the local community (e.g., Exmouth).  Structure your communications plan in the following way: please list rather than provide large amounts of text.   |  |  |  |  | | --- | --- | --- | --- | | ***Target Audience and Goal*** | ***Tools (list only)*** | ***Outputs (list only)*** | ***Date of outputs***  ***dd/mm/yy*** | |  |  |  |  | |
|  | Project deliverables |  |
|  | Risk assessment – identified risks and challenges | Response in terms of risks to project completion, not a HSE risk assessment. E.g., cyclonic weather inhibiting fieldwork, not able to collect sufficient samples in the field. |
|  | Support requested  (if using MERL, Labs, vessels etc)  List number of individuals per support item and list requirements per person | Facilities requested  Use of Lab (no. of days):  Use of Aquaria (no. of days):  Use of Vessel with Skipper (no. of days):  Use of Vessel without Skipper (no. of days):  Use of Vehicle (no. of days):  Use of Accommodation (no. of nights per person): Please provide nights PER PERSON as this is critical for planning  Use of Office (no. of days per person):  Include proposed dates and timeline for use of resources and explain why. Requests for support outside of peak times (March-August) are more likely to be accepted as this is when we have more availability.  For consideration: vessel and skipper availability is our biggest bottleneck. As such, projects targeting use of labs (molecular and aquarium) will be looked upon favourably. Similarly, if you are able to provide your own skipper, please note minimum Coxswain certification is required and skippers will have to be inducted and approved by MERL staff. |
|  | Participant contributions to project in-kind |  |
|  | Other funding |  |
|  | Fund requested (if so, add budget) |  |

## **Fee for Services**

Please indicate in your Expression of Interest the level of financial support required. The base fees for service of facilities are provided in the table below. Support from Minderoo ranges from fully subsidised through to partially subsidised.

|  |
| --- |
| Full access to aquaria labs, molecular lab and office:   * Researcher: $125/d * Assistant researcher: $75/d * Research student: $75/d * Assistant/volunteer: $50/d * Commercial user: $250/d   Full access to molecular lab and office:   * Researcher: $70/d * Assistant researcher: $70/d * Research student: $50/d * Assistant/volunteer: $30/d * Commercial user: $150/d   Accommodation:   * Researcher: $80/d * Assistant researcher: $70/d * Research student: $50/d * Assistant/volunteer: $30/d   Vessels   * Mid-size vessel (1 + 4 pax, or 1+ 5 pax): $400 /day + fuel at cost * Skipper: $200/day |

## **Attachment 2 – Flourishing Oceans Priorities**

Minderoo’s Flourishing Oceans initiative has the goal of returning the oceans to a flourishing state. To do this we aim to support endeavours to fully protect at least 30% of the global ocean by 2030, end over-fishing, 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, but the list of issues is not exhaustive – other issues will be considered if directly linked to the relevant priority theme.

**PRIORITY THEME: Expand Marine Protected Areas (MPAs)**

Minderoo is a member of the Blue Nature Alliance, a global partnership to catalyse the conservation of 18 million square kilometres of ocean by 2025. Minderoo is committed to supporting the UN’s initiative to protect and conserve at least 30% of oceans by 2030. But Minderoo 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 the livelihood of stakeholders.

ISSUES

* Determining the optimum size and configurations (networks) of MPAs to achieve long term biodiversity outcomes at different scales (oceans, in EEZs, 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 of 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 recognises the risk of plastics to marine ecosystems and human health. Consequently, it has established the [No Plastic Waste](https://www.minderoo.org/no-plastic-waste/) initiative which aims to eliminate the negative impacts of plastics on marine environments and people. No Plastic Waste is a global movement that raises awareness of the plastic issue and encourages people, industry and governments to act now to create a future with no plastic waste. It also supports [Sea the Future](https://stf.org/)*,* an industry initiative that aims to reduce the cost of recycled plastic in order to tip the scales in favour of re-using the plastics we already have, rather than creating new plastic.

ISSUES

* Measuring, mapping and identifying sources of ocean plastic pollution.
* Assessing impacts of ocean plastics to wildlife, economies and human health.
* Developing solutions for mitigating impacts of ocean plastic pollution.
* Developing alternatives to plastics or ways to phase out use of plastics.
* 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 to marine ecosystems and human wellbeing. However, there is still much 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 with a view to providing 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 has developed the [Global Fishing Index](https://www.minderoo.org/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: Deep-Sea Research**

Although continental shelf waters and their biota are reasonably well documented, little is known of the biota and ecosystems in deep water environments beyond the shelf. This is especially true for the Indian Ocean, which is probably the least explored of the major ocean basins. For this reason, Minderoo has collaborated with the University of Western Australia to establish the world leading [Deep-Sea Research Centre](https://www.minderoo.org/deep-sea-research/), to increase understanding about the deepest parts of the ocean through research at depths of six to 11 km below the surface, known as the hadal zone.

ISSUES

* Mapping the ocean floor and habitats.
* Improving taxonomic and ecological understanding of deep-sea fauna.
* Identifying deep sea fauna hotspots.
* Understand connectivity between the hadal depths and surface and coastal waters.
* Improving understanding of deep-sea habitats to better predict environmental change associated with climate change.
* Documenting new bio-products that could be used in medicines.

**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 and 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 has established eDNA analytical facilities at the MERL and on the Pangaea Ocean Explorer. Find out more about OceanOmics here: <https://www.minderoo.org/oceanomics/>.

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 achieve 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 very 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.

## **Attachment 3 – Demonstrating Impact**

Minderoo will look favourably on projects that can demonstrate research impact to 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 Research Priorities (Attachment 2).
* 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, as marine resources play a vital role for multiple sectors of the community in the area.

## **Attachment 4 – Minderoo Research Principles**

1. RESEARCH FOR IMPACT

Research must address well-defined questions that are relevant to solving the problem at hand.

There must be clear line of sight between the questions we ask in any research process and the impact we are looking for.

1. QUALITY AND CREDIBILITY ARE NON-NEGOTIABLE

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

* The objectivity, skill and impartiality of the process through which questions are framed, methodologies chosen, and the research designed and implemented, as well as how data is shared and results communicated.
* Adherence to accepted academic standards in acknowledging the work of others, and providing quality sources and references.
* Replicability and transparency of methods with outputs subject to peer review.

1. 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 the Minderoo ethics procedure.

1. 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.

1. STRETCH TO CREATE NEW VALUE

For “breakthrough impact”, to solve a problem that is proving intractable, it will generally be necessary to stretch and courageously, 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 who systematically tracks down every last detail that others have missed.