# Ocean Stewardship Fund – Student Research Grants (SRG) Application Form

**Application closing date: 23:59 GMT on 6 January 2021**

*Please save and submit this form as a Word Document, without editing restrictions.*

# Section a: Personal Details & Declarations

**You and your course**

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| **Reference number (MSC use only)** |  |
| **Student’s name** | **Tri Ernawati** |
| **Student’s postal address** | **Villa Bogor Indah 3 Blok AD 1 No 21, RT/RW 005/015, Kelurahan Kedunghalang, Kec. Kota Bogor Utara, Bogor, West Java, Indonesia 16158** |
| **Student’s telephone number** | **+62 813 1057 0355** |
| **Student’s email address (*this will be our main way of contacting you*)** | [**erna.sarwono@gmail.com**](mailto:erna.sarwono@gmail.com)**;** [**tri\_ernawati@apps.ipb.ac.id**](mailto:tri_ernawati@apps.ipb.ac.id) |
| **What is the full name of your course?** | **Aquatic Resources Management in IPB University** |
| **What qualification level is your course? *E.g. MSc, PhD*** | **PhD** |
| **When does/did your course start?** | **September 2020** |
| **When does your course finish?** | **August 2023** |

**Your project supervisor and educational institution**

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| **Project supervisor’s name and position** | Prof. Mennofatria Boer (IPB University Senior lecturer ) |
| **Institution’s name (*to which the student and project supervisor are affiliated*)** | Student:  **Department of Aquatic Resources Management, Faculty of Fisheries and Marine Science, IPB University**  **(PhD candidate)**  Supervisor:  **Department of Aquatic Resources Management, Faculty of Fisheries and Marine Science, IPB University.** |
| **Institution’s postal address** | Jl. Agathis Gedung Fakultas Perikanan dan Ilmu Kelautan, Kampus IPB Darmaga Bogor, West Java – Indonesia |
| **Project supervisor’s telephone number** | +62 812-1994-8592 |
| **Project supervisor’s email address** | [mboer@apps.ipb.ac.id](mailto:mboer@apps.ipb.ac.id)  mboer@ymail.com |
| **Institution’s website address** | www.ipb.ac.id |

**Declarations**

Applicants must be able to accept the SRG Terms and Conditions on the [SRG web page](https://www.msc.org/what-we-are-doing/science-and-research/student-research-grant).

I certify that all the information provided in this application is true to the best of my knowledge. I understand that any misleading statements whether deliberate or accidental could make the application invalid.

I confirm that my supervisor has read and approved my application.

I confirm that I have read, understood and agree to the OSF Application Terms and Conditions (outlined at the end of this Application Form).

**Dissemination of personal data**

Your application will be stored on MSC’s secure servers and internally reviewed to help us make a decision. If your application is successful, details concerning the grant, including your name, may be made publicly available on the MSC’s website and other media outlets, e.g. annual report, a press release. You have the right to obtain from us a copy of the personal data that we hold for you, and to require us to correct errors in the personal data if it is inaccurate or incomplete. You also have the right at any time to require that we delete your personal data. To exercise these rights, or any other rights you may have under applicable laws, please contact us at [OSF@msc.org](mailto:OSF@msc.org).

Your data will be processed in accordance with the OSF Privacy Policy on the [SRG web page](https://www.msc.org/what-we-are-doing/science-and-research/student-research-grant).

I agree to the use of my data as described in the OSF Privacy Policy

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| **Signature** |  |
| **Name printed in block capitals** | TRI ERNAWATI |
| **Date** |  |

**How did you hear about the Student Research Grants?**

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| **MSC website** | From MSC website |
| **MSC newsletter** |  |
| **MSC social media** |  |
| **Internet search engine** |  |
| **From a friend/colleague/word of mouth** | From my supervisor |
| **Other website (please specify)** |  |
| **Other (please specify)** |  |

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*Applicants are advised to read the Application Guidance before starting their application.*

# Section B: Project Details

**The fishery**

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| **Reference number (MSC use only)** |  |
| **Fishery name** | Artisanal fisheries of snappers  (Indonesia snapper and grouper bottom longline, longline, trap, and gillnet (ADI)) |
| **Species, gear, annual catch volume** | Species:  *Lutjanus malabaricus* & *Pristipomoides multidens*  Gear:  Bottom long line, Hand Line  Annual catch volume: 433,133 tons |
| **Geographical region** | Makassar Strait  (Fisheries Management Area No. 713) |
| **MSC status** | MSC certified  ITM  Stage 4 Pathway Project  Comprehensive FIP |

**Your project**

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| **Please select which subject area your project relates to:** | Target stock  Ecosystem impact  Management system |
| **Research project title** | Stock Identification of Snapper in The Makassar Strait |
| **Aim of your research project (*maximum 25 words*)** | To determine the stock unit of snapper in Makassar Strait by population structure identified and stock delineation |
| **When will your research project start?** | September 2021 |
| **When will your research project finish?** | April 2022 |

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| **Student’s research proposal** **(*maximum 800 words*)** |
| **Project title**:  Stock Identification of Snapper in The Makassar Strait  **Project summary**:  The snapper resource in the Makassar Strait is thought to have a different population structure between the resources in the western areas (Eastern of Kalimantan) and the eastern areas (Western of Sulawesi), so it is predicted that there are several different snapper stock units in the Makassar Strait. This condition is due to the fact of bathymetry, the difference in depth (between western and eastern areas) and the influence of the Indonesian currents-flow (*Arlindo*) from the Pacific Ocean to Hindia Oceans, more than 80% through the Makassar Strait. Therefore, stock identification of snapper is necessary to determine, where it is an important part of conducting fish stock assessment. Stock identification will be carried out for two economical fish species from the snapper group (*Lutjanus malabaricus* & *Pristipomoides multidens*) that are as a main target in the snapper fishery. Stock identification and delineation can be done using several approaches, including genetic techniques and morphometric variations.  **Introduction**:  The Makassar Strait is part of the Fisheries Management Area of ​​the Republic of Indonesia (WPP NRI) 713 and includes the Bali Sea, Bone Bay and Flores Sea. The characteristic of the Makassar Strait is that there are two basins or deep basins, namely, the North Makassar basin is bounded to the south by the edge of the Paternoster platform with a deep narrow channel that connects the South Makassar basin. The structure of the waters around the Kalimantan plate is shallow due to the influence of sedimentation from the stable mud and sandy mud from the Sunda shelf (Riadi et al., 2014). In addition to its bathymetric characteristics, these waters are the main waters area through which the Indonesian Through Flow (Arlindo) passes which carry water masses from the Pacific Ocean to the Indian Ocean, with an estimated water mass of more than 80% (Gordon et al., 2008). The movement of incoming currents in the Makassar Strait shows that the strong currents tend to the south and southwest at the northern entrance of the Makassar Strait, so that it is as a western boundary, because it is attached to the edge of the Sunda shelf along the route from the Sulawesi Sea through the Makassar Strait to the exit of the Lombok Strait (Mayer & Damm, 2012).  Based on the bathymetry characteristics and influence of *Arlindo* Makassar, it is possible that snapper resources in the western waters part of the Makassar Strait or eastern Kalimantan waters (shallow waters) have a different population structure from the eastern waters part of the Makassar Strait or the western waters of Sulawesi (deep waters). This is possible considering the existence of boundaries, the affected of bathymetry that limits the movement of snapper and meeting or mixing of larvae from snapper populations in each area is difficult due to the influence of Arlindo. Based on these conditions, it is predicted that there are more than one different snapper stock unit. Therefore, it is necessary to identify snapper fish stock in this area.  Stock identification has an important role as a prerequisite for conducting stock and population dynamics assessments. It is because most of population models assume that groups of individuals have uniform growth, maturity and mortality rates as well as a closed life cycle in which young fish are produced from previous generations in the same group. Stock identification also involves delineation of population structure in fishery resources. Stock identification and delineation can be defined using several approaches, including genetic techniques and morphometric variations.  **Aims and objectives**:  To determine the stock unit of snapper in Makassar Strait by population structure identified and stock delineation  **Method**:  The methods to be used are the morphometric variation and population genetics approach. Data collection was carried out in 5 locations, of which 4 locations represented the Western and Eastern Makassar Strait areas and 1 location was carried out outside the Makassar Strait area (as a comparison location). The data to be collected are fish tissue samples for population genetics and morphometric character measurements of snapper species (*Lutjanus malabaricus* and *Pristipomoides multidens*). The number of samples for each method is 35 samples. Variations in morphometric characters will be analyzed using several statistical methods, while molecular markers for the identification of population structures would be carried out using a microsatellite approach.  **Expected results/outcomes**:  The determination snapper stock unit in the Makassar Strait will be able to support a more reliable and optimal for conducting fish stock assessment. In the end, it can be used as input in developing the concept of fisheries management based on stock units in Indonesia.  **Timeline**:  1. September 2021 : Preparation (procedures, tools and materials)  2. October – December 2021 : Data collection for genetic samples and morphometric measurement for species Lutjanus malabaricus and Pristipomoides multidens in seven locations (Balikpapan, Bontang, Donggala, Barru/Takalar and Lamongan)  3. January 2022 : Morphometric analyzed  4. January – March 2022 : Genetics analyzed  5. April 2022 : Reporting  **Details of any other fisheries that might benefit from the project**:  The results of this project will give the benefit for grouper fisheries. Snappers and groupers have similar habitat characteristics proven by the catches of bottom long line and hand line that beside snappers, groupers are caught also.  In term of snapper and grouper fisheries of FMA 713 the catch and supply chain are administered largely by companies which are organized as Indonesian Demersal Association (*Asosiasi Demersal Indonesia - ADI*), therefore project results might be collaborated with association for sites selection and importantly the results of the project from which stock unit of these two species will be determined and managed. |
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| **Summary of any larger project(s) linked to the student’s project (if applicable) (*maximum 100 words*)** |
| This project is a part of larger project with title **“Identification and Stock Assessment of Snapper and Improvement Fisheries Management in Makassar Strait”**. Indonesia is divided to 11 Fisheries Management Areas (FMA), one of them is FMA 713 which consist of Makassar Strait, Bali Sea, Bone Bay and Flores Sea. During this time, Indonesia develops fisheries management based on area only, therefore this project will result the fisheries management based on stock with the limited fisheries data. Finally, this research is able to give contribution for government to improve the snapper fisheries management. |
| **How will your research benefit the fishery or fisheries associated with this project? (*maximum 200 words*)**  *Applicants are advised to speak to their supervisor and/or the fishery/FIP implementor/project manager to confirm how their project will improve the fishery’s progress against the MSC Fisheries Standard. They must be able to link their project to specific Performance Indicators in the Standard and outline how the project might contribute to the fishery’s improvements against these e.g. through providing more data to the fishery, supporting progress documentation for MSC etc. More detailed examples are outlined in the Application Guidance, under “What kind of projects will the SRG fund?”* |
| The results of this research can contribute to supporting fisheries management through the development of snapper fishery Harvest Strategy in the Makassar Strait which is an area of FMA 713. It is known that fisheries management in Indonesia generally has not been carried out specifically based stock unit management. Therefore, the findings in this study will give inputs in determining a more rational Harvest Control Rules. Therefore, the Harvest Strategy of snapper fishery at FMA 713 can be implemented optimally. |
| **Why are you applying for a Student Research Grant? (*maximum 100 words*)** |
| This funding will help me to conduct my PhD dissertation project with leading research laboratories, as well as publish it in international journals. |

# Section C: Dissemination plan

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| **Please outline your plan for disseminating your research findings.**  *SRG Awardees are expected to submit an interim progress report to MSC midway through their project as well as a final project report at the end. They are also expected to share their research findings with a wider audience and keep MSC informed of their plans. Please outline details of your dissemination plan below and read our guidance on the* [*SRG web page*](https://www.msc.org/what-we-are-doing/science-and-research/student-research-grant) *to help you develop this.* |
| International conference?  Indexed-Scopus publication?  National Extension? |

# Section D: Funding

**Breakdown of costs (please outline your expenditure in GBP):**

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| **Travel** | ***£900*** |
| **Equipment (*max £250 permitted for any essential fixed assets e.g. computer, software*)** | Sampling equipments: ***£150*** |
| **Accommodation** | ***£900*** |
| **Other, please specify (*e.g. translation services, production of final report, office supplies, etc. Please be as specific as possible.*)** | - laboratory assistant fee: ***£200***  ***-*** 350 samples analysis cost: ***£2400***  - Publication cost: ***£450*** |
| **Total amount requested:**  **£ (*to be completed by applicant*)**  **over \_\_\_ months (*to be completed by applicant*)** | ***£5000***  8 months |
| **Have you applied for funding elsewhere for this project? Please provide details (*e.g. is this additional or matched funding contingent on the MSC SRG, when will you find out the outcome of your other application(s)*)?** | I have never applied a proposal for the budgeting of this project anywhere else yet. |

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| **Please present assurance that sufficient other funding is available for you to complete your studies.** |
| This dissertation project is part of my PhD program. I received a scholarship from my workplace which covers tuition and accommodation. I have personal funds to make sure the project goes according to plan. Given that this project is one of the mandatory components of my Doctorate, I am fully committed to completing it. |

**When completed, please send this form and supporting documentation to** [**OSF@msc.org**](mailto:OSF@msc.org).

**Supporting documentation checklist**:

Letter of support from the supervisor (ini bisa dibuatkan konsepnya untuk di ttd Prof Menno)

Letter of support from the fishery, FIP implementer or project manager linked to the project (ini bisa dibuatkan konsepnya, kemudian dapat saya ttd/saya mintakan kepada ketua ADI)

# OSF Application Terms and Conditions

1. The MSC will not be responsible for late, lost, incomplete, misdirected or for unauthorised human interventions, theft or destruction or unauthorised access to, or alteration of, applications. The MSC is not responsible for any incorrect or inaccurate information, whether caused by any technical or human error, which may occur in the processing of applications, including but not limited to any misprints or typographical errors.
2. Applications must be the applicant’s original work and must have been solely created by the applicant or the applicant’s team. Applicants may withdraw their application by sending written notice to [OSF@msc.org](mailto:OSF@msc.org) before the application deadline.
3. MSC will not retain any intellectual property rights in the information contained in the application. However, applicants grant to the MSC the unrestricted right to use all materials provided or statements made in connection with the OSF, or choose not to do so, at its sole discretion.
4. Decisions of the OSF Governing Committee, the MSC’s Executive Committee, are discretionary and are final.
5. As a condition of making an application, applicants agree that any and all disputes which cannot be resolved between and among the parties, and causes of action arising out of or connected with the MSC shall be resolved individually, without resort to any form of class action, exclusively before a court of England and Wales. In any such dispute, under no circumstances shall any applicant be entitled to claim punitive, incidental or consequential damages, or any other damages, including legal fees, and all such parties hereby waive all rights to have damages multiplied or increased.
6. By making an application, applicants agree to release, discharge and hold harmless MSC and the OSF program and their respective partners, affiliates, subsidiaries agents, and their employees, officers, trustees, and representatives from any claims, losses and damages arising out of their application or any activities related to their application, and the acceptance and use, misuse, or possession of any grant awarded hereunder.
7. The MSC reserves the right to review and amend the operation of the OSF at any time. Any amendments to the operation of the fund will be approved by the Board of Trustees.