

CCAMLR

Commission for the Conservation of Antarctic Marine Living Resources  
Commission pour la conservation de la faune et la flore marines de l'Antarctique  
Комиссия по сохранению морских живых ресурсов Антарктики  
Comisión para la Conservación de los Recursos Vivos Marinos Antárticos

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## **Deed of Funding General Capacity Building Fund**



**Deed of Funding**

(Approved travel will be documented using CCAMLR's standard travel permission document)

**CCAMLR General Capacity Building Fund (hereafter called 'the Fund')**

**Researcher/organisation name:**

FUNDACIBA, a foundation instituted by UdelaR, providing administrative support to research and teaching projects, throughout the whole project cycle.

**Primary point of contact:**

CICU Chair

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Financial administration:

Ivana Faccini

Manager

FUNDACIBA

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**Grant purpose:**

The expected outcomes of this proposal are:

1. To establish a Science Advisory Committee aimed at strengthening Uruguay's scientific capacities to contribute to the work of CCAMLR. More specifically, to foster Uruguay's contribution to the work of the WG-EMM and the CEMP and marine debris programs, and to the management and monitoring of MPAs.
2. To incorporate Ardley Island (in King George Island) as a CEMP site, and initiate a long-term monitoring scheme of the site.
3. To initiate a long-term monitoring scheme of a) marine debris in King George Island, and b) plastics in sea waters in the Western Antarctic Peninsula and South Scotia Arc region (MPAs Domain 1)
4. To implement a research plan on penguins and cetaceans' foraging behavior and spatial ecology, in the Western Antarctic Peninsula and South Scotia Arc region (MPAs Domain 1).
5. To train young and early-career scientists in research and knowledge brokering on issues of relevance for the CCAMLR.

**Grant amount:** A\$150 000

**Grant timeline:** April 2021 to November 2023

The above project was approved by the General Capacity Building Fund Panel and was endorsed by the subsequent meeting of the Commission (CCAMLR-39, paragraphs 4.7 to 4.8).

The conditions of this agreement are set forth below:

1. The purpose of the project
  - 1.1 The objectives and purpose of the project are detailed in the attached grant application (Attachment A).
2. Funding and grant duration
  - 2.1 CCAMLR will provide A\$150 000 to FUNDACIBA to carry out the activities as described in the approved Project Proposal (Attachment A). Funds granted are to be expended as shown in the project budget (contained within Attachment A).
  - 2.2 The project's timeline is April 2021 to November 2023 (see Attachment B for detailed timeline).
3. Payment of Funds
  - 3.1 Funds will be paid in the following manner: 50% at the commencement of the Project and after the signing of this agreement; a subsequent payment of 30% at the successful completion of the first year of the project, and the last payment after the final report has been submitted and accepted by the Commission. Such acceptance shall not be unreasonably withheld.
  - 3.2 The financial and reporting requirements for the project are outlined in paragraphs 5, 6 and 7.
4. Use of Funds
  - 4.1 The funds provided for this project must be used only for the purpose agreed in the project proposal and budget.
5. Financial record keeping
  - 5.1 All financial reports and statements are to be prepared in accordance with generally accepted accounting principles.
  - 5.2 A copy of all receipts, invoices and financial records substantiating grant expenditures must be submitted with the financial report.
  - 5.3 All expenditure statements must be verified by relevant invoices and signed by appropriately senior officials within the funded organisation.
6. Financial reporting requirements






- 6.1 The financial report will include project budget line items and reporting of expenditures against budget items. The financial report is to be certified as true and correct by the Head of Finance (or similar) for FUNDACIBA.
  - 6.2 The financial report will be submitted within 60 days of the submission of the final report at the completion of the project.
  - 6.3 It is a requirement of funding that the project's financial reports are externally audited by duly qualified auditors. The cost of this audit is to be borne by the grantees.
7. Project reporting requirements
- 7.1 Annual progressive implementation reports, and a final report, will be submitted to the Commission. These will be submitted to the Secretariat in time for a summary report to be distributed as a working paper.
  - 7.2 The final 20% of the project funds will not be released until the Commission has been informed of project outcomes and the financial report has been submitted and accepted by CCAMLR. Such acceptance shall not be unreasonably withheld.
8. Requirements and variations
- 8.1 FUNDACIBA agrees to expend the funds in accordance with the approved budget and project proposal. Any modifications to the agreed budget or to the agreed project proposal must have written authorisation from the Panel. In some circumstances such changes may need to be referred to the Commission.
  - 8.2 Any funds disbursed but not expended will be returned to CCAMLR at the time the financial report is submitted to CCAMLR.
9. Termination
- 9.1 CCAMLR may terminate this Agreement by giving FUNDACIBA 10 days' notice in writing if it is determined that the Terms and Conditions of this agreement are not being followed. FUNDACIBA may terminate this agreement by giving CCAMLR 10 days' notice in writing.
  - 9.2 In the event of such termination, FUNDACIBA shall be entitled to funding for the part of the work performed in accordance with this agreement up to the date of termination.
  - 9.3 In the event of termination, CCAMLR reserves the right to take such action as may be necessary to recover any unauthorised expenditures. Such recovery shall only take place under this agreement and not extend to recovery from any other agreement in place between CCAMLR and FUNDACIBA. Funds recovered shall in no event exceed the funding actually granted to FUNDACIBA under this agreement.
10. Intellectual property

- 10.1 Any arising intellectual property rights shall reside with the collaborator generating the same. Each collaborator shall grant to the other collaborators and to CCAMLR an irrevocable, royalty-free right to use its arising intellectual property for academic research purposes, including in research projects that are sponsored by third parties provided that the use of the intellectual property in those projects does not involve the disclosure of any confidential information to the third Parties. For the avoidance of doubt, background intellectual property shall continue to be owned by the party introducing the same.
- 10.2 FUNDACIBA and the other collaborators reserve the right to publish results in accordance with normal practice. Publication shall only include CCAMLR data with the prior agreement of CCAMLR under the Rules for Access and Use of CCAMLR Data.

## 11. Confidentiality

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- 11.1 The confidentiality arrangements detailed in this section 11 shall apply and shall also be adhered to in respect of the Rules for Access and Use of CCAMLR Data. For the purpose of section 11, 'Confidential information' shall mean any information that is by its nature confidential and a party knows or ought to know is confidential or is agreed between the Parties as constituting confidential information for the purposes of this Agreement.
- 11.2 Both Parties will use all reasonable endeavours not to disclose to any third Party any confidential information nor use for any purpose except as expressly permitted by this agreement, any of the other Party's confidential information.
- 11.3 The provisions of clause 11.2 shall not apply for disclosure or use of confidential information, if and in so far as:
- 11.3.1 the confidential information became publicly available by means other than a breach of the recipient's confidentiality obligations
  - 11.3.2 the disclosing Party has informed the recipient that the confidential information is no longer confidential
  - 11.3.3 the confidential information is communicated to the recipient without any obligation of confidence by a third Party who is in lawful possession thereof and under no obligation of confidence to the disclosing party
  - 11.3.4 the confidential information, at any time, was developed by the recipient completely independently of any such disclosure by the disclosing party
  - 11.3.5 the confidential information was already known to the recipient prior to disclosure as proven by the recipient's pre-existing documentation.

## 12. Liability

12.1 The liability of FUNDACIBA howsoever arising in respect of, or attributable to, any breach, non-observance or non-performance of the agreement or any error or omission shall be limited to the funding granted to FUNDACIBA under this agreement, except in the case of death or personal injury, attributable to the negligence of FUNDACIBA or its employees.

13. Attachments

13.1 All attachments to the grant agreement are incorporated into the agreement.

- Attachment A – Project Proposal including Project Budget
- Attachment B – Project Timeline.

Signed this \_\_\_\_\_ day of \_\_\_\_\_

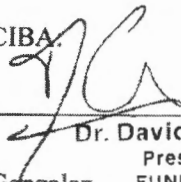
Signed for CCAMLR: \_\_\_\_\_

Name: \_\_\_\_\_

Position: \_\_\_\_\_

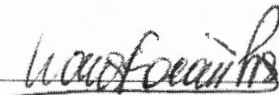
Signature of Witness: \_\_\_\_\_ Name: \_\_\_\_\_

Signed for the FUNDACIBA



Name: Dr. David Gonzalez **Dr. David González**  
**Presidente**  
**FUNDACIBA**

Position: President - Administrative Council - FUNDACIBA


Witness:  Name: Ivana Faccini

## Attachment A

### Uruguay's updated application to the GCBF for funding for specific projects or activities – February 2021

#### Project title: A science-policy interface to support the work of Uruguay's CCAMLR National Committee (CICU)

##### 1. Project Summary (250 words maximum)

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- (i) CCAMLR Member: Uruguay
  - (ii) Activities proposed include 1) implementing a research plan to support the work of the Convention; 2) expanding Uruguay's participation in CCAMLR meetings, 3) promoting involvement of early career researchers and gender diversity in national CCAMLR activities, 4) promoting the conformation of a Science Advisory Committee (SAC) to support the work of CCAMLR's National Committee. These activities fall within those described as (c) the development of organisational capacity and (d) projects, activities and meeting support, in the GCBF Guidelines.
  - (iii) Needs addressed fall within the Focus Areas 1) Research and Science and 2) Cooperation, Engagement and Administration
  - (iv) **Budget requested: A\$ 150.000**
  - (v) Project start date: April 1<sup>st</sup>, 2021.
  - (vi) The expected outcomes of this proposal are: 1) To establish a Science Advisory Committee aimed at strengthening Uruguay's scientific capacities to contribute to the work of CCAMLR. More specifically, to foster Uruguay's contribution to the work of the WG-EMM and the CEMP and marine debris programs, and to the management and monitoring of MPAs; 2) To incorporate Ardley Island (in King George Island) as a CEMP site, and initiate a long-term monitoring scheme of the site; 3) To initiate a long-term monitoring scheme of a) marine debris in King George Island, and b) plastics in sea waters in the Western Antarctic Peninsula and South Scotia Arc region (MPAs Domain 1); 4) To implement a research plan on penguins and cetaceans' foraging behavior and spatial ecology, in the Western Antarctic Peninsula and South Scotia Arc region (MPAs Domain 1); 5) To train young and early-career scientists in research and knowledge brokering on issues of relevance for the CCAMLR.

##### 2. Proposal narrative (six pages maximum)

###### (i) Introduction

###### (a) *situation, need and previous efforts*

Uruguay became a member of CCAMLR in 1985. Since then, it has been an active participant in the Conventions' annual meeting, participating in the Standing Committee on Administration and Finance (SCAF) for several years. Yet, its involvement in activities promoted by the Scientific Committee (SC) subsidiary bodies has been mostly limited to those of the WG-FSA, with a very limited participation in workshops and meetings of the other WGs, as evidenced by the very limited number of papers contributed to these WGs. This, in turn, probably reflects the lack of Uruguayan research platforms operating in the Southern Ocean.

The aim of this proposal is to strengthen Uruguay's involvement in the activities of the Convention's SC and its subsidiary bodies, providing good-quality data and analytical

capabilities to support decision making, in order to improve Uruguay's contribution to the work of CCAMLR. Specifically, the proposal aims to fulfill Uruguay's needs in terms of: 1) implementing a research plan to support the work of the Convention and enhance national capabilities to contribute data to the Convention's research programs; 2) improving the countries' scientific skills in areas that are relevant for the convention, specifically with regards to ecosystem management and monitoring, and assessing the effectiveness of MPAs and other conservation measures in the areas where Uruguay's regularly operates (MPAs Domain 1); 3) enabling Uruguay's participation in WG meetings, and expanding the delegation size in the annual meetings; and 4) promoting involvement of early career researchers and gender diversity in national CCAMLR activities, by supporting the conformation of a Science Advisory Committee (SAC) to support the work of CCAMLR's National Committee (CNC), that is balanced in terms of gender, and composed by at least one young-researcher that will be pursuing her PhD within the framework of this proposal.

To fulfill those needs, the proposal pursues two main goals: 1) to set a research plan to generate, within the next 3 years, scientific data and information that is valuable for the Convention's work; 2) to set the basis for a science-policy interface to enable Uruguay to support its positions within the Convention, on timely scientific information. Science-policy interfaces are social processes which encompass relations between scientists and other stakeholders in the policy process, with the aim of enriching decision-making (van den Hove, 2007).

The project team will be integrated by 1) a project manager and two research assistants, that will act as information brokers (Holgate, 2012; Cvitanovic et al., 2015) between the researchers and CCAMLR's National Committee (the science-policy support team), compiling and synthesizing information, facilitating coordination with national scientists and those from other CCAMLR Members, participating and preparing papers for the WG meetings and workshops, submitting data to the CCAMLR SC subsidiary bodies, and in general providing scientific advice to CNC; and 2) four principal investigators (PI) that will coordinate and conduct the research work.

This initiative builds on ongoing research projects led by or involving this project's team members, with support of UdelaR and other national and foreign institutions. To fulfill its objectives, the proposal seizes previous experience of the project team in the areas of research, as well as planned activities, human resources, partnerships, and logistic support from ongoing projects. Thus, it channels already extant capacities and resources from research institutions, to build a science-policy interface to support Uruguay's participation in the Convention's work. At the same time the project provides the opportunity for training young-scientists in relevant areas of research and knowledge brokering, as well as it builds conditions to foster Uruguayan scientists' links with scientists and institutions from other Members of CCAMLR. Hence, enabling an active involvement in the Working Groups and programs of the Convention's Scientific Committee. Some initial steps have been already undertaken. In 2019, Lic. Machado was granted a CCAMLR Scientific Scholarship to set the basis for a systematic monitoring scheme for penguins on Ardley Island (in King George Island - KGI), and foster the engagement of Uruguay in the work of the CCAMLR Ecosystem Monitoring Program (CEMP)




and Working Group on Ecosystem Monitoring and Management (WG-EMM). This year Dr. Lozoya was invited to join CCAMLR's Intersessional Correspondence Group on Marine Debris (ICG-MD), and collaborate with the CCAMLR Marine Debris program with data from his project, collected in KGI since 2016.

GCBF funding will be used to allow: 1) scientists to travel to the Convention Area to conduct research; 2) the science-policy support team to attend CCAMLR meetings and workshops; and 3) to cover part-time salaries for the two research assistants. All other investments required to fulfill the proposal's objectives will be covered by UdelaR and partners. Work in the Convention Area will make use of Uruguay's infrastructures in Antarctica and, whenever possible, platforms of countries with whom Uruguay regularly collaborates in the area: Spain, Peru, UK and Argentina, as planned in the research projects already mentioned.

*(b) objective(s)*

The expected outcomes of this proposal are:

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1. To establish a Science Advisory Committee aimed at strengthening Uruguay's scientific capacities to contribute to the work of CCAMLR. More specifically, to foster Uruguay's contribution to the work of the WG-EMM and the CEMP and marine debris programs, and to the management and monitoring of MPAs.
  2. To incorporate Ardley Island (in King George Island) as a CEMP site, and initiate a long-term monitoring scheme of the site.
  3. To initiate a long-term monitoring scheme of a) marine debris in King George Island, and b) plastics in sea waters in the Western Antarctic Peninsula and South Scotia Arc region (MPAs Domain 1)
  4. To implement a research plan on penguins and cetaceans' foraging behavior and spatial ecology, in the Western Antarctic Peninsula and South Scotia Arc region (MPAs Domain 1).
  5. To train young and early-career scientists in research and knowledge brokering on issues of relevance for the CCAMLR

*(c) applications, benefits, and importance*

1. Setting up a Science Advisory Committee will increase Uruguay's scientific contribution to CCAMLR's SC, and support Uruguay's positions on better scientific evidence. It will enable preparing working papers for the WG-EMM and SC annual meetings, participation of at least 2 team members in the WG-EMM annual meetings, and increasing the size of Uruguay's delegation in the Scientific Committee annual meetings.
2. Implementing this proposal will enable establishing a new CEMP site in Ardley Island, and setting up a long-term monitoring scheme to provide annual data on population parameters of three indicator-species.
3. Implementing this proposal will enable establishing a long-term monitoring scheme on plastic debris in the Western Antarctic Peninsula and South Scotia Arc region. Thus, providing annual data for the CCAMLR Marine debris program on 1) macroplastics in King George Island, and 2) microplastics in seawaters in the Western Antarctic Peninsula and South Scotia Arc region.

4. The research on penguins and cetaceans' foraging behaviour and spatial ecology, and on the presence and distribution of plastics on shore and in seawater, will produce data and research papers that will constitute the basis for the contribution of Uruguay to the SC discussions on ecosystems and MPAs management and monitoring.

5. Finally, the involvement of students and early-career scientists in the activities described before, will contribute to the education and training of a new cohort of Uruguayan scientists and knowledge brokers, in areas of relevance for the CCAMLR.

Annual reports of the activities and advances of the project will be presented every year before July 1st. Working papers for SC, WG-EMM, CEMP and Marine Debris program meetings and workshops will be prepared and submitted according to submission dates established for each activity.

**(ii) Method and approach**

**(a) description of major activities and tasks**

The main activities of this proposal involve: 1) setting up a Science Advisory Committee to facilitate a policy-science interface between scientists and CCAMLR's National Committee, and operate as a link with CCAMLR's SC, preparing working papers, providing data for ecosystem and MPAs managing and monitoring, and participating of meetings; 2) initiating long-term monitoring schemes for CEMP and marine debris program; 3) implementing a research plan to support the work of the Convention and foster cooperation between Uruguayan scientists and those from other CCAMLR Members; 4) training early-career scientists in research and information brokering, in areas that are relevant for the Convention.

1. **To establish a Science Advisory Committee.** A science-policy support team will be assembled, integrated by the Project manager and two part-time officers. This team will act as information brokers between scientists and CCAMLR's National Committee, compile and synthesize information, prepare papers for the WG meetings and workshops, submit data to the CCAMLR SC subsidiary bodies, and participate in the WG-EMM and Scientific Committee annual meetings and intersessional work. The SAC will have regular meetings with CNC to identify research needs and implications of findings, provide advice on national positions regarding issues being debated at the Convention, and will seek to establish working links with scientists and research institutions from other CCAMLR members.

2. **To establish a new CEMP site and monitoring scheme in Ardley Island.** There are currently a total of 20 CEMP sites across Antarctica, nine of them in the Antarctic Peninsula region (including the South Shetlands). On King George Island there are four CEMP sites. Ardley Island, located southeast of the Fildes Peninsula (southwest of KGI), is a Specially Protected Antarctic Area (ASPA No. 150) and one of the few areas in Antarctica where all three species of *Pygoscelis* penguins reproduce sympatrically. Furthermore, it is classified as "Important Bird Area" (IBA No. 48) because more than 1% of the world population of Gentoo penguins breeds there (BirdLife International 2015). It is also included within the MPA of Domain 1, proposed by Argentina and Chile to CCAMLR in 2018. According to Braun et al. (2018), the numbers of breeding pairs of Chinstrap penguins have decreased by more than 90% since counts began in the 80s and more than 30% for Adélie penguins. In contrast, Gentoo

penguins increased over the same period by more than 80%. Incorporating Ardley Island as a new CEMP site and monitoring the colonies of the three species will allow a more integrated understanding of the dynamics and trends of the penguin colonies that inhabit King George Island. Fieldwork will be carried out annually in coordination with a research group from the University of Jena (Germany). Monitoring data will be reported together to CCAMLR' WG-EMM and CEMP. Specifically, during the next three years, between November and February we will record the following parameters: size of the breeding population of the three species, using CCAMLR Standard Method A3A; breeding success using CCAMLR Standard Method A6 Procedure A, and chick weight at fledging using CCAMLR Standard Method A7, of *P. adeliae* and *P. papua* (CCAMLR, 2014).

3. **To establish a long-term monitoring scheme on plastic debris.** Plastic pollution in marine and coastal areas is currently one of the main global environmental problems (e.g. Rochman et al., 2013; Bergmann et al. 2015; Schneider et al. 2018). However, while there has been a great deal of research in the world's most populous regions, very little is known about the distribution and sources of these residues in the polar regions, including Antarctica (Ivar do Sul et al., 2011; Cincinelli et al., 2017; Isobe et al. 2017; Waller et al., 2017; Lacerda et al., 2019; Suaria et al., 2020; Waluda et al., 2020). CCAMLR has recently recognized contamination by plastics as one of the main concerns in Antarctica and the Southern Ocean, and is currently promoting research and monitoring on this problem (Waller & Hughes, 2018; CCAMLR, 2015). Information on macroplastics and other marine debris of anthropogenic origin exists within CCAMLR, but only on a few sites in the Southern Ocean and intermittently since 1989 (CCAMLR, 2015, Waluda et al. 2020).

#### *Macroplastics*

This proposal aims to evaluate the occurrence, abundance and distribution of macroplastic debris (> 5 mm) in coastal areas of the Fildes Peninsula, King George Island, analyzing the variations (inter-annual, between and within different areas) of the different types, sizes and weights of this waste. The aim is to evaluate and understand possible distribution patterns in relation to different gradients of use (density and proximity to scientific stations, touristic activity, specially protected areas) or different geographical orientations of the coasts. These data are expected to be a significant input for current and future monitoring and management of plastic wastes in King George Island, and a valuable contribution to the database of the CCAMLR Marine Debris Program. During the next three years, a number of selected transects following the coastline will be monitored between January and February. Transects cover beaches and rocky shores, and were prioritized based on the results obtained in previous campaigns (2017-2020). The identification of a plastic waste will generate a sampling site that will be geo-referenced (GPS), and all wastes within a radius of 5 m will be collected and labeled. Plastics from these samples will be categorized, measured and weighed following the categories and criteria established in the CCAMLR-Marine Debris Guide for beach evaluations. CCAMLR ICG-Marine Debris is developing new protocols that will probably be ready for evaluation in the next summer season. Therefore, it is likely that the methodology will be adapted to these new international protocols.

#### *Microplastics*

The project aims to evaluate the occurrence, abundance and distribution of microplastics (<5mm) in coastal surface seawaters, analyzing types, colors, sizes and density of floating microplastics. In addition to the sampling stations in Maxwell Bay in front of Uruguay's Antarctic Station (monitored since 2017), new sampling sites will be defined around Ardley Island (ASPA No. 150). The possibility of accessing other areas of the Fildes Peninsula and King George Island will be analyzed in the field. In addition, an opportunistic monitoring of microplastics in seawater surface will be sought in collaboration with other Antarctic Programs, continuing previous collaborations, including sampling conducted at the BIO Hespérides during the 2019-20 season, and the HMS Protector in the 2016-17 season. The results are expected to contribute both to dimensioning microplastic contamination, and to understanding the role of the Antarctic Circumpolar Current as a barrier to the spread of organisms and residues. During the next three years, at least one month between January and February, microplastic samples will be collected in surface seawater by trawls of about 15 minute using a Manta trawl (250 µm mesh). Samples will then be counted (items/m<sup>3</sup>), classified (e.g. fibers, fragments) and measured in the laboratory. All the information generated about macro and microplastics will be reported to CCAMLR's ICG-MD and Marine Debris program.

4. **To implement a research plan on penguins and cetaceans' foraging behaviour and spatial ecology.** Article II of the CCAMLR highlights the need to monitor the effect of commercial species capture (mainly krill and fish) on the predators of these resources. In addition to detecting and recording significant changes in the critical components of the marine ecosystem within the Convention Area, the CEMP seeks to distinguish between changes caused by commercial collection of species, and changes caused by environmental variability, both physical and biological. The Antarctic Peninsula is one of the fastest heating places on Earth and one of the main krill spawning areas (Perry et al., 2019). The combined effect of fishing activity, temperature rise and acidification of marine waters constitutes a high risk for the functioning of the Antarctic marine ecosystem. In 2018, Argentina and Chile submitted a proposal to CCAMLR to protect many of the critical areas of the Western Antarctic Peninsula and South Scotia Arc region (Domain 1 MPA), in order to reduce some of the pressures on marine life posed by changing climate and fisheries. To contribute to understanding the differential effect of human activity and other environmental changes, this project proposes a research plan focused in studying the foraging behavior and spatial ecology of penguins and cetaceans in this region.

#### *Penguins*

Penguins are considered sentinels of the marine environment. Being top predators, they are able to integrate the changes that occur at the lowest levels of the trophic network, quickly reflecting environmental changes in the marine environment (Le Bohec et al., 2013; Ropert-Coudert et al., 2019). In particular, changes in their distribution and abundance, reproductive success, growth rates, survival, and diet composition are closely related to the general conditions of the marine ecosystem (Le Bohec et al., 2013; Hinke et al., 2017). In the Antarctic Peninsula region, penguins of the *Pygoscelis* genus have shown significant changes in their population trends as a consequence of the rapid global warming observed in this region, the greater interannual variability in the concentration and extent of sea ice, and the reduction in

abundance Antarctic krill (*Euphausia superba*) (Atkinson et al., 2004; Lynch et al., 2010; Gutt et al., 2015; Black., 2016). For the next three year spatial ecology and foraging behaviour of penguins from Ardley Island colonies will be studied between November and February, simultaneously with the monitoring scheme already described. To do that, penguins will be instrumented with Axytrek devices (Technosmart, Italy) during the breeding season and with GLS devices (Lotek, UK) during the non-breeding season. Axytrek devices will be deployed to at least 40 individuals over five-six days. These devices combine a fast-locating GPS, a 3-axis accelerometer, and a temperature / depth logger that enables a large-scale reconstruction of offshore activities from the birds. Also, a blood sample (1-2 mL) will be collected for stable isotopes measurements (identification of the trophic level at which the birds are feeding). Before the start of the Southern winter, i.e. just before birds leave the colony for several months, at least 20 individuals will be captured and tagged with a GLS device. After a winter at sea, birds returning to the colony at the onset of breeding will be checked for devices and when found these will be removed. These devices record the light levels from which the times of sunrise and sunset can be extracted. From these and the measurement of water temperature, latitudes and longitudes can be estimated allowing periodic estimate of locations ( $\pm 150$  km).


#### *Cetaceans*

Like other top predators, cetaceans play a key role in Antarctic ecosystems by acting as community builders (Ainley et al., 2010). The distribution of cetacean species and their use of Antarctic waters is determined by a combination of evolutionary history, resource requirements, intraspecific and interspecific interactions, and environmental conditions (Begon et al., 2006; Riekkola et al., 2019). There are currently several studies that relate cetacean occurrence and distribution, to ocean productivity (Hooker et al., 2002; Hastie et al., 2004; Littaye et al., 2004; Tynan et al., 2005; Riekkola et al., 2019). Research is now aimed at expanding knowledge about the responses of top predators to climate variability, particularly in a highly productive system such as Antarctica, since climate changes would have a significant effect on productivity and thus, on the structure of communities belonging to low, medium and high trophic levels (Simmonds & Isaac 2007, Schoefield et al. 2017). Different areas of Antarctica have differed in their environmental conditions due to the effects of climate change (Meredith & King, 2005, Bromwich et al. 2013, Turner et al., 2006, 2013, Schofield et al. 2010, 2017). These variations could result in different effects on the communities there. Therefore, understanding species distribution patterns, density and abundance patterns, and how they vary over different time scales, is essential to understanding the effects of changes on the Antarctic ecosystems, and identifying priorities for conservation and management. The data for this project will be obtained from cetaceans' sightings registered onboard opportunity platforms (i.e. vessels sailing in Antarctic waters) in the vicinity of the Antarctic Peninsula, mainly the zones of the Straits of Bransfield and Gerlache, and the northeast of the peninsula. Observations will be made from vessels' high bridge during daylight hours, provided the ship is sailing at a speed greater than 8 knots and under optimal conditions (Visibility > 2mn and Beaufort  $\leq 4$ ). Two observation points will be established on the high bridge, one on each side. Four researchers will work simultaneously, who will follow a rotation system of positions every half hour. On each shift, two observers, one on each side of the ship, will scan an arc of the horizon (from bow to 90 degrees) with the

naked eye and using reticle binoculars (7x10). The diversity patterns of cetaceans between the different zones and years sampled will be determined and compared. Using an ensemble modeling approach, which combines different species distribution modeling methods, the distribution patterns of cetaceans will be investigated in relation to environmental variables in the Southern Ocean. At the end of the project, it is expected that there will be sufficient information to analyze the diversity of cetaceans in the study area, model the distribution patterns of the different species, and determine their habitat preferences. The minimum duration of each sampling in Antarctic waters is expected to be 10 days, with fieldwork conducted at least once every Southern summer throughout the next three years. The development and success of this proposal will be strongly linked to cooperation with other CCAMLR members. Fieldwork will be conducted onboard other countries' vessels, such as the United Kingdom, Peru and Spain, continuing cooperation initiated in previous years. Thus, building synergies with other Antarctic programs and scientists throughout the project. Based on these synergies, the objectives of the project will be adapted to better respond to the questions identified as priorities by the WG-EMM or for the management of the proposed MPA in Domain 1. It also aims to coordinate efforts and collaborate with the SCAR Group of Experts on Birds and Marine Mammals (EG-BAMM).

5. **To train early-career scientists and knowledge brokers.** Lic. Machado will be pursuing her PhD within the framework of this proposal. In addition, in both the monitoring schemes and research plan, graduate and postgraduate students from the national university will be engaged as field and laboratory assistants, generating opportunities for BSc and MSc thesis, under the supervision of this proposal's PIs.

*(b) follow-up action*

 This project intends to set the basis for a permanent involvement of the national university (UdelaR) with the governmental institutions involved in Uruguay's participation in CCAMLR. Most of the team members have full or part-time permanent positions at institutions linked with scientific activities in Antarctica and the Southern Ocean. Conducting research and participating in scientific meetings and workshops is part of the job they are paid for. Most of the research and monitoring activities are based on ongoing research led by or involving team members. For all the team members the research topics are part of their long-term research interests. Finally, UdelaR has recently created an Antarctic Scientific Programme aimed at fostering research, training and facilitating scientific advice to policy-makers. This proposal fulfils many of those goals. All this suggests a long-term personal and institutional commitment with the capacity-building expectations of this project.

After completion of this project a set of actions, directly linked with the project objectives are planned:

1. Regular meetings of the Science Advisory Committee and the incorporation of new members to the SAC can be easily coordinated with the installed clerical capacities of CCAMLR's National Committee. Steps will be taken to attempt that the two temporary contracts become permanent contracts. Possible contracting institutions include UdelaR and the governmental institutions involved in Uruguay's participation in CCAMLR. Funding to

support participation in SC meetings might come from travelling grants from national and international institutions, including CCAMLR.

2. Long-term monitoring of Ardley Island can and will be maintained with logistic support from Uruguay's infrastructures and regular operations in KGI. Fieldwork will be incorporated as part of the regular activities of the team members with a permanent position. Partnership with the University of Jena, and engagement of students from the UdelaR will provide assistants for the fieldwork. Funding will be sought from national and international sources to cover minor fieldwork and travel costs to the Convention Area, but the monitoring plan does not require major expenditures.

3. The same applies for the long-term monitoring of marine debris. Yet, in this case onboard sampling depends on cooperation with other CCAMLR Members. Partnership with Spain, UK, Argentina and Peru will be fostered during the project implementation, in order to ensure long-term cooperation. There are precedents of cooperation with Spain and the UK in these topics, common interests with Argentina and Peru, and MoUs in place to promote Antarctic cooperation with Spain and Argentina.

4. Maintaining the research on penguins and cetaceans have similar requirements to those of the monitoring schemes already described. Thus, it can and will be continued after project completion, on the basis of team members' work, logistic support from Uruguay's Antarctic Program, and partnerships with other CCAMLR members. For penguins bio-logging, devices will be provided by French and Spanish researchers, as part of long-term and continental-wide initiatives to track responses of these species to changes in environmental conditions. Continuation of this research will thus depend on the continuation of those initiatives, which is highly likely.

5. All the activities already mentioned will provide a range of opportunities for internships and thesis for UdelaR students under the supervision of the project manager and PI's. These will continue after the project completion, and new opportunities will arise for as long as the SAC, monitoring and research activities, are maintained. Additional funding will be sought to facilitate the engagement of students and early-career scientists.

### **(iii) Project management**

#### **(a) administration**

This proposal will be implemented in coordination by 3 institutions: 1) CICU, CCAMLR's National Committee; 2) UdelaR, through the east regional university center (CURE); 3) FUNDACIBA, a foundation instituted by UdelaR, providing administrative support to research and teaching projects, throughout the whole project cycle.

The legal contact point will be CICU's Chairman, the Director of Antarctic and South Atlantic Ocean Affairs (DAAyAS) of the Ministry of Foreign Affairs. The director of DAAyAS will oversee project compliance and act as a formal liaison with CCAMLR.

Contact details:

Ambassador Lilián Zulma Silveira Faraco

Director of Antarctic and South Atlantic Ocean Affairs, Ministry of Foreign Affairs

antartida@mrree.gub.uy

CURE will coordinate the implementation of the project. Doctor Alvaro Soutullo will act as Project Manager and contact point with regards to operational aspects of the project.

Contact details:

Alvaro Soutullo, PhD

Associate Professor

Centro Universitario Regional del Este, UdelaR

+598 99074408

asoutullo@cure.edu.uy

FUNDACIBA will be in charge of the financial administration of the project and will act as a contact point for financial aspects.

Contact details:

Ivana Faccini


Manager

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faccini@fundaciba.uy

*(b) roles/assignments and participation time*

The project is intended to start on April 1st, 2021 and extend until November 30th, 2023. Start might be delayed up to 6 months depending on the progress of the current COVID-19 pandemia, and its impact on field activities in Antarctica and the Southern Ocean. All team members are expected to participate throughout the 3 years of duration of the project (32 months), yet part-time salaries for assistants will be covered only during 24 months (2 years).



**Alvaro Soutullo (PhD)** will act as Project manager, Head of the SAC, and coordinate the science-policy support team, acting as a principal liaison with the CNC. He will act as researcher for the monitoring schemes, and the research plan on penguins and cetaceans' foraging behavior and spatial ecology. He will prepare and coordinate regular meeting of the SAC and facilitate links between the CNC and national and foreign scientists, collaborate in fieldwork, data analysis, preparation of scientific papers, tutoring of students, preparation of papers for the SC and subsidiary groups meetings, and attend the annual WG-EMM meeting and other meetings as indicated by the CNC. He will devote approximately 12 hours per week to this project, and 2 months of field work in Antarctica and the Southern Ocean every year, throughout the 3 years of the project.

**Ana Laura Machado (BSc)** will act as science assistant for the SAC, as part of the science-policy support team, and coordinate 1) the CEMP monitoring scheme and 2) the research on penguins foraging behavior and spatial ecology. She will coordinate and conduct fieldwork, data analysis, and preparation of scientific papers. Also, she will act as information broker, compile and synthesize information, analyse data, prepare papers for the WG meetings and workshops, submit data to the CCAMLR SC subsidiary bodies, and participate in the WG-EMM meetings and intersessional work. She will be appointed a part-time position, with 20hs per week assigned to this project during 2 years, including 3 months of field work in Antarctica and the Southern Ocean during 2 summer seasons.



**Eduardo Juri (Tec)** will act as environmental assistant for the SAC, as part of the science-policy support team, and as a researcher for the monitoring schemes and the research plan on penguins and cetaceans' foraging behavior and spatial ecology. He will collaborate in fieldwork, data analysis, preparation of scientific papers, act as information broker, compile and synthesize information, analyse data, prepare papers for the WG meetings and workshops, submit data to the CCAMLR SC subsidiary bodies, and participate in the WG-EMM meetings and intersessional work. He will be appointed a part-time position, with 20hs per week assigned to this project during 2 years, including one month of field work in Antarctica and the Southern Ocean during 2 summer seasons.

**Juan Pablo Lozoya (PhD)** and **Franco Teixeira-de-Mello (PhD)** will coordinate the monitoring scheme and research on plastics/marine debris. They will coordinate and conduct field and laboratory work, data analysis, and preparation of scientific papers. They will supervise research assistants and students, provide data for the ICG-MD and Marine Debris program, and participate in regular SAC meetings to provide advice to the CNC. Each one will devote approximately 8 hours per week to this project, and one month of field work in Antarctica and the Southern Ocean every year, throughout the 3 years of the project.

**Cecilia Passadore (PhD)** and **Caterina Dimitriadis (PhD)** will coordinate the research on cetaceans foraging behaviour and spatial ecology. They will coordinate and conduct field and laboratory work, data analysis, and preparation of scientific papers. They will supervise research assistants and students, and participate in regular SAC meetings to provide advice to the CNC. Each one will devote approximately 4 hours per week to this project, and one month of field work in Antarctica and the Southern Ocean every year, throughout the 3 years of the project.

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**(v) Budget and audit**

Uruguay has not previously received assistance from the General Capacity Building Fund. The project was designed to extend 32 months, covering 2 summer seasons, and part-time salaries for 2 assistants during 24 months.


Items	Unitary cost	Number of units	Total cost	Source
Part-time salaries (annual) - (1)	13600	2 persons/2 years	54400	GCBF
Air tickets (MVD-gateway to Antarctica for fieldwork) - (2)	900	15 tickets/2 years	27000	GCBF
Accommodation (stopovers to/from field work) - (3)	150	75 days/2 years	22500	GCBF

Attendance to meetings (flights and accommodation for 2 persons) - (4)	8600	3 meetings	25800	GCBF
Administrative costs, contingencies & audit			20300	GCBF
<b>Funding requested to GCBF</b>			<b>150000</b>	<b>GCBF</b>
<b>Co-financing</b>				
Van Veen dredge (field equipment)	2500	1	2500	CURE (in kind)
Manta trawls (field equipment)	3500	2	7000	CURE (in kind)
GPS (field equipment)	750	4	3000	CURE (in kind)
Vacuum funnel + pump (small Lab equipment)	3900	1	3900	CURE (in kind)
ROTap WSTyler 3546 (small Lab equipment)	7500	1	7500	CURE (in kind)
ZOOScan (small Lab equipment)	23000	1	23000	CURE (in kind)
Bio-loggers (GLS)	1000	20	20000	CNRS-France (in kind)
Bio-loggers (GPS)	600	20	12000	CSIC-Spain (in kind)
Binocular with reticles	420	4	1680	Society of Marine Mammalogists
Other field and laboratory equipment (flasks, compasses, blood extraction material, tally counters, etc.)			3000	CURE (in kind)
Photo cameras (with zoom 70 - 300 mm)	1700	3	5100	Project's team
Laptops	1500	7	10500	Project's team
ArcGIS software licence	10500	2	21000	Society for Conservation GIS (in kind)
% annual salary (AS)	10400	3 years	31200	CURE, UdelaR
% annual salary (FTM)	7800	3 years	23400	CURE, UdelaR
% annual salary (JPL)	7800	3 years	23400	CURE, UdelaR
% annual salary (CP)	7500	3 years	22500	NA
% annual salary (CD)	7500	3 years	22500	NA
Field assistants (salary 2 assistants/30 days, transport, accommodation)	14000	3 years	42000	University Jena-Germany (in kind)
<b>Total co-financed - (*)</b>			<b>285180</b>	

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- (1) Annual part-time salaries include taxes and other costs.
- (2) Round-trip air tickets between Montevideo, Uruguay and the Gateway city (usually Pta. Arenas, Chile or Ushuaia, Argentina). An average of 15 scientists is expected to be deployed to the Convention's area each year.
- (3) Daily costs of accommodation and food in the Gateway city for scientists on their way to/from field work in the Convention's area. An average of 5 days in the Gateway city is estimated to account for delays in transportation to/from the Convention's area, due to weather conditions and other contingencies.
- (4) 2 round-trip air tickets from Montevideo (A\$ 1900 each) and accommodation for 15 days in one double-bedroom (A\$ 200/day) and food (A\$ 60/each/day)
- (\*) Transportation from the Gateway city to the Convention's area, accommodation and laboratories in the area have not been considered in this budget, as they are assumed to be covered by Uruguay's National Antarctic Program, or through cooperation with other CCAMLR members. Large laboratory equipment in Uruguay (fridges, freezers, stereo and microscopy, FTIR, centrifuge, etc.) and office equipment in Uruguay (computers, printers, etc.) are not considered either.

**(vi) Biographies and qualifications**



**Álvaro Soutullo**, Associate Professor at the Centro Universitario Regional del Este, UdelaR. BSc. in Biology (UdelaR), he completed a PhD on Biodiversity in Spain (Universidad de Alicante), and a Master's degree in Applied Ecology and Conservation in the United Kingdom (University of East Anglia). He is a Level I Researcher at the National Researchers System (SNI-ANII), and a Grade 3 Researcher at the Basic Sciences Development Program (PEDECIBA). He served as Director of Scientific Coordination and Environmental Management at the Uruguayan Antarctic Institute from September 2016 to April 2020, and as National Representative for the Committee on Environmental Protection and SCAR. He is the author of nearly 40 scientific articles in peer-reviewed journals, in areas including spatial ecology and bird behavior, conservation, environmental management and science-policy interface. He teaches in several postgraduate programs at UdelaR, and has supervised over 30 undergraduate and graduate students. [[www.researchgate.net/profile/Alvaro\\_Soutullo](http://www.researchgate.net/profile/Alvaro_Soutullo); ORCID number: 0000-0002-3198-7878].

**Juan Pablo Lozoya**, Associate Professor at the Centro Universitario Regional del Este, UdelaR. BSc. in Biology (UdelaR), he completed his PhD studies on Marine Sciences, and a Master's degree in Marine Science and Coastal Management in Spain (UPC-UB-CSIC). He is a Level I Researcher at the National Researchers System (SNI-ANII), and a Grade 3 Researcher at the Basic Sciences Development Program (PEDECIBA). He is the author of nearly 20 scientific articles in peer-reviewed journals, in areas including coastal and sandy beach ecology, risk analysis, integrated coastal zone management, and plastic pollution. He coordinates an interdisciplinary postgraduate program on ICZM, he teaches in several graduate and postgraduate programs at UdelaR, and has supervised over 15 undergraduate and graduate students. [[www.researchgate.net/profile/Juan\\_Pablo\\_Lozoya](http://www.researchgate.net/profile/Juan_Pablo_Lozoya); ORCID number: 0000-0001-5087-1005].

**Franco Teixeira de Mello**, Associate Professor at the Centro Universitario Regional del Este (UdelaR) in Uruguay. MSc Environmental Sciences and PhD in Ecology (2012). He is a Level I Researcher at the National Researchers System (SNI-ANII), and a Grade 3 Researcher at the Basic Sciences Development Program (PEDECIBA) in Geosciences from 2013 and Biology from 2015. His international experience in aquatic ecology and biomonitoring includes cooperation in projects with researchers from Argentina, Brazil, Colombia, Venezuela, Ecuador, the United States, Denmark, Portugal, Spain and China. He is the author of 63 scientific articles in peer-reviewed journals, in areas including freshwater ecology, biomonitoring, dynamic of pesticides, and organic decomposition in inland aquatic ecosystems, as well as studies of micro- and macro-plastic contamination. He teaches in several graduate and postgraduate programs at UdelaR, and has supervised over 50 undergraduate and graduate students from Uruguay, Argentina and Brazil. [[www.researchgate.net/profile/Franco\\_Teixeira\\_De\\_Mello](http://www.researchgate.net/profile/Franco_Teixeira_De_Mello); ORCID number: 0000-0003-4904-6985].

**Eduardo Juri**, Head of Department of Environmental Assessment and Management, Instituto Antártico Uruguayo. In 2016 he obtained a diploma as an Environmental Control Technician (Universidad del Trabajo del Uruguay). Since 2018 he is Member of Environment Expert Group (EEG) - Council of Managers of National Antarctic Programs (COMNAP) and Uruguayan Representative to the Committee for Environmental Protection (CEP). He served for over a decade as Scientific Coordinator during Summer Research Campaigns at the Artigas Station, King George Island, South Shetland Islands, Antarctica. He has vast experience in marine fauna surveys and is the author of 4 scientific articles in peer-reviewed journals in the area of marine biodiversity.

**Ana Laura Machado**, obtained her Bachelor's degree in Biology in 2016 and is currently finishing her Master's degree in Uruguay (UdelaR). Since 2017 she is Head of the Department of Science of the Uruguayan Antarctic Institute and since 2018 she is National Representative of the Scientific Committee on Antarctic Research (SCAR). In the last eight years she served as Scientific Coordinator during the Summer Research Campaigns at Artigas Station, King George Island, South Shetland Islands, Antarctica. She has participated in field work in penguin colonies along the Antarctic Peninsula in collaboration with Spanish researchers and currently has a CCAMLR Scientific Scholarship for the development of a CEMP site on Ardley Island, King George Island.



**Cecilia Passadore**, obtained her BSc. and Master's degrees in Biology in Uruguay (UdelaR) and completed her PhD in Australia (Flinders University). She is a Level I Researcher at the National Researchers System (SNI-ANII), and a Grade 3 Researcher at the Basic Sciences Development Program (PEDECIBA). She works as a consultant in Conservation of Marine and Coastal Biodiversity at the National Directorate of the Environment since 2018. She is the author of 16 scientific papers in peer-reviewed journals, in areas including ecology and conservation of large marine vertebrates. She has been responsible for several cetacean research projects. She has investigated the magnitude and spatio-temporal distribution of interactions (bycatch and predation) between marine mammals and different fisheries (artisanal and industrial), and she studied the demographics, site fidelity and modeled the distribution of dolphins population, to inform decision-makers for the management and monitoring of cetaceans.

[[https://www.researchgate.net/profile/Cecilia\\_Passadore](https://www.researchgate.net/profile/Cecilia_Passadore); ORCID number: [0000-0001-8667-8274](https://orcid.org/0000-0001-8667-8274)]

**Caterina Dimitriadis**, BSc. in Biology (UdelaR), she completed her PhD studies on Experimental Sciences and Sustainability, and a Master's degree in Environment in Spain (UdG). She is a Researcher Candidate at the National Researchers System (SNI-ANII), and a Researcher Associate at the Basic Sciences Development Program (PEDECIBA). She is the author of 8 scientific articles in peer-reviewed journals, in areas including cetaceans, fish reproduction, artisanal fisheries and protected areas. She is a GIS instructor and she has coordinated several GIS courses focused on conservation and natural resources. In recent years, she has developed several GIS and spatial analyzes to create biological corridors between protected areas, prioritizing natural environments and areas with greater biodiversity. Her work and research experience have given theoretical and practical knowledge to develop and lead projects on biodiversity conservation and management.

[<https://exportcvuy.anii.org.uy/CvEstatico/?urlId=b608776edb942d003c60ba9f2038361cc8b728d2f66723fe2ae3820cec822496dcd319218850b9579b9cee14a8af252ab371aedf786ab3ff3a545d28b635e0f4&formato=pdf&convocatoria=21>]



