

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p style="text-align: center;"><b>Fourteenth Meeting of the Advisory Committee</b> <i>Lima, Peru, 12 – 16 August 2024</i></p> <p style="text-align: center;"><b>Update on Small Grants and Secondments supported by the Advisory Committee 2019 - 2023</b></p> <p style="text-align: center;"><b>Secretariat</b></p>
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### SUMMARY

Following the Thirteenth Meeting of the Advisory Committee (AC13) in 2023, a Small Grants and Secondments round was held in the second half of 2023.

The 2023 Secondments Round opened on 7 August 2023 and was finalised on 18 December 2023. One application was received and was successful. The total amount granted to the successful applicants was \$20,000.

Application for the 2023 Small Grants opened on 7 August 2023 with proposal submissions due on 7 October 2023. Eleven applications were forwarded to the Secretariat by six Parties, seeking \$312,929 in total funding. Eight projects were recommended for funding by the Grants Subcommittee. The total amount granted to the eight successful applicants was \$210,370. The United Kingdom, Chinese Taipei and Abercrombie & Kent Philanthropy generously supported the Small Grants Programme with Voluntary Contributions which fully or partially funded three projects. Applicants were advised of the outcome of the round on 9 February 2024.

Successful 2023 [Small Grants](#) and [Secondments](#) proposals are listed on the ACAP website and are summarised below.

Updates on progress with previous Secondments (2022, 2019) and Small Grants (2020, 2019) supported by the Advisory Committee are also provided, based on reports received.

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## 1. SMALL GRANTS SUPPORTED IN THE 2023 FUNDING ROUND

**ACAP 2023-01:** *Skyward heat: thermal signatures revealing population size and productivity in albatross and giant petrel colonies.*

**Project Leader:** *Martin Brogger, Instituto de Biología de Organismos Marinos, (IBIOMAR-CONICET), Puerto Madryn, Argentina.*

**Co-investigators:** *Flavio Quintana, Instituto de Biología de Organismos Marinos, (IBIOMAR-CONICET), Puerto Madryn, Argentina*

### **FUNDS GRANTED: \$ 23,370**

The use of unmanned aerial vehicles (UAVs), or drones, has proven to be a valuable tool for studying wildlife around the world. The UAVs offer several advantages over traditional methods, such as ground-based observations or manned aircraft surveys. UAVs allow researchers to survey birds and other taxa inhabiting inaccessible areas, to obtain high-resolution imagery, and to repeat surveys over time. Yet, until now, no study has delved into the intricacies of count errors that arise when surveys encounter location-specific constraints, such as visually cryptic or unidentifiable individuals.

The purpose of this project is to evaluate the benefits of using aerial thermal imaging surveys as a tool to determine the population size and productivity of albatross and giant petrel colonies when birds are inconspicuous or visually cryptic. The utility of the proposed method will be tested in two Southern Giant Petrel colonies of Patagonia, Argentina.

Aerial thermal survey will be performed to detect at-nest individuals by comparing individuals-ground temperature differences during three moments of the day (i.e. dawn, noon, and dusk) to establish optimal time of day for surveys. We will overflight the colonies at three different altitudes (e.g. 50, 75 and 100 m) to evaluate the effect of flight altitude on thermal detectability which will be assessed based on pixels count and resolution (cm/pixels) comparisons of thermal images.

Aerial thermal surveys will be carried out during the middle incubation period (i.e. late November) to count the number of nests (i.e. breeding pairs) and late March when chicks are in the fledgling stage with no adults at the nest, to determine colony productivity (i.e. the number of nests with a fledgling alive). Throughout both phases, we will also conduct ground-based counts and aerial surveys of the colonies using traditional non-thermal drones, to compare and assess the potential error variance resulting from the absence of thermal assessments. Surveys are planned to be performed during two breeding seasons (i.e. November and March 2024-2025, and 2025-2026). During the first year, we will establish the protocol and methodology, while the subsequent year will involve comprehensive testing of all the proposed parameters.

After being established, errors derived from traditional ground-aerial counts will be utilized to rectify historical long-term data concerning the breeding population size and productivity of the two colonies under study.

Finally, we will formulate both a set of recommendations and a comprehensive protocol that can be applied to albatross and giant petrel colonies facing comparable count constraints.

**ACAP 2023-02: Effectiveness of acoustic monitoring for estimating population trends and recolonisation of burrow-nesting petrels**

**Project Leader:** Richard Phillips, British Antarctic Survey

**Co-investigators:** Rachel Buxton, Carleton University, Institute of Environmental and Interdisciplinary Sciences, Ottawa Ontario Canada

**FUNDS GRANTED: \$ 36,600**

Knowledge of population trends of threatened species are essential to inform adaptive management, yet are lacking for many petrels because nesting sites are remote, most species are nocturnal at colonies, and they nest in burrows or crevices. As such, detection error is a major issue, and uncertainty in estimates of population numbers and trends are often very high, making it difficult or impossible to fully determine impacts of threats or the outcomes of management actions (Bird et al. 2021). A typical index of abundance in studies of petrels is the count of burrows; however, burrow occupancy can be low and variable across space and time (Sutherland and Dann 2012). Determining burrow occupancy (i.e., whether a bird is present or breeding) through grubbing, scoping, or playback, is labor intensive and involves its own set of assumptions.

Advances in passive acoustic recording technologies offers large-scale sampling of ecological conditions, animal distribution, and abundance (Gasc et al. 2015). Acoustic monitoring is low cost and scalable, causes minimal disturbance, eliminates observer bias and generates a permanent data record. However, the effectiveness of acoustic monitoring for estimating breeding density and burrow occupancy is unclear, and our study is designed to address this knowledge gap.

The White-chinned Petrel (*Procellaria aequinoctialis*) is considered to be decreasing globally and is listed as Vulnerable by IUCN. It is the most frequently killed species in Southern Ocean fisheries, and suffers heavy predation from invasive alien predators at several island groups (Phillips et al. 2016). The purpose of this project is to test the viability of acoustic recording for monitoring breeding populations of White-chinned Petrels, including recolonisation following habitat restoration.

To quantify vocal activity we will use predictive random forest models from acoustic indices to summarise variation in acoustic energy (Buxton et al. 2018). We will explore relationships between vocal activity, nesting density, and burrow occupancy across the breeding season and sites. We will also use the more frequent data from the intensive study plot to test relationships between daily vocal activity and burrow occupancy. Finally, we will take account of the uncertainty (predictive power) of the relationships between vocal activity, breeding density and burrow occupancy in a simulation-based power analysis (e.g. Buxton et al. 2016a) to assess the utility of deploying a network of acoustic loggers for monitoring changes in breeding bird abundance and distribution over large spatial scales. Thus, we will test the power to detect changes in White-chinned Petrel populations following habitat restoration, depending on initial bird density, annual variation in abundance, number of recorders, time of year recordings are collected, duration of recordings and spatial scale.

Our overall goal is to create a user-friendly and cost-effective tool to monitor population trends and conservation outcomes for White-chinned Petrel at any site, which we expect to be readily applicable to other *Procellaria* species and potentially other burrowing petrels.

**ACAP 2023-03: *Potential risks to ACAP species from unregulated fisheries in the southwest Atlantic Ocean***

**Project Leader:** *Ana Carneiro, BirdLife International*

**Co-investigators:** *Richard Phillips, British Antarctic Survey*  
*Tammy Davies, BirdLife International*

**FUNDS GRANTED: \$ 27,900**

Currently the only Regional Fisheries Management Organisations (RFMOs) with authority in the southwest Atlantic Ocean north of the Antarctic Polar Front are the International Commission for the Conservation of Atlantic Tunas (ICCAT), and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), although very few southern bluefin tuna have been caught in the region since 2000. However, ICCAT only manages fisheries targeting tuna and tuna-like species, as well as sharks caught by tuna fleets. Several other important fisheries in the area targeting species such as squid, hake and Patagonian toothfish using trawlers or longliners are not currently regulated by any international body, even though a substantial proportion of the fishing effort is in the High Seas.

The threat posed by these fleets which operate outside the authority of a RFMO is high in terms of seabird bycatch and potentially also intentional take. Our project seeks to address this major knowledge gap. Our objectives are to:

- 1) Investigate the fleets that operate in international waters in the southwest Atlantic Ocean in terms of gear types, flag states, vessel operational characteristics and seasonality in effort.
- 2) Determine the threat posed by the emergence of new fleets.
- 3) Quantify the number of vessels by fishing gear and flag that are not obligated to use mitigation measures.
- 4) Quantify the threat that unregulated fleets pose to ACAP species through an overlap between fishing activity and seabird tracking data, focusing on ACAP priority populations that are particularly at risk because of steep declines in breeding numbers: wandering albatrosses and white-chinned petrels from southwest Atlantic islands.
- 5) Prepare a manuscript describing the results for submission to a peer-reviewed journal.

Locations of individual fishing vessels within the study area will be obtained from AIS data collected by the Spire satellite constellation and processed by Global Fishing Watch (GFW), which combines public vessel registries and machine-learning models to 1) identify fishing vessels from AIS transmissions, and 2) detect when they are actively fishing (accuracy >90 %; Kroodsma et al. 2018). In 2021, BirdLife and GFW signed a data sharing and research partnership agreement. Consequently, BirdLife can now query and retrieve data on the location of individual vessels that are not accessible to the public, which represents a vastly more detailed record of fishing activity. We will analyse fishing effort data from 2012-2023 to understand more about the emergence of new fleets in this area and the threat they pose.

Existing seabird tracking data will be combined with data from unregulated fleets through an overlap analysis. Overlap maps will be presented separately for each fishing gear type, flag state, and season, as well as for each seabird life-history stage.

This project will greatly improve our understanding of susceptibility of ACAP species to bycatch by unregulated vessels in the southwest Atlantic, and inform sustainable fisheries management for the southwest Atlantic (FAO Zone 41).

The compilation of fisheries data for this work will facilitate similar assessments of overlap for other seabird species for which tracking data exist.

**ACAP 2023-04: *Disease Risk Analysis of High Pathogenicity Avian Influenza for ACAP Species***

**Project Leader:** *Patricia Pereira Serafini, Federal University of Santa Catarina and National Centre for Wild Birds Conservation and Research – CEMAVE/ICMBio/MMA*

**Co-investigators:** *Ralph E. T. Vanstreels, Latin America Program, Karen C. Drayer Wildlife Health Center, University of California - Davis, USA (based in Patagonia, Argentina)*

*Marcela Uhart, Latin America Program, Karen C. Drayer Wildlife Health Center, University of California - Davis, USA (based in Patagonia, Argentina)*

*Meagan Dewar, Future Regions Research Centre, Federation University Australia, Australia*

*Michelle Wille, Centre for Pathogen Genomics, Department of Microbiology, and Immunology, University of Melbourne, at the Doherty Institute for Infection and Immunity, Australia*

*Brett Gartrell, Massey University, New Zealand*

*Gustavo Jiménez-Uzcátegui, Charles Darwin Foundation, Ecuador (based at Galapagos Islands)*

*Jane Younger, Institute for Marine and Antarctic Studies, University of Tasmania, Australia*

*Jennifer Black, Environment Manager, United Kingdom*

*Laura Roberts, University of Pretoria/ Western Cape provincial government, South Africa*

**FUNDS GRANTED: \$ 20,000**

Since 2021, HPAI strains of the H5N1 subtype originating in southeast Asia, have undergone unprecedented global spread among wild birds (Wille & Barr 2022). These viruses caused a series of outbreaks throughout southern Africa, Europe and North America, causing the death of 10,000s of wild aquatic birds (terns, cormorants, swans, cranes, gannets, skuas, etc.), and also substantial numbers of terrestrial scavengers/predators (vultures, hawks, foxes, etc.). When these viruses spread to South America by the end of 2022, unprecedented mortality of seabirds and marine mammals ensued, with an estimated death toll of 500,000 seabirds (boobies, pelicans, cormorants, terns, penguins, etc.) and 20,000 marine mammals (sea lions, otters, dolphins, fur seals, elephant seals) (Breed et al. 2023; Leguia et al. 2023).

The introduction of HPAI into Southern Ocean populations poses a significant risk for a new Antarctic/sub-Antarctic route of transmission into Australasia/Oceania ACAP populations.

The International Union for Conservation of Nature recommends a method known as Wildlife Disease Risk Analysis (DRA), a systematic process used to evaluate the risks associated with the introduction/spread/impact of diseases in wildlife populations and to inform decision-making for conservation and management (OIE & IUCN 2014). We propose employing DRA methodology to evaluate the risks posed by HPAI to ACAP species, but will take a modified and simplified approach, given its imminent threat and limited time to respond.

Although general biosecurity guidelines for wildlife professionals were recently published by the WOA/FAO Network of Expertise on Animal Influenza (OFFLU) and the Scientific Committee on Antarctic Research (SCAR), these are broad in scope and might not be sufficiently specific and/or intelligible to professionals handling ACAP species or operating within their habitat (protected area managers, tourist guides, onboard observers, etc.). Furthermore, when confronted with suspected HPAI cases at remote sites these professionals often do not have access to basic knowledge or materials necessary to document and investigate these cases. We propose developing video tutorials and field kits that will address this gap and contribute to promoting human safety and preventing human-mediated spread of HPAI viruses to ACAP species.

#### Objectives

- 1) Conduct a simplified qualitative Disease Risk Analysis (DRA) to evaluate the risk posed from HPAI to ACAP species.
- 2) Produce tutorials (information cards, step-by-step protocols, and videos) to promote human safety and prevent human-mediated spread of HPAI viruses during field activities with ACAP species.
- 3) Design and deploy field kits that allow field teams to safely obtain data and biological samples from suspected HPAI cases in ACAP species at remote sites.

The ultimate purpose of the project is to improve our capability for mitigation of the impacts of HPAI on ACAP species, increasing capacity for early detection and response, and efforts to minimize spread. Furthermore, DRA will assist in identifying the knowledge gaps that constrain our ability to design and implement prevention strategies, in turn allowing us to focus future research efforts. In parallel, the development of practical tools (instructional media and field kits), that are specifically designed for field teams working with ACAP species, is an important step to ensure that several of these disease surveillance and mitigation strategies can be effectively implemented, protecting human health and reducing the risk of human-mediated spread of the virus.

**See also PaCSWG8 Doc 04.**

**ACAP 2023-06: Multi-sensor assessment of fine-scale fisheries overlap and bycatch risk of Southern Buller's Albatross across life history stages**

**Project Leader:** Jonathan Rutter, University of Oxford Department of Biology, United Kingdom

**Co-investigators:** Igor Debski, New Zealand Department of Conservation  
Johannes Fischer, New Zealand Department of Conservation  
Tim Guilford, University of Oxford  
Katrina Davis, University of Oxford

**FUNDS GRANTED: \$ 30,000**

Detection of seabird-fishery overlap at sea is a powerful tool for quantifying bycatch risk of seabirds. Additionally, the increasing availability of vessel location data from Vessel Monitoring Systems (VMS) and Automatic Identification Systems (AIS) has enabled more nuanced analyses of finer-scale overlap between individual seabirds with individual fishing vessels (e.g., Corbeau et al., 2021, Orben et al., 2021). However, these analyses remain subject to two important sources of bias. First, many vessels, especially small-scale or illegal, unreported, or unregulated (IUU) vessels, do not regularly broadcast their locations (GFW, 2023a) and are hence unaccounted for in most overlap analyses. Second, non-breeding life history stages are often overlooked because they are more difficult to track than breeding populations (Carneiro et al., 2020).

Southern Buller's Albatross (*Thalassarche bulleri bulleri*) are in urgent need of improved risk assessments that incorporate more comprehensive fine-scale overlap analyses. They have shown concerning declines in adult breeder survival in recent years (<0.9 since 2020; Thompson and Sagar, 2022) and are now considered the seabird species most at-risk of bycatch in New Zealand (Edwards et al., *in press*).

This project will integrate data from multiple sensors. We propose analysing fine-scale overlap with fishing vessels across all life history stages and the entire foraging range of this species. In addition, we intend to incorporate and test emerging methodologies that are currently in development through the project leader's PhD work at the University of Oxford.

**Objectives:**

1. Determine how bycatch risk of Southern Buller's Albatross varies across areas, time periods, vessels, and life history stages.
2. Test and refine new analytical methodologies to quantify seabird-vessel interactions.
3. Trial the use of bird-borne miniature hydrophones as a vessel detection device.

*Existing tracking plans (Objective 1-2):* A high-intensity monitoring and tracking project for Southern Buller's Albatross is already planned for 2024-2026 (time-depth recorders, archival GPS, and geolocator/immersion loggers on chick-rearing individuals; 20 Platform Terminal Transmitters and 20 geolocators per year on birds leaving the colony).

*Proposed tracking plans (Objective 1-2):* 10 or more solar-powered satellite-transmitting GPS tags, with which we intend to collect high-resolution positional data (~40 min daytime intervals) from non-breeding individuals for several months.

*Fisheries data (Objective 1-2):* Locations of most large commercial vessels are available in the form of Automatic Identification System (AIS) data from Global Fishing Watch (GFW,

2023a). For New Zealand fisheries, we will supplement any missing locations with GPS data provided by Fisheries New Zealand. We also aim to obtain VMS data through future collaboration with distant water fleets.

*Analysis of fisheries overlap (Objective 1-2):* When working with low resolution data (i.e., >15 mins), we will incorporate time geographic methods to quantify vessel attendance duration with explicit measures of uncertainty. We aim to improve upon existing time geographic methods by incorporating data from geolocator/immersion loggers and time-depth recorders.

*Pilot study: Acoustic detection of vessels (Objective 3):* 15 miniature hydrophone devices to test the potential of acoustic detection of seabird attendance at fishing vessels. They will be co-deployed with archival GPS loggers, with which we can confirm vessel attendance using the methods above.

The project's principal purpose is to contribute to the long-term persistence and recovery of the Southern Buller's Albatross. Two key outputs will be essential to achieving this goal: First, we will identify fleets and vessels that pose the highest potential risk to albatross populations. This output will inform strategic targeting of outreach to high-risk fisheries, both near-shore and in the high seas, to promote uptake of and compliance with ACAP best practice mitigation policies. Second, we will identify areas and time periods during which different life history stages are at highest risk of bycatch. This output will provide evidence for area- and time-based management policies that seek to reduce seabird-fishery interactions.

The project's secondary purpose is to improve ecological risk assessment for other frequently bycaught species, especially seabirds. Three key outputs will contribute towards this goal: First, we will refine existing time geographic methodology to facilitate quantification of uncertainty across multiple risk assessments. Second, we aim to produce improved models to diagnose vessel attendance using biologging data from multiple sensors, even in the absence of fishing vessel data. This output will help improve estimations of bycatch risk from "hidden" fisheries, including those that are small-scale or IUU. Third, we will determine whether vessel attendance can be detected acoustically using leg-mounted hydrophones. This output could pave the way to further acoustic tagging programmes that also seek to understand "hidden" fisheries.

**ACAP 2023-07: *Trialling seabird bycatch mitigation measures for Brazilian demersal longline fisheries***

**Project Leader:** *Gabriel Canani Sampaio, LAATM-FURG / Projeto Albatroz, Brazil*

**Co-investigators:** *Dimas Gianuca, BirdLife International/SAVE Brasil*  
*Leandro Bugoni, LAATM-FURG*  
*Tatiana Silva Neves, Projeto Albatroz*  
*Fernando Niemeyer Fiedler, IFSC-Itajaí*  
*Danilo Geraldo Filipkowski, Projeto Albatroz*  
*Caio Azevedo Marques, Projeto Albatroz*

**FUNDS GRANTED: \$ 36,800**

The subtropical southwest Atlantic Ocean, including the Brazilian Exclusive Economic Zone, is a known hotspot for albatross and petrel bycatch in pelagic longline fisheries (Bugoni et al.

2008; Birdlife International, 2019; Jiménez et al., 2020). In contrast, much less is known about seabird bycatch in Brazilian demersal longline fisheries in this region, including small-scale vessels. Few early studies have reported high bycatch rates (Neves & Olmos, 1997; Vooren & Coelho, 2004; Bugoni *et al.* 2008), however, in the main estimate of global seabird bycatch in longline fisheries, Anderson *et al.* (2011), neglected bycatch in Brazilian demersal longline, assuming this fishery had collapsed. Nonetheless, this fleet has continuously operated since the 90s, with 129 vessels recorded in the port of Cabo Frio (RJ) alone, between 2003 and 2018 (Pimenta *et al.* 2020). In addition, a recent assessment confirmed high bycatch rates in Brazilian demersal logline fisheries, suggesting that given the fleet size and effort, possibly thousands of seabirds are killed year-round, and mostly ACAP listed species (Canani *et al.* 2023).

This fleet preferentially set the longline during daylight, does not use torilines and the line-weighting regimes are inadequate and highly variable among vessels (Canani *et al.* 2023). Currently, there is no regulations pertaining seabird bycatch reductions in Brazilian demersal longline, nor information on hook sink rates, which is determinant to assess bycatch risk and develop adequate mitigation measures. In addition, the small size of vessels of this fleet, predominantly small-scale, is a challenge for the deployment of torilines with desirable aerial coverage.

Our study aims to evaluate line sink rates of current line weighting regimes commonly used by Brazilian demersal longline vessels, compared with an additional weighting regime aligned with ACAP best practice advice for reducing bycatch in demersal longline fisheries. In addition, to evaluate line tension and aerial coverage of a toriline prototype designed for small vessels, potentially suitable for the Brazilian small-scale demersal longline fleet.

Different toriline configurations will be tested under varying conditions, including vessel speed and wind direction, and configurations of main line and dragging device lengths, attachment pole height. The tests will be conducted aboard the research vessel "*Aprendendo com o Mar*", from Federal Institute of Santa Catarina (IFSC – Campus Itajaí) to verify the aerial coverage and drag force achieved with the combinations of toriline configurations and conditions. Given the influence of wind direction on aerial coverage, sea state (Beaufort scale) and wind direction relative to the bow and stern will be recorded.

The toriline prototypes, a scaled-down version of the model specified in INI 07/2014 (Brazil 2014), and broadly aligns with the toriline recommendation for demersal longline vessels with less than 24 m length (Melvin *et al.* 2021);

The sinking rates of four configurations of line weight regimes utilized by Brazilian demersal longline vessels will be compared against a configuration recommended by ACAP, using Time and Depth Recording Devices (TDRs). Sinking rates will be determined under experimental conditions using approximately 8.5 kg granite blocks, already acquired, in two different setting speeds (4 and 6 knots). These experiments will be conducted aboard the research vessel "*Aprendendo com o Mar*".

Our research aims to contribute to the development of mitigation measures suitable for small-scale demersal longline vessels operating in southern and southeast Brazil and beyond. The results of the present project will provide valuable information to guide future and expected regulations in Brazil to reduce seabird bycatch in demersal longline fisheries, and to the development of mitigation measures in other fleets with similar characteristics.

**ACAP 2023-08: *Enabling mitigation measures in the southern Peruvian artisanal longline fleet targeting sharks to reduce the bycatch of albatrosses and petrels***

**Project Leader:** *Javier Quiñones, PhD. Oficina de Investigaciones en Depredadores Superiores del Instituto del Mar del Perú.*

**Co-investigators:** *Johannes Fischer, PhD. Department of Conservation, New Zealand.  
Igor Debski, PhD. Department of Conservation, New Zealand*

*Jairo Calderón Martel, Dirección de Investigaciones en Pesca, Instituto del Mar del Perú.*

*Sixto Quispe Cayhualla, Laboratorio Costero de Pisco, Instituto del Mar del Perú.*

**FUNDS GRANTED: \$ 35,700**

The Northern Humboldt Upwelling System (NHUS) is the most productive marine ecosystem (Pennington et al. 2006) and the waters of the NHUS attract many highly migratory species, such as albatrosses, petrels, and shearwaters. During austral autumn, winter and spring, a wide variety of species, breeding in different places within the Pacific Ocean Basin, have been recorded in southern Peru.

Within the NHUS, the high levels of artisanal longline fishing effort pose a threat to these different species of albatrosses, petrels and shearwaters. The artisanal longline fishery in Peru targets dolphinfish (*Coryphaena hippurus*) from November to April and sharks (*Prionace glauca* and *Isurus oxyrinchus*) from May to October, while handlines with squid jigs target giant squid (*Dosidicus gigas*) year-round. It is estimated that the number of albatrosses caught annually by the Peruvian artisanal longline fishery is likely 5-13% of the populations of Waved and Chatham albatrosses that forage off the coast of Peru (Jahncke et al. 2001). As such, a greater understanding of the artisanal fishing operations in Peru and its impact on albatrosses, petrels and shearwaters, as well as the identification of viable mitigation options for this fishery is urgently needed.

As an initial priority we propose to characterize the operations of the artisanal longline fishery targeting sharks in offshore waters of southern Peru and subsequently test the most feasible and effective bycatch mitigation options. Specifically, we aim to first characterize which species of albatross, petrels or shearwaters species interact with fishing gear as well as the fishing gear in use (e.g., main line, snood and hook configuration, timing etc.). We will also undertake a wider assessment of the overlap of albatross and petrel species with the full range of artisanal fisheries in Peruvian waters to quantify potential bycatch risk. Based on the gathered information, we will plan the implementation of the most feasible (i.e., simple and affordable) seabird bycatch mitigation measures appropriate to ensure their future implementation by local fishermen. The ultimate goal of this project is to reduce the bycatch of seabird species, with a focus on vulnerable albatross and petrel species, in this artisanal fishery.

**See SBWG12 Inf 14 for more information.**

**ACAP 2023-10: *Manufacture of a new concept pelagic longline heavy hook to improve line weighting acceptance and seabird bycatch mitigation performance***

**Project Leader:** *Nigel Brothers.*

**Co-investigators:** *Igor Debski, Department of Conservation, New Zealand.*

**FUNDS GRANTED: \$ 38,000**

Of the three ACAP recommended best practice measures for pelagic longline, line weighting has the advantage of being more consistently implemented. In most pelagic longline fisheries line weighting has become an unavoidable operational necessity for seabird bycatch mitigation requirements. For various reasons, current weighting options tend to be perceived by fishing operators as operationally unfavourable, as well as used in ways that diminish the overall effectiveness of mitigation.

In recognition of the clear mitigation benefit of appropriately weighted lines, the improved effectiveness of weight close to the hook, and the need for more acceptable methods of line weighting (to improve reliable uptake), investigation is underway into the incorporation of weight into the hook itself (SBWG10 Inf 09, SBWG11 Doc 15). If the concept proves viable, there are likely to be substantial operational, economic and mitigation gains (both in terms of effectiveness and ease of compliance monitoring).

Following the manufacture and trialling of a prototype heavy hook (named Procella) in 2022/23, industry interest in advancing development was ascertained. This has already led to collaborative hook redesign with industry, based upon familiarity with the trial hook prototype, along with agreement reached as to the design preference, and ongoing commitment by selected operators to further trials, should hook manufacture and supply proceed. While the original Procella weight was 52 g, the new Procella will weigh 62 g in lieu of hook weighting-specific indecision by SBWG11 (AC13 Doc 11 Rev1), so as to ensure adherence to ACAP recommended weighting specifications. This directly impacted feasibility of acceptable hook redesign and will add further manufacturing plus shipping cost without altering expected mitigation performance much, if at all. Nevertheless, the hook trial participants are amenable to using this amount of weight at (on) hooks, the ACAP weighting Best Practice equivalent of 40 g weights being at hooks, rather than (as allowed) up to 0.5 m away.

Prototype Procella failed to meet operational expectations purely because of manufacturing-related strength issues although other physical aspects of design (visual appearance) have since been altered. As a consequence, an entirely new or different process to conventional tuna hook fabrication is likely to be required. Because tuna fishery hooks are somewhat expendable (ongoing losses to sharks etc), it is necessary to try to establish from the outset, the lowest cost of heavy hook type. For these reasons, and with knowledge from the previous Procella fabrication and trial, it is deemed that a budget sufficient to cover 10,000 to 20,000 hooks is a minimum necessity. Cost estimate is on the basis of conventional hook value around 70 cents and allowing for double the cost, with the order quantity adjusted to fit the budget. The aim at this stage is for manufacture to occur in early 2024.

Hook performance will be measured on three, possibly more, voluntarily committed vessels in New Zealand through 2024 and beyond, focussing initially on comparative vessel catch records supplemented by dedicated operator hook monitor records. Vessels will be using

required mitigation measure options additional to the weighting of lines and Procella will be weight-compliant with 40g having been essentially added to a standard 22g tuna hook. Although actual mitigation performance of simply applying established ACAP weighting best practice in a different way should not be in doubt, the sink rate characteristics of Procella will be determined.

If proven operationally and economically viable, the aim is for Procella to then be routinely manufactured and become widely available commercially so as to progressively lead to a preference for this hook type. This line weighting option will be much easier in terms of compliance and help to remove many of the current operational drawbacks inherent in conventional line weighting practices. As an alternate line weighting method, it will be much more compatible with the variety of longline methods employed by the different fishing entities. SBWG11 Doc 15 provides a more detailed account of real or perceived (requiring substantiation) benefits as well as potential risks, including industry resistance to uptake, irrespective of actual evidence of viability.

**See SBWG12 Inf 02 for more information.**

## **2. SECONDMENTS SUPPORTED IN THE 2023 FUNDING ROUND**

**S2023-01:**            *Training workshop offered to Parties representatives, and other relevant stakeholders, on the risks and biosecurity measures applied to ACAP Species in the context of the High Pathogenicity Avian Influenza (HPAI H5N1)*

**Secondee:**            *Patricia Pereira Serafini, Federal University of Santa Catarina and National Centre for Wild Birds Conservation and Research – CEMAVE/ICMBio/MMA*

**Host Institution/ Implementation team:**    *Members of the intersessional group of experts on epidemiology, disease risk assessment and management, advising ACAP on issues related to the ongoing high pathogenicity H5N1 avian influenza panzootic, with engagement and participation of the following professionals/institutions:*

- *Ralph E. T. Vanstreels, Latin America Program, Karen C. Drayer Wildlife Health Center, University of California - Davis, USA (based in Patagonia, Argentina)*
- *Marcela Uhart, Latin America Program, Karen C. Drayer Wildlife Health Center, University of California - Davis, USA (based in Patagonia, Argentina)*
- *Michelle Wille, Centre for Pathogen Genomics, Department of Microbiology, and Immunology, University of Melbourne, at the Doherty Institute for Infection and Immunity, Australia*
- *Meagan Dewar, Future Regions Research Centre, Federation University Australia, Australia*
- *Laura Roberts, University of Pretoria/ Western Cape provincial government, South Africa*

- *Gustavo Jiménez-Uzcátegui, Charles Darwin Foundation, Ecuador (based at Galapagos Islands)*
- *Brett Gartrell, Massey University, New Zealand*
- *Jennifer Black, Environment Manager, United Kingdom*
- *Jane Younger, Institute for Marine and Antarctic Studies, University of Tasmania, Australia*
- *Sarah Michael, Department of Natural Resources and Environment Tasmania, Australia*
- *Thierry Work, United States Geological Survey, USA (based in Hawaii)*
- *Veronica Lopez, Oikonos Ecosystem Knowledge, Chile*
- *Jolene Giacinti, Environment and Climate Change Canada, Government of Canada*

### **FUNDS GRANTED:\$20,000**

#### **Summary of activities:**

Given the drastic impacts that the recent spread of HPAI H5Nx viruses has had on seabird populations worldwide, the ultimate relevance of this Secondment was to provide a workshop and a Q&A session (including wet lab training), to collectively improve the capability for reaction and mitigation of the impacts of HPAI on procellariiform species, increasing international capacity for early detection response, and on efforts to minimize spread. The workshop and Q&A session took place on Thursday, 23 May 2024, from 1:30 PM to 6:00 PM (GMT -7), during the Seventh International Albatross and Petrel Conference (IAPC7) in Mexico. Attendees also had the option to participate virtually.

The hybrid format allowed for broad participation, both in person for researchers at the conference and virtually for anyone interested. The workshop and training session were led by the intersessional group of experts who advise ACAP on issues related to the ongoing highly pathogenic H5Nx avian influenza panzootic. The in-person experts included Dr. Ralph Vanstreels, Dr. Jolene Giacinti (nominated by Dr. Michelle Wille), Dr. Amandine Gamble, and Patricia Pereira Serafini. Virtually, the session featured contributions from Dr. Laura Roberts, Dr. Marcela Uhart, Dr. Meagan Dewar, and Dr. Michelle Wille. We also had a highly informative virtual presentation during the workshop from Dr. Samantha E. J. Gibbs, Wildlife Veterinarian and Chief of the Wildlife Health Office at the Natural Resource Program Center, part of the National Wildlife Refuge System, U.S. Fish and Wildlife Service. We extend our sincere gratitude to Dr. Gibbs for her time and for sharing her expertise on Highly Pathogenic Avian Influenza (HPAI) and the vaccination efforts for California Condors.

In addition to the workshop, the IAPC7 Scientific Committee facilitated the inclusion of a keynote speaker to discuss HPAI impacts and surveillance strategies. This presentation was available to in-person attendees and later online for virtual participants. Dr. Jolene Giacinti was invited and funded through this Secondment to present key insights on the impact of HPAI on seabirds and to highlight the importance of sustained, adaptable surveillance programs, effective data integration, and robust cross-sectoral partnerships. These elements are crucial for protecting avian populations and are integral to the broader One Health framework, which connects the health of animals, people, and ecosystems.

#### **Outcomes and milestones:**

1. Gather and collate data on HPAI recent developments and information available for ACAP species: ongoing activity of the intersessional group of experts on epidemiology, disease risk assessment, and management, advising ACAP on issues related to the ongoing high pathogenicity H5N1 avian influenza panzootic. The group has virtual meetings monthly to collate new information and prepare materials for ACAP. Up-to-date information is shared through the link <https://www.acap.aq/resources/disease-threats/avian-flu>
2. Prepare the workshop materials to provide training. This activity was carried out from March to May 2024, primarily by Dr. Ralph Vanstreels and Patricia P. Serafini, with ongoing support from the intersessional group.
3. Present the training workshop at IAPC7, with the participation of several members of the HPAI Intersessional Group and other specialists. We had the attendance of 30 participants in person and 29 online. Additionally, a keynote speaker funded by this Secondment delivered a one-hour talk on Wednesday, 22 May 2024, titled "From Incursion to Impact: Exploring HPAIV Dynamics and Response" The keynote speech was attended by 105 in-person participants. Both the workshop and the keynote speech are available online.
4. Establish Broader Network with Parties and relevant Stakeholders: During the IAPC7 conference in May 2024, relevant stakeholders were engaged through in-person conversations on the sidelines of the event. Additionally, awareness was heightened during the keynote speech on HPAI H5Nx and the associated workshop, wet lab, and Q&A sessions.

The dynamic and unpredictable nature of avian influenza, particularly when it infects naïve populations, can lead to unforeseen consequences. Continuous efforts are essential to disseminate information that supports the development of local and regional emergency plans.

### **3. PROGRESS AND OUTCOMES OF SECONDMENTS SUPPORTED IN THE 2022 FUNDING ROUND**

The 2022 Secondment applications opened on 4 July 2022. All applicants were successful and a total of \$55,635 was granted to four applicants in February 2023. All were yet to be completed at the time of reporting to AC13 in May 2023 .

**S2022-01:** *Internship at the New Zealand Department of Conservation on mitigation techniques applicable to the artisanal longline fishery off Peru and integrated bi-national seabird distributions of Chatham, Buller's and Salvin's Albatrosses.*

**Secondee:** *Javier Quiñones, PhD. Oficina de Investigaciones en Depredadores Superiores. Instituto del Mar del Peru.*

**Host Institution:** *Department of Conservation, Wellington, NEW ZEALAND.*

**FUNDS GRANTED: \$11,350**

**Summary of activities/outcomes:**

The Secondment took place between 15 April – 15 May 2023.

The work plan included work at the DOC headquarters at Conservation House in Wellington, but also included several trips within New Zealand.

Activities during the secondment:

- 1.- Collaborative seabird-fisheries overlap analyses between New Zealand and Peru
  - 1.1 Collation and analyses of Peruvian artisanal fishing effort data
  - 1.2 Join data analysis (GLS & GPS in New Zealand & onboard sightings in Peru).
  - 1.3 Visits to seabird research projects in New Zealand, such as the Black Petrel (*Procellaria parkinsoni*) conservation project on Great Barrier Island
- 2.- Bycatch mitigation techniques in the longline pelagic fishery
  - 2.1 Learn about the mitigation projects undertaken in New Zealand.
  - 2.2 Meet with staff and liaison officers planning bycatch mitigation research.
  - 2.3 Meet with bycatch mitigation practitioners, skippers and experts.
  - 2.4 Visit pelagic and demersal longline fisheries vessels in Tauranga and Whakatane together with liaison officers and experts.

Outcomes:

Maps were made of the spatio-temporal overlap between fishing effort in the Peruvian artisanal inshore gillnet, drift gillnet, and longlines targeting mahi – mahi and sharks with Salvini's albatross (*Thalassarche salvini*), Chatham's Albatross (*Thalassarche eremita*), Northern Buller's Albatross (*Thalassarche bulleri platei*), Southern Buller's Albatross (*Thalassarche bulleri bulleri*) and the Black Petrel (*Procellaria parkinsoni*), in order to determine the areas where risk of bycatch is highest.

Analysis of which mitigation measures used in the pelagic longline fishery in New Zealand, such as tori lines, hauling mitigation measures, lumo lead, Hook encapsulation devices (Hookpod LED and Hookpod mini), as well as good practices in the discarding of fish offal from target fish and night setting, could be adapted to the artisanal shark fishery in southern Peru, in order to reduce bycatch of albatrosses and petrels. Use of the following mitigation measures is recommended: use of Tori Lines, line weighting, night setting and good practices in offal discards. together with awareness-raising for fishermen.

Mitigations efforts should focus on the areas of highest overlap of effort and albatrosses and petrels: offshore south Peru for Chatham's, offshore central Peru for Salvin's, and the continental shelf area of Peru for Black Petrels.

**S2022-02:** ***Abordaje social de la problemática de la captura incidental de aves marinas en pesquerías comerciales de Argentina***  
*Social approach to the problem of seabird bycatch in commercial fisheries in Argentina*

**Secondee:** *Agustina Iwan. Instituto de Investigaciones Marinas y Costeras (IIMyC). Universidad Nacional de Mar del Plata, CONICET. Argentina.*

**Host Institutions:** *The Commonwealth Scientific and Industrial Research Organisation (CSIRO). Hobart, AUSTRALIA.*

*ARC Centre of Excellence for Coral Reef Studies. James Cook University, Townsville, AUSTRALIA.*

**FUNDS GRANTED: \$19,885**

**Summary of activities/outcomes:**

The Secondment took place from June to November 2023.

The research proposal of the secondment was to determine whether fishers in Argentinian commercial offshore fleets were aware of the concept of bycatch; to address how they had received information related to that topic; if they knew what was a mitigation measure; if they eventually use them and why; what reaction could generate the possible implementation of them and suggestions to improve their uptake. To achieve this, 29 interviews lasting approximately an hour and a half were conducted in Argentina with diverse stakeholders, including individuals from the fishing industry, government management officials, fishers, researchers, on-board observers, representatives of the Fishing National School, and NGOs. A semi-structured questionnaire, comprising 34 questions as part of a PhD thesis, was employed, with five questions specifically chosen for this project. The interviews were recorded, transcribed, and then translated into English. The main objective of the internship was to analyze the data collected, with the guidance of researches based in Australia with great expertise in the field of social marine sciences, fisheries, and human behavior.

The internship commenced in June 2023 in Townsville, guided by Dr. Brock Bergseth at the ARC Centre of Excellence for Coral Reef Studies, James Cook University. Collaborative discussions with Dr. Bergseth and the Argentine advisor, Dr. Sofia Copello, shaped the research project's approach. During that stay I learned to use the Nvivo software that was later used for the coding of the qualitative data. Dr. Jacqueline Lau contributed during this process with her knowledge from social sciences. The internship period included participation in online workshops, fostering professional development and interaction with other PhD students working on marine topics.

The second phase of the internship occurred in Hobart, Tasmania, from October to the end of November 2023, hosted by The Commonwealth Scientific and Industrial Research Organisation (CSIRO). This phase involved data presentation, debate, and the commencement of paper writing. Dr. Ingrid van Putten played a crucial role in shaping the paper's structure and content. I also attended the Center for Marine Socioecology Interdisciplinary Spring School 2023, worked on a group proposal, and observed CCAMLR as part of ACAP, evaluating the implementation of international treaties related to marine conservation. The objectives of the internship were achieved, as I was able to gain expertise in my professional path, gain knowledge from researchers and institutions with a long history

in marine conservation and social science issues and bring that to Argentina and the lab group. With all the information gathered and analyzed during the internship, I am working on the writing of a paper with collaborations between Argentinian and Australian researchers. The preliminary results indicated:

- The primary association of bycatch by fishers was not typically related to the unwanted catch of marine megafauna.
- Limited training on this topic was observed, mostly occurring in workshops or talks, with identified challenges affecting the effectiveness of such training.
- A prevailing perception existed that crews might be hesitant to adopt mitigation measures, with differing opinions between businessmen and fishers.
- Actual implementation of mitigation measures was notably lacking, with stakeholders citing various reasons for this shortfall, particularly noting their cumbersome nature.
- Recommendations were proposed to enhance the adoption and compliance of mitigation measures, focusing on improvements in fisheries management and fostering collaboration among stakeholders.

Considering these results, further research in collaboration with different stakeholders, particularly those using mitigation measures, is crucial for improving compliance. Incorporating fishers' opinions throughout the development of mitigation measures, along with enhancing the quality and frequency of bycatch training and ensuring consistency in fisheries management, is recommended.

**See SBWG12 Doc 18 for more information.**

**S2022-03:**            ***Multi-fishery interactions of sympatric black-browed and grey-headed albatrosses from the Diego Ramírez Islands: An isotopic and tracking approach.***

**Secondee:**            *Cristián G. Suazo. Albatross Task Force, Chile.*

**Host Institution:**    *Centro Para el Estudio de Sistemas Marinos, Centro Nacional Patagónico, CONICET, Puerto Madryn, ARGENTINA.*

**FUNDS GRANTED:**    **\$12,100**

**Summary of activities/outcomes:** Report pending.

**S2022-04:**            ***Improving knowledge of petrel numbers and distribution in the South Atlantic: Burrowing bird censuses using detection dogs***

**Secondee:**            *Naomi Cordeiro. Green Hound Limited.*

**Host Institution:**    *Department of Conservation, NEW ZEALAND.*

**FUNDS GRANTED:**    **\$12,300**

**Summary of activities/outcomes:**

The Secondment took place from 7 to 25 August 2023.

Working with the NZCDP detection dog teams, Naomi undertook a range of activities such as observing training and live searches to understand how dogs can be used to detect burrowing seabirds. This provided Naomi with first-hand experience and understanding of the intricacies of burrowing seabird surveys with dogs, the safety measures needed as well as all other nuances and details that cannot be learned remotely.

Long-term benefits of this project include:

- A certified, locally-based detection dog-team, capable of conducting surveys and censuses.
- Capacity to train additional dog-teams, with potential to expand to other priority species.
- Enhanced capability of the UK's ACAP programme to incorporate improved survey techniques, resulting in better understanding of population trajectories, and development of robust conservation management actions/strategies.

**See PaCSWG Inf 01 for full report.**

#### **4. PROGRESS AND OUTCOMES OF SMALL GRANTS SUPPORTED IN THE 2020 FUNDING ROUND**

The 2020 Small Grants Programme applications opened on 4 September 2020. Nine projects were granted a total of AUD 137,842 in February 2021. The COVID-19 pandemic delayed or otherwise disrupted some projects. Four small grants were still ongoing at the time of reporting to AC13 in May 2023 (see [AC13 Inf 02](#)).

**ACAP 2020-03: *Pilot study: Non-invasive disease monitoring of Albatrosses and Petrels***

**Project Leader:** *Dr Meagan Dewar, Australia*

**FUNDS GRANTED: \$25,100**

##### **Summary of activities/outcomes:**

Collection of samples from various ACAP species and potential vectors has been completed and sequencing via the MinION using either a shotgun metagenomics approach or 16S rRNA amplicon sequencing has been completed. Data was analysed using Oxford Nanopores EPI2ME Labs software, BugSeq (for cDNA reads) and CZ ID Metagenomics. Output from the shotgun metagenomics approached varied across species, extraction method, sequencing kit and flow cell. Increased data output was observed using the improved chemistry of the R10 flow cells and SQK-RBK114.24 sequencing kit. However, high sequencing output was not achieved using the rapid barcoding kits. This is most likely due to Nanopores requirement of 'highly pure' DNA/cDNA and the presence of inhibitors in seabird faeces following extractions. Inhibitors were present in all extractions regardless of kits. This is a common issue with seabird faeces.

For the 16S amplicon sequencing approach, higher sequencing output was achieved. This is most likely due to 1) sample input (cloacal swabs usually have less inhibitors) 2) PCR amplification process, and dilution of samples can reduce the level of inhibitors.

Although output wasn't as high as with other species, both the shotgun and 16S approach did detect a range of bacterial pathogens and parasites in the various seabirds. These pathogens included; *Pasteurella multocida* (Avian Cholera), *Erysipelothrix rhusiopathiae*, *Paeniclostridium sordellii*, *Bartonella rattaaustraliani*, *Escherichia coli* O139:H28, *E. coli* O126:H45, *Eimeria* spp., *Plasmodium falciparum*, *P.malariae*, *P. vivax* and *Toxoplasma gondii*. In addition to known animal pathogens a range of human pathogens were also detected including *Campylobacter* spp., *Clostridium botulinum*, *Klebsiella* spp and *Listeria* spp.

Samples stored in ethanol and DNA/RNA shield provided similar results for DNA extraction across the various kits. High levels of DNA were extracted from the swabs using Qiagen Power Faecal Kit, with good A260/280 ratios. But similar to other kits, the A260/230 ratio was bad indicating potential contaminants/inhibitors in the sample.

Due to COVID-19 restrictions and recent Avian Influenza outbreaks, there were some delays in collecting samples and sequencing. Now that all MinION sequencing has been completed and the Metagenomics analysis will be completed shortly. A guide to using MinION and the portable 'lab in a suitcase' will be produced and made available to members.

**ACAP 2020-09: *Winter fine-scale movements of black-browed albatrosses and encounters with fishing vessels***

**Project Leader:** *Dr Alastair Baylis, South Atlantic Environmental Research Institute*

**FUNDS GRANTED: \$12,600**

**Summary of activities/outcomes:**

The work has been completed. Final report is pending.

**ACAP 2020-15: *Estimating interactions with fishing vessels and their demographic impact on sooty albatrosses***

**Project Leader:** *Christophe Barbraud, Centre d'Études Biologiques de Chizé (CEBC-CNRS UMR7372 – La Rochelle University), France*

**FUNDS GRANTED: \$11,500**

**Summary of activities/outcomes:**

(This project was postponed to austral summer 2022-2023 due to a delay in funding for the XGPS loggers.)

The goal of this project is to complement the objectives of the related French Polar Institute project (n°109, PI C Barbraud) focusing on the impacts of global changes on seabirds of the

Southern Ocean. More specifically the objectives of the present project are to: 1) obtain accurate information on interactions between fisheries and sooty albatrosses by using loggers detecting and locating presence of vessels; 2) estimate the proportion of birds attending fishing boats after co-occurrence; 3) provide an estimate of the proportion of vessels illegally deactivating their Automatic Identification Systems (AIS), by comparing the data made available by AIS to those provided by the bird-borne radar detectors; and 4) assess the demographic and population impact of interactions with fishing vessels.

The project started with the deployment of 13 XSputnik radar detection devices on breeding adults of sooty albatrosses at Possession Island, Crozet from November 2022 to January 2023. Following a pre-analysis phase of the tracking data in February-March 2023, AIS data covering the oceanic region used by sooty albatrosses were purchased to CLS in spring 2023. Activity data, location data and AIS data issued from the XSputnik and fishing boats were analysed from summer 2023 to winter 2023. A manuscript was submitted for publication in April 2024.

A total of 12 devices were retrieved out of the 13 deployed on incubating sooty albatrosses. No data was recovered from one device, likely due to water logging. From the 11 individuals tracked between 27-Nov and 25-Dec (14 foraging trips), a total of 2,682 hours of tracking were recorded. Sooty albatrosses travelled on average  $5285 \pm 1320$  km per foraging trip during incubation, for a mean duration of  $229 \pm 49$  hours at sea, and a mean maximum distance from the colony of  $1340 \pm 340$  km. The three trips in early chick-rearing were much shorter, with a mean travelled distance of  $908 \pm 434$  km, a mean duration of  $52 \pm 31$  hours and a mean maximum distance from the colony of  $442 \pm 30$  km. During incubation, all individuals travelled further than the extent of the EEZ of Crozet Islands, foraging mostly north of the Sub-Antarctic (SAF) and Sub-tropical fronts (STF).

During the tracking period, 310 vessels were identified (using AIS data set) in the study area, including 26 fishing vessels (8.4%). Sooty albatrosses were recorded 44 times within 100 km of a vessel, of which 14 corresponded to a fishing vessel (31.8%). Of these instances, individuals were recorded 16 times (six different individuals) within 30 km of a vessel (five fishing vessels; 31.3%), and four of these encounters (3 different individuals) ended up with an individual recorded within 5 km of a vessel (one fishing vessel; 25%). Two vessels were detected using radar detection devices deployed in combination with tracking devices attached on the birds. They both matched a vessel attendance (individual within 5 km) detected with the vessel AIS. One of these was a fishing vessel. There was no detection of any vessel that was not identified within the Global Fishing Watch AIS data base.

**ACAP 2020-19:** *Sub-lethal effects of plastic ingestion in albatrosses and petrels: the Southern Giant Petrel as case study.*

**Project Leader:** *Luciana Gallo, Instituto de Biología de Organismos Marinos (IBIOMAR-CONICET), Argentina & Marcela Uhart, Karen C. Drayer Wildlife Health Center, University of California, Davis, USA*

**FUNDS GRANTED: \$18,500**

**Summary of activities/outcomes:**

General objective: Evaluate the usefulness of selected biomarkers of toxicity and health status to assess sub-lethal effects of plastic ingestion in Southern Giant Petrel (SGP, *Macronectes giganteus*) chicks.

Objectives 1-3: Assess plastic ingestion by SGP chicks. Measure selected biomarkers of toxicity and health status in chick blood samples. Measure morphometrical parameters related to body condition of chicks.

Samples were obtained during the chick-rearing period at Arce (2022) and Gran Robredo (2023) islands, Chubut, Argentina. Each season we randomly selected 30 nests, collected blood samples (<2 ml; n=30), morphometric measurements (n=30), and voluntary regurgitates (2022=12, 2023=24) from ~30-day-old chicks. At ~90 days of age, we repeated sampling and recaptured chicks (2022=26, four regurgitated; 2023=23, 21 regurgitated). Also, control chicks were weighed in 2022 (n=10, six regurgitated), or bled and weighed in 2023 (n=17, all regurgitated).

Objective 4: evaluate the relationship between plastic ingestion (presence, number of pieces, plastic mass and volume) and selected parameters.

Of 84 regurgitates examined, 60 (71.4%) had plastics, ranging from 1-14 items, with an average mass of 0.2510g and volume of 0.2278cm<sup>3</sup>. Summary of metrics by age and season are provided in Table 1. Size and some categories of colour and types of plastic items varied between seasons (Table 2).

We found marked age class (early and late season chicks) and inter-annual variation in blood and morphometrical parameters analysed (Tables 3-5). Our findings suggest that some biomarkers of toxicity and health status were slightly influenced by plastic ingestion in chicks (Tables 6-7, Figures 2-3). In ~30 day old chicks, plastic ingestion was associated with early signs of toxic harm (e.g., increased liver enzymes aspartate aminotransferase, alkaline phosphatase and lactate dehydrogenase), and muscle catabolism (increased creatinine phosphokinase). Also, we found a relationship between the number of items ingested and parameters reflecting general physical and nutritional condition, such as decreased cholesterol, total solids, body mass, body condition index; and increased packed cell volume and calcium. In addition, the percentage of lymphocytes decreased, while the heterophils increased, resulting in an increase in the ratio between both leukocyte types (indicator of stress), although the latter was not significant. Of note, these effects seem to be attenuated and/or reversed prior to fledging, yet ~90 day old chicks showed induction of glutathione-S-transferase enzyme (GST, antioxidative capacity), and a significant increase in calcium associated with plastic ingestion. Our results show that plastic ingestion is a common direct threat for SGP chicks since most are fed plastic by their parents. A deeper look also suggests indirect effects, yet these are stronger in younger chicks and several indicators tend to improve by the time of fledging.

**See PaCSWG8 Inf 11 for a full report.**

## **5. PROGRESS AND OUTCOMES OF SMALL GRANTS SUPPORTED IN THE 2019 FUNDING ROUND**

The 2019 Small Grants Programme applications opened on 30 August 2019. Seven projects were granted a total of \$134,296 in February 2020. The COVID-19 pandemic delayed or otherwise disrupted some projects. Two small grants were still ongoing at the time of reporting to AC13 in May 2023 (see [AC13 Inf 02](#)).

**ACAP 2019-12: *Demographic monitoring, at-sea movements, and scavenging behaviour in the Balearic shearwater***

**Project Leader:** *Professor Tim Guilford, Department of Zoology, Oxford University, UK*

**FUNDS GRANTED: \$20,702**

**Summary of activities/outcomes:**

Final report is pending.

**ACAP 2019-14: *Examining the efficacy of the ‘snatch block’ in reducing seabird bycatch in Southern Cone trawl fisheries***

**Project Leader:** *Cristián G. Suazo, Albatross Task Force-Chile, BirdLife International-Codeff*

**FUNDS GRANTED: \$22,224**

**Summary of activities/outcomes:**

Final report is pending.

**See also SBWG12 Inf 19.**

## **6. PROGRESS AND OUTCOMES OF SECONDMENTS SUPPORTED IN THE 2019 FUNDING ROUND**

Applications for the 2019 Secondments Programme opened on 23 August 2019. All applicants were successful and following some budget and timeframes revisions, a total of \$22,280 was granted to three applicants. All projects were delayed due to COVID-19 international travel restrictions, two were yet to commence at the time of reporting to AC13 in May 2023 (see [AC13 Inf 02](#)).

**S2019-02: *Improving museum routines and curatorial skills in New Zealand***

**Secondee:** *Alice Pereira, Technical Consultant at Projeto Albatroz, Curator at National Brazilian Albatross and Petrels Sample Bank (BAAP), BRAZIL*

**Host Institutions:** *NEW ZEALAND Department of Conservation, and Museum of New Zealand*

**FUNDS GRANTED: \$10,700**

This Secondment took place between 3 July – 14 August 2023.

Secondment general objectives:

- Obtaining curatorial expertise for usage on National Brazilian Albatross and Petrel Biological Sample Bank;
- Strengthening the relationship between researchers from Brazil and New Zealand, both ACAP parties;
- Facilitating future collaborative projects between countries and, where feasible, exchanging samples or materials needed by the involved parties for their collections/museums.

#### SECONDMENT ACTIVITIES

- On 3 July, upon my arrival in Wellington, I attended the monthly meeting of the New Zealand Birds group. Attending this event was not only a requirement for meeting the people I would collaborate with at Te Papa but also an opportunity to connect with other significant figures in the field of ornithological studies in the country.
- I had the opportunity to meet some of museum personnel and familiarize myself to all museum facilities. The two supervisors overseeing my secondment schedule were Alan J. D. Tennyson, the Vertebrate Curator specializing in birds, palaeontology, conservation and general natural history, and Colin Miskelly, the Curator and Birds New Zealand Councillor.
- Starting from 6 July, I followed the schedule outlined by my supervisors, which primarily involved two main activities: conducting tissue sampling from carcasses and cataloguing feather samples on feather database. Additionally, both supervisors emphasized that I had the flexibility choose any other activity that deemed important to Brazil. Consequently, I dedicated part of my time to the extensive osteological material housed at Te Papa. I measured and analysed skeletons from selected species of albatrosses and petrels, aiming to address questions related to morphology and morphometry and, potentially to differentiate cryptic skeletons of particular species.
- I met with colleagues responsible for managing the Te Papa database, known as Emu. During this talk, I gained proficiency in using the database for searching material.
- Visit to Department of Conservation (DOC) office in Wellington, where I was introduced to key individuals working with albatrosses and petrels, particularly Igor Debski and Johannes Fischer.
- On 11 July, I participated in the online meeting of Conservation Services Programme (CSP) Technical Working Group from DOC. The meeting focused on presenting population reports of New Zealand species, including the Southern Buller's albatross, Black petrel, Flesh-footed shearwater, Westland petrel, and albatrosses from Chatham Islands.
- From 17 to 20 July, I embarked on an expedition to Mana Island with Colin Miskelly, Johannes Fisher and Arawhetu Waipoua, undergraduate student from Otago University.

The purpose of the trip was to capture the Common-diving Petrel and assess the efficiency of transmitters according to body attachment (back or tail mount).

- On 19 July, during our time on Mana Island, Johannes Fischer organized an online meeting with Ariel-Micaiah Heswell, PhD student from Auckland University. The purpose of this to exchange information about ongoing activities in both countries related to plastic ingestion and plastic assessment procedures.
- Throughout these activities, I collaborate with the technician, Catherine Tate, on curatorial routines such as carcass dissection, bone maceration, bone cleaning, bone identification (including assigning accession numbers), and taxidermy of partial wings.
- On 8 August, Igor Debski organized an online meeting to connect me with Janice Molloy from Southern Seabirds Trust. The primary focus of this meeting was to exchange experiences regarding seabird bycatch. We explored the challenges each country faces and discussed strategies being employed for resolution. Tiffany Plencher, an expert from DOC, also participated in the meeting.
- On 11 August, I visited the Wildlife Management International (WMIL), in Blenheim with the aim of meeting Elizabeth Bell, the managing director. The purpose of this visit, organized by Igor Debski, was to dissect and collect samples from bycatch birds that had been sent to WMIL.
- I travelled to Dunedin on my own for two days (26 - 27 July) to visit the Royal Albatross Centre and the University of Otago.

While some activities at Te Papa museum were familiar to me, many were executed in a different way. For instance, the taxidermy process, the techniques for tissue sampling and feather collection, storage practices. These differences provided valuable experiences and expanded my procedure options.

Another noteworthy aspect is the utilization of Emu database. Accessioning (or cataloguing) can be approached from various perspectives, such as focusing on the sample or the specimen. This choice affects the process of searching materials and finding specific items, and providing an overview of the collection's size.

I want to emphasize the significant role that fieldwork plays in museum routines. My expedition to Mana Island and Royal Albatross Centre was crucial for gaining deep understanding of seabird ecology of seabirds the challenges of obtaining certain samples.

Developing collaborative studies that involve samples from both breeding sites and wintering areas is needed for understanding the issues of each seabird species.

Collections play a pivotal role in these circumstances. The management of samples and the interaction of collections with one another are essential to addressing gaps to offer and providing researchers with reliable material.

While some subjects were not within the scope of this secondment, they have contributed valuable experience and knowledge for other activities I undertake in Brazil. As technical consultant at Projeto Albatroz and a participant in the Brazilian National Plan of Action for Albatrosses and Petrels Conservation, I am closely involved in matters related to fisheries and bycatch. Understanding how New Zealand addresses these issues became important for me during discussions with experts, as it allowed me to explore potential solutions for challenges we face in Brazil, especially in the meeting with Janice Molloy.

The Conservation Services Programme meeting also provided valuable insights into video monitoring and sampling birds on the sea. I exchanged ideas with Ariel and gained inspiration to propose similar work on plastic assessment in Brazil to my research colleagues. Since 2019, we have been collaborating on research about plastics and phthalates with Argentina. Eventually, I deepened my knowledge on GLS transmitters and the field techniques applied in this tracking method.

**S2019-03:** *Entrenamiento en rehabilitación, determinación e identificación de enfermedades patógenas en aves marinas*  
*Training in rehabilitation, determination and identification of pathogenic diseases in seabirds*

**Seconded:** *Rubén Antonio Alemán Lucero, Ministerio de ambiente – Parque Nacional Machalilla, ECUADOR*

**Host Institutions:** *Associação R3 Animal- Florianópolis-SC-Brasil and Centro Nacional de Pesquisa e Conservação das Aves Silvestres – CEMAVE, Instituto Chico Mendes de Conservação da Biodiversidade – ICMBio, Ministério do Meio Ambiente – MMA, BRAZIL*

**FUNDS GRANTED: \$4,540**

This Secondment did not take place as planned.