

## CSP Project Longlist 2024/25

INT, POP or MIT	Title	Summary	Duration (Years)
INT-01	The influence of commercial fisheries derived food on Southern Buller's albatross during the breeding season	This desk-top study aims to map seabird activity around fishing vessels by combining tracking data from POP2023-02 with vessel data for target species, bait use and waste management, and will also combine results from DNA dietary studies (INT2023-08) using samples collected at the colony from tracked individuals. Southern Buller's albatross is the seabird at highest risk from domestic commercial fisheries, and 70% of the risk comes from trawl fisheries. This project will improve understanding of fine-scale spatiotemporal movements of individual birds around vessels during breeding season (particularly during the guard stage when foraging trips are much shorter distances away from the colony and likely to include discards/bait from fishing vessels) to quantify the use of fisheries bait, discards and offal vs naturally foraged prey. Large vessel southern trawl fisheries are likely to be most influential. Results will help better understand the fine-scale spatial fisheries risk, the role of fisheries-derived food, and the development of vessel management plans and better inform risk assessments.	1
INT-02	Testing bycatch mitigation scenarios for protected corals in New Zealand using best available information	Building on results and recommendations stemming from CSP projects INT2022-04 (coral risk assessment), POP2021-02 (coral hotspots), and POP2022-04 (coral cataloguing), this project seeks to map new distribution and abundance results for protected corals and to test them against multiple bycatch-reduction scenarios at the species to morphotype to (sub) class level (i.e. the four protected coral groups) across the EEZ (excluding the territorial sea). Firstly, the most current information on coral distribution and abundance (including hotspots) will be mapped against recent and historical fishing effort for multiple methods to update understanding of areas of overlap based upon new coral diversity and effort data. Secondly, as defined via stakeholder working groups and workshops, multiple hypothetical scenarios to mitigate and reduce bycatch will be tested to assess best options to manage fishing impacts on corals at multiple scales, including, for example, those at highest risk (from INT2022-04), in areas of high diversity/and or abundance (from POP2021-02), or other rare / limited taxa (POP2022-04). Hypothetical scenarios could consider effects on rates and diversity of coral bycatch from, for example, spatial closures, relevant national and international obligations, fishery input / output control settings, or consideration of species-specific measures or encounter thresholds; including methods such as management strategy evaluations or structured decision making - these approaches will be refined and agreed with the supplier as the project progresses in line with any relevant or comparable policy. The project therefore offers the opportunity to ensure best available information from recent CSP projects is considered in future coral bycatch reduction initiatives and it will facilitate ongoing inter-agency and stakeholder agreement regarding coral bycatch mitigation.	1

INT-03	Exploring impacts and recovery potential of protected deep-sea stony corals, utilising Remotely Operated Vehicle capability on RV Sonne in the New Zealand region.	Multiple CSP and AEWG TWGs have identified a gap in understanding coral diversity and distribution through direct observation, and this gap is identified in the CSP Coral Medium Term Resrach Plan. This project will benefit from a rare and cost effective opportunity to deploy New Zealand coral researchers on a NZ-EEZ wide research voyage aboard German vessel the RV Sonne in January 2025 on the 26 day expedition CoralNewZ. The scientists will participate in multiple research activities including revisiting locations monitored for long-term seamount recovery study on Graveyard Knolls (Chatham Rise) as well as explore new sites in the region that are both unfished and potentially impacted by fisheries – Puysegur Bank, off Fiordland, and Colville Ridge, re-examine fished vs. unfished seamounts to gauge feature-specific impacts and recovery, determine the functional role of fish and fisheries in coral ecosystems, ground-truth predictive habitat models, collect samples and live specimens for further experiments and genetics from areas previously examined via biodiversity trawl surveys, alongside novel areas lacking in current sampling and understanding (as identified through CSP projects POP2021-02 'hotspots' and POP2022-05 'coral cataloguing' -both of which have informed the voyage plan). There is additionally scope to retrieve settlement plates, and tag colonies for growth and photogrammetry work - plus additional coral reseach TBD. Of a team of 35 scientists, there are berths for 8 New Zealanders. The indicative budget is based upon ship-time only for 2 junior scientists, OR pre-and post-voyage analysis/processing time and ship-time for 1 senior scientist, with an additional DOC government observer to provide time in kind. This project has substantial cost leverages on a state-of-the-art vessel with a Germany-based team of coral experts, including technology not available on the RV Tangaroa (ie ROV material collection and targeted footage collection) that would substantially improve our understanding of offshore corals and the impacts of commercial fisheries on them.	2
INT-04	Distribution of protected corals in southern Fiordland and risk of fisheries interactions	This project builds upon INT2022-05 Determining the resilience of Fiordland corals, and continues southern Fiordland protected coral distribution mapping and overlap with fisheries assessment for other types of protected corals in addition to black corals in INT2022-05 (ie stony cup corals, gorgonians and stylasterids). Preliminary video footage from INT2022-05 has revealed large areas of protected cup corals, gorgonians, and lace corals outside of closed areas that are at present not mapped or surveyed systematically; as such there are no data on where these taxa overlap with local fishing effort. The indicative budget mirrors the previous project and would cover some fieldwork and video survey analysis; there are significant cost leverages for the fieldwork component of this project including ROV accessibility.	2
INT-05	Interaction of spotted shags with northern North Island set net fisheries	The northern North Island population of spotted shags are recognised as a species of concern under the NPOA Seabirds 2020 and have suffered alarming population declines. Shags are known to be susceptible to bycatch in set nets and the coastal foraging range of these birds overlaps with set net effort. A tracking programme by Auckland Museum in collaboration with Oregon State University has been undertaking a comprehensive tracking and dive behaviour project on this vulnerable population. This project will analyse the data collected in the context of commercial set net fishing effort to make it readily available to inform fisheries management actions, including to identify areas and times where fisher outreach and seabird bycatch mitigation uptake should be targeted to minimise the impact of these fisheries on this population.	1
INT-06	Westland petrel overlap with commercial fishing effort	Westland petrel is classified on a relative scale as at High Risk in the updated SEFRA 2023. This project leverages considerable historic tracking and ongoing research collaboration interest to support further at-sea tracking. The project will include the analysis of raw data in the context of domestic fisheries to better inform fisheries management processes. Opportunities for collaboration on the deployment of tracking devices will be maximised.	1

INT-07	Understand the effects of fishing depth on turtle bycatch	This project will build on current depth-logger deployments planned under project MIT2023-02, which aims to broadly characterise hook depth profiles across surface longline fisheries. This project would focus additional depth loggers on vessels operating in areas of turtle occurrence reporting turtle bycatch, and those that aren't, to understand if differences in gear setting have an impact on bycatch rates.	2
INT-08	Understanding great white shark interactions with BLL, set-net and trawl fisheries	Nationally endangered great white sharks are most commonly reported as bycatch in bottom trawl fisheries, particularly around the Auckland Islands, in BLL fisheries around northern New Zealand (FMAs 1,5,6, & 9) and in set-nets. Bycatch occurs mostly between Dec-Mar. Between 2008-2021, 136 great white sharks were caught in fisheries (observed and fisher reported). 39 of those between 2017-2021. Regular review is necessary to identify trends and factors that may be increasing the risk of captures (AEBR 289, 2021). This project aims to characterise the nature and extent of how great white sharks are interacting with snapper BLL, SQU trawl, and set-net fisheries to better inform risk assessments in these high risk fisheries with a view to developing improved mitigation strategies. Research will include talking to vessel operators with higher catch rates to gain insight into the how and when great white sharks are interacting with vessels/gear. Results will be used to better inform predicted bycatch outputs from the SEFRA model.	1
INT-09	Entanglement of great white shark, seabird, leatherback turtles and humpback whales in potting lines.	Building on previous CSP projects investigating marine mammal entanglements this project will characterise the nature and extent of other protected species entanglements with potting lines. Focus will be on most at risk species of seabird, shark, turtle and whale using observer and EM data where possible. Humpack research will potentially be extended into another project in 25/26 to examine occurrence as determined by acoustic data with fishing effort and correlation with previous entanglements.	1
INT-10	Seabird ID app	This project will use existing seabird identification resources targeted at observers to develop a phone app targeted at commercial fishers. The app would facilitate improved accuracy of fisher-reported seabird interactions. There is the potential to expand this project to include supplementary advice on handling and release.	1
INT-11	Factors influencing risk of Hector's dolphin bycatch in trawl and set net	This project will be a small desktop study investigating the impacts of environmental and operational variables like vessel speed and headline height on dolphin bycatch.	1

INT-12	Impact of fishing on the ecosystem services provided by deep-sea corals in the New Zealand region	The proposed project will determine the relationship between the abundance/biomass of protected deep-sea corals and the ecosystem services they provide, and compare the provision of these services in fished, unfished, and closed areas, focusing on representative habitat-forming species (e.g., <i>Solenosmilia variabilis</i> , <i>Madrepora oculata</i> , <i>Goniocorella dumosa</i> , <i>Enallopsammia rostrata</i> ) of protected stony corals impacted by deep-sea trawling. This study will be the first to assess coral ecosystem services in New Zealand waters. Deep-sea corals provide important ecosystem services, for example provision of habitat for a high diversity of associated invertebrate taxa, habitat and nursery grounds for commercially exploited fish and carbon cycling and storage. The project will use existing image data taken on the Graveyard and Andes seamount complexes on the Chatham Rise, and elsewhere in the EEZ (depending of suitability of available data), to establish the relationship between the abundance of corals and the abundance and diversity of associated invertebrates and fish, and use this information to establish coral density thresholds at which significant amounts of biodiversity are supported. Information on the size and behaviour of the imaged fish will be used to determine if there is evidence that habitat-forming corals provide a potential nursery ground for juvenile fish. Additionally, the image abundance data can be used to determine the coral biomass as a proxy for the carbon storage provided by coral habitat at particular coral densities. The results of the project can be combined with existing data (i.e., distribution of trawling), results from recently completed studies (i.e., abundance-based species distribution modelling of protected corals, POP2021-02 coral hotspots) as well as results from ongoing work (i.e., influence of spatial closures on coral populations) to improve understanding of the potential impact of fishing on the coral ecosystem services, and the likely success or otherwise of mitigation strategies to avoid/minimise the adverse effects of commercial fishing on protected corals. This project has been updated and resubmitted to CSP from NIWA, based upon a similar proposal from 2022/2023.	1
MIT-01	Testing the utility of visual deterrent options to mitigate incidental bycatch of protected species in set nets	Visual deterrents show potential for reducing bycatch of seabirds in set nets. For example, green LED lights have shown some promise for reducing seabird bycatch in set nets (Mangel et al. 2018). In addition, Looming Eye Buoys deployed in the vicinity of set nets can act as a visual deterrents above water, reducing the abundance of seabirds near nets (Rouxel et al. 2021). However, there remains some uncertainty for both methods around their application, including potential unintended consequences for seabirds and target fish species, particularly in a New Zealand context. This project aims to test the effectiveness of visual deterrents on protected species and their impact on catch of target species. This project will be designed to complement planned research by Fisheries New Zealand under project PRO 2024-03 and use a combination of under-water deployed cameras and shore and/or boat-based human observers on the surface to monitor and assess behaviour of marine wildlife (including target fish species) in response to the visual deterrents.	1
MIT-02	Assessment of weighted hooks as a seabird bycatch mitigation option for surface longline fisheries	Following feedback from a range of fishers on the prototype of a weighted hook, the Procella hook, work is underway to manufacture an operationally and economically feasible product. This product will support the planned at-sea testing of the Procella hook to quantify the sink rate achieved in comparison to current best practice methods, investigate any effect on target fish catch and identify any practicality issues with their use.	1
MIT-03	Protected Species Liaison Programme	Building on MIT2021-01, this project aims to continue the work of the inshore/HMS Protected Species Liaison Programme. Liaison Officer (LO) work will continue to include outreach and education of protected species bycatch information, as well as advice on bycatch risk reduction especially when following up trigger events. LO's will also continue to liaise with commercial fishers in their area in order to establish/review/update Protected Species Risk management Plans. This next iteration of the project will look to expand capacity in programme coordination, liaison officer support, as well as establish an efficient and effective platform for data collection and operations. A component of this project will also look to support targeted seabird SMART workshops under collaboration with industry.	3

MIT-04	Hector's dolphin acoustic deterrence in trawl and set net fisheries	There is evidence to support the trial of pingers and Acoustic Deterrent Devices (ADDs) as a mitigation tool to reduce bycatch of Hector's and Māui dolphin in NZ inshore fisheries. Building on the work and methodologies developed in MIT2019-01 this project will aim to achieve a staged approach to pinger and ADD research through the following objectives: 1. To determine the types and specifications of pingers and ADDs currently in use in the New Zealand set net fleet, 2. To identify operational, biological and environmental factors which may constrain viable device options, and 3. To provide recommendations on the most effective and viable acoustic devices for further testing. This can lead to a follow-up project considering at-sea trials of recommended acoustic devices.	1
MIT-05	Enabling seabird bycatch mitigation in the surface longline fleet	This project will continue to support the surface longline fleet to apply best practice seabird bycatch mitigation (as defined in the mitigation standard). This project will include ongoing provision Hookpods to the surface longline fleet facilitating alignment to best practice mitigation standards. Cost efficiencies from bulk orders would be maximised. The project will also support further efforts to minimise bycatch using other methods, including those during the soak and haul period in accordance with relevant recommendations arising from MIT2022-01, MIT2023-01 and MIT2023-02.	1
MIT-06	Efficacy of seabird mitigation in large vessel trawl	Existing observer data was found to be insufficient to adequately quantify the effectiveness of bird bafflers and other mitigation (MIT2022-05). This project will develop new targeted at sea observational data collection for a range of baffler configurations, as well as further assessment of minimising the pooling area for mitigating net captures. Data collection would primarily be through observers, with consideration of other tools such as temporary camera deployments at the back of the vessel. The project will analyse the first year of data collection and make recommendations for ongoing monitoring needs.	2
MIT-07	Using thermal cameras to assess effectiveness of seabird mitigation	This project will assess the utility of thermal cameras to quantify seabird attendance around vessels as a proxy for risk, noting their applicability to night observations. Visual seabird attendance protocols are currently used to quantify risk and effectiveness of seabird mitigation devices, but are limited to daytime. These trials will involve a comparison of visual and thermal camera collected data. The potential use of thermal cameras allows for the assessment of effectiveness of night setting as a mitigation option across a range of moon lumination.	1
MIT-08	Adaptive management tool for small vessel bottom longline	An initial adaptive management tool to allow fishers to assess sink rate was developed as part of MIT2018-03. This project would seek to progress this tool for widespread use across the fleet. Key issues to address include the accurate recording of TDR deployment time to ensure accurate measurement of sink time to 5 or 10m depth. This information is key to inform the suite of seabird bycatch mitigation used while setting.	1
POP2023-03	POP2023-03 Updated population estimate and marine habitat utilisation of yellow-eyed penguins/hoiho breeding on Campbell	POP2023-03 has been approved for two years, but rising costs are predicted for year two based on experience gathered in Year 1. This includes increased personnel and vessels costs (local vessel support of approx. 7 days worth approx. \$40,000), and some of our equipment will also need replacing (satellite tags, GPS Dive loggers worth approx. 30,000) and laboratory costs.	
POP2023-04	POP2023-04 Campbell Island Seabird Research	POP2023-04 has been approved for two years, but running a project on Campbell with considerable seabird tracking effort on \$90,000 only has proven challenging despite the cost saving synergies with POP2023-03. DOC has invested an additional ~\$50,000 into this project in the shape of tracking devices, remote cameras and other opex costs, and FNZ has provided tracking devices worth ~\$120,000. Given this considerable investment, we are requesting to consider increasing the POP2023-04 budget by an additional \$20,000 for the second year.	
POP-01	Flesh-footed Shearwater population monitoring	Project POP2021-04 aimed to collect data to make improved estimates of juvenile survival and recruitment, amongst other things. However, juvenile recruitment of flesh-footed shearwaters has been much more delayed than anticipated and as such, the investment made through POP2021-04 has not paid off yet. As such, we are proposing a reduced additional season to the project to continue the monitoring effort allowing us to still estimate this key population parameter.	1

POP-02	Opportunistic collection and feasibility study for reproductive observations and experiments on live deep-sea protected stony corals collected in the New Zealand region.	This project is an experimental approach that will utilise live, protected deep-sea coral specimens collected on the RV Sonne voyage and maintain them longterm in-aquaria, with the aim of observing and conducting experiments on reproductive and larval biology. This new information will contribute to our understanding of the productivity and vulnerability of coral species to fishing impacts and their ability to recover from these disturbances; such information can also be used to parameterise risk assessments and spatial management scenarios. The study will assess the feasibility of maintaining specimens in aquaria and will employ histological approaches to determine reproductive traits on a seasonal basis. The indicative budget includes contribution to on-board costs for initially maintaining corals on board the RV Sonne voyage and at NIWA's Marine Environment Manipulation Facility, subsequent periodic historical sampling, and reporting. Focal species include the stony branching corals <i>Solenosmilia variabilis</i> , <i>Enallopsammia rostrata</i> , <i>Madrepora oculata</i> , and <i>Goniocorella dumosa</i> and potentially stony cup corals, ie fragile morphotypes subject to direct impacts of bottom trawling that constitute a large portion of coral bycatch in New Zealand. This project builds upon previous DOC CSP projects, including BCBC2020-01 and POP2022-03 and incorporates international subject matter expertise on deep sea coral reproduction.	2
POP-03	Deep-sea protected coral reproduction – next steps: Specimen collection and method development	This project builds upon findings and recommendations from BCBC2020-01 and POP2022-03 and will increase the breadth of coral taxa assessed for their reproductive traits, focusing specifically on Antipatharia (black corals), bubblegum octocorals ( <i>Paragorgia arborea</i> ) and the branching stony coral <i>Solenosmilia variabilis</i> . The research will employ histological techniques and fisheries observer-derived coral specimens and will 1. facilitate collection of coral specimens for histological analyses by observers, 2. develop methods for histological analysis on collected samples and 3. address knowledge gaps in the reproductive strategy for protected corals in the New Zealand region, data which is crucial to fully describe the productivity and to infer vulnerability of this diverse group. Recent bycatch events from deepwater trawls have included large bubblegum corals, highlighting the relevance of this research to understanding vulnerability of multiple coral taxa to fishing impacts. This project has been updated and resubmitted to CSP from NIWA, based upon a similar proposal from 2022/2023.	2
POP-04	Desk top review of LBT populations in the Pacific.	This project is a desk top review of leatherback populations and research programmes happening in the Pacific to better understand the level of bycatch threat to different populations, connectivity between nesting beaches and habitat use in NZ, and to advance our understanding of threats to LBTs from all sources in order to progress mitigation of bycatch in New Zealand Fisheries. This project has been submitted to CSP by SPREP.	1