Antarctic Science Platform

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SCIENCE-POLICY ENGAGEMENT WITHIN THE ROSS SEA REGION MPA: A PILOT SURVEY

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Antarctic Science Platform

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Manatū Ahu Matua

Executive Summary

Antarctic management is underpinned by science, however the interface between the science and policy worlds, which should facilitate information exchange, can act as an obstacle to effective collaboration. This report documents researchers' perceptions of the Ross Sea region marine protected area governance and the relevant science-policy interface with a focus on Aotearoa New Zealand's science-policy interface.

Supported by New Zealand's Antarctic Science Platform and the Ministry for Primary Industries, a pilot survey of Antarctic researchers was undertaken to gain a range of insights into how researchers view the Ross Sea region management and how their role, as scientists, can generate research of value to policymakers. Additionally, the survey examines how researchers view the policymaker role, what barriers there may be within the science-policy interface, and how to address those gaps with specific opportunity recommendations.

Key findings in the survey include:

- Most survey participants engaged in some form of scientific outreach, even if it was not directly with policymakers.
- Survey participants want to interact on a one-on-one basis with policymakers and were looking to establish working relationships with policymakers, but this does not fit the career structure of policymakers.
- Survey participants called for better frameworks for the coordination of research and policy.
- There was recognition that difficulties in engagement existed for both researchers and policymakers. This included time and resource limitations, and unawareness of policymaker needs.

Recommendations on how to further strengthen the science-policy interface, included:

- Policymakers initiating contact with Antarctic researchers,
- online workshops with key policymakers for the Antarctic Treaty System, and
- early career researcher-specific, short-term, policy internships to better connect thinking across science and policy organisations.

Effective communication between scientists and policymakers can improve management outcomes, benefitting all stakeholders. New Zealand could strive to deliver the best available science to increase their impact in the Antarctic governance space and further national climate change resilience goals.

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Acknowledgements

This work was led by a science-policy postdoctoral fellow (the author) funded through the Antarctic Science Platform and employed within the Ministry for Primary Industries Fisheries Science – Stock Assessment team. The author's background is in environmental DNA, population genetics, and conservation ecology. This research survey, and the placement at MPI, was an amazing opportunity to extend the author's social science and policy knowledge. Many social science practitioners provided valuable guidance and recommendations of relevant literature to guide the survey design and analyses. The author would like to thank all who were consulted in the formation of this survey, and those who contributed their time and expertise in providing input, feedback, encouragement, and review. In particular, the author would like to thank (in no specific order): Natasha Gardiner, Daniela Liggett, Cassandra Brooks, Kelvin Lange, Aisling Rayne, David Johnston, Ian Hawes, Nancy Bertler, Andy Reisinger, Melissa Climo, Jennifer Devine, Matt Pinkerton, Nathan Walker, Adam Berry and Enrique Pardo.

1. Introduction

Purpose

The Antarctic Science Platform's (ASP) research focus is on the implications and impacts of climate and environmental change in Antarctica, defined as a +2°C warming above pre-industrial conditions on the Ross Sea region. One of the key areas is quality science in support of the Ross Sea region Marine Protected Area (RSrMPA). However, effective uptake of this research to inform decision-making, policy development and planning requires effective science-policy interactions.

This report documents researchers' perceptions of the RSrMPA policy and how effectively science can feed into Antarctic governance decisions in 2023. A glossary of acronyms is enclosed (see Section 6).

Context

The Southern Ocean is a globally significant ecosystem, playing a role in the world's climate regulation and contributing unique biodiversity (Brandt, 2005; Griffiths, 2010; Murphy et al., 2021). The Southern Ocean surrounding Antarctica is considered one of the more pristine oceans (Uetake et al., 2020), but in the last 50 years the consequences of anthropogenic pressure are becoming more evident (Liu & Curry, 2010; Smetacek & Nicol, 2005). As climate change and human activity in the area increase in their intensity, management of these consequences may be key to mitigating some negative ecosystem impacts (Brooks et al., 2022; Reid, 2007; Trathan, 2023). The complex intersection between science and policy plays a key role in Antarctic and Southern Ocean governance, providing an evidence-based framework to work towards sustainability.

CCAMLR's Antarctic policy and governance

Through the Antarctic Treaty System (ATS), specifically the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) within the System, 27 Member Nations act to address management of the area south of the Antarctic Convergence. CCAMLR has the objective of conservation, defined as including rational use (e.g., fishing) through a precautionary approach based on the best available science (Brooks et al., 2022; Chavez-Molina et al., 2023). A variety of multi-faceted issues regarding fishing and marine spatial planning are discussed at multiple annual meetings, with final decisions made by the Commission under consensus-based decision making. Member nations work together to produce the scientific evidence needed to support sustainable management within the CCAMLR space and provide a foundation for Conservation Measures (CMs), achieving conservation while allowing for sustainable resource utilization.

Since CCAMLR has been in operation, the Convention along with several key CMs work together to provide area-based protection. Articles II and IX of the CAMLR Convention establish the legal backbone for which conservation spatial planning tools can be used, such as marine protected areas (MPAs). A framework for establishing marine protected areas was adopted in 2011 (CM 91-04). After years of careful negotiation, the Ross Sea region Marine Protected Area (RSrMPA) was adopted in 2016, which went into effect 1 December 2017. The RSrMPA identifies 11 specific objectives (CM 91-05, paragraph 3) which can be categorized into three main categories: representativeness, threat mitigation, and scientific reference areas (CM 91-05, Annex C). After RSrMPA adoption, the RSrMPA Research and Monitoring Plan (RSrMPA RMP) was introduced in 2017 to provide a framework for scientific research within the Ross Sea region (SC-CAMLR-XXXVI/20). However, the RSrMPA RMP has not yet been adopted by Commission as of early 2024, despite being recommended for adoption by CCAMLR's Scientific Committee (SC) and careful negotiation by proponents of the RSrMPA, namely New Zealand and the USA with help from Italy and Korea.

Engaging with CCAMLR

To facilitate the communication of science in support of CCAMLR's Antarctic policy and governance, multiple pathways between science and policy have been highlighted (Brooks et al., 2022). These varied pathways between science and policy are known as the science-policy interface. For example, scientists may engage in this interface indirectly through presenting research to non-governmental organizations such as the Scientific Committee on Antarctic Research (SCAR) (Hughes et al., 2023). Researchers may engage to various degrees with the policy space directly by submitting work to, and attending, CCAMLR working groups that are focused on discussing and validating Antarctic science relevant to key CCAMLR topics, such as the Working Group on Ecosystem Monitoring and Management (WG-EMM) or the Working Group on Statistics, Assessments and Modelling (WG-SAM). In addition, scientists may be in contact with industry groups, such as the International Association of Antarctica Tour Operators (IAATO) or the Association of Responsible Krill harvesting companies (ARK). For a more comprehensive explanation of structures see Hughes et al., (2023). However, it is acknowledged that engaging with the science-policy interface can be difficult for both scientists and policymakers (Chown et al., 2012; Hughes et al., 2023).

For the purpose of this report, we refer to researchers as people whose role it is to primarily conduct science, and policymakers as people whose role primarily is to engage with Antarctic policy and governance. However, we acknowledge there is a spectrum: policymakers may engage with research planning (and ideally be involved in research planning directly), while scientists may attend ATS working groups and engage in the science-policy interface. Roles may have several different responsibilities, which fall along various points of the science-policy interface continuum (Figure 1).

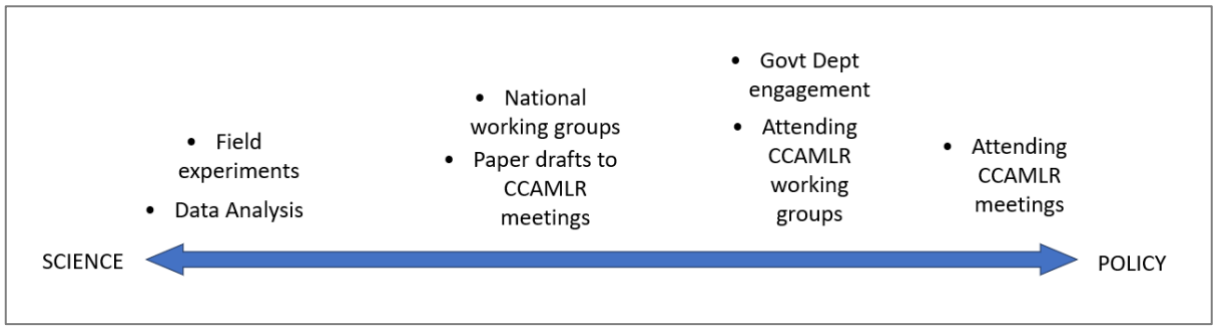

Figure 1. The science-policy interface continuum with examples of potential engagement actions across the science-policy interface. Note that a single person or job could span multiple action points on this continuum.

New Zealand is an important player in Antarctic governance, as a founding member of the Antarctic Treaty and Antarctic Claimant. New Zealand contributes to the conservation and management of the Ross Sea region, especially regarding the toothfish stock assessments and RSrMPA. By continued engagement through CCAMLR, especially as an "honest broker", solutions-oriented, and relationship builder, New Zealand has cemented itself as a leader in the marine ecosystem management space.

The New Zealand science-policy interface

To introduce New Zealand science directly into the CCAMLR structure, New Zealand has an Antarctic Working Group hosted by the Ministry for Primary Industries (MPI). While New Zealand specifically funds a small amount of targeted science, for example research related to the toothfish stock assessment, additional Southern Ocean research is funded by government-contestable funds put forth by New Zealand scientists themselves. While New Zealand has Antarctic-centred infrastructure, such as the Antarctic Science Platform (ASP) and Antarctica New Zealand, researcher-led works may not always make it directly into the CCAMLR meetings, papers and discussions.

2. Methods

Survey

We designed a survey to determine researchers' perceptions of the Ross Sea region MPA (RSrMPA) policy and the science-policy interface. The survey questions were developed in consultation with officials in MPI, Ministry of Foreign Affairs and Trade (MFAT), and the Department of Conservation (DOC), with help from the Research and Evaluation team at MPI and social science contacts in the Antarctic Science Platform (ASP).

The survey was structured into five parts, asking participants' about:

i. their knowledge about the RSrMPA,
ii. their research within the RSrMPA,
iii. science-policy engagement,
iv. their (desired) engagement with policymakers, and
v. a few demographic questions.

The survey was administered from 21 July 2023 to 31 August 2023. We used Qualtrics as a platform to host and securely store survey data. Respondents could skip questions and choose to go back and revise their answers until they submitted their responses. The survey was performed in accordance with the University of Victoria's Research Ethics Committee (Permit 0000031144). All responses were anonymous; no email or names were collected.

Participant Recruitment

The survey was completely on a voluntary basis; people self-selected to participate. The survey targeted scientists in New Zealand who conducted research in the Ross Sea region, though the survey was also open to those from other countries, such as the USA and Australia. Participants were solicited by a poster at the New Zealand Australia Antarctic Science Conference 2023 (NZAASC) and an announcement was made to visit the poster, with about 245 people in attendance over four days. There was also an announcement in the ASP's "Cold Call" newsletter. Emails to five personal contacts of the author were also sent out to encourage survey participation.

Data Analyses

Survey results were analysed using Qualtrics data analysis software (Qualtrics, https://www.qualtrics.com). Because of the small number of participants, statistical analyses were limited to fractions containing the number of total responses. Some commentary is provided around the mode of responses, if there was a response which stood out. This pilot study was aimed at gaining insight into the range of responses from willing participants. Graphs were generated using Qualtrics software.

Responses were analysed based on career stage of the participant, if relevant. For short-answer questions, boxes were provided where participants could write responses to prompted questions. These short-answer responses were analysed via thematic analysis, by survey part where possible (Braun & Clarke, 2006; Braun & Clarke, 2023). We recognise the study was only a small sample size, and further participation would be required to confirm the response trends from the Antarctic researcher community.

3. Results

Survey Participants

The sample size was 37 participants. It should be noted that not all participants answered all survey questions; the number of participants who answered each specific question is reported where possible. Most participants were from New Zealand (25/36) with some from Australia (3/36), few from the USA (2/36), and some from other countries (6/36). Most were researching marine, sea ice, or coastal ecosystems or organisms (19/36), but participants also researched social science (8/36), terrestrial ecosystems and organisms (3/36). The remaining participants were not researching any of these subjects (6/36).

The participants represented all career stages: late career participants (15+ years of experience past their final degree) (13/36), post-study early career researchers (0-7 years post-final degree) (9/36), students (8/36), mid-career (7-15 post-final degree) researchers (5/36), and one emeritus/retired participant (1/36). No one selected “none of the above” for career stage.

For the 25 New Zealand participants, most studied marine, sea ice, and coastal ecosystems or organisms (12/25). Two New Zealanders studied terrestrial ecosystems (2/25) or organisms, and six studied social science (6/25). New Zealand researchers who did not fit into these categories were also present (5/25). New Zealand students and late career participants were the most numerous career categories (8/25 for both), followed by post-study ECRs (5/25). Mid-career New Zealanders (3/25) and emeritus or retired New Zealanders (1/25) were also represented. While we report results from all participants in the following sections, New Zealand-specific data can be found in Appendix 1.

Ross Sea Region Governance

Interest

Overall, participants self-reported interest in and being knowledgeable about the Ross Sea region governance. Personal interest in Ross Sea region governance ranged from slight interest (5/31) to extremely interested (15/31), but no participants (0/31) said they were not interested at all in Ross Sea region management. Individual interest ranged across career stage (Figure 2). Despite personal interest, the importance of international high-level management of the Ross Sea region to participants’ research projects was variable, with the belief that high-level management ranged from not at all important (5/31) to extremely important (8/31) (Appendix 2).

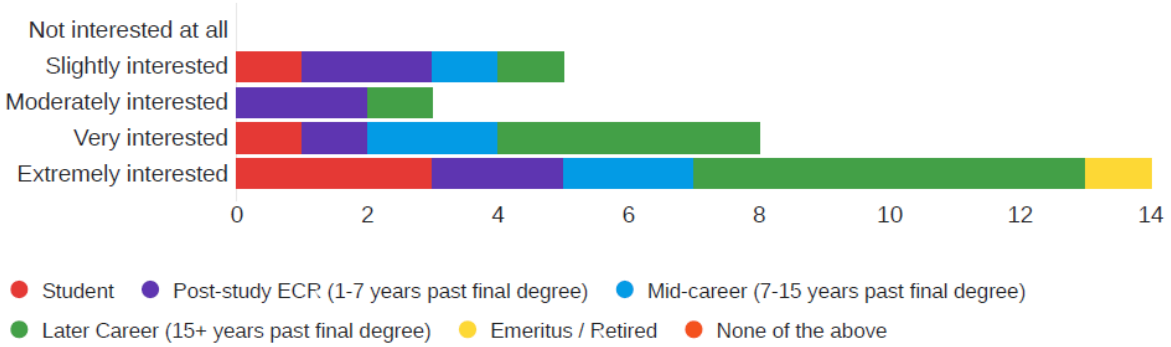

Figure 2. Individual interest in Ross Sea region management split out by career stage.

Interest and opinions of Ross Sea region management varied by research subject (Figure 3). Marine-focused participants were represented in all selected categories of interest in Ross Sea region management. Terrestrially-focused participants rated themselves as slightly interested in Ross Sea region management (2/2), and believed the international high-level management of the Ross Sea region was 'slightly' important to their research (2/2) (Appendix 2). Social scientists reported a moderate to extreme/high amount of interest in Ross Sea region management.

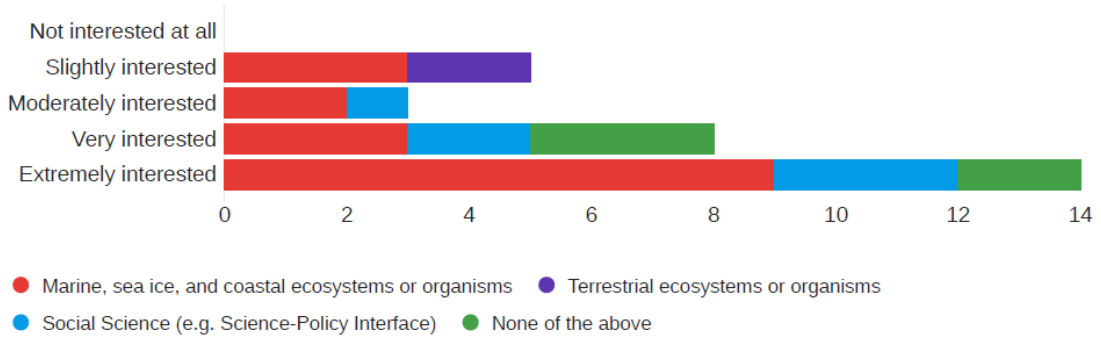

Figure 3. Participant's interest in how the Ross Sea region is managed at the level of high-level governance.

Conservation Measure Knowledge

Participants self-reported a wide range of knowledge about the MPA conservation measure (Figure 4): from not knowledgeable at all (i.e. never heard of it until now) (1/31) to extremely knowledgeable (i.e. expert knowledge) (6/31). Likewise, for the draft Research and Monitoring Plan (RMP, Figure 4): from not knowledgeable at all (i.e. never heard of it until now) (3/31), to extremely knowledgeable (i.e. expert knowledge) (3/31). Participants mostly self-reported moderate knowledge about the MPA (10/31) and RMP (13/31), although participants reported less expert knowledge about the RMP than of the MPA. Knowledge varied by career stage, with later-career participants reporting more knowledge than earlier career counterparts.

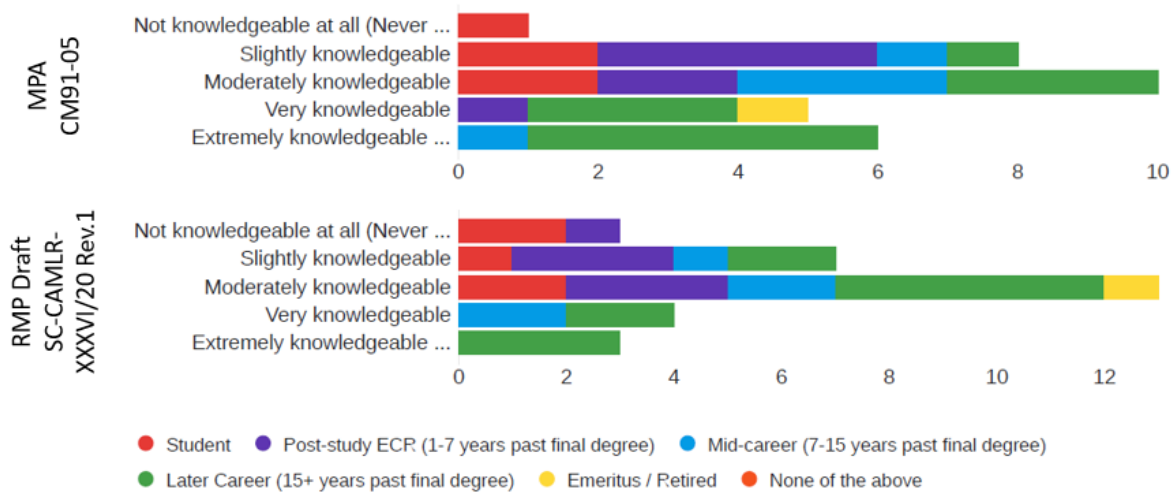

Figure 4. Participant reported knowledge of the Ross Sea region MPA conservation measure and Research and Monitoring Plan, disaggregated by career stage.

Opinions on Improvements

The thematic analysis of "how management in the Ross Sea region could be improved" included suggestions of better frameworks for scientific research, better science-policy engagement, and more protection for the MPA region (n=15).

While science could arguably be better resourced in New Zealand (Gluckman, 2015), survey comments pointed towards **better coordination of research frameworks**, for example, "multiagency coordination of support and funding in NZ" or "create an integrated research program." There was also a call for "a place where research in support of the MPA could be compiled". While NGO and CCAMLR repositories do exist for projects focused on CCAMLR marine protected areas and the Southern Ocean more broadly, this comment may point to the lack of awareness, or a need for greater promotion, access, and coordination.

Better science-policy engagement was highlighted as a means to improve Ross Sea region management, with the recognition that "translation of science within the MPA into policy is badly needed". Participants suggested a "workshop brainstorming to gather new ideas" and "regular and structured policy discussion across the states active in this region." One participant suggested that the place of science was to "inform management and any adjustments [to CCAMLR CMs]."

There were calls from participants to **expand protection for the Ross Sea region ecosystem**. Sentiments included calls to "enlarge the MPA", as well as "extending the timeframe of the MPA." Conservation calls also related to fishing, with suggestions of "imposing even greater restrictions on fishing and expanding the no-take zones" and "discontinue the toothfish fishery," although another respondent indicated anthropogenic impacts (fishing, tourism) needed to be researched more.

Additional observations around Ross Sea region management included:

- One participant commented that "management is arguably well taken care of through the MPA as well as relevant CCAMLR CMs". This comment suggests that the survey participant understands how MPAs are one out of many tools to manage the Ross Sea region, while taking the view that current management practices are working.
- Another participant talked about the ways in which management decisions take place, saying "get rid of the need for 100% consensus[,] it is now used as a political tool to block measures or resolutions and has no value in real sustainable management." This comment highlights an understanding of CCAMLR procedure, the current geopolitical climate, and how this may be a barrier to management action. While a unique perspective to this question, consensus has been talked about in wider CCAMLR and MPA context (Brooks et al., 2019).
- Two participants responded they did not know how to improve management.

Antarctic Research

We surveyed participants' research areas to gain a better understanding of how they thought their research fits within the RSrMPA specific objectives.

Between three and twelve participants responded to questions asking where they thought their research fits in with the RSrMPA specific objectives. Most participants responded that their research was in line with specific objective I (the conservation of natural ecological structure, dynamics, and function at any level of biological organisation, 7/12 participants) and specific objective III (promoting research and other scientific activities focused on marine living resources, 7/12 participants), which all research fits into. See Table 1 for more details (Table 1).

Table 1. Specific RSrMPA objectives that participants have, are, or will research(ed/ing) relating to the conservation and monitoring of natural ecological structures and functions, as well as protecting habitats important to native animals.

12 Responses

Field	I have researched in the past	I am currently researching	I am very likely to research in future
Conserving the natural ecological structure, dynamics, and function at any level of biological organisation and/or protecting habitats important to native animals	7	7	5
Research in the Special Research Zone, where fishing is limited to better disentangle the effects of climate change and fishing, especially fishing related to Antarctic Toothfish	4	4	5
Promoting research and other scientific activities (including monitoring) focused on marine living resources	4	7	4
Conserving biodiversity in benthic or pelagic marine environments that are traditionally understudied	4	6	4
Furthering the scientific understanding of krill, including in the Krill Research Zone	2	3	1

For RSrMPA specific objectives with specifically named components (Table 2), we asked where participants put their research efforts. Their answer was then followed with questions to better understand the research efforts within each specific objective (Figures 5-9).

Table 2. Specific RSrMPA objectives scientists are researching related to specific processes, species, or ecosystems.

6 Responses

Field	Have researched in the past	Currently researching	Very likely to research in future
Protecting large-scale ecosystem processes	2	3	3
Protecting core distributions of trophically dominant pelagic prey species (e.g. krill, silverfish)	1	3	1
Protecting core foraging areas for land-based top predators (e.g. penguins, seals, killer whales) that may experience direct trophic competition from fisheries	2	3	4
Protecting coastal locations of ecological importance (e.g. polynya, Terra Nova Bay, Victoria Coast ice formation zone)	2	1	3
Protecting areas important to Antarctic toothfish (e.g. shelf, dispersal corridors, slope)	1	2	2
Protecting known rare or vulnerable benthic habitats (e.g. seamounts, slope, McMurdo Sound)	2	1	1

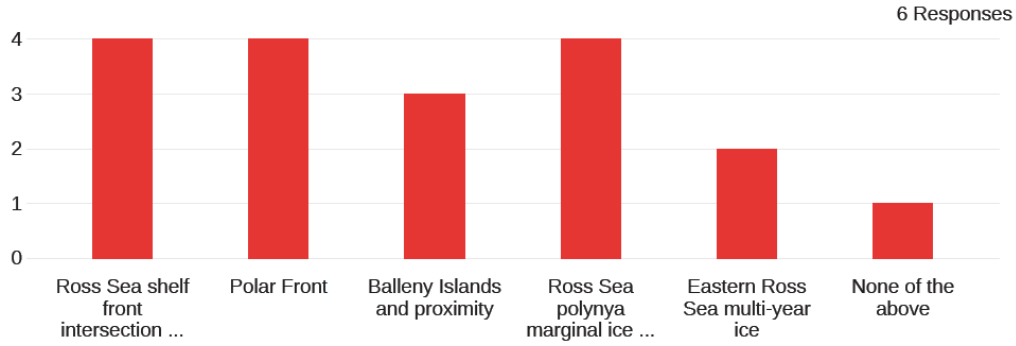

Figure 5. The large-scale ecosystem processes mentioned in Conservation Measure 91-05 specific objective V that participants reported researching.

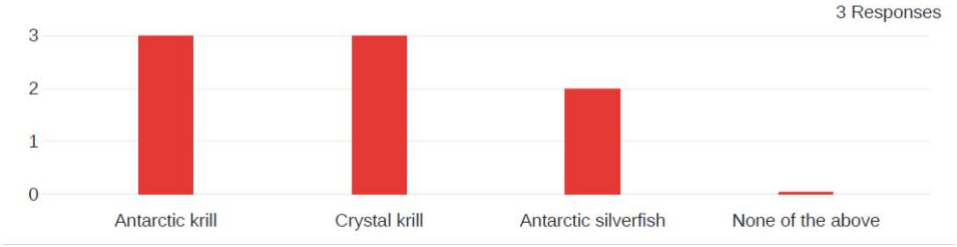

Figure 6. The tropically dominant pelagic prey species in Conservation Measure 91-05 specific objective VI that participants reported researching.

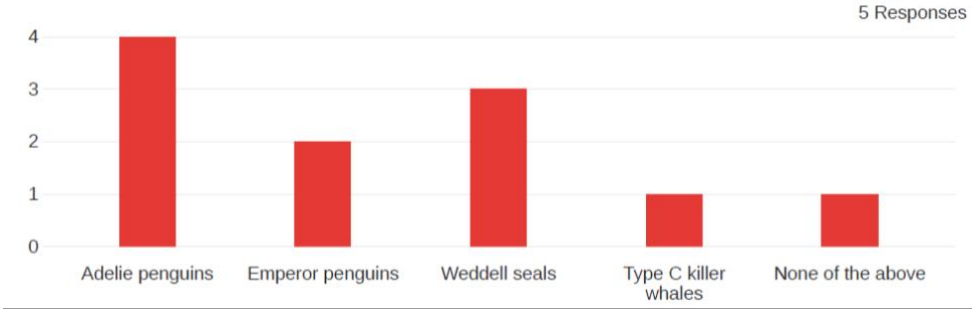

Figure 7. The land-based top predators mentioned in Conservation Measure 91-05 specific objective VII that participants reported researching.

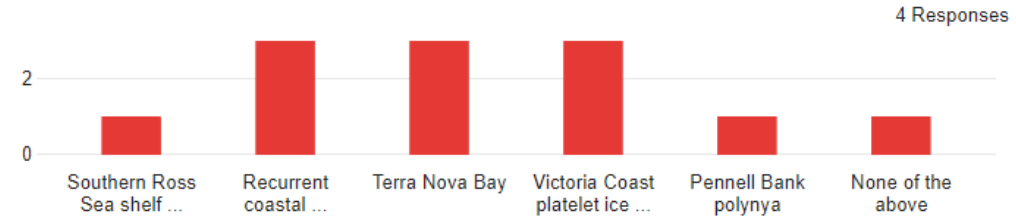

Figure 8. The coastal locations of ecological importance mentioned in Conservation Measure 91-05 specific objective VIII that participants reported researching.

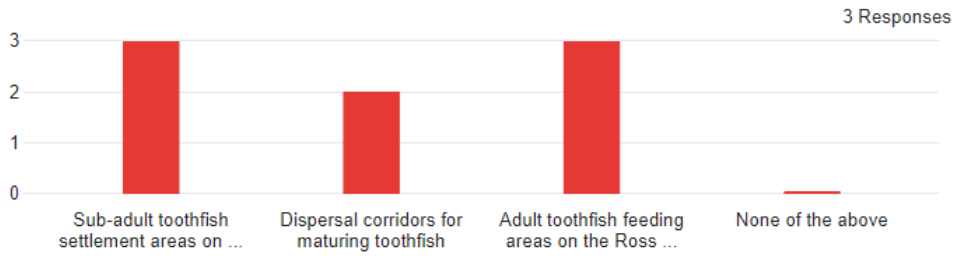

Figure 9. The areas important to Antarctic toothfish mentioned in Conservation Measure 91-05 specific objective IX that participants reported researching.

Other research endeavours related to the ocean were highlighted by participants. These included: sea ice physics, sea ice microbiology, ocean currents, ocean heat uptake, and carbon cycling. More broadly, climate change impacts, westerly winds, and extreme events were also highlighted.

Science-Policy Engagement

The survey found that science communication and broader engagement was undertaken by most researchers, although the participants may not have specifically reached out to policymakers. Many participants reported having disseminated their work to government officials or policymakers via presentations, emails, meetings, or other forms of communication (12/19) and through non-governmental organizations, such as SCAR or ASOC (11/19) (Figure 10).

It is also important to note that some participants have not done any of the above engagement (4/19), though they may have engaged in pathways not named here. The participants who signalled they had not engaged with any of the above pathways were primarily students (3/4 students plus 1/4 mid-career), suggesting that researchers starting their career journey may not yet have engaged, or had opportunities to engage, in the ways their more senior counterparts may have (Figure 10).

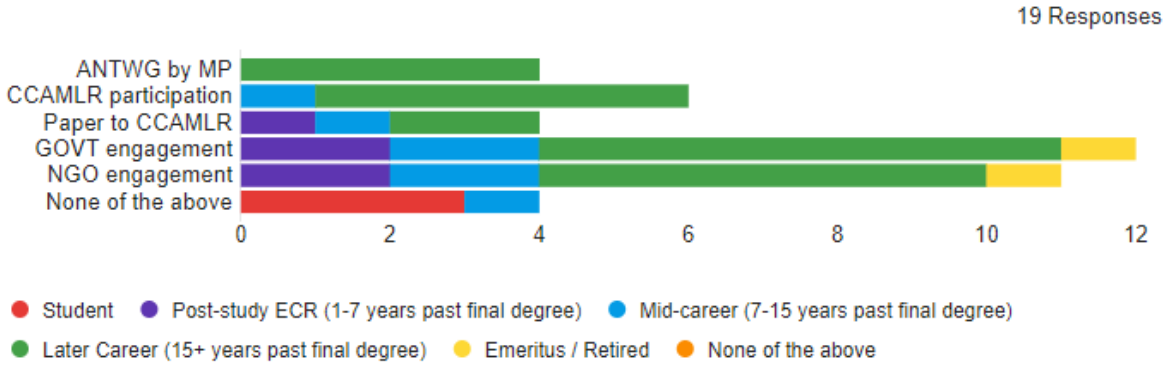

Figure 10. Engagement pathways reported by participants, disaggregated by career stage.

There was a wide range of participant opinions on policymaker engagement (n=8). At one end of the spectrum, participants expressed long-standing engagement with policymakers, including involvement in international RSrMPA negotiations or engagement via the fishing industry since New Zealand started fishing in the Ross Sea. However, other participants felt like policymakers were unknown to them, questioning, “Who is a policy maker? That is a rather scary or undefined word to me. Would love to meet with a “policymaker” and just chat about the impact of my specific project…” From those who did not know policymakers, there was a sentiment about willingness to engage with various platforms, including with CCAMLR or SCAR, to talk about research. These varying views highlight the **extreme range of researcher engagement** with the science-policy interface.

Other opinions on researcher-policymaker engagement included:

- One participant noted that within New Zealand, the CCAMLR engagement model was different than the ATCM/CEP engagement models.
- One participant highlighted that a single person may wear multiple hats: both within research and policymaking space. From this comment, it seems some (rare) roles allow for one to be both a researcher and policymaker in some instances.

Taken together, these comments highlight that the structure for engagement may take many different forms.

Ease of Engagement

Overall, participants had a range of views on how easy / difficult it was to communicate with policymakers, and there was an acknowledgement of a wide range of barriers.

Some participants reported their *personal* experience in engaging with policymakers as somewhat easy (9/24), while others thought it somewhat difficult (6/24), or extremely difficult (4/24) (Figure 11). However, perceptions around scientists communicating *in general* to policymakers was perceived primarily as somewhat difficult (11/24), though the responses ranged from extremely easy (1/24) to extremely difficult (3/24) (Figure 11).

The participants who found it somewhat easy to communicate with policymakers *themselves* (9/24) were mostly late career (6/9), whereas respondents who were neutral or found this difficult were more evenly spread amongst career stage (post-study ECRs (2/9) and mid-career participants (1/9)) (Figure 12). Late career participants also perceived scientists' communication *in general* with policymakers to be extremely easy (1/24) or somewhat easy (3/24), but were the only survey participants who thought so (Appendix II).

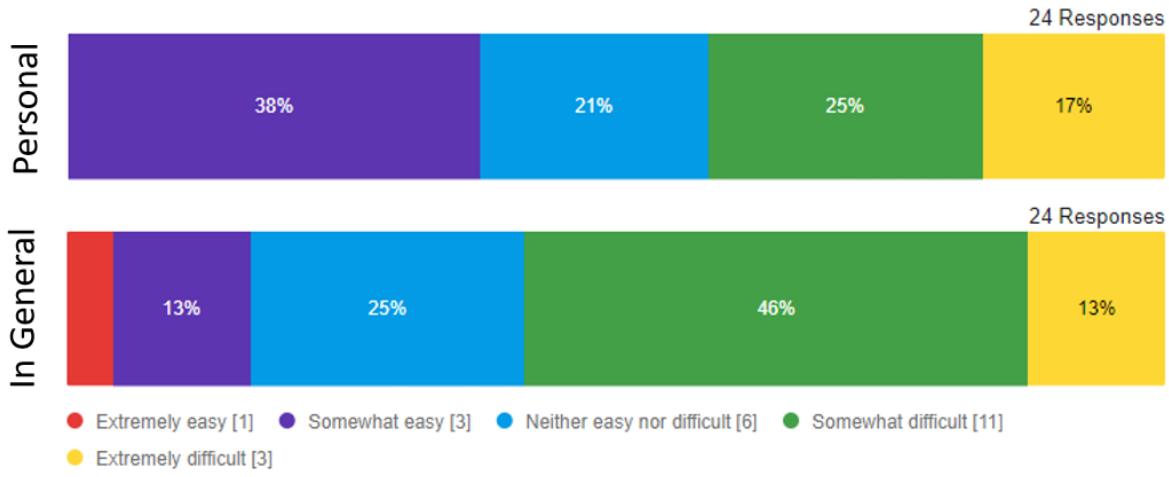

Figure 11. The ease of communicating with policymakers, for the participants themselves (personal) and for Antarctic researchers (in general).

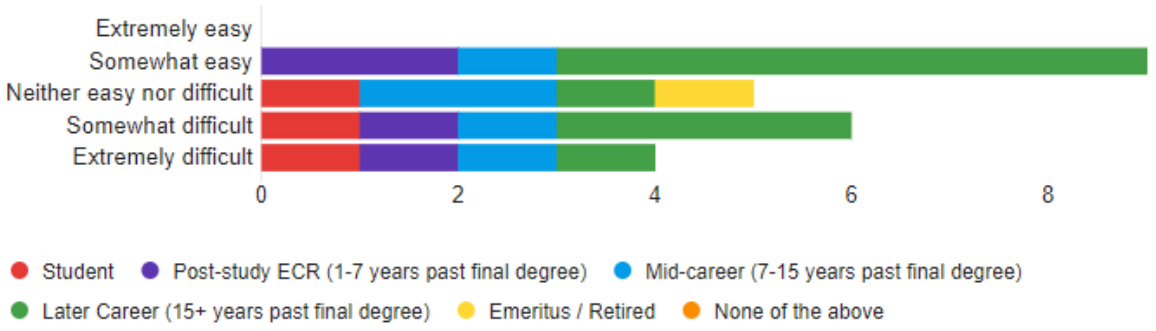

Figure 12. How easy it was for participants to communicate with policymakers, disaggregated by career stage.

Barriers to engagement – participants' interactions

Multiple barriers to engagement with policymakers were identified by the respondents. We asked about what participant's primary barrier to engaging in the science-policy interface was, which was then followed up with asking about other barriers. No funding (5/25), and difficulty or uncertainty around how to engage (5/25) were the most frequently identified **primary barriers to engagement for participants**, with few people (3/25) saying they experienced no barriers (Figure 13). No one selected 'no professional reward' (0/25) as the main barrier.

However, when participants (n=22) were allowed to select their **other barriers to engagement** with policymakers, no time (6) and unawareness of policymaker needs (6) were the dominant barriers noted, along with no funding (8), and difficulty or uncertainty around how to engage (6) (n=22). No professional reward (3) and beliefs around separating science and politics (2) were in the minority (Figure 14). Four participants reported that they had no other main barriers besides their primary selection of the one main barrier. Barrier perceptions for participants themselves varied by career stage (Figures 13 and 14).

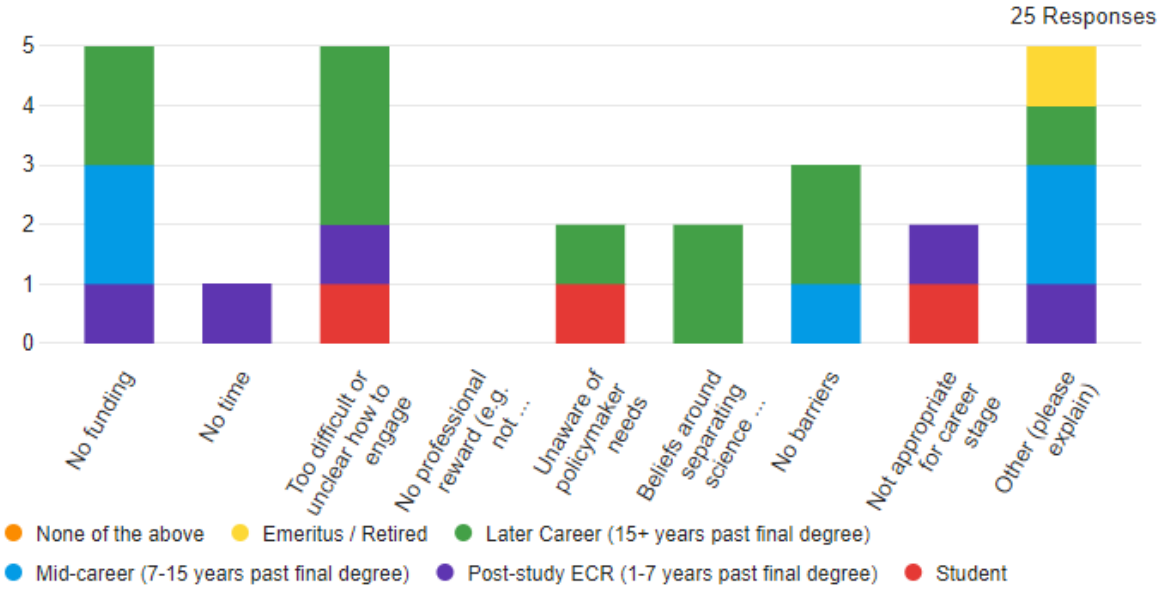

Figure 13. The one main barrier to science-policy engagement identified by participants for themselves, disaggregated by career stage.

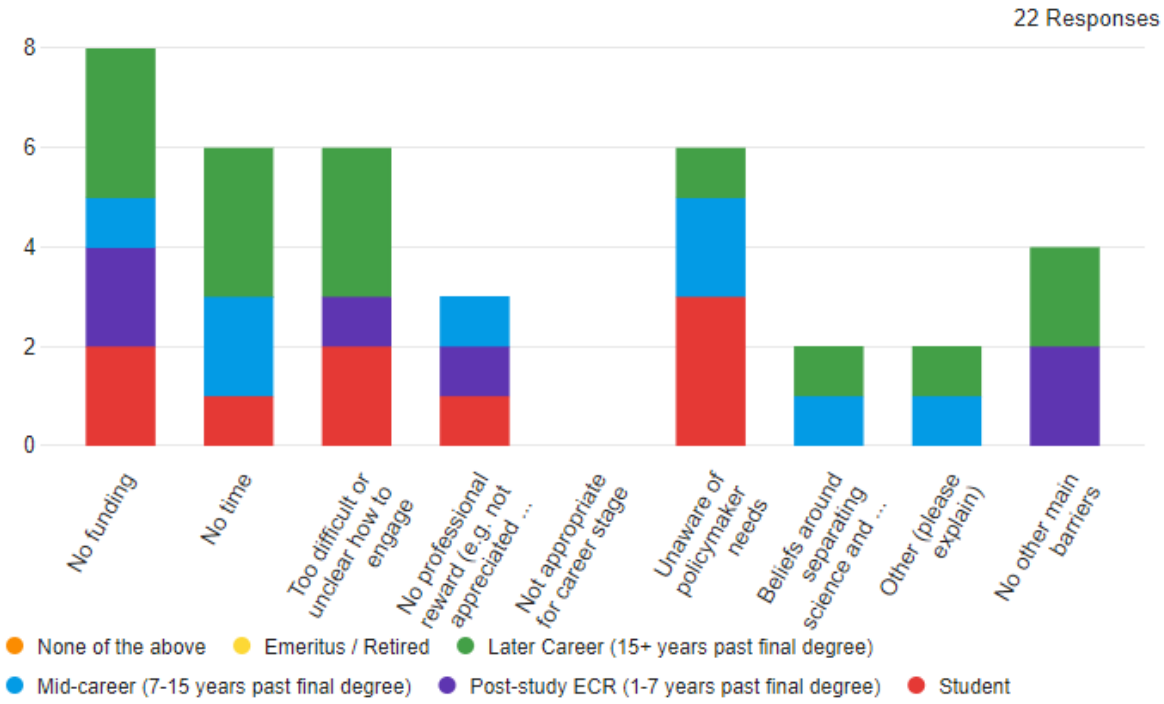

Figure 14. Other barriers to science-policy engagement identified by participants for themselves, disaggregated by career stage.

Barriers to engagement – in general

Views around engagement in general slightly differed from participant's own reported barriers.

Difficulty or uncertainty on how to engage (9/23) was identified as the primary barrier for communicating with policymakers *in general* (Figure 15). When participants (n=23) were asked about barriers other than the main barrier, lack of funding (8), unawareness of policymaker needs (8), time (7), and uncertainty how to engage (6) were identified (Figure 16). It should be noted that in the open-ended question, one participant suggested that all the suggested choice answers were likely barriers for communicating with policymakers ("probably ALL of the items listed here").

While funding was perceived to be a major issue for both participants and the general research community, participants were more likely to suggest that barriers around policymaker needs were more difficult for the general research community compared to themselves.

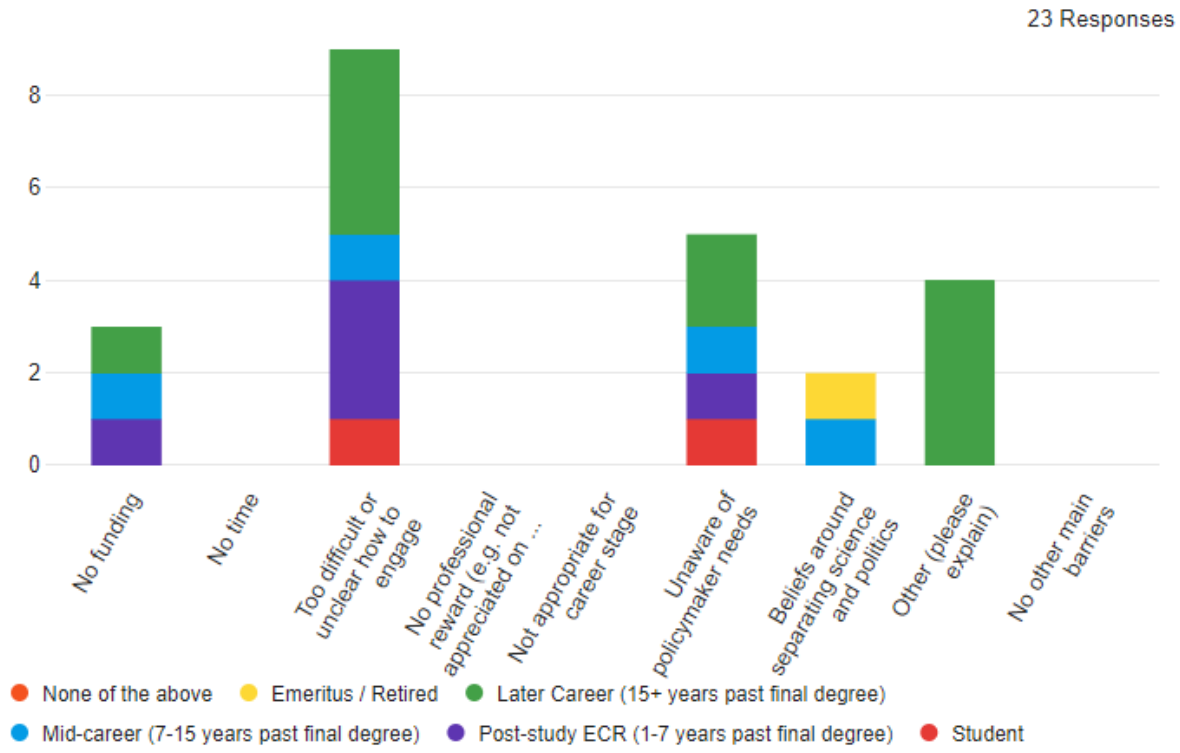

Figure 15. The one main barrier participants perceived for Antarctic researchers in general that would hamper communication in the science-policy interface.

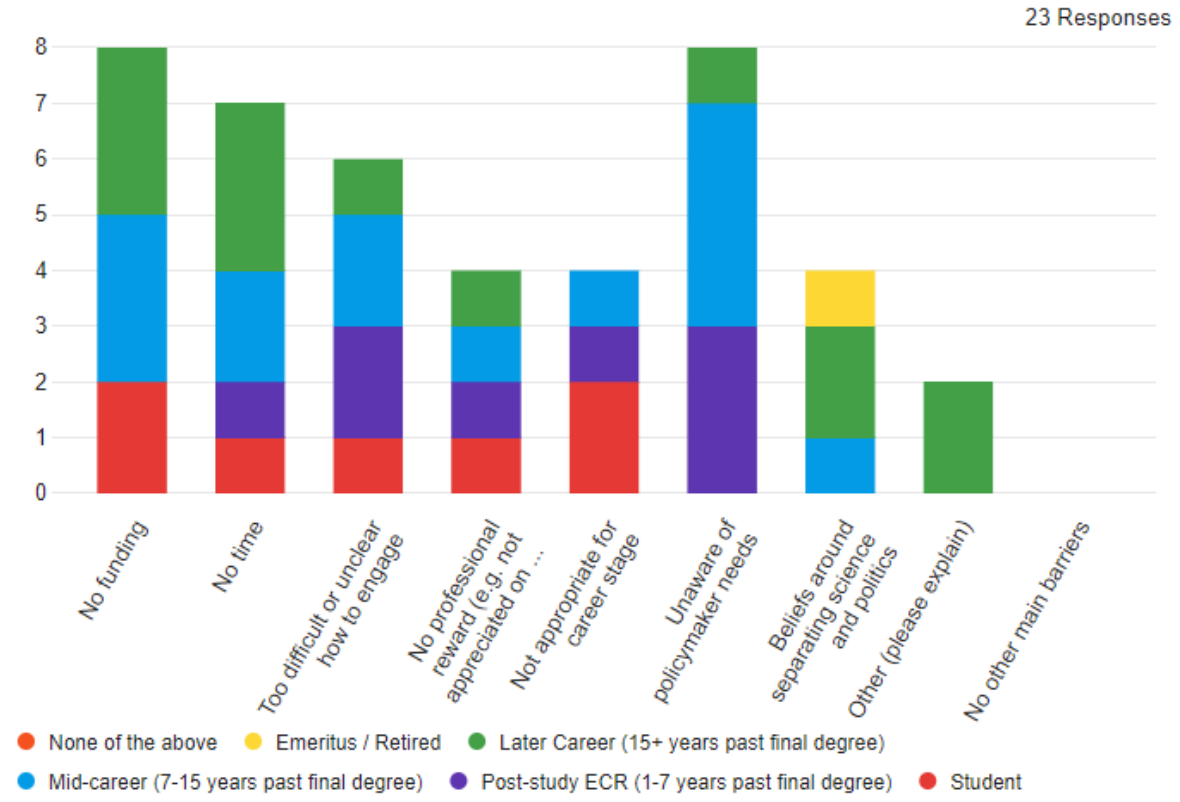

Figure 16. Other barriers that participants perceived for Antarctic researchers in general that would potentially hamper communication in the science-policy interface.

Barriers to engagement - themes

Participants had the opportunity to express their opinions on challenges within the science-policy interface, and the responses are grouped below into a theme of limited job structures and examined through both the researcher and policymaker lens.

(i) Siloing & ineffective structures

Overall, there was a sentiment that **job structure for both scientists and policymakers limited overlap and capacity**, resulting in difficulties with engagement. Neither the research or policy spaces are set up for explaining the benefits of engagement, rewarding engagement, and – more importantly – allowing time and space for engagement to occur. Thus, the science-policy interface risks siloing science and policy into their respective disciplines if efforts are not made to put windows and drawbridges between silos.

(ii) Views on the policymaker role

Participant's views on the policymaker role may make it difficult for scientists to effectively engage. Perceived barriers included:

- policymaker staff turnover ("Rapid changes in key personnel in policy positions makes it hard to develop effective communication pathways"),
- policymaker's lack of time ("Their time"), and
- policymaker's differing priorities (e.g. "conflicting priorities", having their "own agenda"), and
- different ways of working ("different timelines, language and priorities")

Additionally, scientists may be disillusioned with the CCAMLR system ("one can publish study results in the main-steam science, but CCAMLR is way to[o] political to make any impression.")

Whether true or not, these perceptions could provide a barrier to engagement, if researchers believe engaging with policymakers may be too difficult.

(iii) Views on the researcher role

Some participants viewed their role as researchers as limited as well;

- researchers may be too narrowly focused on science and not have a wider understanding of other pressures: "scientists generally have too narrow an expertise and often lack a sophisticated understanding of non-scientific factors such as legal obligations, international relations, geopolitics, ethics, environmental obligations, etc[.]", "science is one component that feeds into science-based management. At the decision-making level around policies (Commission), other considerations are also taken into account."
- not having enough effective engagement pathways: "CEP science-policy communication [is] less well developed in NZ than around CCAMLR"
- gatekeeping within science systems: "the US AMLR program keeps to themselves", "the only practical way to communicate with CCAMLR is through [a] national representative".
- no time and very limited funding for science-policy communication: "very limited (especially long term) funding provides a limit to consultation"
- science research and reward systems are not set up for policymaker needs: "Scientists need to publish and to publish one needs 'sensational' research. Sensational research cannot be integrated into policy easily and there is no reward for changing policy (funding bodies don't care, organisations don't care, fellow scientists see you as a sell out and/or not doing proper research".

(iv) Inexperience

There was also a sentiment of not knowing how to engage from several participants, including:

- not knowing policymakers: “simply don’t know who the policy makers are”,
- not knowing how to engage with CCAMLR structures: “it is hard to know how to engage with CCAMLR”, and
- unsure of outcomes: “not clear how engagement would advance conservation or how my research would help”.

Perceptions around impact

Participants were asked the impact they thought their science had on Antarctic policy, and most participants believed their research had a little impact (14/24) on policy (Figure 17). No participant selected the highest option of “a great deal” of impact (0/24).

These answers may have varied depending on research topic, as participants who studied marine topics were distributed across all reported impact levels, whereas social science researchers only reported “a little” impact (6/24) (Appendix 2). Impact perceptions also varied by career stage, with students believing that their scientific impact made a little (1/24) to no impact (1/24), and later-career participants believing they had a little (5/24), a moderate amount (3/24) or a lot (3/24) of impact. The one emeritus/retired participant believed they had a little impact (1/24).

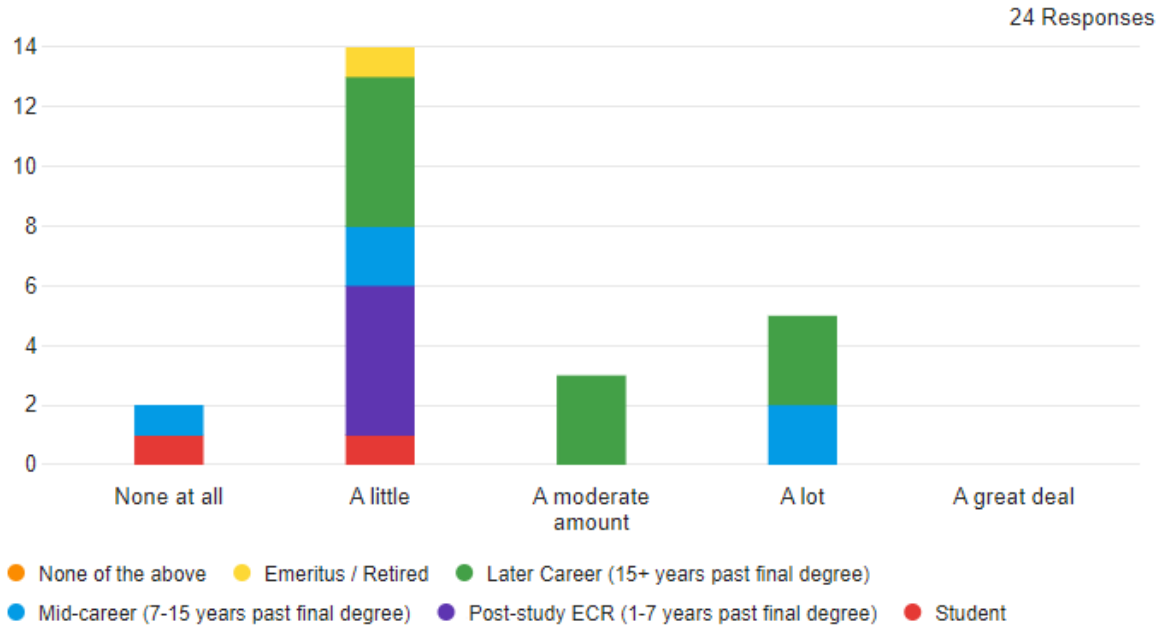

Figure 17. Participants’ perceptions about how much impact their science had on Antarctic policy, disaggregated by career stage.

Improvements and Desired Solutions

While barriers between the science and policy realms may exist as identified in the previous sections of this report, participants also identified pathways to knit together the research and policy systems.

One major theme was **meaningful relationship building**. This theme was touched upon by multiple answers and included sub-themes around in-person engagement, and policymakers showing they were listening to those outside the policy realm. Participants expressed a desire for policymakers or those within the science-policy interface to build meaningful relationships, using words such as, "seek engagement," "listen," and "build relationships."

"Bi-directional workshops" and "in-person gatherings" were proposed as starting points for such engagement, as well as discussing research needs with scientists. Other in-person structural ways to engage longer-term included secondments, opportunities to participate in ATS meetings, and following up with researchers after expressing needs. Furthermore, developing high-level scientific goals as well as Māori pathways and partnerships was highlighted, although these may relate to the larger engagement theme more broadly.

As for concrete actions, the survey asked what the Antarctic Science Platform (ASP) could provide to support improved researcher-policymaker engagement. There was interest for a workshop on how to engage with government agencies (9/23), though less enthusiasm for a workshop on CCAMLR (4/23), an infographic on CCAMLR (1/23) and outreach training in general (1/23). No participants selected "nothing" (0/24) (Figure 17).

Additionally, participants (8/23) suggested other ways they would like to see the ASP aid engagement, including calls for "in-person" meetings with policymakers or government officials in joint sessions (3), creating room for policy as a branch of the platform (1), Māori input into Antarctic governance (1), keeping in touch with industry (1), and guidance on how to speak directly to ministers (1). Comments around creating space for policymakers and scientists relates back to the theme of meaningful engagement between policymakers and scientists, with a nod to the subtheme of in-person engagement.

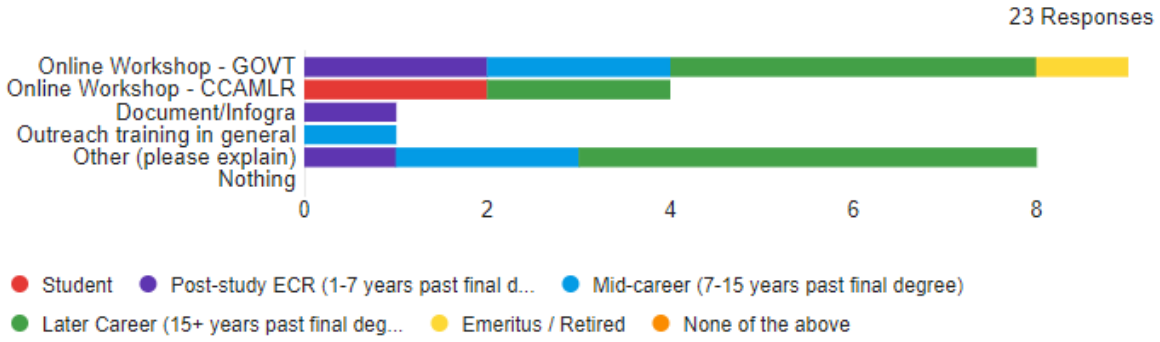

Figure 17. Participants selected suggestions regarding what the Antarctic Science Platform can provide to help improve researcher-policymaker engagement.

For ECRs specifically, the survey asked what pathways the ASP could provide. While there was the most interest around short-term policy internships (3/7), there was also interest in science policy postdoctoral fellowships (2/7) and an ECR-specific workshop on how to translate science into policy (2/7). There was no appetite for an ECR workshop on policy careers (0/7). No other suggestions (0/7) were made, and 'nothing' was also not selected (0/7).

4. Discussion

The science-policy interface can be limited by lack of project co-design and complexity of interfaces, including global geopolitics (Anne et al., 2018; Maas et al., 2022). The different priorities and ways of understanding between policymakers and scientists may hinder progress, for example, scientists may not be able to identify research that best responds to decision-makers' needs in a politically sensitive context. Also, inadequate funding for engagement and time may pose a fundamental barrier. Barriers may vary between CCAMLR Member States as well, as science flow to national delegations may be co-ordinated differently within different countries.

Our analysis provides a pilot stocktake of Antarctic researcher perceptions on the science-policy interface, with a focus on the CCAMLR system with New Zealand and RSrMPA. The self-selected participants expressed interest in the science-policy interface, including CCAMLR conservation measures. There was a wide range of knowledge, ability, and pathways for scientists to engage with policymakers. The range of barriers to engagement identified was similar to other science-policy interfaces besides Antarctica (Dilling & Lemos, 2011; Walsh et al., 2019). These findings reflect the multiple and diverse pathways within the science-policy interface, perhaps pointing to a no-one-size-fits-all approach to interactions (Gardiner et al., 2023).

The study highlighted that at least some New Zealand scientists wish to interact with policymakers as they would other scientific colleagues – building longer-term collaborative relationships with face-to-face meeting components. As New Zealand is a small country and face-to-face communication may be preferred for gaining trust (Collins & Honey, 2021; Gardiner et al., 2023). These findings concur with other studies on how scientific researchers think about interacting with policymakers (Hughes et al., 2023; Sylvester & Brooks, 2020). It may also be important to note that before the COVID-19 pandemic, face-to-face meetings were more common. Science working groups such as the Antarctic Working Group (ANTWG) that MPI hosts was primarily an in-person event pre-pandemic and has since shifted online. While online meetings enable a broader participation base (and are potentially cheaper), the opportunity for face-to-face communication, side conversation, and relationship building aspects may be lost (Standaert et al., 2022).

Overcoming Barriers to Engagement

Given these findings, we reiterate the need for effective communication to build relationships and understanding for science-policy co-production (Gardiner et al., 2023; Sylvester & Brooks, 2020).

One starting point considered by participants included workshops with both scientists and policymakers present, either online or in person. These workshops would, ideally, be a way for policymakers to communicate their research needs to the scientific community, as well as perhaps better explaining the broader constraints and opportunities on their work, such as global geopolitics and economics (Table 3). Additionally, workshops would enable trust building (Imam & Zaheer, 2021; Mathews et al., 2005) and give a recent point of contact, should researchers want to engage further. For policymakers, initiating communication and increasing inclusivity would likely go a long way to increase knowledge exchange, though policymaker capacity is of consideration.

For the ASP, having a permanent science-policy team "champion" may aid engagement longevity. Government officials rotate frequently, and placing responsibility with an identified role may have benefit compared to expecting scientists to maintain policymaker connections themselves (Thune et al., 2023). Beyond the initial engagement, maintaining connections remains important between

scientists and policymakers as it may be a jumping board for increasing research and co-production (Dilling & Lemos, 2011; Thune et al., 2023).

There may be systematic ways of upskilling researchers in more effectively working in the science-policy interface. For example, the ASP could enable researcher engagement within policy spaces (Kimbrell et al., 2022). While New Zealand policymakers may have a background in at least undergraduate science (most of the current CCAMLR team at MPI and DOC have a graduate degree in a biological science and continually interact with scientist stakeholders), researchers may not have as many opportunities to understand policymaking. It was suggested in the survey that researchers might gain access to ATS meetings to further understand how policymakers make decisions in the CCAMLR system, exposing them to a broader view and realistic expectations (Table 3). For example, multiple meetings over multiple years are often required for reaching consensus decisions. Through preparing for and participating in these meetings, researchers may gain access to knowledge that may not be as easily accessible to all researchers.

Mechanisms could include a policy sabbatical, postdoctoral fellowship, or academic internship (Dworkin, 2024). Furthermore, ECRs highlighted an interest in interacting with the science-policy interface, including short-term internships where they can get a taste of how policy works (John et al., 2023). One way the ASP could support this may similar to the New Zealand Department of the Prime Minister and Cabinet (DPMC) Internships which allow graduate students to develop a policy project within New Zealand's ministries (Gluckman, 2015).

Systemic issues exist in both the research and policy spheres. While we have touched upon the rotation of government officials, the policy and research systems may have other barriers. There are ways that the science system in New Zealand could potentially better support the science-policy interface.

- For research, destigmatising contribution to policy by celebrating influential policy contributions through newsletter mentions or awards, and counting policy writing as valid papers on a CV may help normalize policy engagement (Kimbrell et al., 2022).
- Funding of long-term engagement (e.g. five years x $5,000/year engagement grant) may help pay for the time and effort people put into building those connections and attending ATS meetings (Table 3).
- Funding structures may also want to encourage the funding of co-designed projects (policymakers and scientists). While it may not be the most novel research, it is imperative that New Zealand can deliver on global objectives.
- Funding a science-policy impacts pillar within the ASP could potentially help facilitate that structure.

Both science and policy need to better incorporate indigenous voices, including Māori (Forster, 2023; McAllister et al., 2022; Rasekoala et al., 2023). Besides legal (including Te Tiriti) obligations, Māori have a unique historical knowledge and perspectives that can provide context for ecosystem ecologies we are seeing today and often think in ecosystem-wide terms (e.g. nutrient cycling by migratory mammals). Continuing to partner with Māori-led organizations, inviting Māori to participate in workshops, conferences, and meetings, and having affirmative action within systems are ways to encourage participation. No self-identified Māori participation could be seen as a limitation in itself of this study and may reflect New Zealand academia overall (McAllister et al., 2019).

Table 3. A proposed list of activities for facilitating science-policy connections.

Activity	Timeframe	Frequency	Venue	Cost
Workshop with Scientists & Policymakers present	2 Hours	Yearly	Online	Time, venue, refreshments
Meet-and-Greet Sessions	2 Hours	Yearly	In-person	Time, venue, refreshments
Short-term ECR internships	3 Months	Yearly	In-person	$2250/month stipend + Travel
Postdoctoral Fellowships	2 Years	2 year cycles	In-person	Postdoctoral Salary + Travel
Professorial Secondment or Joint Appointment	6 Months	As needed	In-person	Professor Salary + Travel
Long-term Engagement Funding Grant	3 Days	Yearly, over 5 years	In-person	Variable - inclusive of travel grant

Study Limitations

Like all studies, this study had limitations. The small sample size, where participants self-selected, means that participants were those likely to be already interested in policy, which may have affected our range of answers (including the question regarding participants' interest in Antarctic governance). Given that most participants were solicited at a conference, those not in attendance may have not had enough of an opportunity to participate. Additionally, it is documented that when asking about participants' levels of knowledge (e.g. the RSrMPA) participants may self-report more highly than their actual levels (Fisher & Keil, 2016; Kruger & Dunning, 1999). Furthermore, it is possible that some participants may have had an insufficient understanding of the science-policy interface to fully engage with the questions and may have had various levels of understanding of the interface and systemic governmental structures. Thus, it is important to consider the range of responses reported here and not necessarily the percentage of responses reported.

Future Work

As a pilot study, we have sampled a range of opinions regarding the science-policy interface, especially as it pertains to Antarctic science in New Zealand, CCAMLR and the RSrMPA. The current findings lay a foundation for future inquiry. Surveying more researchers within the Antarctic space from the New Zealand research and policy communities would likely yield more detailed and accurate results.

Furthermore, compiling an inventory of Ross Sea region research by nation would provide a good foundation for a research gap analysis. Comparing the research trends presented in this pilot study with other assessments of research trends aligning to the RSrMPA specific objectives (e.g. WG-EMM-2022/37) could show where research opportunities are that relate directly to RSrMPA specific objectives. These areas of are likely where policymakers would want to encourage research activity.

If science-policy workshops and/or researcher involvement in policy were supported, the ASP could investigate how effective these mechanisms are for science communication and relationship building. If no change occurs after workshop or researcher-policymaker engagement, then focusing in on the greatest barriers to effective engagement may be of use. Change may occur slowly, but investing in science-policy infrastructure which is not currently present may be one step more towards co-developed Antarctic scientific research.

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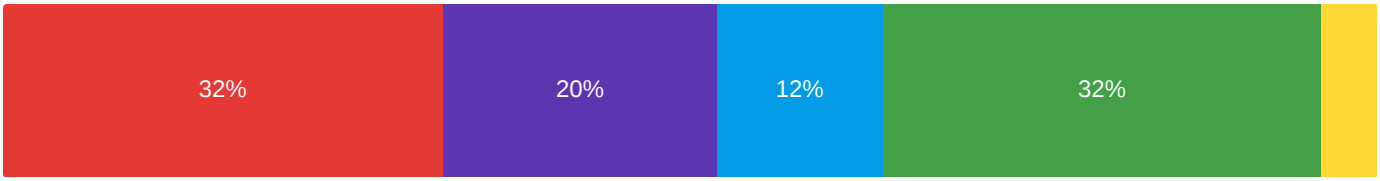
6. Glossary

Acronym	Full Name (English only)	Brief Definition
ANT	Antarctica	
ANTWG	Antarctic Working Group	A group of scientists that discusses science with the Scientific Committee Representative for New Zealand
ARK	Association of Responsible Krill harvesting companies	
ASP	Antarctic Science Platform	MBIE funded research programme
ATCM	Antarctic Treaty Consultative Meeting	Meetings by the parties who have signed the Antarctic Treaty
ATS	Antarctic Treaty System	
CCAMLR	The Convention for the Conservation for Antarctic Marine Living Resources, "The Convention"	
CEP	Committee for Environmental Protection	A committee of ATS. Meeting usually held at the same time/place as the ATCM focused on the Protocol on Environmental Protection
CM	Conservation Measure	Measures agreed upon by the Convention for the Conservation for Antarctic Marine Living Resources agreed upon by all member nations. (Think of these as "laws" of the Antarctic region, despite this being international space).
DOC	The Department of Conservation	
DPMC	The Department of the Prime Minister and Cabinet	
ECR	Early career researcher	Generally researchers 1-7 years post-PhD or those who are current postgraduate students
IAATO	International Association of Antarctica Tour Operators	
MFAT	Ministry of Foreign Affairs and Trade	
MFE	Ministry for the Environment	
MPA	Marine Protected Area	
MPI	Ministry for Primary Industries	
NGO	Non-governmental organization	
NZ	New Zealand	Māori: Aotearoa
NZAASC	New Zealand Australia Antarctic Science Conference	
RMP	Research and Monitoring Plan	For the RSrMPA
RSR	Ross Sea region	
RSrMPA	Ross Sea region Marine Protected Area	
SC	Scientific Committee	CCAMLR's Scientific Committee advises Commission
SCAR	Scientific Committee on Antarctic Research	A non-governmental organization focused on promoting, initiating, developing, and coordinating international Antarctic Research
SOOS	Southern Ocean Observing System	A non-governmental organization focused on coordinating and enhancing international research efforts in the Southern Ocean
US AMLR program	United States Antarctic Marine Living Resources Program	United States Antarctic research infrastructure, part of NOAA Fisheries
WG-EMM	Working Group on Ecosystem Monitoring and Management	A CCAMLR working group
WG-SAM	Working Group on Statistics, Assessments and Modelling	A CCAMLR working group

Appendix 1: Survey data from New Zealand respondents only

Q1 - 1. Which of the following best describes your career stage?

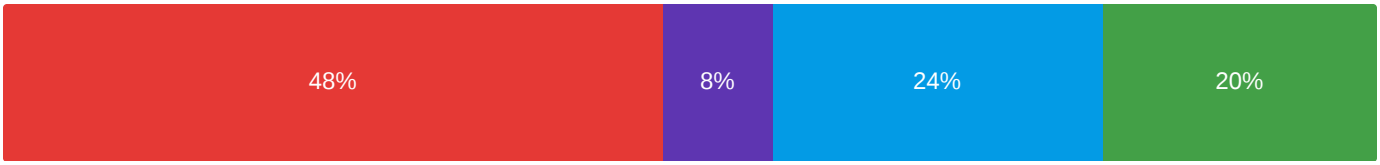
25 Responses



Student [8] Post-study ECR (1-7 years past final degree) [5] Mid-career (7-15 years past final degree) [3]
Later Career (15+ years past final degree) [8] Emeritus / Retired [1] None of the above

Q3 - Are you most closely researching …

25 Responses



Marine, sea ice, and coastal ecosystems or organisms [12] Terrestrial ecosystems or organisms [2]
Social Science (e.g. Science-Policy Interface) [6] None of the above [5]

Q5 - How interested are you personally in how the Ross Sea is managed?

21 Responses

Not interested at all Slightly interested [2] Moderately interested Very interested [8]
Extremely interested [11]

Q8 - 2. How important is the international high-level management of the Ross Sea region to your research?

21 Responses

Not at all important [4] Slightly important [2] Moderately important [4] Very important [6]
Extremely important [5]

Q7 - How knowledgeable are you about the conservation measure which establishes the Ross Sea region Marine Protected Area (CCAMLR Conservation Measure 91-05)?

21 Responses

Not knowledgeable at all (Never heard of it until now) [1] Slightly knowledgeable [6] Moderately knowledgeable [7]
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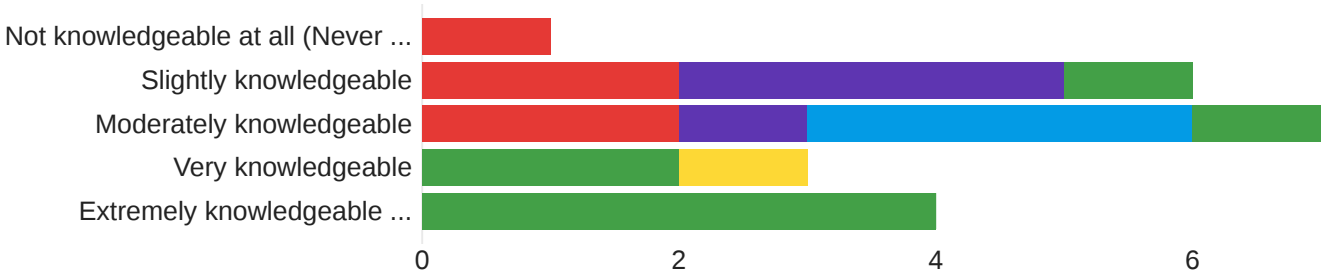

Student Post-study ECR (1-7 years past final degree) Mid-career (7-15 years past final degree)
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Q9 - How knowledgeable are you about the Ross Sea region Marine Protected Area's Research and Monitoring Plan (SC-CAMLR-XXXVI/20 Rev. 1)?

21 Responses

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Moderately knowledgeable [10] Very knowledgeable [2] Extremely knowledgeable (Expert knowledge) [2]

Q9 - How knowledgeable are you about the Ross Sea region Marine Protected Area's Research and Monitoring Plan (SC-CAMLR-XXXVI/20 Rev. 1)?

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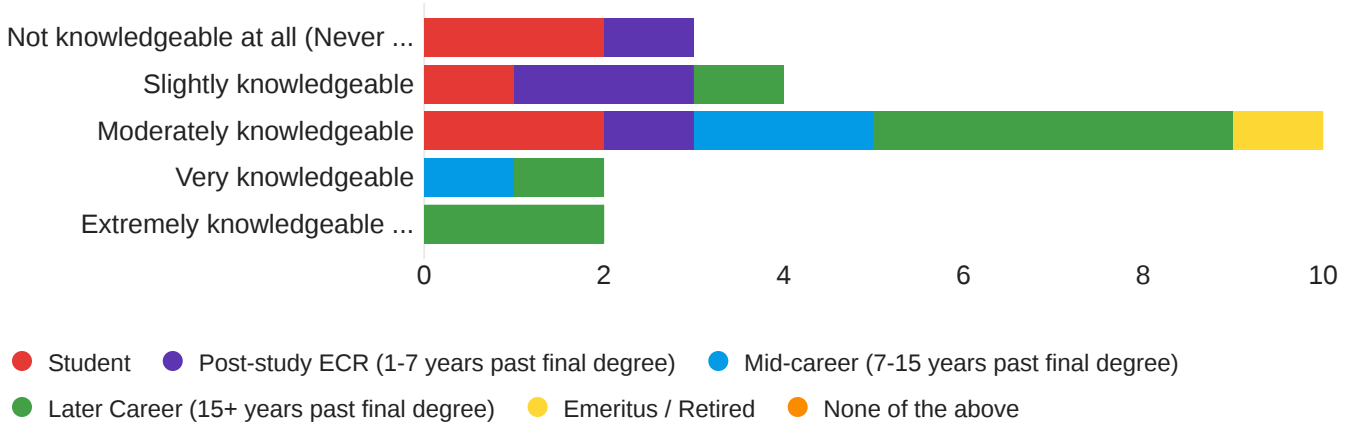
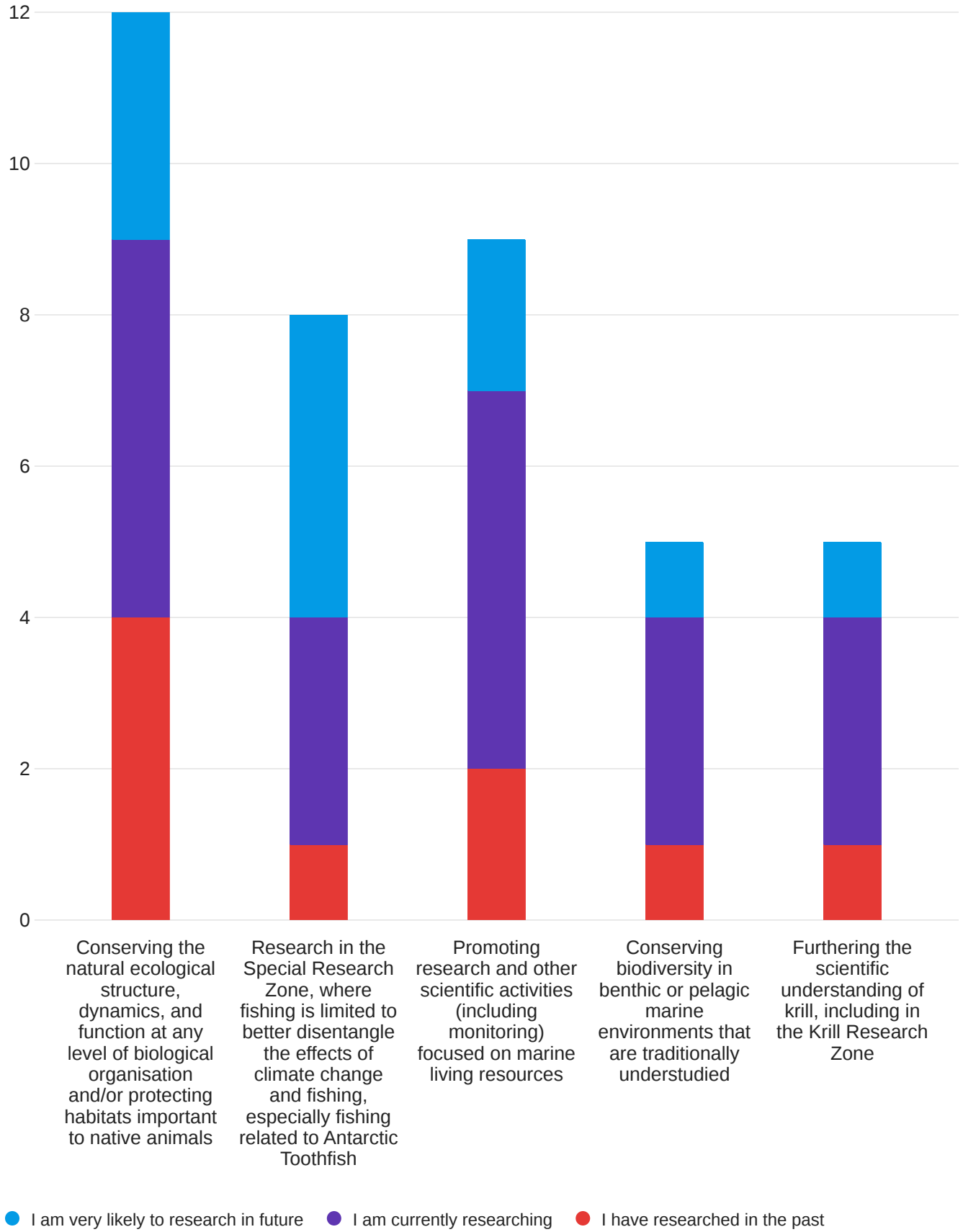
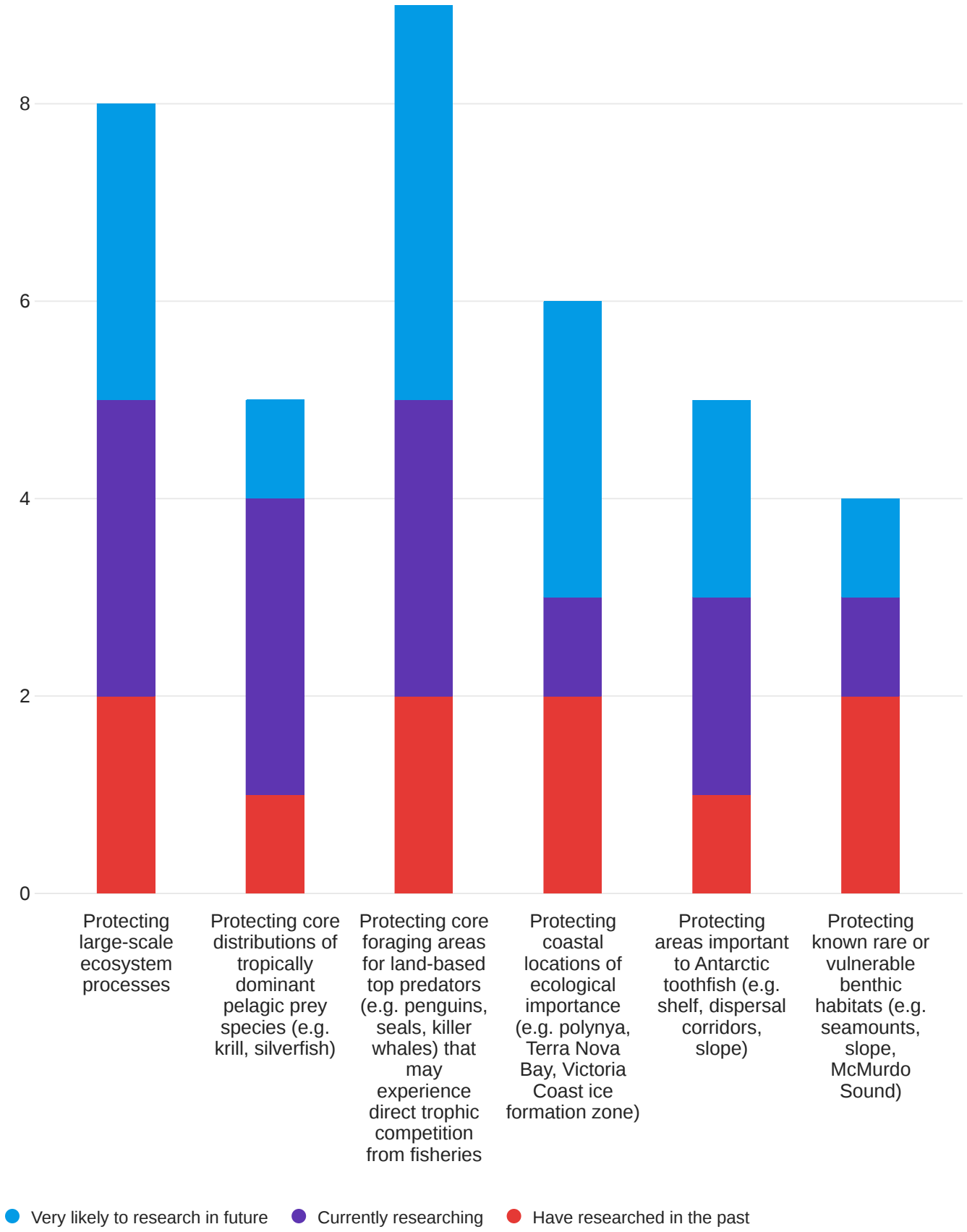


Q12 - Which of the following specific objectives of the Ross Sea region Marine Pr...

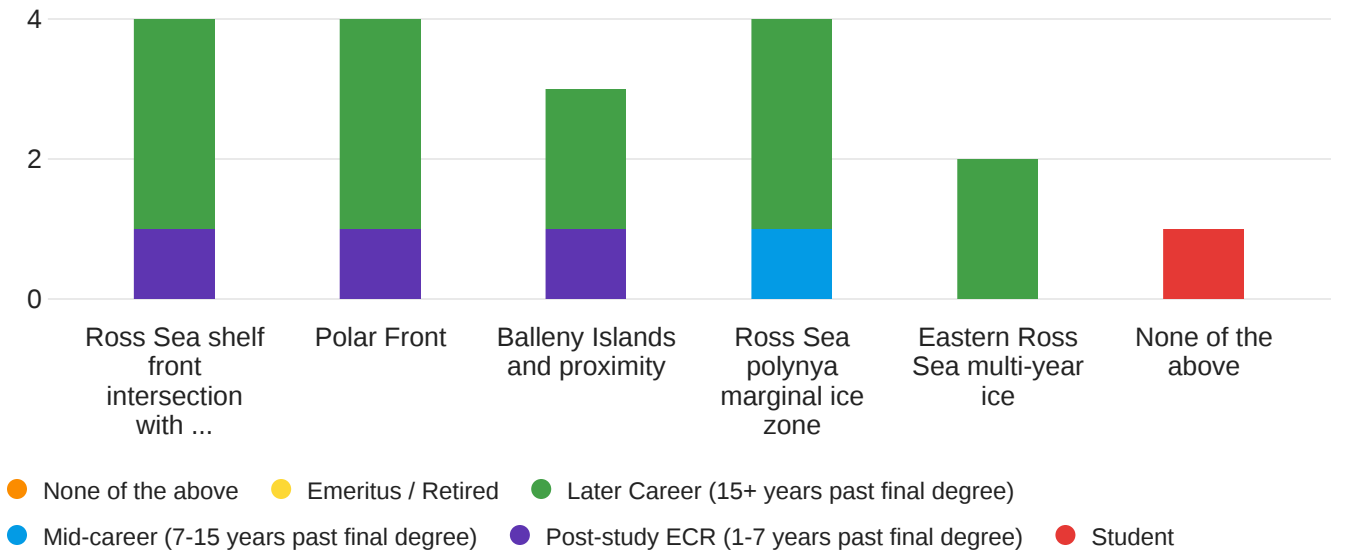


Q13 - Which of the following other specific objectives of the Ross Sea region Mar...



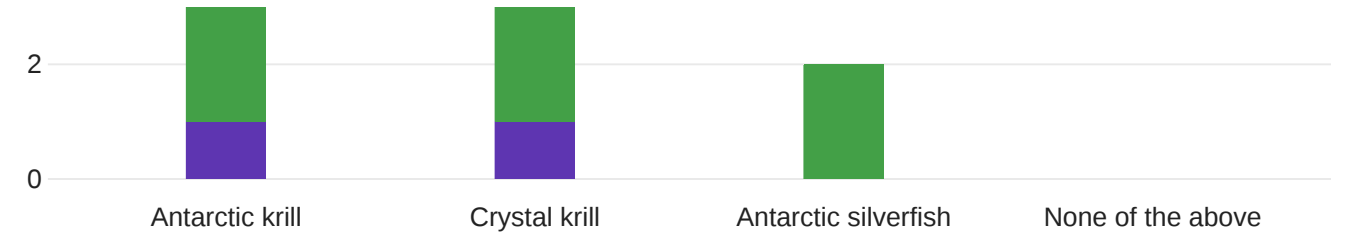
Q15 - Thinking about your research related to “protecting large-scale ecosystem processes”, does involve any of the following?

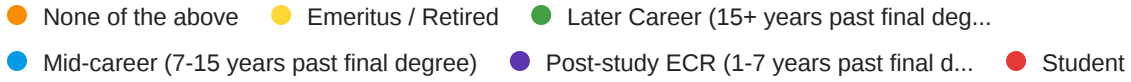
6 Responses



Q16 - Thinking about your research related to “protecting core distributions of tropically dominant pelagic prey species”, does it involve any of the following?

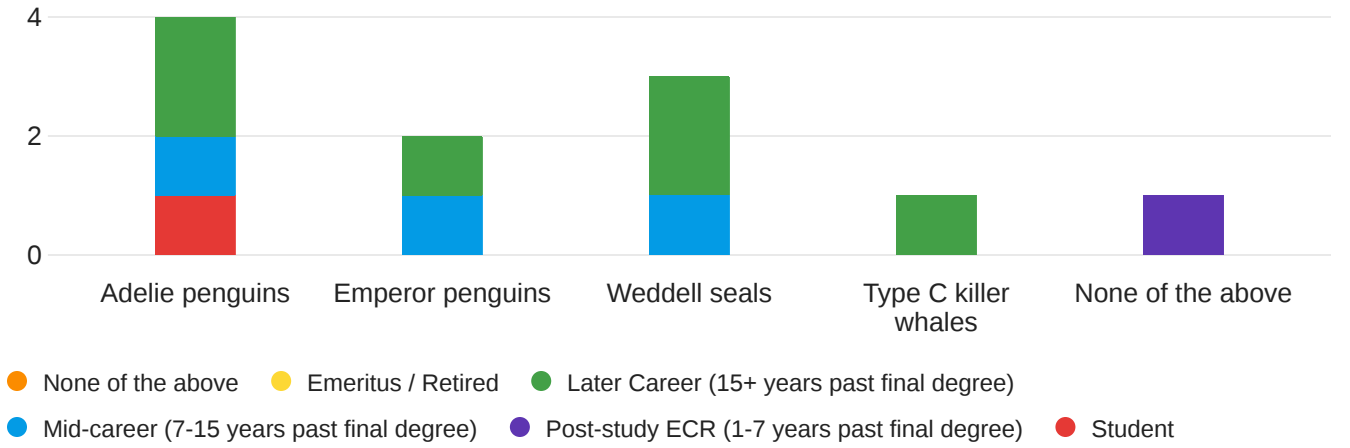
3 Responses





Q17 - Thinking about your research related to “Protecting core foraging areas for land-based top predators (e.g. penguins, seals, killer whales) that may experience direct trophic competition from fisheries”, does it involve any of the following?

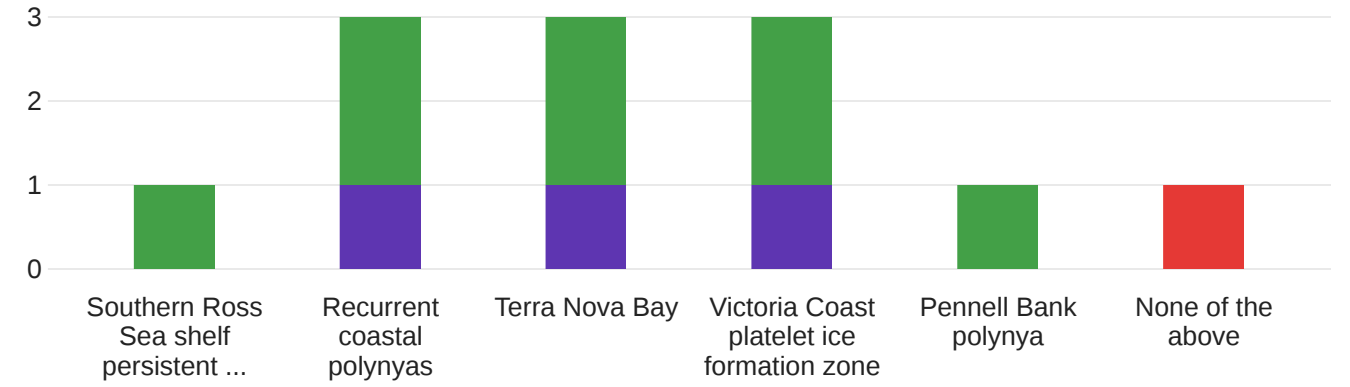
5 Responses



None of the above
Emeritus / Retired
Later Career (15+ years past final degree)
Mid-career (7-15 years past final degree)
Post-study ECR (1-7 years past final degree)
Student

Q18 - Thinking about your research related to “Protecting coastal locations of ecological importance (e.g. polynya, Terra Nova Bay, Victoria Coast ice formation zone)”, does it involve any of the following?

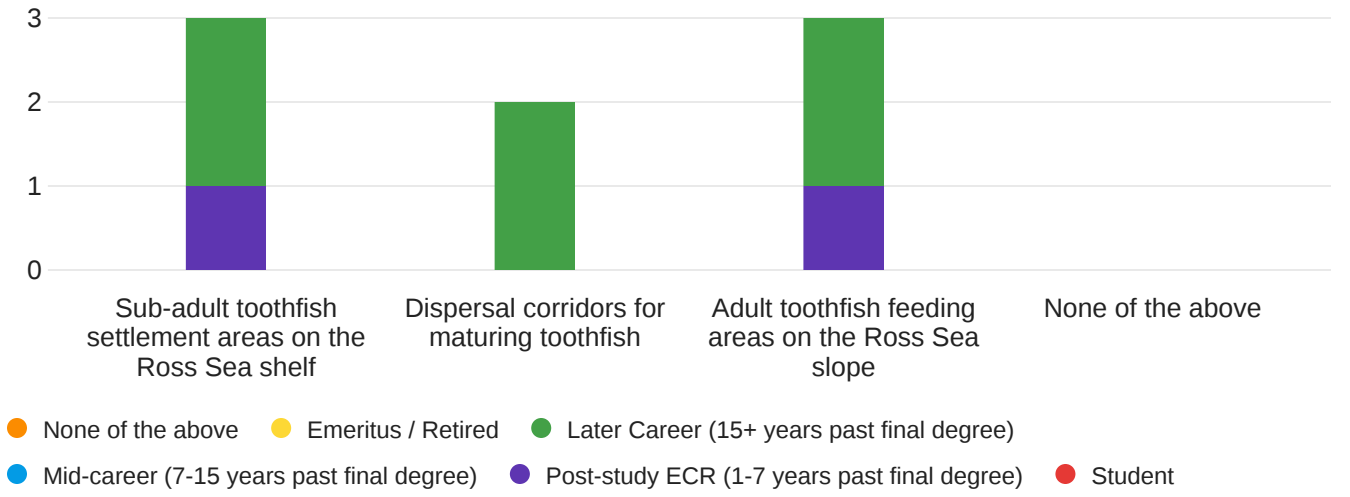
4 Responses



None of the above
Emeritus / Retired
Later Career (15+ years past final degree)
Mid-career (7-15 years past final degree)
Post-study ECR (1-7 years past final degree)
Student

Q19 - Thinking about your research related to “Protecting areas important to Antarctic toothfish (e.g. the Ross Sea shelf, dispersal corridors, slope)”, does it involve any of the following?

3 Responses

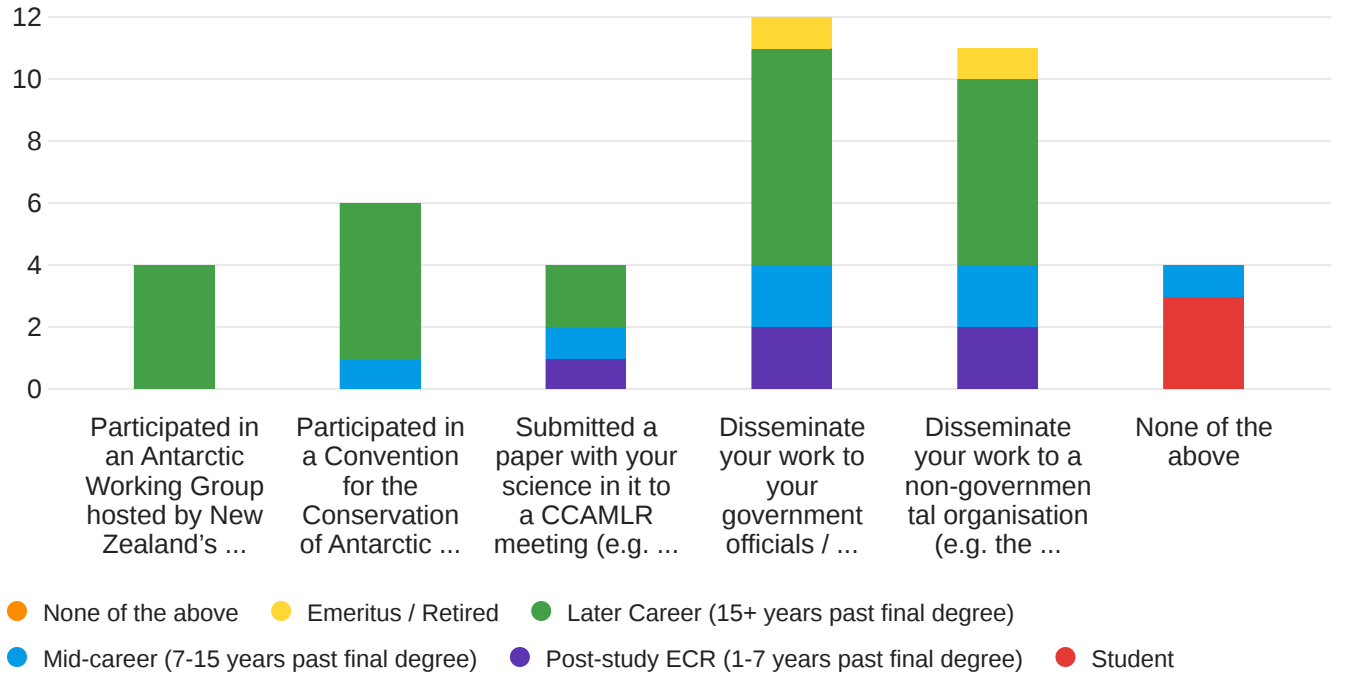


Q20 - Are there any other of your research endeavours you’d like to highlight that relate to the Ross Sea?

Are there any other of your research endeavours you’d like to highlight that relate to the Ross Sea?
climate change impacts, influence of oscillating climate drivers (El Nino Southern Oscillation, changes in the Westerly Winds (SAM), Tropical - South American - Pattern, changes in carbon uptake (both biological and physical pumps), changes in ocean heat take up, changes in ocean currents and conditions (freshening, acidification, mixing and intrusions), extreme events.
Contributing to the long-term monitoring of an indicator species, the Adelie penguin.
Sea ice microbiology and it's effect on the marine ecosystem
Sea ice from a Physics perspective. Interested in biological interactions with sea ice but just common knowledge about the area

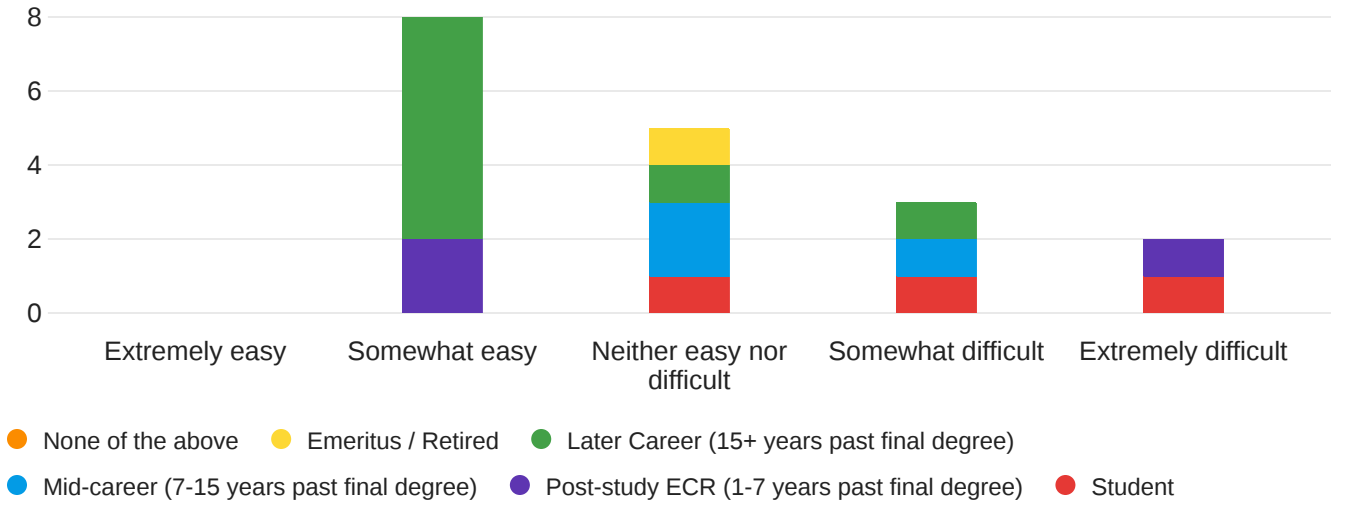
Q21 - Have you done any of the following to engage with policymakers?

19 Responses

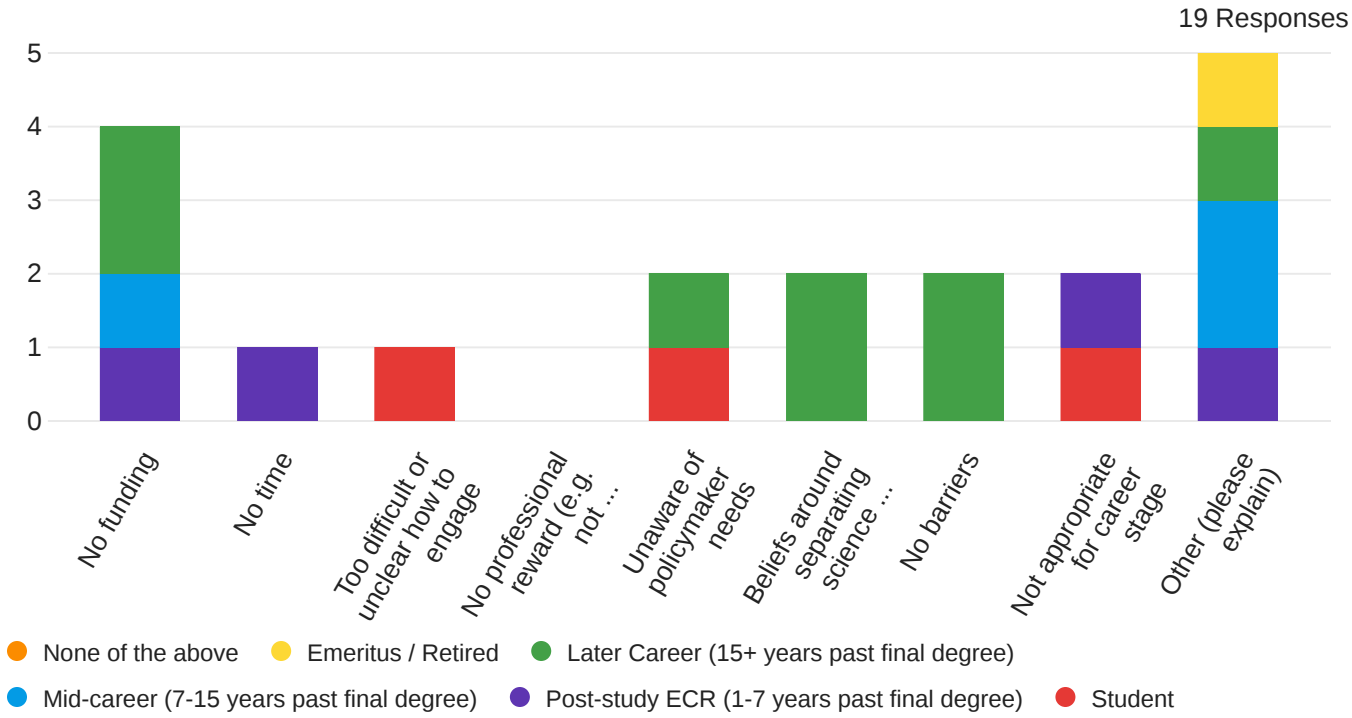


Q26 - How easy or difficult is it to communicate with policymakers for you specifically?

18 Responses



Q27 - What, if anything, is the one main barrier for you specifically in communicating with policymakers? - Selected Choice

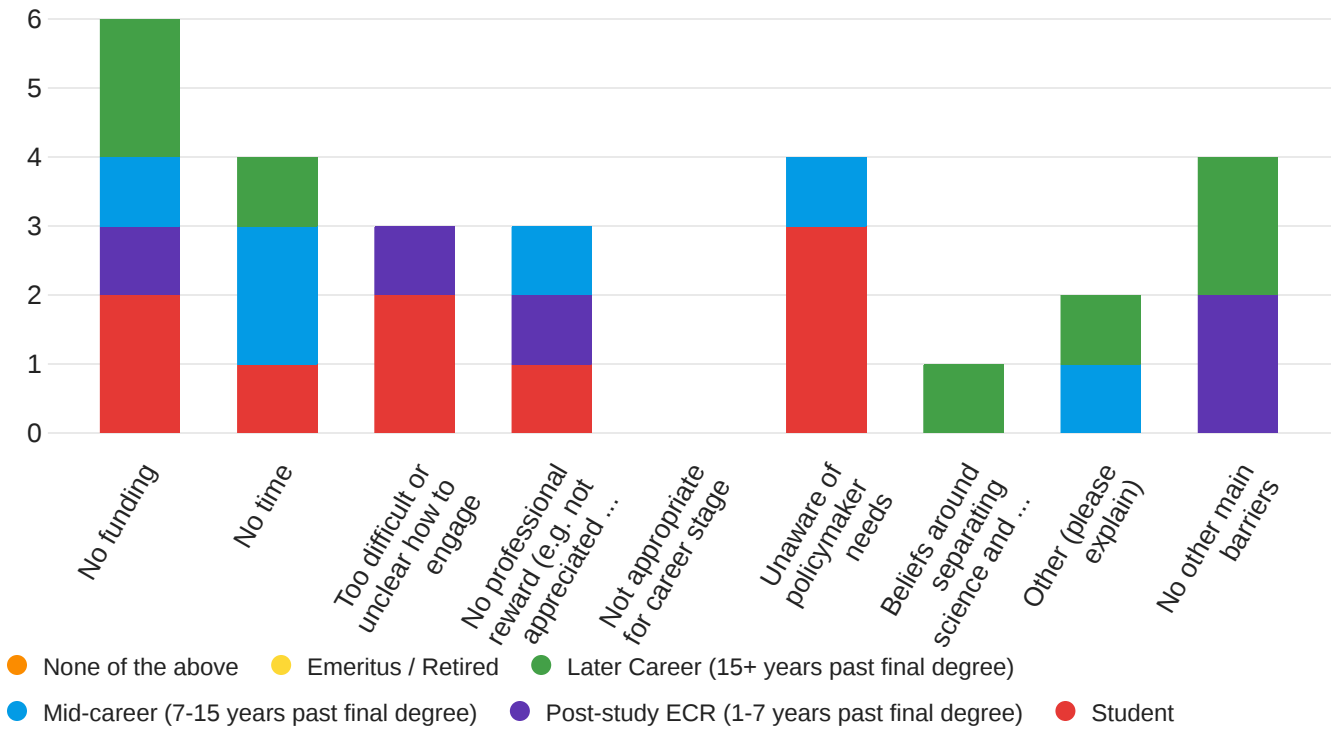


Q27_9_TEXT - Other (please explain) - Text

Other (please explain) - Text
Not clear how engagement will advance conservation, or how my research would help
different timelines, language and priorities
Their time
I am not a scientist, I am a humanities researcher
Simply don't know who the policy makers are

Q28 - Are there any other barriers for you specifically in communicating with policymakers? - Selected Choice

16 Responses

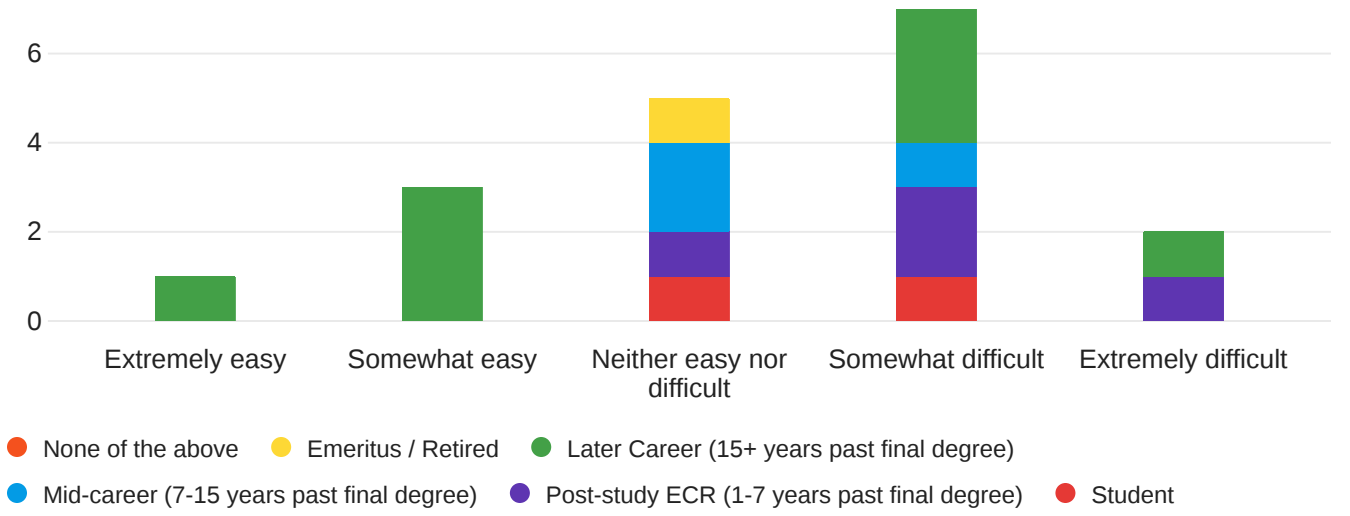


Q28_8_TEXT - Other (please explain) - Text

Other (please explain) - Text
lack of co-location (and thus regular conversations over tea/coffee)
Many have there own agenda and this Goverment I find does not respect primary industry

Q30 - How easy or difficult is it to communicate with policymakers for scientists in general?

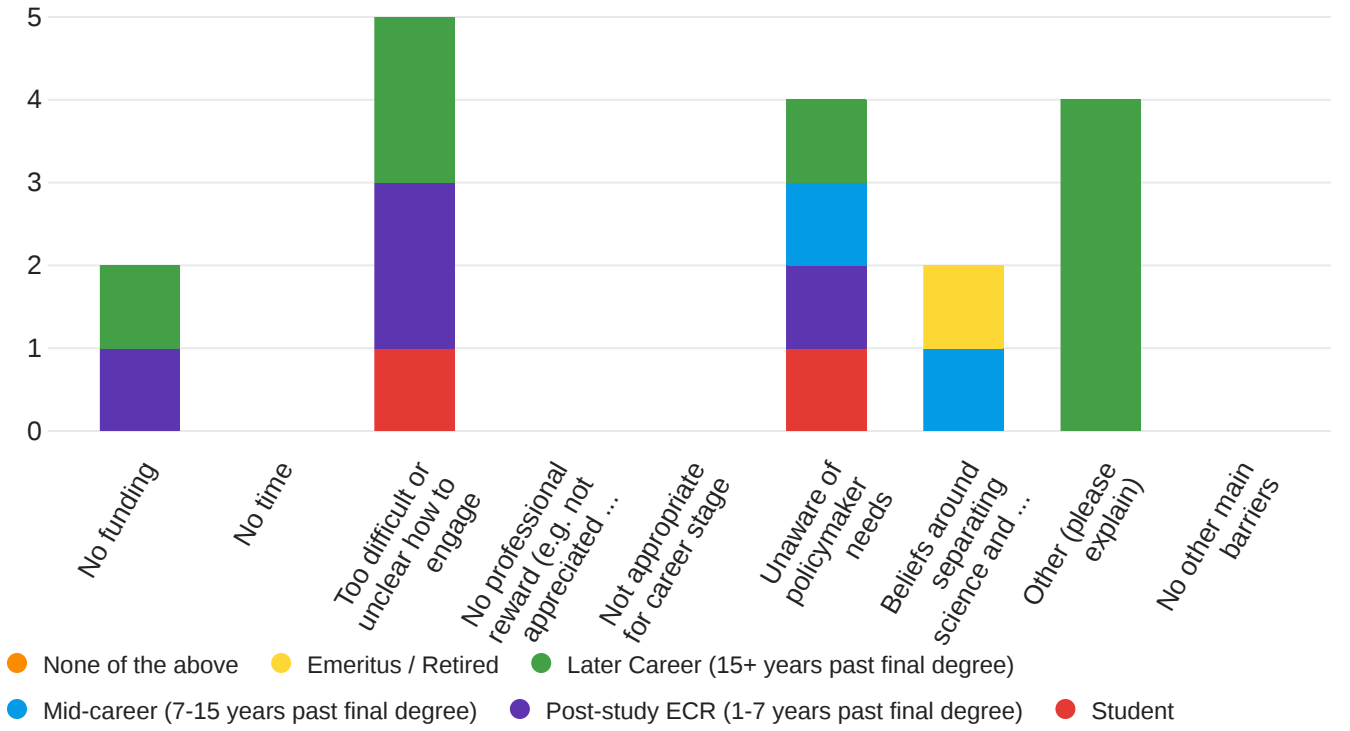
18 Responses



None of the above
Emeritus / Retired
Later Career (15+ years past final degree)
Mid-career (7-15 years past final degree)
Post-study ECR (1-7 years past final degree)
Student

Q32 - What, if anything, is the one main barrier in general in communicating with policymakers? - Selected Choice

17 Responses

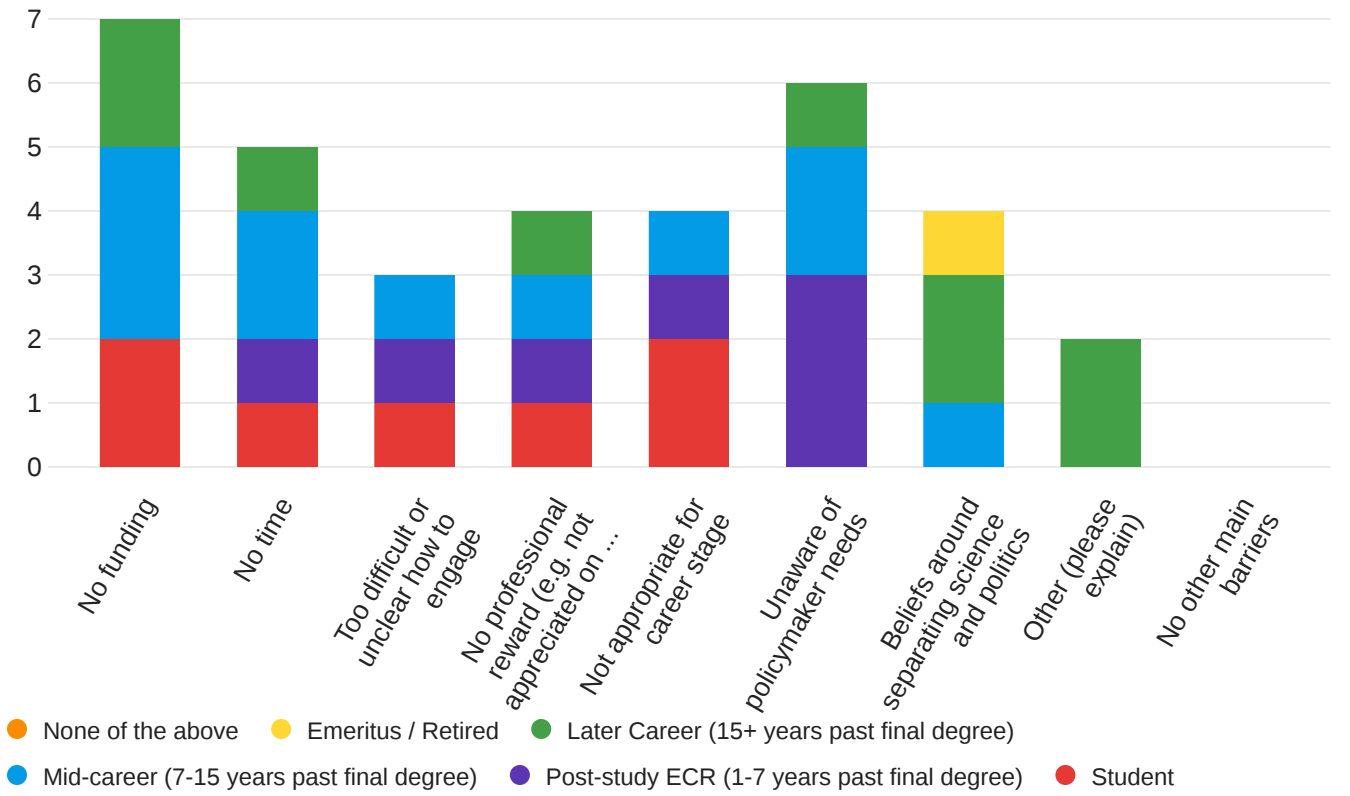


Q32_8_TEXT - Other (please explain) - Text

Other (please explain) - Text
Conflicting priorities
alignment of priorities and resourcing the engagement (time for both the researchers and the policymakers)
scientists generally have too narrow an expertise and often lack a sophisticated understanding of non-scientific factors such as legal obligations, international relations, geopolitics, ethics, environmental obligations, etc
They tend to not appreciate the people from the coalface that gather data have a realistic view

Q33 - Are there any other barriers in general in communicating with policymakers? - Selected Choice

17 Responses

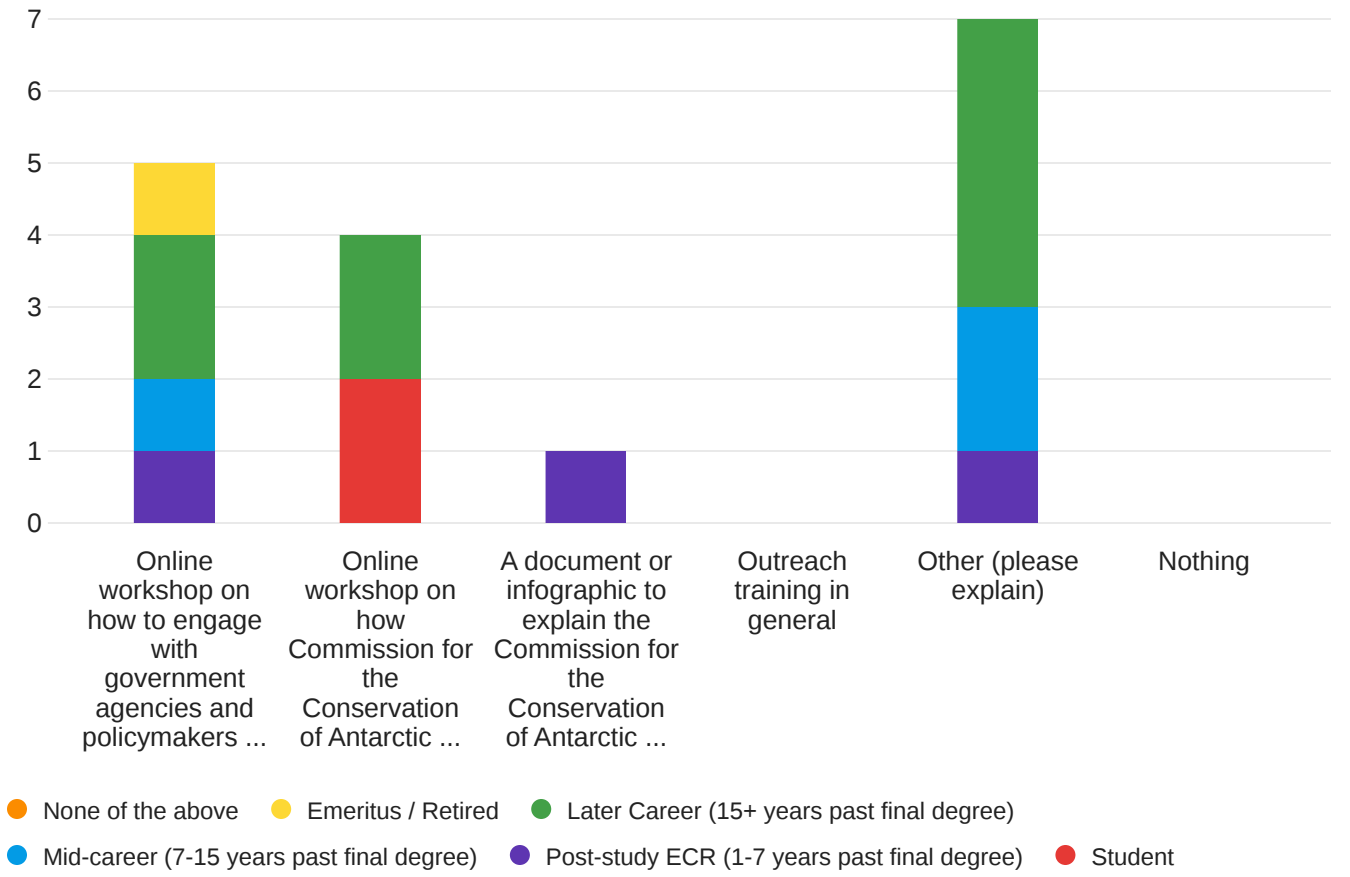


Q33_8_TEXT - Other (please explain) - Text

Other (please explain) - Text
Rapid changes in key personnel in policy positions makes it hard to develop effective communication pathways
probably ALL of the items listed here

Q37 - Which of the following would you most like the Antarctic Science Platform to provide? - Selected Choice

17 Responses

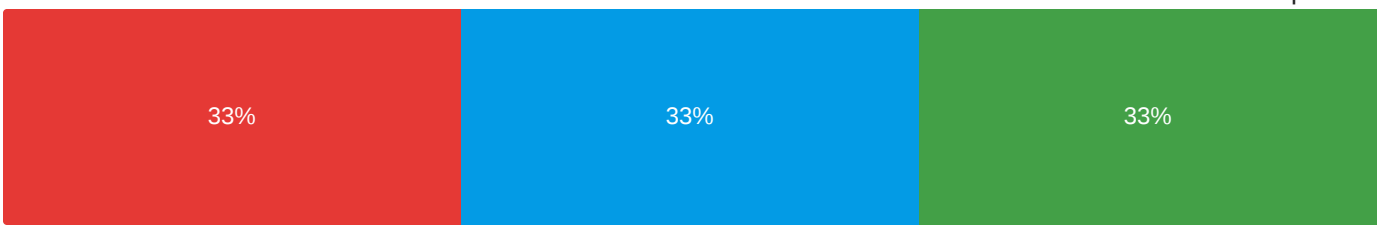


Q37_5_TEXT - Other (please explain) - Text

Other (please explain) - Text
in person meetings with policy-makers
Maori and NZ-input to Antarctic governance
Guidance on how to speak directly to Ministers
actively bringing policy makers and researchers together in joint sessions
Create room for policy as an unfounded side branch of the platform. Be an umbrella to gather research of all types under rather than so prescriptive
Keep in touch with industry who are on the ground
In person explanation of what the current policies are and some time to think of chat about how my research might relate

Q38 - As an early career researcher, which of the following would be most helpful to you? - Selected Choice

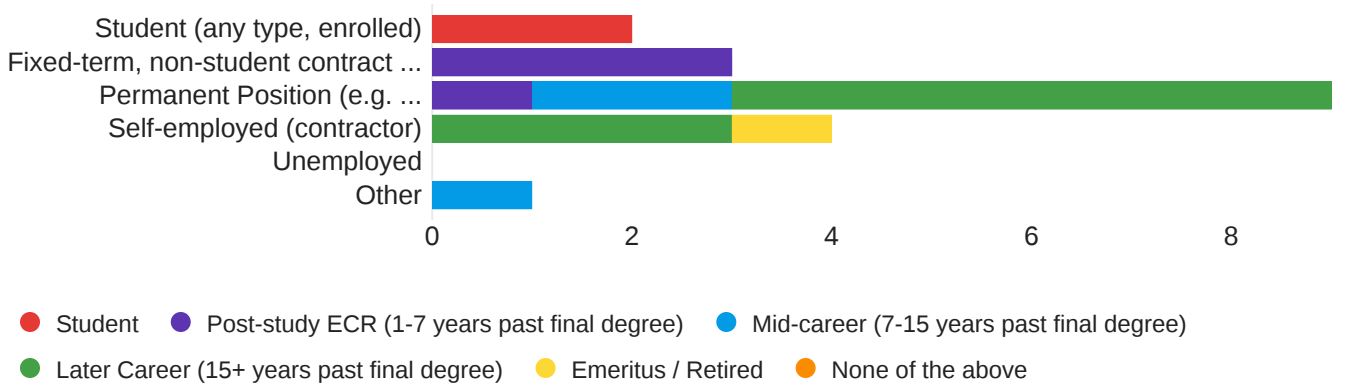
6 Responses



- An early career researcher workshop on translating science to policy [2]
- An early career researcher workshop on policy careers
- Policy internships (a short 3-month placement in a NZ government department with a pr...
- Policy postdocs (a 2-year postdoc in a government department to learn the inner worki...
- Other (please explain)
- None

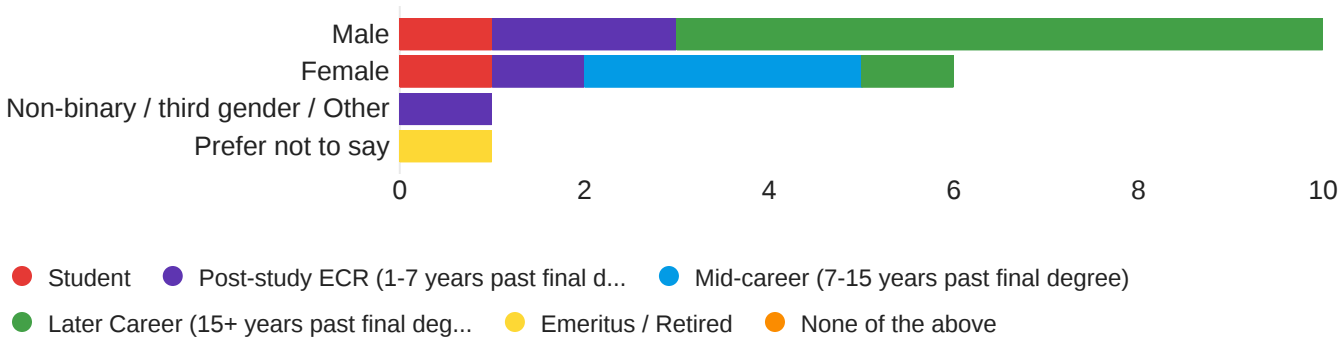
Q40 - What is your employment status? - Selected Choice

18 Responses



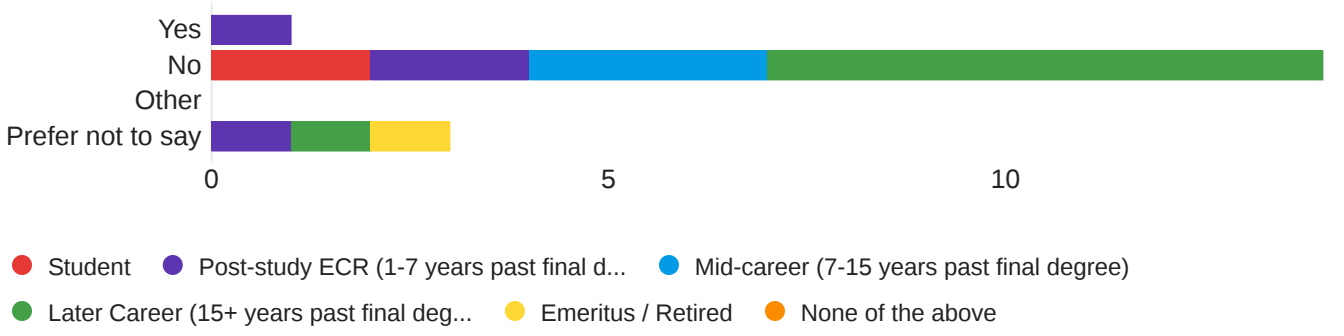
Q41 - Do you identify as: - Selected Choice

18 Responses



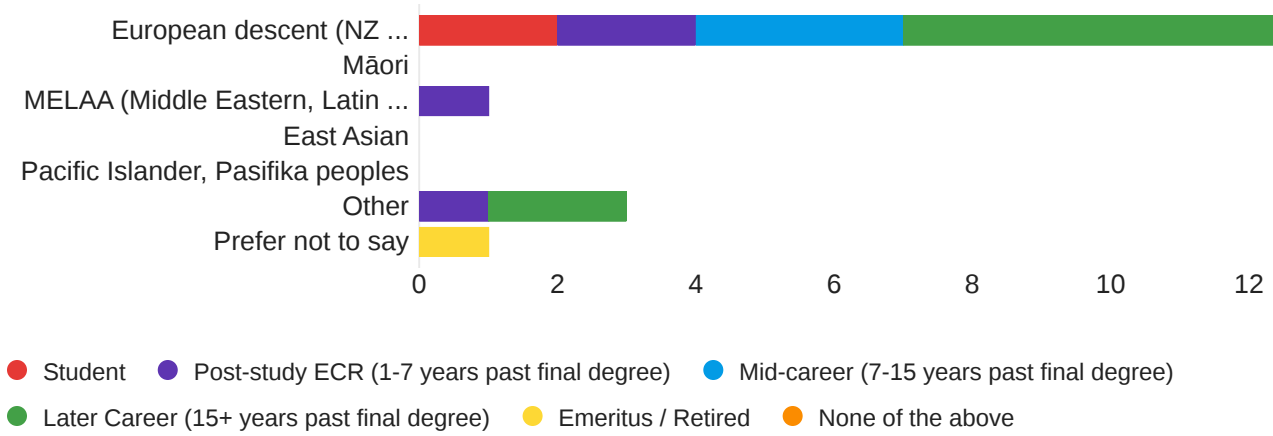
Q42 - Do you belong to the LGBTTQIA+ community (lesbian, gay, bisexual, transgender, Takatāpui, queer, intersex, asexual+)? - Selected Choice

18 Responses



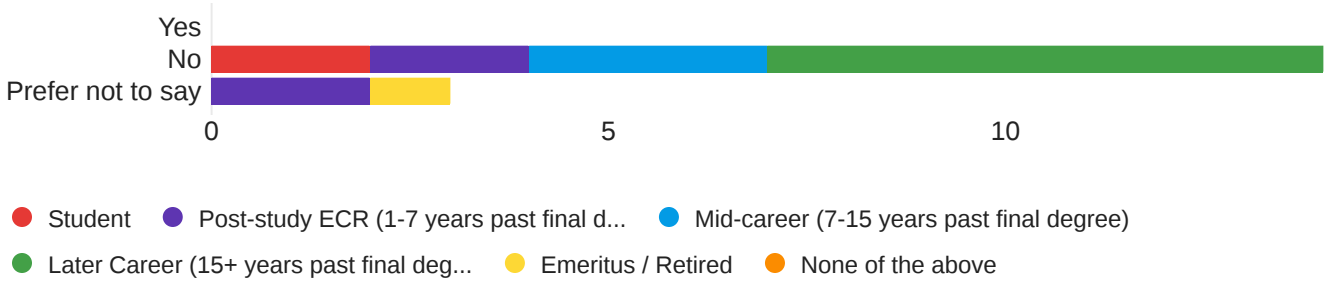
Q43 - What ethnic group(s) do you belong to? - Selected Choice

18 Responses



Q44 - Do you consider yourself physically impaired (disabled), neurodivergent, or to have a hidden disability that you feel requires recognition / accommodation by your employer?

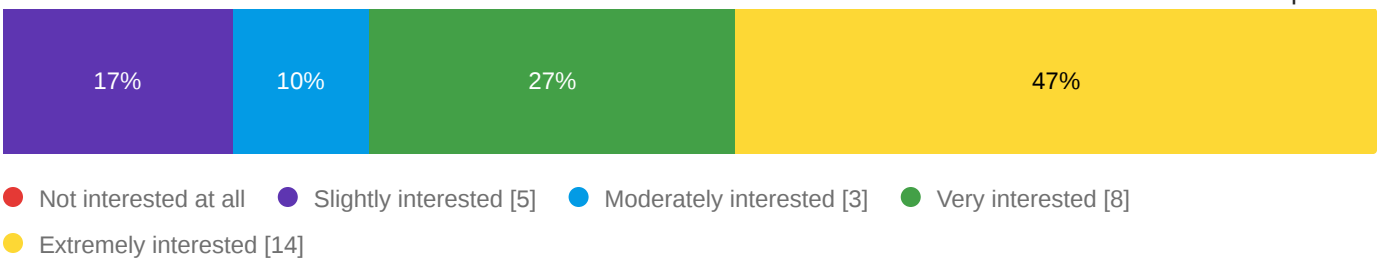
17 Responses



Appendix 2: Survey data from all responses for all questions

Q5 - How interested are you personally in how the Ross Sea is managed?

30 Responses



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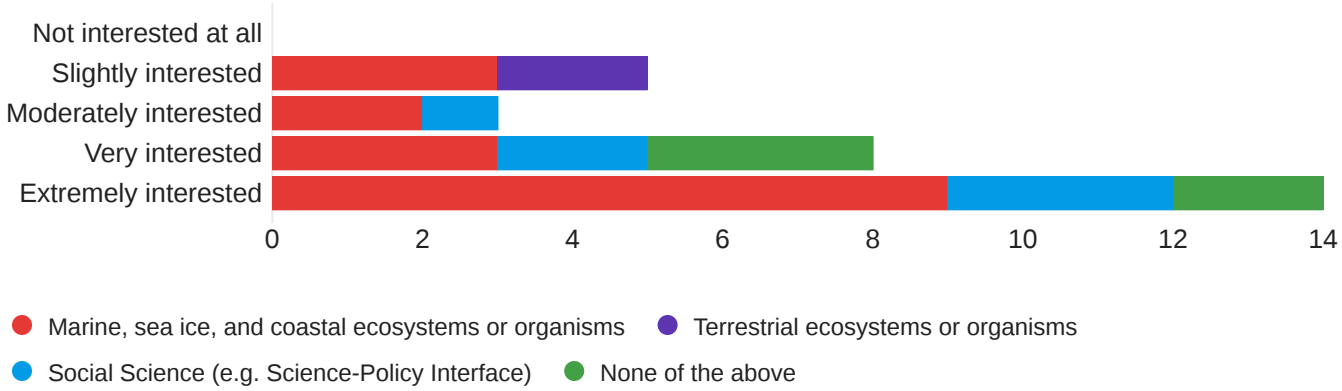

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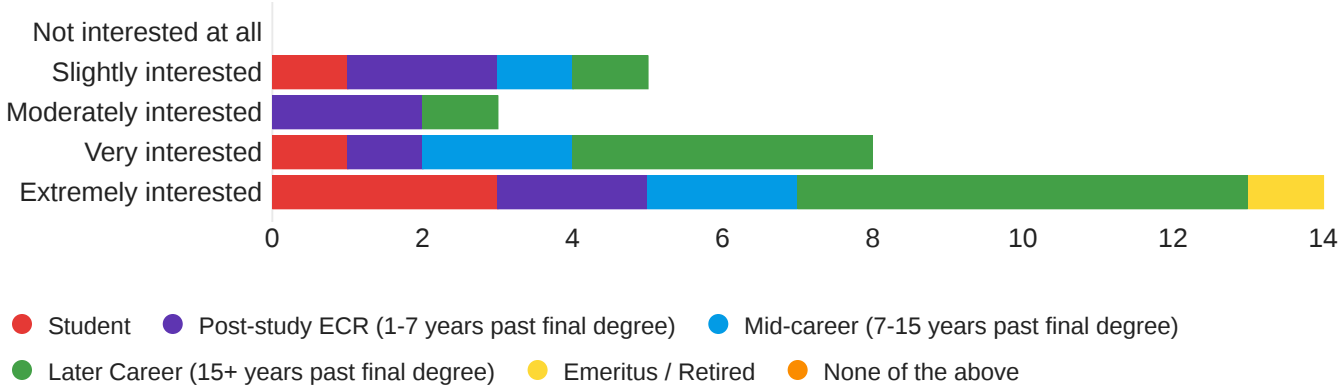


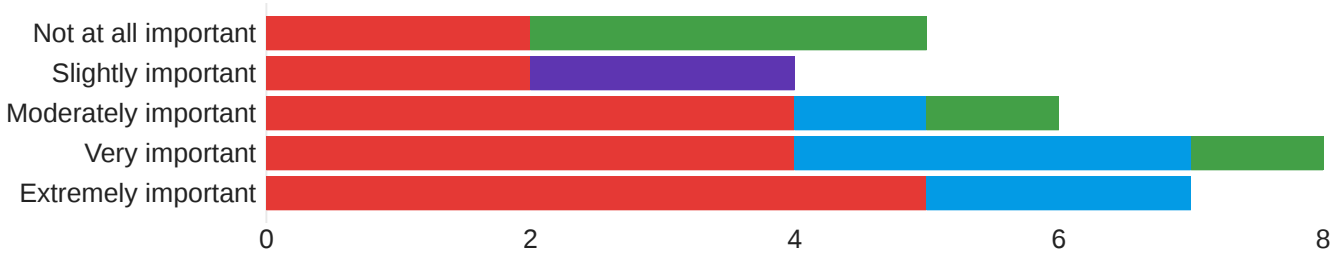
Q8 - 2. How important is the international high-level management of the Ross Sea region to your research?

30 Responses

Not at all important [5] Slightly important [4] Moderately important [6] Very important [8]
Extremely important [7]

Q8 - 2. How important is the international high-level management of the Ross Sea region to your research?

30 Responses



Marine, sea ice, and coastal ecosystems or organisms Terrestrial ecosystems or organisms
Social Science (e.g. Science-Policy Interface) None of the above

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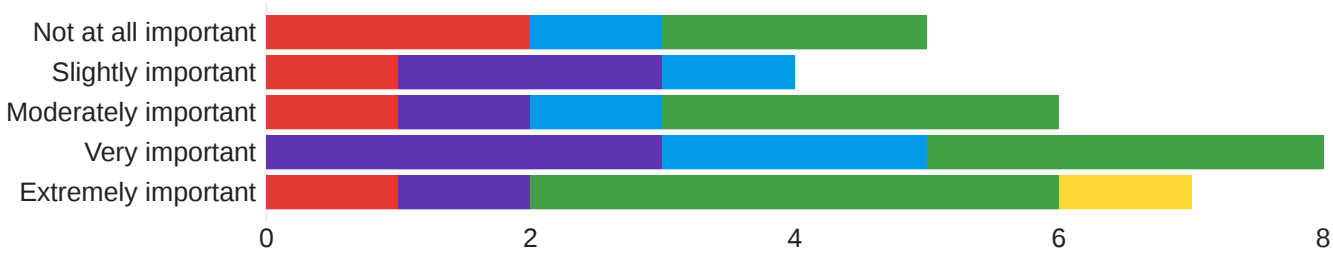

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Later Career (15+ years past final degree) Emeritus / Retired None of the above

Q7 - How knowledgeable are you about the conservation measure which establishes the Ross Sea region Marine Protected Area (CCAMLR Conservation Measure 91-05)?

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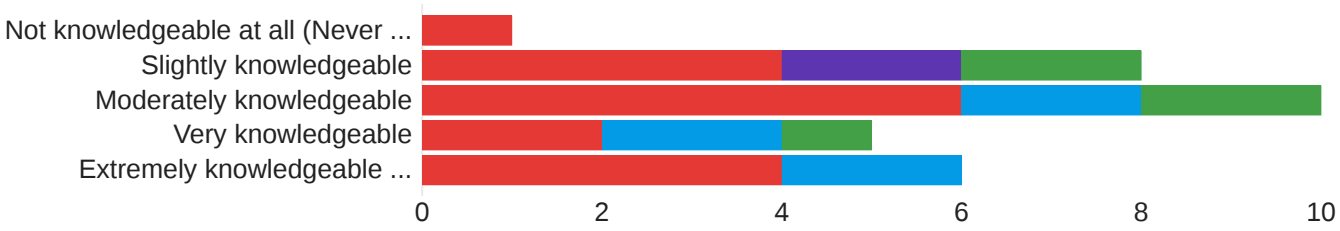

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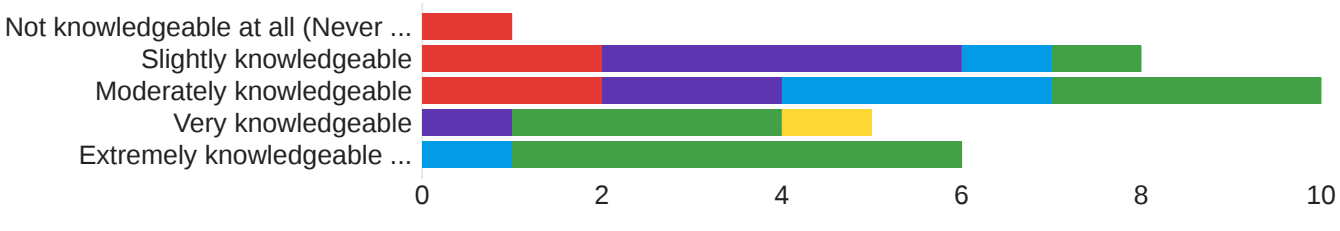

Student
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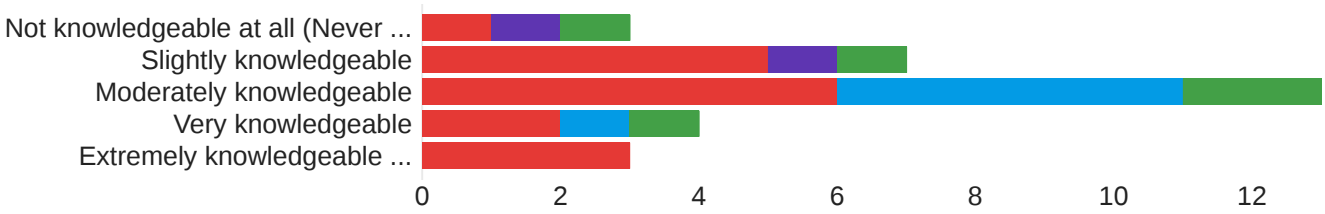

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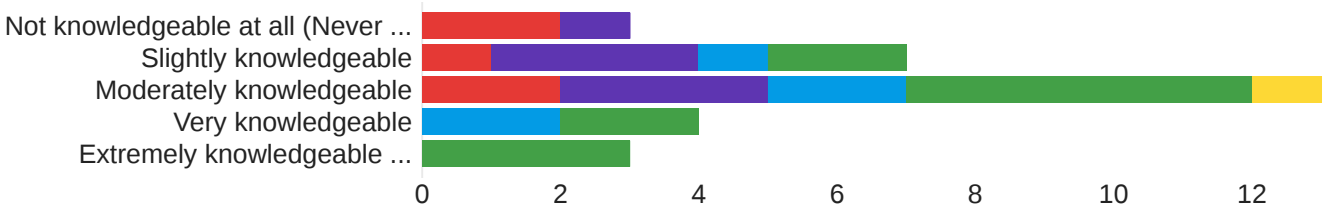
30 Responses



Student
Post-study ECR (1-7 years past final d...
Mid-career (7-15 years past final degree)
Later Career (15+ years past final deg...
Emeritus / Retired
None of the above

Q10 - How do you think the management of the Ross Sea region could be improved, if at all?

How do you think the management of the Ross Sea region could be improved, if at all?

Multiagency coordination of support and funding in NZ

There is a need to understand the natural baseline, the anthropogenic impact (fishing, tourism) and climate change impacts.

Create an integrated research program that examines ecosystem level responses. It will be difficult to disentangle the effects of climate change from fisheries

Explicit consideration of risk / precautionary management with respect to effects of climate change and unknowns around ecosystem effects of fishing

Discontinue the toothfish fishery, which is greatly impacting the 'structure and function' of the RS food web

Extending the timeframe of the MPA, and potentially a place where research in support of the MPA could be compiled.

Regular and structured policy discussion across all the states active in this region.

by imposing even greater restrictions on fishing and expanding the no-take zones

Enlarge the MPA

Not sure at the moment!

Management is arguably well taken care of through the MPA as well as relevant CCAMLR CMs. What we need is more research to inform management and any adjustments needed

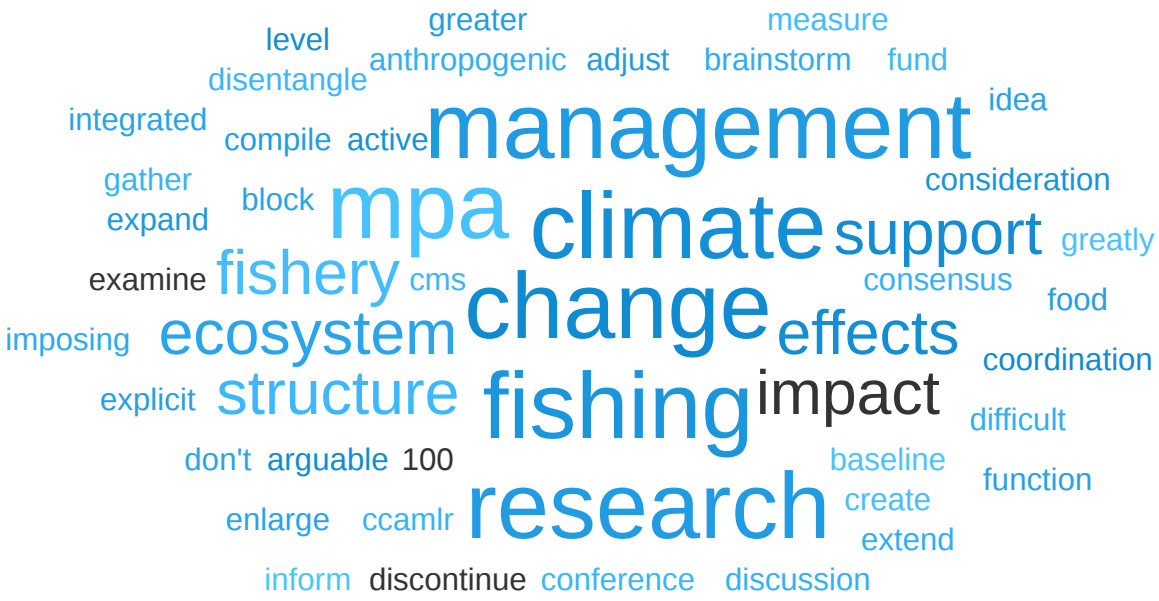
I don't know enough to be able to comment on this

Get rid of the need for 100% consensus it is now used as a political tool to block measures or resolutions and has no value in real sustainable management

Conference workshop brainstorming to gather new ideas?

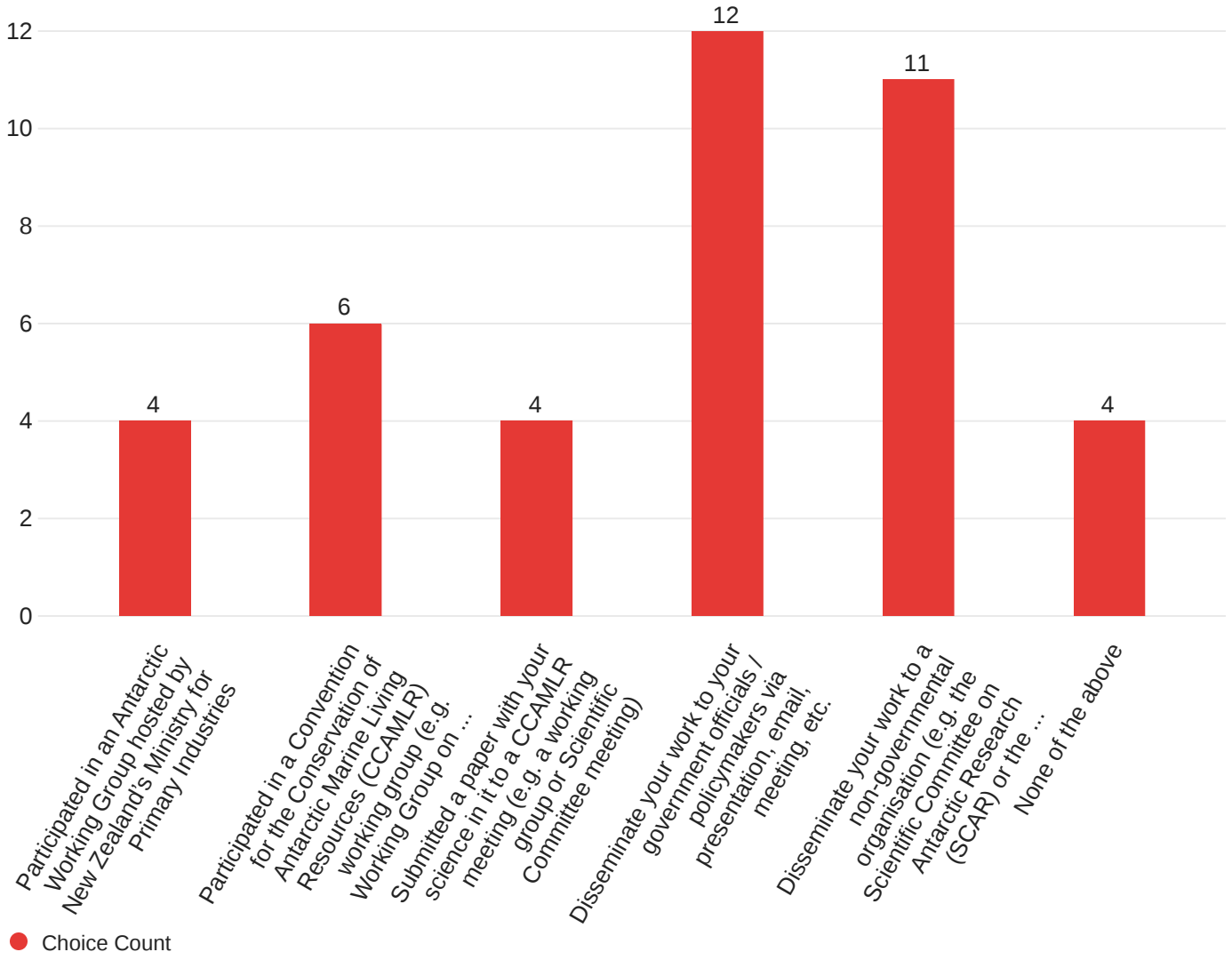
Q10 - How do you think the management of the Ross Sea region could be improved, if at all?

14 Responses



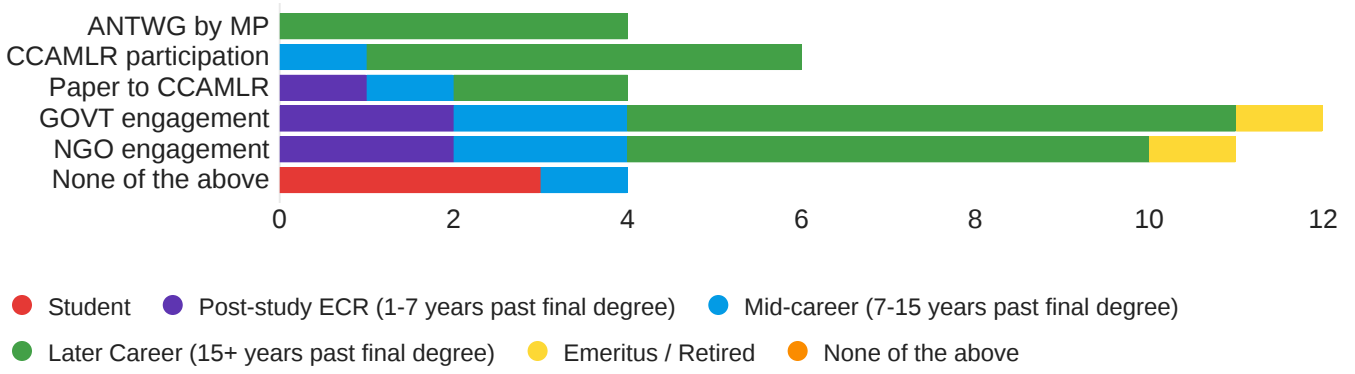
Q21 - Have you done any of the following to engage with policymakers?

19 Responses



Q21 - Have you done any of the following to engage with policymakers?

19 Responses



Q22 - Please feel free to describe your experience engaging with policymakers. Would you do it again? Do you have any other thoughts?

Please feel free to describe your experience engaging with policymakers. Would you do it again? Do you have any other thoughts?

Engagement with stakeholders are very important, this is a critical pathway for research to have impact, to inform decision making.

The engagement model used in NZ with CCAMLR could be usefully adapted for use with ATCM/CEP

This question presumes that those of us participating in this survey are not ourselves policymakers. Consider the situation where one might wear multiple hats - researcher/analyst, policy advisor, diplomatic representative

My engagement has been through participation in an ATCM, through SC-ATS and various stakeholder consultations by MFAT over the years

I was involved in the negotiations of the MPA both with the US and in CCAMLR

I am from the fishing industry and have been involved from when NZ started to fish in Ross Sea

Who is a policy maker? That is a rather scary or undefined word to me. Would love to meet with a "policymaker" and just chat about the impact of my specific project might have

Q22 - Please feel free to describe your experience engaging with policymakers. Would you do it again? Do you have any other thoughts?

7 Responses

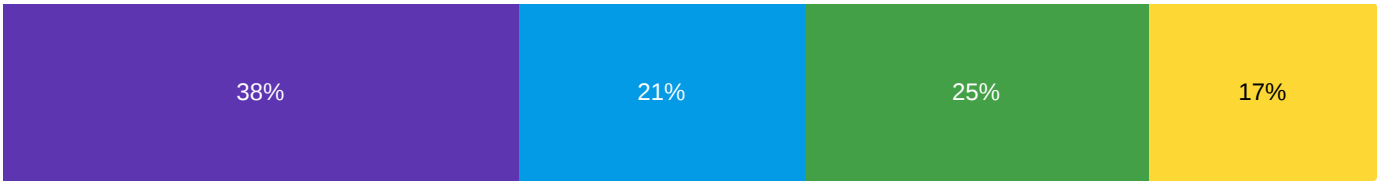
Q23 - Are these types of engagements something you are interested in? If so, please explain why and which ones appeal to you the most.

Are these types of engagements something you are interested in? If so, please explain why and which ones appeal to you the most.

Sharing work with CCAMLR or SCAR to better inform the effectiveness of the Ross Sea MPA.

Q26 - How easy or difficult is it to communicate with policymakers for you specifically?

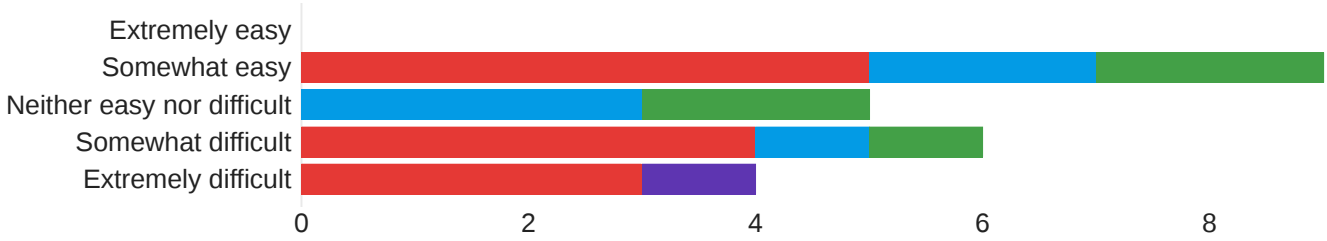
24 Responses



Extremely easy Somewhat easy [9] Neither easy nor difficult [5] Somewhat difficult [6]
Extremely difficult [4]

Q26 - How easy or difficult is it to communicate with policymakers for you specifically?

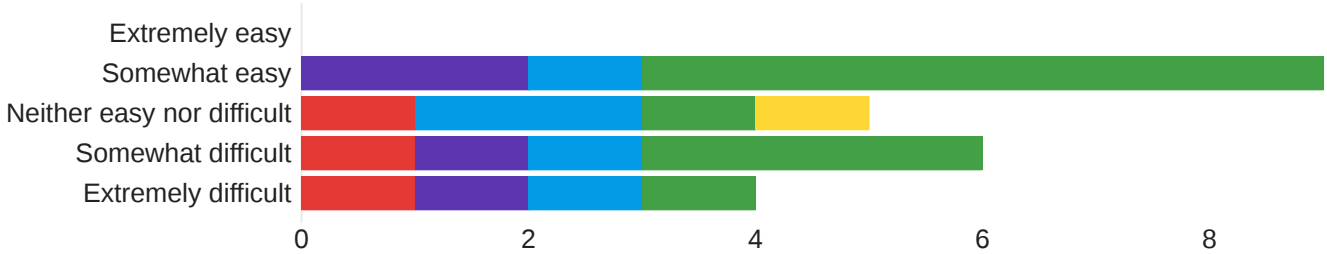
24 Responses



Marine, sea ice, and coastal ecosystems or organisms Terrestrial ecosystems or organisms
Social Science (e.g. Science-Policy Interface) None of the above

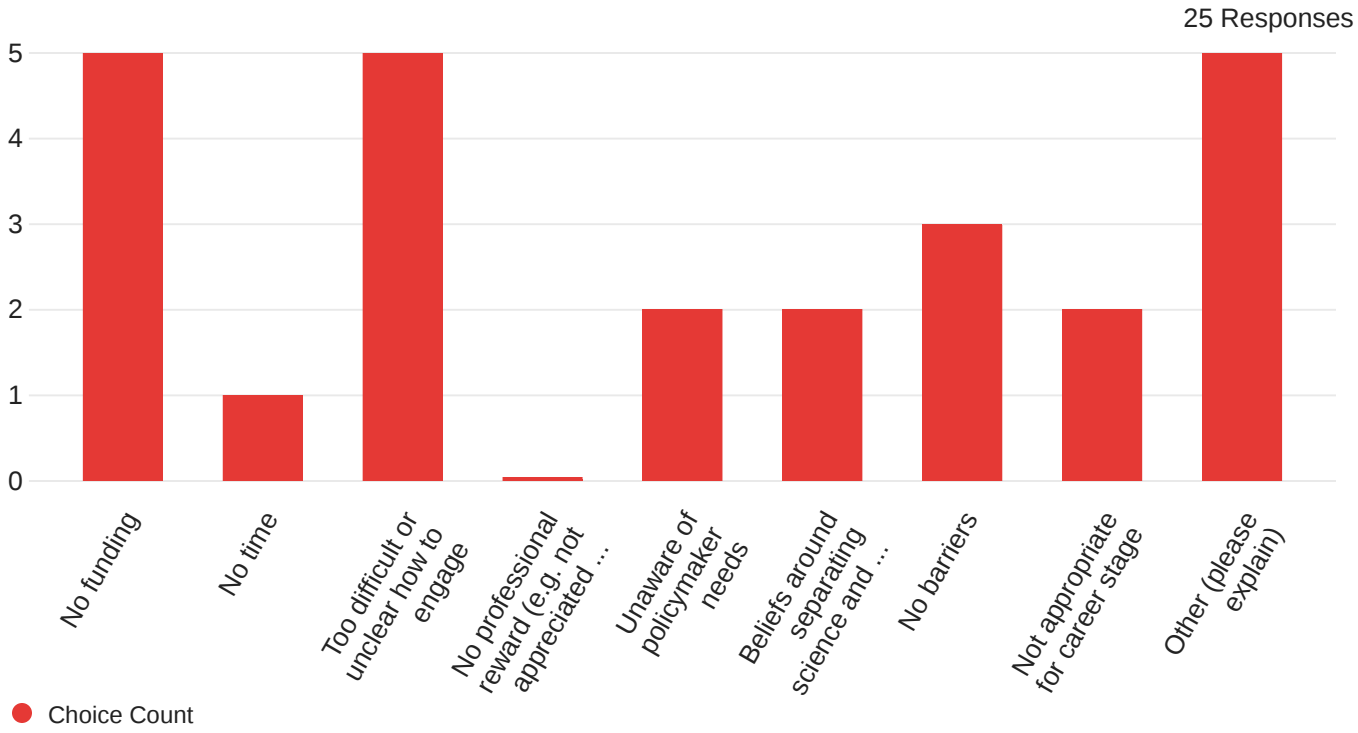
Q26 - How easy or difficult is it to communicate with policymakers for you specifically?

24 Responses

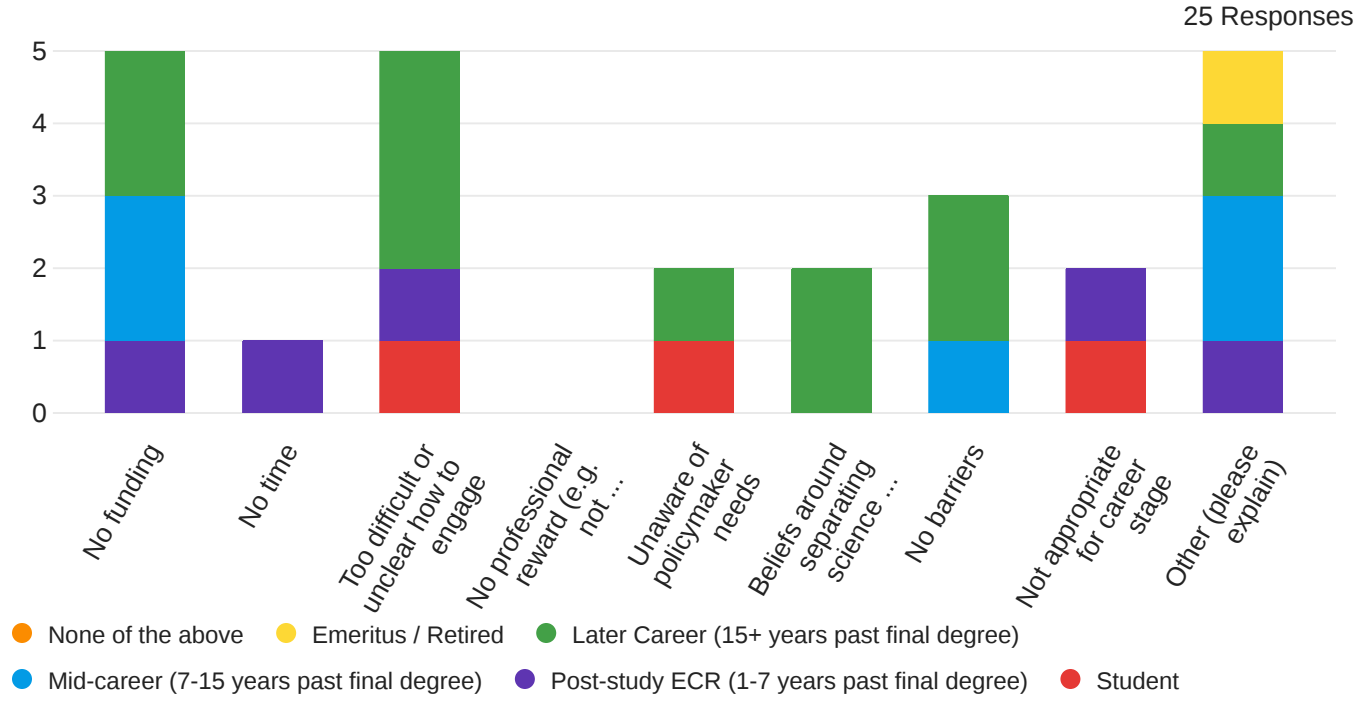


Student Post-study ECR (1-7 years past final degree) Mid-career (7-15 years past final degree)
Later Career (15+ years past final degree) Emeritus / Retired None of the above

Q27 - What, if anything, is the one main barrier for you specifically in communicating with policymakers? - Selected Choice



Q27 - What, if anything, is the one main barrier for you specifically in communicating with policymakers? - Selected Choice

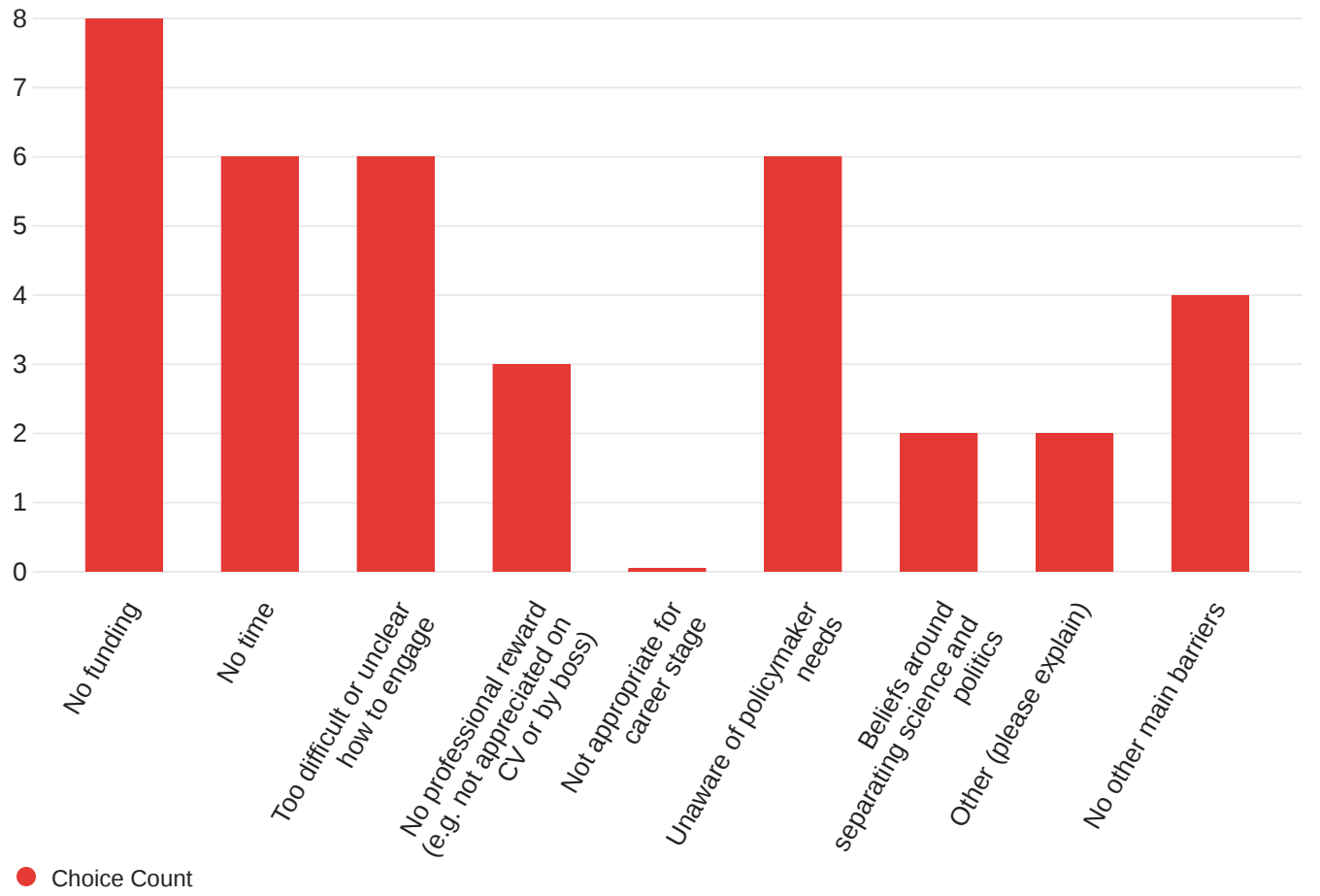


Q27_9_TEXT - Other (please explain) - Text

Other (please explain) - Text
Not clear how engagement will advance conservation, or how my research would help
different timelines, language and priorities
Their time
I am not a scientist, I am a humanities researcher
Simply don't know who the policy makers are

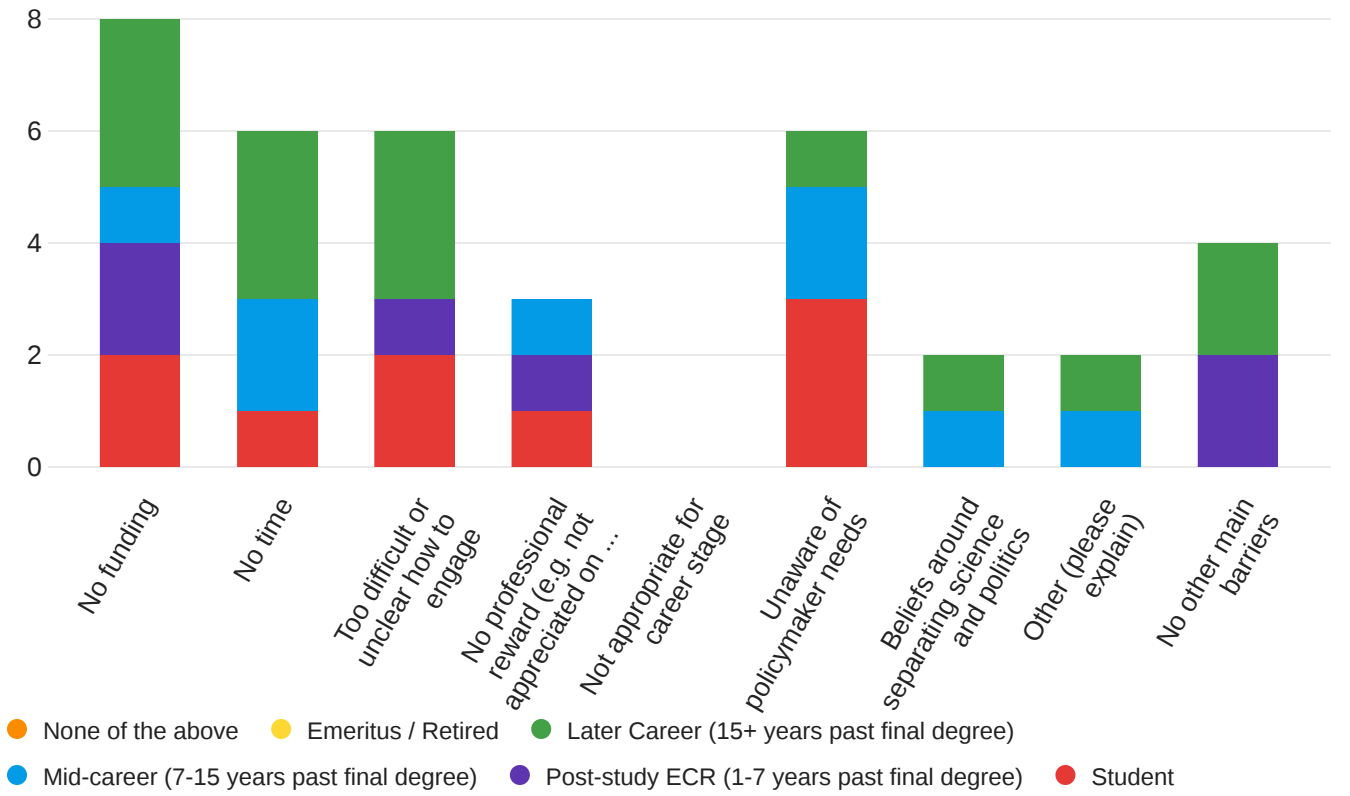
Q28 - Are there any other barriers for you specifically in communicating with policymakers? - Selected Choice

22 Responses



Q28 - Are there any other barriers for you specifically in communicating with policymakers? - Selected Choice

22 Responses



Q28_8_TEXT - Other (please explain) - Text

Other (please explain) - Text
lack of co-location (and thus regular conversations over tea/coffee)
Many have there own agenda and this Goverment I find does not respect primary industry

Q29 - Please feel free to explain these barriers in more detail for you specifically.

Please feel free to explain these barriers in more detail for you specifically.

Science is one component that feeds into science-based management. At the decision-making level around policies (Commission), other considerations are also taken into account - these are not in my specialist area.

It is hard to know how to engage with CCAMLR. I have participated in CCAMLR activities in the past. However, the US AMLR program keeps to themselves

- Very limited (especially long term) funding provides a limit to consultation
- ATCM/CEP science-policy communication less well developed in NZ than around CCAMLR (Antarctic working group model works well)

The only practical way to communicate with CCAMLR is through national representative, and in the case of the USA our national representative's time and effort is mostly taken up by efforts in Antarctic Peninsula region

My role has always been on the policy side and drawing on science to support policy outcomes

It's quite hard to think about how terrestrial Antarctic pure research actually relates to policy. Seems rather marine based.

Q29 - Please feel free to explain these barriers in more detail for you specifically.

Q30 - How easy or difficult is it to communicate with policymakers for scientists in general?

24 Responses

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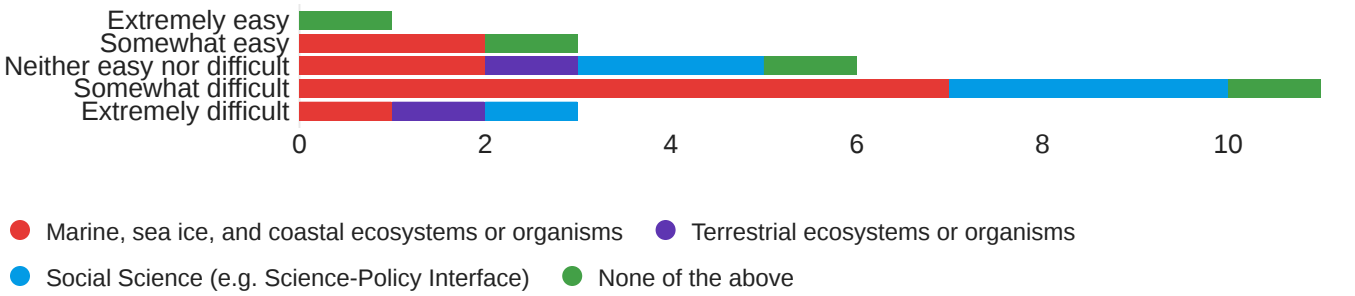
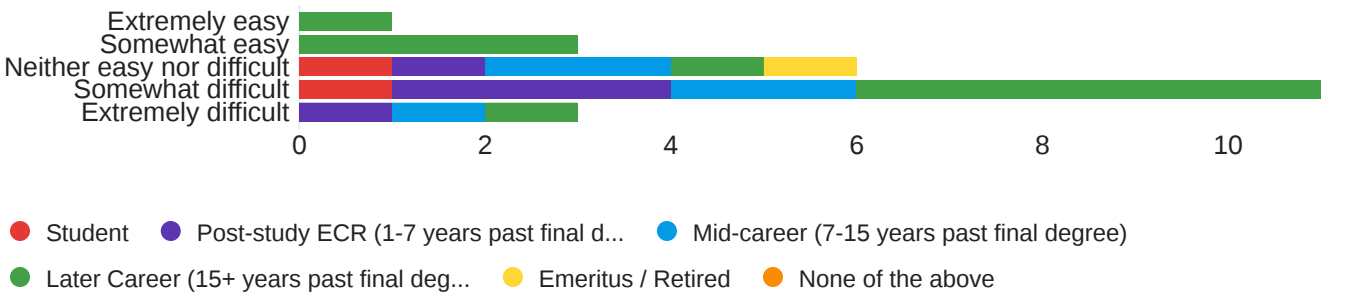
24 Responses



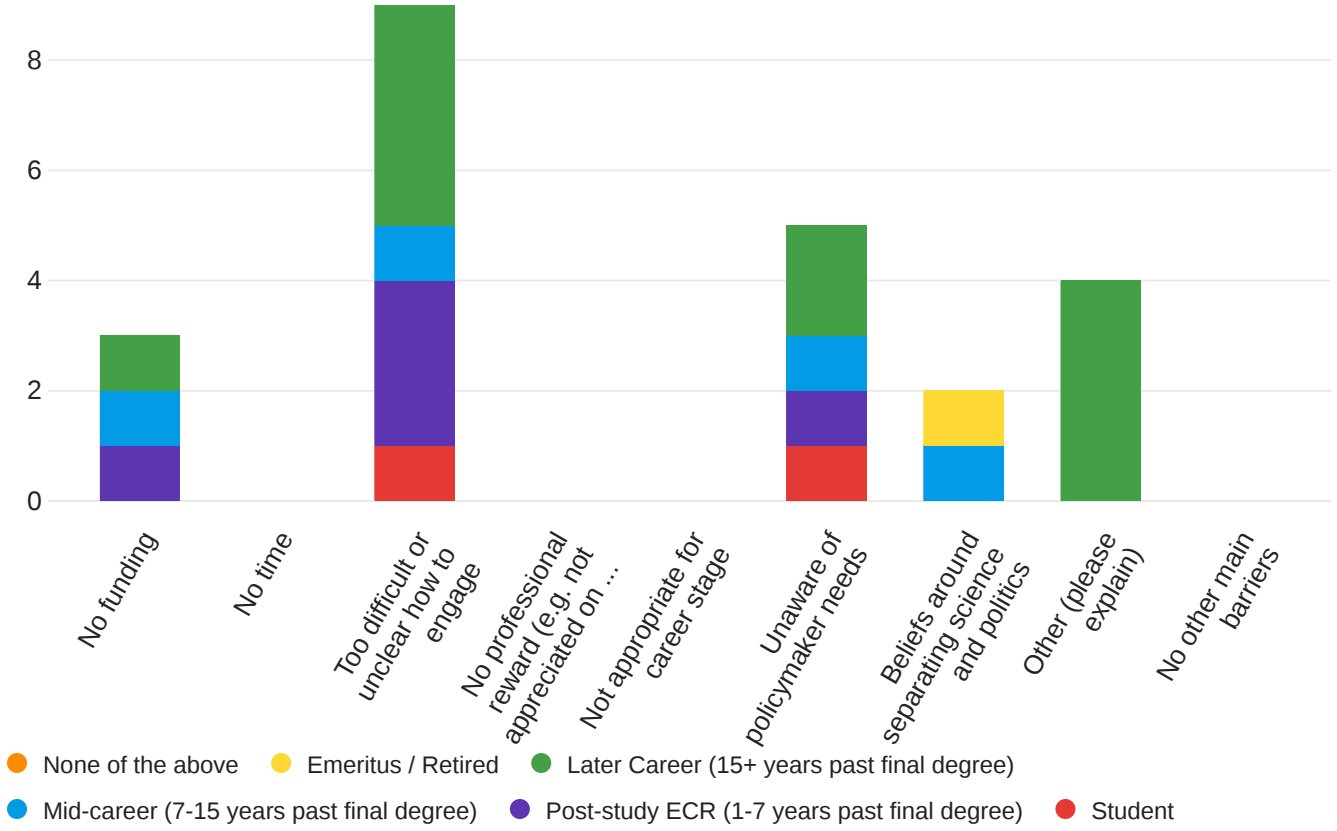
Q30 - How easy or difficult is it to communicate with policymakers for scientists in general?

24 Responses



Q32 - What, if anything, is the one main barrier in general in communicating with policymakers? - Selected Choice

23 Responses

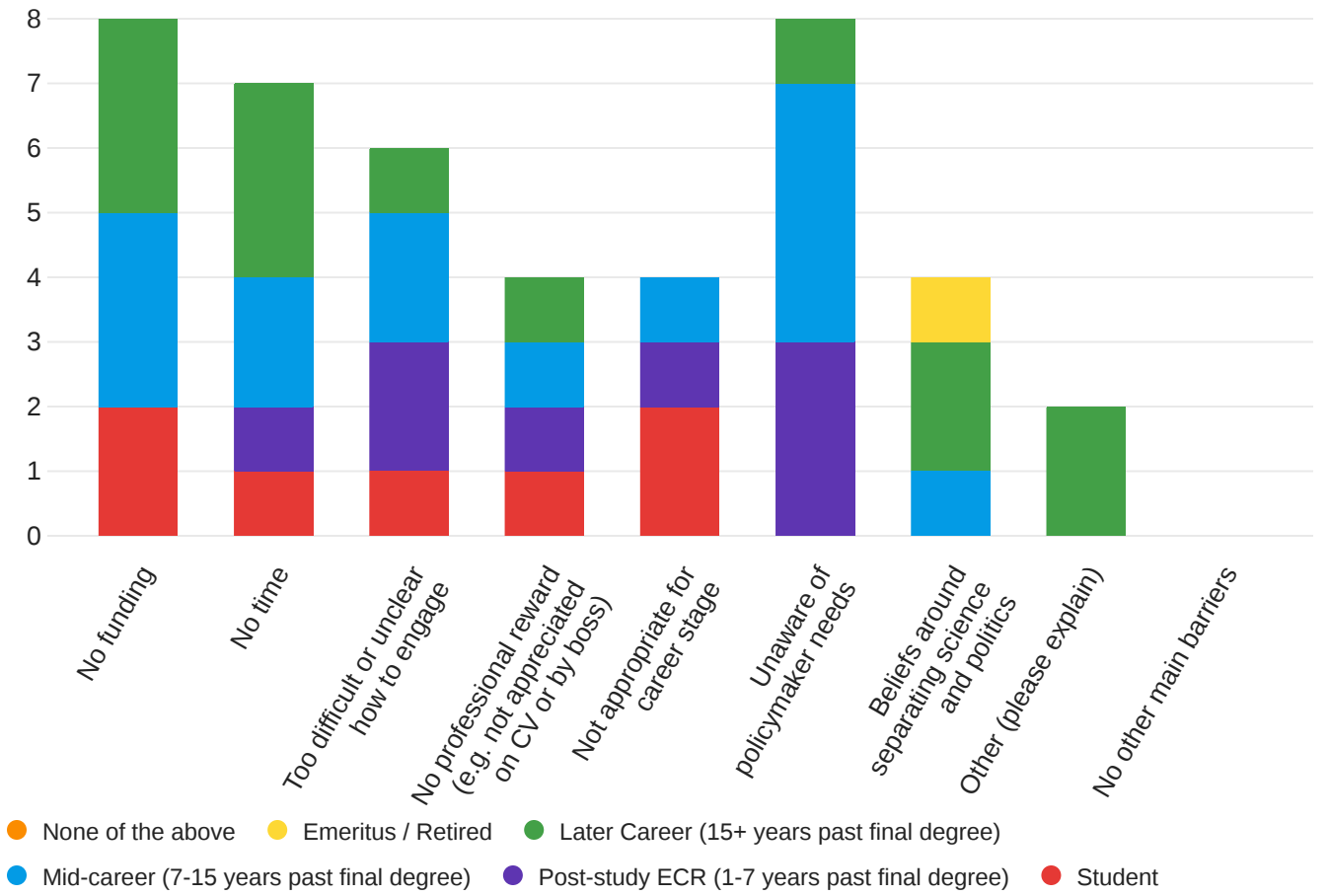


Q32_8_TEXT - Other (please explain) - Text

Other (please explain) - Text
Conflicting priorities
alignment of priorities and resourcing the engagement (time for both the researchers and the policymakers)
scientists generally have too narrow an expertise and often lack a sophisticated understanding of non-scientific factors such as legal obligations, international relations, geopolitics, ethics, environmental obligations, etc
They tend to not appreciate the people from the coalface that gather data have a realistic view

Q33 - Are there any other barriers in general in communicating with policymakers? - Selected Choice

23 Responses



Q33_8_TEXT - Other (please explain) - Text

Other (please explain) - Text

Rapid changes in key personnel in policy positions makes it hard to develop effective communication pathways

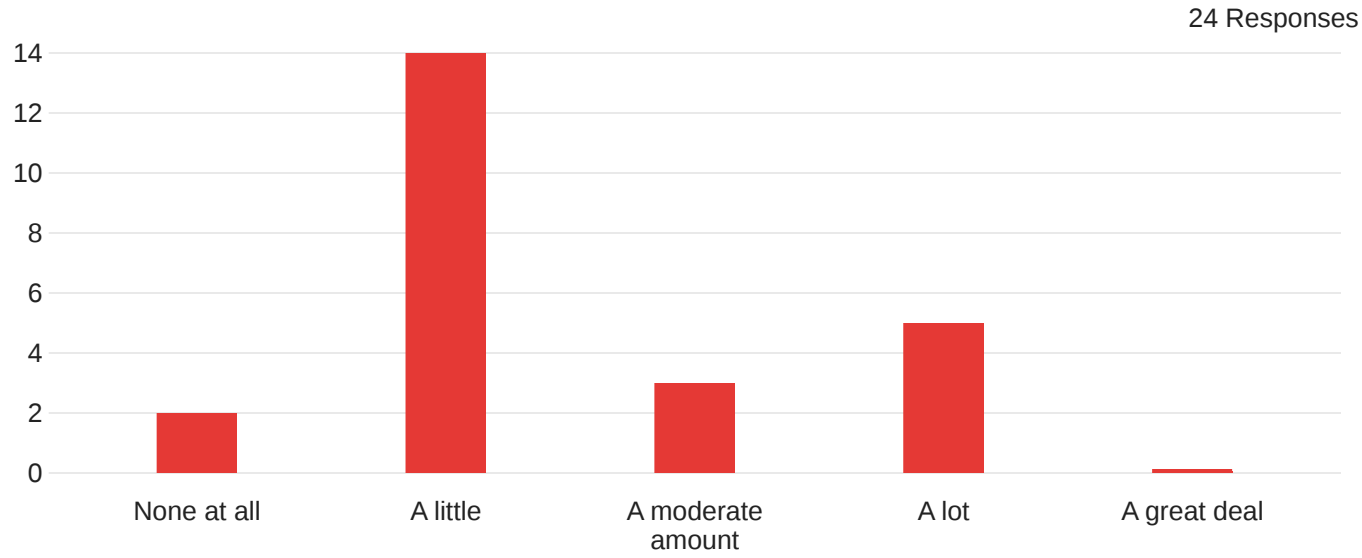
probably ALL of the items listed here

Q34 - Please feel free to explain the barriers scientists face in more detail.

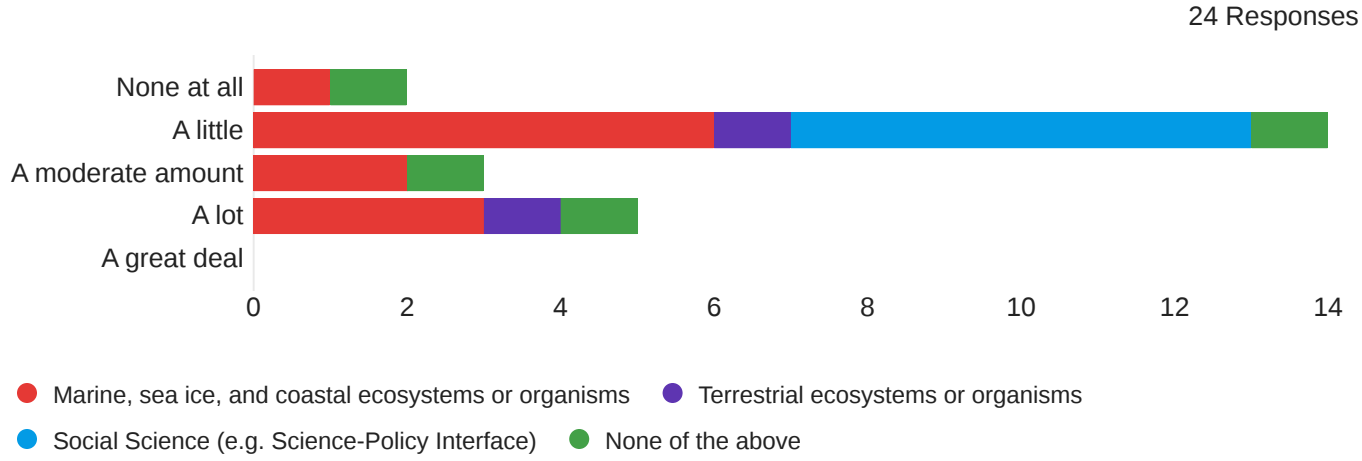
Please feel free to explain the barriers scientists face in more detail.

One can publish study results in the main-stream science, but CCAMLR is way to political to make any impressionmostly

Q35 - How much of an impact do you think your science makes on Antarctic policy?

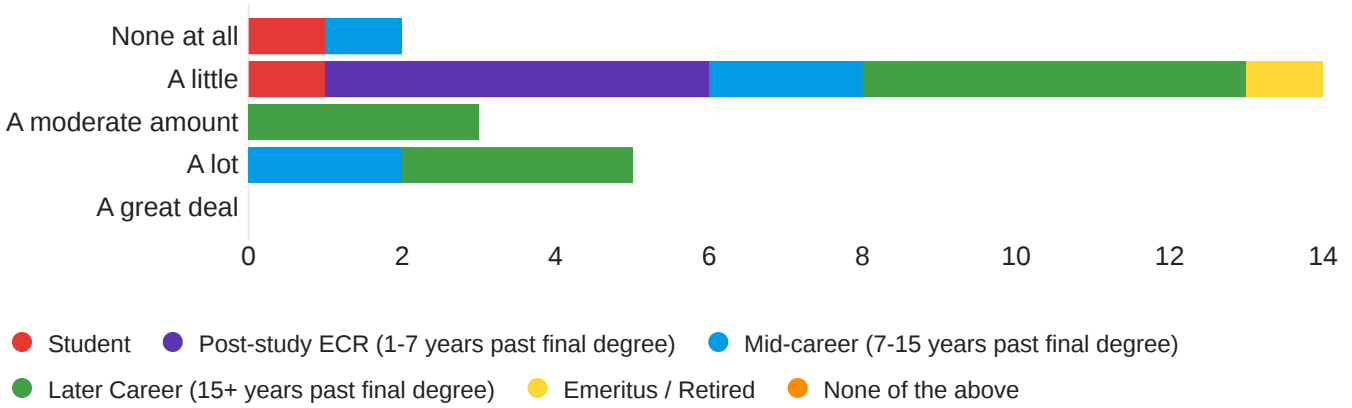


Q35 - How much of an impact do you think your science makes on Antarctic policy?



Q35 - How much of an impact do you think your science makes on Antarctic policy?

24 Responses



Q36 - What could policymakers (or those within the science-policy interface) do better to reach out to scientists?

What could policymakers (or those within the science-policy interface) do better to reach out to scientists?

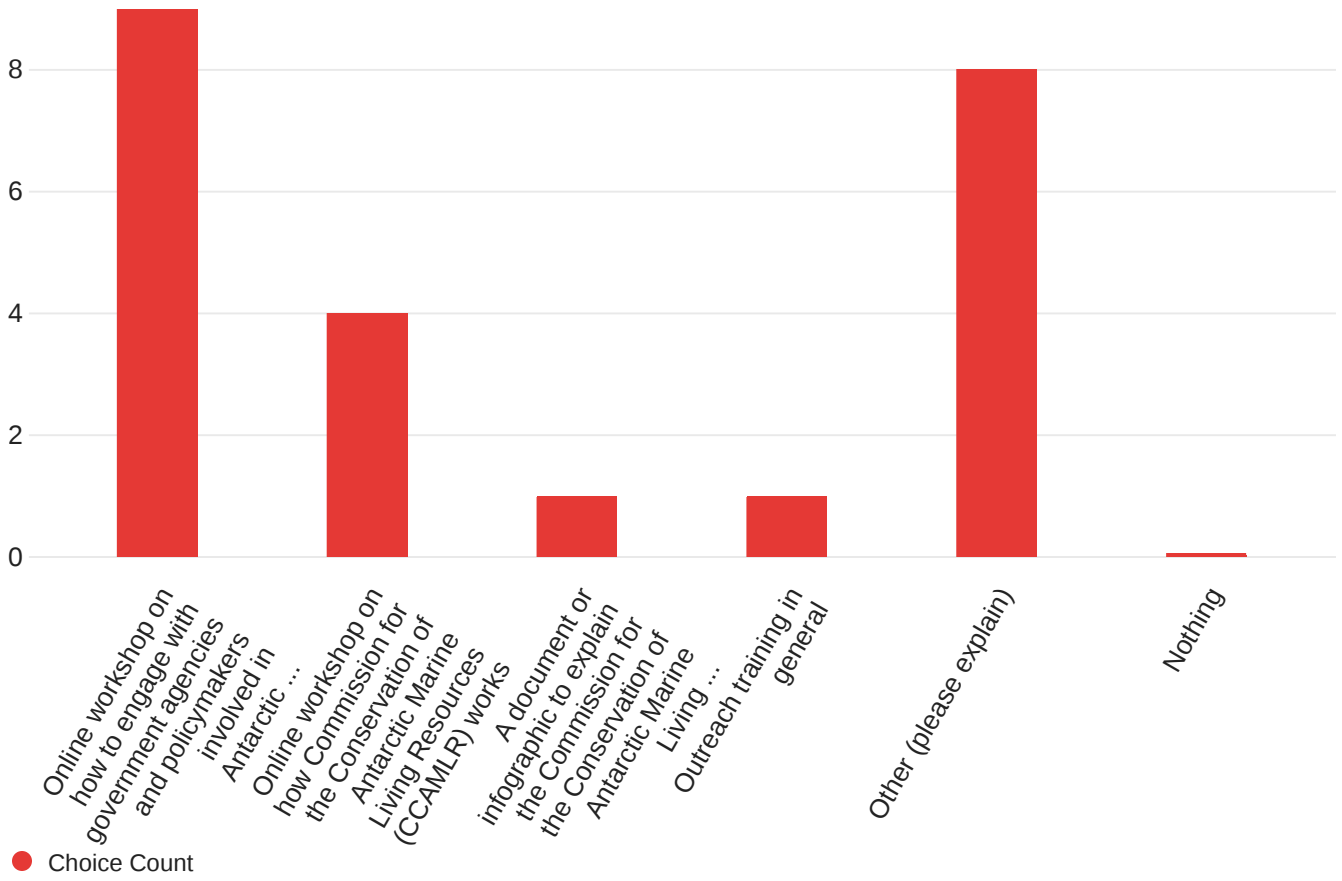
In Antarctic space much research is researcher driven rather than policy driven
Ask for meetings, host in-person gatherings, follow-up with how things went/are going, build relationships
Come to scientific conferences and run a policy workshop that outlines policy priorities to provide a forum for engagement and co-production
Have clear policy objectives for each meeting well in advance, communicate and discuss research needs with scientists. Put enough time into reviewing, understanding and directing (at least at high level) the NZ research. Always limited by research funding and time. Policy makers crucially need to develop Maori pathways and partnerships in Antarctic management
They could actually pay attention to real science.
Provide information or workshops on what they need.
Put them directly in front of senior Ministers (in the NZ system - members of the Cabinet) - the real policymakers - and not seek to mediate the flow of information through officials
Have regular bi-directional workshops; offer funded opportunities to participate in ATS meetings (SC-CAMLR adn aTCM/CEP)
Read and listen
Seek engagement
Offer secondments that are well supported
Talk to each other
Personal emails to researchers? I know we get a lot of emails... But.. maybe check conference presentation list and cold call?

Q36 - What could policymakers (or those within the science-policy interface) do better to reach out to scientists?

13 Responses

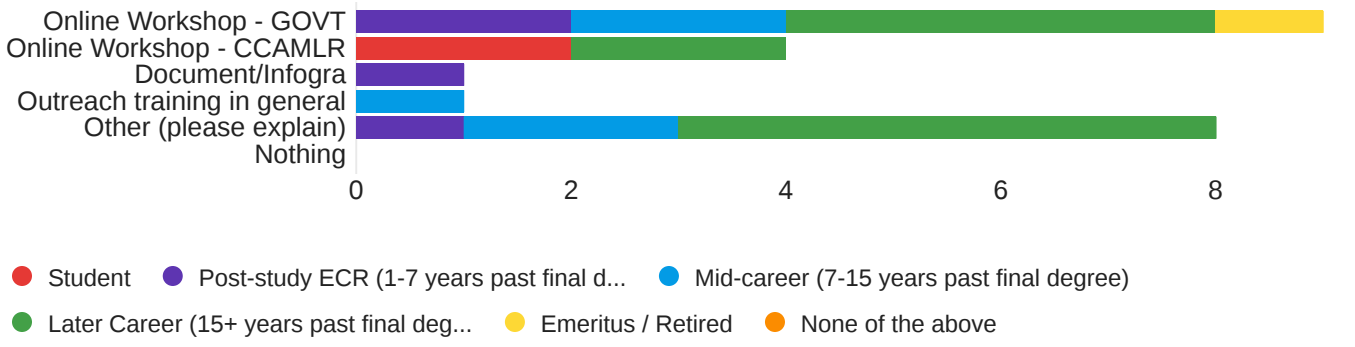
Q37 - Which of the following would you most like the Antarctic Science Platform to provide? - Selected Choice

23 Responses



Q37 - Which of the following would you most like the Antarctic Science Platform to provide? - Selected Choice

23 Responses



Q37_5_TEXT - Other (please explain) - Text

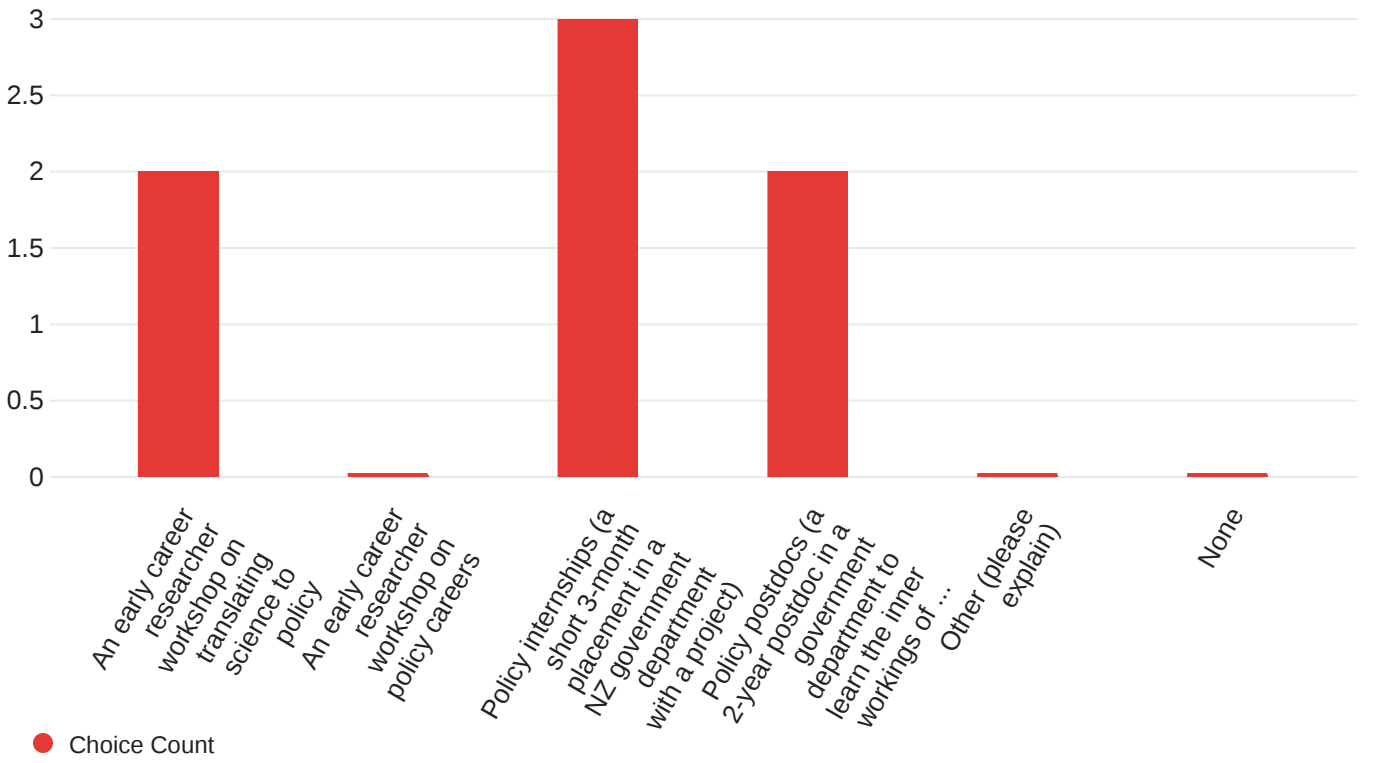
Other (please explain) - Text
in person meetings with policy-makers
Maori and NZ-input to Antarctic governance
Not clear what you mean by, e.g. communicate, with policy makers, engage with policy makers. Those terms are a bit nebulous
Guidance on how to speak directly to Ministers
actively bringing policy makers and researchers together in joint sessions
Create room for policy as an unfounded side branch of the platform. Be an umbrella to gather research of all types under rather than so prescriptive
Keep in touch with industry who are on the ground
In person explanation of what the current policies are and some time to think of chat about how my research might relate

Q37_5_TEXT - Other (please explain) - Text

8 Responses

Q38 - As an early career researcher, which of the following would be most helpful to you? - Selected Choice

7 Responses



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ASP Report 008

MARCH 2024

SCIENCE-POLICY ENGAGEMENT WITHIN THE ROSS SEA REGION MPA: A PILOT SURVEY

Antarctic Science Platform

www.antarcticscienceplatform.org.nz