



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Defining the Future of the Southern Ocean

A Contribution to the UN Ocean Decade



Housekeeping

Annemie Rose Janssen

Coordinator of the Southern Ocean Task Force



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Code of conduct



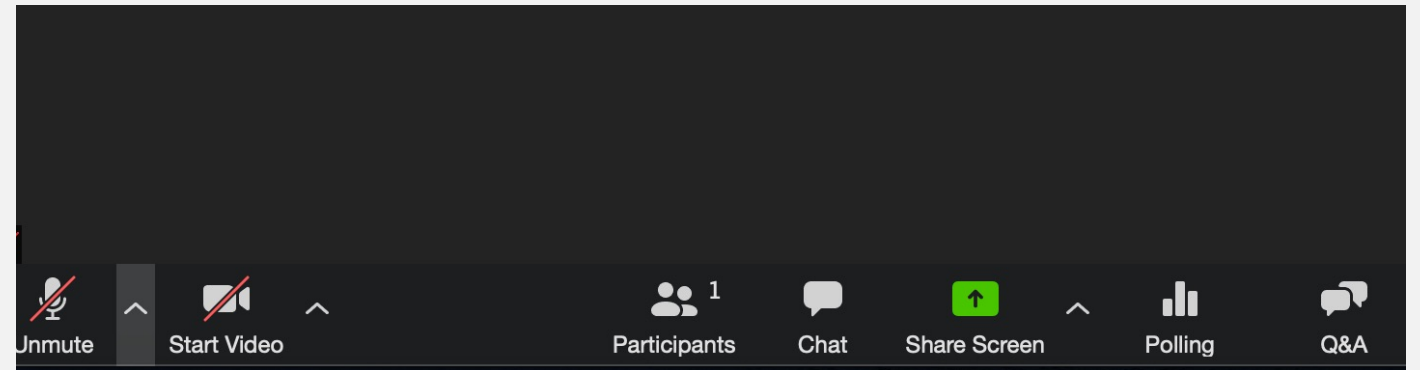
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- We are committed to providing a safe, inclusive, welcoming, and harassment-free experience for everyone.
- We try to cultivate a community with shared values, where people are comfortable exploring ideas, asking questions, and saying things like “I don’t understand” or “Why”. Assume competence in the people you interact with. There are no stupid questions.
- Be considerate in speech and actions, and actively seek to acknowledge and respect the boundaries of fellow community members.



Zoom webinars: interacting

- Use the chat to notify us about technical issues, or directly contact info@sodecade.org
- Make sure your microphone is **muted** if you are not talking
- Please use the **Q&A box** for on topic questions
- This session is being **recorded** and will be published on the SOdecade Vimeo channel



Foreword

Vladimir Ryabinin

Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO, and Assistant Director-General of UNESCO



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The Southern Ocean Process

Nikki Bransome

Pew Bertarelli Ocean Legacy



2021-2030 United Nations Decade of Ocean Science for Sustainable Development



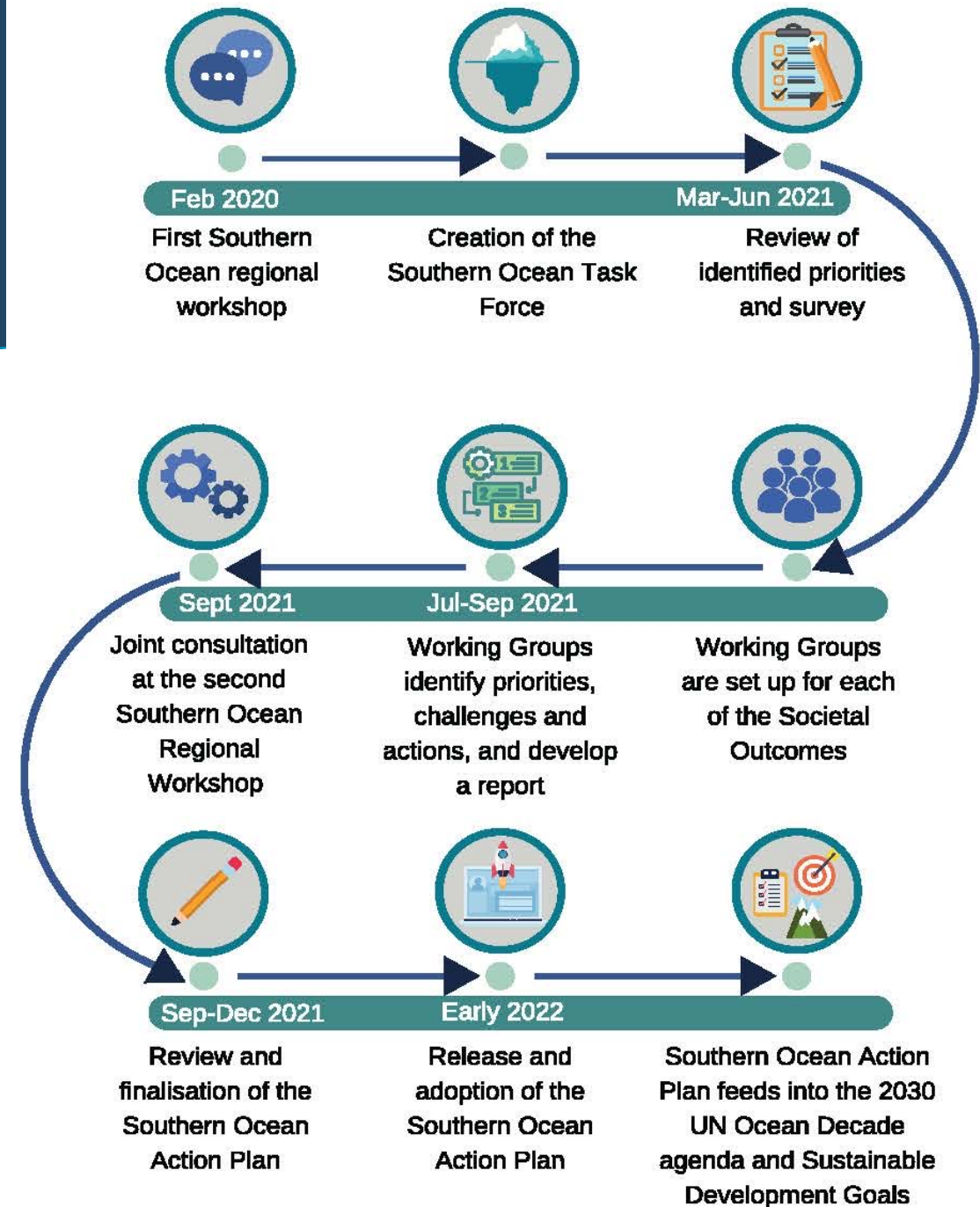
Laurent Ballesta

Southern Ocean UN Decade Process

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Engaged a broad group of stakeholders:

- Scientific research community
- Industry
- National Antarctic programmes
- Logistics coordinators
- Policy makers and managers
- Operational service providers
- Antarctic scientific bodies
- Policy governing bodies
- Non-governmental organizations



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UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT
(2021-2030)

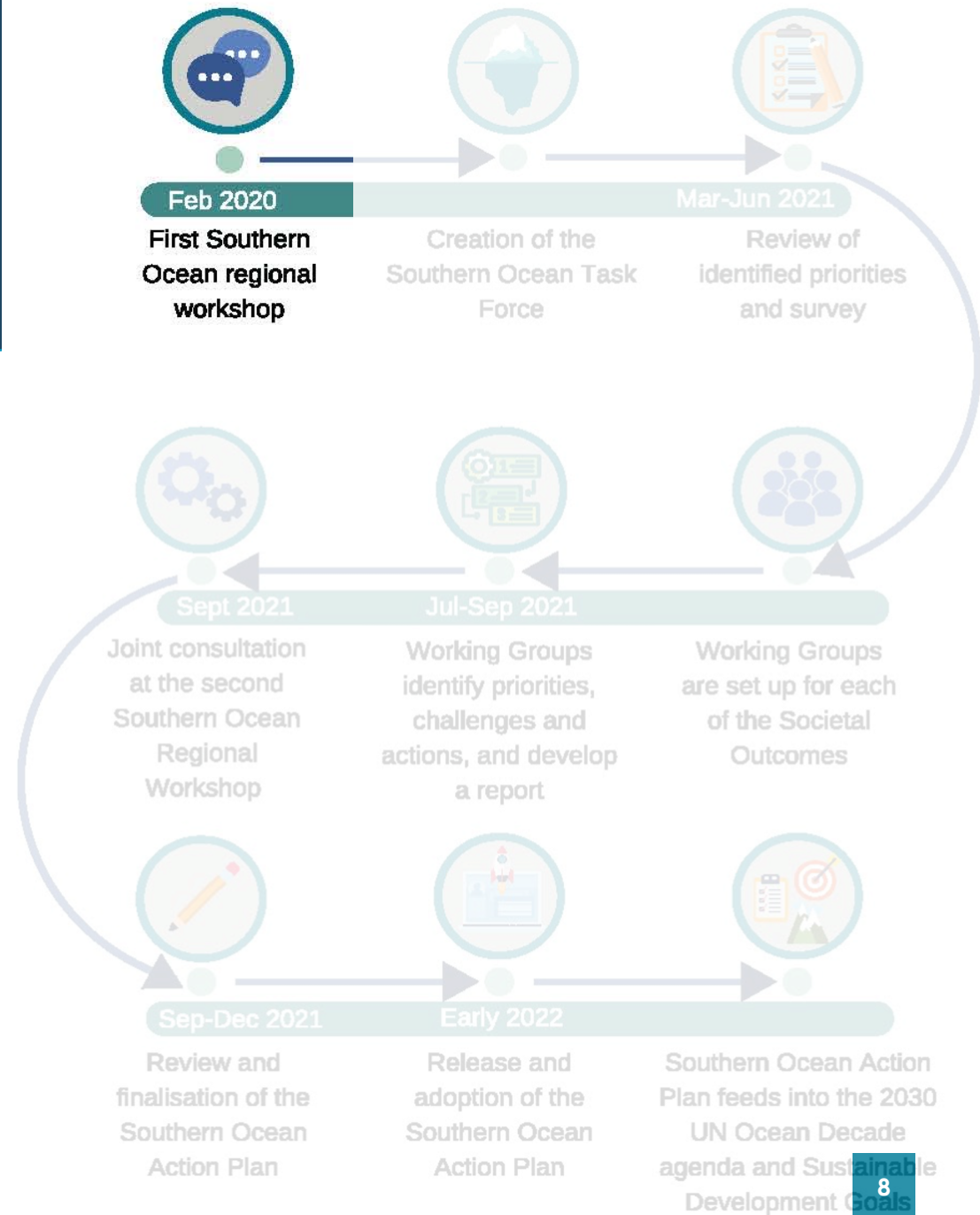
REPORT : 1ST SOUTHERN OCEAN REGIONAL WORKSHOP

16 February 2020
San Diego, CA USA

PREPARED BY:

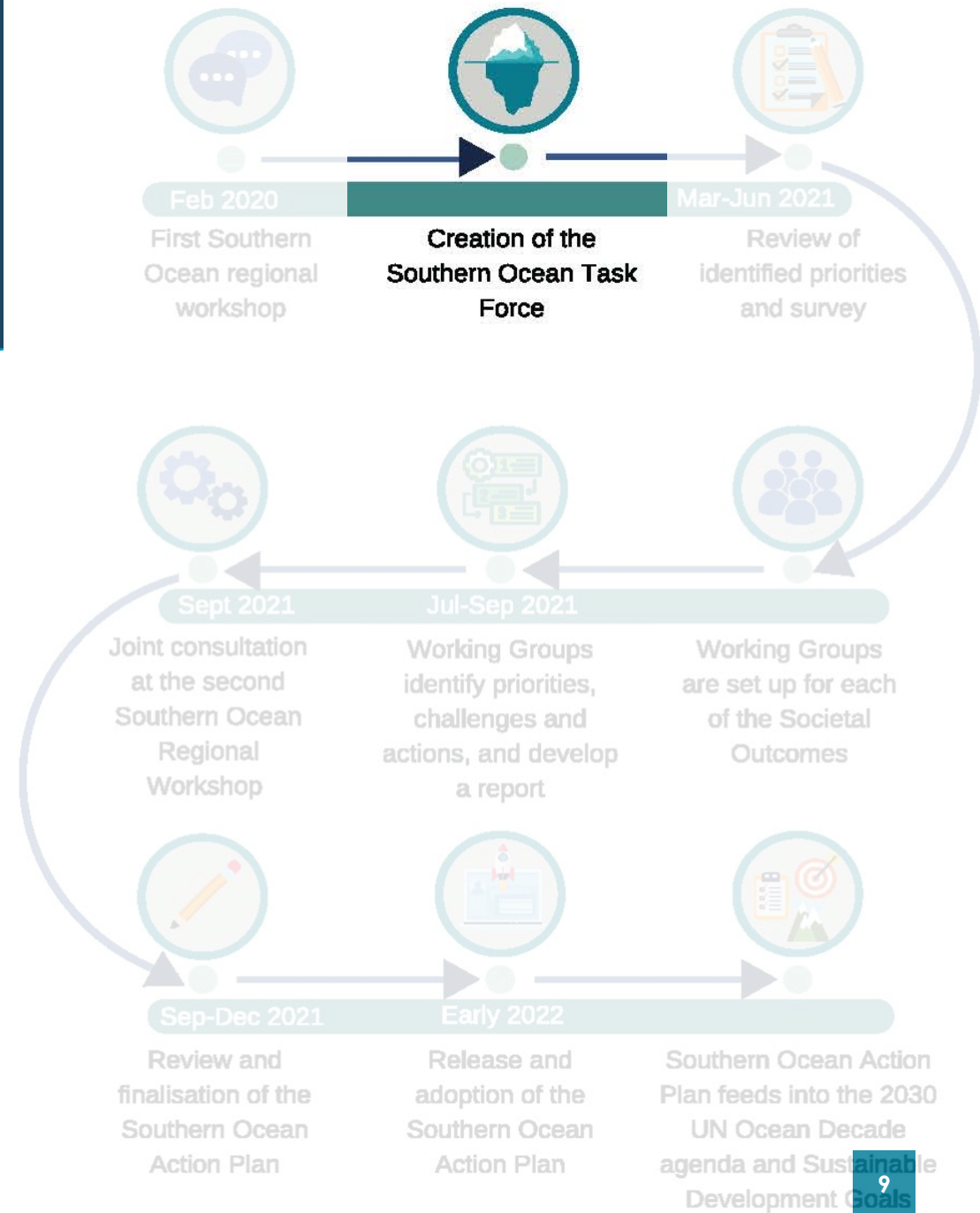
Eileen Hofmann, Louise Biddle, Taco de Bruin, Cassandra Brooks, Stuart Corney, Alexander Haumann, Nadine Johnston, Matthew Mazloff, Eugene Murphy, Christian Reiss, Joellen Russell, Hanna Rosenthal, Elisabeth Sikes

WORKSHOP SPONSORS:



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Review of identified priorities for the Southern Ocean in the context of the UN Ocean Decade

Southern Ocean Decade Survey

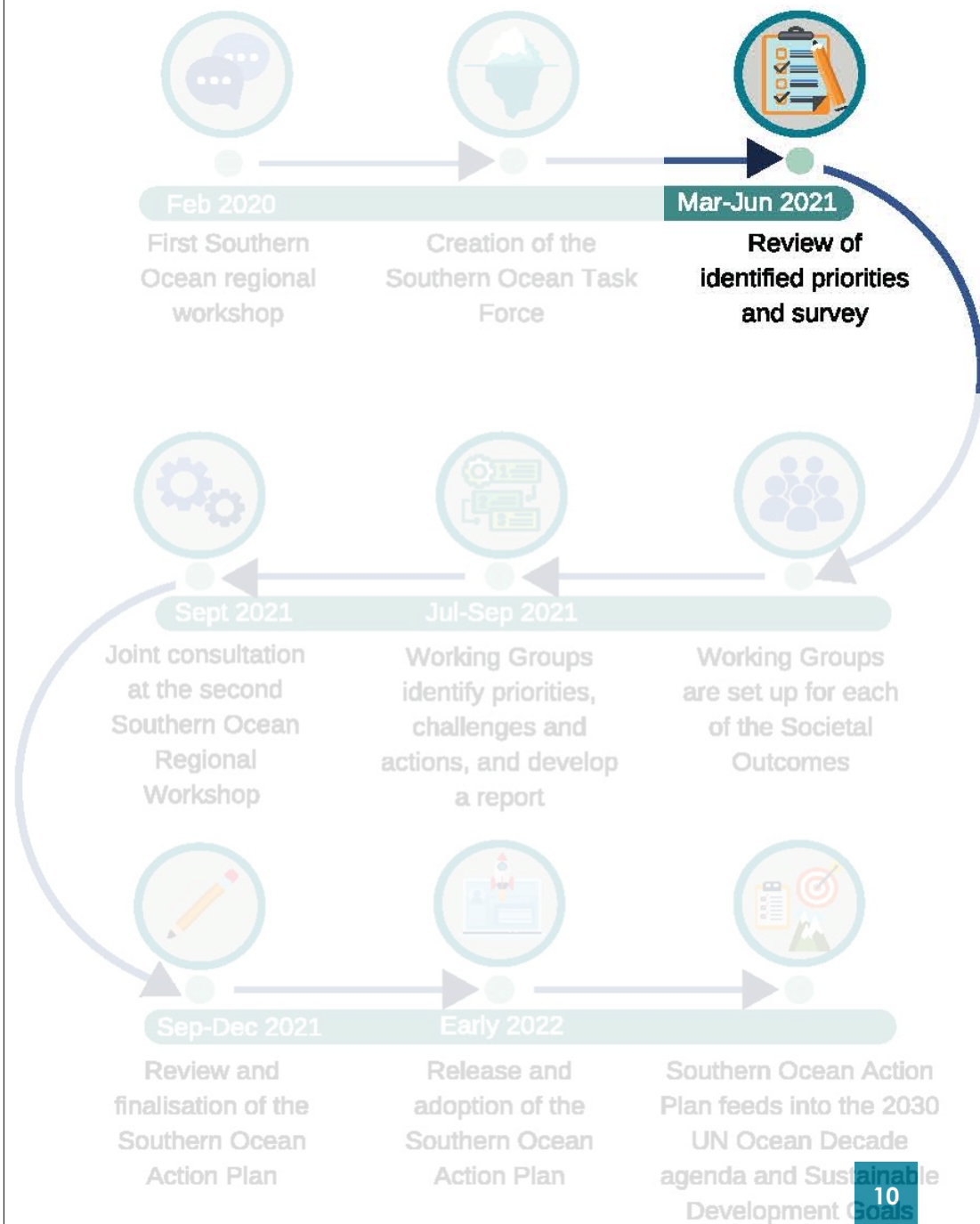
Based on the recommendations in the global implementation plan of the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), members of the Southern Ocean community set up a Task Force to develop the Southern Ocean Action Plan. This Action Plan will provide a framework for Southern Ocean stakeholders to formulate and develop concrete activities that support the Decade vision.

To ensure this Action Plan represents the diverse perspectives and priorities of a wide range of Southern Ocean stakeholders, the Southern Ocean Task Force is now soliciting your input. Whether you are an early career professional or have an extensive background in polar activities, or you represent an institute, programme or initiative, your insights into how Southern Ocean science should evolve over the coming years to achieve the UN Sustainable Development Goals will provide valuable information to develop an inclusive Action Plan.

Together with outputs from the [First Southern Ocean Workshop](#), the Task Force collated strategic and scientific priorities from our individual implementation plans, together with those outlined in previous polar and Antarctic initiatives, including the SCAR Horizon Scan (2014), COMNAP Antarctic Roadmap Challenges (2016) and EU-PolarNet (2016). These are outlined in our report entitled 'Review of identified priorities for the Southern Ocean in the context of the UN Ocean Decade'.

We kindly ask that you [read our report](#) and complete the attached questionnaire **no later than 23:59 UTC on 25 June 2021**. We anticipate that it will take you about an hour to read the report and complete the survey. We encourage you to provide as much additional information you feel is relevant at the end of the survey.

The information that you provide will be used exclusively by the Southern Ocean Task Force to develop a Draft Southern Ocean Action Plan, which will be open for consultation at the 2nd Southern Ocean Regional Workshop in September 2021.



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1.

A clean ocean where sources of pollution are identified and removed



2.

A healthy and resilient ocean where marine ecosystems are mapped and protected



3.

A sustainably harvested ocean ensuring the provision of food supply



4.

A predictable ocean where society has the capacity to understand current and future ocean conditions



5.

A safe ocean where people are protected from ocean hazards



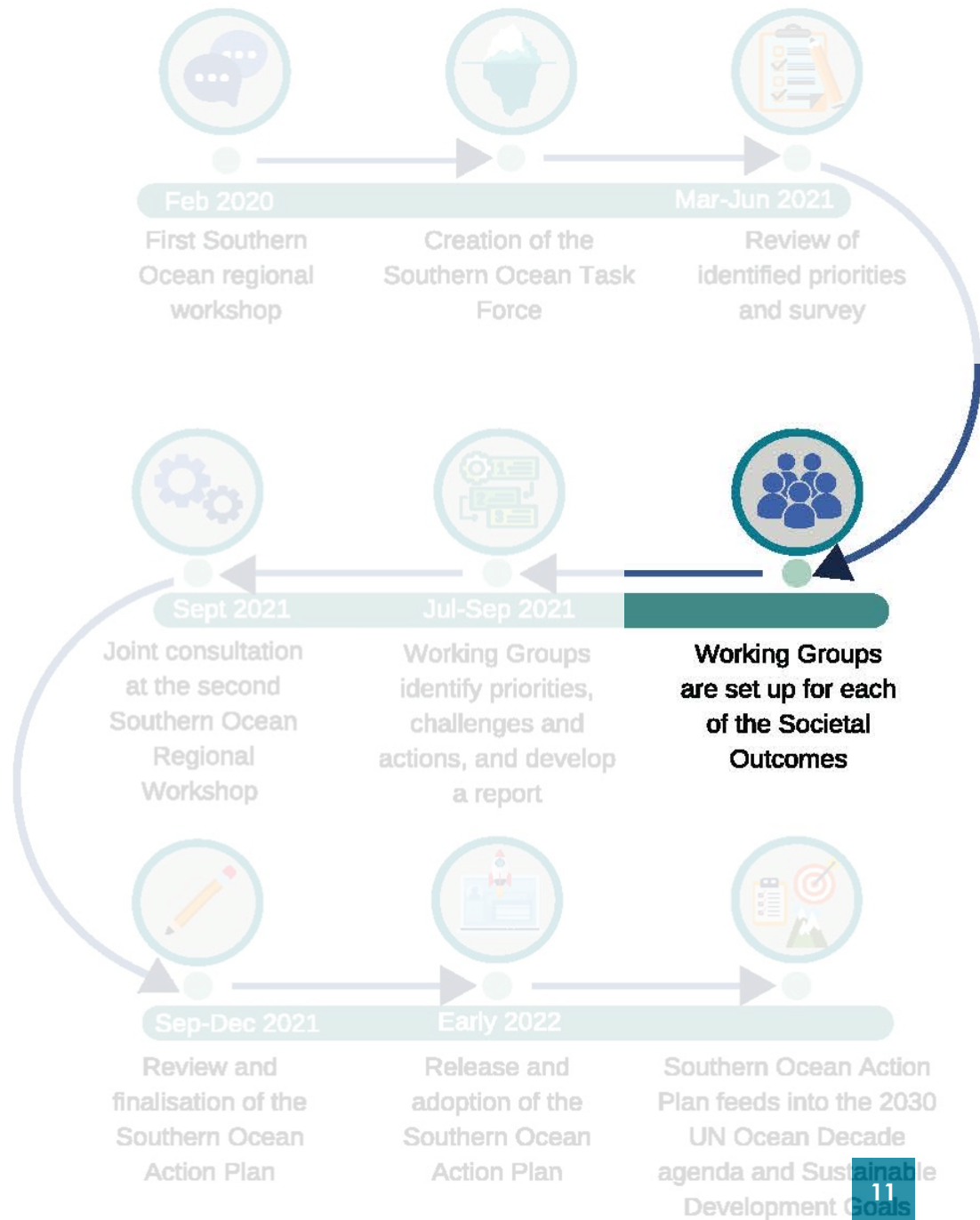
6.

A transparent and accessible ocean with open access to data, information, and technologies



7.

An inspiring and engaging ocean where society understands and values the ocean



Southern Ocean UN Decade Process

Working Group report

Progress Report, 16 September 2021

WG number : 3

Targeted Societal Outcome : Sustainably Productive Ocean

WG chair(s) : Javier A. Arata

How To Achieve A Healthy And Resilient Ocean In The Southern Ocean Region
from Southern Ocean Decade

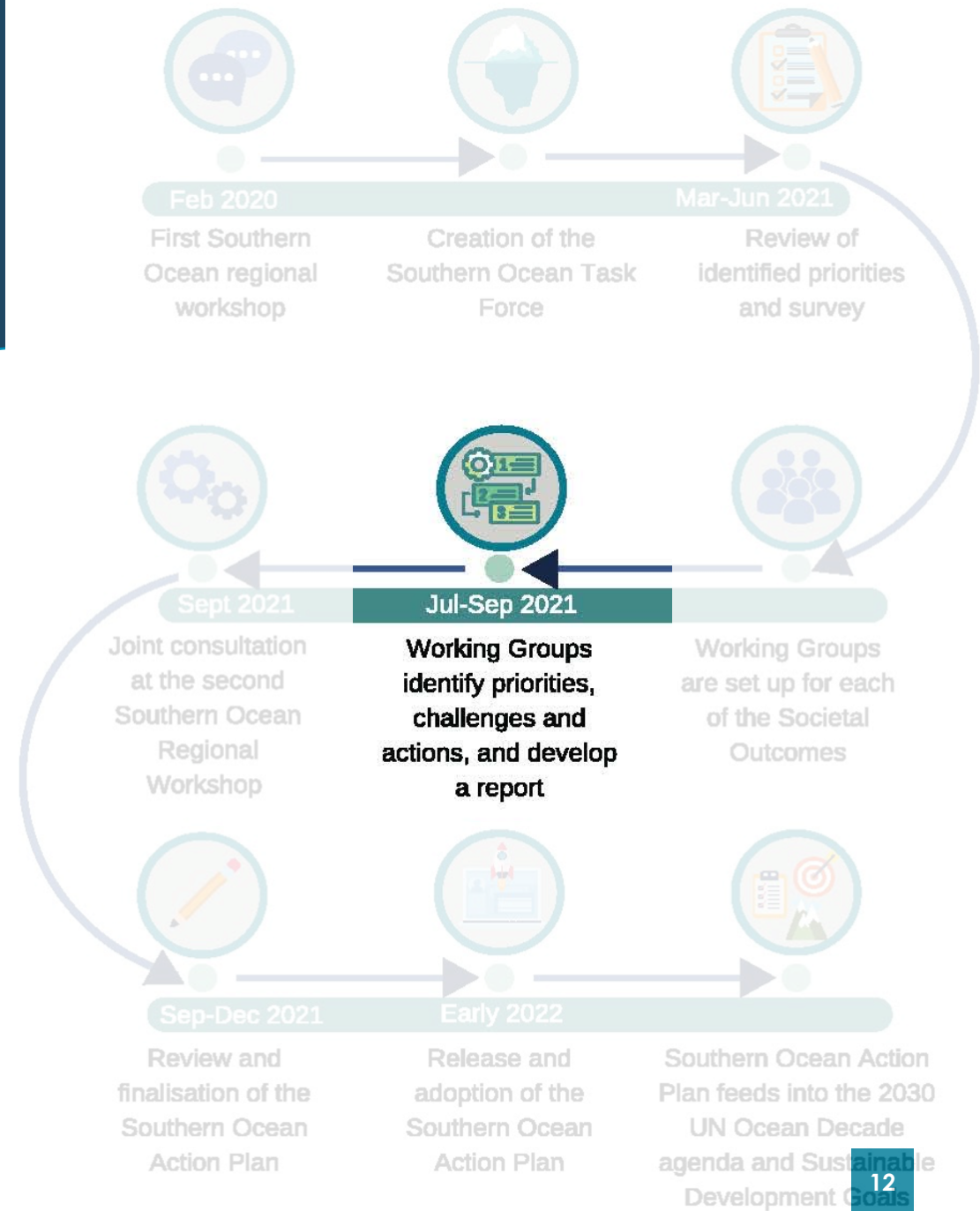
Southern Ocean
United Nations Decade
United Nations Decade of Ocean Science for Sustainable Development

WG 2 - A Healthy And Resilient Ocean

José Xavier
(Chairs of Working Group 2)

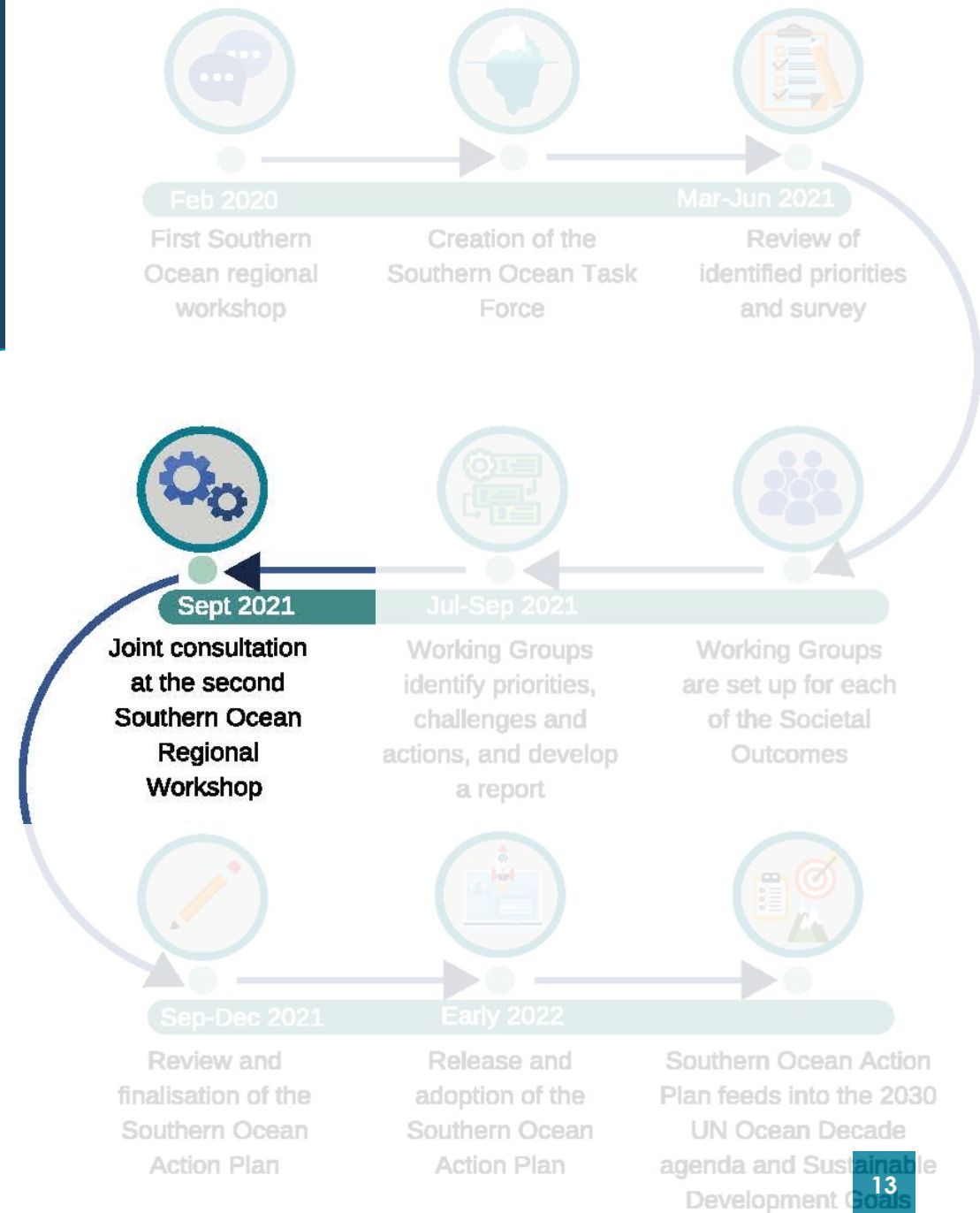
Maria van Leeuwe
(Chairs of Working Group 2)

with Nadine Johnston and Sian Henley



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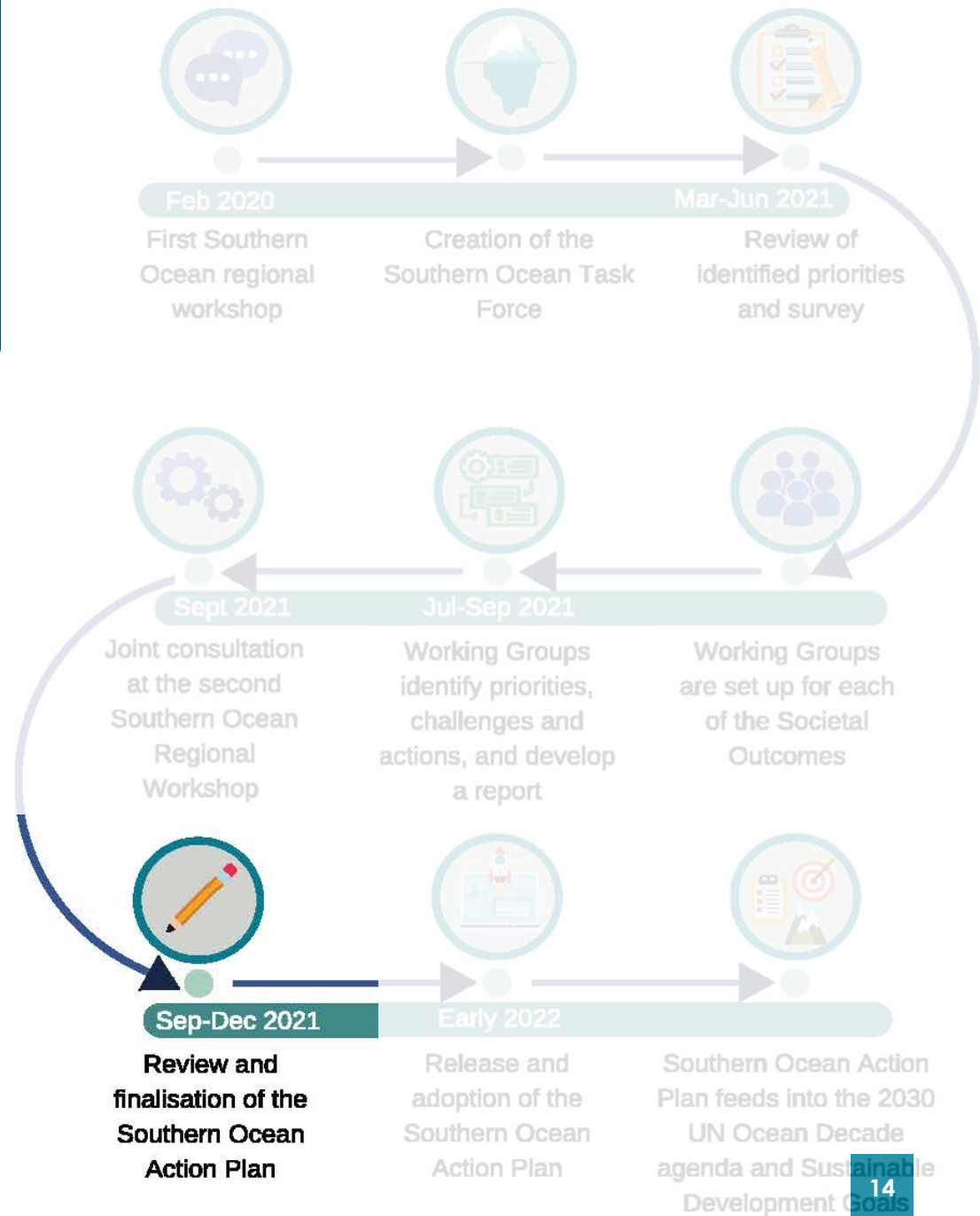


Southern Ocean UN Decade Process

Southern Ocean Action Plan

2021 – 2030

In support of the United Nations Decade of
Ocean Science for Sustainable Development



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Launch Of The Southern Ocean Action Plan

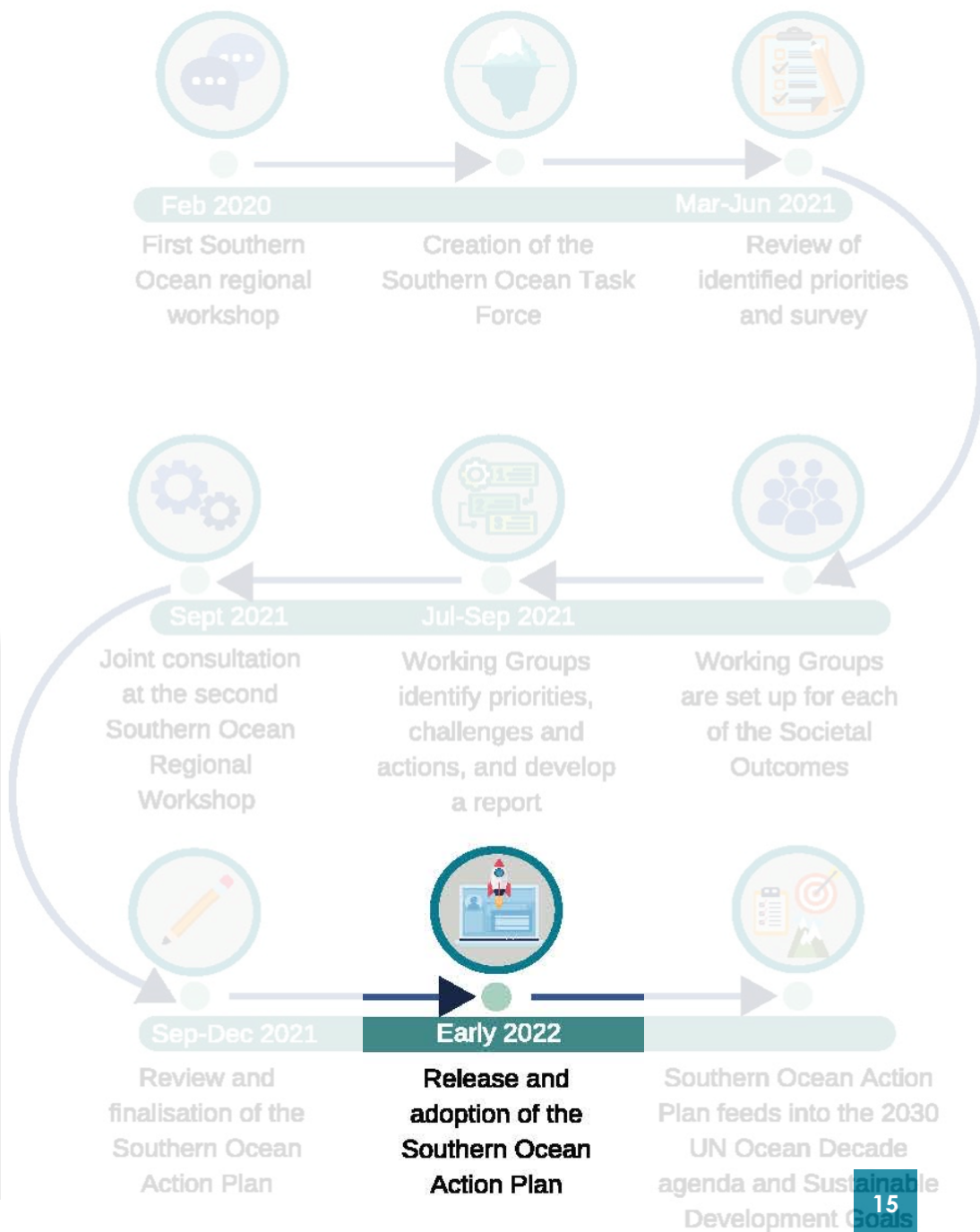
News / By SODecade

Dear Southern Ocean community, and fellow polar oceans enthusiasts,

The Southern Ocean Task Force is pleased to announce the **Launch of the Southern Ocean Action Plan**.

For this occasion, we will be hosting a webinar on **April 12th 2022, at 12:00pm UTC** to present the content of the Action Plan and the future of the Southern Ocean community's engagement in the [United Nations Decade of Ocean Science for Sustainable Development](#).

Through the publication of this Action Plan, the Southern Ocean Task Force aims to mobilise the Southern Ocean community and inspire all stakeholders to seek



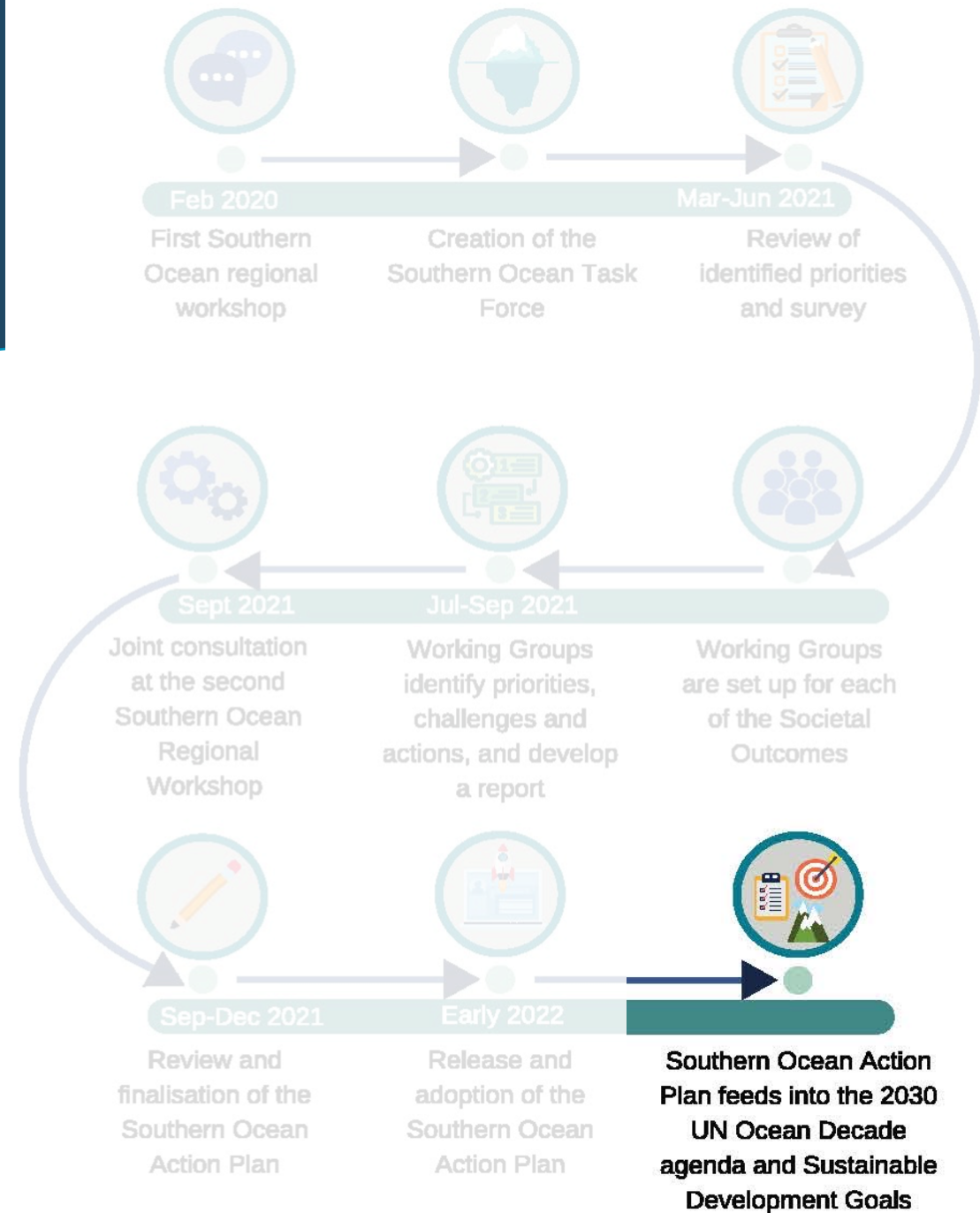
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The UN Decade of Ocean Science for Sustainable Development



The Bridges We Need To Achieve The Southern Ocean We Want

Renuka Badhe
Taco de Bruin
Annemie Rose Janssen



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The Bridges We Need To Achieve The Southern Ocean We Want



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a. Sustained & long-term investment

b. Constraints linked to the particular environment of the Southern Ocean

- operate in and observe inaccessible areas year-round
- transport, maintain and rapidly analyse samples
- support the establishment of a sustained collaborative network of long-term observatories

c. Diversity of funding

- NAPs, RI agenda, regional funding agencies, intergovernmental organisations, international organisations, NGOs, foundations, charities, business and industry groups, *etc.*

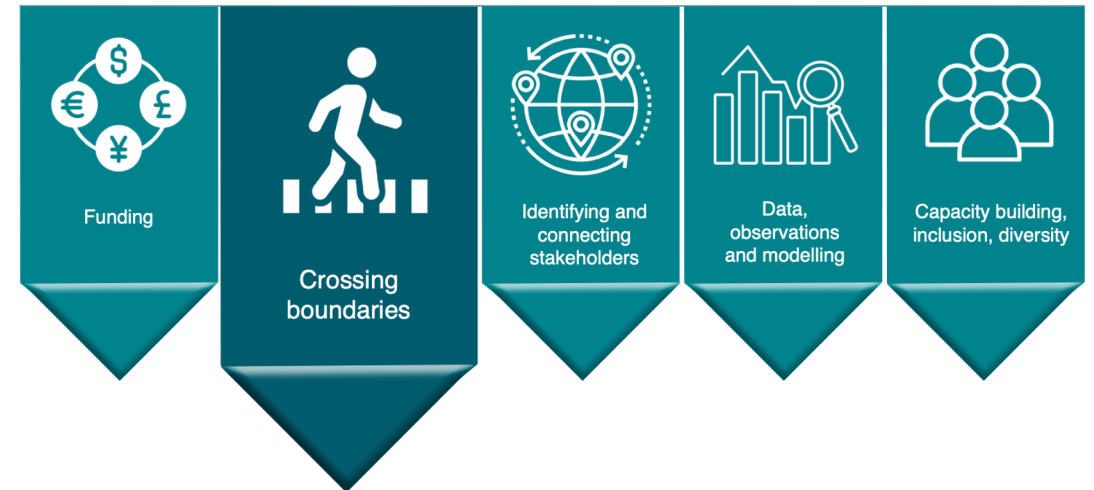


The Bridges We Need To Achieve The Southern Ocean We Want



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- a. Blurring national and regional borders
- b. Linking disciplines
- c. Co-designing global polar research priorities

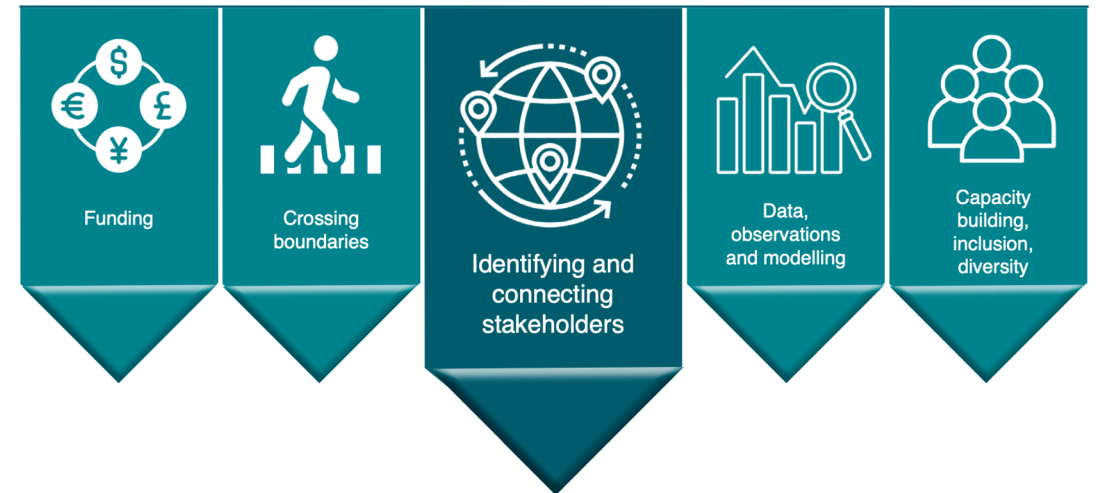


The Bridges We Need To Achieve The Southern Ocean We Want



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- a. Improving dialogue at the science-policy interface
- b. Ensuring societal needs are reflected and addressed through research
- c. Linking the industry with research, infrastructure and logistics



The Bridges We Need To Achieve The Southern Ocean We Want



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- a. Improving spatial and temporal coverage
- b. Ensuring data and information are fully utilized
- c. Long term sustainability of observatories and data stewardship
- d. Modelling



The Bridges We Need To Achieve The Southern Ocean We Want



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- a. Ensuring diversity of voices at the table, at all stages
- b. Capacity building
- c. Improving technology for better access (open access to knowledge, data and science)





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How to achieve a clean Southern Ocean





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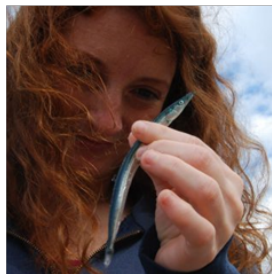
Southern Ocean UN Decade

WG1 “A Clean Southern Ocean”

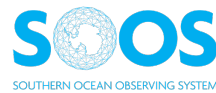
Chairs:



Cath Waller
Hull University



Clara Manno
British Antarctic
Survey



WG1 Composition



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- France
- Norway
- Portugal
- Australia
- Netherlands
- Belgium
- United Kingdom
- Italy
- Chile
- Uruguay
- India
- United States
- New Zealand



WG1 top Research Challenges

1 Extent of pollution

Inventory of SO pollutants

- identify local and external sources
- Assess distribution, concentrations

2 Impact of pollution

Identify SO pollutant “hotspots”

- Individual - cumulative toxicity thresholds
- Interaction with climatic stressors

3 Behaviour of pollutants

- Trophic transfer
- Response to SO conditions

4 Prevent and recover

5 Transition to greener practices



WG1 Satellite activity



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How to Achieve a Clean Ocean in the Southern Ocean Region



WG1 Satellite activity 17 Nov 2021



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Aim:

To discuss how to maintain a Clean Southern Ocean by strengthening links between science, industry, society and policy



WG1 Satellite activity 17 Nov 2021



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Panel of experts:



Pjotr Elshout
EPB



Verena Meraldi
Hurtigruten Expeditions



Ceisha Poirot
COMNAP



Claire Christian
ASOC



Laura Smith
Polar Citizen Science



Mercedes Santos
ANT-ICON



WG1 Satellite activity 17 Nov 2021

Main message



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What happens in the SO does not stay only in the SO (*and vice versa*)

Policy

Approach pollution in the SO not in isolation but in the context of climate change

Society

Reinforce connectivity and scaling up from regional to global scale approach

Industry

Embrace all the ship opportunities to implement pollution





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How to achieve a healthy and resilient Southern Ocean



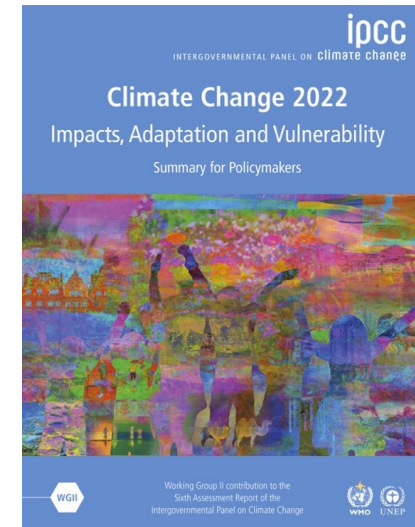


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Southern Ocean United Nations Decade

United Nations Decade of Ocean Science for Sustainable Development

**José Xavier and Sally Lau
with Sian Henley and Nadine Johnston**



How to achieve a ***healthy and resilient***
Southern Ocean where marine ecosystems are
understood and managed?

Healthy and Resilient Ocean

RESEARCH Challenges for the coming decade
(identified by > 50 colleagues from 17 countries in Working Group 2)



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Key Drivers *of change and their impacts on Southern Ocean*

Species and ecosystems

Understanding of Southern Hemisphere ice

including its role in ecological processes of the Southern Ocean

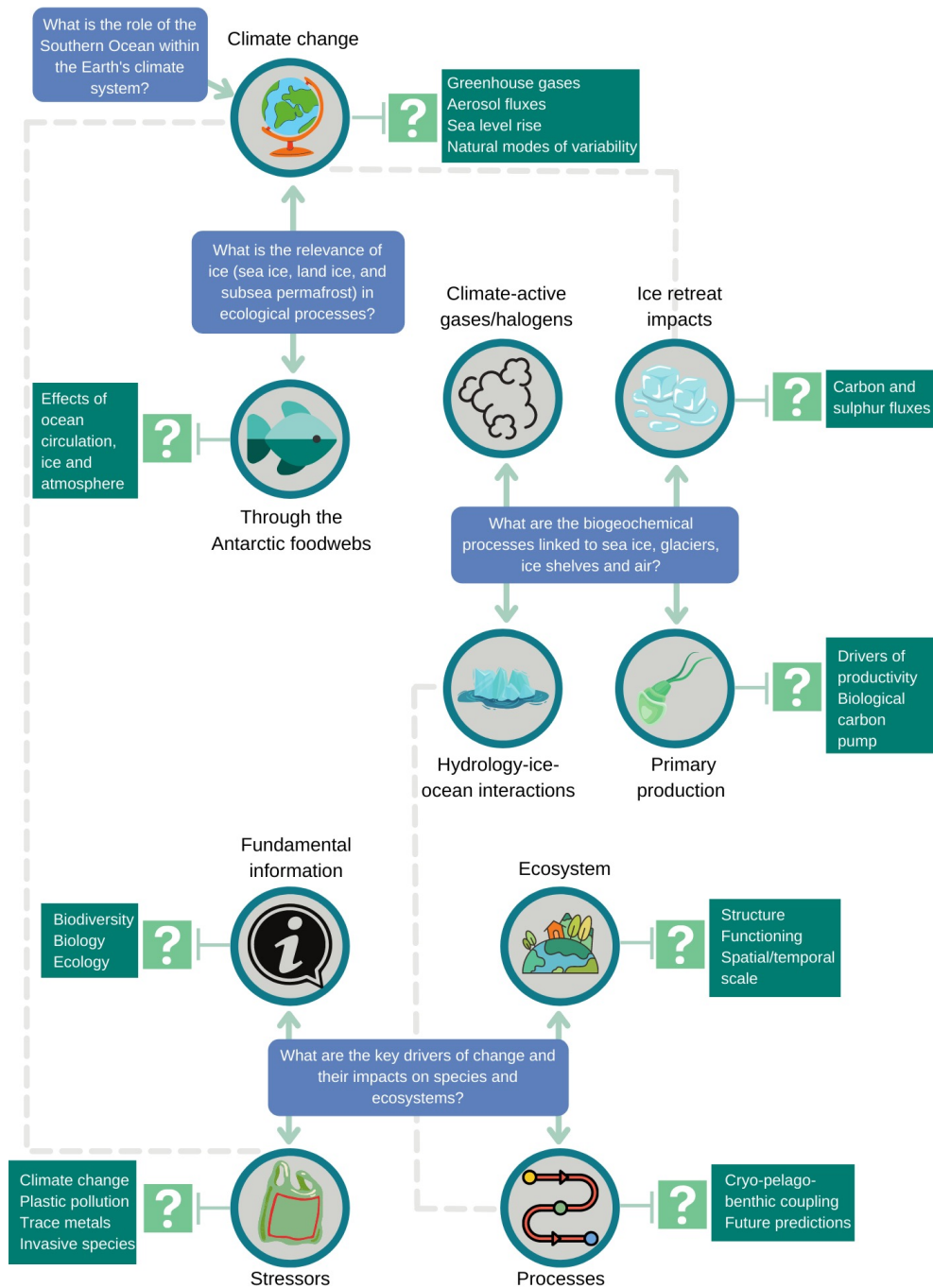
Biogeochemical processes *linked to*

the influence of sea ice

Biogeochemical cycling *regulating air-sea*

exchange of climate-active gases

Southern Ocean's role *within the Earth Climate System*



Additional key aspects

Logistical demands

Funding

Long-term monitoring

Stakeholders engagement

Healthy and Resilient Ocean

ADDRESSING RESEARCH Challenges in the future



Actions in the future shall have

A good connection with other Working Groups

Promote involvement of other UN Action/projects elsewhere

A legacy from a policy perspective

- = Horizon Scan Workshops
- = Zero Carbon initiatives (in relation to COP26)
- = Keep close contact with Arctic initiatives (i.e. Polar)



**Annette
Bombosch**



Birgit Njaastad



Javier Arata



Andrew Constable

Healthy and Resilient Ocean

RESEARCH Challenges for the coming decade



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Outputs of the Laboratory (March 2022)

ID1 - Southern Ocean is an EXAMPLE to the World

ID2 - Essential understand processes for an healthy and resilient Southern Ocean through more ROBUST science based on cutting edge and long- term monitoring programs (modelling, role of sea ice, Winter, physics-biology links (E.g. best CIMP))

ID3 - Improve science-policy making mechanisms

ID4 – Education and Outreach involving social sciences (language barriers, cultural differences)

ID5 - Generalised stakeholders engagement and commitment

ID6 - Improve Funding

ID7 - Consolidate Research teams



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How to achieve a productive Southern Ocean

supporting sustainable food supply and sustainable ocean economy



How to achieve a productive Southern Ocean



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Sustainably Productive Ocean



Improving our assessment of the current status of the ecosystems supporting essential services



Achieving sustainable management of fisheries based on an ecosystem approach, including the recovery of overexploited species and the effect of climate change on ecosystems



Ensuring science-based and effective spatial planning process, including MPAs, with consideration of sustainable fisheries management and tourism development



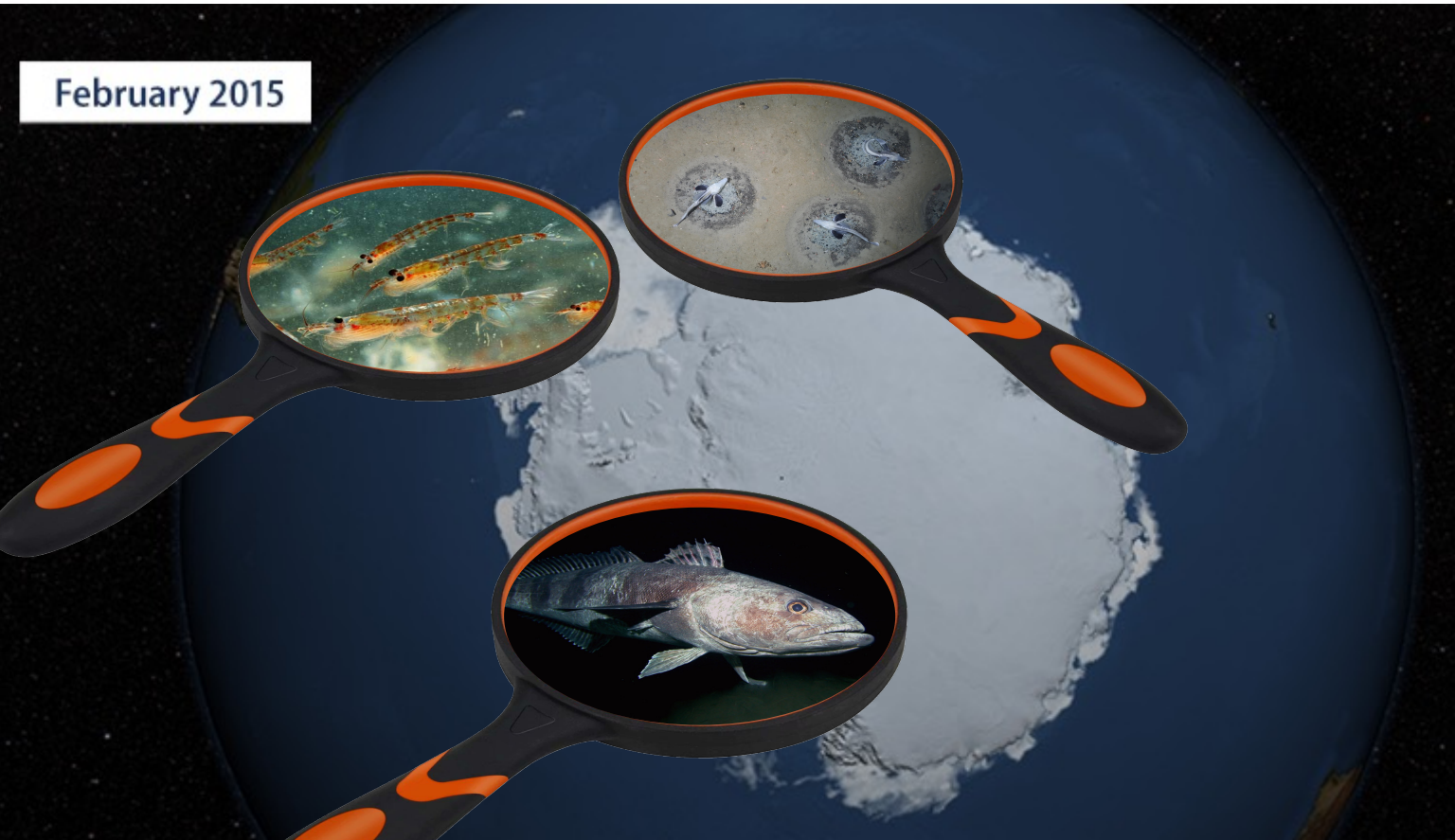
Ensuring a sustainably harvested and productive Southern Ocean by working towards a stronger interface between science, industry and policy

1. Improving our assessment of the current status of the ecosystems supporting essential services



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February 2015



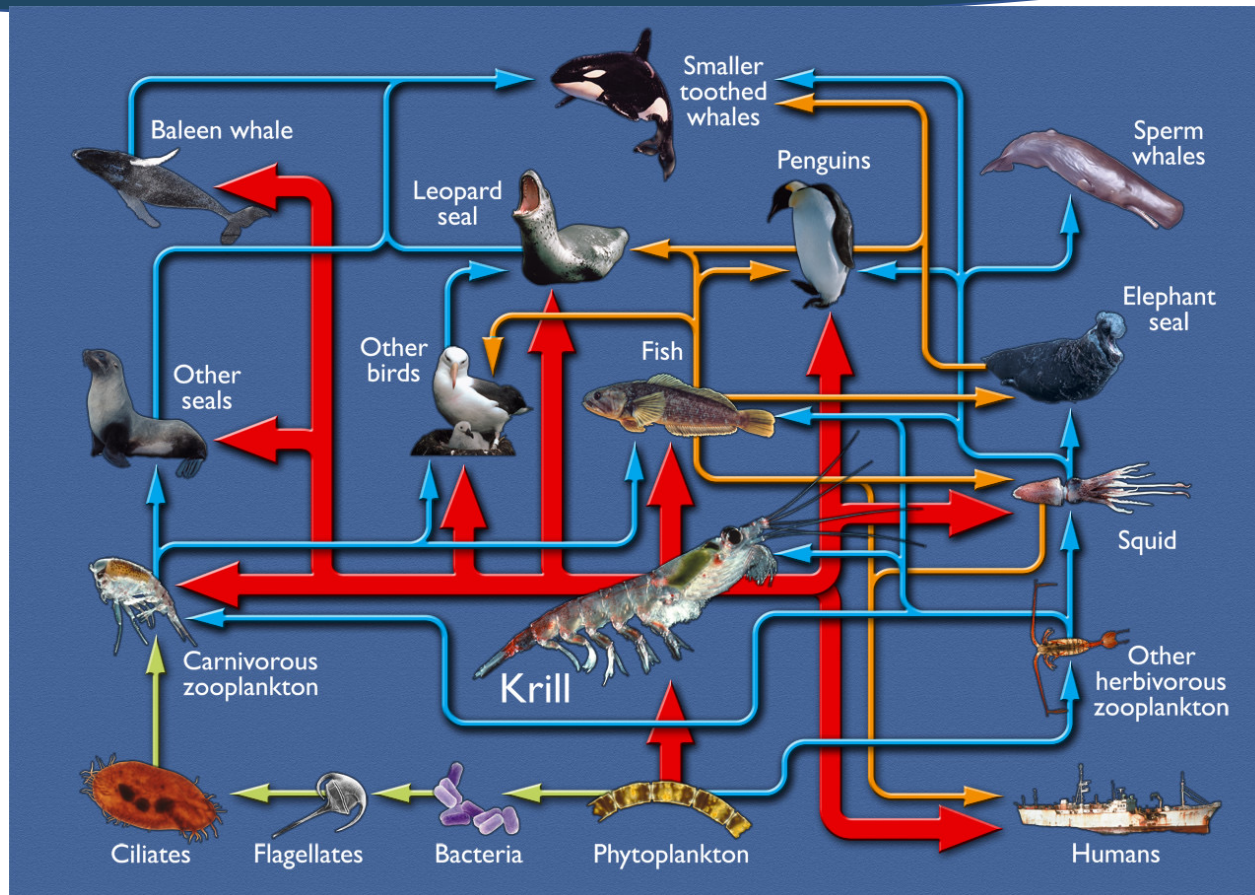
- Identify key ecological indicators to assess the “health” of ecosystems
- Assess ecosystem goods and services provided by the SO
- Estimate effects of human activities

 **MONITORING**

2. Achieving sustainable management of fisheries based on an ecosystem approach, including the recovery of overexploited species and the effect of climate change on ecosystems



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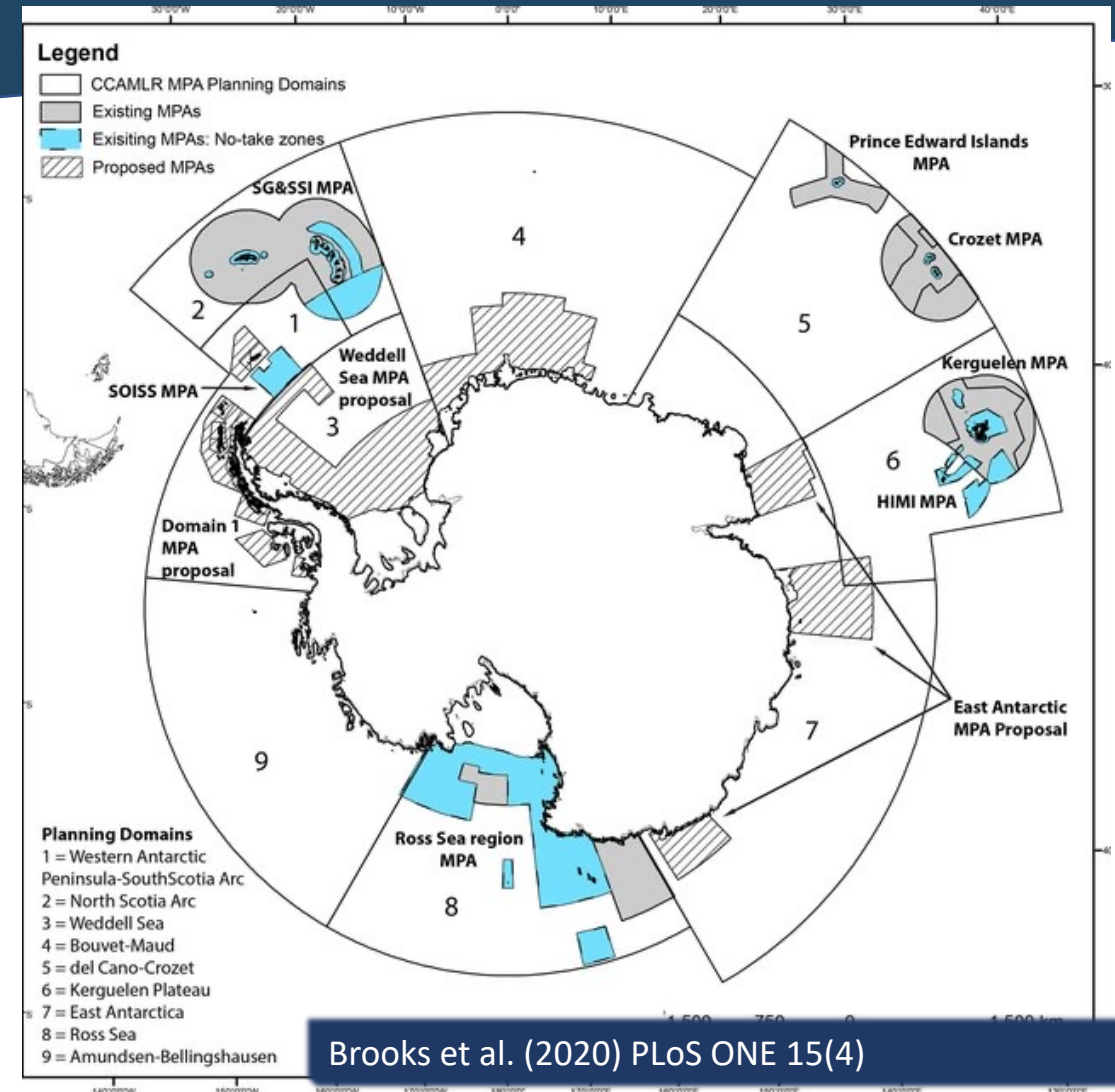
- Improve understanding of species productivity and resilience
- Develop new methods for integrating different sources of data
- Develop Decision Support Tools for time-effective management

3. Ensuring science-based and effective spatial planning process, including MPAs, with consideration of sustainable fisheries management and tourism development



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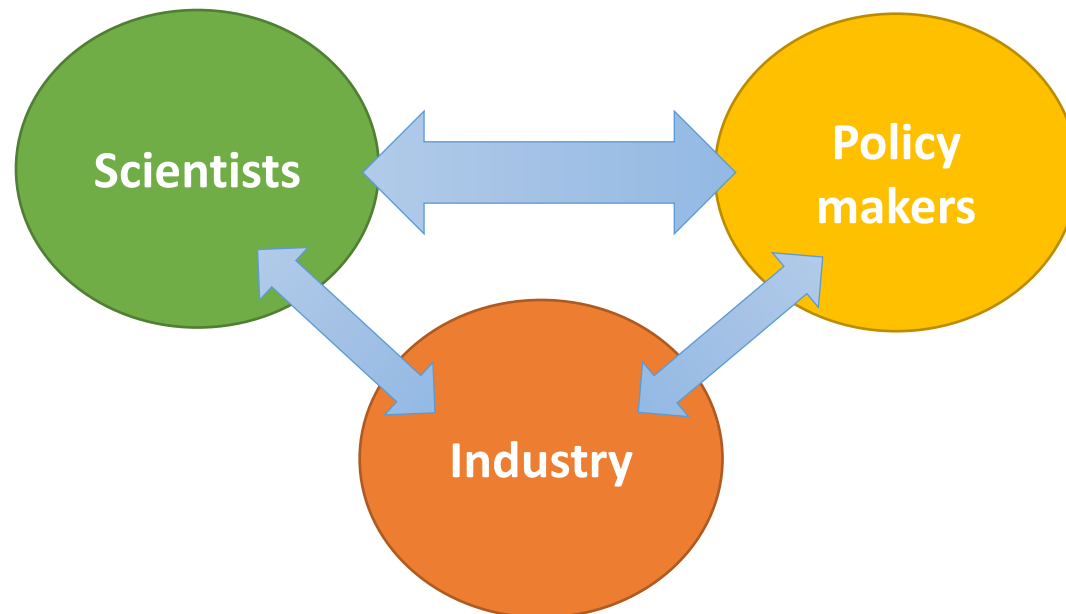
- Assess the effectiveness of existing MPAs
- Support monitoring and research of existing and new MPAs
- Include projections of species and ecosystem shifts due to climate change



4. Ensuring a sustainably harvested and productive Southern Ocean by working towards a stronger interface between science, industry and policy



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- Improve communication between different stakeholders
- Discussions about the need for resource sustainability

How to achieve a predicted Southern Ocean

where society understands and can respond to changing ocean conditions



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The Southern Ocean has a critical role in global climate and ocean productivity



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Achieving a predicted Southern Ocean will require working jointly on three main areas

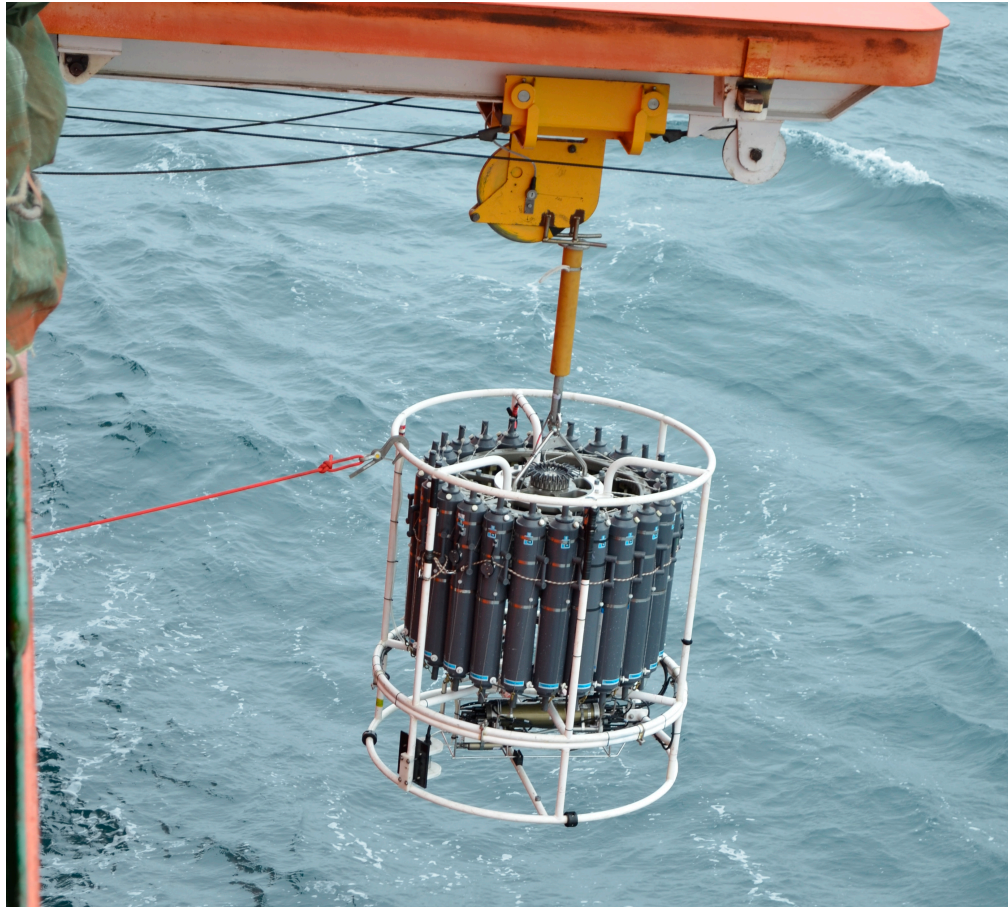
1. Improving understanding of fundamental processes and response to change
2. Enhancing and expanding observational capability to support predictions
3. Improving and enhancing Southern Ocean modelling capacity



1. Improving spatial and temporal coverage of observations



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- i. Year round observations
- ii. Observations in more regions
- iii. Characterising regional and seasonal variation/variability
- iv. Expanding observations of under ice environments
- v. Characterisation of vertical fluxes

2. Better measurements of sea ice volume



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- i. Accurate estimates of volume crucial to understand thermodynamics
- ii. Improved knowledge of snow-ice ratios and densities
- iii. New approaches to measuring thickness
- iv. Antarctic-calibrated sea ice models



3. Observing and modelling across trophic levels



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- i. Primary productivity and fate of carbon throughout the water column
- ii. Improved observation and modelling of mesopelagic species and ecosystems
- iii. Improved models of higher predator movement and distributions
- iv. Improved knowledge and models of changes in behaviour and distribution of species

4. Improving regional environmental models



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- i. Improved Southern Ocean specific model parameterisation
- ii. Detailed modelling of carbon cycling
- iii. Analyses and models of 3D fluxes
- iv. Development of high-resolution models for the Southern Ocean and downscaling





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How to achieve a safe Southern Ocean

SODecade Working Group 5



September 2021 Workshop outcomes



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- provide a space for those working in relevant areas of **research** such as weather forecasting and risk mitigation **to talk directly with the users** of some of their output, operating and researching in the Southern Ocean
- opportunity to **broaden discussions** so that those not operating in the Southern Ocean but affected by it can have a voice
- engagement with all of the relevant **stakeholder organisations** (COMNAP, IMO etc.) who have responsibility for and provide guidance to operations in the Southern Ocean
- Helping develop the **Cross Cutting actions** within the wider Project

Relevance to the Southern Ocean



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Unique conditions of the Southern Ocean, ensuring a safe Southern Ocean will require stronger collaborative efforts, especially given the unique political context of Antarctica.

Examples: **Sea ice formation** and the issues related to **how sparsely sensed and accessed** the Southern Ocean is in general.

Imperative - **coordinate risk mitigation measures** amongst operators and best possible information on which to make **safety related decisions**.

Consider **scope of perceptions** of those impacted by the Southern Ocean, e.g. in near shore environments, more widely globally and over longer time scales.

Priority areas identified in Action Plan



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Improve forecasting capabilities to produce outputs that are matched to the needs of the users and reflect the changing activities in the Southern Ocean and the influence of climate change.

Co-design in this process will be essential to produce information and services that have operational relevance but feed into longer term development in areas such as governance.

Understand the impacts of changing environmental conditions on risk and vulnerability.

Building on the state of the art research available there is a need to develop trans-disciplinary projects to: communicate research findings around changing environmental conditions and impacts to Southern Ocean stakeholders and communities; enhance engagement, education and services; and investigate ways to build resilience and adaptability and reduce risks to human safety.

Priority areas identified in Action Plan



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Improve emergency response competences by working with partners including the Marine Rescue Coordination Centers to identify risks, vulnerabilities and knowledge gaps to enhance existing operations. Identify those technologies and institutional mechanisms that are appropriate to support the flexibility and capabilities required to build future resilience.

Engage with policy-makers. Work collaboratively with policy-makers to ensure that awareness of threats and associated thresholds with regard to risks and hazards are understood and the benefit of supporting research to address these is widely communicated and achieves the broadest support possible.

Future Steps



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- Continue to **engage** and **generate feedback** from all relevant organisations with responsibility for Safety in the Southern Ocean
- Develop **potential activities** that address the priority areas identified by the Working Group
- Work within the UN Decade of Ocean Science framework to **progress the Action Plan** in collaboration with the wider Taskforce.

How to achieve a transparent and accessible Southern Ocean

Anton Van de Putte
Taco de Bruin
SO Decade Working Group 6



A Transparent and Accessible Southern Ocean

with open and equitable access to data, information, technology and innovation



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UN Ocean Decade - Definition of the Outcome:

“Inequalities in ocean science capacity and capabilities need to be eradicated through simultaneously improving access to and quality control of data, knowledge and technology.”

From the Decade Implementation Plan:

“No single or central digital infrastructure or system will be sufficient to meet the needs of the Decade.”

“Implementation of the digital ecosystem will require inclusive and outward-facing co-design and co-construction of a distributed, integrated and interoperable set of digital solutions that will form components of the overall ecosystem.”

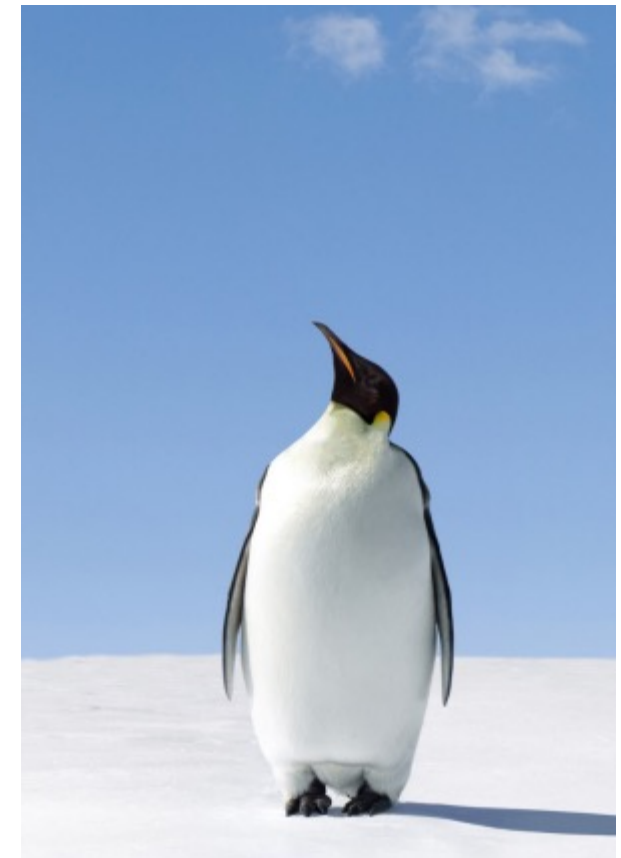
Challenges to achieve a Transparent and Accessible Southern Ocean



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with open and equitable access to data, information, technology and innovation

1. Improve access to Southern Ocean infrastructures, including to computing infrastructure outside of the Southern Ocean
2. Build the Southern Ocean digital ecosystem for data and information access and exchange as part of the global Decade digital ecosystem
3. Promote and Implement the Polar Data Policy Recommendations
4. Develop and Promote Data Best Practices
5. Promote Data Literacy



Improve access to Southern Ocean infrastructures, including to computing infrastructure outside of the Southern Ocean



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- The Southern Ocean is remote and logistically challenging to work in, making research very expensive
- Optimising access to and the use of existing and new infrastructures, ships, equipment, computational power, data and information will improve equity in research and benefit the Decade objectives
- Improve the sharing of information about what data, infrastructures, platforms, and logistical capabilities are available, so that stakeholders can assess their suitability and capacity to support their planned activities.
Tools such as **Polardex** provide logistical information for fieldwork
- Special emphasis should be on making computing infrastructure accessible to scientists from countries without Southern Ocean research programmes



Build the Southern Ocean digital ecosystem for data and information access and exchange as part of the global Decade digital ecosystem



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- Data and information should be **F**indable, **A**ccessible, **I**nteroperable and **R**eusable (FAIR)
- Many hundreds of different data and information sources exist, ranging from large aggregated data portals of global observing programs to datasets from small-scale, but highly relevant process studies
- Tools to allow federated search simultaneously across all these data and information sources in a digital ecosystem are required
- The POLDER working group is working on standards and tools for federated search, in close collaboration and co-design with global groups, such as DataONE, the Ocean InfoHub/Ocean Data and Information System (OIH/ODIS) project, the World Data System International Technology Office, as well as the Decade Coordination Office for data (DCO) and the Decade Data Coordination Platform (DCP)



Promote and Implement the Polar Data Policy Recommendations



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- In 2021, Tronstad et al. published the principles for *Alignment of Polar Data Policies* under the auspices of SCAR, IASC, SAON and SOOS
- These data policy principles should underpin all data collection efforts in the Southern Ocean for the duration of the UN Ocean Decade

Alignment of Polar Data Policies

Report by a working group under:
Arctic Data Committee
Arctic Spatial Data Infrastructure
Southern Ocean Observing System
Standing Committee on Antarctic Data Management

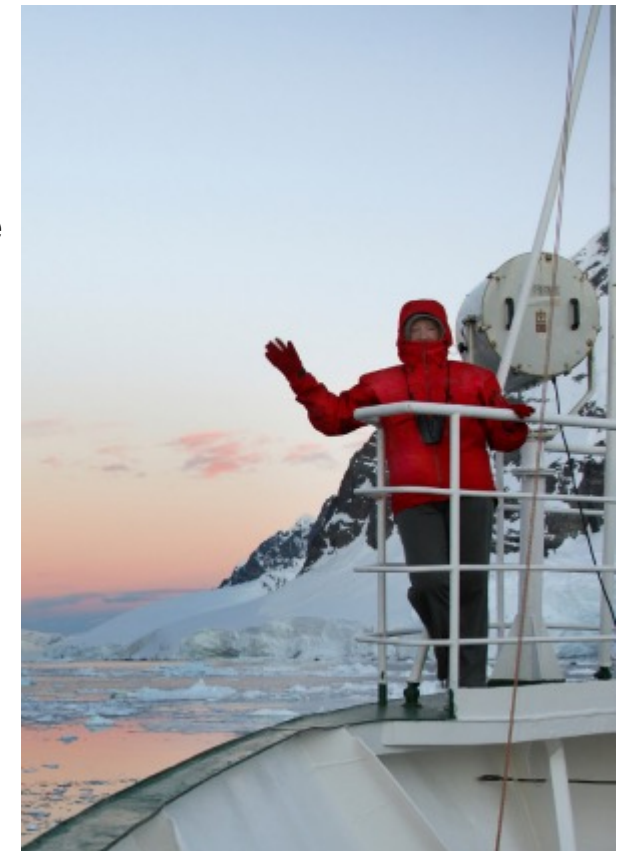


Develop and Promote Data Best Practices



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- FAIR data require standardisation
(of sampling methods, observing methods, data processing, and data dissemination methods)
- Identify, document and share best practice approaches for each step of the data lifecycle
- The IODE-GOOS **Ocean Best Practices System** hosts a library of best practices documentation and assists communities to develop and improve best practice guidance on a range of topics
- To make the Decade a success, all Southern Ocean Decade programmes and projects are advised to connect with the Ocean Practices for the Decade Programme (“OceanPractices”)



Promote Data Literacy



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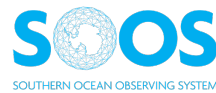
- Important for Researchers. Equally important for Policy makers and Community members
The IOC Capacity Development programme aims to build that required capacity globally
- Education aimed at a wide array of audiences on a wide array of (data-related) topics
IOC Ocean Teacher Global Academy (OTGA) with its network of Regional Training Centres (RTC)





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How to achieve a inspiring and engaging Southern Ocean



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WG 7:

Inspiring and
Engaging
Ocean

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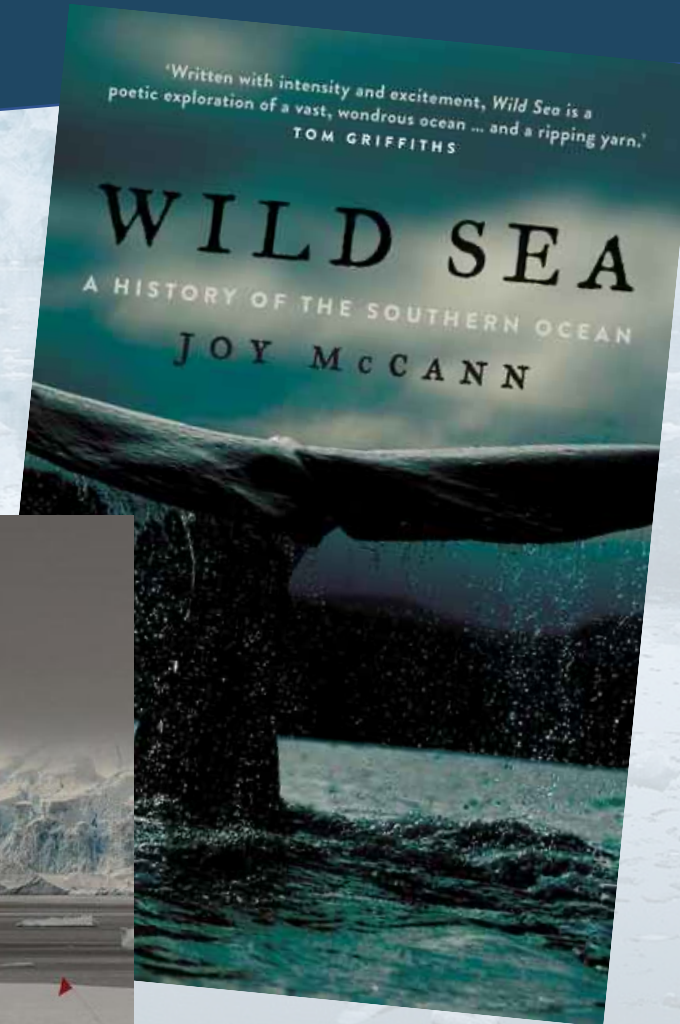
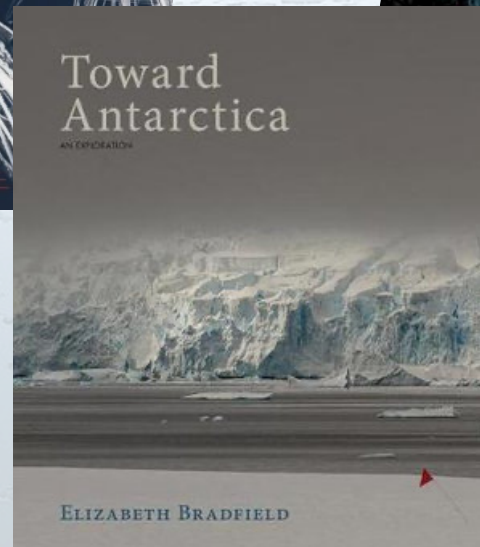
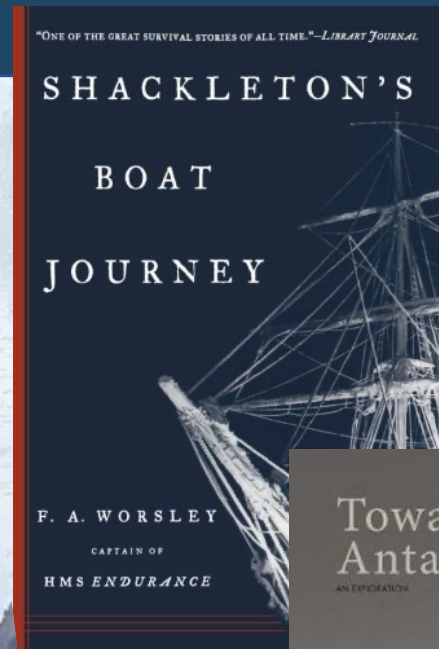
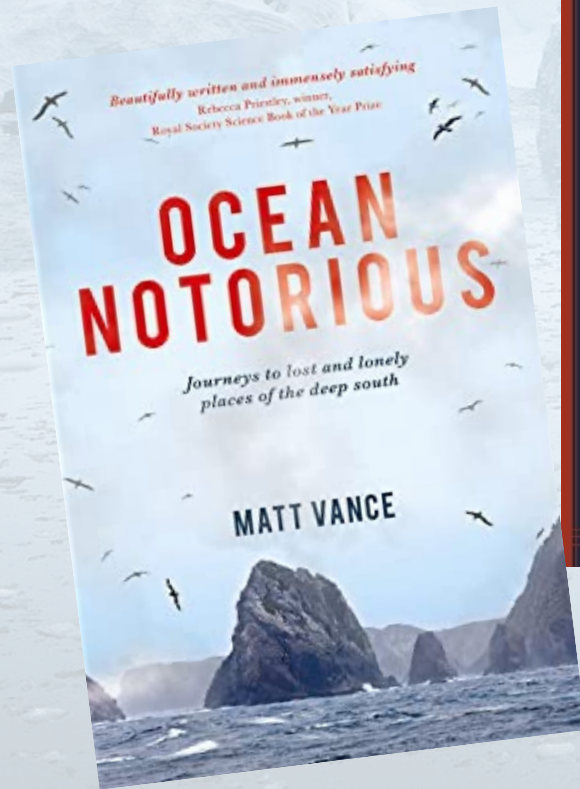


Hanne Nielsen
Rahul Mohan

Imagining the Ocean



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Key Areas

What we need



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Recognising	Recognising the values of the Southern Ocean
Identifying	Identifying the different ways in which the Southern Ocean is valued and engaged with
Supporting	Supporting Ocean Education
Fostering	Fostering cultural connections with Antarctica
Building	Building an inclusive Antarctic region
Facilitating	Facilitating co-production of new knowledge about the Southern Ocean region

Research Challenges

How to do this



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Recognise expertise

Invite new
perspectives

Incorporate the arts

Foreground Indigenous and
local connections

Facilitate
communication

Develop DST

Collaborate with
industry

Highlight SO across
policy agendas

Inspiring and
Engaging
Ocean

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Now
In 10 years
For the future



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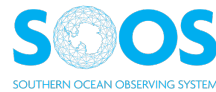




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Concluding remarks

Dr Renuka Badhe
*Executive Secretary – European
Polar Board*





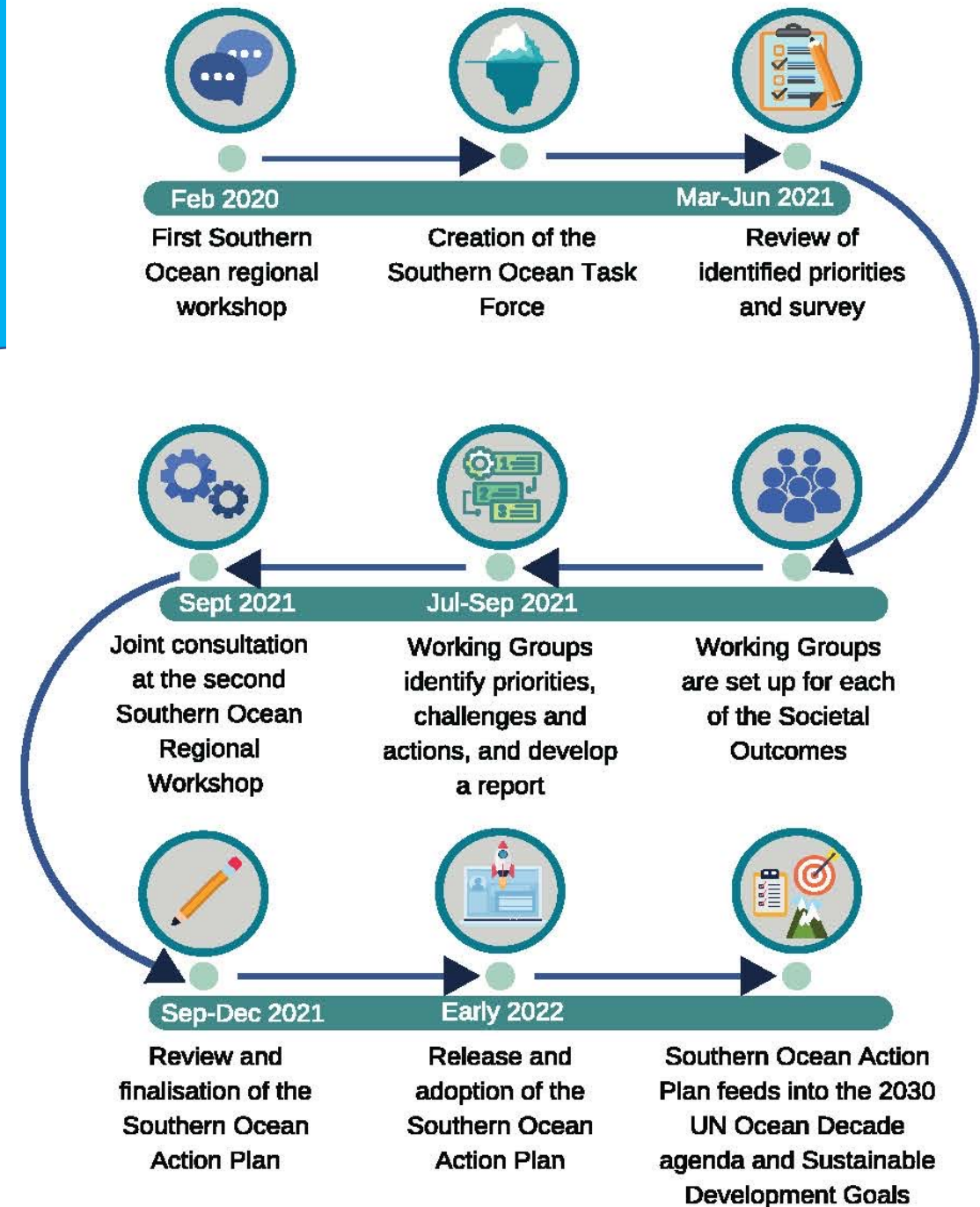
Where did we come from?

Southern Ocean UN Decade Process

<https://www.sodecade.org>

Engaged a broad group of stakeholders:

- Scientific research community
- Industry
- National Antarctic programmes
- Logistics coordinators
- Policy makers and managers
- Operational service providers
- Antarctic scientific bodies
- Policy governing bodies
- Non-governmental organizations



Where we are at with the Action Plan



1.

A clean ocean where sources of pollution are identified and removed

2.

A healthy and resilient ocean where marine ecosystems are mapped and protected

3.

A sustainably harvested ocean ensuring the provision of food supply

4.

A predictable ocean where society has the capacity to understand current and future ocean conditions

5.

A safe ocean where people are protected from ocean hazards

6.

A transparent and accessible ocean with open access to data, information, and technologies

7.

An inspiring and engaging ocean where society understands and values the ocean

Focus of the 7 Working Groups

Where we are at with the Action Plan

Cross-cutting themes



Focus of the 7 Working Groups



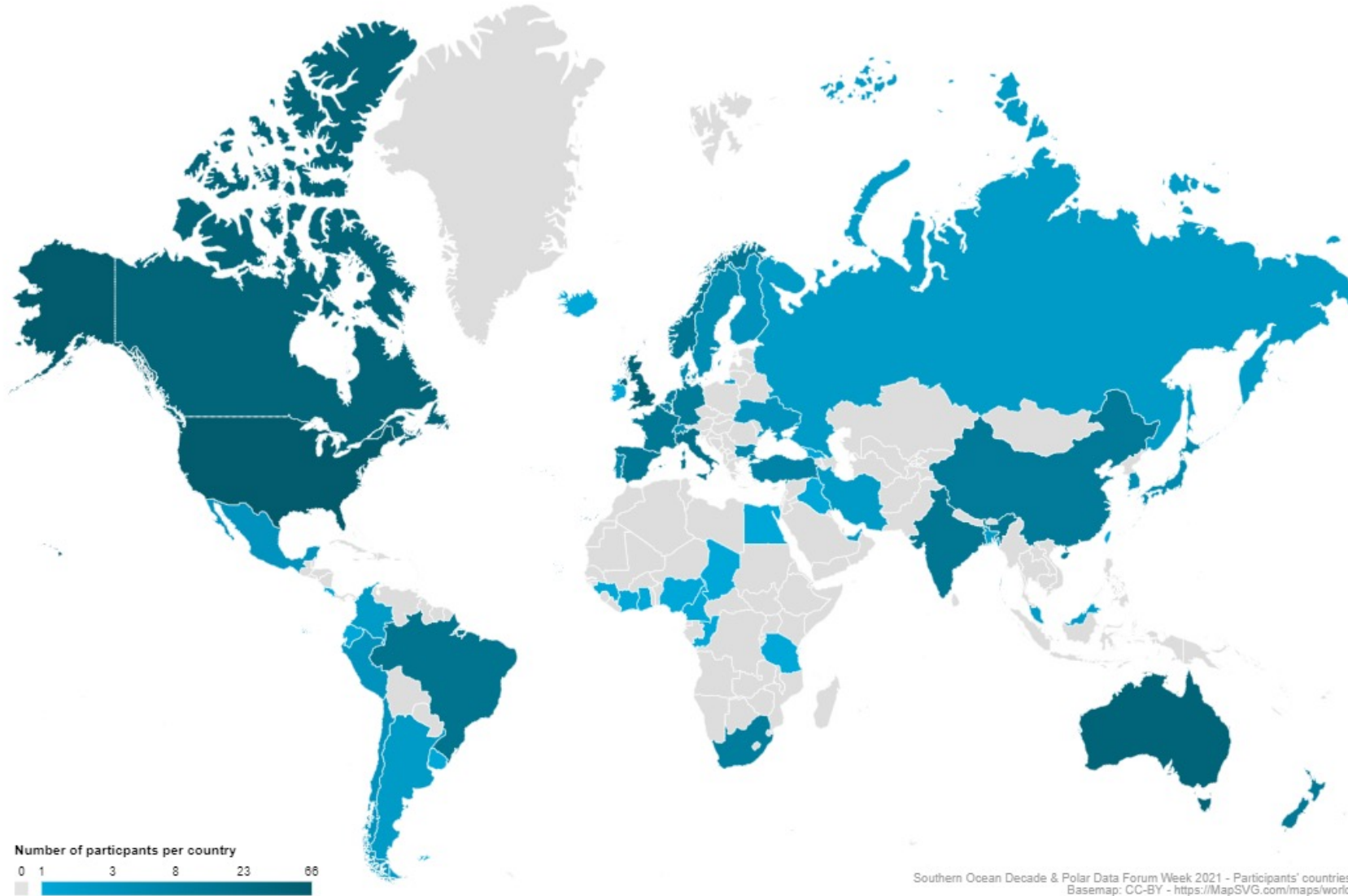
Where are we going?

- Opportunity to highlight relevance and importance of the Southern Ocean in a global context
- Southern Ocean community is well established and uniquely placed for a valuable contribution to the United Nations Decade of Ocean Sciences for Sustainable Development
- Leverage further opportunities and galvanise the Southern Ocean community, provide inspiration and engagement for innovation
- Strengthen links between science, industry, and policy, and further tighten knowledge and data gaps
- Develop global capacity, ensuring an inclusive and truly diverse Southern Ocean community

Southern Ocean Decade reach



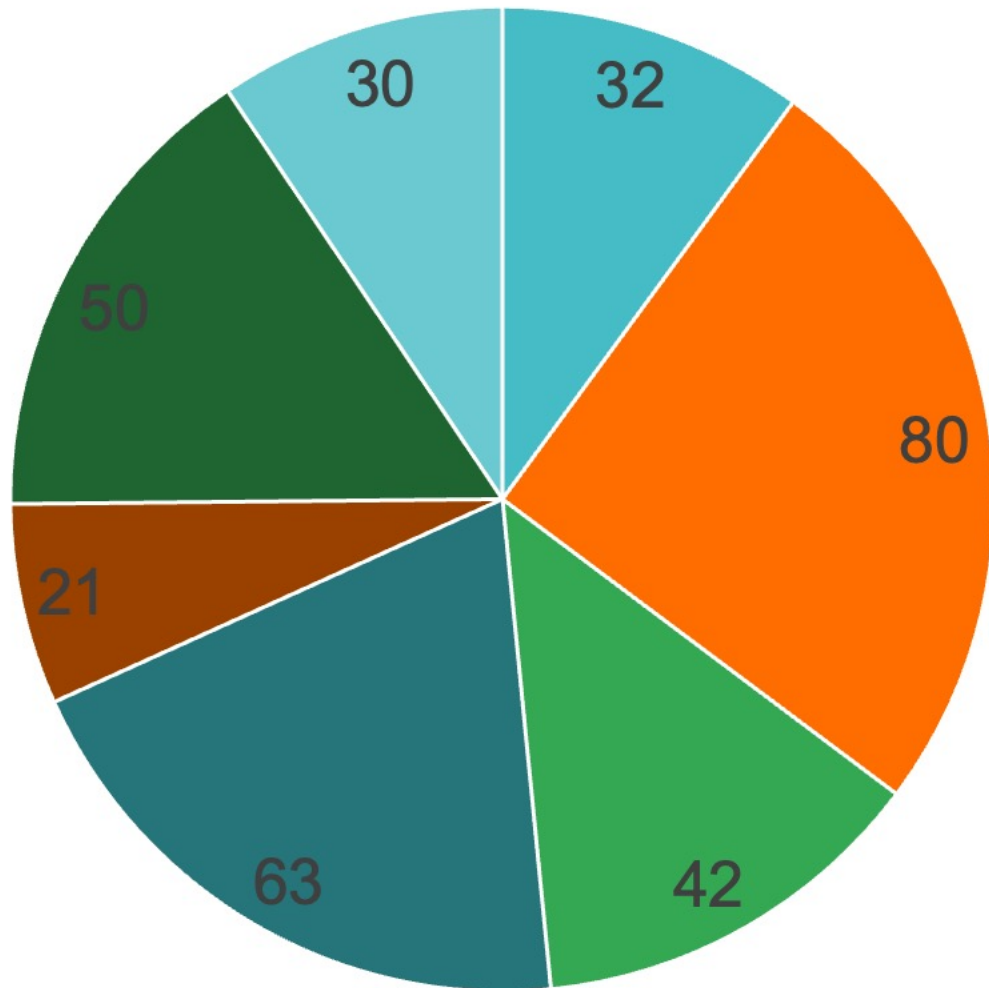
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Southern Ocean Decade - WP participants



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- WG1: Clean Ocean
- WG2: Healthy & Resilient Ocean
- WG3: Sustainably Productive Ocean
- WG4: Predicted Ocean
- WG5: Safe Ocean
- WG6: Accessible Ocean
- WG7: Engaging Ocean

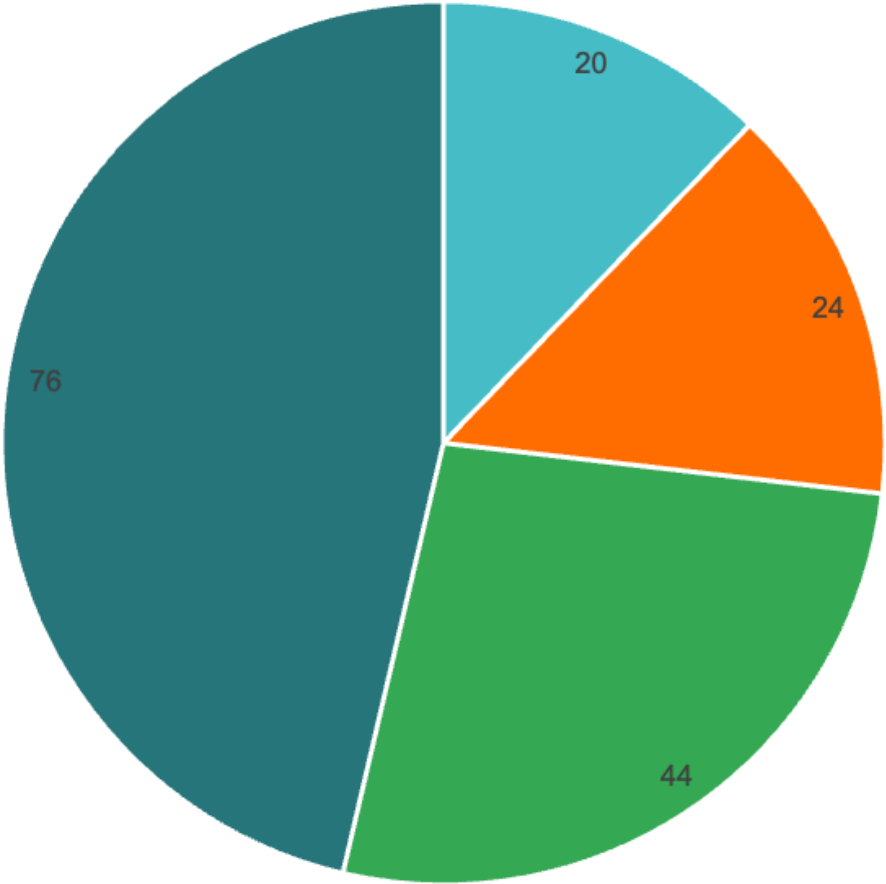
*these numbers do not include SO Task Force members

**some individuals participated in more than one WG

Southern Ocean Decade – Experience level of interested individuals:



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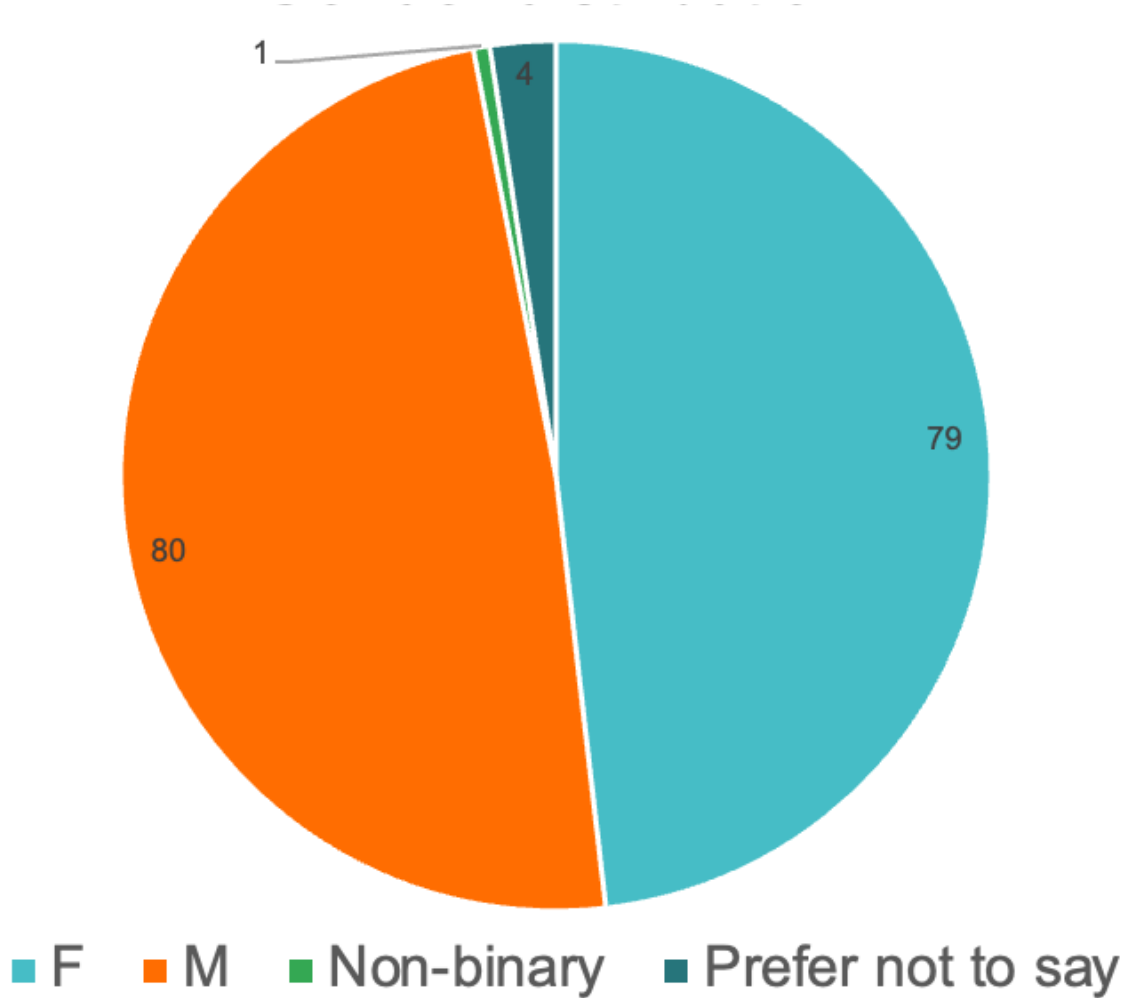


■ < 2 years ■ 2 - 5 years ■ 5 - 10 years ■ 10+ years

Southern Ocean Decade – Gender distribution of interested individuals:



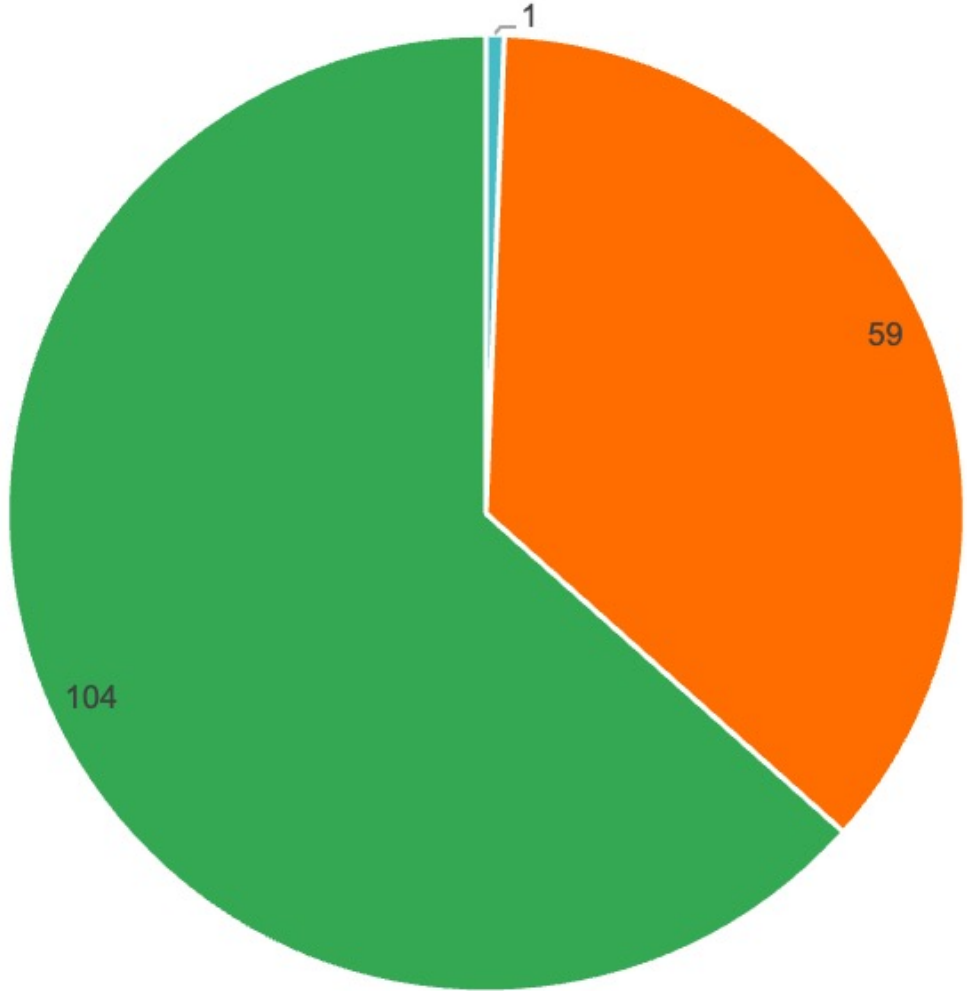
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Southern Ocean Decade – Interest in involvement for:



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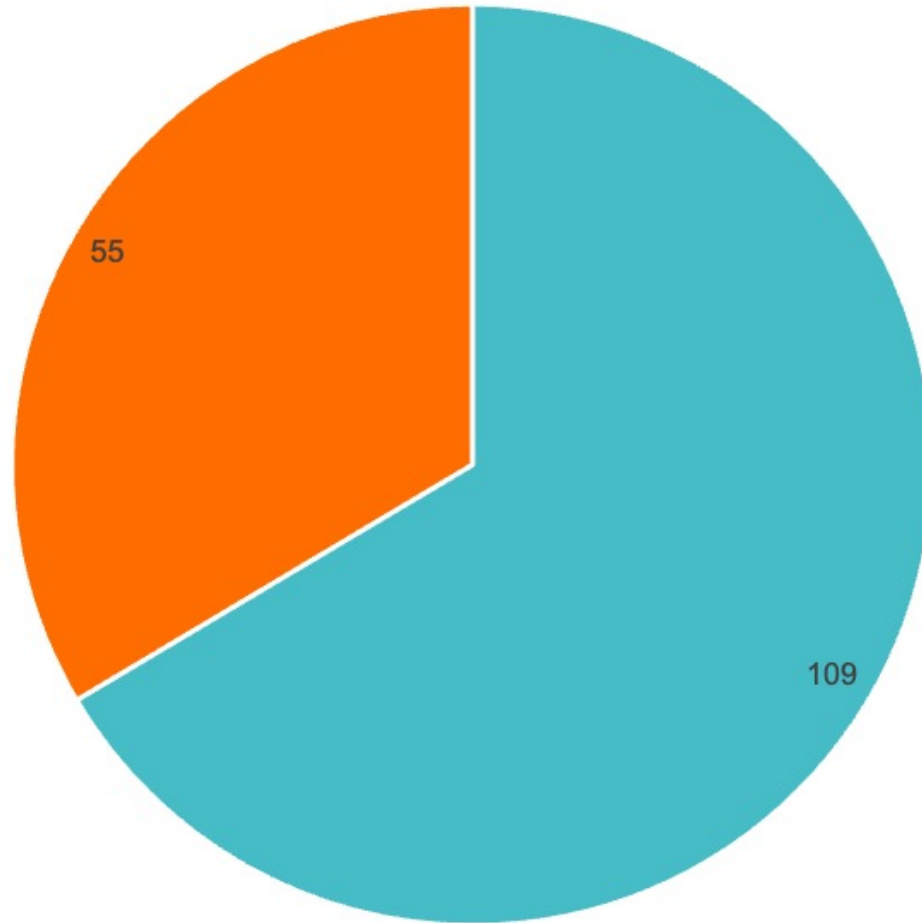


■ One-off ■ Medium term (1 - 3 years) ■ Long term (3- 10 years)

Southern Ocean Decade – Any barriers hindering your involvement?



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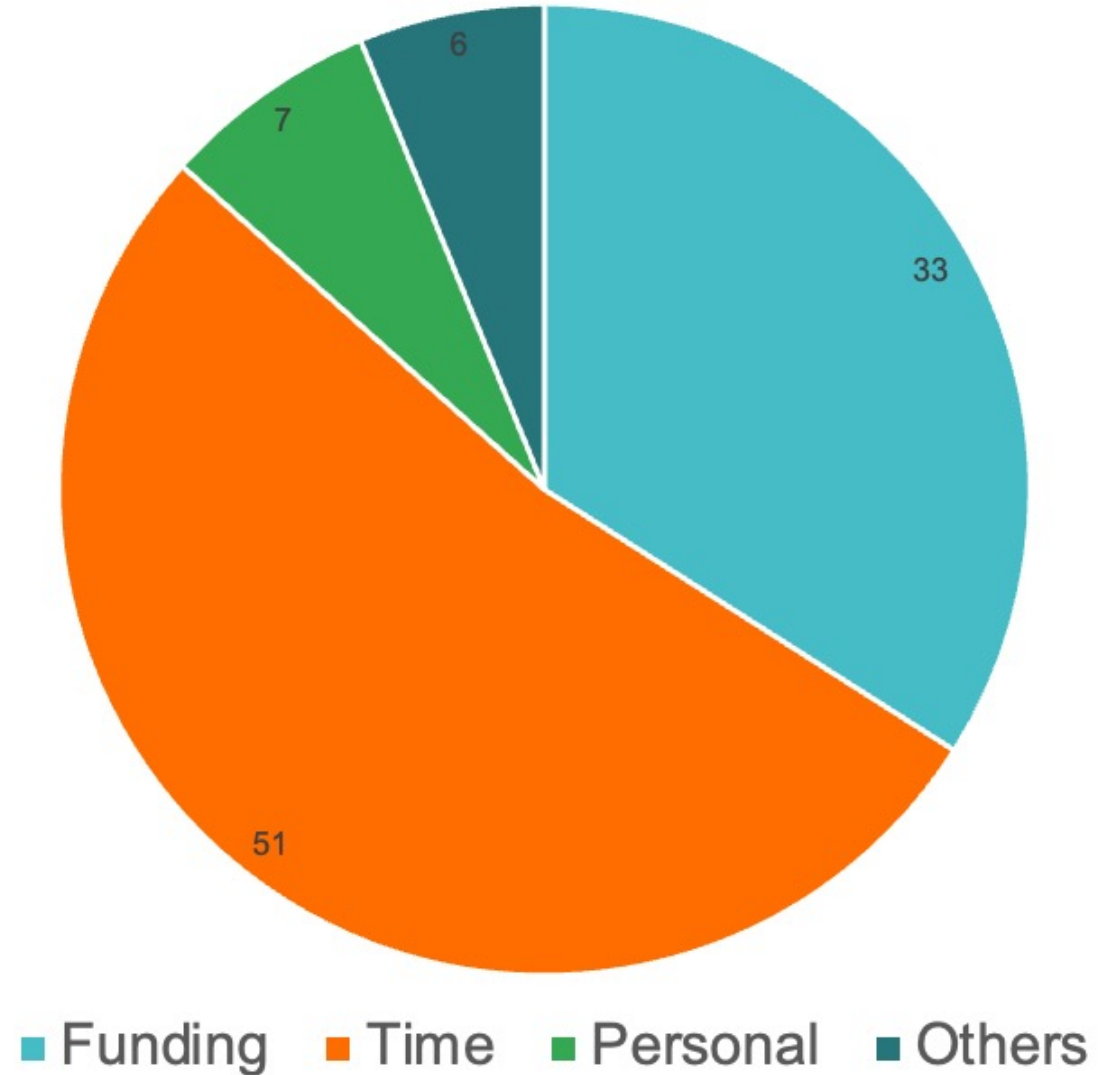
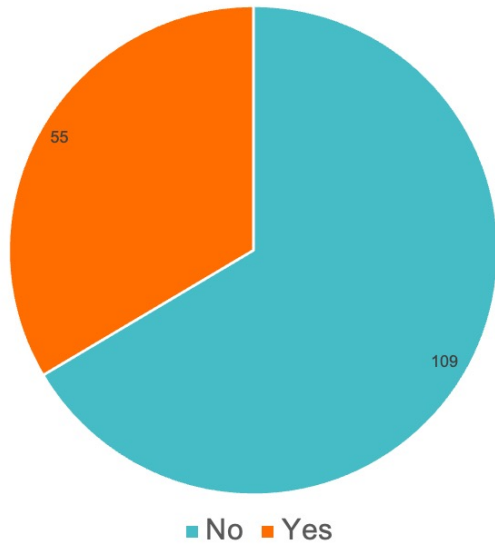
■ No ■ Yes

Southern Ocean Decade – What kind of barriers are hindering your involvement?



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Are there barriers hindering your involvement?



Southern Ocean Decade Missed it & want to catch up?



All Workshop information is available on the SO Decade website:



Defining the future of the Southern Ocean

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Action Plan ▾

Actions

Resources

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TAKE ACTION

Workshops & other meetings

- [1st Southern Ocean Regional Workshop](#) – San Diego, USA, 16 February 2020
- [Kick-Off Meeting For The Southern Ocean UN Decade](#) – Online, 9 July 2021
 - [Presentation slides](#)
 - [Video recording](#)
- [2nd Southern Ocean Regional Workshop](#) – Online, 20-22 September 2021
 - [Video recordings](#)

Southern Ocean Decade Want to keep informed?



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Acknowledgements



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A BIG Thank You:

- Belgian Science Policy Office (BELSPO) and RBINS for funding support - and Anton van de Putte for getting this project off the ground!
- EPB for hosting SO Decade and PDF week, and SO Decade webinars, NIOZ for technical support and webhosting
- Chairs and SO Task Force contact points of all WGs
- **Southern Ocean Decade Task Force:**



Acknowledgements – THANK YOU Annemie!



Acknowledgements – THANK YOU Annemie!





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Thank you!
Any questions ?

