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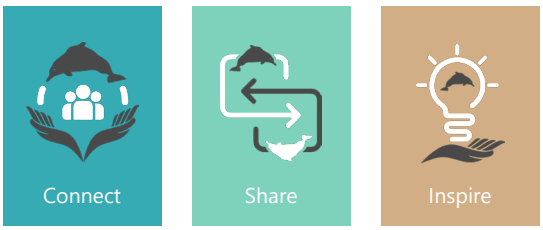
HuDoNET's Network ACTION PLAN

HuDoNET
Indian Ocean Humpback Dolphin Conservation Network



Galvanising the Conservation of the Indian Ocean Humpback Dolphin (*Sousa plumbea*)

A humpback dolphin in Musandam, Oman
© Balazs Buzas

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Contents

Introduction

The Indian Ocean humpback dolphin

The Indian Ocean humpback dolphin (*Sousa plumbea*; hereafter humpback dolphin) inhabits shallow coastal waters (less than 25 m deep) in the western and northern Indian Ocean, from South Africa's False Bay throughout East Africa and West Asia to parts of India and Sri Lanka (Collins *et al.,* 2024). It occurs along the coasts of 23 range states, however, its distribution is uneven, with high densities along India's west coast and in the Arabian/Persian Gulf, and lower densities and patchy populations in the Gulf of Aqaba and Red Sea, and in areas further south in the range, including in Mayotte and parts of Madagascar. Humpback dolphin populations are generally small, often fewer than 100 individuals in specific localised areas, and many of these populations show evidence of decline (Braulik *et al.,* 2023). The species occupies coastal waters, over rocky and coral reefs, and in shallow lagoons, and bays, usually remaining close to shore. They typically form small groups of fewer than 10 dolphins, although larger aggregations are occasionally observed. Their narrow habitat niche and overlap with human-impacted coastal areas make them particularly vulnerable.

Figure 1
Range states of the Indian Ocean humpback dolphin:
1: South Africa,
2: Mozambique,
3: Madagascar,
4: Mayotte,
5: Tanzania,
6: Kenya,
7: Somalia,
8: Djibouti,
9: Eritrea,
10: Sudan,
11: Egypt,
12: Saudi Arabia,
13: Yemen,
14: Oman,
15: United Arab Emirates,
16: Qatar,
17: Bahrain,
18: Kuwait,
19: Iraq,
20: Iran,
21: Pakistan,
22: India,
23: Sri Lanka

The main threats to humpback dolphins include bycatch in gillnets (IWC, 2002), direct hunting for meat or oil (Amir *et al.,* 2002; Guissamulo, 2008; Kumarran, 2012; Razafindrakoto *et al.,* 2004), habitat degradation from coastal development (IWC, 2002; Sutaria et al., 2015), chemical pollution (Aznar-Alamany *et al.,* 2019; Plön *et al.,* 2023), vessel strikes, and underwater noise (Braulik *et al.,* 2017a; Cornelis *et al.,* 2008; IWC, 2002; Piwetz *et al.,* 2015). Mortality of even a few individuals from these threats is often sufficient to cause severe population declines, especially in small, isolated populations (Braulik *et al.,* 2023).

Conservation of this species can be advanced using many different tools including Marine Protected Areas (MPAs), Important Marine Mammal Areas (IMMAs), and international agreements such as CITES and CMS, which aim to protect the species and its habitat. Localised initiatives, such as reducing gillnetting, promoting responsible dolphin tourism, and community-based marine management have shown promise, but sustained community engagement, increased awareness, and effective management of MPAs are critical to ensuring the long-term survival of this species across its range.

HuDoNET

The Indian Ocean Humpback Dolphin Conservation Network (HuDoNET), established in November 2023, facilitates global efforts to conserve the endangered Indian Ocean humpback dolphin.

> ***The aim of HuDoNET is to galvanise action to improve the conservation status of the Indian Ocean humpback dolphin throughout its range***

HuDoNET currently includes almost 100 members from 18 countries and is expanding its scope and membership steadily. It is working to advance knowledge of the species, identify threats, and develop practical, science-based conservation solutions.

> ***The key objectives of HuDoNET include fostering collaboration, and boosting resources and capacity among researchers and conservation practitioners in all range states to gain a better understanding of the Indian Ocean humpback dolphin's conservation biology, threats and management.***

A humpback dolphin tailslaps in Tanga Province, Tanzania
© Gill Braulik

HuDoNET established five working groups (WG) based on themes that are relevant to a social-ecological conservation system:

1. Biological Research WG focuses on the species' ecology, genetics, behaviour, and health;
2. Threats and Solutions WG investigates causes of population decline and potential management responses;
3. People WG focusses on community-based conservation and local engagement;
4. Policy WG examines legislation, policies, and international treaties to enhance governance for species protection;
5. Network Success WG supports the efficient functioning and sustainability of HuDoNET.

One of HuDoNET's goals is to design a Conservation Action Plan for the Indian Ocean humpback dolphin across its range. It is recognised that durable impact requires engagement beyond the HuDoNET members, this plan is also intended to help establish a robust foundation within the network. In this initial phase, the focus was internal, on short-term, collective actions distilled through a rigorous prioritisation process. Thus, the first activity organised by HuDoNET was to produce a short-term Network Action Plan.

This document is HuDoNet's short-term Network Action Plan that summarises the recommended actions of each WG and provides a roadmap for research, capacity building, policy development, and fundraising to guide conservation efforts.

A humpback dolphin leaping from the wave in Plettenberg Bay, South Africa
© Gwen Penry

The Planning Process

The process used to create the plan was based on the IUCN's Conservation Planning Specialist Group's conservation planning process (CPSG, 2020). Four steps were taken:

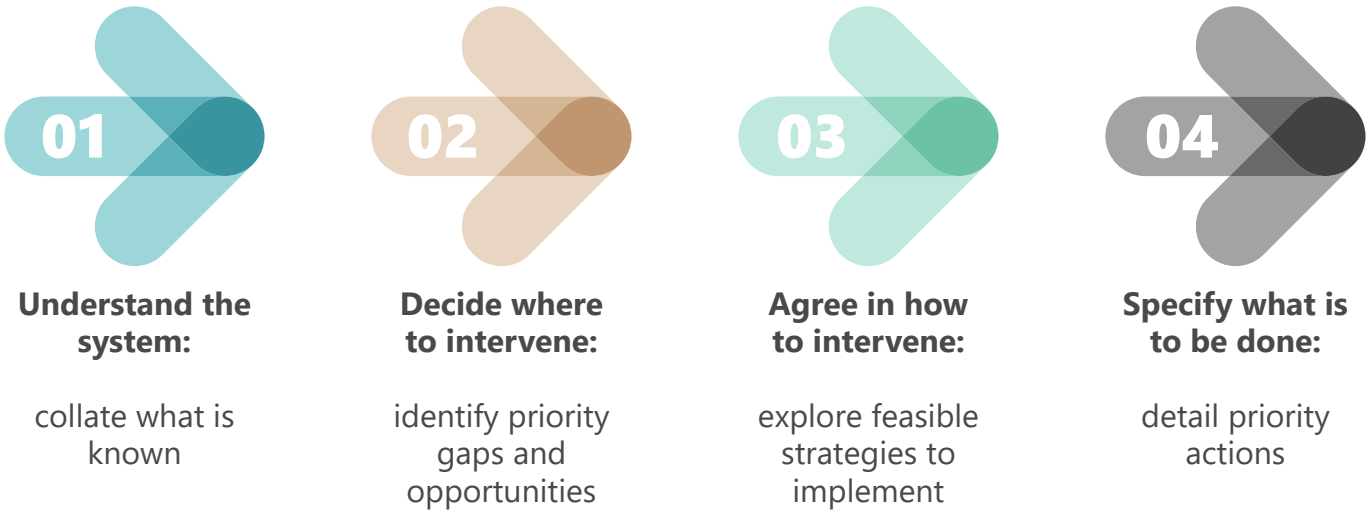

Figure 2
A schematic of the planning process undertaken by each working group to draft the HuDoNET Network Action Plan, which was an adaptation of the IUCN's Conservation Planning Specialist Group's conservation planning process (CPSG, 2020).

At each step, each working group convened a series of meetings to discuss and collate knowledge, thoughts and ideas and in between worked collaboratively in shared documents and spreadsheets. The outputs were collated by the working group leaders. Members provided comments and, at different stages, ranked gaps and strategies to surface the highest priorities. In doing this, the knowledge base within the network was leveraged. The process began in August 2024 and concluded in October 2025.

Understanding the System

The five WGs, operating within an adapted and recognised conservation-planning framework (CPSG, 2020), convened structured meetings in which members contributed knowledge, expertise and judgement. This process produced a consolidated view of 1) where, when and what type of research has been conducted, 2) where and what type of threats have been documented, 3) which community-awareness initiatives are active, 4) which regional and international treaties are pertinent across the species' distribution, and 5) what elements will make the network successful. The results for each working group follow.

Biology (Biological Research WG)

A comprehensive review of literature was conducted identifying a total of 218 papers and reports that contain information and data on humpback dolphins. Of these, 38 were reviews about the species, 141 were peer-reviewed scientific papers, 23 were books or book chapters and there were 33 reports, with the remainder being made up of theses, conference posters, and online resources etc.

Most literature focussed on documenting the distribution, seasonality, and habitat use of humpback dolphins, primarily based on at-sea visual surveys (n=108; Fig. 3) and photo-identification efforts (n=52). A total of 31 papers addressed behaviour, while 25 focussed on taxonomy and genetics. The remaining publications investigated aspects of life history, diet, anatomy and acoustics.

A substantial proportion of the literature concentrated on threats (n=82), including entanglement and bycatch (n=59), tourism interactions (n=16) and impacts associated with large-scale coastal construction (n=7).

Collins *et al.* 2024 provide the most recent overview of knowledge of Indian Ocean humpback dolphins, highlighting the sparsity of basic data such as population abundance estimates, available only for 16 populations across the species' range.

Figure 3
Number of papers in the literature database (n=218) on Indian Ocean humpback dolphins across thematic research categories.

Geographically, the research output was uneven, with just over half of all published studies taking place in India (n=50) or South Africa (n=67) (Fig. 4). The most significant geographic gap was in the Horn of Africa and the western Red Sea region, with no studies found from Yemen, Somalia, Eritrea, or Sudan, and only one study from Djibouti, leaving a knowledge gap spanning over 4,000 km of coastline.

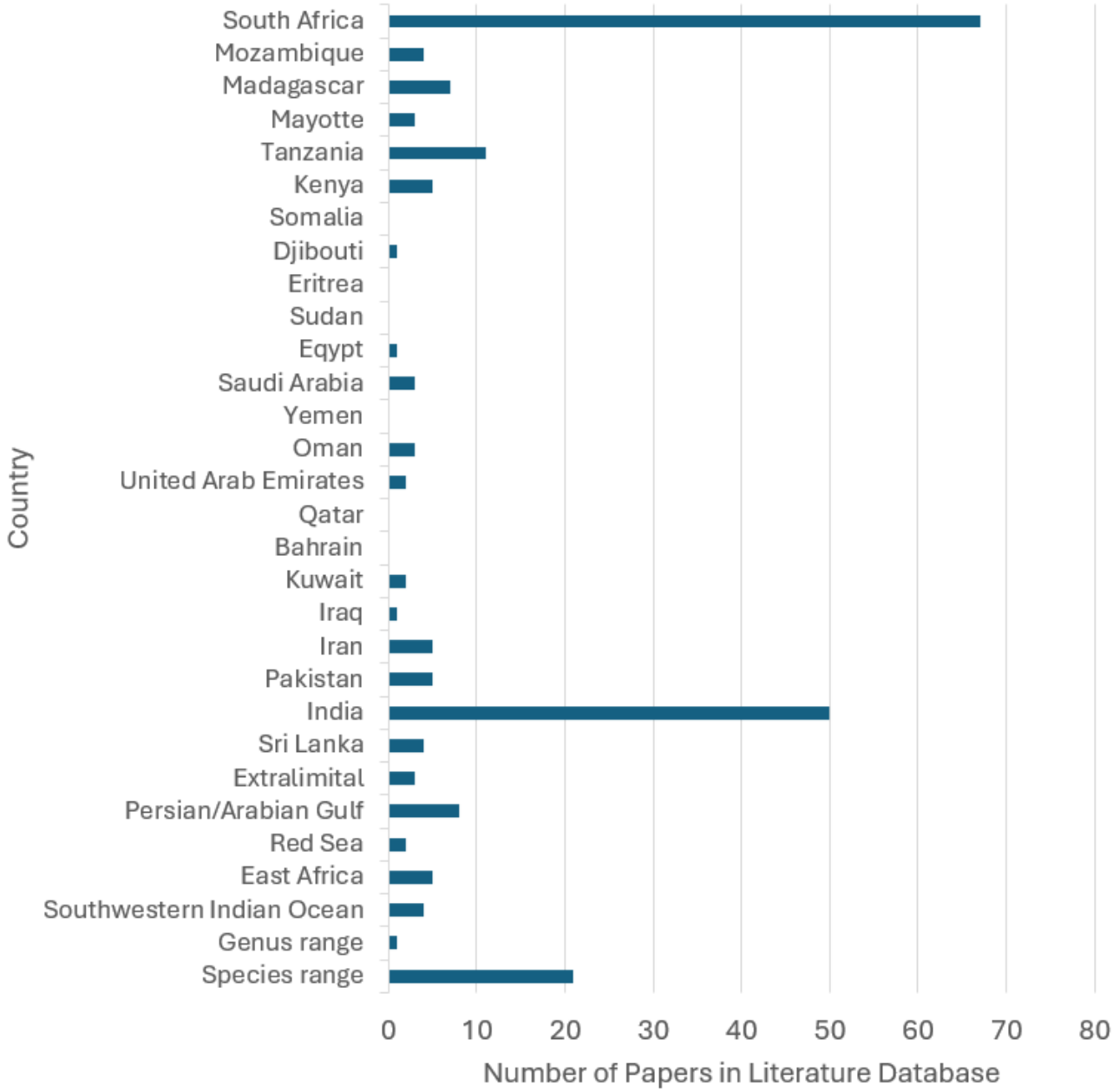

Figure 4
The geographic distribution of papers in the literature database (n=218) on Indian Ocean humpback dolphins organised by country from south to north of the species range. The 'Extralimital' category includes papers involving dolphins observed outside their core range, specifically in Israel, Turkey and Greece. The 'Genus range' category comprises papers addressing the whole genus, while the 'Species' category includes papers that focussed on the species as a whole, regardless of geographic location.

Humpback dolphins observed during a dolphin survey in Mumbai, India
© Shaunak Modi

Threat Resolution (Threats and Solutions WG)

Different regional threats to humpback dolphins were classified according to the IUCN's Threat Classification Scheme using expert opinion. This assessment was conducted by HuDoNET members of the following 12 range states (with threats therefore most relevant to these regions): South Africa, Mozambique, Tanzania, Kenya, Somalia, Saudi Arabia, the UAE, Kuwait, Iran, Pakistan, India, and Sri Lanka. The most widely reported threats across range states were Residential & Commercial Development (e.g. urban and industrial areas), and Biological Resource Use (fishing & harvesting aquatic resources, including intentional use and unintentional effects e.g. bycatch). Other widespread threats included: Transportation & Service Corridors (e.g. shipping lanes) and Human Intrusion & Disturbance (e.g. ecotourism) (Fig. 5).

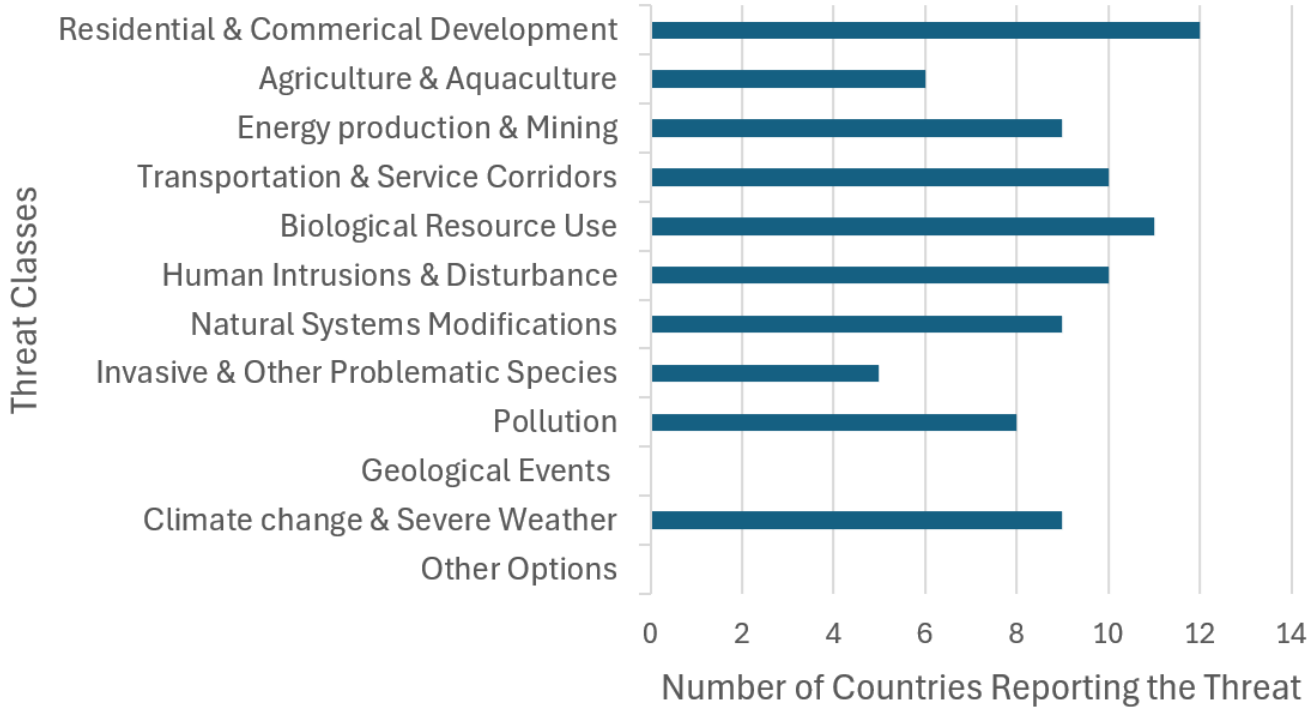

Figure 5
The relevance of the listed IUCN Threat Classes to Indian Ocean humpback dolphins as indicated by HuDoNET members from 12 range countries (South Africa, Mozambique, Tanzania, Kenya, Somalia, Saudi Arabia, the UAE, Kuwait, Iran, Pakistan, India, and Sri Lanka). The Threat Classes follow the IUCN Red List Threat Classification Scheme (V3.3).

A humpback dolphin close to a vessel in Richards Bay, South Africa
© Brett Atkins

Community-based Conservation (People WG)

Public engagement with humpback dolphins varies considerably across regions, influenced by differences in community awareness, citizen science involvement, target audiences, outreach approaches, and the degree of bottom-up governance. Overall, awareness of the species is reported to be relatively high in India and Pakistan, while in most other range states it remains low, with only certain coastal communities demonstrating stronger local knowledge and awareness.

Even in countries with generally low awareness, certain communities, such as fishers and local government agencies in Kenya and Kuwait, show greater knowledge of humpback dolphins and an interest in learning more. Where awareness is higher, as in India and Pakistan, fishers' local knowledge has been documented and published, and in East Africa it has been successfully used in cetacean bycatch risk assessments, highlighting the potential value of local ecological knowledge in other regions.

Citizen science is playing a key role in expanding research and conservation efforts for humpback dolphins in some countries including India, Iran, and the UAE, often using social media and online reporting platforms. Other countries contribute through localised efforts, such as Pakistan's informal stranding network, South Africa's dolphin viewing platform and webcam, and Kenya's well-organized Marine Mammal Network, which unites government, tourism, and local communities. These initiatives vary in scope but collectively represent important foundational steps toward improved monitoring and data collection.

Awareness and education programs reach a wide range of audiences, including fishers, schoolchildren, universities, coastal communities, and government agencies. Countries such as Pakistan, India, Iran, and Kenya have implemented diverse approaches, including workshops, translated materials, social media campaigns, and documentaries, while innovative strategies like fisher involvement in policymaking (Pakistan), community rewards for engagement (UAE), and growing government interest (Kuwait) help strengthen public participation and support lasting conservation frameworks for humpback dolphins.

Joy in discovery of humpback dolphins - first sightings spark enthusiasm to protect our ocean.

Formal Conservation (Policy WG)

A broad array of international and regional instruments are in place that can support the conservation of humpback dolphins. Key global agreements include;

- CITES (Indian Ocean humpback dolphin is on Appendix I), which regulates trade and could help manage fisheries in bycatch hotspots;
- the Convention on Migratory Species (CMS, Indian Ocean humpback dolphin is on Appendix II), enabling regional cooperation through Concerted Actions, Single Species Action Plans, and MOUs;
- the International Whaling Commission (IWC), which offers initiatives on bycatch, strandings, and pollution that are relevant to this species.

Additional frameworks, such as the Convention on Biological Diversity (CBD), United Nations Convention on the Law of the Sea (UNCLOS), the U.S. Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA), and IUCN guidance, collectively form a complex but potentially powerful global policy network to support species protection.

At the regional level, HuDoNET can leverage policy instruments and collaborations to advance humpback dolphin conservation. Opportunities include engaging with the Indian Ocean Tuna Commission's Working Party on Ecosystems and Bycatch (IOTC-WPEB), regional networks such as IndoCet and the Arabian Sea Whale Network, and platforms like the Nairobi Convention and the Western Indian Ocean Marine Science Association (WIOMSA) for advocacy, research, and capacity-building. While some regional organizations, such as the Regional Organisations for Protection of the Marine Environment (ROPME) and the Indian Ocean Rim Association (IORA), have limited focus on marine mammals, they offer potential entry points for promoting cetacean conservation through ecosystem-based management, Blue Economy initiatives, and science-policy forums.

Organisational Sustainability (Network Success WG)

Building a successful and resilient HuDoNET relies on strong internal and external communication, sustainable funding, and a commitment to Justice, Equity, Diversity, and Inclusion (JEDI). Internal communication has primarily used emails and online meetings, but there is potential to enhance connectivity through informal channels like WhatsApp, structured webinars, and newsletters to share research, success stories, and member activities. Externally, the Network Success WG aims to engage marine conservation networks and NGOs to raise awareness, build partnerships, and explore collaborative initiatives, complemented by communication and media training to strengthen outreach and advocacy.

Sustainable funding is essential for long-term network resilience. Strategic initiatives such as multi-country collaborations, symposia, and improving operational structures were proposed, supported by options including a fundraising support committee, dedicated fundraisers, and multi-country proposals to access larger international grants. These measures will ensure HuDoNET is well-resourced, equitable, and positioned to achieve lasting conservation impact.

Deciding Where and How to Intervene (Priority Gaps and Opportunities)

From this evidence base, each WG identified gaps and/or opportunities, which were then prioritised using members' expert judgement and cumulative ranking. The highest ranked gaps and opportunities are presented in Table 1.

Table 1 Priority gaps and opportunities identified by each Working Group.

1	**Biological Research WG**
1.1	Few estimates of population size exist at a sufficient resolution to detect trends over time
1.2	Many countries lack basic presence/absence data on Indian Ocean humpback dolphins
1.3	Lack of knowledge on effects of chemical pollutants
1.4	Lack of understanding where to prioritise conservation actions
2	**Threats and Solutions WG**
2.1	The extent of bycatch, specifically from gillnets, remains unknown in most areas
2.2	Direct links between identified threats and population declines in humpback dolphins are unclear
2.3	Standardised methods for comparing severity among threats is absent
3	**People WG**
3.1	There is a lack of access to resources and information regarding best practice in education and awareness
3.2	There is insufficient research focused on grassroots conservation of humpback dolphins
3.3	The involvement of social scientists and conservation psychologists is minimal
4	**Policy WG**
4.1	Knowledge of existing spatial protections could guide conservation recommendations
4.2	Conservation tools and programme exist to protect other, similar species
4.3	S. plumbea is not frequently considered during Environmental Impact Assessments
5	**Network Success WG**
5.1	Connections with other NGOs could be established and strengthened
5.2	Less formal communication tools could enhance connections within the network
5.3	Long-term funding is required to support the structure and functioning of the network

The next step was to explore strategies, broad approaches, to fill the gaps and take the identified opportunities. Each of these were evaluated for feasibility, effectiveness and context during working group meetings. Like the gaps/opportunities, the strategies were prioritised using members' expert judgement and cumulative ranking. The highest-ranked strategies are included in the next section as "Approaches". The main action within each strategy was distilled and taken to the next stage as Priority Actions.

Specifying What is to be Done (Priority Actions)

In total thirteen achievable, short- to medium term Priority Actions were identified. The final step entailed specifying precisely what is required to carry out the prioritised actions/strategies and who is likely to be involved.

The full details of each of the thirteen Priority Actions are detailed below. This information has also been tabulated into a logframe format which can be accessed at the following link: HuDoNET's Table of Priority Actions.

Priority Actions for Biological Research (WG)

Action 1: Conduct Rapid Cetacean Assessments in prioritised, data-poor countries

Gap/Opportunity: Many countries lack basic presence/absence data on humpback dolphins.
Aim: Provide basic data on humpback dolphin's presence, distribution and threats.
Approach: Collaborate with local scientists to conduct fieldwork to gather distribution data.

Budget estimate:
US$10,000 - 50,000 per assessment, depending on country size.

Timeline:
2 years.

Deliverables:
Protocols and training materials for rapid assessment survey techniques (Braulik *et al.*, 2017b). A published Rapid Indian Ocean humpback dolphin Assessment for priority areas.

Actors:
Identify new collaborations with marine scientists in priority data-poor countries; support provided by HuDoNET network.

External stakeholders:
In-country non-profit organisations, research groups, government officials, tourism organisations (e.g. boat-based whale/dolphin watchers, swim-with-dolphin operators).

Implementation details:
Identify one or two priority data-poor countries. Raise funds. Assemble research teams (experienced researchers and trainees), finalise field protocols and organise training and logistics. Conduct Rapid Assessments that include Local Ecological Knowledge surveys, bycatch assessment, citizen science, and boat based field surveys, in conjunction with local researchers. Disseminate the results.

Action 2: Facilitate the publication of existing population monitoring datasets by dataholders

Gap/Opportunity: There are few current estimates of population size at sufficiently high resolution to detect trends over time.
Aim: Improve long-term population monitoring.
Approach: Encourage and support the analysis of existing datasets to generate abundance estimates.

Budget estimate:
US$5,000 - 10,000.

Timeline:
12 - 24 months.

Deliverables:
Metadata table with special focus on photo-ID data. Technical material to support analyses. Reports of population sizes at multiple sites. Publication(s).

Actors:
Biological WG and HuDoNet members.

External stakeholders:
IndoCet, SouSA, Arabian Sea Whale Network (ASWN), Marine Mammal Research and Conservation Network of India (MMRCNI), HappyWhale, SMM bycatch working group.

Implementation details:
Identify existing, unanalysed datasets (photo-identification, acoustic, and related data) which could be used to estimate Indian Ocean humpback dolphin abundance. Create a metadata table, cataloguing these existing datasets. Organise workshops that build capacity for the analysis of suitable data by the dataholders. Host analysis / writing retreats to provide mutual technical support (e.g., sharing of methods and code) and motivation.

A well-marked individual interacts with a juvenile in UAE waters
© Ada Natoli / UAE Dolphin Project

Action 3: Assess multi-site pollutant exposure using standardised tissue analysis

Gap/Opportunity: Lack of knowledge on effects of chemical pollutants.
Aim: Generate a clear understanding of the levels of chemical pollution in humpback dolphins.
Approach: Conduct a coordinated field study of chemical pollutants in humpback dolphins across its range.

Budget estimate:
US$20,000 - 100,000.

Timeline:
18 - 24 months to initiate, then dependent on strandings.

Deliverables:
Standardised protocols for chemical pollutant analysis and sample collection. Training materials. Database of samples. Completed analyses. Publication(s).

Actors:
Biological WG collaborating with IWC E sub-committee & HuDoNET members.

External stakeholders:
IWC Environmental Contaminants Sub-committee, IndoCet Stranding Group, pollutant laboratory.

Implementation details:
Identify priority chemicals. Develop standardised guidelines for sampling (include proxy samples). Provide online training. Maintain a database of collected samples across the species range. Facilitate sample analysis using standardised methods. Compare levels by age, sex, location, and time.

Mayotte's last humpback dolphin has health issues
S© David Lorieux / Ceta'Maore

Priority Actions for Threat Resolution (Threats and Solution WG)

Action 4: Map fishing practices to gauge humpback dolphin bycatch risk hotspots

Gap/Opportunity: The extent of bycatch, specifically from gillnets, remains unknown in most areas.
Aim: Conduct a range-wide bycatch risk assessment.
Approach: Conduct a country-by-country analysis of fishing practices and their potential impact on humpback dolphins bycatch across the species' range.

Budget estimate:
US$3,000 - 10,000.

Timeline:
12 months.

Deliverables:
Review paper or report. Layers added to HuDoNET.org map.

Actors:
HuDoNET members with in-house GIS experts to support mapping.

External stakeholders:
IWC Bycatch Initiative, SMM bycatch working group, fisheries institutions (FAO).

Implementation details:
Document spatial and temporal patterns of deployment of nearshore fishing gear, by type and effort, using a literature review, FAO frame surveys and expert engagement across the entire species range. Create maps to gauge cumulative fishing stressors, using a red, amber, green classification system (e.g. Jog *et al.,* 2024, Passadore *et al.,* 2018). Document and map existing mitigation measures. Identify hotspots for future surveys of Local Ecological Knowledge to gather greater detail.

A humpback dolphin caught in shark net in KwaZulu-Natal, South Africa
© Dave Savides

Action 5: Design a Before–After Control-Impact study and secure funding

Gap/Opportunity: Direct links between identified threats and population declines in humpback dolphins remain unclear.
Aim: To establish causal relationships between anthropogenic threats and humpback dolphins population declines.
Approach: Prepare for a targeted field study at an established study site where humpback dolphins are to be imminently affected by coastal construction or development.

Budget estimate:
US$70,000 - 100,000.

Timeline:
2 years +.

Deliverables:
Project design protocol. Funding proposals.

Actors:
One person to coordinate the project, with regional leaders connected to HuDoNET members.

External stakeholders:
Environmental Impact Assessment (EIA) consultants, companies responsible for developments, marine mammal subject specialists.

Implementation details:
1. Identify sites by engaging HuDoNET members to locate areas with imminent development threats (e.g. dredging, drilling, construction), including those flagged in EIAs or commercial scoping documents.
2. Select a priority site based on threat type, logistical feasibility, and regional conservation relevance.
3. Design a robust, standardised Before-After Control-Impact assessment (e.g. Garthe *et al.*, 2023) capable of generating longitudinal cause-and-effect data.
4. Secure funding by preparing and submitting proposals to support full study implementation.

A humpback dolphin surfacing near coastal development in Abu Dhabi

Priority Actions for Community-based Conservation (People WG)

Action 6: Link members to behaviour-change resources and training

Gap/Opportunity: There is a lack of access to resources and information regarding best practice in education and awareness.
Aim: Facilitate effective use of available resources to improve members' capacity to direct bottom-up conservation.
Approach: Improve information flow on community conservation within the network.

Budget estimate:
US$1,000 - 3,000.

Timeline:
1 year.

Deliverables:
Database and library of resources. Workshop training materials.

Actors:
A coordinator and interested HuDoNET members.

External stakeholders:
Behaviour change experts, educators.

Implementation details:
Organise workshops by behaviour change experts. Organise regular meetings to share resources (knowledge resources (papers, websites), communication resources (infographics, video clips), opportunities (workshops, funding calls), personal stories of success and failure, presentations (formal and informal). Create a database and library of the resources.

Hermie, an Indian Ocean humpback dolphin from Ponta do Ouro, Mozambique

Action 7: Test various approaches to effective education and awareness

Gap/Opportunity: There is insufficient research focused on grassroots conservation of humpback dolphins.
Aim: Increase the amount of research regarding pro-conservation behaviour within the humpback dolphin's range.
Approach: Collaboratively conduct cross-country, case-study research to evaluate different strategies.

Budget estimate:
US$20,000 - 100,000.

Timeline:
2.5 years.

Deliverables:
Table of methods being used. Funding applications. Report (publication) detailing methods tested and results.

Actors:
Members of People WG.

External stakeholders:
Behaviour change experts, communities.

Implementation details:
Identify a social scientist to collaborate with. Identify existing awareness projects within the network and catalogue their approaches. Design a project to investigate how effective similar and different strategies are in different contexts. Raise funds. Conduct the trials. Report the results.

A humpback dolphin surfacing close to mangroves
© Caitlin McFarlane / UAE Dolphin Project

Priority Actions for Formal Conservation (Policy WG)

Action 8: Review all area-based protections that encompass humpback dolphin and its habitats

Gap/Opportunity: Conservation tools such as existing spatial protection could guide future conservation recommendations for humpback dolphins.
Aim: Leverage existing spatial conservation tools to improve protection and enforcement for humpback dolphins.
Approach: Conduct a desktop review of regional spatial protections range-wide.

Budget estimate:
US$3,000 - 5,000.

Timeline:
9 months.

Deliverables:
A comprehensive report with maps, tables, and a Google Drive archive of all compiled information, available via the HuDoNET website.

Actors:
Two HuDoNET members and supported by a volunteer team representing the species' full range along with a GIS expert.

External stakeholders:
IMMA programme, KBAs, national governance agencies, IUCN.

Implementation details:
Map all spatial data on MPAs, coastal PAs, OECMs, Key Biodiversity Areas (KBAs), Important Marine Mammal Areas (IMMAs), and Ecologically or Biologically Significant Areas (EBSAs). Design strategies to harness these management measures.

A humpback dolphin carries seaweed along the Iranian coast

Action 9: Map synergies across similar marine species' conservation policies

Gap/Opportunity: Conservation tools and programmes exist to protect other, similar species.
Aim: Leverage conservation plans that already exist for other species that share humpback dolphins habitat.
Approach: Review conservation policy recommendations and actions targeting other species with similar habitats and threats.

Budget estimate:
US$1,000 - 2,000.

Timeline:
1 - 2 months.

Deliverables:
A short document featuring a comprehensive table summarizing overlapping threats, actions, and key stakeholders from other organisations and agreements.

Actors:
One or more HuDoNET members.

External stakeholders:
Other NGOs, IUCN SSC Shark Specialist Group, Sirenian Specialist Group, CMS Dugong MoU, IWC, Arabian Sea Whale Network, Indocet Consortium, Marine Mammal Research and Conservation Network of India.

Implementation details:
Review conservation policy recommendations and actions for species or species groups that overlap in habitat and threats with humpback dolphins. Identify synergies, overlaps, and complementarities that can inform and strengthen future actions for *S. plumbea*. Catalyse collaborations through the formation of a WG, or a collective agreement, aimed at advancing shared conservation objectives and moving beyond single species actions.

A group of Indian Ocean humpback dolphins sighted with a common dolphin calf in Mossel Bay, South Africa
© G Frainer / Sea Search Research and Conservation

Action 10: Produce a guidance document to incorporate humpback dolphin into Environmental Impact Assessments

Gap/Opportunity: Humpback dolphin is not frequently considered during Environmental Impact Assessments (EIAs).
Aim: Ensure comprehensive, appropriate consideration of humpback dolphins in EIAs across its range.
Approach: Develop a species-specific EIA guidance and make accessible for developers and EIA consultants.

Budget estimate:
US$10,000 - 25,000.

Timeline:
2 years.

Deliverables:
A concise, practical guidance document.

Actors:
Expert panel of HuDoNET members and other networks and other technical experts.

External stakeholders:
EIA consultants. CCAHD, CMS, IWC, Nairobi Convention, WIOMSA.

Implementation details:
1. Recruit an experienced external consultant/team familiar with relevant processes, standards and regional contexts.
2. Build an expert panel from HuDoNET, CCAHD, CMS and other technical experts to work with the consultants and review the guidance document.
3. Review existing international guidelines for considering marine mammals in development and national guidelines.
4. Add short-case studies of good EIA practice for humpback dolphins.

A pair of adults guide a newborn in Iranian waters.
© Hadi Baradari / Plan4Land

Priority Actions for Organisational Sustainability (Network Success WG)

Action 11: Design a communication strategy to engage like-minded organisations

Gap/Opportunity: Connections with other NGOs, both small and large, could be established and strengthened.
Aim: Enhance communication to facilitate collaboration with an external audience.
Approach: Improve the Network's external communication strategy.

Budget estimate:
US$2,000 - 4,000.

Timeline:
4 months.

Deliverables:
A collaboratively drafted communication strategy document. Training materials.

Actors:
Network Success WG, and possibly an external expert.

External stakeholders:
Other NGOs, networks, CMS, IWC.

Implementation details:
1. Gather information on how to design a comprehensive communication strategy.
2. Develop an external-facing strategy targeting NGOs, networks, and the general public.
3. Share newly developed communication resources and skills with interested network members through a tailored workshop.

Synchronised swimming at Tanga Province, Tanzania
© Gill Braulik

Action 12: Introduce additional within-network communication platforms

Gap/Opportunity: Less formal communication tools could enhance connections within the network.
Aim: Encourage the sharing of resources and information among members.
Approach: Increase multi-directional communication internally.

Budget estimate:
Nil.

Timeline:
1 week.

Deliverables:
HuDoNET-branded WhatsApp communication platform.

Actors:
HuDoNET Coordinator.

External stakeholders:
-

Implementation details:
Provide platforms (e.g., WhatsApp Community) for members to share opportunities, questions, successes, and failures.

Humpback dolphins in the shallow mangrove waters that are intertwined amongst the islands of Abu Dhabi, UAE

Action 13: Source long-term funds to support the functioning of the network

Gap/Opportunity: Long-term funding is required to support the structure and functioning of the network.
Aim: Ensure long-term sustainability of HuDoNET.
Approach: Develop a unified funding strategy based on shared network priorities.

Budget estimate:
US$5,000 - 12,000.

Timeline:
6 months.

Deliverables:
List of stakeholders and supporters. Multiple executive proposals.

Actors:
All WG leaders and active WG participants.

External stakeholders:
Funders.

Implementation details:
Prioritise funding needs related to these overlaps. Consider hiring a part-time professional fundraiser. Make a database of potential stakeholders. Identify opportunities (connect with fundraisers from IWC, CMS, etc). Create strong executive proposals.

A humpback dolphin leaps out the water along Mayotte's volcanic coastline
© Ardani Daoud / Ceta'Maore

Conclusions

HuDoNET's overarching aim is to galvanise conservation action for the Indian Ocean humpback dolphin across its range. The aim of the process reported here was to collaboratively identify network actions, in a rigorous fashion, to get closer to that goal. Network members collaboratively identified priority actions using a systematic approach. The result is thirteen achievable, short- to medium term Priority Actions with indications of the actors, timelines and resource requirements. The Network Action Plan provides a practical pathway from shared intent to coordinated implementation. It will guide activity over the next few years, support the acquisition of fit-for-purpose data at appropriate scales, strengthen collaboration within the network, and position HuDoNET to develop a longer-term, outward-facing Species Action Plan.

The process of compiling information on this complex social-ecological system has helped build connections among a wide, culturally diverse, and geographically dispersed group of individuals and institutions that belong to HuDoNET and set interdisciplinary targets. This collective effort represents a critical first step toward catalysing effective conservation action for the Endangered Indian Ocean humpback dolphin across its global range.

A humpback dolphin spyhopping in northwestern Madagascar

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HuDoNet members attending the Conference on the Biology of Marine Mammals in Perth, Western Australia

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Partners and Supporters

Thank you to our many partners and supporters.

Young humpie, spyhopping in the Richards Bay harbour, South Africa
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Appendix 1: Additional Gaps and Opportunities Identified by Working Groups

Biological Research WG

Data gaps regarding spatial, temporal and population patterns:

- Knowledge of home ranges and residency (affects impact and response to threats)
- Population size and distribution at high resolution and current estimates
- Trends in abundance
- Identification of refugia (places with large numbers and low threats that should be conservation priorities)
- Identification of areas of highest concern (high numbers/high impacts, e.g. port expansion/bycatch)
- Understanding of how habitat preferences change throughout the range
- Require combined visual/acoustic data to train species identification models for Passive Acoustic Monitoring studies for presence/absence, abundance
- Taxonomy/range - Is the potential difference between N and S *Sousa* real? (either side of Oman) and Eastern range of the species - into Bay of Bengal

Data gaps regarding anatomy, life history, diet, and genetics:

- External assessment/indicators of health and body condition (e.g. 'fatness' from photographs and drone studies)
- Spatial and temporal variation in diet
- Age - growth relationship
- Data on fecundity, calving rates and seasonality, etc

Data gaps regarding biological responses to threats:

- Physiological and behavioural impacts of various chemical contaminants
- Sensitivity to underwater noise
- Causes of mortality in stranded animals
- How the above varies across the range

Data opportunities and potential resources available to fill gaps:

- Compile a list of databases of strandings and sightings which could be accessed for modelling
- Create a google folder with photographs to assess country-by-country various in phenotypes/external morphology/colouration
- Explore citizen science and social media platforms to gather data from data-deficient areas
- Databases -- build catalogue of samples available (genetics, skulls, etc)
    - Databases -- PUBLIC: iNaturalist, OBIS etc
    - Databases -- PRIVATE - e.g. Kenya, Oman, marinemammals.in, All out Africa Mozam, RSA Strandings in WIOMSA paper (also DFFE, MRIWU, Bayworld)

Threats and Solutions WG

Gaps regarding specific threats:

- Conduct water quality tests in humpback dolphin habitat
- Improve understanding of the severity of the threat of untreated sewage and solid waste (plastics, etc) discharged into coastal waters
- Gauge the impact of offshore oil spills coming ashore as tarballs
- Investigate the impact of noise pollution on humpback dolphins from different types of boats, construction, oil and gas exploration and extraction, etc
- Impact of different building methods on humpback dolphin populations

Gaps regarding mitigation:

- What are effective bycatch reduction methods for the coastal gillnet fisheries that result in humpback dolphin bycatch?
- How can we mitigate negative effects of construction and coastal development?
- What data do developers require to best mitigate the negative effects of construction projects?

General:

- Develop methods to compare relative severity among threats
- Unclear information on how to directly link threats to IOHD decline
- Counteract the lack of inclusion/recognition of humpback dolphins in EIAs
- How do refuge areas improve humpback dolphin numbers and where should corridors be recommended?

People WG

Gaps in evidence & methods:

- Lack of peer-reviewed published information
- Lack of standardisation of methods across regions/within countries
- The elusive nature of humpback dolphins makes citizen science difficult
- Validation of citizen science or third-party information required due to data gaps/ methodology flaws
- Lack of attention to bottom-up conservation in marine research projects

Gaps in training, capacity & resourcing:

- Lack of access to training to optimise bottom-up conservation
- Lack of consistent, long-term, progressive training & capacity building (disentanglement, stranding response, voluntary reporting, evidence collection)
- Little engagement with social scientists/conservation psychologists
- Lack of funding for non-university-linked grassroots initiatives; limited capacity building for committed citizen scientists
- Opportunity: Build training pipelines for fishers/coastal communities and non-tertiary citizen scientists

- Opportunity: Partner with tourism operators as amplifiers for citizen reporting and behaviour change

Gaps in stakeholder engagement & co-management:

- Minimal co-operation between fishers, scientists and authorities
- Lack of structured/formal bottom-up strategies (co-management/co-governance)
- No consistent linkage between policy-makers, researchers and coastal communities at institutional level
- Little or no work with tourism industry to transform operations under robust licensing/permits
- Opportunity: Engagement of stakeholders beyond coastal users (rivers/lagoon conservancies) to leverage their networks
- Lack of long-term plans with clear objectives (e.g. National Cetacean Action Plans)

Gaps in communication, education & cultural dimensions:

- Lack of definitive Calls to Action; unclear how communities can contribute
- Lack of clarity on who target societal groups are
- No tailored education/awareness for varied groups (authorities, citizens, fishers, coastal communities, temporary residents)
- Poor science communication
- Language & cultural barriers between researchers and community
- Lack of awareness of the ecological significance of dolphins by communities
- No mention of marine/dolphin conservation in school/college curricula
- Little documentation/preservation of Local Ecological Knowledge (LEK)
- Minimal inter-generational/interactive sessions to pass LEK to youth
- Opportunity: Identify and harness cultural significance of the species for conservation across the range
- Opportunity: Tailored, plain-language toolkits and clear Calls to Action for each audience
- Opportunity: Raise awareness amongst fishers of the newly-formulated Endangered, Threatened, or Protected legislation relevant to fishing operations

Gaps regarding socio-economic & behavioural aspects:

- Demand for bushmeat reduces fisher reporting of strandings/bycatch
- Unique local settings (e.g., UAE fishers supportive vs many other states), creating uneven engagement baselines
- Prevalence of outdated thought processes/methods/gears (belief in inexhaustible ocean & natural recovery)
- Opportunity: Context-specific social-science inputs are required to address incentives/norms

Monitoring, evaluation & learning gaps:

- Require yardsticks to measure success for each societal group
- Lack of well-defined rubrics for evaluating bottom-up conservation success
- Opportunity: Replicate success stories from other species (e.g., African Penguin) via well-designed campaigns

Policy WG

Global & regional advocacy and partnerships:

- Representation and involvement of HuDoNET with IWC Strandings Initiative
- Representation and involvement of HuDoNET in IWC Bycatch Initiative
- Seek linkages or guidance from the IWC Chemical Contaminants Initiative re issues of *S. plumbea* and pollutants
- Seek linkages with IWC Indian Ocean Sanctuary at IWC
- HuDoNET to attend IWC and report to IWC at each meeting
- Prepare a CMP proposal in time for IWC Scientific Committee Meeting in 2026
- Work with CMS to prepare a Concerted Action on Humpback dolphins (with IWC?)
- Work to move *S. plumbea* from Appendix II to Appendix I of CMS
- Engage with Nairobi Convention and Attend Annual Science to Policy Meetings and the COP
- Work to build links with IORA to address Port Development and coastal dolphins
- HuDoNET to collaborate with IndoCet and ASWN and IWC to attend the September 2025 IOTC Ecosystems and Bycatch Meeting and consider advancing a motion
- Prepare a draft Motion for the IUCN World Conservation Congress on humpback dolphins/coastal dolphins in Africa/Indian Ocean

National alignment & legal instruments:

- Compile National Protections by country and look for inconsistencies or gaps with International Obligations
- National Red lists - asses listing of *S. plumbea* on national lists and ensure these are consistent with global red list, and that they are reviewed and updated
- Add *S. plumbea* to list of endangered species listed on the US Marine Mammal Protection Act
- Produce a guidance document on how to consider humpback dolphins in EIAs (reviewing existing guidelines for marine mammals generally and legislations)

Evidence & capacity to influence policy:

- Collaborate with the Threats and Solutions WG to Conduct a desk-based study to explore overlap between croakers and croaker fisheries in S. plumbea range states
- Collaborate with the Threats and Solutions WG to Conduct a desk-based study to explore overlap between nearshore shark and ray fisheries in S. plumbea range states
- Review other species CMS Concerted Actions, Single Species Action Plans, and MOUs on dugongs, sharks and rays, and threatened coastal species to seek synergies and complementarities in future actions
- Recruit a person or group of people with Policy experience to help advance policy initiatives
- Conduct activities to increase knowledge among HuDoNET members regarding existing policies and guidelines, and how to influence, lobby for or create future policies

Network Success WG

Collaboration:

- Design a communication strategy to external audience
- Establish linkages to other networks operating in the area
- Establish linkages to other NGOs, big and small
- Source communication training, including media training, for broader communication.
- Source communication training for funders, e.g. larger corporations

Communication - Internal:

- Establish informal communication tools within the network
- Design a strategy to ensure smooth collaboration within the network
- Ensure an active JEDI (Justice, Equity, Diversity and Inclusivity)

Communication - General:

- Host monthly webinars, not only formal science but also stories and experiences
- Host a shorter structured webinar series

Fundraising:

- Source long-term funds for the structure/functioning of the network
- Design a fundraising strategy
- Source initial funds for a fundraiser (who also trains in fundraising)
- Source funds for projects that benefit all members (e.g. symposium).
- Establish a committee to help members strengthen proposals
- Offer training to facilitate building bridges with business