PACIFIC REGIONAL MARINE SPECIES PROGRAMME - WORKSHOP SERIES REPORT 28 JULY – 3 AUGUST 2021

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Regional Marine Species Programme and Action Plans Workshop Series

28 July-3 August 2021

Contents

Summary

The five-day Regional Marine Species Programme meeting series took place between 28th July and 3rd August 2021, online. Nearly 200 people registered for one or more of these meetings with between 83 and 100 participants signing in each day. Member country participants attended from American Samoa, Australia, Fiji, France, French Polynesia, USA(Hawaii), New Caledonia, New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, United Kingdom, United States of America (mainland), Vanuatu, and Wallis and Futuna.

SPREPs' previous plan – Pacific Islands Regional Marine Species Programme 2013-2017 contained Action Plans for three species groups Dugong, Marine Turtle and Whales and Dolphins. This has now been extended to Sharks and Rays – first added in 2018 and now our first Regional Action Plan for Seabirds.

Each Action Plan meeting was held on a different consecutive day for 4 hours. The format was a series of expert or country presentations followed by breakout room discussions with participants asked to consider specific questions posed during these discussions. In particular, suggestions on additions to the action plans were recorded. Where suggestions were not already included in actions in the plans, these have been added to the plans, where appropriate. A short summary or abstract for each of the presentations is provided in the report and links to the recordings and presentations will be made available on the SPREP library through the SPREP website.

The meeting was introduced by Mr Stuart Chape, Director of Island and Ocean Ecosystems, SPREP. Two presentations were given to open the meeting. Ms Hannah Hendriks on secondment from the New Zealand Department of Conservation to SPREP gave a presentation on the Review of the 2013-2017 action plans which she coordinated during the previous 12 months. This self-reporting review was intended to assist with an understanding of the effectiveness of the plans in providing regional guidance as well as implementation progress. Ms Lagi Reupena from SPREP's Inform Project presented on the Inform reporting tool as a potential option for future reporting on the Regional Marine Species Programme (RMSP). This tool aims to simplify reporting processes and reduce reporting burden. It is designed for reporting on MEAs but could be adapted to support reporting on the RMSP.

The Dugong Action Plan workshop was moderated by Dr Peter Davies (SPREP, IOE). A presentation by Dr Christophe Cleguer highlighted the lack of baseline data on dugong population status and trend across the Pacific (except for Australia). Presentations from each of the Dugong Range States were given and a video presentation from the Dugong MOU Secretariat.

Some useful suggestions were provided in the breakout groups to the action plan, including for example the idea of setting up dugong monitoring networks in communities across countries, similar to the ones that have been successfully established for marine turtles. Discussions on what the major threats to dugong are included poaching, boat collisions, gill netting, coastal development and habitat destruction. A wide range of capacity needs were identified and are included in the report below.

The Seabird Action Plan workshop was moderated by Ms Margaret West, Director of the Pacific Secretariat for BirdLife International. Dr Stephanie Borrelle provided an introductory overview of seabirds in the Pacific. This was followed by a series of presentations and videos highlighting current seabird conservation work happening across the Pacific. Dr Borrelle also provided a review of threats to seabirds advising that seabirds have declined faster than any other taxonomic group of birds over recent decades. Their dual lifestyles on land and at sea place them at risk from many human-

generated pressures. Further presentations also talked about threats from invasive alien species and the work of the Pacific Regional Invasive Species Management Support Service (PRISMSS) in supporting a predator free Pacific including some proposed work in French Polynesia to eradicate rats from the islets of Rapa to protect endangered seabirds such as the Kakikaki Rapa shearwater. Mr James Nagan from BirdLife discussed their work on a Port-Based Outreach Programme to support implementation of seabird bycatch mitigation on longline fishing vessels in the Pacific. Future opportunities for capacity development on seabird monitoring and database management were presented by Ms Karen Baird (SPREP) and Mr Mark O'Brien (BirdLife).

Breakout groups discussed gaps in the draft plan and provided some additional suggestions for the plan. These are captured in the meeting report below. Threatened species discussed in the groups and threats they face included the collared and wedge-tailed shearwater, the New Caledonian storm petrel, Fiji Petrel, Becks Petrel and the Vanuatu petrel. The lack of data on many of these species including where they breed was discussed.

The Marine Turtle Action Plan workshop was moderated by Ms Juney Ward (SPREP, IOE). Dr Nicolas Pilcher gave an overview of the conservation status of marine turtles and threats in the Pacific. He explained the challenges of counting and monitoring turtles and gave an overview of a turtle extinction risk project that he is leading through the By-catch and Integrated Ecosystem Management Initiative being implemented by SPREP. This project will take into account a wide range of marine turtle data gathered over many years as well as new data on direct harvest rates and other parameters such as nest site temperature. It is hoped this information will assist in design of management and conservation programmes. Eight further presentations covered the work of the IUCN/SSC Marine Turtle Specialist Group, TREDs, NOAA's work in the Pacific, use of DNA to track illegal harvest, turtle cooling efforts in PNG, turtle tracking in New Caledonia and conservation efforts in the Solomon Islands. Further actions for the action plan were discussed and have subsequently been added to the plan. Priority threats to marine turtles discussed included overharvesting of turtles and eggs and poaching, coastal development and climate change. The need for continuous ongoing training on turtle monitoring and resourcing was highlighted in the discussion groups, amongst other issues which are outlined in the report below.

The Sharks and Rays Action Plan workshop was chaired by Mr Vainuupo Jungblut (IOE, SPREP). Dr Andrew Chin gave a presentation on the conservation status and threats to sharks in the Pacific. He highlighted the large number of species and lack of knowledge on their distribution and populations across the Pacific. A project that he is involved in is attempting to fill knowledge gaps- the Shark Search Indo-Pacific building profiles for each country and territory in the Pacific. Deep sea sharks are a major gap. Five further presentations touched on mobulid conservation, sawfishes in the Kikori Delta, PNG and effectiveness of current conservation measures including shark sanctuaries. Discussions in the breakout groups included some gaps in relation to threats from fishing such as enforcement, improving mitigation and post release survival. Capacity needs discussed included resources to commit to scientific studies and to support students, public awareness and greater cooperation between NGOs and communities.

The Whale and Dolphin Action Plan workshop was moderated by Mr Michael Donoghue. Dr Cara Miller opened with a discussion on the conservation status of whales and dolphins in the Pacific based on a new review she is conducting on Pacific cetaceans. More than 30 species are supported across the region including large migratory baleen whales which use the region for breeding to small dolphins which may be found year-round in coastal areas. Cara advised that the most serious threats to cetaceans in the region are incidental catch and fishing gear interactions, direct harvesting and pollution. A key looming threat is deep-sea mining. A further eight presentations covered the new

'Strandings of Oceania' database, responding to large whale entanglements, the IWC by-catch Initiative, Important Marine Mammal Areas, Kikori delta inshore dolphin by-catch, responsible whale-watching and whale watching in the Kingdom of Tonga and Fish Aggregation Devices in the Tuna purse seine fishery. The breakout groups provided feedback on key issues and one new action was added to the plan in relation to the benefits of protecting whale populations to mitigating climate change. A wide range of threats were discussed for each country with suggested actions proposed. For instance, use examples from other countries to address gillnet fisheries such as gear modifications and timed area closures in collaboration with communities. The final question addressed the existence of stranding networks and training. Almost all countries advised of the ongoing need for assistance with establishing networks, protocols and training in response to strandings.

Introduction to the meeting series

Opening statement

Address by Mr Stuart Chape, Island and Ocean Ecosystems Director, SPREP

It is my pleasure to welcome you to this 5-day review meeting of the 2022-2026 Pacific Islands Regional Marine Species Action Plans.

The combined plans will replace the previous Pacific Islands Regional Marine Species Programme 2013-2017, which built upon the previous plans for 2003-2007 and 2008-2012.

I want to acknowledge that this 2013-2017 programme was dedicated to the memory of Lui Bell who was the SPREP TAMSA for seven years, but spent his whole professional life devoted to conservation of marine species in the region, and much of what we are doing today is a legacy of his dedication.

The five action plans that you will review and discuss at this meeting cover Dugongs, Marine Turtles, Seabirds, Whales and Dolphins and Sharks and Rays. It is pleasing to see that seabirds are now included because this has been a significant gap.

The plans cover 8 themes: Research and Monitoring, Climate Change, Ecosystems and Habitat Protection, Threat Reduction, Cultural Significance and Value, Legislation, Policy and Management, Ecotourism and Livelihoods, and Capacity Building and Collaboration.

The meetings that we are launching today provide an opportunity for our Members and partners to both update and be advised on the latest in research and conservation action happening in our region for these critical species groups. It is also an opportunity to discuss our final draft action plans and provide any further comments or ideas to assist us in finalising these plans after the meetings are finished. They will then be made available for final endorsement by our members and be published, printed and available on the SPREP website.

The SPREP region covers more than 30 million km2 of the Pacific Ocean – in its entirety the largest continuous marine habitat on the planet.

All the species groups in the action plans play a significant ecological role in the functioning of coastal and oceanic habitats and ecosystems. For example, the importance of nutrient runoff from seabird colonies to the health of coral reef ecosystems is a case in point.

Marine species are also recognised as being a fundamental element of Pacific islands culture and heritage. Many island cultures have legends, stories and traditional uses of marine species, which highlights the importance of these animals to people's identities, way of life and heritage.

Although whale species have made a significant recovery in the region after being driven to the edge of extirpation in this region, the picture is not so good for other marine species, many of which are listed as threatened or endangered. Their contributions to ecosystem services and livelihoods is also increasingly under threat.

In this respect, we can regard marine species as messengers of the impacts on the health of ocean and coastal ecosystems – oceanic 'canaries in the coalmine'. And the protection and, where necessary, recovery of populations of migratory species is critically linked to maintaining a healthy Pacific Ocean, especially with regard to marine pollution, over-fishing, fisheries by-catch and abandonment, lost or discarded fishing gear including poor management of Fish Aggregation Devices, and climate change.

Not only are we stilling failing to address these critical existing issues, but we have also failed to learn our lessons as it seems we are about to embark on the systematic destruction of deep-sea ecosystems through mining, with unknown consequences for many species that inhabit these poorly understood environments, including migratory whales and sharks.

The need to address these critical issues is articulated in the overall vision for the Regional Marine Species Action Plans, which sets a challenge for us all:

'A healthy Pacific Ocean with thriving populations of whales, dolphins, marine turtles, dugongs, sharks and rays, and seabirds and the associated ecosystems on which they depend, which assures the aspirations of Pacific Island peoples and protects their natural and cultural heritage.'

And with that, I wish everyone a productive series of meeting over the next five days.

Thank you

Presentation abstracts

1. **Review of 2013-2017 action plans**
   Hannah Hendriks, NZ Department of Conservation secondee to SPREP, Migratory Marine Species Conservation Officer

The New Zealand Department of Conservation funded a secondment to SPREP to consult with Pacific Island countries and territories and complete the Pacific Island Regional Marine Species Programme and Action Plans. Implementation tables were created for the dugong, turtle, and whale and dolphin action plans and countries were requested to have video consultations to discuss what actions they have undertaken since 2013 under the various themes. We also wanted to gather feedback on the action plans to take forward into drafting new plans for 2022-2026. This implementation review was focused on Pacific island countries and territories only, not SPREP or metropolitan partners. It was designed to be a self-reporting exercise, so the review is likely to be incomplete. To make it easier, we pre-filled implementation tables for each country with activities that had already been reported on at meetings such as the Whales in a Changing Ocean conference (2017) and the Dugong and Seagrass workshop (2018). This presentation briefly discusses this process and results. The report of this implementation review summarises information that was able to be obtained from each member country and is available on the SPREP website: https://www.sprep.org/ioe/regional-marine-species-programme.

2. **Environment data portal and indicator reporting tool**
   Ms *Lagi Reupuna, Inform Project Environmental Data Officer, SPREP*

Knowledge and understanding are important for driving and bringing about informed decision making. The project, "Building National and Regional Capacity to Implement Multilateral Environmental Agreements by Strengthening Planning and the State of Environmental Assessment and Reporting in the Pacific", referred to as the Inform project, recognises the need for this data-driven decision making. It has established a Pacific Island network of national and regional data repositories and reporting tools to support the monitoring, evaluation, and analysis of environmental information, which supports environmental planning, forecasting, and reporting requirements.

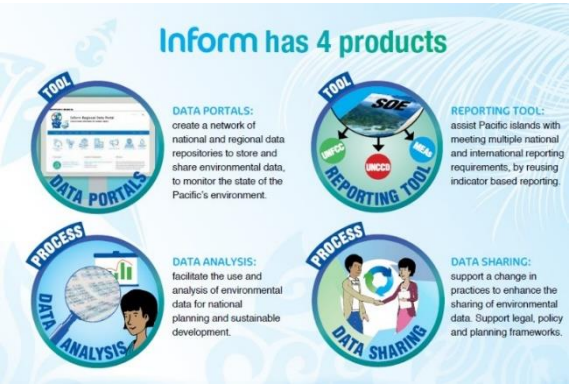
Why Inform?

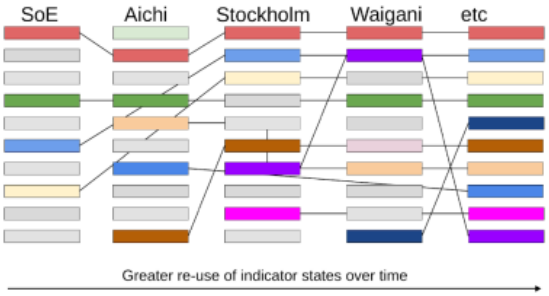
The project addresses 3 common problems and vulnerabilities in the Pacific Island region:

1. The need for historical and current evidence of the status and trends of various environmental resources and drivers of environmental change.
2. Challenges with information management, including the need for standard procedures for collecting and aggregating relevant environmental data.
3. Lack of timely access to available information by those who need it, including local technical staff, governments, or communities and citizens, for national and international reporting and planning, and most importantly, for sound and informed decision making.

Countries: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Republic of the Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

Tools:





1. Pacific Environment Portal access and house data from various international sources and push this data to populate national portals. The development of national environment portals and the regional data portal supports and promotes open data systems for improved data sharing.
2. **Indicator Reporting Tool** - aims to simplify reporting processes and reduce reporting burden. The tool can be used for multilateral reporting obligations such as MEAs (Multilateral Environmental Agreements) as well as national and state-based indicator reporting. It is targeted towards government officials responsible for compiling and producing indicator-based reports.

Dugong Action Plan Workshop

Presentation abstracts

1. **Conservation status of dugong and threats in the region**
   Dr Christophe Cleguer, Centre for Sustainable Aquatic Ecosystems

Dugong are present in five range states in the Pacific islands region: Palau, Papua New Guinea, Solomon Islands, Vanuatu and New Caledonia. They are also present in Australia. Dugong are vulnerable to extinction at the global scale (IUCN Red List) however their status across the Pacific remains mostly unknown (except for Australia) due to a lack of baseline data. Research into the movements and connectivity of dugong in the region show that there are possible long-range migratory patterns, there are local-scale seasonal adjustments in habitat use, and mass movements are more likely as a response to climatic events. Some advances in survey tools have occurred to assist with monitoring, particularly for aerial surveys and tracking studies.

2. **Australia dugong conservation update**
   Ms Karen Arthur, Australian Department of Agriculture, Water and the Environment

Dugong (*Dugong dugon*) are distributed throughout coastal waters of northern Australia from Moreton Bay (Queensland) to Shark Bay (Western Australia). They are monitored through regular standardised aerial surveys and baseline estimates are available for most of their Australian range. Dugong are the most abundant marine mammal in the waters of northern Australia, with the largest population of dugong in the world found in the Torres Strait. In Australia, dugong are of great cultural and economic significance for many Indigenous and Torres Strait Islander communities. As such, dugong are managed through both law and traditional lore. Dugong are protected under Australia's national environmental law, while the native title right to hunt is enshrined in the *Native Title Act 1993*. Various agreements, such as Traditional Use of Marine Resource Agreements (TUMRAs) and community-based management plans, recognise the importance of dugong to Indigenous Australians and Torres Strait Islanders and provide for joint management that integrates both traditional use and contemporary science and management approaches. These agreements are often implemented by Indigenous Rangers, many of whom have been trained in compliance and enforcement. Dugong are also protected through marine protected areas. These include areas designated within marine park planning zones as special management areas for dugong. For example, the Great Barrier Reef Marine Park Dugong Protection Areas, or the Queensland Go Slow Zones cover important dugong foraging habitat. Important dugong habitat is also recognised through Biologically Important Area (BIA) designations developed under the Australian Bioregional Planning Process. BIAs are areas where aggregations of dugong are known to display biologically important behaviours such as breeding, foraging, resting or migration. These areas were identified in 2012 and information underpinning their designation is currently being updated using the recently agreed IUCN International Marine Mammal Areas (IMMAs). Future management of dugong along Australia's Pacific coast will be guided by the Reef 2050 Plan, which identifies the need for 5 yearly aerial surveys; protection of key dugong habitat; support and expansion of TUMRAs; and reduced adult mortality due to other threats such as boat strike and net entanglement.

3. **New Caledonia**
   Morgane Viviant, Coordinator of the New Caledonia Dugong Action Plan

The New Caledonia population is around 750 individuals and likely declining. It is an isolated population. The main threats to dugong here are poaching, bycatch, vessel collision, and habitat

degradation. Data collected from strandings has contributed to knowledge on threats to the local dugong population. New Caledonia has been implementing the previous dugong action plan and have achieved many actions such as a population census from 2018-2019 and awareness raising through schools and information stands. New Caledonia is hoping to mobilise more funding and resources to implement the action plan going forwards.

Dr Claire Garrigue, Scientist at the Institute for Research for Development (IRD) – New Caledonia

There have been several research projects conducted on dugong in New Caledonia. Firstly, the SIREN project, watching from above. This project used drones to investigate dugong spatial behaviour in coral reef ecosystems of New Caledonia. The drones were able to detect dugongs and assess densities. We also used satellite telemetry to study movements and habitat use (following on from a 2012-2015 study). This study showed that they used shallow and nearshore waters preferentially at night and low tide. The project also involved watching from below with deployments of a multi-sensor high resolutions CATS tag to assess diving patterns and better understand fine-scale activity budgets. Secondly, the GRASS project for genetic and trophic analysis of dugongs in New Caledonia used samples from strandings and tagging programmes to look at genetic diversity and isolation of the population. Finally, we hope to do some work on the missing piece of the puzzle, seagrass, using historical data and citizen science.

4. **Papua New Guinea**
   Vagi Rei, CEPA

The management of dugong in Papua New Guinea occurs under the Marine Programme (2019-2023), particularly goal 5: Threatened Species Status Improving. Threats to dugong in Papua New Guinea include over hunting/over fishing, frequently caught to sell/income, commercial demand, continuous use of nets on reefs, accidental netting, dynamite fishing, and an increase in human demand/population in the provinces has put a strain on the marine resources. Land-based pollution, especially from the logging, agriculture and mining activities has affected the overall marine ecosystem in one way or another. A Dugong and Turtles workplan has been developed outlining actions to take over the next couple of years:

- Assess the catch of the dugongs by the small-scale fishers.
- Survey of dugong use by communities.
- Dugong regional consultation for NPOA.

Papua New Guinea are also in the implementing stage of developing the National Plan of Action for Dugong and Marine Turtles, thus have a draft management plan for dugongs.

5. **Solomon Islands**
   Video, Mr Josef Hurutarau, Deputy Director Conservation, MECDM

Dugong in the Solomon Islands are managed by Ministry of Fisheries and Marine Resources (MFMR) and Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) as the lead agencies. Dugong occur in six provinces. In some places the dugong are revered as tribal totems, and have cultural stories attached to them. They aren't common in the diet of local peoples but may be opportunistically hunted. Challenges identified for dugongs in the Solomon Islands include coastal development (logging, ports and wharves, destruction of mangroves, sedimentation), marine pollution, shipping lanes, limited awareness and education, traditional hunting, fragmented baseline data, gaps in laws and policy.

The Solomon Islands signed the Dugong MOU in 2010 and endorsed and implemented the FED Dugong and Seagrass Conservation Project (2015-2018) which resulted in improved information and data on seagrass and dugong, improved coordination, integration of art, songs, stories and dances in communication, a National Dugong Conservation Strategy, and new fisheries regulations protecting dugongs.

6. **Vanuatu**
   Ms Christina Shaw, VESS

This presentation outlines the dugong conservation and law enforcement activities that have taken place in Vanuatu since the beginning of the SPREP regional dugong action plan 2013 to 2017. Vanuatu participated in the global GEF-funded Dugong and Seagrass Conservation project and undertook a questionnaire to update the distribution data and the understanding of threats to dugongs. Dugong hotspots were identified, and awareness activities were carried out. Guidelines for interacting with dugong were developed to reduce the impact of inappropriate tourism. The Department of Fisheries have issued penalty notices when the regulation protecting dugongs were breeched.

7. **Dugong and Seagrass Secretariat**
   Video, Donna Kwan, Dugong MOU

The Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range came into effect on 31 October 2007, with 46 Range States and 27 Signatory States. All of the Pacific range states are signatories to the MOU, as well as Australia. The MOU promotes internationally coordinated conservation actions, and holds Meetings of Signatories' every three years, the next in 2023. Conservation actions under the MOU are guided by the Conservation and Management Plan which has nine objectives and suggested actions. The MOU also focuses on conservation of seagrass which is essential to dugongs. We are also now broadening the focus from single species/habitat conservation to consider communities and ecosystem-based management.

The Dugong Technical Group has developed the Dugong and Seagrass Research Toolkit which is a decision support tool for research with a purpose to standardise data sets and methods across countries, allow for better comparison of global dugong and seagrass conservation status, and to ensure that researchers consider the connectedness of dugongs, seagrass, and human communities. Some specific projects the MOU has been involved with include the GEF Dugong and Seagrass Conservation Project (2015-2019) and the IKI Seagrass Ecosystem Services Project (2019-2022). We also launched the Dugong and Seagrass Hub on World Seagrass Day 2021.

Breakout groups

Question 1: Are there any significant gaps or changes you would like to see in the action plan?

Many responses were considered to already be captured within either the Multi-Species Action Plan or the Dugong Action Plan so these are not repeated here, the complete feedback from breakout groups is available in Attachment 1, including references to the Programme where we believe the suggestion is already captured. Gaps and changes identified in this exercise are outlined below, including SPREP's response:

- Establish dugong monitoring networks across countries, something like the Vanua Tai network in Vanuatu. Add to 8.1.1.

- Interoperability across national and regional databases. Add to C.1/C.2.
- Consider longer timeframe for reporting rather than annually as this is quite arduous for countries. Adjust C.5 and C.7.
- Species names should also be provided along with their scientific (latin) names to avoid confusions and "false-friends". Add throughout programme.
- SPREP to consider developing risk extinction/status models for dugongs similar to the BIEM project for turtles. Add new action.

Question 2: What are the two greatest threats to dugong in your country, what priority actions would you recommend to address these, and within what timeframe?

- **New Caledonia: poaching and collisions with boats**
    - Action: carry out a survey in tribes to better understand the use of dugong in the Kanak culture and raise awareness on poaching.
    - Action: education, awareness, policing - as soon as possible/already in progress.
    - Action: understand what is pushing communities to harvest.
    - Action: outreach to sea users, spatial planning of "go slow zones" in areas of high dugong density/use.
    - Poaching should be prioritised.
- **Vanuatu: gill netting and marine traffic disturbance on habitat**
    - Action: Education on setting nets e.g. tabu on setting at night or leaving nets unattended, bans (either national or via LMMA). This should start immediately but will take some time.
    - Action: Marine spatial planning.
- **Vanuatu (Christina Shaw): Coastal development** – often in sheltered coastal areas – prime dugong habitat. Increasing road building is opening up more habitat to development
    - Action: planning for coastal areas that are opened by infrastructure development. Needs to happen ASAP.
    - Action: Capacity building of planners and development partners to make sure that development down the line from these big projects won't impact fragile habitats and species
- **Papua New Guinea: Increase in human demand/population** in the provinces has put a strain on the population of dugongs e.g. more gillnetting, bycatch
    - Action: use of mobile phones for dugong catch, can be used to help pinpoint areas for enforcement.
- **Solomon Islands: Local harvesting and habitat destruction**
    - Action: Conduct awareness raising and campaigns on the regulations, enforcement – making it taboo, threat of fines, community-based resource management.

Full feedback is available in Attachment 1.

Question 3: What technical and capacity needs are there which could be addressed through increased collaboration/cooperation between countries and researchers? What opportunities are there?

Some of the technical needs identified by meeting participants include: identifying regional populations, how to effectively reduce boat strike in critical dugong areas, collating DNA samples across range states, support for low tech assessment techniques.

Some of the capacity-related needs identified include: school curriculum support, effective ways of engaging the community, how to respond to strandings, lack of experienced scientists, skills to apply

for funding, long-term relationships with institutions and technical groups, training for dugong monitoring networks, how to involve traditional owners in management.

Various opportunities were identified as ways of addressing these needs: sharing of success stories, sharing of community-based management plans, Eyes and Ears programme (building capacity in compliance and enforcement), collaboration between Partners, multi-year programmes that continue on from each other, regional exchange or learning programmes and sessions, collaborative funding applications, activities that oil and gas companies can support as promoting PPP, Clearing House Mechanisms, a Centre of Excellence, a coordinator for each species group, international working groups to develop data flows across regional/national databases.

Full feedback is available in Attachment 1.

Seabird Action Plan Workshop

Presentation abstracts

1. **Seabirds of the Pacific**
   Dr Stephanie Borrelle, Birdlife Pacific

This presentation is an introductory overview of the seabirds the Pacific, including their IUCN Red List conservation status. It will touch briefly on the main threats to seabirds in the region and the importance of conservation actions to prevent continued population declines and set the scene for the Seabird Action Plan Priorities.

2. **Frigatebirds of the Pacific, threats and conservation status**
   Professor Randolf Thaman

Professor Thaman's experience and knowledge of Pacific seabirds and their ecology is second to none. His presentation is centred on frigatebirds, and that they are the most appropriate symbolic masthead, centerpoint or talisman of seabird conservation in the Pacific region. Frigatebirds are a keystone top-predator, indicating the health of island ecosystems and a cultural indicator for Pacific Peoples. Of the five species globally, three are found in the Pacific. Professor Thaman stresses the need for "Holistic Frigatebird and Seabird Conservation", seabird conservation that embraces ALL species AND, perhaps just as important, the conservation of distinct threatened populations on individual, often uninhabited islands, as a basis for protecting both the "natural" and "cultural" health and stability of Pacific island and ocean ecosystems.

3. **Cultural significance – update on Vanuatu collared petrel harvesting and making harvest sustainable**
   Video and Dr Mark O'Brien, Birdlife Pacific

First, a short video made in 2016 by Birdlife International and local partners tells the story of the community's relationship with Vanuatu collared petrels and harvesting. Next, Dr Mark O'Brien (Birdlife International) provides an update on the current situation for conserving collared petrels and ongoing work that will ensure sustainable harvesting practices for future generations.

4. **Highlighting Pacific Partnerships**
   Video

In this short video we highlight a few of the projects and Pacific partnerships that are working on conserving seabirds in SPREP member countries. These include community, environmental NGO, governments, and the academic and private sectors. These collaborations are working to learn more

about cryptic species, identify breeding sites, eradicate invasive predators from known breeding sites, ensure sustainable harvesting practices and raise awareness about unique Pacific seabirds.

5. **Monitoring seabirds on Rarotonga and Suwarrow**
   Ms Alanna Smith, Te Ipukarea Society, Cook Islands - Video

The Te Ipukarea Society (TIS) was established in 1996 and is the Birdlife partner in the Cook Islands. Over the years, they have done extensive conservation work in the country, monitoring and surveying seabirds nesting sites and population size, as well as providing valuable insights into the impacts of conservation projects on seabirds. In addition to their impressive work with seabirds, they also work on assessing the impacts of Invasive Alien Species on society and biodiversity and implementing biosecurity management. In this video, Alanna Smith, TIS' Conservation Program Manager, details some of the work they are currently implementing in the Cook Islands, including piloting acoustic surveys in Rarotonga and Mangaia, as well as insights into some of the work they are currently conducting in their Northern Group Islands voyage.

6. **Threats overview**
   Dr Stephanie Borrelle (Birdlife International)

Seabirds are top predators, making them crucial indicators of the health of a marine ecosystem. In this presentation, Dr Borrelle explains that they are sending us an alarming message–seabird populations have declined faster than other bird taxonomic groups over recent decades. Shearwaters and petrels are one of the most endangered groups of seabirds. These remarkable species are characterized by long ocean journeys for migration and feeding, and a dependence on islands to safely breed and raise young. This dual lifestyle places them at risk from many human-generated pressures. This presentation is a brief overview of the threats that seabirds face at their breeding sites on land, and threats they face at sea when foraging and migrating, with a focus on Pacific specific anthropogenic impacts.

7. **Seabirds and plastics in the Pacific**
   Dr Jennifer Lavers, University of Tasmania

Dr Lavers is a Lecturer in Marine Science at the Institute for Marine and Antarctic Studies in Tasmania. She is a marine eco-toxicologist with expertise in tropical and temperate seabird ecology, plastic pollution (marine debris), and invasive species management. In this presentation, Dr Lavers shares her research results on the transfer of contaminants from plastics to seabirds and discusses the preliminary findings in relation to human health of this contaminant transfer from seabirds that are harvested and consumed by people in the Pacific.

8. **Pacific Regional Invasive Species Management Support Service (PRISMSS) Predator Free Pacific and Birdlife Invasive Alien Species Programme**
   Mr David Moverley, Invasive Species Advisor, SPREP and Dr Steve Cranwell, Birdlife Pacific

David Moverley is the Invasive species adviser for SPREP. Invasive species are the leading driver of biodiversity loss in the Pacific. They have a significant impact on ecosystem resilience leading to a loss of production in ecosystem services and a reduced ability to adapt to climate change. In this presentation, Mr Moverley provides an overview of the PRISMSS program that was established in 2019 with the assistance of the Global Environment Facility Regional Invasive Species Project (GEF 6 RIP): Strengthening national and regional capacities to reduce the impact of Invasive Alien Species on globally significant biodiversity in the Pacific. Next, Dr Cranwell from Birdlife Pacific provides an

overview of the invasive alien species eradication projects that have taken place, or are planned across the Pacific in collaboration with local partners and Birdlife International.

9. **Rapa Island eradication, French Polynesia**
   Tehani Withers, SOP Manu, French Polynesia

The island of Rapa (Austral Archipelago, French Polynesia) is a place of extraordinary biodiversity. Its surrounding off-shore un-inhabited islets are essential reproductive sites for many petrels, shearwaters and storm-petrel colonies, especially rare endemic seabirds, such as the Kakikaki Rapa shearwater *Puffinus auricularis myrtae* (EN), the Koru'e Polynesian Storm-petrel *Nesofregetta fuliginosa* (EN) and the Koru'e White-bellied Storm-petrel *Fregetta grallaria titan* (LC). In 2017, during a feasibility study program, a team of scientists from SOP Manu & BirdLife International conducted seabird and invasive species surveys on 10 off-shore islets. The team found that only 3 islets were invaded by rats (kiore – *Rattus exulans*) and feral goats. A surprise for the team is that Rapa Island had no ship-rat (*Rattus rattus*). In 2018, SOP partnered with the local environmental NGO of the island – Raumatariki, to implement biosecurity on Rapa, with warning signs and bait-stations installed on the main dock. In 2019, with the help of the local community, and the authorization of the elder council (Tohitu) and the town hall, feral goats were removed from the islets. We also started a study with the help of Jean-Claude Thibault to install 10 GLS (global location sensor) on Rapa shearwater, as we found that the population of that species has collapsed since the 90s, as 3 of the 4 islets they nest on are invaded by rats. Only one GLS was retrieved in 2020. In 2021, we were going to start the rat eradication project via drone on the three invaded islets of Rapa, but technical issues have caused delays for the restoration project. To conduct all these activities since 2017, we had a lot of support from Raumatariki, the elder council, the town hall and the local community. To gain this type of support, Raumatariki organized fieldtrips for the children of the island, so they would also know more about their plants and with our help, about their seabirds. Although the Covid pandemic and the drone technical issues have significantly slowed down the project, we really hope to try to restore these important sites next year, to avoid the extinction of the Rapa shearwater, the only endemic seabird of French Polynesia.

10. **Port-based outreach with high seas fishing vessels: Saving seabirds and supporting livelihoods**
    Mr James Nagan, Birdlife Pacific

Seabird bycatch, particularly of albatrosses and petrels, in fishing gear is a major threat to the seabird population, killing hundreds of thousands of birds each year. Longline fisheries, which accidentally hook the scavenging birds, continue to remain a challenge in terms of minimizing seabird bycatch. The Port-Based Outreach Program in Suva, led by James Nagan, is an awareness project that engages high-seas vessels, crew members, and other stakeholders to increase their knowledge of fishing regulations and seabird bycatch mitigation measures available. This video provides insights into the issues of seabird bycatch and the innovative solutions available that can help prevent this issue from escalating.

11. **Opportunities**
    a. **Training and surveys**
       Ms Karen Baird, Threatened and Migratory Species Advisor, SPREP

New funding from the European Union is expected to come on stream later in 2021, through a project called 'Pacific Bioscapes' will provide funding for some initial work on implementing this first Seabird Action Plan for the region. It will cover the development of a Pacific Region Seabird

Monitoring Manual, training and resources for undertaking seabird surveys and the upgrading of the Seabird Colony Database for the Region through BirdLife International.

b. Colony database
Mr Mark O'Brien

The current seabird colony database has nearly 6000 rows of data each representing a single species at a single colony. Data includes archaeological data up to 2011 but is only a fraction of the total colonies which exist in the region. Data has been taken from published and unpublished documents and covers 418 Island groups. 100 of these colonies have been identified as holding globally important bird populations and are also listed on the Global KBA database. Brown noddies are the most widespread seabird species, a further 21 species were recorded at fewer than 10 colonies and five species are KBA trigger species. The presentation discussed useful potential additions to the database including photographs, evidence of breeding success and exact location of the colonies on islands.

Breakout groups

Question 1: Are there any significant gaps or changes you would like to see in the Seabird Action Plan?

Many responses were considered to already be captured within either the Multi-Species Action Plan or the Seabird Action Plan so these are not repeated here, the complete feedback from breakout groups is available in Attachment 1, including references to the Programme where we believe the suggestion is already captured. Gaps and changes identified in this exercise are outlined below, including SPREP's response:

- Absence of biosecurity important for invasive species response. Add to theme 4, objective 1.
- Raise awareness in schools to understand life of migratory species. Add to Multispecies action plan 9.1.2.
- Is it possible to have scientific names of birds in the action plan? Were in draft plan, add back in.
- Better assess conservation status of species: for example in New Caledonia = Tahiti Petrel, New Caledonian white-winged petrel and coral sea storm petrel. Add assessing conservation status of species to multi-species action plan Objective 1 and new action 1.1.5.
- Update information on New Caledonia: 25-26 species of breeding seabirds (+1 possible new species of storm petrel) and additional remarks status of the Tahiti Petrel is probably worse than "Near Threatened" due to terrestrial mining activities and introduced predators and also probable overestimation of breeding numbers. Review Table 1.
- Missing from the plan: monitoring of seabird abundance following predator eradications, assume that it will increase, but this is not always the case e.g. Lord Howe Island. Add to 4.1.1.
- Interoperability of existing seabird databases. IRD is building a database on seabird colonies on more than 100 islands and islets in New Caledonia; includes also islets and islands of Wallis and Futuna and French Polynesia (link with database of Mark O'Brien?). Add to C.1/C.2 and review Seabird Action Plan Theme 1, Objective 1. Add to 1.1.1.
- Supplementary document – covering the additional info that was identified on threats. Create, reference in Seabird introduction.
- To have common databases translated into French to facilitate its use by French speaking territories. Add to Objective C.

- Capacity building/exchange programme with neighbouring Pacific countries who have done bird surveys/monitoring. Add to Theme 8.
- Update information on New Caledonia: 25-26 species of breeding seabirds (+1 possible new species of storm petrel) and additional remarks status of the Tahiti Petrel is probably worse than "Near Threatened" due to terrestrial mining activities and introduced predators and also probable overestimation of breeding numbers. Review Table 1.
- Under threats, would suggest clarifying 4.1.1 to include both predators and invasive plants. And under 4.1.3 it would be good to include power line collisions as an element for consideration with industry and infrastructure. Add to 4.1.1 and 4.1.3.
- Taxonomy of many species is based on traditional methods. There is a lack of collecting of DNA samples from seabird populations throughout the Pacific to determine if any cryptic species or populations are present. One key species to investigate is Vanuatu petrel. Add to Theme 1, Objective 2.
- Better assess conservation status of species: for example in New Caledonia = Tahiti Petrel, New Caledonian white-winged petrel and coral sea storm petrel. Add assessing conservation status of species to multi-species action plan Objective 1 and new action 1.1.5.

Question 2: What are your greatest needs in terms of training and capacity building to undertake seabird conservation work?

Some of the training and capacity building needs identified by participants were about: enabling local communities, associations and stakeholders to undertake conservation; providing appropriate training for graduates to continue their careers; learning from each other and thereby creating advocates for what can be achieved; species identification and survey and monitoring methodologies; how to do pest removal from small islands; invasive species eradications and site management; best practice for conservation groups/CCA managers etc and schools (including citizen science); training for school teachers, biosecurity training and resources; and how to assess the level of impact from different threats (e.g. modelling).

Some approaches to addressing these needs were suggested, such as: external academic support, exchanges for local scientists/rangers with other places doing great conservation work, engagement with PRISMMS, involve teachers in fieldwork, technical advisory group for seabirds.

Several participants highlighted that the greatest need is funding.

Full feedback is available in Attachment 1.

Question 3: Which seabird species in your countries are most at threat and what are the greatest threats to those species? How would you go about finding out?

- **Vanuatu: Collared petrel and wedge-tailed shearwater**
  - Threats: unsustainable harvesting, cyclone events, introduced mammals, plastic ingestion potentially.
  - Action: Need more studies to see if mammals are a threat.
  - Action: Need some studies if seabirds are ingesting plastic.
- **Samoa: Limited information on seabirds**
  - Action: Need to do surveys.
- **Wallis and Futuna:**
  - Threats: invasive alien species
- **New Caledonia: Tahiti petrel, Caledonian storm petrel, white winged petrel**

    - Threats: habitat loss (nickel mining), invasive species, disturbance of colonies in islets by recreational activities.
    - Action: Identifying New Caledonian storm petrel colonies using technology such as radio telemetry, radar surveys etc.
    - Action: trials to set up artificial colonies have just begun by IRD on the Koniambo massif.
    - Action: Territorial management plan to manage recreational disturbance.
- **French Polynesia:**
    - Threat: Bycatch
    - Action: Training of fishers in cooperation with WCPFC
- **General comments on threatened species**:
    - Endemics like Fiji petrel, Becks petrel, Vanuatu petrel.
    - Need to focus also on nationally or regionally threatened species.
- **General comments on threats:**
    - Data deficiency for many species on many islands, including knowing where they breed.
    - Lack of education and awareness about seabirds
    - Powerline collisions
    - Introduced predators (barn owls, mammalian, ants [fire ants, yellow-crazy ants, big head ants])
    - Light attraction
    - Climate change (changing oceanic conditions)
    - Invasive plants causing large-scale change to breeding habitat (of particular concern post-predator removal)
    - Threats at sea (overfishing, bycatch, plastic ingestion)
    - Grassland/bush fire

Full feedback is available in Attachment 1.

Turtle Action Plan Workshop

Presentation abstracts

1. **Conservation status of marine turtles and threats in the Pacific**
   Dr Nicolas Pilcher, Marine Research Foundation, Malaysia

The Pacific Ocean is a vast expanse of water and relatively very little land. Sea turtles are widely and diffusely disbursed over this great oceanic breadth, which makes counting them, and assessing population trends, extremely problematic. Add to that the(usually) exorbitant costs of travel and fieldwork in the Pacific region, and the multiple species and genetic stocks that traverse this immense ocean realm, and the challenge grows exponentially.

A new activity funded through the By-catch and Integrated Ecosystem Management (BIEM) initiative currently being implemented by SPREP is assessing the risk of turtle extinction in the Pacific to inform regional conservation approaches.

This risk assessment leans on the foundations of many years of work by hundreds –if not thousands of individuals –over the last five decades to better inform on the distribution and abundance of turtles in the Pacific region, and takes into account reproductive biology of the species, and threats such as bycatch and direct harvests of adults, juveniles and turtle eggs. The assessment process first

undertook a major review of all aspects of turtle biology, population sizes, threats, bycatch data – virtually everything that was known for sea turtles in the region relevant to risk assessment analyses.

Unfortunately, data sets are mostly lacking for us to develop extinction risk assessments along the lines of how IUCN develops Red List Assessments. We have long-term trend data for some places, but in many Pacific island nations research is not continuous and rarely can cover entire seasons. And it is the continuity of data sets over years that tells us about trends, which is really what is important in assessing risk of extinction. Therefore, the second step of this process has been to develop a model to look at the potential trends in populations given the knowledge we now have of numbers, threats and reproductive biology.

The model (vTurtles) was developed by Prof. Marc Girondot at the Ecology, Systematics and Evolution Laboratory at the University of Paris-Saclay. The model takes into account known variables, and where these are not known, models them on the best available information. In fact, the model can be considered a supra-model made up of multiple mini-models embedded within its framework, that permits a certain amount of adjustments to account for what we know about sea turtles in the Pacific so far.

Given we have many gaps in knowledge, these gaps need to be modelled so that we can devise realistic risk extinction predictions upon which Pacific Island nations can devise management and conservation programmes.

vTurtles is hot off the press, so to speak, and is now being tested and refined based on data acquired during the literature review phase. This presentation will reveal some preliminary results of the extinction risk to hawksbills in the Pacific based on a hypothetical combination of habitat quality, temperature changes, and mortality (take and bycatch combined).

2. **Work of the IUCN/SSC Marine Turtle Specialist Group in the Oceania Region**
   George Balazs, Regional Vice Chair Marine Turtle Specialist Group Oceania

The Oceania Region of the IUCN/SSC Marine Turtle Specialist Group (https://www.iucn-mtsg.org/) consists of 24 countries/territories culturally and linguistically known as Micronesia, Melanesia, and Polynesia. The Region extends from Pitcairn Islands in the East, to Palau in the West, and from the Hawaiian Islands in the North, to New Zealand in the South. This vast area encompasses 100 million square kilometers of Pacific Ocean containing over 1200 islands, many of which are extremely remote and without human habitation. Excepting the large land-mass countries of Polynesian New Zealand and Melanesian Papua New Guinea, the total human population of the 22 smaller countries/territories is relatively low at 3.7 million people, or only <0.5% of the world population. For the purposes of this report, the Oceania Region was organized by the Regional Vice Chairs to contain 25 chapters comprising 15 Sea Turtle Regional Management Units (RMU's as defined by Wallace et al. 2010). The 25 chapters in alphabetical order comprise American Samoa, Commonwealth of the Northern Marianna Islands (CNMI), Cook Islands, Fiji, French Polynesia, Federated States of Micronesia (FSM), Guam, Hawaii, Kiribati, Nauru, New Caledonia, New Zealand, Niue, Palau, Palmyra, Pitcairn Islands, Papua New Guinea (PNG), Jarvis/Baker/Howland, Republic of the Marshall Islands (RMI), Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu. The MTSG Oceania country/territory of Wallis and Futuna is not included in this report due to the absence of any information on sea turtles. In addition, the Polynesian outlier of Rapa Nui (Easter Island) has not been included since administratively it falls within the East Pacific Region of the Marine Turtle Specialist Group. The decision was made by the Regional Vice Chairs, in consultation

with the chapter authors, to treat Palmyra (isolated outlier territory of the USA) and Jarvis/Baker/Howland (isolated outlier territories of the USA) as chapters of their own.

The Regional Vice Chairs of the MTSG Oceania Region express their sincere thanks and appreciation to all authors of these 25 chapters for their hard work, perseverance, patience, and accomplishments. The task has been long and at times difficult, but ultimately of high reward. We dedicate this report to our dearly departed MTSG members Lui Bell (1956-2012), George Petro (2013), and Sue Taei (1962-2020). We are also grateful to the people of Oceania in support of their deep cultural and traditional ties to sea turtles in ways that are not always easily understood by others.

The full 675-page report is available at https://www.iucn-mtsg.org/regional-reports. A list of the chapter authors can be found at 2020-Chapter Authors of the IUCN/MTSG Sea Turtles of Oceania Regional Report 2020 Edited by Thierry Work, Denise Parker and George Balazs.

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3. **The Bycatch and Integrated Ecosystem Management Initiative (BIEM) turtle initiatives**
   Anissa Lawrence, BIEM Project Manager

The BIEM Initiative is the Key Result Area 5 of the Pacific-European Union Marine Partnership (PEUMP) programme. It looks at bycatch mitigation and species conservation activities based on priorities identified by the Governments of Solomon Islands, Fiji, Vanuatu, Papua New Guinea and Tonga.

BIEM Components	Geographic Scope	Activity Coordinator
5.1 Marine Spatial Planning	Fiji, Solomon Islands	IUCN
5.2 and 5.3 Integrated 'ridge to reef' management and climate change adaptation	Fiji, Vanuatu	SPREP
5.4 Assessment of endangered species extinction risk	Regional	TierraMar
5.5 Development and implementation of by-catch mitigation strategies	Fiji, Solomon Islands, Papua New Guinea, Tonga, Vanuatu	
5.6 Capacity development through research grants to Pacific Island citizens	Regional	
5.7 Support for community monitoring and protection of endangered species	Fiji, Solomon Islands, Vanuatu	
5.8 Capacity development on Non-Detrimental Findings process for CITES parties	Pacific parties to CITES	

4. **TREDS database**
   Unity Roebeck, Turtle Database and Conservation Officer, SPREP

The Turtle Research and monitoring Database System simply known as TREDS was created in 1993 with expert collaboration from the Queensland Department of Environment and Heritage. This Database was created using the Microsoft Access Platform. The database was upgraded to allow it to be more interactive with users before it was officially launched on February 19th, 2009.

From late 2020, SPREP in collaboration with the consulting company Eighty Options Pty. Ltd conducted an upgrade of the turtle database. The upgrade resulted in the database and its subsequent data within it migrated from the Microsoft Access Platform to the Drupal Platform, a web-based database. The upgrade allows for streamlining of the user interface, simplified navigation within the platform, increased accessibility from anywhere with an internet connection for upload, analysis and data extraction. New enhancements added during this upgrade will also give users more options to collect, store, and extract their turtle data to generate more detailed reports. These new enhancements include a ready-to-use Offline Data Entry application, new tag inventory, map generation, and the ability to upload images to the database.

5. **NOAA's work in Pacific and collaborative opportunities**
   Dr Irene Kelly, Sea Turtle Recovery Coordinator, NOAA

An overview of sea turtle management and research priorities for NOAA Fisheries Pacific Islands Region (PIR) will be provided. In the United States, sea turtles are jointly managed by NOAA Fisheries and the U.S. Fish and Wildlife Service (USFWS) in collaboration with state and US territory governments. NOAA is responsible for turtles when in the water and the USFWS is responsible for turtles when on land. Within the PIR, there are two NOAA offices: the Pacific Islands Regional Office (PIRO) leading management and conservation initiatives as mandated by the Endangered Species Act (ESA) and the Pacific Islands Fishery Science Center (PIFSC) supporting and informing management and recovery needs through innovative research activities of the Marine Turtle Biology and Assessment Program (MTBAP). The PIRO and PIFSC collaborate with partners and NOAA grantees throughout the PIR, Oceania and Southeast Asia to collect data and information in order to better understand, protect and conserve ESA listed sea turtle species. NOAA grants are one tool to help support research and conservation activities, and PIRO's current programmatic grant priorities for leatherback and green sea turtles will be presented.

6. **Developments in using DNA to track illegal harvest**
   Dr Christine Hof, Marine Turtle Use and Trade Asia Pacific Initiative Lead, WWF

Many marine turtle populations around the world are still at serious risk of extinction due to continued pressures resulting from unsustainable human activities. The major concern throughout the Asia-Pacific region, is that marine turtle use and trade is still rampant and continues to have detrimental long-lasting effects on marine turtle populations. Of critical concern is that <75% of hawksbill populations are estimated to remain in the Pacific Ocean (Asia-Pacific region) (IUCN Red List, 2008). Whilst recognising that turtles and their products are widely used and critical to meeting human needs, and that sustainable use regimes can alleviate poverty and support conservation, we also need to recognise that we are in the midst of a global poaching crisis that threatens decades of conservation work and sustainable practice achievements.

No longer can it be ignored that marine turtles and their products are in high demand with re-emerging or new black-markets operating within a significantly changed marine turtle supply chain since being listed in Appendix 1 of CITES. We know poachers are encroaching the national waters of the Coral Triangle and western Pacific countries (Lam et al., 2012) and there is evidence of trade occurring directly at sea associated with agricultural or logging commodities, hidden in cargo consignments, stock piling by local communities for future sale, and smuggling by mail and air

transportation (IOSEA, 2104). In addition, we are seeing evidence of a growing online trade (e.g. China and Indonesia) with souvenirs from hawksbill turtle shells found on Facebook, Instagram, and E-commerce sites etc.

Where urgent collaborative action is required, WWF has developed a *Marine Turtle Use and Trade Initiative 2018-2026* (MTUTI) - a program of work to safeguard hawksbill turtle populations in the Asia-Pacific region, so they are no longer at risk of extinction, and no longer targeted for trade.

The program is aimed at understanding the use-trade chain between source, transit and destination countries by developing evidence-based forensic tools and science-based products that can help pinpoint which populations are being targeted for trade, and what populations are remaining for conservation and protection (='ShellBank'). In participating in a socio-cultural marine turtle use survey (='Turtle Use project'), we can further understand 'use' drivers to be able to provide alternatives to exploitation, and better well-being to communities. Supported by policy changes at the regional and national level to enable effective collective action, we offer countries to participate and be part of MTUTI, to help:

- Continue to build 'Shell Bank' (trans-national genetic dataset) and use the now developed DNA shell extraction method to target trade (from 'sale to source'; Refer Cracking the Code report).
- Engage your country to participate in the socio-cultural survey to better understand baseline trends, demographics and socio-cultural-economic drivers of marine turtle use to build or further sustainable community management of hawksbill turtles.
- Share and disseminate the economic and environmental 'value' of marine turtles to encourage further policy action to conserve and protect turtles.

Any questions, please contact Christine Madden Hof, Marine Turtle Use and Trade Initiative Lead, WWF at, **chof@wwf.org.au**

7. **Turtle nest cooling Conflict Islands and Australia**
   Ms Caitlin Smith & Ms Hayley Versace, WWF & The Conflict Islands Conservation Initiative

It is predicted that global warming caused by climate change will cause feminisation of turtles, predictions are that just 2.4% of hatchlings will be male by 2030. This project trialled using seawater to cool the sand with an aim to quantify the effect of seawater application on incubating green turtle clutches and determine the best methods of application. Our key findings were that seawater irrigation is a potential method for lowering sand temperatures on remote beaches; embryonic death was not caused during the phase in which seawater or freshwater; and cooling strategies are best used between 45 to 50% of development stage. We recommend the next steps are: trial seawater irrigation at multiple rookeries, 100mm of seawater cooled below 24ºC, install hobo data loggers in hatcheries to ensure the best cooling opportunity, utilise desalination.

8. **Turtle tracking from New Caledonia, where do they go and what does this mean for conservation?**
   Dr Marc Oremus, Marine Programme Coordinator New Caledonia, WWF

New Caledonia has a major role to play in the conservation of marine turtles in the South Pacific. The objectives of this work was to confirm main regional stakeholders, and identify key habitats and primary threats. We have so far deployed 69 tags on post-nesting females. The average distance travelled was 1,688km and 1,738km. We were able to map New Caledonian green turtle feeding grounds, loggerhead feeding grounds and migratory routes. This was a successful collaborative

project that allowed us to identify primary stakeholders and several key habitats. The next steps are to deploy the final tags, threat analysis, reports and communication, and advocacy work.

9. **Conservation efforts on marine turtles in the Solomon Islands**
   Dr Richard Hamilton & Simon Vuto, The Nature Conservancy, Solomon Islands

This project was focused in the Arnavon Community Marine Park (ACMP) in the Solomon Islands. Conservation has been occurring here for 25 years, including important satellite tracking studies. These found that none of the 30 tracked turtles laid clutches outside of the ACMP, 98.5% of all inter-nesting days were spent within the ACMP, and most nesting occurs at Sikopo Island which had a significant poaching problem. The finds from this study helped get ACMP registered as Solomon Islands first national park in May 2017. The next chapter for the Arnavons is to support local women's group KAWAKI to establish Arnavon Islands as an important education/research and tourism destination for Solomon Islands, and to work with stakeholders to ensure better enforcement of park regulations.

Breakout groups

Question 1: Are there any significant gaps or changes you would like to see in the Turtle Action Plan?

Many responses were considered to already be captured within either the Multi-Species Action Plan or the Turtle Action Plan so these are not repeated here, the complete feedback from breakout groups is available in Attachment 1, including references to the Programme where we believe the suggestion is already captured. Gaps and changes identified in this exercise are outlined below, including SPREP's response:

- Theme 7 – ecotourism and livelihoods: SPREP wants to incorporate it as business scenario. For Fiji our resorts are isolated so it is local people that own areas and yet they are not engaged. Need to ensure capacity building for local people. With COVID – not sure how long can sustain re ecotourism. How to reflect impacts of COVID in action plan. See Multi-Species Action Plan 7.1.3. Consider how to reflect COVID throughout programme.
- Aerial/drone surveys (1.4.4) not only "when opportunities arise". With recent RD large scale assessments are possible to inform levels of sustainable take. Noted that these methods are ideal but also require access to this technology or funding and technical knowledge. Change action to "where possible".
- Action plan needs to encourage use of existing guidelines (i.e. CMS light guidelines) and forums where available to facilitate implementation of some actions. Add the CMS light guidelines to 4.1.2.
- Actions under Theme 6 should recognise that involvement of local communities in management and enforcement should be encouraged. Review 8.1.2.
- Some countries do not use TREDS but have their own databases. Is it possible to work on interoperability between these databases and TREDS? – SPREP to consider potential.
- NC: Encouraging interoperability and cooperation between national or territorial databases (like for example, TORSOOI and TREDS). Add to Objective C as per other comments.
- Theme 8 - 50% of rangers trained be female: might be good to know what the current % is and then establish what's achievable at each country in the 5 years of the plan. Not sure how to word this and make it quantifiable but the realities on the ground need consideration first. Add new action, 8.1.4, to Multi-Species Action plan to proactively engage women and youth in conservation activities. Also refer to Multi-Species Action Plan 5.1.2.
- NC: Keep possible the same structure of theme 5 "cultural significance and value" between species for comprehensiveness and readability, it comes to ensuring that: (i) cultural aspects should not be restricted to traditional knowledge only but should be extended to the

existence of norms or customary informal practices, (ii) traditional knowledge should be effectively shared and used but also documented and (iii) traditional knowledge should not be restricted to management only but should be also used in terms of knowledge about the populations and habitats. Agreed and included in Multi-Species Action Plan Theme 5.

- With COVID – not sure how long can sustain re ecotourism. How to reflect impacts of COVID in action plan. Add paragraph on COVID-19 impact to plan.
- This plan should emphasise the importance of local communities and develop relationships between SPREP members. It's a good idea to see what's happening in different SP countries regarding turtle conservation. Added to MSP 8.1.1

Question 2: What do you believe are the two greatest threats to marine turtles in your country, what actions would you recommend to address these and within what timeframe?

- **Papua New Guinea**: Overharvesting of turtles and eggs for consumption and trade, ghost nets, net use on reefs
- **Fiji**: Direct take (lots of egg harvesting happens in remote islands), climate change
    - Action: Raising awareness is key – people misunderstand regulations compared to lifecycle of turtles, don't understand why there are regulations, need to define reasoning about the regulations.
    - Action: Not trained to move eggs at critical points so need to build capacity to help adapt to climate change. Areas to move to e.g. shading etc and how to do this, how long to monitor. The capacity is not in Fiji.
- **New Caledonia**: coastal change and climate change (loggerhead), irregular harvest of turtles and eggs and ship strikes (green)
    - Action: Beach management
    - Action: Education, awareness and communication
    - Action: Reconciling environment protection with customary traditions (for example, signature of protocols between the southern province in New Caledonia and traditional leaders for harvest by derogation).
- **French Polynesia**: Overharvesting of turtles and eggs
- **Wallis and Futuna**: Lack of data on main threats, invasive alien species (pigs, domestic animals), no data on harvesting
- **US territories**: Ongoing poaching pressure, habitat degradation and habitat loss
    - Action: We are working on poaching pressure threats via outreach and awareness raising initiatives, and school children education.
    - The habitat issues are much more difficult and, in some cases, tied to sea level rise and climate impacts.

Full feedback is available in Attachment 1.

Question 3: What are your greatest needs in terms of technical and capacity to increase protection of marine turtles in your country? Or what expertise can you and your organisation provide? How would you go about addressing these needs, e.g. opportunities for regional collaboration of expertise?

Some of the technical needs identified by meeting participants include: setting up turtle monitoring systems, population-based monitoring data, connectivity of feeding grounds, hawksbill and green turtle genome sequencing bank, satellite/GPS tracking, how to ascertain what is sustainable take on a very small scale, greater advice/training on nest relocation, projections for sex ratios and

requirements for male production for genetic viability, and methods for consistent, rapid beach assessments.

Some of the capacity-related needs identified include: more boots-on-the-ground NGO partners in priority areas, maintaining capacity with continuous/ongoing training and planning for staff/volunteer turn-over, more data analysts/modelers.

There were some suggestions for how to address these needs: Making the most of online options; if nations have similar issues could try to develop joint materials – find harmonies; regional sharing of experiences; make it clear to donors and regulators that low-tech studies are equally, if not more, valuable than complex studies; exchange programmes; and more meetings like this (virtual) focusing on a specific need for the whole region with relevant experts.

Specific offers came from the US who can help provide training and technical expertise, IOSEA MOU Advisory Committee who is looking at structured long-term planning on how to address technical capacity-building, and MTBAP/PIFSC/NOAA who can provide technical advice on genetic analysis, sex/sex ratios, climate impacts, modelling, bycatch mitigation, training on field techniques, etc. NOAA also reminded everyone of their annual grants.

Full feedback is available in Attachment 1.

Sharks and Rays Action Plan Workshop

Presentation abstracts

1. **Conservation status of sharks and threats in the Pacific**
   Dr Andrew Chin, Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University

There are so many species of sharks and rays in the Pacific, but so little knowledge and so much to (re)discover. The more we look, the more we find. So, what do we know? What don't we know? What do we need to know? And, what do we do about it? We started Shark Search Indo-Pacific to document, promote and enhance the social, cultural, economic, biological, and ecological values of sharks and rays for Indo-Pacific communities, both now and for future generations. Starting by building robust S&R profiles for every country and territory in the Pacific by 2022, accompanying conservation overviews. Can be a reference point and foundation for future projects. In-country partners are vital for data identification, validation, networking, disseminating results. We have completed and published profiles for Solomon Islands and Palau (in press). Profiles for Vanuatu, French Polynesia, and New Caledonia are in prep and drafts are complete for Fiji, Kiribati, FSM, Niue, Tonga, and Tuvalu.

From these exercises, we have learnt that there are 50+ species of sharks and rays in most countries, the main groups are reef and coastal, pelagic, and deep water, there are numerous high-risk species, and the communities reflect biogeography and oceanography. From the human dimension, we have learnt that there are diverse social, cultural, economic, and livelihood values associated with sharks and rays, but values are changing, as well as technology and trade. Some of the key pressures include coastal small-scale fisheries, large-scale fisheries, and bycatch (discarded and retained). The rapid pace of evolving pressures is concerning, e.g. deep-sea mining.

Some of the big knowledge gaps we have are on deep sea sharks, small scale fisheries, human dimensions, and management effectiveness. What are our next steps? Regarding large-scale fisheries, we need by-catch monitoring, integrated bycatch mitigation programs, post-release

survival studies, compliance and enforcement. Capacity building and resourcing, education and awareness should be a focus.

2. **Mobulid conservation in the Pacific**
   Dr Luke Gordon, Project Leader, Fiji Manta Trust, Manta Trust

Manta Project Fiji is dedicated to the conservation of mobulid rays in the Fiji Islands through research, education and collaboration. The project is working to better understand mobula ray movement ecology, population dynamics and genetic connectivity within the Fiji Islands, assisting government, local stakeholders and the tourism industry in developing more effective conservation management strategies.

3. **Sawfishes with case study in Kikori Delta**
   Mr Michael Grant, PhD candidate, Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University

The conservation of threatened elasmobranchs in tropical regions is challenging due to high local reliance on aquatic and marine resources. Due primarily to fishing pressure, river sharks (*Glyphis*) and sawfishes (Pristidae) have experienced large population declines in the Indo–Pacific. Papua New Guinea (PNG) may offer a refuge for these species, as human population density is low, and river shark and sawfish populations are thought to persist. However, few data are available on these species in PNG, and risk posed by small-scale fishers is poorly understood. This study observed elasmobranch catches in small-scale fisheries in riverine and coastal environments in the East Sepik (northern region), Gulf, and Western Provinces (southern region) of PNG. Surveys were conducted over a period of weeks to months in each region, during dry season across seven field trips during 2017–2020. We observed a total of 783 elasmobranchs encompassing 38 species from ten families. River sharks made up 29.4% of observations in the southern region, while sawfishes made up 14.8% and 20.3% in the northern and southern regions, respectively. River sharks were commonly caught by small-scale fishers in lower riverine environments in southern PNG, while sawfishes were generally less common and mainly observed through dried rostra. The primary threat to river shark and sawfish populations is their capture by small-scale fishers targeting teleosts for swim bladder. Persisting populations of river sharks and sawfishes indicate that PNG is the second known nation with viable populations of multiple species in the Indo–Pacific. However, populations are declining or at high risk of decline, and fisheries management and conservation are required to secure PNG as a long-term refuge.

4. **Where have all the sharks gone?**
   Mr Glenn Sant, Senior Advisor, Fisheries Trade and Traceability, TRAFFIC

A look at catch and trade regulation, transparency, reporting, and CITES state responsibilities. Approximately 114,000 mt/year of shark meat was imported over the period 2008-2017. The top exporters appear to be Spain, Taiwan PoC, Uruguay, USA, Argentina, Portugal, Japan, Namibia, and Indonesia. The top 20 importers of shark meat account for 87% of the global average annual imports over the last ten years (2008–2017).

14 shark and 27 ray species have been afforded greater protection through listing in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 2002 and the entire family Pristidae.

5. **Effective conservation of sharks for the Pacific**
   Mr Clinton Duffy, Technical Advisor, NZ Department of Conservation

The major threat to sharks and rays globally is unregulated fishing (legal and illegal), habitat loss and modification, global climate change, pollution. Factors contributing to the vulnerability of sharks and rays include low biological production, naturally small population sizes, philopatry to nursery grounds, and a tendency to aggregate at refuging sites, mating areas and seasonal concentrations of prey. In the SPREP region, there are about 189 species of sharks and rays with a lot of diversity in deep water sharks, coral reefs, and on the insular shelf. Nations that are well-governed (voice and accountability rather than wealth and socio-economies), have strong and directed management of shark fisheries and shark sanctuaries tend to have the healthiest shark populations relative to regional expectations. Large shark sanctuaries (with no targeted catch or trade), gear restrictions, and catch limits are effective measures for shark and ray conservation. Continuity is essential for conservation of highly migratory species so there are transboundary issues and problems with the high sea. Is it time for a total ban on shark fishing?

6. **Shark sanctuaries, are they working?**
   Juney Ward, Ecosystem and Biodiversity Officer, SPREP

Sharks and rays are very culturally important in the Pacific. Sharks are disappearing fast, particularly due to the demand for shark fin products internationally. But sharks are worth more alive. There are many shark sanctuaries throughout the Pacific already in Palau, FSM, Marshall Islands, Kiribati, New Caledonia, Samoa, Cook Islands and French Polynesia. These sanctuaries include measures to: ban commercial fishing of all shark species within the countries EEZ, ban possession, sale and trade of all shark species, ban the retention of shark bycatch, dead or alive, ban the use of wire leaders/wire trace and shark lines, transhipment of sharks and rays. These measures minimise the need for additional trainings, capacity, and resources; meet current and future international and regional obligations; and prevent future over exploitation.

Breakout groups

Question 1: Are there any significant gaps or changes you would like to see in the Shark and Ray Action Plan?

Many responses were considered to already be captured within either the Multi-Species Action Plan or the Shark and Ray Action Plan so these are not repeated here, the complete feedback from breakout groups is available in Attachment 1, including references to the Programme where we believe the suggestion is already captured. Gaps and changes identified in this exercise are outlined below, including SPREP's response:

- Inventory of existing databases needed to assess opportunities for interoperability, avoid duplication and find gaps. Add to Multi-Species Action Plan Theme 1.
- Education and awareness to be extended to local fishermen and coastal communities on sharks and rays. Add to Multi-Species Action Plan Theme 9, Action 9.1.2.
- Something to specifically address deep-sea mining. Add DSM to Multi-species action plan 4.1.1 and 4.2.3.
- 6.1.1 – clarify to ensure legislation meets CITES, CMS and WCPFC obligations for sharks and rays, and that those measures are enforced, either through policy, or under the auspices of an NPOA. Expand in 6.1.1.
- Better engagement capacity with existing/future deep sea fishing ventures (including trial commercial fisheries). See Need a new action under theme 4 relating to exploratory fisheries that could impact sharks and rays.
- Better understanding of traditional approaches to management within customary tenure frameworks. Add to 5.1.2 so not just about education and awareness raising.

- Maybe implementing exchanges between SPREP members in this action plan. Add action in Multi-Species Action Plan Theme 8, Objective 1 about exchanges.
- Research gap: domestic consumption by different cultures/nationalities establishing in many Pacific countries. Add to action 1.1.4.
- Vanuatu: Education and awareness to be extended to local fishermen and coastal communities on sharks and rays. Add to Multi-Species Action Plan Theme 9, Action 9.1.3.
- The threats/risks to coastal and freshwater sharks are often overlooked due to a focus on the effect of large tuna fisheries. I would like to see the national risk assessments focused on those taxa given higher priority/visibility in the plan. Add national risk assessments of threatened species to 1.1.3.

Full feedback is available in Attachment 1.

Question 2: Fisheries are a major threat to sharks globally and in the Pacific. Can you identify where you think the gaps in protection are regionally and nationally to reduce shark mortality? This could be in both local and industrial fisheries.

Only limited comments were made specifically addressing gaps in protection, e.g.: regulation or enforcement of black market, transhipment record keeping and enforcement, addressing use of FADs near EEZs (attracting fish away from protected areas), and setting regulations and enforcing; but many comments were made on other conservation gaps for sharks and rays which are described below.

One theme that came up was around availability of data to inform conservation and management: 'global fish watch' model to improve transparency of spatial fishing effort; understanding drivers of illegal behaviour; electronic monitoring; understanding why fishery managers are struggling with these issues; catch data for both flagged vessels and local fishermen; consolidated data.

Another theme was education and awareness: lack of awareness about shark population decline; easily digestible information about fisheries management; lack of information on the value of sharks and role in ecosystems; shark and ray identification; involvement of the fishing community e.g. in stakeholder consultation, data reporting etc.

Some gaps were also identified relating to mitigating bycatch: improving methods for reducing threatened species interactions, reducing vessel mortality, increasing post-release survival, and encouraging the use of existing by-catch mitigation technologies.

And finally, regarding a question raised by one of our presenters on if it is time for a total ban on shark fishing it was suggested that we would need to research the possible avenues to create a regional ban and the pros and cons in order to inform decision-making.

Question 3: What are your greatest needs in terms of technical and capacity to assist in improving fisheries management and protecting sharks? And what can shark experts and NGO groups contribute to assisting in these needs?

Regarding technical needs, the following points were identified by meeting participants: increase knowledge of the biology and ecology of sharks and rays; few studies exist on the sensitivity of sharks to climate change; population estimates; effectiveness of existing protection and area-based management tools; determining status and trends; need for baseline data; species stocktake and distribution.

For capacity needs, requirements include: resources to commit scientific studies; more students to do the detailed science work on species with a poor knowledge base (focus on Pacific students); shark taxonomists.

There were a couple of comments on how shark experts and NGOs etc can help: NGOs have the ability to operate in the space between scientific expertise and policy, as well as science and public awareness/perceptions on sharks and rays – cooperation between these groups can lead to more effective policy making; in remote regions of the Pacific, NGOs can play a pivotal role in maintaining ongoing community engagement; shark experts and NGOs should contribute to knowledge by running long-term programmes rather than short-term projects.

Other recommendations included: wider inclusion of stakeholders (e.g. 'experts', government, NGOs) in shark policy decision making and research project design and implementation; better collaboration between CROP agencies; encouragement of national fisheries ministries to have collaborative monitoring and research efforts with local communities; national fisheries should have their data publicly available; encouragement of students to accompany shark researchers so they learn and continue the work in the future; there should be incentives to support communities/NGOs that are embracing good customary practices to reduce mortality rates; instead of shark finning, technical help should be provided to transition to crab farming for example, establishment of more shark sanctuaries could encourage students to grow interest in sharks and rays; scholarships for university students to take up shark and ray research/study.

Whales and Dolphins Action Plan Workshop

Presentation abstracts

1. **Conservation status of whales and dolphins and threats in the Pacific**
   Dr Cara Miller, Stock Assessment Scientist, Australian Antarctic Division

The Pacific Islands Region provides habitat for more than 30 different cetacean species including large migratory baleen whales (such as blue, fin and humpback) that use the region as a breeding area during the austral winter to small dolphins which may be found year-round in shallow bays or coastal areas. Some species such as spinner dolphins, short-finned pilot whales, and sperm whales are widely distributed across the region whereas others such as the Australian snubfin dolphin and the Indo-Pacific humpback dolphin occur only in much smaller, localised areas. The most serious threats for cetaceans in the region are considered to be incidental catch and fishing gear interactions, direct harvesting, and pollution. Both commercial and domestic small-scale fisheries as well as Fishing Aggregation Devices were considered to contribute to the first threat. Direct harvesting activities are most well-known from the dolphin drive hunts and captive takes in the Solomon Islands. A key looming threat for multiple forms of pollution is deep-sea mining. Impacts due to climate change and traffic were considered to be of moderate concern with specific predicted changes in migration and prey distribution patterns, and direct interactions through targeted and non-targeted tourism activities, respectively. Insufficient information on pathogens and resource depletion were noted as potential threats that require further monitoring.

2. **Overview of the Strandings of Oceania Database**
   Ms *Hannah Hendriks, NZ Department of Conservation secondee to SPREP, Migratory Marine Species Conservation Officer*

The Strandings of Oceania database is a collaborative project between SPREP, WildMe and the South Pacific Whale Research Consortium to record stranding and beachcast data for whales, dolphins and

dugongs throughout the Pacific. Strandings data is useful to identify species diversity throughout the Pacific and potentially better understand threats to marine mammals. We use a platform called Flukebook. An account is needed to view or use data within Flukebook but the data is available for download on the SPREP Pacific Environment Portal. SPREP has created a downloadable and printable data form which is also on the SPREP website and data portal. You can submit data direct into Flukebook (preferably while logged in) or send a completed data form to SPREP for upload. Thorough guidance has been produced to guide people through using Flukebook. We migrated all records that were stored in the previous aPOD database, there is currently 76 records in the database, from 1991-2021. Most of the records so far are from New Caledonia, but there are also some from Samoa, Tonga, Cook Islands, French Polynesia, and Vanuatu. The most frequently stranded species are the dugong, sperm whale, short-finned pilot whale, and Cuvier's beaked whale. We would like to fill the gaps in the dataset so it is representative across the whole Pacific island region. Send your data to myself or Karen Baird (karenb@sprep.org). For more info, see the SPREP website: https://www.sprep.org/ioe/strandings-of-oceania-database.

3. **Responding to large whale entanglement: A global initiative of the International Whaling Commission**
   Dr David Mattila, Technical Advisor, IWC

Over 300,000 whales, dolphins and porpoises are estimated to die from entanglement in fishing gear annually. Recent studies suggest that present assessment methods severely underestimate the numbers of entangled large whales. The IWC has agreed that in many habitats, and for most populations, it is the greatest source of human related. The IWC is the primary global intergovernmental organization dealing with conservation and management issues related to large whales. The 88 member countries of the IWC provide a forum for governments from around the world to discuss issues relating to conservation and welfare of whales. In addition to the conservation implications for several populations, in 2010 the IWC recognized the extreme welfare concerns associated with entanglement and established an international expert workshop to review the issue. The workshop concluded that the problem occurs wherever whale distribution overlaps with rope, nets and debris and it recommended establishing a program to advise and assist developing professionally trained response networks, while still recognizing that prevention was the proper ultimate solution. Subsequently, a second expert workshop was held in 2011, attended by the heads of the world's established national and regional whale entanglement response programmes. The workshop:

- agreed to "principles and guidelines" for safe entanglement response;
- designed a strategy and associated plans for capacity building;
- established an expert panel under the auspices of the IWC to carry out this initiative.

Given growing numbers of well-meaning, but dangerous and often counter-productive interventions by untrained individuals, the IWC has placed a strong emphasis on capacity building. Since the workshop in October, 2011, overview seminars, trainings and apprenticeships have been conducted for over 1,200 trainees from more than 34 countries, teaching all aspects of the science and management of the entanglement issue. This is, so far, the only marine animal rescue effort which has reached such international consensus on standards, protocols and capacity building.

4. **IWC bycatch initiative, Pacific perspectives**
   Marguerite Tarzia, Bycatch Coordinator, IWC

The global challenges to cetacean bycatch are knowledge gaps, monitoring of bycatch, technical bycatch mitigation and scale-up and implementation. The Bycatch Mitigation Initiative Approach is involved with collaboration (fishing communities, experts and governments), multi-disciplinary and

multi-taxa, they work locally – pilot projects, apply and export lessons learnt to new fisheries, provide tools and capacity development to countries, build awareness on need to address bycatch and available solutions, focus on gillnets (particularly small-scale/artisanal). The programme is supported by an expert panel: a multi-disciplinary team with strong technical background on bycatch and fisheries management who have many existing projects and collaborations around the world to learn from and are willing to assist countries in tackling bycatch.

5. **Important marine mammal areas in the Pacific**
Ms *Rochelle Constantine[1,2,4] & Ms Claire Garrigue[1,3,4]*

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[4] South Pacific Whale Research Consortium, Avarua, Cook Islands

The global IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force has an initiative aimed at designating Important Marine Mammal Areas (IMMA), defined as a 'discrete portion of habitat, important to marine mammal species, that has the potential to be delineated and managed for conservation' (www.marinemammalhabitat.org). It recognises that marine mammals are often vulnerable to anthropogenic threats, are overlooked in efforts to create marine protected areas – with static Marine Protected Areas (MPAs) typically not providing the protection needed, they are indicators of change so action to protect them often benefits other taxa, and they can be valuable flagship species representing powerful political and public levers for conservation of the marine environment. With the international reach of IMMAs they can input into other international agreements and frameworks to protect the ocean and its inhabitants.

In 2017, the Marine Mammal Task Force held a workshop in Apia, Samoa to define key areas in the Pacific Region – this area included eastern French Polynesia, north to Hawaii, west to the Marianas, Palau and Papua New Guinea. Submissions were made on 44 areas considered by the working group to be areas of importance to marine mammals and after international peer review 20 were designated as IMMAs, 4 were candidate cIMMAs and 20 were left as Areas of Interest (AoI). Most IMMAs and cIMMAs had 15+ species recognised in the areas reflecting the diverse habitat able to support dugongs and cetaceans. Spinner dolphins and humpback whales were frequently included in the IMMA designated areas but there was a wide range of species that fulfilled the criteria for IMMA designation.

The four cIMMAs in Tuvalu, Gilbert Islands, Wallis and Futuna and Vanuatu were recognised as having rich biodiversity but were either poorly surveyed or required stronger evidence of the importance of the proposed area. Comprehensive, published research effort in these areas would be a valuable investment as the cIMMAs will be reviewed again.

Given the wide range of international and domestic agreements and potential pathways and levers to ensure adequate marine protection e.g., IUCN, CMS, FAO, EBSAs, KBA, SPREP – to name a few, the Pacific region IMMAs have great potential to support and be supported by other initiatives. All Pacific countries should be implementing monitoring programmes for marine mammals (this can be incorporated with other observer programmes) and accurately reporting basic sightings, location and species identification information. The upskilling of tour operators, ferry, ship and fishing crews to collect data using simple apps to report sightings would be a good

start – especially for offshore waters where many species are found. The IMMAs are linked to the OBIS-SEAMAP (seamap.env.duke.edu) database where all sightings are mapped. The georeferenced spatial dataset produced for each IMMA are publicly available upon application including descriptions of the metadata (https://www.marinemammalhabitat.org/immas/imma-spatial-layer-download/).

For further information please look at:
IMMA website www.marinemammalhabitat.org

GOBI webinar by Giuseppe Notarbartolo di Sciara and Erich Hoyt, co-chairs of the Marine Mammals Protected Areas Task Force http://gobi.org/resources/webinars/introducing-important-marine-mammal-areas-a-new-tool-for-global-marine-mammal-and-biodiversity-conservation/

A brief summary of the Pacific IMMAs by Dr Claire Garrigue www.pacificnatureconference.com/ird-claire-garrigue

6. **Unsustainable inshore dolphin bycatch in subsistence gillnet fisheries in the Kikori Delta, Papua New Guinea**
   Dr Isabel Beasley, Yolarnie Amepou, Jacinta Jonathan, and Wilma Mavea

The Australian humpback dolphin (Sousa sahulensis) and Australian snubfin dolphin (Orcaella heinsohni) are both found in the Kikori Delta of Papua New Guinea. Both species are listed as Vulnerable by the IUCN Red List. The Kikori Delta is the only location that these species are found in the Pacific Islands, with small populations numbering 100-200 individuals respectively.
Bycatch of inshore dolphins in Kikori Delta subsistence gillnet fisheries was previously known to occur based on field trips to estimate dolphin abundance conducted in 2013 and 2015. A subsequent field trip in 2019 discovered that inshore dolphin bycatch levels had increased significantly resulting from a newly developed fishery targeting fish swim-bladders for Chinese medicine.

Based on dolphin population size estimates, the Potential Biological Removal has been calculated as one dolphin of each species every 3-4 years. However, during recent field trips to the Delta, researchers uncovered bycatch rates of at least 3-4 dolphins/month. A Kikori fisher can earn at least PGK1000 (USD$300) from one good quality swim-bladder. This one swim-bladder equates to more than a month's salary, resulting in a fishery that is very difficult to manage. This situation parallels the dire situation facing the Critically Endangered Vaquita (Phocoena sinus) in the Gulf of California. This small porpoise has been pushed to near extinction by an illegal fishery for swim-bladders of the Critically Endangered totoaba fish (Totoaba macdonaldi). There is an urgent requirement for collaborative action (i.e. research, community/government consultation, and by-catch mitigation) to reduce dolphin mortalities as a matter of priority.

7. **Responsible whale watching: Management, capacity, resources and support**
   Mr *Harry Eckman – CEO, World Cetacean Alliance (WCA)*

The World Cetacean Alliance (WCA) is the world's largest network of partners working together to address some of the most pressing issues facing cetaceans and their ocean habitats today. For almost a decade, the WCA has promoted responsible tourism and whale watching practices as a cornerstone for cetacean protection. Developing and delivering a range of sustainable initiatives that benefit and protect whales and dolphins and their environment. Across the Alliance and beyond, the WCA provides a wide range of support to its partners through programs, resources, guidelines, training materials, certification, and capacity building.

The WCA's Responsible Whale Watching Global Guidelines provide best practice standards and sustainability criteria for boat-based whale watching companies. The WCA's certification program ensures that certified whale watch operators meet not only the highest standards for animal welfare and customer experiences, but integrate environmental, social, and economic sustainability into their businesses. The Whale Heritage Site program promotes destinations where entire communities respect cetaceans and drive forward responsible and sustainable solutions, delivering long-term protection for marine habitats and inspiring local people to value their whale and dolphin related heritage.

The WCA recognises that each community is unique, and our range of programs work to empower communities around the world to champion cetaceans and marine biodiversity in all walks of life. They help build local capacity and support locally owned initiatives that can help deliver best practice solutions, encourage respectful human-cetacean coexistence; celebrate cetaceans in local culture, arts and events; work towards local environmental sustainability; and develop locally based science, research, education and awareness programs.

The WCA recognises the unique role that the South Pacific Islands play in protecting cetaceans and recognising their significance for many local communities. Our aspiration is to expand our partnership across the region and work with SPREP to assist nation states and local communities to support agreed local, national and regional strategies that benefit people and cetaceans.

8. Whale watching and swimming in the Kingdom of Tonga
Teisa Fifita, Ministry of Tourism, Tonga

Humpback Whales visited the Kingdom of Tonga on their seasonal cycle of migration to and from the Antarctica on June to November of every year to mate and calve. For many years of hunting of whales in the Kingdom, a royal proclamation by his late majesty King Taufa'ahau Tupou IV in 1978, banned hunting of the whales, which levelled off the declining number of whales and subsequently promote whales for tourism recreational purposes.

Whales today play a significant role in attracting tourists to Tonga. This industry is growing and has continued to contribute significantly to the country's economy. In 2018, we have recorded tourists total estimated direct expenditure of T$7.3 million on whale watch tours. It continues to increase in 2019 by 19% to an estimated total of T$9.1 million. The growth in the whale watching tourism industry has also been reflected in the number of operators. Every year, there is a growing demand for licenses from locals. However, for conservation and protecting the wellbeing of the whales, the Ministry is looking at reducing the number of licenses through policy decision.

Conserving and protecting the wellbeing of the whales is paramount to the long-term sustainability of this industry. There are few conservation measures that the Ministry have put in place to ensure the safety of both whales and tourists, minimize vessels competitions and to avoid the collision of boats if skippers do not behave accordingly to the law. These measures included but not limited to 7 hours only for whale watch activities per day, no whale activities between the hours of 4pm – 5am and issuing of gazette to limit the number of licences for whale activities.

In 2017, the Ministry initiated their first ever enforcements of whale watching activities in Vava'u and had extended to all islands in 2018. Enforcement officers are presented at the wharf to check all whale watch vessels skipper, guide and count number of passengers. The Ministry also build good working relationships in Tonga Police to conduct sea patrol once or twice a week and Ministry of Revenue to check operators tax compliance. It was through the enforcement initiatives that minimizes operator's non-compliance and collecting of estimated total direct expenditure on whale tours.

Two pieces of legislation govern whale watching and swimming in Tonga, firstly The Whale Watching and Swimming Act 2008 and Whale Watching and Swimming Regulation 2013 are the two piece of legislation that governs. The Ministry has the full authority to administer and enforce all aspects of the regulations. However, the Ministry and the operators have identified several issues with the Regulations. The review took place in 2018, it is an ongoing process and is planned to have the new regulations come in to force next year.

The Ministry is very serious about protecting and conserving the whale industry, to ensure its longevity for our future generations.

9. **Fish Aggregating Devices (FADS) and Cetaceans in the PNA purse-seine fishery**
   Maurice Brownjohn

PNA are 8 of the smallest island nations and economies globally but are all "large island nations ", who collectively manage 14.3 million KM 2 of EEZ, an area from New York to Moscow, and Greenland to Morocco. This is the largest and by far the healthiest tuna purse seiner tuna fishery globally accounting for > 50% of global catch of skipjack for canning.

Unlike in other oceans, FADs associated fishing is typically <50% of the fishing effort in the purse seine fishery, so the environmental impacts of FADs are significantly less than other oceans and PNA takes the hard management decisions.

Direct FAD interactions with Cetaceans are unknown, and in the tuna purse seine fishery whilst there are a few non target interactions each year, [eg a whale jumping into the net] in such cases observers record the application of rigid protocols on board to mitigate adverse interactions and any mortality is considered extremely rare. This contrasts significantly with other fisheries around the globe eg gill net, trawl, and longline and their associated buoy lines, etc, where interactions with cetaceans are far more common place.

PNA peoples consider maintaining biological and economic sustainability and participation in the fishery as non-negotiable. It is our future, thus we put a lot into management of the resource and the fishery ecosystem.

Breakout groups

Question 1: Are there any significant gaps or changes you would like to see in the action plan?

Many responses were considered to already be captured within either the Multi-Species Action Plan or the Whale and Dolphin Action Plan so these are not repeated here, the complete feedback from breakout groups is available in Attachment 1, including references to the Programme where we believe the suggestion is already captured. Gaps and changes identified in this exercise are outlined below, including SPREP's response:

- New Caledonia: Need a bit of updating on the species list as a few species are missing (Longman's beaked whale, striped dolphin, Fraser's dolphin). Review table.
- Improve opportunities to increase collection of data from small scale fisheries. Add to Multi-Species Action Plan 4.4.6.
- Consider how data on animal culture can be collected and used to help facilitate better conservation outcomes in relation to the resilience and vulnerability of vertebrate taxa. Add as a new action to consider in research under objective 4 in relation to direct threats.

- Make efforts to secure funding for whale and dolphin projects aimed at protecting whale populations in recognition of their climate mitigation and adaptation services. A healthy and robust population of whales can mitigate climate change. New objective under Climate Change theme. Promote the benefits of protecting whale populations to mitigating climate change.

Question 2: What are the key threats to cetaceans in your country/territory that you are aware of and what could be done to address these threats?

- Vanuatu: Marine micro-plastic pollution, marine traffic and marine noise, increase in fisheries intensity impact on food source, climate change impacts on oceanic food web, lack of knowledge on the biology, ecology and threats
    - Action: ban on single use plastics.
    - Action: marine spatial planning, relevant legislation and guidelines, especially with regards to vessel traffic and increase fisheries intensity in EEZ waters.
    - Whale and dolphin sighting and stranding forms.
    - More awareness raising mainly in areas where whales and dolphins were sighted.
    - Ensure funding for fisheries observers is part of permit.
- Papua New Guinea: Bycatch in subsistence fisheries, gillnet fisheries and commercial fisheries; direct catch in some areas
    - Action: For gillnets, use examples from other countries in addressing the issue (timed area closure, gear modifications) all in collaboration with local communities.
    - Action: raising awareness and baseline info about species and associated abundance.
- Samoa: Lack of knowledge and data on the status of cetaceans.
    - Action: strengthen data collection through research and gap analysis.
- Niue: Entanglement in inshore FADs
    - Training in whale disentanglement.
    - Acoustic deterrent devices.
- French Polynesia: whale watching, plastic and fisheries pollution
    - Laws to regulate whale watching will evolve.
    - Marine resource government work on their regulations to reduce fisheries pollution.
- New Caledonia: Direct human activities e.g. whale watching, ship strikes, underwater noise pollution, plastic pollution, ghost fishing, climate change
    - Action: education, awareness and communication, regulatory environment policy
    - Action: Locate areas where waste accumulates and focus on recovery and prevention solutions.
    - Action: Investigation to understanding and predicting the distribution of suitable habitats for whales in response to global warming.

Full feedback is available in Attachment 1.

Question 3: Do you have a stranding network/protocol to report beach cast cetaceans in your country/territory? What training do you require to support or establish this?

- Vanuatu:
    - No protocols.
    - Local communities report directly to the Fisheries department whenever a dead whale or dolphin is encountered at their beach.

    - Need training on handling strandings, especially whale carcasses that have potential public health implications. Also, on forensic investigation.
    - Take into consideration the geographical spread of islands and resource and finance needed for appropriate response.
    - Forensic investigation capacity on beach cast cetaceans.
    - The Vanuatu Museum has been collating stranding data in conjunction with Fisheries and our fieldworker network as well as with Vanua-tai network. We received training at numerous workshops mostly with SPREP over the years.
- Fiji:
    - National stranding database once existed but unsure if still in use.
    - Need assistance in developing/establishing a network.
- Papua New Guinea:
    - No national stranding protocol but have protocol in Kikori Delta.
    - Support needed to develop a national protocol.
    - Standard stranding protocols training is needed at community and national level.
- French Polynesia:
    - Yes we have a protocol (methodologies, logistics, DNA etc), a network which is usually expanded annually (pre-COVID) and an online database for reporting.
- New Caledonia:
    - Specific training occurred in 2019 for veterinarians and nature rangers.
    - An online database (rescue.ird.nc) has been developed
- Samoa:
    - Stranding response plan that identifies responsible stakeholders and their responsibility.
    - Need technical training on how to handle stranding safely as well as data collection etc.

Question 4: Has there been any training or equipment provided for the safe disentanglement of cetaceans? Would your country/territory be interested in receiving such training?

- Papua New Guinea:
    - Has had no training but would be very much interested in such training and involving key community persons (rangers) and government officers to be part of such training.
- Vanuatu:
    - Have had 4 people trained in Tonga but would need a refresher and to train more people. No equipment was provided but some of it is easy to fabricate locally.
    - Trainings should be extended to fisheries observers in commercial fishing vessels.
    - The incidence of entanglements of cetaceans has been very low over the last few years.
- French Polynesia:
    - Not had any training and it would be great to get some.
- New Caledonia:
    - Would like some training, but large whale entanglement doesn't seem to be a big problem.
- General comments:
    - Lack of consolidated data, most records anecdotal.
    - Challenge is getting out to the entanglement and attend them due to logistics and funding.

- Safety of responders very important.
- Anecdotally, Papua New Guinea and Vanuatu seem to be having more reports of entanglements, e.g. via social media.
- Reporting of entanglements should be encouraged.
- Very important to ensure the sustainability of the stranding network programmes so we do not lose such skilled people.

Appendices

Appendix 1

Regional Marine Species Programme and Action Plans: Annotated agenda

	Title	time	Speakers
Day 1: 28 July			
12.00PM	Welcome and scene setting for the regional marine species meeting series)	10m	**Stuart Chape** (SPREP, Island and Ocean ecosystems Director)
12.10PM	Review of previous plans and Proposed online reporting tool (SPREP)	10m 10m	**Hannah Hendriks** (SPREP, Marine Species Conservation Officer) **Lagi Reupena** (SPREP, Inform Project Environmental Data Officer)
Day 1: 28 July 12.30PM	**Dugong Action Plan. Welcome and introduction**	**5m**	**Karen Baird** (SPREP, Threatened and Migratory Species Adviser) **Moderator: Peter Davies** (SPREP, Coastal and Marine Ecosystems Adviser)
12.35PM	1. Conservation status of dugong and threats in the region	30m	**Dr Christophe Cleguer** (Centre for Sustainable Aquatic Ecosystems)
1.05PM	Individual presentations on country conservation progress and actions: 2. Australia 3. New Caledonia 4. Palau 5. PNG 6. 6. Solomon Islands 7. 7. Vanuatu 8. 8. Dugong and Seagrass Secretariat **Questions and Discussion**	85m 10m 10m 10m 10m 10m 10m 10m 15m	Total time **Country technical advisers** **Karen Arthur,** Australian Govt **Morgane Viviant,** Coordinator of the New Caledonia Dugong Action Plan& & Claire Garrigue (IRD) **TBC** **Vagi Rei** (CEPA) **Josef Hurutarau.** Deputy Director Conservation (MECDM) **Christina Shaw** (VESS) **Donna Kwan** (Dugong MOU)video
2.30PM	**BREAK**		
3.00PM	Presentation on the new draft Dugong Action Plan	15m	**Karen Baird**
3.15PM	Discussion on draft Regional Action Plan; Breakout groups	60m	Breakout into discussion groups
4.15PM	Report back to Plenary	30m	Breakout groups report back and next steps.
4.30PM	**FINISH**		
Day 2: 29 July	**Seabird Action Plan. Introduction and Welcome**	**5m**	**Karen** Baird (SPREP, Threatened and Migratory Species Adviser) **Moderator: Margaret West** (Pacific BirdLife Director, PIRT Chair)
12.05PM	1. Seabirds of the Pacific - Pacific endemics - Species distribution	10m	**BirdLife Pacific**

	- Species status - Threats Raising awareness & conservation		
12.15PM	2. Frigatebirds: Keystone Indicator Species of Ecological and Cultural Wellbeing and Diversity in the Pacific Islands	10m	**Prof. Randolf Thaman** Emeritus Professor of Pacific Islands Biogeography The University of the South Pacific)
12.25PM	**Theme: Cultural Significance and Value**		
12.25PM	3. Cultural Significance - Update on Vanuatu Video Collared Petrel harvesting (2016).	10m	**Video**
12.35PM	4. Making harvests sustainable	10m	**Mark O'Brien** (BirdLife Pacific)
12.45PM	**Themes: Research and Monitoring; Legislation, Policy, and Management**		
12.45PM	**Highlighting Pacific Partnerships**	5m	**Video**
12.50PM	5. Monitoring seabirds on Rarotonga and Suwarrow.	10m	**Alanna Smith** (Te Ipukarea Society, Cook Islands)Video
1.00PM	**Theme: Climate change; Ecosystems and Habitat Protection; and Threat Reduction**		
1.00PM	6. Threats Overview	10m	**Stephanie Borrelle** (Marine Programme, BirdLife Pacific)
1.10PM	7. Seabirds & Plastics in the Pacific	10m	**Video - Jenn Lavers** (UTas)
1.20PM	8. Pacific Regional Invasive Species Management Support Service (PRISMSS) Predator Free Pacific	10m 10m	**David Moverley** (SPREP, Invasive Species Adviser) **Steve Cranwell** (BirdLife)
1.40PM	9. Rapa Island eradication, French Polynesia	10m	**Tehani Withers** (SOP Manu, French Polynesia)
1.50PM	10. Port-Based Outreach with high seas fishing vessels: Saving seabirds and supporting livelihoods.	7m	**James Nagan** (BirdLife Pacific)
1.57PM	Summary	3m	**BirdLife Pacific**
2.00PM	**BREAK**		
2.30PM	11. Opportunities - Training & surveys. - Colony database	10m	 Karen Baird Mark O'Brien (BirdLife)
2.40PM	Presentation of the new draft Seabird Action Plan	20m	Steph Borrelle (BirdLife)
3.00PM	Discussion/Breakout groups	60m	Breakout into 3 discussion groups
4.00PM	Report back to Plenary	20m	Breakout groups report back
4.20PM	Wrap up and next steps	10m	Karen Baird (SPREP)
4.30PM	**FINISH**		
Day 3: 30 July	**Marine Turtle Action Plan. Welcome and introduction**	**5m**	**Karen Baird** **Moderator: Juney Ward** (Biodiversity Officer, SPREP)
12.05PM	1. Conservation status of marine turtles and threats in the Pacific	30m	**Dr Nicolas Pilcher**, Marine Research Foundation, Malaysia
12.30PM	Presentations on marine turtle research and conservation work taking place in the Pacific:	100m	**Total time**

	2.Work of the IUCN/SSC Marine Turtle Specialist Group in the Oceania Region. 3. The Bycatch and Integrated Ecosystem Management Initiative (BIEM), turtle initiatives. 4. TREDS data base. 5. NOAA's work in Pacific and collaborative opportunities 6. Developments in using DNA to track illegal harvest. 7.Turtle nest cooling Conflict Islands and Australia 8. Turtle tracking from New Caledonia, where do they go and what does this mean for their conservation? 9. Conservation Efforts on Marine Turtles in the Solomon Islands Questions and discussion	10m 10m 10m 10m 10m 10m 10m 20m	**George Balazs**. Regional Vice Chair MTSG Oceania **Anissa Lawrence** (BIEM Project Manager). **Unity Roebeck** (SPREP Turtle Database and Conservation Officer). **Dr Irene Kelly**, Sea Turtle Recovery Coordinator, NOAA. **Dr Christine Hoff**, WWF Marine Turtle Use & trade Asia-Pacific Initiative Lead **Caitlin Smith & Hayley Versace,** WWF and The Conflict Islands Conservation Initiative **Dr Marc Oremus.** WWF Marine Programme coordinator New Caledonia **Dr Richard Hamilton& Simon Vuto** The Nature Conservancy, SI
2.10PM	**BREAK**		
2.30PM	Presentation and discussion on the draft Marine Turtle Action Plan	30m	Karen Baird
3.00PM	Discussion/breakout groups	60m	Breakout into 4 discussion groups
4.00PM	Report back to Plenary	30m	Breakout groups report back and next steps (SPREP)
4.30PM	**FINISH**		
WEEKEND 31 July			
WEEKEND 1 August			
Day 4: 2 August 12.00PM	**Sharks and Rays Action Plan. Welcome and introduction**	**5m**	**Karen Baird Moderator: Vainuupo Jungblut (SPREP Protected Areas Officer)**
12.05PM	1. Conservation status of sharks and threats in the Pacific	35m	**Dr Andrew Chin** JCU Centre for Sustainable Tropical Fisheries and Aquaculture
12.40PM	Examples of research and conservation work happening on sharks and rays in the Pacific: 2.Mobulid conservation in the Pacific. 3.Sawfishes with case study Kikori Delta. 4. Where have all the sharks gone?	80m 12m 12m 12m 12m	**Total time** **Dr Luke Gordon. Project Leader Fiji Manta Trust Manta Trust** **Michael Grant** PhD candidate Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University. **Glenn Sant** (Senior Advisor, fisheries Trade and Traceability, TRAFFIC) **Clinton Duffy,** NZ Department of Conservation (TBC)

	5. Effective conservation of sharks for the Pacific 6. Shark Sanctuaries, are they working? Questions and discussion	12m 20m	**Juney Ward**
2.00PM	**BREAK**		
2.30PM	Presentation on the draft Sharks and Rays Action Plan	30m	Karen Baird
3.00PM	Discussion/ breakout groups	60m	Breakout into 3 discussion groups
4.00PM	Report back to Plenary	30m	Breakout groups report back and next steps
4.30PM	**FINISH**		
Day 5: 3 August 12.00PM	**Whale and Dolphin Action Plan. Welcome and Introduction.**	**5mins**	**Karen Baird Moderator: Mike Donoghue**
12.05PM	1. Conservation status of whales and dolphins and threats in the Pacific	25m	**Dr Cara Miller**
12.30PM	New research and conservation advances on whales and dolphins in the Pacific: **2.Stranding's of Oceania database.** **3. Disentanglement** **4. IWC bycatch initiative, Pacific perspectives.** **5. IMMAs in the Pacific.** **6. Kikori delta dolphins** **7. Responsible whale watching management. Resources and training.** **8. Whale watching in Tonga** **9. Climate change and whales.** Questions and discussion	85m 10m 10m 10m 10m 10m 10m 10m 15m 10m	**Total time** **Hannah Hendriks** (SPREP) **Dr David Mattila** (IWC) **Marguerite Tarzia** (Bycatch Coordinator IWC) **Dr Rochelle Constantine** (Associate Professor, School of Biological Sciences, University of Auckland) **Dr Isabel Beasley/Yolarnie Amepou (PIKU, PNG)** **Harry Eckman,** World Cetacean Alliance **Teisa Fifita (Ministry of Tourism, Tonga)** **Dr Viv Tulloch (video)**
2.05PM	**BREAK**		
2.35PM	Presentation on the draft Whale and Dolphin Action Plan	25m	Karen Baird
3.00PM	Discussion/breakout groups	60m	Break into 4 discussion groups
4.00PM	Report back to plenary	30m	Breakout groups report back and next steps
4.30PM	**FINISH**		
4 August	**BREAK**		
5th and 6th August	**Meeting of Signatories to the Pacific Cetacean MOU**		

Appendix 2 – Attendee lists

Day 1: Introduction and Dugong Action Plan

Name	Job title	Organisation	Country/Territory
Amanda Wheatley	Biodiversity Advisor	SPREP	Samoa
Andrea Stewart	Senior International Advisor	New Zealand Department of Conservation	New Zealand
Anissa Lawrence	Managing Director	TierraMar	Australia
Ata Binoka			
Belinda Harding	Strategic Policy Officer	Department of Agriculture, Water and the Environment	Australia
Caesar San Miguel	Policy Officer	Department of Agriculture, Water and the Environment	Australia
Céline Maurer	Déléguée territoriale Nouvelle-Calédonie , Wallis et Futuna	Office français de la Biodiversité	France
Case Samaeli	Advisor	International Fund for Animal Welfare	New Zealand / Australia
Christina Shaw	Director	Vanuatu Environmental Science Society	Vanuatu
Christine Fort	Representative of the French Ministry of the Environment	DAFE - High Commissioner of the Republic in New Caledonia	New Caledonia
Christophe Cleguer	Post Doctoral Researcher	Murdoch University	Australia
Claire Garrigue	Scientist	IRD	New Caledonia
Dean Wotlolan			
Francis Hickey		Vanuatu Cultural Centre/National Museum	Vanuatu
George Balazs	Regional Vice Chair	IUCN-SSC Marine Turtle Specialist Group	Hawaii
Ilisapeci Narube	Project Officer	Mamanuca Environment Society	Fiji
Hannah Hendriks	Migratory Marine Species Conservation Officer	SPREP	
Heidrun Frisch-Nwakanma	Programme Management Officer	CMS	n/a
Jean-Luc Bernard-Colombat	Director	DAFE - High Commissioner of the Republic in New Caledonia	New Caledonia
Jessica Kay	PRISMSS Capability Development Advisor	SPREP	New Zealand
Jessica Nias	Communications Manager, Project Officer	TierraMar	Australia
Joyce K Beouch	Conservation Planner	Protected Areas Network Office	Palau
Juney Ward	Ecosystem and Biodiversity Officer	SPREP	Samoa
Karen Arthur	Assistant Director, Migratory Species Section	Department of Agriculture Water and the Environment	Australia
Karen Baird	Threatened and Migratory Species Advisor	SPREP	Samoa
Kennedy Kaneko	National Invasive Species Coordinator	SPREP	RMI
Kiam Barri	In charge of the Marine Turtle Action Plan	New Caledonia Government (Coral Sea Natural Park and Fisheries Department)	New Caledonia
Laurence Bachet	Manager Protected Areas and protected marine species	Department of Sustainable Development Southern Province	New Caledonia
Lawrence Chlebeck	marine biologist	Humane Society International	Australia
Marc Oremus	New Caledonia Office Manager	WWF	New Caledonia

Marc Rice	Director, HPA Sea Turtle Research Program	Hawaii Preparatory Academy	USA
Martika Tahi		VESS?	Vanuatu
Marzena Ann Marinjembi	Graduate Intern	Conservation and Environment Protection Authority	Papua New Guinea
Melanie Virtue	Head of Aquatic Species	CMS	
Solomon Islands		MFMR	Solomon Islands
Michael Donoghue	Director	Te Tiaki Moana Associates	New Zealand
Mika Bita			Kiribati?
Miri Tatarata	Environmental Director	Direction of environment	French Polynesia
Moni Carlisle			Australia?
Morgane Viviant	Coordinator Marine Heritage Pole	Conservatory of Natural Spaces - New Caledonia	New Caledonia
Narelle Montgomery	A/g Director	Department of Agriculture, Water and the Environment	Australia
Nicolas Pilcher	Technical Advisor to UNEP-CMS Dugong Secretariat	Marine Research Foundation	Malaysia
Nicolas Rocle	Marine Environment and Conservation Specialist		
Noa Sainz	Programme Manager	European Union Delegation	Fiji
Patrick Colin			Palau?
Phelameya Haiveta	Acting Program Officer-Marine Ecosystems	Conservation and Environment Protection Authority	Papua New Guinea
Philippa Brakes	Research Fellow, WDC - Chair of CMS Expert Working Group on Animal Culture	WDC	New Zealand
Rebecca Keeble	Regional Director	International Fund for Animal Welfare (IFAW)	Australia
Rochelle Constantine	Associate Professor, Coordinator IUCN-IMMA Pacific Region	University of Auckland	New Zealand
Solène Derville	Postdoctoral researcher (marine ecology and conservation)	French Institute of Research for Sustainable Development	New Caledonia
Unity Roebeck	Turtle Database and Conservation Officer	SPREP	Samoa
Vagi Rei			Papua New Guinea
Wilson Hazelman	Environmental Officer	Leleuvia island resort	Fiji

Note: There were hubs in New Caledonia, Solomon Islands, and New Zealand that may have hosted additional attendees that aren't listed here.

Day 2: Seabird Action Plan

Name	Job title	Organisation	Country/territory
Adam Miles	Chief Wildlife Biologist	Department of Marine and Wildlife Resources	American Samoa
Amanda Wheatley	Biodiversity Advisor	SPREP	Samoa
Andre Raine		BirdLife Pacific	New Zealand
Andreas Ravache	Post-doctoral Researcher	Conservatory of Natural Spaces	New Caledonia
Andrea Stewart	Senior International Advisor	New Zealand Department of Conservation	New Zealand
Ata Binoka			
Case Samaeli	Advisor	International Fund for Animal Welfare	New Zealand / Australia
Chris Gaskin	Project Coordinator	Northern New Zealand Seabird Trust	New Zealand

Christina Shaw	Director	Vanuatu Environmental Science Society	Vanuatu
David Thompson	Seabird Ecologist	National Institute of Water and Atmospheric Research Ltd	New Zealand
Dean Wotlolan			Vanuatu
Elise Huffer	Vice-Chair Oceania, CEESP, IUCN; Adjunct Associate Professor, USP	CEESP, IUCN	Fiji
Emily Mowat			
Entole Simanu			
Eric Vidal		IRD	New Zealand
Florian LE BAIL	Chargé de mission biodiversité	Service territorial de l'environnement	Wallis et Futuna
Francis Hickey		Vanuatu Cultural Centre/National Museum	Vanuatu
George Balazs	Regional Vice Chair	IUCN-SSC Marine Turtle Specialist Group	Hawaii
Glenn Sant			
Graeme Taylor	Principal Science Advisor, Marine Species and Threats	Department of Conservation	New Zealand
Gregory Barbara	Environment Assessment and Planning Officer	SPREP	Samoa
Hannah Hendriks	Migratory Marine Species Conservation Officer	SPREP	New Zealand
Melanie Pham			New Caledonia
Ilasaane Lauouvea	Senior Advisor - Multilateral relations	Regional cooperation and external relations department	New Caledonia
Ilisapeci Narube	Project Officer	Mamanuca Environment Society	Fiji
Jacinta Jonathan			
James Nagan			
Jessica Kay	PRISMSS Capability Development Advisor	SPREP/DOC	New Zealand
Jennifer Lavers			Australia?
Johannes Fischer	Technical Advisor	Department of Conservation	New Zealand
Juney Ward	Ecosystem and Biodiversity Officer	SPREP	Samoa
Karen Baird	Threatened and Migratory Species Advisor	SPREP	Samoa
Karen Stone	Director	Vava'u Environmental Protection Association (VEPA)	Tonga
Kiam BARRI	In charge of the Marine Turtle Action Plan	New Caledonia Government (Coral Sea Natural Park and Fisheries Department)	New Caledonia
Lawrence Chlebeck	Marine Biologist	Humane Society International	Australia
Lindsay Porter	Senior Research Scientist	International Whaling Commission (Scientific Committee IP) and SEAMAR	Hong Kong/Malaysia
Marc Rice	Director, HPA Sea Turtle Research Program	Hawaii Preparatory Academy	USA
margaret west	Regional Director	BirdLife Pacific	Australia
Maria Satoa	Principal Marine Biodiversity Conservation Officer	Ministry of Natural Resources and Environment	Samoa
Mark Carey	Senior Policy Officer, Migratory Species Section	Australian Government Department of Agriculture, Water and the Environment	Australia
Mark O'Brien			

Martika Tahi		VESS?	Vanuatu
Michael Donoghue	Director	Te Tiaki Moana Associates	New Zealand
Mika Bita			Kiribati?
Narelle Montgomery	A/G Director	Department of Agriculture, Water and the Environment	Australia
Nicholas Carlile			Australia?
Noa Sainz	Programme Manager	European Union Delegation	Fiji
Pearl Barry			
Randolph Thaman			
Raymond Nias	Director	TierraMar	Australia
Rebecca Keeble	Regional Director	International Fund for Animal Welfare (IFAW)	Australia
Rita Goiye			Papua New Guinea
Rolenas Tavue Baereleo			Vanuatu
Samhita Bose	Technical Advisor Marine	DOC	New Zealand
Steph Borelle	Marine and Pacific Regional Coordinator	BirdLife International	New Zealand
Souad Boudjelas	Project Manager, Managing Invasive Species for Climate Change Adaptation (MISCCAP)	Department of Conservation, New Zealand	New Zealand
Steve Cranwell			
Tehani Withers			
Unity Roebeck	Turtle Database and Conservation Officer	SPREP	Samoa
Vainuupo Jungblut	Protected Areas Officer	SPREP	Samoa
Vagi Rei			Papua New Guinea
Wilson Hazelman	Environmental Officer	Leleuvia island resort	Fiji

Note: There were hubs in New Zealand and Vanuatu that may have hosted additional attendees that aren't listed here.

Day 3: Turtle Action Plan

Name	Job title	Organisation	Country/territory
Adam Miles	Chief Wildlife Biologist	Department of Marine and Wildlife Resources	American Samoa
Alexander Gaos	Marine Turtle Research Ecologist	NOAA Pacific Islands Fisheries Science Center	USA
Alexandra Reininger	Pathways Intern	National Oceanic and Atmospheric Administration (NOAA)	United States
Amanda Wheatley	Biodiversity Advisor	SPREP	Samoa
Andrea Stewart	Senior International Advisor	New Zealand Department of Conservation	New Zealand
Anissa Lawrence	Managing Director	TierraMar	Australia
Ariella D'Andrea	Legal Adviser (Coastal Fisheries and Aquaculture)	South Pacific Community (SPC)	New Caledonia
Ata Binoka			
Belinda Harding	Strategic Policy Officer	Department of Agriculture, Water and the Environment	Australia
Caesar San Miguel	Policy Officer	Department of Agriculture, Water and the Environment	Australia
Case Samaeli	Advisor	International Fund for Animal Welfare	New Zealand / Australia
Caitlin Smith	Marine Species Conservation Officer	WWF-Australia	Australia

Camryn Allen	Research Marine Biologist	Marine Turtle Biology and Assessment Program/PIFSC/NMFS/NOAA	USA
Christina Shaw	Director	Vanuatu Environmental Science Society	Vanuatu
Christine Fort	Representative of the French Ministry of the Environment	DAFE - High Commissioner of the Republic in New Caledonia	New Caledonia
Christine Madden Hof	Marine Species Program Manager	WWF	Australia
Elise Huffer	Vice-Chair Oceania, CEESP, IUCN; Adjunct Associate Professor, USP	CEESP, IUCN	Fiji
Florian le Bail	Chargé de mission biodiversité	Service territorial de l'environnement	Wallis et Futuna
Francis Hickey		Vanuatu Cultural Centre/National Museum	Vanuatu
George Balazs	Regional Vice Chair	IUCN-SSC Marine Turtle Specialist Group	Hawaii
Hannah Hendriks	Migratory Marine Species Conservation Officer	SPREP	
Heidrun Frisch-Nwakanma	Programme Management Officer	CMS	n/a
Ian Freeman	Coastal fisheries & aquaculture Monitoring, surveillance, control & enforcement specialist	Pacific Community (SPC)	New Caledonia
Irene Kelly	Sea Turtle Recovery Coordinator	NOAA Fisheries	USA (Hawaii)
Isabel Beasley	Marine Mammalogist	Snubfin Dolphin Conservation Project	Australia
Jacinta Jonathan			
Juney Ward	Ecosystems and Biodiversity Officer	SPREP	Samoa
Karen Baird	Threatened and Migratory Species Advisor	SPREP	Samoa
Karen Arthur		Department of Agriculture Water and the Environment	Australia
Karen Stone	Director	Vava'u Environmental Protection Association (VEPA)	Tonga
Lawrence Chlebeck	Marine Biologist	Humane Society International	Australia
Marc Oremus		WWF	New Caledonia
Marc Rice	Director, HPA Sea Turtle Research Program	Hawaii Preparatory Academy	USA
Martika Tahi		VESS?	Vanuatu
Michael Donoghue	Director	Te Tiaki Moana Associates	New Zealand
Mika Bita			Kiribati?
Miri Tatarata	Environmental Director	Direction of environment	French Polynesia
Narelle Montgomery	A/G Director	Department of Agriculture, Water and the Environment	Australia
Nicolas Pilcher	Technical Advisor to UNEP-CMS Dugong Secretariat	Marine Research Foundation	Malaysia
Noa Sainz	Programme Manager	European Union Delegation	Fiji
Pearl Barry			
Philippa Brakes	Research Fellow, WDC - Chair of CMS Expert Working Group on Animal Culture	WDC	New Zealand
Rebecca Haughey	Senior Policy Officer	Department of Agriculture, Water and the Environment	Australia

Rebecca Keeble	Regional Director	International Fund for Animal Welfare (IFAW)	Australia
Richard Hamilton		The Nature Conservancy	
Rita Goiye			Papua New Guinea
Robert Howard	Regional Project Coordinator	Wildlife Conservation Soceity	Fiji
Seumalo Afele Failagi	Assistant Chief Executive Officer	Ministry of Natural Resources and Environment	Samoa
Shawn Murakawa	Biologist	NOAA PIFSC	United States
Shritika Prakash	Research Assistant	The University of the South Pacific	Fiji
Souad Boudjelas	Project Manager, Managing Invasive Species for Climate Change Adaptation (MISCCAP)	Department of Conservation, New Zealand	New Zealand
Wilson Hazelman	Environmental officer	Leleuvia island resort	Fiji islands
Unity Roebeck	Turtle Database and Conservation Officer	SPREP	Samoa
Vainuupo Jungblut	Protected Areas Officer	SPREP	Samoa

Note: There was a hub in New Caledonia that may have hosted additional participants.

Day 4: Shark and Ray Action Plan

Name	Job title	Organisation	Country/territory
Alex Hulme			Australia
Amanda Wheatley	Biodiversity Advisor	SPREP	Samoa
Andrea Stewart	Senior International Advisor	New Zealand Department of Conservation	New Zealand
Andrew Chin		James Cook University	Australia
Anissa Lawrence	Managing Director	TierraMar	Australia
Brit Finucci	Fisheries Scientist	NIWA	New Zealand
Case Samaeli	Advisor	International Fund for Animal Welfare	New Zealand / Australia
Christina Shaw	Director	Vanuatu Environmental Science Society	Vanuatu
Clinton Duffy	Technical Advisor - Marine Species	Department of Conservation	New Zealand
Dean Wotlolan			Vanuatu
Elise Huffer	Vice-Chair Oceania, CEESP, IUCN; Adjunct Associate Professor, USP	CEESP, IUCN	Fiji
Florian le Bail	Chargé de mission biodiversité	Service territorial de l'environnement de Wallis et Futuna	Wallis and Futuna
Francis Hickey		Vanuatu Cultural Centre/National Museum	Vanuatu
George Balazs	Regional Vice Chair	IUCN-SSC Marine Turtle Specialist Group	Hawaii
Hannah Hendriks	Migratory Marine Species Conservation Officer	SPREP	New Zealand
Christine Fort	Representative of the French Ministry of the Environment	DAFE - High Commissioner of the Republic in New Caledonia	New Caledonia
Ian Freeman	Coastal fisheries & aquaculture Monitoring, surveillance, control & enforcement specialist	Pacific Community (SPC)	New Caledonia
Ilisapeci Narube	Project Officer	Mamanuca Environment Society	Fiji
Isabel Beasley	Marine Mammalogist	Snubfin Dolphin Conservation Project	Australia

Isabella Clere		Whales Alive	New Zealand
Jean-Luc Bernard-Colombat	Director	DAFE - High Commissioner of the Republic in New Caledonia	New Caledonia
Juney Ward	Ecosystems and Biodiversity Officer	SPREP	Samoa
Karen Baird	Threatened and Migratory Species Advisor	SPREP	Samoa
Kiam Barri	In charge of the Marine Turtle Action Plan	New Caledonia Government (Coral Sea Natural Park and Fisheries Department)	New Caledonia
Lawrence Chlebeck	marine biologist	Humane Society International	Australia
Lesley Gidding-Reeve	Director, Marine and Freshwater Species Conservation	Department of Agriculture, Water and the Environment	Australia
Lindsay Porter	Senior Research Scientist	International Whaling Commission (Scientific Committee IP) and SEAMAR	Hong Kong/Malaysia
Lisa Sztukowski			
Luke Gordon	Project Leader	Manta Project Fiji	Fiji
Martika Tahi		VESS	Vanuatu
Michael Donoghue	Director	Te Tiaki Moana Associates	New Zealand
Michael Grant	PhD Candidate	James Cook University	Australia
Miri Tatarata	Environmental Director	Direction of environment	French polynesia
Narelle Montgomery	A/G Director	Department of Agriculture, Water and the Environment	Australia
Natalie Barefoot	Senior Attorney	Earthjustice / Cet Law	United States
Noa Sainz	Programme Manager	European Union Delegation	Fiji
Olive Andrews	Ocean Policy and Marine Mammal Advisor	IFAW	New Zealand
Rebecca Keeble	Regional Director	International Fund for Animal Welfare (IFAW)	Australia
Rita Goiye			Papua New Guinea
Robert Howard	Regional Project Coordinator	Wildlife Conservation Society	Fiji
Rochelle Constantine	Associate Professor, Coordinator IUCN-IMMA Pacific Region	University of Auckland	New Zealand
Uali Kula	Shark & Ray Research Assistant	Wildlife Conservation Society	Papua New Guinea
Unity Roebeck	Turtle Database and Conservation Officer	SPREP	Samoa
Vagi Rei			Papua New Guinea
Wilma Mavea			
Wilson Hazelman	Environmental officer	Leleuvia island resort	Fiji islands
Yolarnie Amepou	Director	Piku Biodiversity Network	Papua New Guinea

Note: There were hubs in Vanuatu and New Caledonia that may have hosted additional participants.

Day 5: Whale and Dolphin Action Plan

Name	**Job title**	**Organisation**	**Country/territory**
Amanda Wheatley	Biodiversity Advisor	SPREP	Samoa
Alexia Wellbelove	Senior Campaign Manager	Humane Society International Australia	Australia
Alex Macdonald	Senior International Advisor	New Zealand Department of Conservation	New Zealand
Andrea Stewart	Senior International Advisor	New Zealand Department of Conservation	New Zealand

Anita Harrington	Knauss Marine Policy Fellow	On detail with NOAA, Office of Protected Resources	United States
Ann Garrett	Assistant Regional Administrator for Protected Species	National Marine Fisheries Service	United States
Anton van Helden	Science Advisor	New Zealand Department of Conservation	New Zealand
Belinda Harding	Strategic Policy Officer	Department of Agriculture, Water and the Environment	Australia
Beth Pearsall			
Cara Miller	Stock Assessment Scientist	Australian Antarctic Division	Australia
Case Samaeli	International Fund for Animal Welfare	Sharks and Rays, Whales	New Zealand / Australia
Chris Johnson	Global Lead, WWF Protecting Whales & Dolphins Initiative	WWF	Australia, Pacific, Global
Christina Shaw	Director	Vanuatu Environmental Science Society	Vanuatu
Christine Fort	Representative of the French Ministry of the Environment	DAFE - High Commissioner of the Republic in New Caledonia	New Caledonia
Dave Lundquist	Technical Advisor, Marine Species	Department of Conservation	New Zealand
David Mattila	Technical Advisor	International Whaling Commission	USA
Dean Wotlolan			Vanuatu
Debbie Steel		Oregon State University	USA
Diana Kramer	Resource Management Specialist	NOAA	United States
Elise Huffer	Vice-Chair Oceania, CEESP, IUCN; Adjunct Associate Professor, USP	CEESP, IUCN	Fiji
Fanny Martre	Technician	Direction of environment	French Polynesia
Florian le Bail	Chargé de mission biodiversité	Service territorial de l'environnement de Wallis et Futuna	Wallis and Futuna
Francis Hickey		Vanuatu Cultural Centre/National Museum	Vanuatu
George Balazs	Regional Vice Chair	IUCN-SSC Marine Turtle Specialist Group	Hawaii
Hannah Hendriks	Migratory Marine Species Conservation Officer	SPREP	New Zealand
Harry Eckman		World Cetacean Alliance	
Heidrun Frisch-Nwakanma	Programme Management Officer	CMS	n/a
Ian Freeman	Coastal fisheries & aquaculture Monitoring, surveillance, control & enforcement specialist	Pacific Community (SPC)	New Caledonia
Isabel Beasley	Marine Mammalogist	Snubfin Dolphin Conservation Project	Australia
Isabella Clere		Whales Alive	New Zealand
Jacinta Jonathan			
Jenny Rennell		CMS	
Jessica Kay		Seabirds, Whales and Dolphins	SPREP/DOC
Jonny Martin		MFAT	New Zealand
Juney Ward	EBO	SPREP	Samoa
Karen Baird	Threatened and Migratory Species Advisor	SPREP	Samoa

Karen Stone	Director	Vava'u Environmental Protection Association (VEPA)	Tonga
Kate O'Connell	Marine Wildlife Consultant	Animal Welfare Institute	USA
Kiam BARRI	In charge of the Marine Turtle Action Plan	New Caledonia Government (Coral Sea Natural Park and Fisheries Department)	New Caledonia
Krista Graham	Endangered Species Biologist	NOAA Fisheries Pacific Islands Regional Office	United States
Lisa Sztukowski			
Martika Tahi		VESS	Vanuatu
Michael Donoghue	Director	Te Tiaki Moana Associates	New Zealand
Mick McIntyre		Second nature films	Australia
Narelle Montgomery	A/G Director	Department of Agriculture, Water and the Environment	Australia
Natalie Barefoot	Senior Attorney	Earthjustice / Cet Law	United States
Nina Young		NOAA	United States
Noa Sainz	Programme Manager	European Union Delegation	Fiji
Olive Andrews	Ocean Policy and Marine Mammal Advisor	IFAW	New Zealand
Philippa Brakes	Research Fellow, WDC - Chair of CMS Expert Working Group on Animal Culture	WDC	New Zealand
Rebecca Haughey	Senior Policy Officer	Department of Agriculture, Water and the Environment	Australia
Rebecca Keeble	Regional Director	International Fund for Animal Welfare (IFAW)	Australia
Rita Goiye			Papua New Guinea
Rochelle Constantine	Associate Professor, Coordinator IUCN-IMMA Pacific Region	University of Auckland	New Zealand
Rolenas Tavue Baereleo			Vanuatu
Scott Baker		Oregon State University	United States
Sue Fisher	Marine Consultant	Animal Welfare Institute	USA
Teisa Tupou			Tonga
Unity Roebeck	Turtle Database and Conservation Officer	SPREP	Samoa
Wilma Mavea			
Wilson Hazelman	Environmental officer	Leleuvia island resort	Fiji islands
Yolarnie Amepou		Piku Biodiversity Network	Papua New Guinea

Note: There was a hub in Vanuatu which may have hosted further participants.

Appendix 3 – Speaker Bios

Allana Smith

Conservation Program Manager at the Te Ipukarea Society (TIS) – Cook Islands

Alanna Smith currently lives in Rarotonga Cook Islands, where she has been working with the environmental NGO Te Ipukarea Society (TIS) for the past 6 years. Over the years, she has worked closely with local schools and communities raising awareness on marine pollution, waste management, and sustainability, while continuing to implement on-the-ground conservation work. Currently Alanna and Kelvin, TIS Director, are on voyage of the Cook Islands Northern Group Islands where they are conducting on-sea surveys of seabirds and on-site scoping exercises of IAS and their impacts.

Dr. Cara Miller

Stock Assessment Scientist at the Australian Antarctic Division – Australia

I am a quantitative ecologist interested in exploring ways to effectively monitor, measure and manage biodiversity. I am particularly interested in survey design, biodiversity indicators and conservation status assessments for remote, migratory and cryptic species. In addition, I have a passion for teaching – particularly ecological statistics – and supporting students in their studies and research.

A majority of my research has been focused on marine species, notably cetaceans. I was fortunate to be based in Fiji from 2008 to 2016 where I become very interested in understanding more about cetacean diversity, threats and conservation in the Pacific Islands Region. During this time, I was also very lucky to collaborate with a number of Pacific Island government and regional researchers and students (notably in Fiji, Papua New Guinea, and Tonga) on projects aimed to increase understanding of cetacean diversity and habitat use while also aiming to build local capacity and work towards strengthening conservation and management objectives.

Christina Shaw

Director of the Vanuatu Environmental Science Society (VESS) – Vanuatu

Christina Shaw, originally a veterinary surgeon from England, has lived in Vanuatu for the last 13 years. In 2014 she started a conservation organisation The Vanuatu Environmental Science Society after completing a masters in Veterinary Conservation medicine from Murdoch University, Australia. VESS has implemented projects to protect dugongs and seagrass meadows in including being the implementing partner of the GEF-funded Dugong and Seagrass conservation project. Other projects focus on Vanuatu's threatened and endemic species such as Vanuatu's flying foxes. Christina first encountered dugongs whilst scuba diving in Port Vila. Christina and her husband are now partners in the scuba diving business Big Blue Vanuatu. Both VESS and Big Blue have been raising awareness about the problem of plastics in our oceans and have conducted clean-ups in the water and on the land the data from which has been used to support the single-use-plastic bans that have recently come into force in Vanuatu.

Claire Garrigue

Scientist at the Institute for Research for Development (IRD) – New Caledonia

Claire Garrigue is a researcher at the Institute for Research for Development (IRD) within UMR Entropy. The research she developed over the last thirty years is on the ecology and conservation of

marine mammals. Most of them were carried out in the South West Pacific Ocean in collaboration with the South Pacific Whale Research Consortium. She is interested in the ecology of marine mammals in order to obtain the knowledge necessary for the implementation of effective management for the conservation of populations. She is at the origin of many study programs of cetaceans and sirenians of New Caledonia focusing on population dynamics, connectivity, habitat use, migration and as well as anthropogenic impact.

David Mattila
Technical Advisor, Human Impact Reduction for the Secretariat to the International Whaling Commission and Centre for Coastal Studies – USA

David Mattila is currently "shared" staff with the Secretariat of the International Whaling Commission and the Center for Coastal Studies (USA), where he assists with several global conservation and management issues, including large whale entanglement and ship strike mitigation initiatives. He officially joined the IWC and CCS in 2014 after being seconded to the IWC by the USA (NOAA) since 2011. Between 2001 and 2011 he worked as the Science and Rescue Coordinator for NOAA's Hawaiian Islands Humpback Whale National Marine Sanctuary. He has a long history of international whale work, including as a principal coordinator of two Ocean-wide, international collaborative studies of humpback whales: the SPLASH project in the North Pacific (2004-2006) and the YONAH project in the North Atlantic (1992-1993). He is also a founding member of the International Committee on Marine Mammal Protected Areas, which is now also an IUCN Task Force. Since 1984 he has worked with the large whale entanglement issue, helping to develop unique rescue tools, techniques, and training programs. He helped to establish, and was the first coordinator of, the large whale disentanglement network along the Atlantic coast of the United States (1996) and later, upon moving to Hawaii, he helped to set up the network there. These networks respond to reports of entangled large whales, release them when possible and gather information that will ultimately lead to the prevention of these events, as they are costly to fishers, whales and well-meaning but untrained rescuers. He has convened four international (IWC) workshops on this topic, which included participation by the directors of all existing National entanglement response networks around the World. Beginning in 2012 he has helped to train over 1,200 participants from 34 countries.

George Balazs
Vice-Chair of the Oceania Region of the IUCN Marine Turtle Specialist Group

George Balazs is based in Hawaii where he provides assistant and advice on global sea turtle conservation, cultural, and research issues. He is retired from a 34-year career with the USA agency NOAA, and 10 years with the University of Hawaii. Since 2012 he has served as the Vice-Chair of the Oceania Region of the IUCN Marine Turtle Specialist Group, along with Co-Chairs Denise Parker and Thierry Work. https://georgehbalazs.com/george-h-balazs-cv/

Hannah Hendriks
Migratory Marine Species Conservation Officer for SPREP, on secondment from the NZ Department of Conservation – New Zealand

Hannah Hendriks works in Wellington, New Zealand as a Marine Technical Advisor to the Department of Conservation (DOC). She is currently on a secondment to SPREP until the end of August 2021 as a Migratory Marine Species Conservation Officer, supporting the Threatened and Migratory Species Advisor, Karen Baird, remotely from Wellington. The purpose of the secondment was to consult with Pacific Partners to review implementation of the previous Pacific Island Regional

Marine Species Action Plans (for dugong, sea turtles, and whales and dolphins) 2013-2017 and to review and draft new plans for the 2022-2026 period, including plans for seabirds, and sharks and rays. Hannah has been with DOC since 2013 after finishing a Masters in Marine Conservation at Victoria University of Wellington, during which time her area of focus has primarily been marine mammals, and specifically marine mammal incidents and data. Hannah administers the Standard Operating Procedures for marine mammal stranding and beach cast events, providing advice and support to local rangers around the country. As a part of this, she manages the Department's relationship with Project Jonah, and has close relationships with many marine mammal researchers in New Zealand. Since she started at DOC, Hannah has worked with and managed New Zealand's marine mammal sightings and strandings data, including for the threatened Hector's and Maui dolphins. Hannah drew on this experience to renew the APOD database for recording marine mammal strandings across the Pacific, known as 'Strandings of Oceania'.

Harry Eckman
CEO of the World Cetacean Alliance – Portugal

Harry Eckman is an international animal welfare specialist with over 20 years' experience. As the Co-founder of Change For Animals Foundation (CFAF) and a consultant for the Harry has worked with hundreds of locally based animal protection organisations around the world. His work has included providing guidance and support on strategic thinking, planning and capacity development for animal welfare and conservation NGOs; stray animal population management; campaigning to end the dog and cat meat trades; lobbying to end wildlife in captivity and the illegal wildlife trade; incorporating human behaviour change concepts into animal welfare, conservation and management programs; community and stakeholder engagement; and improving welfare standards in shelters and veterinary facilities.

Harry has previously worked for the RSPCA, World Animal Protection, Human Behaviour Change for Animals, Four Paws International, the Asia for Animals coalition and the World Small Animal Veterinary Association.

Today, Harry is CEO of the World Cetacean Alliance, the world's largest marine conservation partnership. He has a lifelong passion for the ocean and its protection and conservation. Harry was born in London but lives in Portugal with his wife, 3 cats and a dog.

Irene Kelly
Sea turtle recovery coordinator for NOOA Fisheries – USA

Irene Kinan Kelly is the sea turtle recovery coordinator for NOAA Fisheries, Pacific Islands Regional Office. Her work focuses on the conservation, management and protection of endangered and threatened Pacific sea turtle species. Since 2001, Irene has helped to implement community, NGO, and local government grant projects throughout the Pacific Rim. Programs have included research and monitoring at nesting beaches and marine habitats for population assessment purposes, fishery research and mitigation to reduce bycatch in pelagic and coastal fisheries, and educational outreach to promote community-based stewardship. Originally from California, Irene moved to Hawaii in 1996 to work for NOAA Fisheries as a field biologist to monitor marine mammal populations in the Northwestern Hawaiian Islands. In 2001, she transitioned into the world of commercial fishery management as the protected species program coordinator for the Western Pacific Fishery Management Council. She returned to NOAA in 2008 to focus on sea turtle conservation and management and participates in numerous U.S. government and non-governmental advisory teams including the IUCN Marine Turtle Specialist Group, Oceania Region.

Dr Isabel Beasley
Marine Mammaologist at the Snubfin Dolphin Conservation Project - Australia

Dr Isabel Beasley has conducted research and conservation on inshore dolphins in Asia, Australia and Papua New Guinea since the early 2000s. The majority of her work was conducted as a PhD student and postdoctoral research fellow with James Cook University. Dr Beasley is an invited member of the IUCN Cetacean Specialist Group.

James Nagan
Port-Based Outreach Officer for BirdLife International Pacific Secretariat – Fiji

James Nagan is no stranger to the fishing industry in Fiji, having held positions within the industry and local government. Together with BirdLife South Africa, he was a key member of the implementation of the Port-Based Outreach pilot program in 2018. In his work, James actively engages with fleet operators, crew members, and local community members to raise awareness of seabird bycatch and appropriate mitigation measures available to them. In addition to this work, he works closely with a local women's group in Suva and help empower them to become part of the solution to seabird bycatch through creating hand-made bird-scaring lines.

Josef Hurutarau
Ministry of Environment, Climate Change, Disaster Management & Meteorology, Deputy Director Conservation – Solomon Islands

I have been working with the Ministry of Environment, Climate Change, Disaster Management & Meteorology since 2007. Since 2016, I took up the position as the Deputy Director Conservation, Environment and Conservation Division. I oversee our Conservation Unit which implement an important Government programme on Ecosystem and Biodiversity Conservation, Management and Restoration. This involved scope of work and experiences including: 1). Review, Revise and Improvement of Existing Laws, Regulations, Strategies and Administrative Arrangements, 2). Coordinate and Conduct Bio-research and Bio-prospecting Research and Species Assessments & Document Result, 3). Identify & Protect Potential Areas of High Conservation Values and Biodiversity Significance and Endangered Species, 4). Control and Manage International Trade in Wildlife, 5). Implement Environmental Awareness and Education Program through Partnerships and Collaborations throughout Solomon Islands and abroad. We carry out these programmes under the Protected Areas Act 2010 and Wildlife Protection and Management Act 1998(Amendment 2017). We are involved in enforcement of above laws and regulations broadening experiences on environment and conservation issues and concerns. For the last 13 years, I have involved in the extensive environment and conservation programmes at the national (Community & local), regional and few COP meetings. I remain a National Focal Point for the Cartagena Protocol on Biosafety. At the national level, I have taken lead on national environment & conservation policy instruments such as Solomon Islands National Biodiversity Strategic Action Plan (NBSAP) 2008 (new version 2016), Solomon Islands State of Environment Report (SI SOE)2019, Solomon Islands Biosafety Framework and many other national plans: CTI NPoA 2010, Solomon Islands National Oceans Policy 2019. Assisted in developing National Waste Management and Pollution Control Strategy 2017-2026.In terms of Government Laws and Legislations, I have involved directly with and has experiences in amendments of Wildlife protection and Management Amendment 2017 which successfully gazette and passed by Parliament. We have participated in relevant review of others like Fisheries Management Regulations, Forestry Act review, Mines & Energy Act review, Biosecurity Act 2013 and other regulations. I have involved in a lot of working committees under various programmes and

national projects. From Mines and Energy Board Meetings, Protected Areas Advisory Committee, Ministry HODs and Projects,

2Forestry Committees (under gov't plan to ensure sustainable harvesting), Research Committee (MEHRD) to approve research and many others which are national project based such as GEF projects etc. I have involved in developing National Management and Action Plans for Dolphin, Saltwater Crocodile, Corucia Zebrata (Monkey tail Skink), Marine Turtle, Dugong and Seagrass Habitat Conservation, Santa Cruz Ground Dove and Invasive Species Management. This involved surveys and publication of reports. I am involved also in processes to declare the first national protected areas in Solomon Islands, the Arnavon Community Marine Park(ACMP)-Isabelin 2017 & its management, first terrestrial protected areas in Solomon Islands: Sirebe Forest Conservation Area(Choiseul)in 2019. I continue to assist communities in developing their management plan and undertake rapid biodiversity assessment reports which are important requirements under the Protected Areas Act 2010.For my Education and Tertiary Qualifications: I obtained a bachelor's degree in Environment Science, University of Papua New Guinea, 1999-2002 and Master's Degree in Life and Environment Science, Shimane University, Japan, April 2013-March 2016.

Lagi Reupena
Inform Project Environmental Data Officer for SPREP – Samoa

Ms. Lagi Reupena is the Inform Project Environmental Data Officer under the Environmental Monitoring and Governance Programme of the Secretariat of the Pacific Regional Environment Programme. Lagi has been working for 2.5 years providing assistance to the Inform Project team with the management of country environment data portals, indicator reporting tools as well as supporting the development of regional and national state of environment reports.

Luke Gordon
Project Leader for Manta Trust Fiji – Fiji

Luke Gordon is a marine researcher currently leading Manta Project Fiji, Manta Trust's affiliate project in the Fiji Islands. Having spent over five years working in Fiji on various marine conservation topics, Luke moved into a new role of Project Leader for the Manta Trust Fiji in 2018. He brings a wealth of experience in marine conversation from the Maldives, Ecuador and the Seychelles, where he was most recently involved in the Seychelles Manta Ray Project.

Michael Grant
PhD Candidate at James Cook University – Australia

Michael's principal interest is within the framework of fish and fisheries science. Michael is driven to work in areas of sustainability and conservation research, particularly in developing nations with complex social structures. Other research interests include aspects of chondrichthyan biology including life history and demography, habitat use, and human interactions. Michael is presently in the final stages of completing his PhD on the 'conservation biology of sharks and rays in non-marine environments' at James Cook University. This project has involved extensive fieldwork in remote regions of Papua New Guinea where Michael has gained valuable insights on aspects of cultural and small-scale fisheries, and the complexities and considerations of their management with respect to local livelihoods and social systems.

Dr. Nicolas Pilcher
Director of Marine Research Foundation and Technical Advisor to the UNEP-CMS Dugong Secretariat – Malaysia

Dr. Nicolas Pilcher is a British marine biologist based in Sabah (Malaysia), where he established and runs his own research and conservation agency – the Marine Research Foundation.

Nick has worked extensively on conservation projects in Malaysia, in the Middle East, and across the Indo-Pacific region, focusing his skills on saving endangered sea turtles, dugongs, sharks and rays, and other marine species. His specialty is in developing management-oriented solutions to conservation and working on reducing bycatch of endangered species, to which he brings 30 years of experience. Nick also works extensively with major industries to design and deliver solutions to environmental challenges they face. In particular, Nick works with oil % & gas companies, mines and shipping, and tourism resorts to find sea turtle – industry solutions. One of his flagship projects is introducing Turtle Excluder Devices to Malaysian trawl fisheries, which became a legal requirement in 2017. In recent years he has also studied impacts of climate change on sea turtles in the Arabian Gulf, tracked turtles across the Middle Eastern region with satellite tracking devices, and investigated turtle use and trade in part of Africa.

Nick served as the Co-Chair of the IUCN Marine Turtle Specialist Group for 13 years, and currently is a Technical Advisor to the UNEP-CMS Dugong Secretariat and a member of the advisory boards of a number of international organisations.

In his spare time he is a husband, a father, diver, a boat captain, and even a small airplane pilot.

Dr Rochelle Constantine
Associate Professor at the University of Auckland – New Zealand

Dr Rochelle Constantine is an Associate Professor in the School of Biological Sciences and Institute of Marine Science at the University of Auckland. She is a member of the Joint IUCN Species Survival Commission - World Commission on Protected Areas Marine Mammal Protected Areas Task Force and coordinates the Pacific Region with Dr Claire Garrigue from the IRD in New Caledonia. Rochelle runs multi-disciplinary, collaborative research projects on marine mammals spanning the tropics to Antarctica. She chairs the Southern Ocean Research Partnership – International Whaling Commission Humpback Whale Connectivity Project, is a member of the IUCN Cetacean Species Survival Commission and a founding member of the South Pacific Whale Research Consortium.

Dr Stephanie Borelle
Marine and Pacific Regional Coordinator for BirdLife International

Stephanie Borrelle currently resides in the seabird capital of the world, Aotearoa New Zealand, and works for the Pacific Secretariat of BirdLife International as their Marine and Pacific Regional Coordinator. Her PhD research investigated the recovery of seabirds to islands following predator eradication, and the impact of marine threats, such as fisheries, plastic pollution and climate change on seabird population recovery. As David H. Smith Postdoctoral Fellow, Stephanie used novel global scale models to estimate plastic pollution entering the world's marine and freshwater ecosystems. She is a member of the Scientific Advisory Committee on the Assessment of Marine Litter and Microplastics of the United Nations Environment Program (UNEP) and has contributed to OECD reports on plastic pollution. Her passion and commitment towards the conservation and protection of seabirds is evident throughout her career, publishing various scientific and academic papers on seabirds and marine plastic pollution in high impact journals, and making guest appearances on podcasts and radio on the effects of plastic on birds. Stephanie is also a member of the New Zealand Government Seabird Advisory Group, and the SPREP led Seabird Action group.

Tavita Su'a
Environmental Information Systems Developer and Analyst at SPREP – Samoa

Mr. Tavita Su'a is the Environmental Information Systems Developer and Analyst for the Inform Project at SPREP under the Environmental Monitoring and Governance Programme. Tavita has been working with the Secretariat for five years now whereby one of his key roles include the designing, development and providing back-end support of data repositories and online reporting tools and applications for 14 Pacific Island countries under the Inform Project.

Teisa Fifita-Tupou
Principal Tourist Officer for the Industry Empowerment Division – Tonga

Teisa Fifita-Tupou was born and raised in the Kingdom of Tonga and is 32 years old. She is currently working for the Ministry of Tourism, as the Principal Tourist Officer supervising the work of the Industry Empowerment Division, in which the Marine Activities Unit falls under. She has been an untiring advocate of achieving best practices in the Kingdom's Whale Watching Industry. She initiated the first ever enforcements of Whale Watching Activities in Tonga in 2017 in the Island of Vava'u. From there on, the level of operator's compliance has been increasing significantly over the years. In about 2 years of her time working directly with the Whale Watching and Swimming operators, she has identified loopholes in the existing legislation that governs the whale watching activities and therefore proposed to review the Regulations. The new Regulations should be complete by the next season.

Mrs. Tupou holds a Masters in Commerce (Tourism Marketing) from the University of Otago in Dunedin and a Bachelor's in Business Studies from Whitireia Community School in Auckland, New Zealand.

Unity Roebeck
Turtle Database and Conservation Officer for SPREP – Samoa

Unity Roebeck is the Turtle Database and Conservation Officer with the SPREP and works closely with the Threatened and Migratory Species Adviser (TAMSA), Ms. Karen Baird in the Island and Ocean Ecosystems Programme. He is based at the SPREP Headquarters in Samoa and started working with SPREP in early June 2020.He is in charge of managing and maintaining the Turtle Research and monitoring Database System (TREDS) and provides technical support and advice to SPREP member countries on turtle conservation. Since he came onboard, he has been assisting a Software Consulting Company in the upgrading of the TREDS from a MS Access Database Platform to an online, Drupal based Platform. He was previously with the Samoa Ministry of Agriculture and Fisheries as an Aquaculture Officer from 2011 –2014 and the Senior Mariculture Officer and team leader for the Mariculture Unit from 2014 –2020.During his time with the Samoa Fisheries Division, he managed the Ministry's multi-species Marine Hatchery facility where heled and implemented breeding programmes for giant clams as part of the Ministry's efforts at restocking Samoa's reefs and was the technical lead on aquaculture systems and farming. Unity graduated from the University of the South Pacific with a BSc focusing on the biological and chemical processes in marine and terrestrial ecosystems in 2010andgraduated from James Cook University in Australia with a Masters in Aquaculture Science and Technology in 2017.

Dr Vivitskaia (Viv) Tulloch
Postdoctoral Research Fellow at the University of British Colombia – Canada

Viv is currently a Banting Postdoctoral Research Fellow at the University of British Columbia. She is a conservation decision scientist – her research combines predictive ecological models with decision science to inform what actions to take, where to take them and when to achieve conservation and natural resource management goals.

Viv was born in Australia, and obtained her undergraduate degree from the University of Sydney, Australia; a Masters in Environmental Management from the University of Newcastle, Australia; a Bachelor of Science (Honours, First Class) and Doctor of Philosophy from the University of Queensland, Brisbane Australia (supervised by Professor Hugh Possingham). Viv uses spatial prioritisation, structured decision making, risk assessment and ecosystem models to help solve conservation problems for threatened species, with a focus on problems involving multiple and cumulative human activities. Viv recently relocated from Australia to Vancouver Island, Canada, and is currently a Banting Postdoctoral Research Fellow at the University of British Columbia. She is an invited member of the Standing Working Group on Ecosystem Modelling and the Sub-committee on Environmental Concerns of the International Whaling Commission; a member of the COSEWIC Marine Mammals Subcommittee; she has been a cetacean expert for the Australian Government "Saving Our Species" Key Threatening Process Strategic Plan "Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments".

Personal website: https://vivtulloch.weebly.com/

Yolarnie Amepou
Director of the Piku Biodiversity Network - Papua New Guinea

Yolarnie Amepou is the Director of the Piku Biodiversity Network. Yolarnie has worked in the Kikori region for many years, primarily on pig-nosed turtle conservation. Through the Piku Biodiversity Network, Yolarnie now facilitates on-ground activities for the PIDU project and other organisations in the Kikori Delta.

Presenters who did not provide a biography: Dr Andrew Chin, Anissa Lawrence, Caitlin Smith, Dr Christophe Cleguer, Clinton Duffy, David Moverley, Donna Kwan, Glenn Sant, Jenn Lavers, Juney Ward, Karen Arthur, Dr Marc Oremus, Marguerite Tarzia, Mark O'Brien, Morgane Viviant, Randalph Thaman, Steve Cranwell, Tehani Withers, Richard Hamilton, Simon Vuto, Vagi Rei.