Economic & Social Affairs

14 LIFE BELOW WATER

United Nations

Assessment of the Impacts of the United Nations Ocean Conference Voluntary Commitments

ASSESSMENT OF THE IMPACTS OF THE UNITED NATIONS OCEAN CONFERENCE VOLUNTARY COMMITMENTS

SUSTAINABLE DEVELOPMENT GOAL 14

United Nations

NOTE

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Foreword

In 2015, the Member States of the United Nations adopted the 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals, including Goal 14 to conserve and sustainably use the ocean's resources. Goal 14 confirmed the prominence of ocean issues on the global agenda and placed ocean health at the heart of sustainable development. The 2017 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (Ocean Conference), hosted by the Governments of Fiji and Sweden, gave huge support to the implementation of Goal 14, with the conference's high aim of being a "game changer that will reverse the decline in the health of our ocean for people, planet and prosperity".

The voluntary commitments reviewed in the present report were a key outcome of the Ocean Conference, and have subsequently become one of its most important legacies. An unprecedented number of commitments were registered by a wide range of entities: Governments, United Nations system organizations, other intergovernmental organizations, international and regional financial institutions, non-governmental organizations and civil society organizations, academic and research institutions, the scientific community, the private sector, philanthropic organizations and other actors – both individually and in partnerships. The registry of voluntary commitments remains open, with 1,633 commitments registered to date and numbers growing steadily.

The impact of the voluntary commitments goes beyond their numbers and is groundbreaking in the way they provide a means for everyone to get involved and do their part to reverse the decline in ocean health. We believe it is the spirit of inclusion, transparency and participation with which the process is imbued that has given the commitments such a successful part in supporting Goal 14 implementation. We are pleased that the commitments have had meaningful impacts – from increasing the coverage of marine protected areas, to battling marine litter and to building networks of marine scientific cooperation. We are convinced the voluntary commitments have given Goal 14 momentum, and we commend this report to you as a record of the positive cross-sectoral developments under way around the world to address the targets of Goal 14.

The report also demonstrates there is so much more we need to do before we can be satisfied with the state of our relationship with the ocean. As biodiversity in the ocean diminishes; as ocean warming kills off coral and raises sea levels; as the ocean becomes more and more acidic and deoxygenated; as harmful human policies and practices continue to cause habitat destruction and ecosystem collapses, we must stiffen our resolve to take restorative action. And we must devise and express new

commitments on action and then faithfully implement them. We must also take further action to address the linkages between the ocean and climate change by strengthening the resilience of marine ecosystems, while working internationally to reduce emissions.

The present report highlights a number of additional actions that need to be undertaken, including ensuring that we provide follow-up to those targets maturing in 2020. We need to provide for better accountability in reporting, so that we can better assess our collective progress towards achieving Goal 14. The voluntary commitments have shown us the power of inclusion, grassroots action and innovation, on levels ranging from the local to the global, but now we need to build on successes and scale up promising solutions. We need to build partnerships, increase capacity and expand our networks to ensure that no one is left behind. To do so, as the report makes it clear, we need sustainable, shock-proof funding over the long term.

In that context, we bring to the attention of readers that Member States, in their collective wisdom, have invited updates on the implementation of voluntary commitments made in support of Goal 14. In the mandating resolution for the next Ocean Conference, Member States also decided to invite new voluntary commitments in support of Goal 14. Thus, we urge all stakeholders, after considering the contents of the report and their own interests in furthering the conservation and sustainable use of the ocean's resources, to make new and meaningful voluntary commitments in support of Goal 14 before next Ocean Conference to be held in Lisbon.

The coronavirus disease (COVID-19) pandemic may have slowed ocean action and caused the postponement of the Ocean Conference, but those are temporary setbacks. New energy has been building all the while for a surge in our work to restore a sustainable relationship between humankind and the ocean. The pandemic has shown that no one is immune from connectivity with each other and with nature, and that we are capable of making big and important changes. The ocean belongs to everyone, to every creature that breathes its oxygen or survives through its medium. All must work together to achieve Goal 14 so that we may have a healthy ocean and thereby a healthy planet on which to live.

Liu Zhenmin

Under-Secretary-General for Economic and Social Affairs

Peter Thomson

Secretary-General's Special Envoy for the Ocean

Executive summary

The present document provides an initial assessment of the impacts of the voluntary commitments registered as part of the 2017 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (Ocean Conference) and in the years since. There are at present 1,628 commitments in the registry of voluntary commitments.

The assessment of the impacts of those commitments was greatly hindered by the lack of reporting by many holders of voluntary commitments. Progress reports have been provided on only 393 of the 1,628 commitments, which translates to a reporting proportion of 24 per cent. That assessment has relied on a number of supplementary materials to increase the available information, but regardless remains limited in its ability to undertake a quantitative analysis of collective impacts and to provide a full picture of the impacts of all of the commitments.

From the available information, it can be concluded that the voluntary commitments have collectively furthered the attainment of Sustainable Development Goal 14. That is particularly evident in the extensive new area conserved in marine protected areas by the voluntary commitments collectively (currently calculated to be 3.3 million km^2, an area slightly larger than the land area of India), and the large number of grassroots initiatives that have collected marine litter from beaches and under water, resulting in both massive amounts of litter removed and awareness raised about marine environmental issues. Bans on single-use plastics have been successfully implemented by governments, resulting in noticeable differences in the appearance of the local environment. In ocean science, networks of scientific cooperation have had a global reach, and have resulted in innovative efforts in capacity development and technology transfer. The heightened awareness of ocean acidification is evident in the increasing number of acidification action plans developed by both local and national governments.

Many previously novel approaches, including blue carbon and habitat restoration, are now becoming mainstream, and new technologies are being pioneered to develop artificial reefs, or to transplant and grow coral. New technologies are also being used to make ocean sectors more sustainable, for example by measurably reducing pollution and emissions in shipping and by reducing the environmental impacts of marine aquaculture. The volume of catch certified as sustainable has increased globally, including for small-scale and artisanal fisheries, and efforts are being made to strengthen regional fishery bodies, and provide for increasing collaboration between them and regional seas programmes. In that regard, regional bodies are developing new approaches to working together and to enabling

cross-sectoral ocean governance. Innovative financing mechanisms have been developed, including in the context of blue economies, and many new and traditional funders are supporting marine conservation and sustainable use.

All of those advances come in the context of continued decline in ocean biodiversity and a decreasing number of sustainable fisheries. Thus, while progress is being made, it is likely not made at a scale that is large enough to make a real difference for the ocean and its biodiversity. The present assessment provides information about some potential gaps in the voluntary commitments that could be further addressed. In reflecting on lessons learned from the commitments, the importance of partnerships and networking are highlighted as ways of scaling up successful initiatives, and to bring in new ideas and develop capacity where it is needed. The importance of sustainable, shock-proof and long-term funding is also highlighted as essential for achieving Goal 14. Finally, it is recommended that future commitments incorporate simple monitoring, with a baseline and agreed-upon metrics. That will make it easier to assess their impacts on both their beneficiaries and on Goal 14 as a whole.

Contents

1. Introduction

The high-level United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (Ocean Conference) was convened at United Nations Headquarters from 5 to 9 June 2017. The Conference devoted special attention to the health of our oceans and seas in order to advance the implementation of Sustainable Development Goal 14. As part of the outcomes of the Conference, stakeholders registered voluntary commitments for implementation of Goal 14. The registration of those commitments continues, and now, three years later, there are a total of 1,628 commitments[1] in the registry of voluntary commitments.

The present document aims to assess the impacts of those voluntary commitments in advancing progress towards Goal 14 and its individual targets. The assessment uses as its source materials the progress reports provided by those who registered voluntary commitments, as well as a questionnaire circulated by the United Nations to the holders of voluntary commitments. The assessment also used supplementary material, such as project websites, international databases (including the World Database on Protected Areas) and project reports. The Communities of Ocean Action, which was established to keep the momentum going on voluntary commitments, have also produced reports relating to voluntary commitments and their implementation, and those were referenced on several occasions.

The main difficulty in undertaking the assessment was the low rate of reporting by many holders of voluntary commitments. Out of the 1,628 voluntary commitments,[2] 34 are less than a year old and so are not yet due for a progress report.[3] Of the rest, only 393 have reported on their progress – some multiple times – resulting in a reporting rate of 24 per cent (see figure 1). While the commitments that have not provided updates may still be making progress with implementation, the gaps in reporting inhibit the ability to understand what progress has been made across the range of voluntary commitment registered in the context of the United Nations Ocean Conference.

The degree to which different entities are reporting on their voluntary commitments also varies. The "Other Relevant Actors" category of entities have the highest reporting rate at 44 per cent, followed by United Nations entities (39 per cent) and intergovernmental organizations (37 per cent) (see figure 1). Philanthropic organizations have the lowest reporting rate at 14 per cent, followed by governments (17 per cent) and civil society organizations (18 per cent). In the case of Governments, many may put their efforts towards reporting to the high-level political forum rather than to the registry of voluntary commitments.

Holders of voluntary commitments relating to all Sustainable Development Goal 14 targets have provided reports, with the reporting percentage relatively consistent across targets. Target 14.6 has the fewest voluntary commitments and reports, while target 14.2 has the most. It should be noted that most individual commitments contribute towards more than one Goal 14 target, and thus the number of commitments shown in figure 3 do not equal the total number of commitments registered.

1 This figure was accurate as of 5 October 2020.
2 These figures were accurate as of 5 October 2020.
3 The three voluntary commitments that are less than a year old, but that have already reported, were counted with the other progress reports and are not included in this figure.

As a result of the low reporting, the impacts discussed here should be viewed as examples of a broader set of activities that are taking place. In a few cases, including with marine protected area coverage, quantification across the voluntary commitments has been attempted. However, those numbers should be viewed as indications of progress, rather than exact measurements of what has been done.

The assessment first looks at the voluntary commitments and their impacts by Goal 14 target, summarizing progress, challenges and potential gaps. A short summary of additional commitment impacts is then provided, followed by an extraction of lessons learned.

Figure 1
Reporting status of voluntary commitments

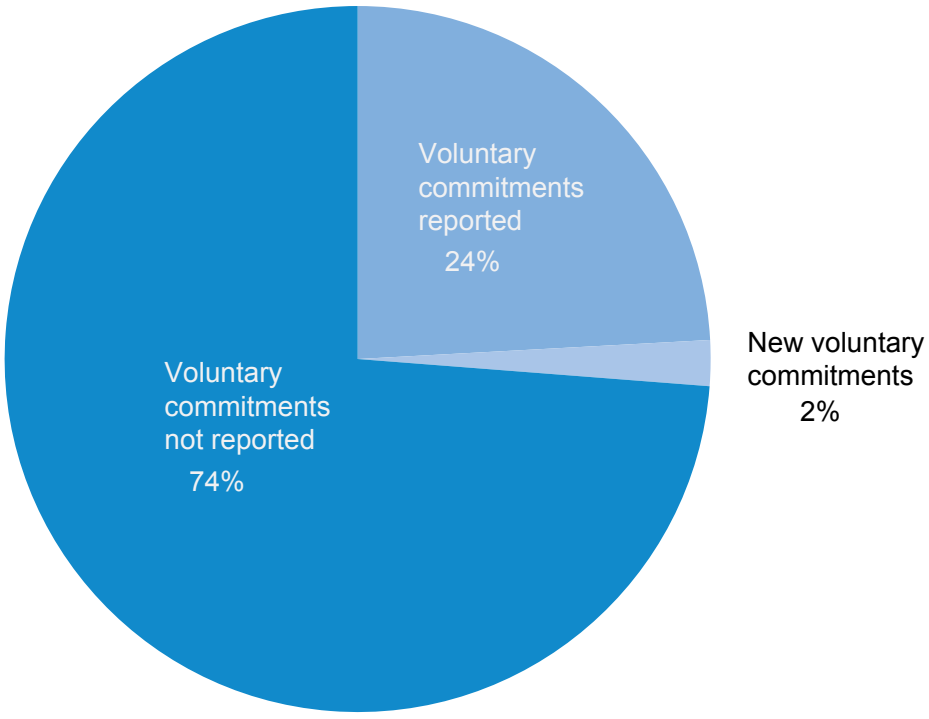


Figure 2
Reporting status by entity (percentage)

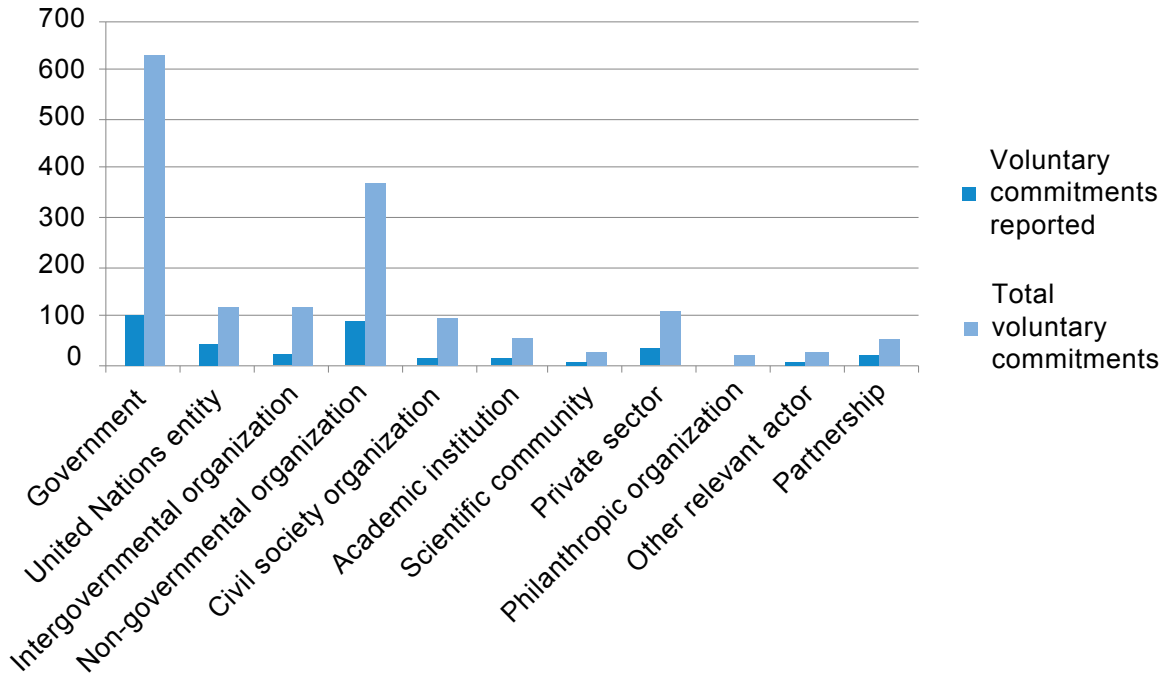
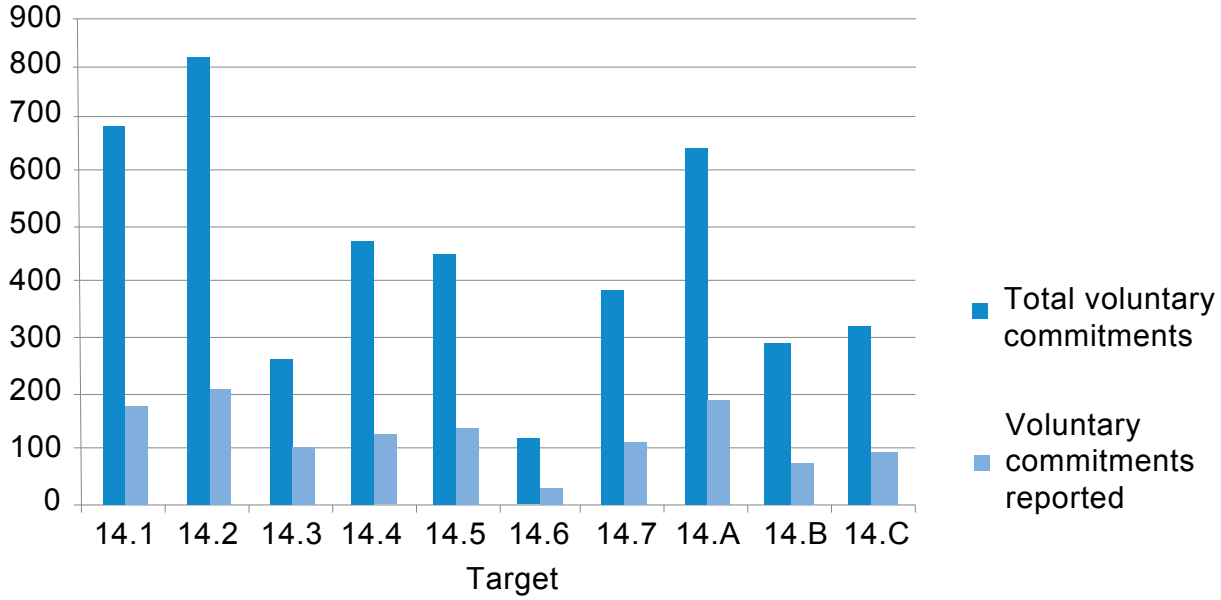


Figure 3
Reporting status by Sustainable Development Goal 14 target



2. Impacts of voluntary commitments by target

The present section provides an analysis of the impacts of voluntary commitments relating to specific Goal 14 targets. Each subsection provides a summary table of impacts and results, followed by a discussion of impacts, challenges and potential gaps.

14.1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

Currently, 679 voluntary commitments[4] are registered as contributing towards target 14.1. The majority of those commitments relate to addressing marine litter, specifically plastics, with activities ranging from beach clean-ups to plastic bag bans. Plastics continue to be the most prevalent category of marine litter recorded, and they account for an estimated 60 to 80 per cent of all marine litter. In addition, the voluntary commitments contain actions relating to the still-pervasive problem of nutrient pollution, pollution from shipping, including biofouling and invasive species, and other types of marine pollution. Other types of pollution include anthropogenic underwater noise and underwater munitions.

Of the 679 voluntary commitments, holders of 176 have provided updates on their activities. The present section focuses on impacts of those commitments, although it should be noted that they are not necessarily representative of all voluntary commitment related to target 14.1 and do not reflect the full spectrum of activities undertaken.

Addressing target 14.1 will require actions that:

Prevent and significantly reduce:

a. Pollution from land-based activities, including:
   i. Marine debris;
   ii. Nutrient pollution;
b. All other kinds of marine pollution, including from ship-based sources.

Table 1 provides examples of the reported impacts and results of individual voluntary commitments.

[4] The figures were accurate as of 5 October 2020.

Table 1
Impacts and results of voluntary commitments for target 14.1

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing land-based pollution: marine debris	**Research, monitoring** • **Assessment of the abundance and distribution of microplastics** was carried out in the Gulf of Mannar, India, with results used to inform policy and build awareness *(31814: Assessment of microplastics in coral reef ecosystem of Gulf of Mannar, India)* • **Collecting long-term beach-litter data**, with six official monitoring sites was established at beaches around New Zealand; incentivizing and scaling up community efforts to reduce litter *(21332: Pacific plastic pollution: a system for regional grassroots solutions)* • **Development and implementation of national monitoring programmes** in Albania, Algeria, Bosnia and Herzegovina, Egypt, Lebanon, Libya, Montenegro, Morocco and Tunisia *(19914: Implementation of the UN Environment/MAP Regional Plan on Marine Litter Management in the Mediterranean)* • **Study on microplastics in the Arctic** *(18373: Desktop study on marine litter, including microplastics in the Arctic (Phase I))* • **Effort to identify critical research, solutions and next steps pertaining to microfibre pollution** *(18160: Improve our understanding of microfibers with actionable steps to prevent them from becoming aquatic debris)* • **Underwater citizen science programme Dive Against Debris – monitoring marine debris through survey of sea floor** *(17638: Addressing the global marine debris crisis from an underwater perspective – citizen science and community engagement for global solution)* • Japan Agency for Marine-Earth Science and Technology (JAMSTEC) has developed a **deep-sea debris database**, which is built upon the picture data obtained through its own marine scientific research *(17602: Data sharing and use for contributing to SDG14 on marine biodiversity and marine debris)* • Northwest Pacific Action Plan (NOWPAP) special project **Monitoring and Assessment Methods for Microplastics Pollution** is led by the Chinese Research Academy of Environmental Sciences *(17490: Strengthening regional cooperation for the protection of the marine and coastal environment in the Northwest Pacific)* • Environmental Monitoring of the Black Sea (EMBLAS) presented **results of ecological status assessment of the Black Sea,** based on the Joint Black Sea surveys 2016, including development of the list of marine life identified from DNA traces, investigation of how toxic pollutants are being decomposed by bacteria, and further development of the list of pollutants specific to the Black Sea. The public has been involved in environmental monitoring of the Black Sea *(15806: EU/UNDP Project: improving Environmental Monitoring in the Black Sea – Selected Measures (EMBLAS-Plus))* **Clean-up activities** • **Clean-up activities undertaken in the Arctic, with a combined 40,000 kg of marine litter collected** in Svalbard. Guidelines for visitors and building knowledge and statistics *(28230: Association of Arctic Expedition Cruise Operators' Clean Seas Project)* • **60,000 volunteers cleaned up approximately 320 metric tons of marine debris** *(28016: Reducing marine debris)*

[5] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing land-based pollution: marine debris (*continued*)	• **A total of 960 kg of waste collected on the Pondicherry coastline**, along with public awareness raising *(27738: Beach clean-up)* • Twelve schools teamed up with 23 companies, organizations, community groups and individuals, consisting of **1,996 volunteers, carried out 35 clean-up activities, removing 3,974 kg of marine debris** from Hong Kong's coastlines *(27301: International coastal clean-up Hong Kong)* • **Several beach clean-ups were undertaken** *(21714: The World Team Project: Sustainable Solutions Oceans Opportunities & Small Island States (SOS-IS))* • **Retrieval of underwater trash from mangroves and beach clean-up** *(20824: Reduction of Coral Reef Decline/Sharing Strategies, Information and action plans)* • **More than 20 Adopt-a-Beach (AaB) and Fishing-for-Litter (FfL) pilots** have been implemented since 2016 in Mediterranean countries *(19914: Implementation of the UN Environment/MAP Regional Plan on Marine Litter Management in the Mediterranean)* • **Beach clean-ups, surveys, education programs, small-scale plastic recycling programs in schools** *(20244: Marine Conservation Masterplan – Vizhinjam/Kovalam, India)* • **Fishing ships removed over 250 tons of litter from the sea in 2017** and brought it to shore for waste collection and, as far as possible, recycling in Netherlands. **143 tons of end-of-life fishing gear has been collected in the Dutch fishing harbours for the purpose of recycling.** Clean river and beach initiatives. Overall, **monitoring shows a decrease in litter** found on Dutch beaches and in birds *(18046: Combatting litter)* • **Beach, waterway and underwater clean-ups successfully conducted in more than 100 countries** and on all seven continents, including Antarctica, as part of the international coastal cleanup *(18154: Mitigating the threat of marine litter through beach and waterway cleanup on all seven continents)* • **One million pieces of rubbish removed since 2011 by 49,188 Scuba divers, and 5,351 surveys in 114 countries around the world. A total of 307,064 kgs of marine litter collected** *(17638: Addressing the global marine debris crisis from an underwater perspective – citizen science and community engagement for global solution)* • **Community pilot project in Jamaica has collected over 2,040 kg of plastic bottles and 1,130 kg of compost. Some 2,400 students and over 1,045 adults in the area were impacted by awareness campaigns**. **Approximately 20 community members participated in livelihoods training** and learned how to make jewellery and bins from plastic bottles. Training sessions on management of litter completed *(16222: Trash Free Waters – International)* • **More than 3,000 volunteers removed approximately 41,000 litres of waste** *(15842: Proper Strand Lopers)* • Association of Southeast Asian Nations (ASEAN) Coastal Clean-Up 2019 was able to **collect more than 1,520 kg of debris**, of which most was plastic debris *(14387: Indonesia Against Marine Plastic Debris)* **Education and awareness raising** • **Education and active reduction of single-use plastics** *(27955: OLIST: Ocean Literacy in Sail Training)* • **Communication, stakeholder engagement, data collection and capacity-building** on waste *(26660: International Waste Platform – collaboration between country/regional hubs)*

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing land-based pollution: marine debris (*continued*)	• **Collection of recyclables in schools, teacher training, environmental education**, including establishment of polyethylene terephthalate (PET) collection-centre business *(23648: Green Indonesia Waste Education for primary schools in Indonesia)* • **Knowledge exchange, best practice on waste management, capacity-building and facilitating collaborations to improve waste management and recycling** in Indonesia *(16206: Indonesian Waste Platform – Hub)* • Advocacy through ocean sports, including **youth awareness raising, beach clean-ups, ocean caretaking discussions and plastic pollution workshops** *(21902: Sport2Clean Education Environment)* • **Information sharing with church membership in 70 countries regarding plastic waste.** Sharing stories of action on plastic reduction; share information about best practices for packaging and minimizing plastics *(21726: Care of the Oceans)* • **A one-week nationwide campaign was held in Nauru** with involvement from preschool, primary-, secondary- and tertiary-level students, as well as government departments *(20214: Nauru Awareness and Beach Clean-up Campaign)* • **Approximately 450 students among four schools** participated in a community pilot project in Panama. **Other members of the public have benefitted from educational campaigns** focused on the proper management of solid waste and the principle of "reduce, reuse, recycle". Best practices and public awareness toolkit completed *(16222: Trash Free Waters – International)* **Single-use plastic bags, waste reduction solutions** • **Visual impacts have been apparent since the Aruba plastic ban law came into effect in 2017**, with an approximate adoption rate of 80 per cent. Enforcement in place since 2018 *(20744: Aruba Plastic Bag Ban)* • **Adoption of a plastic bag levy** of 10 cents on single-use plastic bags effective on 1 August 2017, with levy increased to 20 cents in 2018/2019 *(19994: Introduction of a Plastic Shopping Bag Reduction)* • **Seventeen Mediterranean countries have adopted measures for the reduction in use of single-use plastic bags** *(19914: Implementation of the UN Environment/MAP Regional Plan on Marine Litter Management in the Mediterranean)* • Implementation and scaling up of **zero waste and upcycling modalities to 600 corporate business networks in in Asia and the Pacific** *(27732: Sustainable Ocean Ambassador (SOA))* • **Exceeded target to influence 80 per cent of the towns' businesses to be free of single-use plastic bags** by 2017 and moved the **bags per week usage down from 20,000 per week to below 1,000 per week** through a joint community, non-governmental organization and business initiative in Raglan, New Zealand *(20309: Plastic Bag Free Raglan)* • **Over $150 million raised for an initiative is designed to fund waste management and recycling solutions in South-East Asia**, with a focus on investments to improve collection, sorting and recycling markets *(18166: Mobilize public, private and philanthropic resources to reduce the amount of plastic flowing into the ocean)* • In 2017, the **Vanuatu Government announced a ban on the import and local manufacturing of non-biodegradable plastics** *(17638: Addressing the global marine debris crisis from an underwater perspective – citizen science and community engagement for global solution)*

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing land-based pollution: marine debris (*continued*)	• **I-CARE campaign aims at empowering the public to reduce plastic waste.** The 2,862 people who support the I-CARE campaign are committed to **spare 4,376 kg plastic bags, 192,000 straws, 465 kg PET bottles, 1,678.27 kg coffee to-go cups and 1,373 million microplastic particles from cosmetic products** *(16050: Working towards plastic free oceans)* • Xeros has developed and prototyped a number of **filtering devices that can be easily incorporated into both residential and commercial washing machines to screen microparticles and microplastics** *(15928: Project Sea Change – advanced filtering of laundry effluent to screen microparticles and microplastics)* • Up to now, **74 hotels, schools, universities, diving associations and municipalities from Algeria, Egypt, France, Greece, Lebanon, Montenegro, Morocco, Spain, Tunisia and Turkey have joined in a request to support the plastic bag ban** in all Mediterranean countries *(15599: Stop plastic bags in the Mediterranean Area)* • **A prototype ocean-cleaning concept has been developed and is being trialed** *(15227: The Ocean Cleanup)* • **Sixteen companies have worked to prevent plastic pollution, and reduced their plastic waste through packaging/products.** Involved 70 designers and design agencies to use a new design standard to rethink and redesign plastics *(14415: Prevent plastic pollution in our ocean)* • A partnership between Dell and the Lonely Whale convened Next Wave, an open-source initiative bringing together leading manufacturers to develop a commercial-scale supply chain that uses ocean-bound plastics and nylon from ghost nets. **The group estimates they will divert more than 3 million pounds of plastics and nylon-based fishing gear from entering the ocean within five years (by 2022). Equivalent to keeping 66 million water bottles from washing out to sea** *(14578: Dell Commits to Scaling Commercial Use of Ocean Bound Plastic)* • In October, Circulate Capital **announced the capitalization of the investment fund at over $100 million** to fund waste management and recycling solutions in Southeast Asia *(24196: Circulate Capital (formerly: Closed Loop Ocean))* **Policy solutions, action plans** • Collaboration in the context of the **Regional Cooperation Platform on Marine Litter in the Mediterranean** *(20412: Memorandum of Understanding between the United Nations Environment Programme/Mediterranean Action Plan Secretariat to the Barcelona Convention and FAO General Fisheries Commission for the Mediterranean)* • **Nineteen Mediterranean countries have established national action plans or programmes** of measures to address marine litter *(19914: Implementation of the UN Environment/MAP Regional Plan on Marine Litter Management in the Mediterranean)* • **Eight contracting parties have legislation and policies for recycling and more than 20 pilots from nine Mediterranean countries not in the European Union are currently ongoing** *(19914: Implementation of the UN Environment/MAP Regional Plan on Marine Litter Management in the Mediterranean)* • **The Government of Nauru has implemented a waste segregation project** with the assistance of the Government of Japan; a **national solid waste strategy** was endorsed with taskforce formed for its implementation *(20219: Avoid, intercept, redesign plastics to save our Ocean)* • Project to apply **Integrated Coastal Zone Management principles to marine litter management in five pilot coastal areas** in Italy, Lebanon and Tunisia *(20169: Science and awareness: a Mediterranean connection against marine litter)*

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing land-based pollution: marine debris (*continued*)	• Brazil has launched its **first national plan to combat marine litter**, along with education, outreach and seminar on marine litter *(19694: Development of a national strategy to combat marine litter)* • **Regional action plan against marine litter in the Black Sea** adopted in October 2018 *(17530: Achieve the good environmental status of EU Member States' marine waters by 2020)* • A **European plastics strategy** to curb plastic waste and littering and support concrete actions at global level was adopted in January 2018 *(17518: Preventing and significantly reducing marine litter in EU Member States' waters)* • The **port reception facilities directive** that governs waste management of ships and at port was amended in 2018 to remove the incentive to illegally dump garbage at sea *(17518: Preventing and significantly reducing marine litter in EU Member States' waters)* • In May 2018, **a target of halting the generation of marine litter** was included in the European Union waste management legislation *(17518: Preventing and significantly reducing marine litter in European Union member States' waters)* • At the end of 2018, **new European Union rules were adopted to tackle both sea- and land-based sources of marine litter**, focusing on the 10 single-use plastic products most often found on beaches and seas, as well as lost and abandoned fishing gear *(17518: Preventing and significantly reducing marine litter in European Union member States' waters)* • Norway and United Nations Environment Programme (UNEP) assessed the effectiveness of relevant international, regional and subregional governance strategies and approaches to combat marine plastic litter and microplastics, with report released at the third meeting of the United Nations Environment Assembly, leading to the creation of the **Ad-hoc Open-Ended Experts Group on Marine Litter and Microplastics** to explore a global framework for action *(18304: Norway and UNEP)*
Addressing land-based pollution: nutrient pollution, sewage and other land-based sources	**Research, monitoring** • **Indicators have been updated and refined to provide a snapshot of the achievement of existing initiatives for pollution prevention and control**; improved data management *(19839: Implementation of the Shared Environmental Information System (SEIS) principles and practices in the ENP South region – ENI SEIS II South Support Mechanism)* • **Project on carbon sequestration, restoration of fertility of soil and pollution prevention, including carbon action pilot** *(18085: Baltic Sea region: soil carbon sequestration and nutrient cycling to combat eutrophication and climate change)* **Solutions** • Completed game-changing **water purification of sewage with waste-to-energy** *(21714: The World Team Project: Sustainable Solutions Oceans Opportunities & Small Island States (SOS-IS))* • **Compost bins supplied to every school in the Cook Islands**, and follow-up to raise awareness on composting through demonstration sites *(20996: Reduction of POPs and greenhouse gas emissions through improvements in waste management in the Cook Islands GEF SGP)* • **Installed environmentally friendly toilet facilities** at the most popular beaches in Aitutaki, Cook Islands *(20249: Aitutaki Enviroloo GEF SGP Project, part of the Keep Aitutaki Clean Programme)*

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing land-based pollution: nutrient pollution, sewage and other land-based sources (*continued*)	• **Community septic toilets built in five communities along South Tarawa lagoon; sustainable land-management training** to improve community capacity to adapt to climate change and reduce solid waste and other contaminants to the lagoon *(20179: Enhance the tropical coastline seascape of South Tarawa through community-based approach)* • **A containerized Baleen-UTOC plant is capable of reclaiming some 20,000 tons per day of water fit for horticulture**, presenting a solution for management of solid and liquid waste *(Protecting the ocean from wastewater is a necessary climate action: ending marine pollution returns natural water cycles to the land to foster biodiversity)* • **Over the past few years, the Global Wastewater Initiative has overseen a diverse and plentiful array of activities** implemented that seek to make a definitive impact on the way wastewater is viewed and prioritized around the world *(Global Wastewater Initiative)* **Policies and policy guidance** • **Source-to-sea management conceptual framework**, publications, webinar and opportunities to share knowledge in Sweden *(19789: Support development of a source-to-sea approach to land-based pollution, including marine litter)* • Implementing the **source-to-sea approach; a guide for practitioners was published in 2019**. Training workshop completed *(15031: Support action, innovation and learning to address source-to-sea priorities)*
Addressing all other kinds of marine pollution	• Launch of a **multidisciplinary international partnership to monitor and mitigate ocean noise impacts and inform wise policy** – The Global Alliance for Managing Ocean Noise. An in-depth situation analysis of ocean noise and awareness raising, mitigation and management measures *(18553: A commitment to reduce ocean noise pollution)* • **The QUIETMED project produced methodologies and best practices for monitoring impulsive and continuous underwater noise. The project also developed a common register for the Mediterranean basin for the monitoring of impulsive noise** *(16331: ACCOBAMS – Addressing impacts of ocean noise on cetaceans in the Mediterranean and Black Seas)* • **Promotion at the United Nations of action on ocean noise**, capacity-building through workshops *(16030: Informing global policies to reduce ocean noise for the benefit of marine-life protection and the sustainability of global fisheries)* • On hazardous substances, the city of Stockholm has produced the **first outlines of chemical action plans for each municipality**. Increasing awareness among municipal employees, businesses and inhabitants *(16482: Innovative management solutions for minimizing emissions of hazardous substances from urban areas in the Baltic Sea region)* • **An online pollution reporting system** set up by the NOWPAP Marine Environmental Emergency Preparedness and Response Regional Activity Centre enabled members to share information and coordinate response effectively *(17490: Strengthening regional cooperation for the protection of the marine and coastal environment in the Northwest Pacific)* • **Air pollution from ships reduced by liquefied natural gas propulsion**, in a pilot project in Germany *(16094: Reducing air pollution from vessels serving the German Federal Administration)* • The LNG4Solution joint industry project has four environmentally friendly and energy-efficient tankers running on liquefied natural gas in operation. **Measurements are showing remarkable emission reductions** owing to improved energy efficiency and cleaner energy *(14975: LNG4Solution: the solution to minimize air emissions and to increase energy efficiency in maritime transport*

Aspect of 14.1	Examples of reported results and impacts of voluntary commitments[5]
Addressing all other kinds of marine pollution (*continued*)	• **Network to monitor air pollution and emissions from ships** *(16090: Installation of a German air-monitoring network to support MARPOL Annex-VI compliance monitoring)* • The London Convention/London Protocol **capacity-building programme is continuing with an average of four to six workshops per year** *(15907: implementation of the 2016 London Protocol/Convention Strategic Plan to support the 2030 Agenda for Sustainable Development)* • **The GloFouling Partnerships Project continues to build capacity in participating countries on biofouling management.** Countries set up national task forces to discuss biofouling management and invasive aquatic species at the national level *(16601: Building partnerships to assist developing countries minimize the impacts from aquatic biofouling (GloFouling Partnerships Project))* • **The International Maritime Organization Global Maritime Energy Efficiency Partnership Project** has delivered 30 capacity-building workshops across the 10 beneficiary lead pilot countries, providing training on the International Maritime Organization's energy-efficiency regulations, energy-efficient ship operation, port state control and enforcement, as well as how to quantify and address emissions in ports. Almost 1,000 participants have been trained through workshops facilitated by the project *(15605: Global Maritime Energy Efficiency Partnerships Project)* • The International Dialogue on Underwater Munitions formulated an action plan based on their commitment to **establishing a training centre for innovative science and technology for sea-dumped weapons and shipborne disposal solutions to support the eradication of all underwater munitions**, and are mobilizing partners *(21356: Establishment of the International Marine Training Centre for Innovative Science and Technology for Sea Dumped Weapons, and Shipborne Disposal Solutions to Support the Eradication of all Underwater Munitions)*

Summary of impacts

The commitments made and their impacts reflect a major shift in public perception regarding the use of single-use plastics, and an increasing focus on marine litter. A great majority of the voluntary commitments concentrate on reducing or preventing marine litter, particularly plastic, and are largely the results of grassroots action by civil society and non-governmental organizations (NGOs), which have organized beach and underwater clean-ups and promoted bans on single-use plastics. While most of those activities are undertaken at the local level, they reflect a global-level ambition to reduce plastics in the marine environment. Collectively, those commitments have had a large impact. The holders of commitments who have reported on their progress, including as part of the survey by the United Nations, have collectively removed over 2.1 million kg of marine debris from beaches, the water column and under water. That figure is not precise, given the different measurement units used, and the lack of reporting by many commitment holders. However, it does emphasize that the collective impact of many small voluntary commitments can be considerable.

Local action, including through clean-ups, have also raised the awareness of the participants. Awareness-raising, particularly in schools, and of the general public, has been another common focus of the voluntary commitments. Awareness-raising activities have also included discussion around best practices, the development of toolkits, teacher training and a variety of events. The issue of plastics in the marine environment, in many cases, has served as an entry for youth and the general

public to become more engaged with environmental and ocean issues.

At the governmental level, countries have implemented bans on single-use plastics, and have improved their recycling and waste management policies. For example, Antigua and Barbuda, Bangladesh, Fiji, Ireland, Monaco, Nauru, the Netherlands, Norway, Saint Vincent and the Grenadines, Sweden, Turkey and the United Kingdom of Great Britain and Northern Ireland, as well as the European Union, pledged voluntary commitments that related to the reduction or regulation of single-use plastics, and have adopted measures towards that end. Those bans have resulted in a decrease in marine litter and could be considered successes. For example, the visual impact of the Aruba plastic ban law, which came into effect in 2017, is now evident in a cleaner-looking environment. And in the Netherlands, extensive clean-ups of beaches and waterways have resulted in a decrease in litter found on beaches, as well as in the stomachs of birds.

Also at the national and regional levels, policies and action plans have been developed to address plastics and other marine litter. Many countries, including Mediterranean countries, Brazil and Nauru have developed national action plans on marine litter. The European Union has adopted a European plastics strategy, new rules and a target of halting the generation of marine litter. The Black Sea has a regional action plan to combat marine litter. Those regional policies are important for overall coordination and for providing assistance to countries in addressing and monitoring marine litter. Global-level coordination and policies are currently lacking, and the initiative by Norway and UNEP to explore a global framework for action for marine litter and microplastics is therefore timely.

Research has focused on better understanding the distribution, abundance and characteristics of marine litter, including microplastics. A number of countries have put in place national monitoring programs for marine litter, and the Japan Agency for Marine-Earth Science and Technology has developed a database of deep-sea marine debris. Research on microfibres is also ongoing. At the same time, the private sector has innovated possible solutions to prevent microplastics or microfibres from entering the sea and remove plastics from the sea once there.

There has been less focus in the voluntary commitments on other types of marine pollution, namely nutrients and sewage. Some initiatives are under way locally to improve sewage facilities and to install toilets. The Global Initiative on Wastewater has also implemented a number of activities on that topic.

Addressing ship-based pollution included work on issues ranging from ocean noise to invasive species and underwater munitions. There has been success in reducing air pollution from ships, while at the same time reducing carbon emissions.

Challenges

Measurability of the voluntary commitments remains an issue for that and other targets. According to the interim report of the Community of Ocean Action on Marine Pollution, only approximately a third of the commitments were measurable. For the commitments related to shipping, the number was lower, around 5 per cent. Many commitments lack a clear plan for measurement of progress and impact.[6]

In terms of individual commitments, funding remains an issue for many, particularly the smaller local projects that are either unfunded or rely on donations. Other challenges include limited knowledge of Sustainable Development Goals, communication and lack of infrastructure. On the infrastructure issue, some

[6] Interim Assessment of the Community of Ocean Action on Marine Pollution (2019). Available at https://sustainabledevelopment.un.org/content/documents/22790Marine_pollution_COA_interim_assessment.pdf.

commitments noted that recycling facilities were far away or that the municipality did not distinguish between recyclables and non-recyclables. Volunteer training to separate waste is time-consuming, as is coordination between different stakeholders.

Level of implementation of national monitoring differs from a country to another. In some cases, effective management practices are still missing, requiring strong policy will and societal engagement. Cooperation and collaboration between the major marine litter partners in a region with common priority actions is therefore considered to be important.

Potential gaps to be filled

While many local and national activities on marine litter, particularly plastics, have been very successful, there is a need to address all parts of the plastics supply chain. Additionally, global assistance and coordination is needed to provide a coherent response.

Also, further action on nutrient and other types of pollution is required, as the focus of the target is currently mainly on marine litter. There are also opportunities to further build upon, and scale up, existing initiatives to decarbonize ocean industries.

14.2: By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

Marine and coastal ecosystems continue to decline, as demonstrated by the Living Planet Index, which has shown a 35 per cent reduction in marine species since 1970[7] due to direct exploitation of organisms, habitat degradation and climate change. Climate change is already having an impact on marine ecosystems, as illustrated by increasing ocean temperatures, acidification, de-oxygenation and melting sea ice in the Arctic,[8] with significant changes in distribution of populations, and a decline in sensitive species.[9] Coral reefs and mangroves have also declined, with losses of mangrove habitat of more than 50 per cent recorded in some parts of the world.[10] Coral reefs are projected to decline by a further 70 to 90 per cent at global warming of 1.5°C.[11]

Target 14.2 is the broadest of all the targets, encompassing a variety of actions from sustainable management to climate resilience and restoration. It is not surprising therefore, that 823 voluntary commitments[12] indicated that their activities contribute towards that target. Out of the 823 commitments, 213 have provided updates on their activities. Those commitments generally relate to ecosystem-based management, including integrated coastal management and marine spatial planning. Large marine ecosystems, community-managed marine areas, as well as climate adaptation measures, such as blue carbon, and the restoration of coastal and marine habitats are activities included in the commitments relating to the target, which is set to expire in 2020.

Addressing target 14.2 will require actions that:

7 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services IPBES Global (2019) Assessment on Biodiversity and Ecosystem Services. Summary for Policymakers.

8 V. Galaz and others, Polycentric systems and interacting planetary boundaries – Emerging governance of climate change–ocean acidification–marine biodiversity. *Ecological Economics*, 81 (2012), pp. 21-32.

9 J. Bijma and others, Climate change and the oceans: What does the future hold? *Marine Pollution Bulletin*, 76, (2013) pp. 436–505.

10 S.S. Romañach and others, Conservation and restoration of mangroves: Global status, perspectives, and prognosis, *Ocean & Coastal Management*, 154 (2018), pp. 72-82.

11 IPCC Oceans and the Cryosphere report.

12 This figure was accurate as of 5 October 2020.

1. Provide for sustainable management of marine and coastal ecosystems;
2. Provide for the protection of marine and coastal ecosystems;
3. Avoid significant adverse impacts;
4. Strengthen resilience of marine and coastal ecosystems;
5. Take action towards restoration.

Table 2 provides examples of the reported results and impacts of voluntary commitments in accordance with the categories above.

Table 2
Impacts and results of voluntary commitments for target 14.2

Aspect of 14.2	Examples of reported results and impacts of voluntary commitments[13]
Sustainable management	**Ecosystem approach** • **Support the Southern Mediterranean contracting parties to the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean to implement the ecosystem approach, with substantive progress achieved.** Also development/update of national monitoring programmes in the beneficiary countries, covering areas of biodiversity and non-indigenous species, pollution and marine litter, coast and hydrography *(20339: Mediterranean implementation of the ecosystem approach, in coherence with the EU MSFD)* • **The Yellow Sea Large Marine Ecosystem Project builds upon regional cooperation for sustainable use of the Yellow Sea** and was put in place by the People's Republic of China and the Republic of Korea, supported by the Democratic People's Republic of Korea, the Yellow Sea Partnership and the Global Environment Facility. The United Nations Development Programme/Global Environment Facility project in Yellow Sea large marine ecosystem aims to implement a strategic action programme and to restore the ecosystem goods and services. It has resulted in reducing fishing vessels, the establishment of marine protected areas, and regional information sharing *(19068: Yellow Sea Large Marine Ecosystem)* • **One hundred twenty-eight integrated coastal management sites have been established in East Asian Seas Region, covering 29 per cent (65,400 km) of the region's coastline**. That is far greater than the regional target set by the East Asian Seas Ministerial Compact in Da Nang, Viet Nam, of 25 per cent of the region's coastline be covered by integrated coastal management in 2021. Capacity-building activities have also been conducted *(14716: Scaling up implementation of integrated coastal management in the East Asian Seas Region)* • **The Global Coral Reef Partnership** has downscaled climate model projections for future coral bleaching conditions. This high-resolution (4 km) data set enables consideration of coral reef climate change refugia in management planning, and also has application in vulnerability assessment and adaptation planning *(14282: Global Coral Reef Partnership)*

[13] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.2	Examples of reported results and impacts of voluntary commitments[13]
Sustainable management (*continued*)	**Blue economy** • **In Catalonia, BlueNetCat aims to transfer innovation to all economic sectors in the Blue Economy and support its sustainable development**. The work is supported by the implementation of the 2030 Maritime Strategy of Catalonia, adopted in 2018 *(32799: A Maritime Strategy for the sustainable development of the blue economy in Catalonia)* **Policies for the ocean sustainable development** • **The Government of Curaçao, in collaboration with the WAITT Institute, developed a sustainable ocean policy over a five-year period.** They are currently in the process of implementing policy and developing legislation for the ecological aspects of ocean management. A marine protected area based on the special protected areas and wildlife of the Protocol Concerning Specially Protected Areas and Wildlife of the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Area has already been delivered *(21504: Curaçao, in collaboration with the WAITT Institute, will develop and codify a sustainable ocean policy by December 2018)* • **The Solomon Islands has developed a national ocean policy** (19754: Integrated National Oceans Policy and Marine Spatial Plan for Solomon Islands) **Marine spatial planning** • **The MSPglobal Initiative of Intergovernmental Oceanographic Commission-United Nations Educational, Scientific and Cultural Organization (UNESCO), co-funded by the European Commission was launched in February 2019 with the participation of more than 100 participants from 59 countries.** Training, stakeholder meetings, and marine spatial planning forums are having positive impacts on beneficiaries and local communities where the events are taking place *(15346: Joint road map to accelerate marine/maritime spatial planning worldwide)* • **The North Pacific marine spatial plan was published in the federal diary of the Federation of Mexico.** Since that date, the North Pacific marine spatial plan is taken in consideration in other federal instrument such as the Environmental Impact Assessment of projects in the region and also in the strategic planning of sectors such as maritime transport, fisheries, oil and gas exploration and exploitation, and touristic developments *(20224: Promote marine spatial planning and other coastal and marine planning and management instruments in Mexico)* • **Solomon Islands is working with stakeholders to complete a draft marine spatial plan** *(19754: Integrated National Oceans Policy and Marine Spatial Plan for Solomon Islands)* • **Work is being undertaken towards developing a marine spatial plan for Brazilian waters.** The secretariat of the Inter-ministerial Commission for the Sea Resources and the Blue Solutions Initiative jointly convened a marine spatial planning training course attended by 20 representatives of several federal agencies and experts *(19704: Development of a national marine spatial planning process)* • **The Mapping Ocean Wealth commenced a three-year project to develop ecosystem service models to support the Caribbean Regional Oceanscape Project in the Eastern Caribbean**. It will refine and adapt existing coral reef tourism and fisheries models, while developing novel methodologies to characterize recreational fishing and nature-dependent tourism values in participating Eastern Caribbean countries (Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines). **Those data will support the countries in ongoing and future marine spatial planning through the direct provision of spatially explicit information on their ecosystem service values**, particularly relating to fisheries and nature-based tourism *(15392: Mapping Ocean Wealth)*

Aspect of 14.2	Examples of reported results and impacts of voluntary commitments[13]
Sustainable management (*continued*)	**Other coastal and ocean management** • **Octopus fisheries closure and management, capacity development of fishing communities and data collection** in Philippines *(27475: Improving the effectiveness of coastal and marine resource management in the Philippines)* **Capacity development** • **Capacity development on integrating ecosystem services into marine and coastal planning.** Mentoring and a workshop for cooperative youth groups in Somalia, coastal erosion *(26037: Blue IES: Worldwide training course offer around integrating ecosystem services into marine and coastal development planning)* • **Worldwide marine spatial planning training.** Blue planning training in the Mekong Delta *(25529: Blue Planning in Practice: Worldwide MSP training offer to enable ecosystem-based marine and coastal planning and management)* • **PANORAMA – Solutions for a Healthy Planet, an online solutions platform, has grown to 219 blue solutions that have been identified and documented in collaboration with the implementer of the experiences**, detailing successful elements (building blocks) and lessons learned. Further, they serve as a basis for training development and as examples in the training *(25533: Encouraging exchange of experiences and lessons learned regarding the sustainable management and use of marine and coastal resources)*
Protection	• **The world's largest mangrove carbon conservation project was inaugurated in a small village in Madagascar.** By avoiding emissions of over 1,300 tons of carbon dioxide per year, the project, called Tahiry Honko, will provide a regular income through carbon credit sales to support local management of the marine protected area over the next 20 years. Funds will also help finance community development, including the construction of vital infrastructure and supporting education and health care *(31277: Empowering communities to monitor and manage their marine resources, and diversify local livelihoods)* • **Oceanic blue carbon story map published** in October 2018. The story map describes the various ways that marine life contributes to carbon storage in the ocean and illustrates the latest science on the subject. In 2019 in the United Arab Emirates, **the world's first national oceanic blue carbon ecosystems and policy options assessments were completed** (by the Abu Dhabi Global Environmental Data Initiative, GRID-Arendal and Blue Climate Solutions, a project of the Ocean Foundation). The Oceanic Blue Carbon Audit focused on the biomass carbon mechanism *(21396: Oceanic blue carbon)* • **A blue carbon code of conduct has been developed** and signed by stakeholders, and has been endorsed by over 40 NGOs, five academic institutions, 47 members of the scientific community and UNEP *(20420: Blue Carbon Code of Conduct)* • **The International Partnership for Blue Carbon has grown to almost 40 members**. The partnership has hosted workshops and conferences as part of this commitment *(16878: Knowledge sharing for the protection and restoration of coastal blue carbon ecosystems through the International Partnership for Blue Carbon and in the Indo-Pacific)* • **The Global Environment Facility Blue Forests Project builds on existing activities in selected countries (Ecuador, Indonesia, Madagascar, Mozambique and United Arab Emirates) to promote the blue forests concept from theory to practical application.** That will be accomplished through targeted research on coastal carbon and the valuation of ecosystem services, analyses of possible policy actions and information sharing that will help global replication of the concept. Activities are under way at several sites *(21548: Blue Forests Project)*

Aspect of 14.2	Examples of reported results and impacts of voluntary commitments[13]
Protection (*continued*)	**Mangroves** • **Mangroves for the Future is working with 36 fishing villages in the Bay of Bengal, creating awareness, community participation and education** aimed at conservation and sustainable use of mangroves *(28312: Bikash Ranjan Rautray)* • **A global map of mangrove restoration potential was produced by the International Union for Conservation of Nature, and is available online** *(27592: Mangrove Restoration Potential Map)* • **Save Our Mangroves Now! published a global study of national governance frameworks for mangrove management**, and continues to fill current gaps in mangrove knowledge, through research, publication and dissemination of reports *(27534: Save Our Mangroves Now!)* **Coral reefs** • **The protection of coral reefs in Colombia has been improved through citizen science, monitoring, education and stakeholder involvement** *(14819: Improving Coral Reefs Protection for Effective Conservation)* • **Marine debris is removed from natural and rehabilitated coral areas to reduce stress on the bleached corals** and also to support the recovery. **Post-bleaching monitoring** is also being undertaken *(27510: Removal of marine debris from reef areas in Gulf of Mannar, Tamil Nadu, India to reduce the stress to the bleached corals and to support recovery process and 27506: Climate change caused bleaching and subsequent mortality in 2016 – post bleaching monitoring in Gulf of Mannar, Tamil Nadu, India)* • **The International Coral Reef Initiative has used the Swedish contribution for 2017 to implement the Action Plan 2016–2018. A number of studies and activities were undertaken to raise awareness of the links between coral reefs, including related coastal ecosystems, and climate change protection.** The Initiative has analysed coral reef protection legislation, organized workshops in the United Republic of Tanzania and in Paris, produced a report on coral reefs in the Pacific.
Avoiding significant adverse impacts	• **The Symphony tool has been operative since 2017 and has been used over three years in support of the Swedish national marine spatial planning.** The Swedish Agency for Marine and Water Management is refining the technical development of Symphony into a user-friendly, **open-source tool for cumulative impact assessment with scenario functionality** in support of the global community of marine spatial planning and marine management, available to actors from local authorities to governments in any country *(18381: Cross-boundary and intersectorial solutions for ecosystem-based marine spatial planning: the Symphony method)*
Strengthen resilience	• **The Tuvalu Coastal Adaptation Project will enable the Government of Tuvalu to implement measures to reduce the impact of increasingly intensive wave action and associated impacts of sea-level rise and the intensification of storm events** on key infrastructure as a result of sea-level rise and intensifying extreme events induced by climate change. The project will benefit about 3,100 people directly and about 3,500 beneficiaries indirectly. That is about 62 per cent of the population of Tuvalu *(21264: Tuvalu Coastal Adaptation Project)* • **The Nature Conservancy has implemented projects on innovative finance mechanisms and community-led disaster risk reduction**. It is working with State Governments, municipalities, insurance companies and the tourism industry in Mexico, the United States (Florida and Hawaii) and the Caribbean region to assess the feasibility of developing reef insurance. It anticipates that that funding mechanism will allow for coastal habitat protection and repair, and increased support for the policy and regulatory incentives needed to encourage further progress *(15404: Coastal Risk Resilience and Insurance)*

Aspect of 14.2	Examples of reported results and impacts of voluntary commitments[13]
Undertake restoration	**Mangroves/blue carbon** • **Blue Carbon Project Nigeria aims to restore carbon forests in the Niger Delta by research, community planning, training and policy intervention.** Currently the Project is trying to liaise with educational institutions and local communities in order to start a plan *(26950: Assessing the Carbon Potential of Mangrove Forests in Nigeria)* • **SeaTrees supports blue carbon projects by reforestation of coastal ecosystems.** The project in Myanmar has received its Verified Carbon Standard certification for its carbon credits *(25401: Planting 1 million "SeaTrees" (mangroves) on behalf of the global surfing community)* • **The Global Mangrove Alliance is building a global movement of civil society organizations, technical experts, government agencies, corporations, funding agencies, foundations and community groups to jointly work towards the ambitious goal of increasing global mangrove cover by 20 per cent by 2030.** Twelve new partners have now joined the alliance *(14787: Taking Action to Increase Mangrove Habitat 20 per cent by 2030)* **Coral reefs** • **From 2014 to date, over 2,000 healthy Pocillopora coral fragments have been attached to the natural substrata** (coral matrix or rocks), with an 89 per cent survival rate. Economic income for the restoration site is generated by tourism *(26333: Restoration of the Mexican Pacific coral reefs using natural remediation techniques)* • **Coral Vita commits to planting thousands of corals to restore degraded reefs in the Caribbean.** Construction on Coral Vita's pilot coral farm in Grand Bahama is under way. It will be the world's first commercial land-based coral farm for reef restoration. Once operational, it will grow several thousand coral fragments per year to restore local reefs. Simultaneously, it will serve as an interactive education centre for local communities, as well as a tourist attraction for visitors to the island *(22450: Restoring dying and degraded coral reefs)* • **1,000 coral units planted in Cozumel** as part of the Restore the Mesoamerican Coral Reef project. Environmental education projects undertaken *(18998: Restore the Mesoamerican Coral Reef)* • **In a pilot project in Monaco, 3D printing techniques are being developed and assessed for suitability in reef restoration** *(15740: 3D printed artificial reefs: a relevant technology aiming to mimicry natural structural complexity and to mitigate loss of habitat in coastal ecosystems)* • **Reef habitats that were nano-engineered by Smart Substrates for Super Corals: Reef Life Restoration are being tested for restoration**. They have been found to be sound and to attract fish, with immediate benefits to local fish and marine life, including coralline algae *(15440: Reef life restoration smart substrates for super corals)* **Other restoration** • **Efforts by scientific institutions in developing baseline data for management options, techniques for habitat restoration and training local people in management and restoration in Viet Nam**. At the local level, a number of activities regarding restoration and sustainable use of coastal habitats and resources were conducted *(18418: Development of locally managed areas for restoration and sustainable use of coastal ecosystems with involvement of local stakeholders)*

Summary of impacts

Sustainable management

The voluntary commitments demonstrate considerable progress by countries in applying an ecosystem approach to the management of marine and coastal areas and resources. At a regional level, an ecosystem approach is being implemented in the Mediterranean and Yellow Sea large marine ecosystem. Integrated coastal management and marine spatial planning are also being progressed in Brazil, East Asia, Mexico, Solomon Islands (see box 1) and the Caribbean, as well as in several countries through the Intergovernmental Oceanographic Commission (IOC-UNESCO) marine spatial planning global initiative. While the list is not inclusive of all countries undertaking such initiatives, the examples demonstrate considerable progress in moving towards ecosystem-based management.

Box 1

Solomon Islands: ocean policy and marine spatial planning efforts

In their Ocean Conference voluntary commitment (19754) the Solomon Islands committed to the development of an integrated national oceans policy and a nationwide marine spatial plan.

The Solomon Islands National Ocean Policy was launched in November 2018 with the aim of safeguarding its rich fishing grounds and providing a valuable framework for ocean governance. Development of the Policy had high-level, bipartisan support of the Office of the Prime Minister and the cabinet, which was a key to its success. Technical support was provided by the programme of the International Union for Conservation of Nature and Marine and Coastal Biodiversity Management in Pacific Island Countries; however, the policy was developed and written by local officials/experts to ensure that it is context relevant. Broad-based consultations with NGOs, industry, and provincial and local government occurred early. The task of translating the policy into action remains, but the participatory and integrative nature of the policy and its development were successful.

The marine spatial plan is currently under development.

Source: Keen, M. and Masu, R., The Blue Pacific in action: Solomon Islands National Ocean Policy (2019). Available at https://core.ac.uk/download/pdf/225542403.pdf.

Blue carbon, protection and restoration

Both blue carbon and ecosystem restoration have moved towards the mainstream during the last few years. Technology for coral reef restoration has improved, with experimenation with new techniques, including 3D printing. Results from coral reef restoration by artificial reefs have shown quick benefits to other biodiversity, including fish and algae. Many projects also use coral transplants for reef restoration. Mangrove restoration is generally undertaken at the local level, often by communities, with the Global Mangrove Alliance having set an ambitious target for increasing mangrove habitat by 20 per cent by 2030.

Blue carbon projects have become more common in the past year, and progress is being made with the issue of carbon markets, which has long been a limiting factor for blue carbon. For example, the world's largest mangrove carbon conservation project was inaugurated in a small village in Madagascar. The project will provide a regular income through carbon credit sales to support local management of a marine protected area over the next 20 years. Funds will also help finance community development, including the construction of vital infrastructure and support for education and health care. International partnerships, including the Global Environment Facility Blue

Forests Project and the International Partnership for Blue Carbon help support additional pilot projects and knowledge sharing globally.

Strengthening resilience and avoiding adverse impacts

While voluntary commitments relating to climate resilience are relatively common, many have not yet reported on their results. One example of reported positive action is by the Tuvalu Coastal Adaptation project, which enables the implementation of measures to help protect against sea-level rise and increased storm activity, providing benefits to about 3,100 people directly and about 3,500 beneficiaries indirectly, which amounts to 62 per cent of the population of Tuvalu. Another innovative solution relating to disaster risk reduction through developing reef insurance is being explored by the Nature Conservancy, with insurance potentially used as a funding mechanism for habitat protection and repair.

The component of target 14.2 relating to avoiding adverse impacts has not been well implemented, with only one voluntary commitment that refers to tools for developing cumulative impact assessments. That component would require a wide implementation of environmental impact assessments and strategic environmental assessments to ensure that marine ecosystems are not adversely impacted by development and other activities.

Challenges

Challenges cited by the voluntary commitments include lack of funding, allocating staff time to additional projects, difficulties in enforcement, lack of capacity, coordination, and a low level of awareness about oceans, climate change and the Sustainable Development Goals. Data comparability and quality, and further strengthening of the science-policy interface to ensure that policymakers can follow the science process have also been issues.

One commitment was challenged by an unrealistic number of planned activities, particularly in light of the fact that inadequate consideration was given at the planning stage to the challenges posed by transportation and communications to remote islands. Those issues resulted in delays in project execution, as well as a severe delay in budget implementation and delivery of several outputs.

In another case, implementation was slow owing to high upfront governmental investments required. Because available resources are generally far smaller than what is required for implementing appropriate response measures, some activities have not been adequately implemented.

Potential gaps to be filled

While good progress has been made towards target 14.2 by many voluntary commitments, those actions are not yet at a scale that is sufficient to make a difference globally or regionally. With the target set to come to term in 2020, it is unlikely that the current degree of ecosystem approach application, efforts to build resilience to the impacts of climate change, nor the other associated activities are enough to make a difference beyond the local level. In addition, more needs to be done to achieve the component of the target relating to avoiding significant adverse impacts. Achievement of this target is closely tied to achievement of Goal 13 on climate change, with creating closer linkages between efforts to implement Goals 13 and 14 of particular importance.

14.3: Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

Ocean acidification is caused by the uptake of atmospheric CO_2 by the ocean, which changes the chemical composition of the seawater. Long-term observations of ocean acidification over the past 30 years have shown an average increase of acidity of 26 per cent since pre-industrial times, and at that rate, an increase of 100 to 150 per cent is predicted by the end of the century, with serious consequences for

marine life, in particular calcifying organisms such as corals.[14]

The 268 voluntary commitments for target 14.3 include those that directly address ocean acidification and those that address the intersection between Goal 14 and Goal 13 on climate change. As a result, many of the commitments under 14.3 do not directly address ocean acidification. Rather, they deal with climate change resilience and the ocean more broadly. While those topics are extremely important, the focus of the present section is on those commitments that directly address ocean acidification. Voluntary commitments related to climate change more generally are discussed under target 14.2 in the context of building resilience, or, where marine protected areas are concerned, under target 14.5. Updates have been provided by 102 voluntary commitments.

Addressing target 14.3 requires the following actions:

1. Attempt to minimize or address the impacts of ocean acidification through management or policy actions;
2. Provide for enhanced scientific cooperation at all levels, from national, regional to global.

Table 3 demonstrates the types of impacts that the voluntary commitments have had on both those aspects of target 14.3.

Table 3
Impacts and results of voluntary commitments for target 14.3

Aspect of 14.3	Examples of reported results and impacts of voluntary commitments[15]
Addressing and minimizing impacts of ocean acidification	**Local/national** • **Updated ocean acidification plan** for Washington *(17932: Addressing ocean acidification in Washington State)* • **Oregon Coordinating Council on Ocean Acidification and Hypoxia was established** to provide recommendations and guidance for the state government on how to respond to this issue. 2019–2025. **Ocean Acidification and Hypoxia Action Plan** was completed *(19307: Oregon's commitment to combating ocean acidification and its impacts)* • **Shellfish growers provided information** needed to adapt their hatchery and planting practices to improve the survival of shellfish *(17932: Addressing Ocean Acidification in Washington State)* • **Adaptive capacity built, including through evaluating, protecting and restoring aquatic vegetation** that can help remediate ocean acidification conditions at a local scale *(17932: Addressing ocean acidification in Washington State)* **National/regional** • **Support to development of 15 new ocean acidification action plans, including local adaptation and mitigation options**; developed an ocean acidification action plan toolkit, information materials, worksheet; awareness raising *(15195: OA Alliance commitment to combating ocean acidification and 20274: Supporting the International Alliance to Combat Ocean Acidification)* **Regional action plan on ocean acidification for Latin America and the Caribbean was developed** *(18823: Strengthening capacity on ocean acidification monitoring, ecosystem resilience, MPA networks in a changing climate, coral reef protection and marine spatial planning)*

14 Intergovernmental Panel on Climate Change report on the ocean and cryosphere.

15 The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments, with additional information from websites and reports on voluntary commitments.

Aspect of 14.3	Examples of reported results and impacts of voluntary commitments[15]
Addressing and minimizing impacts of ocean acidification (*continued*)	• **A series of solutions for coral reefs and ocean acidification produced for six regions**, and published as brochures for policymakers *(15617: Science to save the reefs: an interdisciplinary dialogue between economist and biologist to propose practical solutions against ocean acidification and other global stress)* • **Improved communication of ocean acidification science to policymakers** through hosted workshops *(15195: OA Alliance commitment to combating ocean acidification)* • **Supported mainstreaming ocean acidification into national and subnational action plans** through a handbook for Pacific Islands *(15195: OA Alliance commitment to combating ocean acidification)* **Global** • **Nineteen multi-stakeholder initiatives from around the globe brought together to accelerate and support ocean and climate action**, including the United Nations Framework Convention on Climate Change *(19434: Ocean and climate initiatives alliance)*
Enhanced scientific cooperation at all levels	**Subnational/national** • **Biological research has advanced knowledge the broad impacts from ocean acidification** to other species and the entire marine ecosystem in Washington *(17932: Addressing ocean acidification in Washington State)* • **Coordinating strategic scientific investigations and scientific exchanges** through the Washington Ocean Acidification Center *(17932: Addressing ocean acidification in Washington State)* • **Modelling the contribution of land-based sources that exacerbate acidification**, particularly nutrients and working to reduce them *(17932: Addressing ocean acidification in Washington State)* • **Assessing social and economic vulnerability** for tribal communities to ocean acidification; expanding awareness of decision makers and general public; exchanging lessons learned *(17932: Addressing ocean acidification in Washington State)* • **Simulation experiments on potential impacts of ocean acidification and monitoring at two sites in Mauritius** *(22257: Carbon dioxide in the atmosphere and oceans acidification)* • **Long-term ocean acidification monitoring site set up in Malaysia**; awareness raising of young professionals and youth on ocean acidification *(21991: Enhancing research and awareness on the impact of ocean acidification and climate change on tropical marine ecosystems)* • **Through partnerships, local indigenous communities are monitoring how local waters are changing** and thus can create detailed mitigation plans to keep their communities safe *(28521: Oceanographic monitoring in the Northeast Pacific, Arctic and Atlantic)* **National/regional** • **Ocean acidification research and monitoring is strengthened in the Pacific**; test sites established in Fiji, Kiribati, Vanuatu and the territory of Tokelau; improved access to information to inform policies; capacity-building and awareness raising at local, national and regional levels *(15798: The Pacific Partnership on Ocean Acidification)*

Aspect of 14.3	Examples of reported results and impacts of voluntary commitments[15]
Enhanced scientific cooperation at all levels (*continued*)	• **An interdisciplinary research and monitoring network for ocean acidification in the Western Pacific** developed and strengthened; countries research and monitoring capacity enhanced *(15274: Development and strengthening of the regional research and monitoring network, as part of global efforts, on the ecological impacts of ocean acidification on coral reef ecosystems in the Western Pacific and its adjacent regions in support of the SDG 14.3)* **Researchers, students, educators, citizen scientists, decision makers and local communities are supported by freely available data** on ocean acidification and other oceanographic variables *(28521: Oceanographic monitoring in the Northeast Pacific, Arctic and Atlantic)* • **Research vessel for monitoring** of ocean acidification, eutrophication and oceanographic variables *(19499: Environmental monitoring with one of the world's most modern research vessels)* **Global** • **At present, the Global Ocean Acidification Observing Network (GOA-ON) includes more than 730 members from 100 countries** *(16542: Enhancing global ocean acidification monitoring and research)* • **"GOA-ON in a Box" monitoring kits have been provided to 39 scientists in the Pacific Islands, Africa and Latin America**. Kit recipients have received advanced training in order to reliably monitor local carbonate chemistry conditions *(16542: Enhancing global ocean acidification monitoring and research)* • **Access and visualization to ocean acidification data and data synthesis products** collected around the world from a wide range of sources provided through the GOA-ON Data Portal *(16542: Enhancing global ocean acidification monitoring and research)* • **Regular compilations of surface to bottom ocean biogeochemical data are made openly accessible** through Global Ocean Data Analysis Project *(21252: Updates of GLODAP data product)* • **Annual public releases of Surface Ocean CO_2 Atlas** benefit scientists in the fields of ocean biogeochemistry, the global carbon cycle and climate and the Global Carbon Budget *(20464: Annual, public releases of the Surface Ocean CO_2 Atlas (SOCAT))* • **Data management support and guidance provided** for ocean acidification research community *(20816: Data management services for ocean acidification and the Essential Ocean Variable Inorganic Carbon)*

Summary of impacts

Monitoring and research

The voluntary commitments undertaking monitoring of ocean acidification have had considerable success in networking scientists across the globe, and most commitments addressing ocean acidification are partnerships between multiple organizations. That is demonstrated, for example, by the Global Ocean Acidification Network, which is supported by multiple organizations, such as IOC-UNESCO, the Ocean Acidification International Coordination Centre of the International Atomic Energy Agency (IAEA) and the International Ocean Carbon Coordination Project. It currently includes more than 730 scientists from 100 countries, demonstrating a global reach. Regional networks, such as Ocean Acidification Africa, the Western Pacific and adjacent seas network (which focuses specifically on coral reefs and ocean acidification), the Pacific Partnership on Ocean Acidification and the Ocean Acidification Mediterranean Hub are building networks on the regional level and increasing regional scientific capacity and cooperation. National- and subnational-level monitoring networks also exist in many countries, and some of those incorporate the collection of data on a number of oceanographic, biological and environmental variables in addition to ocean acidification. One example of such a network

is Ocean Networks Canada, which, in addition to monitoring by scientists, also includes monitoring by indigenous communities and citizen science.

In total, 265 scientific and policy institutions globally participated in the networks contributing to target 14.3. Collectively, that demonstrates considerable global reach and degree of partnering in the voluntary commitments.

The holders of voluntary commitments in that category have worked together to ensure that good-quality data on ocean chemistry is openly available to everyone. For example, annual releases of the Surface Ocean CO_2 Atlas provide quality-controlled data and synthesis products for scientists in the fields of ocean biogeochemistry, the global carbon cycle and the Global Carbon Budget, as well as the Intergovernmental Panel on Climate Change, international policymakers, and ultimately the general public. Quality control of the Atlas is carried out by regional working groups, with a global group for coordination. In addition to the Atlas global synthesis, many monitoring networks provide access to data through their own data portals, for example the GOA-ON Data Portal.

Many of the voluntary commitments relating to target 14.3 also undertake capacity-building, including training, technology transfer, education and awareness raising. A range of activities are included, from the development and distribution of "GOA-ON in a Box" monitoring kits to 39 scientists in the Pacific Islands, Africa and Latin America, to improved communication of ocean acidification-related issues to policymakers on the local and national levels in a number of countries. Many of the capacity-building efforts have focused on increasing the capacity of scientists, particularly young scientists, in undertaking monitoring and research relevant to ocean acidification. According to the results from the questionnaire by the United Nations, the percentage of female scientists in voluntary commitments that have reported on this aspect have ranged from 35 per cent to over 50 per cent.

Developing response measures to address and minimize impacts

Measures to address and minimize impacts of ocean acidification include the development of ocean acidification action plans. For example, the OA Alliance has supported the development of 15 new ocean acidification action plans for local and national governments that include local adaptation and mitigation options. The OA Alliance has also developed an ocean acidification action plan toolkit to facilitate the development of action plans. In addition, a regional action plan for Latin America and the Caribbean has been developed by regional experts supported by a number of international and regional organizations including IOC-UNESCO, IAEA, International Union for Conservation of Nature, Invemar and Global Ocean Acidification Observing Network, with funding from the Government of Sweden. Many cities and other subnational governments, particularly in North America and Europe, already have ocean acidification action plans in place. Further action plans – subnational, national and regional – will likely be developed in the future, and there is scope to expand this activity to further countries and regions globally. Development of action plans also provides an opportunity to provide for two-way communication between scientists and policymakers, facilitating mutual learning.

Other ocean acidification response measures include provision of information to shellfish growers on ocean acidification conditions. In Washington State, ocean acidification has caused dramatic failures in shellfish hatchery production. Updated equipment and pH sensors have been installed at shellfish hatcheries, and managers have developed new hatchery methods to mitigate corrosive conditions.

Measures for adapting to ocean acidification also include habitat restoration and protection. For example, the Washington State ocean acidification plan seeks to build adaptive

capacity through evaluating, protecting and restoring aquatic vegetation that can help remediate ocean acidification conditions at a local scale. There is some evidence that the high photosynthetic rate of seagrasses results in localized reductions in CO_2 concentrations, thus raising the pH locally during the day. The applicability depends on local physical conditions and configuration of habitats, and further research is required to better understand and verify that relationship in the field.[16] Results in Washington State show that eelgrass can protect juvenile shellfish from ocean acidification and enhance their growth.[17] Given those results, there is further scope to connect voluntary commitments related to blue carbon and marine protection to ocean acidification response measures.

Challenges

Some challenges cited in the voluntary commitments included lack of resources and long-term sustained funding. A number of long-term, high-quality repeat surface ocean CO_2 observational systems have ceased to operate in recent years for lack of funding. In addition, there are gaps in ocean acidification observations around the world, partially due to the fact that monitoring equipment is expensive and capacity for observations is still lacking in many regions. One of the major challenges expressed by ocean acidification scientists is the difficulty in paying for and accessing certified reference materials, which are required for reliable carbonate chemistry measurements.

Another key challenge is the ability to make surface-water ocean acidification measurements in the exclusive economic zones of certain countries and to access data from those areas. Due to such restrictions, ships and mobile surface platforms of foreign vessels traversing waters of an exclusive economic zone are often required to switch off instrumentation. A high-level international agreement is required for enabling the routine collection of in situ surface ocean CO_2 measurements in the exclusive economic zones of countries, similar to weather observations, as those observations are desperately needed for quantification of oceanic CO_2 uptake.

Additionally, taking informed management actions requires solid scientific evidence, adequate funding, good communication, coordination and collaboration across diverse interest groups, and buy-in from a broad range of decision makers. Some management actions have proven easier to translate to implementation, and others require more time and effort to achieve the end goal. Limited awareness on the importance of, and investment in, ocean acidification research and monitoring have proven to be a challenge.

Potential gaps to be filled

Gaps that could be filled through voluntary commitments include awareness raising and education, including among policymakers, relating to the importance of monitoring and addressing ocean acidification. Additional commitments could also fill current geographical gaps in ocean acidification observations around the world. Finally, innovative voluntary commitments might further address adaptation to ocean acidification, including in regards to restoration (blue carbon) and marine protection as methods to reduce additional stressors and lowering pH in specific localities.

Because the achievement of this target ultimately depends on reducing CO_2 emissions, it is also important that it be addressed jointly with Goal 13 on climate change, and through collaborative work with the United Nations Framework Convention on Climate Change

[16] R.K.F. Unsworth and others, Tropical seagrass meadows modify seawater carbon chemistry: Implications for coral reefs impacted by ocean acidification. *Environmental Reseasearch Letters* 7:024026. (2012).

[17] H. Adelsman and W. Binder, eds., *Ocean Acidification: From Knowledge to Action, Washington State's Strategic Response*, Washington Department of Ecology, Washington State Blue Ribbon Panel on Ocean Acidification, Publication no. 12-01-015. (Olympia, Washington, 2012).

towards articulating response measures that are specific to ocean acidification.

14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

Based on long-term monitoring by the Food and Agriculture Organization of the United Nations (FAO) of assessed marine fish stocks, the state of marine fishery resources has continued to decline. The proportion of fish stocks that are within biologically sustainable levels decreased from 90 per cent in 1974 to 65.8 per cent in 2017 (a 1.1 per cent decrease since 2015). The percentage of stocks fished at biologically unsustainable levels increased from 10 per cent in 1974 to 34.2 per cent in 2017.[18] At the same time, the status of some stocks in some regions has improved as a result of improved fisheries management. FAO emphasizes the importance of ecosystem-based management for conservation, as well as the need to reinforce international and regional governance mechanisms, reduce pre- and post-harvest loss and waste, and integrate market-based mechanisms (e.g., access rights, certification schemes, traceability programmes, consumer awareness) to support sustainability.

Target 14.4 came to term in 2020, and thus it will be necessary to discuss the future of the target in light of the continued decline in fisheries resources. Most of the 472 voluntary commitments that relate to target 14.4 have completion dates beyond 2020. Out of the 472 voluntary commitments, 124 have submitted updates. The commitments address improved fisheries management, including implementing an ecosystem approach to fisheries, elimination or reduction in harmful practices or gear, compliance, monitoring and enforcement, creating science-based fisheries management plans, reducing by-catch and discards, and market-based instruments. In addition, many commitments aim to combat illegal, unreported and unregulated fishing, including through the use of the Port State Measures Agreement.

Actions relating to achieving this target have several interlinked and interdependent components as follows:

Restore fish stocks at least to levels that can produce maximum sustainable yield by:

1. Effectively regulating harvesting and ending overfishing;
2. Ending illegal, unreported and unregulated fishing;
3. Ending destructive fishing practices
4. Implementing science-based management plans;
5. Undertaking other actions to restore fish stocks, including through policies, capacity development and so on.

It should be noted that many voluntary commitments address several of those actions.

Table 4 provides examples of the results and impacts of voluntary commitments in this category.

[18] FAO, The State of World Fisheries and Aquaculture 2020: Meeting the Sustainable Development Goals (Rome, 2020).

Table 4
Impacts and results of voluntary commitments for target 14.4

Aspect of 14.4	Examples of reported results and impacts of voluntary commitments[19]
Effectively regulate harvesting and end overfishing	**Certification of fisheries** • **The volume of catch certified by the Marine Stewardship Council increased from 9.76 million tons in 2016 to 12.12 million tons at the end of 2018.** In addition, a further 0.6 million tons are currently undergoing assessment by the Council. In total therefore **12.72 million tons of catch are engaged with Council certification, which represents just over 16 per cent of the global catch as estimated by FAO** *(14879: Incentivising Sustainable Fisheries Through Certification)* • **The Fiji Fishing Industry Association received its catch certificate under the Marine Stewardship Council**. Two workshops on chain of custody and traceability held for executives and operational officials of the Ministry of Fisheries and the fishing industry. External funding sourced for client action plans. Currently 73.2 per cent of the Association member vessels to be certified under catch certification by the Council *(19894: Eco Labeling/Catch Certification)* **Development of regulation and improving fisheries management** • **Draft shark and ray conservation regulation** that ensures sustainable population levels of sharks and rays in Fijian waters vetted and going through consultations *(19999: Conservation and management of all species of sharks and rays and their critical habitats within Fijian waters)* • **As of 2019, Germany (through the Federal Ministry for Economic Cooperation and Development) supports 57 bilateral, regional and global projects, with a total sum of $280 million**, that actively contribute to achieving the goals set out in the Ten-point Plan of Action for Marine Conservation and Sustainable Fisheries *(16102: Implementation of Ten-point Plan of Action for Marine Conservation and Sustainable Fisheries of German development cooperation)* • A new division of the Ministry in Fiji is being set up to coordinate the **management, data collection and compliance strategy for Inshore Fisheries Sector** *(19929: Delivering improved coastal fisheries management services in Fiji)* **Improving information** • **Continuous delivery of updated stock status for key tuna species that are important for Samoa's tuna fisheries** *(18433: Effective implementation of Monitoring, Control, Surveillance and Enforcement programmes for Samoa's fishery waters)* • **Work on improving stock assessment regionally (Chile, Colombia, Mexico and Peru)**, including standardization of assessment methodologies among the different research institutions at the regional level; and workshops on stock assessment of pelagic fish and demersal fisheries *(18893: Implementation of a regional network of stock assessment for pelagic and demersal resources to promote sustainable fisheries under an ecosystem approach)* • **Peruvian Research Institute of the Sea and National Fishery Society of Peru are carrying out joint scientific explorations to improve knowledge of the marine environment and fisheries** *(17881: Establishment of an acoustic and fishery information system to improve knowledge of marine ecosystems and its resources through the use of data from fishing vessels, incorporating actors from other countries)*

[19] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.4	Examples of reported results and impacts of voluntary commitments[19]
Effectively regulate harvesting and end overfishing (*continued*)	• **TASA, one of the biggest Peruvian fishery companies, implemented an ecosystem monitoring programme, with 48 vessels and nearly 1,000 fishermen collecting data.** They developed a sustainable fishery kit for fishers and educational material like syllabus and methodology guide used for training *(17800: Implementation of a monitoring and sensitization program in Peruvian industrial anchovy fishery, based on the ecosystem management approaches)* • **A major, multi-year project launched to collect information about the rise in levels of aquatic wildmeat consumption in Benin, Togo and Ghana**, the drivers for that rise, the impacts to local fishing communities, and ecological and human health. Collaboration between OceanCare and the Benin Environmental Education Society, and with the support of the CMS ScC Aquatic Wildmeat Working Group *(16046: Addressing the causes of aquatic wild meat for sustainable development)*
End illegal, unreported and unregulated fishing	**Illegal, unreported and unregulated fishing action plans** • **The General Fisheries Commission for the Mediterranean implements the 2017 regional action plan to combat illegal, unreported and unregulated fishing**. Under the coordination of the European Union and the European Fisheries Control Agency, it runs an international inspection and surveillance scheme in the Strait of Sicily, as well as a pilot project for turbot fisheries in the Black Sea. In October 2018, the Commission adopted the work plan for the quantification of illegal, unreported and unregulated fishing in the Mediterranean and Black Seas and a reinforced traceability of fishing gear. The Commission has also progressed on regional pilot vessel monitoring systems and control systems *(18708: The EU, together with its Mediterranean partners, has endorsed MedFish4Ever Declaration)* **Port State Measures Agreement support** • **Monaco is supporting activities of the General Fisheries Commission to curb illegal, unreported and unregulated fishing**, including celebration of an international day for the fight against illegal, unreported and unregulated fishing, implementation of the Port State Measures Agreement, participating in meetings related to illegal, unreported and unregulated fishing and provision of illegal, unreported and unregulated fishing expertise *(16462: Monaco's contribution to the General Fisheries Commission for the Mediterranean strategy towards the sustainability of the Mediterranean and Black Sea fisheries (2017–2020))* • **Sweden has supported FAO (SEK 50 million)** for the umbrella programme for "Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing; for Global Record of Fishing Vessels; and for the technical consultation on the marking of fishing gear, as a tool to prevent lost or discarded fishing gear" *(20124: Swedish support to FAO for developing countries implementation of Port State Measures Agreement, the Global Registry and technical consultations for the marking of fishing gear)* **Monitoring, control and surveillance** • **Implementation of Mvuvicard (fishers identification card) in Lamu, Kenya** for easy, rapid identification and verification. The card deters illegal fishing *(26161: Information technology in marine life for Kenya)* • **Tonga supports the Aerial Surveillance Programme** for a civilian air surveillance service managed by the Pacific Islands Forum Fisheries Agency, under the Australian Defence Cooperation Programme funded Pacific Maritime Security Programme *(21404: Implementation of Port State Measures Agreement (PSMA) to prevent, deter and eliminate IUU fishing which support target 14.4 and 14.6)*

Aspect of 14.4	Examples of reported results and impacts of voluntary commitments[19]
End illegal, unreported and unregulated fishing (*continued*)	• **Capacity was developed to ensure worldwide tracking of fishing vessels** as a result of a €420,000 project of the European Union to provide member States the ability to track vessels worldwide. European Union member States can access the data and use it for the verification of the catch certificates, which must accompany any foreign fishery product entering the European Union market *(18698: Modernization project to update the European Fisheries Control Agency application)* • **Sharing of vessel monitoring system data and information** to improve Samoa's national monitoring control and surveillance regime *(18433: Effective implementation of monitoring, control, surveillance and enforcement programmes for Samoa's fishery waters)* • **Indonesia has progressively implemented several programmes to achieve eradication of illegal, unreported and unregulated fishing**, including coordinated patrol between Indonesia and Australia in boundary waters; establish mobile application as a tools to report of illegal, unreported and unregulated fishing activities from community to surveillance control centre; and operate surveillance control centre to observe Indonesia waters 24 hours a day *(18271: Eradication of illegal, unreported and unregulated fishing (IUUF) and to promote fisheries crimes as a transnational organized crime)* • **Prevention of and responses to illegal, unreported and unregulated fishing are strengthened in West Africa through improved monitoring, control and surveillance at national and regional levels** through the Programme for Improved Regional Fisheries Governance in West Africa funded by the European Union. In 2018, two campaigns at sea against illegal, unreported and unregulated fishing were organized by the Sub-Regional Fisheries Commission, with the participation and support of the European Fisheries Control Agency *(17510: Improvement of regional fisheries governance in Western Africa)* • **Since 2016, Sea Shepherd has been working to combat illegal, unreported and unregulated fishing by providing the use of civilian offshore patrol vessels to African coastal states** so that authorities can enforce fisheries regulations and conservation laws in their sovereign waters *(17190: Partnership with African Coastal States to eradicate IUU Fishing in their sovereign waters by 2020)*
End destructive fishing practices	**By-catch** • **In 2019 over 200 shrimp trawl boats in Malaysia were using turtle excluder devices**, with estimated fuel savings to be 42,000 to 56,000 litres, leading to a reduction in CO_2 emissions of some 113,000 to 151,000 kg. That was a result of capacity-building of fishers *(28158: Turtle Excluder Device implementation in Malaysia)* • **Good practice guides for handling sea turtles, seabirds, pelagic sharks and rays, and cetaceans caught incidentally in Mediterranean fisheries** were distributed to the fishers involved in the pilot actions. A training workshop on technical measures to mitigate interactions of endangered species with fisheries and to reduce post-capture mortality was organized *(16439: A joint ACCOBAMS/GFCM approach to mitigate bycatch and depredation in the Mediterranean Sea)* **Selective fishing gear, habitat impacts, ghost fishing** • **Fisheries laws to prohibit destructive fishing practices in Fiji.** Those practices relate to certain fishing gear or methods *(19879: Prohibition of destructive offshore fishing practices)*

Aspect of 14.4	Examples of reported results and impacts of voluntary commitments[19]
End destructive fishing practices (*continued*)	• **Development of selective fishing gear in Sweden to improve stock status and reduce habitat impact.** Projects have involved pelagic fishing and shrimp and crayfish trawls *(19509: Industry and research driven development and introduction of selective and low impact fishing gears)* • The Global Ghost Gear Initiative works on **reducing the presence of lost fishing gear and ghost nets to achieve sustainable fisheries** by participating in global political forums, collecting and disseminating data and solutions *(14840: Tackling abandoned, lost and otherwise discarded fishing gear at global scale – a multi-stakeholder partnership)*
Implement science-based management plans, including ecosystem-based management	**Ecosystem approach to fisheries** • In 2018 the Swedish Agency for Marine and Water Management, in dialogue with various stakeholders, **produced a draft strategy on an ecosystem-based management of fish and fisheries** as an integral part of achieving its objectives for marine and water management. The work progressed in 2019 *(20189: Development of ecosystem-based management of fish and fisheries in Sweden)* • **Enhancement of fisheries resources through the establishment of a regional system of fisheries refugia in the South China Sea and Gulf of Thailand large marine ecosystem.** A total of 15 fisheries refugia sites for 12 priority target transboundary species were established *(22265: SEAFDEC initiatives toward sustainable development of fisheries in ASEAN region)* **Development of management plans and policies** • **Solomon Islands Government is working with parties to the Nauru Agreement and other relevant stakeholders to ensure the Vessel Day Scheme is applied to all longliners and purse seiners and is working on finalizing and implementing a national tuna management plan.** Solomon Islands is seeing increased revenue through the implementation of the Scheme *(20314: Improving Fisheries Management using Vessel Day Scheme, Solomon Islands)* • **Action plans for two fisheries were implemented for four areas in Indonesia**: Saleh Bay, Cempi Bay, Waworada Bay and Sape. The fishing rules include bans on damaging fishing gear used in destructive fishing practices. The plans also include size limits and zoning rules for marine protected areas. The plans were implemented by the provincial government with assistance from the Wildlife Conservation Society *(19198: Management plans for commercially and ecologically important coastal snapper and grouper fisheries in West Nusa Tenggara, Indonesia)* • **In 2017, the General Fisheries Commission for the Mediterranean adopted multi-year management plans** for turbot in the Black Sea and red coral in the Mediterranean Sea. In 2018, Management plans were adopted for the European eel in the Mediterranean Sea and giant red shrimp, blue and red shrimps in the Ionian and Levant Seas, as well as new emergency measures for small pelagic stocks in the Adriatic for the coming three years. A fishing restricted area was adopted in the Adriatic Sea *(18708: The EU, together with its Mediterranean partners, has endorsed MedFish4Ever Declaration)* • **A West African fisheries and aquaculture policy was developed, and coordination of regional stakeholders was improved** through the PESCAO project funded by the European Union. Marine resources management at the regional level is improved, building resilience of marine and coastal ecosystems to perturbations *(17510: Improvement of regional fisheries governance in Western Africa)* **Strengthening regional fishery bodies** • **Active cooperation and collaboration between regional agencies working on fisheries and biodiversity issues in the Mediterranean** *(20412: Memorandum of understanding between the United Nations Environment Programme/Mediterranean Action Plan Secretariat to the Barcelona Convention and FAO General Fisheries Commission for the Mediterranean)*

Aspect of 14.4	Examples of reported results and impacts of voluntary commitments[19]
Implement science-based management plans, including ecosystem-based management (*continued*)	• **A global dialogue with regional seas organizations and regional fisheries bodies** was organized by the Secretariat of the Convention on Biological Diversity to enhance cross-sectoral collaboration *(14827: Sustainable Ocean Initiative (SOI) global dialogues with regional seas organizations and regional fisheries bodies on accelerating progress towards the Aichi biodiversity targets and the sustainable development goals)* • **€6 million has been allocated by the European Union within regional fishery management organizations and regional fisheries bodies worldwide** to, among others, improve the performance of those organizations; strengthen scientific advice; tackle illegal, unreported and unregulated fishing; improve monitoring, control and enforcement; and mitigate by-catch, including sharks and rays *(17482: Support for RFMOs for strengthened governance, science, capacity building and increased compliance)*
Other actions to restore fish stocks	**Trade-related activities** • **Production of a joint plan of action on trade-related aspects of Goal 14 between United Nations Conference on Trade and Development (UNCTAD), FAO and UNEP**. Addresses sustainability throughout the seafood value chain *(22226: Technical assistance on issues related to market access and trade-related aspects)* • **UNCTAD, UNEP and FAO organized the third Oceans Forum on trade-related aspects of the Sustainable Development Goals in 2019**.The forum has become the only non-negotiating multilateral and multi-stakeholder forum that brings to the table trade-related aspects of Goal 14, as well as new emerging issues such as climate change; plastic pollution; marine biodiversity; illegal, unreported, and unregulated fishing; stocks management; fish subsidies; and seafood value chains, among others *(18469: Sustainable Trade in Fisheries – Assisting Member States to Implement Effective, Inclusive and Sustainable Policies)* • **A Seafood Stewardship Index has been developed** to help seafood companies focus on the stewardship of natural resources *(18265: Seafood Stewardship Index)* **Standards and networks** • **Norway is in the process of establishing a Global Action Network on Sustainable Food from the Ocean for Food Security and Nutrition** as a follow-up to the Sustainable Development Goals and General Assembly resolution 70/259 *(19383: Norway launching Global Action Network on Sustainable Food from the Ocean for Food Security and Nutrition)* • **The implementation of sustainable fisheries standards on a global scale**, and particularly the Fisheries Language for Universal Exchange are promoted by United Nations Economic Commission for Europe, with its United Nations Centre for Trade Facilitation and Electronic Business *(16466: Promoting standards for sustainable fisheries management and traceability of fish products on a global scale)* **Human rights, crime and fisheries** • **Indonesia has worked to combat human rights abuses in fisheries**, through sea labour agreements that work to incorporate human rights into fisheries and monitored human trafficking on fishing vessels *(18277: Combatting Human Rights Abuses in Fishing Industry)* • Indonesia organized the second meeting of the Technical Working Group on the Establishment of a Regional Cooperation Agreement Against Crimes Related to Fisheries to discuss and to exchange views on the **draft of modalities and framework of the Regional Cooperation Agreement Against Crimes Related to Fisheries** *(15127: Indonesia leads the establishment of a regional cooperation to combat crimes in fisheries sector)*

Summary of impacts

The voluntary commitments that have reported on their progress collectively demonstrate considerable efforts towards reaching target 14.4. While those efforts have not yet been on a large enough scale to turn the tide on the decline of marine fisheries resources, they nonetheless demonstrate an important achievement towards sustainability.

Regulating harvesting and ending overfishing

On regulating harvesting, the volume of catch certified as sustainable by the Marine Stewardship Council, an independent certifying body, has increased from 9.76 million tons in 2016 to 12.12 million tons at the end of 2018, currently representing just over 16 per cent of the global catch as estimated by FAO. The voluntary commitments provide examples of fisheries that have been recently certified, including the Fiji Fishing Association, and several small-scale fisheries in Mexico (see table 9 under target 14.B).

Progress has also been made by some countries in developing regulations and action plans for sustainable fisheries, as well as in improving the information available for stock assessments and on the ecosystem. For example, collaborative work on improving regional stock assessments is under way between Chile, Colombia, Mexico and Peru, including standardization of assessment methodologies among the various research institutions at the regional level, and regional workshops on stock assessment of pelagic fish and demersal fisheries. An interesting industry initiative is reported by TASA, one of the biggest Peruvian fishing companies, which has implemented an ecosystem monitoring programme by fishers, with associated capacity development. Currently, 48 vessels and nearly 1,000 fishermen are collecting data.

The seafood industry has a large role to play in improving the sustainability of fisheries. Moana New Zealand (voluntary commitment 16667), a Māori-owned seafood company, provides an example of a private-sector initiative that has prioritized social and environmental sustainability (see box 2).

Box 2
Moana New Zealand Sustainability Strategy

Moana New Zealand is the largest Māori-owned seafood company and the second largest seafood company in terms of quota volume and value in New Zealand. Moana is an important part of the intergenerational Māori Fisheries Settlement with the Crown and as such is the only commercial entity that all Māori people own. The nature of that Settlement means that Māori people will always be involved in fisheries; therefore, activities and investments have a long-term perspective that is respectful of fisheries and the ecosystems they are part of.

Social sustainability is a key element to Moana's success. The focus is on integrating corporate, social and environmental responsibility into all business objectives. As part of their sustainability strategy, Moana aims to minimize its environmental footprint, and is currently analysing its carbon footprint. A new threat-management plan for dolphin by-catch is being implemented, including the new addition of drone technology for the survey of dolphin populations. Furthermore, seafood delivery has moved to using sustainable and recyclable containers. To support its employees, Moana has a Hikoi ki te Ora (wellness programme) across all its sites that provides health checks and supports staff in their personal wellness. The programme won the Ministry for Primary Industries Good Employer Award in 2018. Moana is committed to improving transparency through integrated reporting, with its fourth report completed in 2020. Having built capability for sustainability internally, the sustainability strategy is now considered to be "business as usual", integrated with company operations, and an updated sustainability strategy is being developed.

Ending illegal, unreported and unregulated fishing

Ending illegal, unreported and unregulated fishing is a major focus of many commitments, which include implementing action plans on illegal, unreported and unregulated fishing (for example, the General Fisheries Commission for the Mediterranean action plan), and supporting the implementation of the Port State Measures Agreement. Sweden and Monaco have both funded activities. Improving monitoring, control and surveillance is a third category of activities. A number of countries have improved their surveillance programs, including Indonesia, Samoa and Tonga, as well as the region of West Africa, while the European Union, which has developed capacity to ensure worldwide tracking of fishing vessels.

Ending destructive fishing practices

Several commitments relate to ending destructive fishing practices, and they have put in place measures for by-catch, implemented selective fishing gear, tried to mitigate habitat impacts and undertaken other measures. A good example of concrete impacts is provided by the 200 shrimp trawl boats in Malaysia now using turtle excluder devices. In addition, fisheries laws to prohibit destructive practices have been put in place in Fiji, and Sweden has developed selective fishing gear to improve stock status and reduce habitat impact. On a regional level, the Mediterranean has distributed to fishers good practice guides for handling sea turtles, seabirds, pelagic sharks and rays, and cetaceans caught incidentally in Mediterranean fisheries.

Implementing science-based management plans

Many of the actions in this category relate to implementing an ecosystem approach to fisheries management. For example, the Swedish Agency for Marine and Water Management has produced a draft strategy for ecosystem-based management of fish and fisheries. A system of fisheries refugia has been put in place in the South China Sea and the Gulf of Thailand Large Marine Ecosystem by the Southeast Asian Fisheries Development Center. Fisheries policy has been developed for West Africa, while multi-year management plans have been adopted for the Mediterranean. Action plans for two fisheries have been adopted on the local level in Indonesia, and the Solomon Islands government is working with parties to the Nauru Agreement and other relevant stakeholders to ensure the Vessel Day Scheme is applied to all longliners and purse seiners, and is working on finalizing and implementing a national tuna management plan.

An important component of some voluntary commitments has been strengthening international and regional governance mechanisms, in particular regional fishery bodies. The European Union has allocated €6 million to improve the performance of regional fishery bodies worldwide, among other things to strengthen scientific advice; tackle illegal, unreported and unregulated fishing; improve monitoring, control and enforcement; and mitigate by-catch. The secretariat of the Convention on Biological Diversity has hosted a dialogue between regional fishery bodies and regional seas organizations, while active cooperation and collaboration in that regard is already ongoing in the Mediterranean and in the North-East Atlantic.

Other actions

A number of activities related to trade in fisheries have been undertaken by UNCTAD, FAO and UNEP, including a joint action plan on trade-related aspects of Goal 14. Efforts are also under way to implement sustainable fisheries standards on a global scale. For example, the Fisheries Language for Universal Exchange are promoted by the United Nations Economic Commission for Europe with its

United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT). Finally, activities relating to combatting human rights abuses in fisheries are being championed by Indonesia.

Challenges

Some challenges identified by the holders of voluntary commitment include the lack of capacity for sound fisheries management, poor information on and awareness of the status of key fish stocks, the use of damaging fishing gear, poor participation of fishers and low compliance of fishers to any regulation.

Monitoring, control and surveillance to deter illegal, unreported and unregulated fishing also present many challenges, including effective coordination of national surveillance-related stakeholders (e.g., foreign affairs, civil aviation, police, maritime agencies or navies). It also involves coordinating with regional control and security agencies to assist in enforcement on the ground. There is also a lack of capacity for surveillance. Many States do not currently have offshore patrol vessels that can cover the entirety of their waters.

Other difficulties include communications, the siloed implementation of various commitments, including at the highest political levels, effective communication, dedicated personnel available to carry out the activities and the expertise available to perform tasks.

Finally, there needs to be more focus on human rights issues related to fisheries. Fishing vessel crews often lack legal awareness of their rights, and those rights are often not being enforced by Governments.

Potential gaps to be filled

While there have been many positive impacts from those voluntary commitments, more needs to be done on a larger scale to achieve target 14.4. Issues not currently reported on include efforts related the reduction of pre- and post-harvest loss and waste. It is estimated that a third of fish is lost or wasted each year as it travels along the supply chain. Reducing that waste would have a large impact on attainment of target 14.4.

Additionally, more needs to be done to transition to ecosystem-based fisheries management, to improve international and regional governance mechanisms such as regional fishery bodies, apply market-based mechanisms and incorporate climate change into fisheries management.

14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

At present,[20] 7.59 per cent of the global ocean is covered by marine protected areas. Most of them are in coastal areas, and the percentage of marine protected area coverage within national jurisdictions of countries is 17.61 per cent. Only 1.18 per cent of areas beyond national jurisdiction are included in marine protected areas,[21] reflecting the lack of a legal framework for their establishment in many areas beyond national jurisdiction. With negotiations ongoing at the United Nations for a new international agreement under the United Nations Convention on the Law of the Sea for biodiversity beyond national jurisdiction, it is possible that the establishment of marine protected areas in areas beyond national jurisdiction will become easier in the future.

[20] As of 6 December 2020.

[21] These statistics are from the Protected Planet Marine Protected Areas database at www.protectedplanet.net/marine.

Currently, 449 voluntary commitments are registered as contributing towards target 14.5. These commitments relate to the establishment of marine protected areas and other area-based measures, as well as contributions towards effective marine conservation through financial contribution, improved enforcement and/or regulation, education, public engagement, capacity-building and research.

Out of the 449 voluntary commitments, holders of 132 have provided updates at least once since they were registered. This section focuses on impacts of commitments that specifically contribute to area-based marine conservation, while the more broadly focused activities, including sustainable use, restoration and other management actions, are reported on under target 14.2 or, for blue economy-related activities, under target 14.7.

Target 14.5 mirrors Aichi Biodiversity Target 11 of the Convention on Biological Diversity, although with slightly less detailed wording.[22] Actions taken by countries towards Aichi Biodiversity Target 11 also count towards Goal 14. Collective action is key for achieving those targets. Subnational, national, and regional efforts to designate area-based measures for conservation all count towards the total of 10 per cent coastal and marine areas conserved.

The text of Target 14.5 is one of the targets that came to term in 2020. The target relates to area-based management, primarily marine protected areas, although conservation can also be achieved through other area-based management tools, including locally managed marine areas and fisheries closures. There are three aspects of this target that are important for its achievement:

1. Designating an area-based measure, such as a marine protected area, for conservation purposes
2. While not specifically articulated in the target, achieving the conservation goal would also require effective management and financing of the area-based measure.
3. While also not specifically articulated, monitoring and adaptive management are required to ensure that the marine protected area, or other area-based measure, is meeting its conservation objective.

Table 5 provides examples of reported results and impacts of voluntary commitments related to area-based conservation, particularly marine protected areas.

Table 5
Impacts and results of voluntary commitments for target 14.5

Aspect of 14.5	Examples of reported results and impacts of voluntary commitments[23]
Designated area-based conservation measures	**Local/national** • **Niue has designated the 127,000 km² Moana Mahu marine protected area in 2020, covering 40 per cent of its exclusive economic zone** *(17050: Application of ridge to reef concept for biodiversity conservation and for the enhancement of ecosystem services and cultural heritage in Niue)*

[22] Aichi Biodiversity Target 11 reads as follows: "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."

[23] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments, and from the World Database on Protected Areas, Marine Pro-

Aspect of 14.5	Examples of reported results and impacts of voluntary commitments[23]
Designated area-based conservation measures (*continued*)	• **The Palau National Marine Sanctuary, measuring 475,077 km², went into effect in 2020, closing 80 per cent of Palau's exclusive economic zone to all forms of extractive activities**, including all types of fishing. The remaining 20 per cent of Palau's exclusive economic zone is designated as a domestic fishing zone that will support food security and bring more economic benefits to the people of Palau *(14321: The Palau National Marine Sanctuary)* • **Colombia has protected 13.54 per cent of its marine area**, a total of 12.5 million hectares, exceeding its voluntary commitment *(20269: 10 per cent de reas Marinas Protegidas)* • **Brazil created marine protected areas in Trindade and Martin Vaz, covering an area of over 40 million hectares** *(20832: Private foundation investing in Marine Protected Areas in Brazil and related public policies)* • **Thirty-one national marine protected areas in China (8,056 km²) and 16 national marine protected areas in the Republic of Korea (386 km²) were designated** to protect marine mammals, birds, fishes, mollusks, plants and algae in the Yellow Sea. The national marine protected areas of the China and Republic of Korea represent **2.3 per cent of the Yellow Sea** *(19068: Yellow Sea Large Marine Ecosystem (YSLME))* • **Garorim Bay marine species protected area was added to the Yellow Sea Large marine ecosystem marine protected area network in July 2016, covering 91 km²** for protection of habitat and breeding grounds of spotted seal and key habitats of marine and pelagic species *(19068: Yellow Sea Large Marine Ecosystem (YSLME))* • **Indonesia has successfully established more than 6.7 million hectares of marine conservation areas, and in total achieved 23.1 million hectares until 2019**. That achievement exceeds the target to establish a total of 20 million hectares of marine conservation area by 2019 *(18259: Establishment of 4.3 million hectares of marine conservation areas to reach 20 million hectares by 2019)*. That includes **500,000 hectares of new marine protected areas in four provinces**, including West Nusa Tenggara, North Maluku, North Sulawesi and Aceh have been established from 2017 to date *(19193: Managing and conserving Indonesia's rich marine coastal biodiversity through MPAs)* • **The Government of South Georgia and the South Sandwich Islands (United Kingdom) fully protected 264,000 km² of waters** surrounding the overseas territory of the United Kingdom situated in the South Atlantic in December 2018 *(14811: Promoting the Creation of Highly Protected Marine Reserves)* • **Mexico declared the Revillagigedo Archipelago marine reserve, which measures 148,100 km².** It is the largest marine reserve in North America and Mexico's first fully protected marine reserve *(14811: Promoting the Creation of Highly Protected Marine Reserves)* • **Chile declared the Easter Islands Rapa Nui marine protected area, which protects 720,000 km²** from all industrial fishing and mining activities *(14811: Promoting the Creation of Highly Protected Marine Reserves)* • **Seychelles has created two new marine protected areas covering a total of 210,000 km²**. They are situated at Aldabra archipelago and at the stretch of ocean between the Amirantes group of coral islands and Fortune Bank *(19024: Protect 30 per cent of Seychelles marine and coastal waters more than 400,000 square kilometers of improved protection and ocean management)* • **Argentina has established the Santuario Mamíferos Marinos** to conserve whales and other marine mammals *(19644: Santuario mamíferos marinos de argentina)*

tection Atlas and the websites of holders of voluntary commitments.

Aspect of 14.5	Examples of reported results and impacts of voluntary commitments[23]
Designated area-based conservation measures (*continued*)	• **Saint Kitts and Nevis have declared the Nevis Peak National Park and Camps Rivers Watershed Area (3,250 hectares)**. Booby Island Nature Reserve (300 hectares) will come into effect when the National Environmental Management Bill is enacted (expected early 2019) *(15725: Conserving marine biodiversity in Saint Kitts and Nevis)* **National/regional** • **Around 1,220 marine protected areas and other effective area-based conservation measures now cover 8.9 per cent of the Mediterranean** through a large variety of conservation designations *(20344: Towards an ecologically representative and efficiently managed network of Mediterranean marine protected areas)*
Work towards designating area-based conservation measures	**Local/national** • **Progress is ongoing to designate Xiaoyangkou of Rudong, China as a special marine protected area with an area of 43 km²** as the critical stopover habitat for critically endangered spoon-billed sandpiper along the East Asia and Australian flyway. **Coastal wetland of Yancheng of Jiangsu, China, was listed as a world heritage site in 2019** *(19068: Yellow Sea Large Marine Ecosystem (YSLME))* • **An initiative to set up more offshore marine protected areas in Fiji** was spearheaded by the Ministry of Fisheries *(19904: Expansion of Large Scale Marine Managed Areas in Fiji)* • **Work is under way to gazette two marine managed areas in Fiji** (Bligh Water and Central Viti Levu marine managed areas); regulation is undergoing final vetting *(19904: Expansion of large scale marine managed areas in Fiji)* • **Creation of Te Tai Nui Atea marine managed area legislative framework is in progress**. Once created, it will become the largest protected area in French Polynesia, and among the 10 largest in the world *(20294: Te Tai Nui Atea – marine managed area (5 million km²))* • **National marine spatial plan and ocean policy under development for Solomon Islands** *(19754: Integrated National Oceans Policy and Marine Spatial Plan for Solomon Islands)* • The Anti Fish Bombing Committee of Sabah and partners have been **developing the Sabah Blue Ocean Initiative Action Plan to speed the process of protecting at least 10 per cent of Sabah's marine area** and will help to better coordinate resources to help deliver SDG-14 overall *(16712: Eradicating Fish Bombing in Sabah by 2020 and 16709: Stopping Fish Bombing)* **National/regional** • BirdLife International is supporting the OSPAR Convention member States on the creation of a new marine protected area in the high seas with technical expertise. **The North Atlantic Current and Evlanov Seamount High Seas marine protected area proposal developed by BirdLife is currently under consideration** *(17755: MPA Action Group: Global Partnership to improve management effectiveness and sustainability of a global portfolio of Marine Protected Areas (MPAs) and Locally Managed Marine Areas (L/MMAs))* • Oceano Azul Foundation and Waitt Institute and Foundation signed a **memorandum of understanding with the Regional Government of the Azores supporting a conservation and sustainable development programme to dedicate 15 per cent of its approximately 1 million km² exclusive economic zone to new fully protected marine protected area, and to support the implementation of the existing marine protected area (approximate 5 per cent of the exclusive economic zone)** *(17755: MPA Action Group: Global Partnership to improve management effectiveness and sustainability of a global portfolio of Marine Protected Areas (MPAs) and Locally Managed Marine Areas (L/MMAs))*

Aspect of 14.5	Examples of reported results and impacts of voluntary commitments[23]
Work towards designating area-based conservation measures (*continued*)	• **Sweden has achieved its target for 10 per cent protection and is now working on objectives of ecological representativity, functionality and connectivity** *(13892: Meeting Sweden's MPA target)* **Global** • Wildlife Conservation Society launched the $15 million Marine Protected Area Fund in October 2016 with founding support from the Waitt Foundation and blue moon fun. **To date, the Fund has allocated $10.3 million to support programmes in 23 countries to secure 437,000 km² of previously unprotected ocean habitat** *(17755: MPA Action Group: Global Partnership to improve management effectiveness and sustainability of a global portfolio of Marine Protected Areas (MPAs) and Locally Managed Marine Areas (L/MMAs) and 16178: Protecting 1 million sq kms through the $15 million WCS Marine Protected Area Fund)* • **Since June 2017, Mission Blue has declared four new "hope spots" around the world.** They are at Olowalu Reef in Hawaii, Blue Shark Central in the high seas of the North Atlantic Ocean, Mako Shark Metropolis in the high seas of the North Atlantic Ocean and Lesbos island in the Mediterranean Sea. The initiative offers global exposure to hope spots, including towards their protection *(16625: 30 New Mission Blue Hope Spots by 2020)* • The aggregated ambition of Blue Action Fund current grant portfolio is to **establish around 31,000 km² of new, well-managed marine protected areas and to better manage around 172,000 km² of existing areas**. A total of more than 250,000 people, including users of marine resources and their families, fishers and employees of management authorities of marine protected areas are estimated to directly benefit from those projects *(16098: Blue Action Fund)* • The Ocean Sanctuary Alliance has **published an analysis of areas of ocean areas that have already been identified as important but that are currently unprotected to provide guidance for the siting of future marine protected areas** *(15318: Achieving the promise of 10 per cent ocean protection by 2020)*
Management, participation, financing, awareness raising	**Subnational/national** • **Policies for the establishment of the sustainable financing mechanism** for Marae Moana Cook Islands Marine Park are under discussion with partners *(20139: Sustainable Financing of Marae Moana – Cook Islands Marine Park)* • **Public awareness of marine conservation and marine protected areas enhanced in Brazil** through Ocean Connection workshop *(20832: Private Foundation investing in Marine Protected Areas in Brazil and related public policies)* • **Phoenix Islands Protected Area Conservation Trust has developed a partnership with the Ministry of Environment of Kiribati in order to establish a coordinated effort for mangrove replantation** *(20784: Phoenix Islands Protected Area: Bring PIPA Home)* • **La Minga Fund was established to provide a long-term financing solution for two large community-managed conservation mosaics along Colombia's Pacific coast** by Conservation International, Fondo Accion, the Walton Family Foundation, and the Swedish Embassy in Bogota. La Minga covers an area of 350,000 hectares and over 30,000 people *(15087: La Minga: Long-term financing for two marine conservation mosaics in Colombia)* • **Sabah Parks and World Wide Fund for Nature–Malaysia are collaborating towards effective management, monitoring, scientific research and collaborative management with communities and stakeholders at Tun Mustapha Park, Malaysia** (14967: Tun Mustapha Park –A win-win for conservation and people)

Aspect of 14.5	Examples of reported results and impacts of voluntary commitments[23]
Management, participation, financing, awareness raising (*continued*)	• **In Grenada, legislation is being facilitated related to Fisheries including a specific chapter dealing with MPAs, especially co-management arrangements**. Co-management is being conducted for some MPAs without a legal basis (16078: Marine conservation through Ridge-to-Reef approach in Grenada) **National/regional:** • **Partnership charter of the Pelagos Sanctuary, with more than 100 signatories,** is working in cooperation for the protection of marine mammals in the Sanctuary (21296: Awareness campaigns on the marine mammals in the Pelagos Sanctuary) • **Dialogue and collaboration in the Baltic increased through Biospheres for Baltic Network**, which provides for sharing experiences in the Baltic Sea and opportunities for exchange between biosphere reserves and organizations with a focus on the Baltic Sea *(20476: Facilitating learning an sharing of good practices within and beyond UNESCO Biosphere Reserves How do UNESCO Biosphere Reserves in the Baltic Sea Region contribute to the implementation of the 2030 Agenda?)* • **Joint recommendation for fisheries conservation measures** being developed with concerned member states and the European Commission for selected marine protected areas on coast of Sweden *(19794: The Swedish Government intends to implement appropriate and relevant conservation measures regarding fisheries in order to reach conservation objectives in all marine protected areas by 2020)* • **Science of how Arctic marine protected networks may reduce negative effects of climate change and ocean acidification** was considered in a workshop *(18421: Arctic Marine Protected Area Network Toolbox Project (2017–2019))* • **Ways to support indigenous/local involvement in, and indigenous-/local-led, marine protection in the circumpolar Arctic Ocean** explored in a workshop *(18421: Arctic Marine Protected Area Network Toolbox Project (2017–2019))* • **The Governments of the Cook Islands and New Caledonia have established a sister-site agreement between their large-scale marine protected to coordinate sustainable management efforts**. New Caledonia will share its experience in the field of cross-cutting scientific exploration, and the Cook Islands will share its expertise in integrated governance to facilitate engagement at all levels *(15701: Marae Moana – Cook Islands Marine Park)* **Global** • **Cooperation between managers of marine protected areas in countries and territories around the Atlantic Ocean were promoted**, bringing both sides of the Atlantic together in twinning projects to exchange best practice to improve management of marine protected areas (20319: Regional Marine Protected Areas networks in action) • Marine Conservation Institute awarded the first round of Blue Parks awards in 2017. Since then **16 marine protected areas have received awards for meeting science-based standards for effectiveness** *(17755: MPA Action Group: Global partnership to improve management effectiveness and sustainability of a global portfolio of Marine Protected Areas (MPAs) and Locally Managed Marine Areas (L/MMAs) and 15095: Global Ocean Refuge System)* • **Capacity development support for management and governance of protected areas for African, Caribbean and Pacific countries** under way through the biodiversity and marine protected areas management programme *(18127: Support for management of protected areas, including MPAs, in ACP Countries)*

Aspect of 14.5	Examples of reported results and impacts of voluntary commitments[23]
Management, participation, financing, awareness raising (*continued*)	• **The Association for sustainable financing of marine protected areas in the Mediterranean has continued working towards a regional trust fund, intensified fundraising activities and initiated pilot projects to support the first set of marine protected areas in the south and east shores of the Mediterranean in Albania, Algeria, Lebanon, Montenegro, Morocco, Tunisia and Turkey.** A global alliance of donors has been set up, mobilizing public and private funding, with **€9 million raised and pledged for the development of the environmental fund** *(15757: An innovative financial mechanism to support the effective management of MPAs in the Mediterranean basin; a public-private commitment in a regional approach for local beneficiaries)* • As of 2017, **the registry of areas and territories conserved by indigenous peoples and local communities has 202 entries of which 23 are new**. The registry enhances the understanding of the role of those areas in reaching international targets *(15079: ICCA Consortium voluntary commitment for SDG Goal 14.5 and 14b)*
Monitoring of effectiveness	**National/regional** • Recent monitoring and assessment have confirmed the **positive impacts of Mediterranean marine protected areas and networks of areas on several biodiversity-related ecological objectives** *(20344: Towards an ecologically representative and efficiently managed network of Mediterranean marine protected areas)* • **A marine science programme to provide scientific knowledge and understanding of marine park values, pressures and adequacy of responses for effective management is being implemented for the 58 Australian marine parks that cover 2.8 million km² of Australian waters**, from tropical to sub-Antarctic waters *(17908: Commonwealth marine reserves)* • **The Australian Government, through Parks Australia is delivering a monitoring framework that will include social and economic benefits** for individuals and communities *(17908: Commonwealth Marine Reserves)*

Summary of impacts

Establishment of marine protected areas

The voluntary commitments related to the designation of marine protected areas have greatly expanded the area under protection up to July 2020. The information available from voluntary commitments and from the World Database on Protected Areas show that they have led to the establishment of new marine protected areas covering 3.3 million km² of area, which is slightly larger than the land area of the country of India (see table 6). That includes commitments both by governments to establish marine protected areas, and by funding agencies and NGOs to support their establishment. However, that figure is likely an underestimate of the marine protected area estate created by holders of voluntary commitments, as many have not reported on their results, and not all results are yet available in the database. A number of other marine protected areas are in the process of being established, and while it seems that the 10 per cent target may not be reached in 2020 for the ocean overall, current progress makes it likely that it will be achieved soon.

Table 6
Marine protected areas established as part of voluntary commitments

Area	Country	km²	Voluntary commitments
Grand Anse	Grenada	18	14,548
Saint Ann's Bank	Canada	4,364	20,492
Anguniaqvia Niqiqyuam	Canada	2,358	19,138
Hecate Strait	Canada	908	19,158
Diego Ramírez-Drake Passage Marine Park	Chile	144,390	16,763
Rapa Nui	Chile	720,000	14,811
Total new area	Indonesia	66,900	18,259
Moana Mahu	Niue	127,000	17,050
Total area	Colombia	125,698	20,269
Total new area	China	8,056	19,068
Total new area	Republic of Korea	386	19,068
Revillagigedo	Mexico	148,087	14,811
Total area	Brazil	918,9556	19,649
Amirantes/Fortune Bank and other areas	Seychelles	210,000	19,023
South Georgia and South Sandwich Islands	United Kingdom	264,000	14,811
Palau National Marine Sanctuary	Palau	475,077	14,321
Namuncurá-Burdwood Bank II Marine National Park	Argentina	32,000	19,123
Yaganes Marine National Park	Argentina	69,000	19,123
TOTAL AREA OF VOLUNTARY COMMITMENTS		**3,317,198**	

The newly established marine protected areas include some very large ones, for example the 720,000 km² Easter Islands Rapa Nui Marine Protected Area (Chile), the 475,077 km² Palau National Marine Sanctuary, the 148,087 km² Revillagigedo Archipelago marine reserve (Mexico), the 136,000 km² Amirantes group of islands and Fortune Bank (Seychelles), and 127,000 km² Moana Mahu marine protected area (Niue), among others. Other countries that have established marine protected areas as part of their voluntary commitments include Argentina, Brazil, Canada, China, Colombia, Grenada, Indonesia, the Republic of Korea, and the United Kingdom. This list is not comprehensive, given that not all voluntary commitments have reported on their progress.

In addition, many existing marine protected areas have expanded their area coverage. For example, around 1,220 marine protected areas and other effective area-based conservation measures now cover 8.9 per cent of the Mediterranean. Fiji now has 33,000 km² of locally managed areas, equivalent to 79 per cent of Fiji's customary marine areas.

Financing and management capacity

Marine protected areas have been actively supported by the donor community and by international NGOs. Many have pledged funding and expertise to assist countries in reaching target 14.5. The 2017 Ocean Conference voluntary commitments provide a number of examples of such pledges. For example, the Wildlife Conservation Society Marine Protected Area

Fund, which is designed to assist countries in meeting the 10 per cent target, aims to invest a minimum of $15 million by 2020 to support legal declaration of new marine protected areas in 20 countries, covering 3.7 million km^2 of previously unsecured and unprotected ocean. As of July 2019, more than 437,000 km^2 of new marine protected areas have been created directly or indirectly through investments of the Marine Protected Areas Fund. The Blue Action Fund supports national and international NGOs in their efforts to conserve the oceans and coastlines in the developing world. Its approach is to become a new financial partner for NGOs that are successfully working in that field, enabling them to redouble their efforts with additional funding.

Another example is the Pew Bertarelli Ocean Legacy project,[24] which commits $30 million over five years in technical support and public education to promote the creation of 15 large-scale marine reserves by 2022. As part of this commitment, the project will continue to collaborate and build capacity with local and indigenous communities to protect their marine environments, support sustainable livelihoods and increase climate resiliency. Their work to date includes close collaboration with the people of Rapa Nui, providing scientific information and capacity-building to support the community's effort to secure protection for its waters. The Easter Islands Rapa Nui Marine Protected Area, declared by Chile in February 2018, protects 720,000 km^2 from all industrial fishing and mining activities.

However, in the long term, many marine protected areas still lack both capacity and financing for effective management.[25] That issue is even more pertinent now that COVID-19 has resulted in a loss of tourism revenue that many marine protected areas depend on. For example, the Punta Tombo Marine Protected Area in Argentina protects the largest Magellan penguin colony on the planet, and also provides income to 20,000 families through eco-tourism linked to penguins. Thus, a loss of tourism revenue can be devastating for marine protected areas and associated coastal communities. Setting up trust funds provides additional stability for many marine protected areas. For example, the La Minga Fund was established to provide a long-term financing solution for two large community-managed conservation mosaics along the Pacific coast of Colombia. In the Mediterranean, the association for sustainable financing of Mediterranean marine protected areas has continued work towards a regional trust fund, intensified fundraising activities and initiated pilot projects to support the first set of marine protected areas in the southern and eastern shores of the Mediterranean in Albania, Algeria, Lebanon, Montenegro, Morocco, Tunisia and Turkey.

The voluntary commitments have also shown examples of increased collaboration and networking between marine protected area sites, providing for an exchange of lessons learned. For example, cooperation is promoted between managers of marine protected areas in countries and territories around the Atlantic Ocean, bringing both sides of the Atlantic together in twinning projects to exchange best practice to improve management of marine protected areas. Additionally, the Cook Islands and New Caledonia have established a sister-site agreement between their large-scale marine protected areas to coordinate sustainable management efforts. New Caledonia will share its experience in the field of cross-cutting scientific exploration, and the Cook Islands will share its expertise in integrated governance to facilitate engagement at all levels.

[24] Commitment No. 14811. Available at https://oceanconference.un.org/commitments/?id=14811.

[25] D.A. Gill and others, Capacity shortfalls hinder the performance of marine protected areas globally. Nature, 543(7647) (2017), p. 665.

Monitoring of impacts on marine protected areas

Only holders of a few voluntary commitments reported on the results of monitoring of impacts on marine protected areas. Examples include recent monitoring of Mediterranean marine protected areas and networks, which has confirmed positive impacts on several biodiversity-related ecological objectives. Locally managed marine areas in Fiji have been successful in raising awareness, providing for stewardship, improving fisheries status, income for small-scale fishers, access to fisheries resources and community participation in marine management measures. They have also been successful in reviving traditional management measures, marine management practices of *tabu* areas establishment for improved governance of locally managed marine areas.

Challenges

Many marine protected area critically lack permanent funding for operating costs, and the lack of financing will likely be made worse due to COVID-19. Many marine protected areas are not able to fully implement management plans due to the lack of financial resources and technical capacity, as well as legal and policy gaps. Implementation of enforcement is also often lacking. Lack of funding sometimes accounts for a slow pace of declaration of marine protected areas.

Government capacity is also lacking in some cases. For example, the holder of one voluntary commitment report a challenge related to the revision of local government laws that shifted the management authority of marine protected areas from district government level to the provincial government level, since the provincial governments do not yet have strong capacity for managing marine protected areas.

Creating large-scale marine protected areas, such as some of the ones declared as part of the voluntary commitments, is a huge undertaking, and issues have been reported with capacity and stakeholder engagement. Networking with other nations with similar initiatives in different stages of development to learn from them has been beneficial to all parties.

One key challenge was to ensure ownership of the marine protected area or other conservation measures, and consultations are not always easy in remote locations that are reachable only by boat or through costly flights. Consultations generally take a long time and can be expensive, but are crucial for the success of the marine protected area.

The formal designation/gazetting of marine protected areas is a government action, and while many marine protected areas have been strongly advocated for and supported by non-governmental and outside financing, the final step in creating a formal marine protected is dependent on political factors and timing.

Potential gaps to be filled

Gaps still exist in ecological representativity, functionality and connectivity of existing marine protected areas nationally, regionally and globally. For example, the current network of marine protected areas is not adequate to protect all life-cycle stages of migratory species. More consideration is also required for design of marine protected areas in the context of climate change, as well as use of marine protected areas in open ocean areas, including dynamic areas.

Management effectiveness, capacity and long-term financing are also lacking in many marine protected areas, rendering them inefficient in achieving their conservation objectives. Monitoring of impacts on marine protected areas, both ecological and socioeconomic, and adaptive management are key to better understanding the impacts of the marine protected area. There is also a need to further protect or better manage areas that have been identified as ecologically or biologically significant

globally, and the 10 per cent target may not be sufficient to achieve that goal. Questions have also been raised about whether a new marine conservation target should be set for the post-2020 period. The post-2020 Global Biodiversity Framework may offer some direction towards a new future marine protected area target.

14.6: By 2020, prohibit certain forms of fisheries subsidies that contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation

According to recent estimates, subsidies to the fishing industry amounted to approximately $35.4 billion per year, of which around $22.2 billion was provided in forms that tended to enhance fishing capacity, which in turn, can contribute to overcapacity and overfishing.[26] During World Trade Organization (WTO) negotiations on fisheries subsidies, members agreed on an intensified programme of work leading up to the twelfth WTO Ministerial Conference, to be held from 8 to 11 June 2020. That meeting was postponed due to COVID-19, but negotiations have now resumed. On 25 June, the chair presented to heads of delegations a document consolidating elements from members' proposals and from facilitators' working texts to curb subsidies to illegal, unreported and unregulated fishing; subsidies to fishing overfished stocks; and subsidies that contribute to overfishing and overcapacity, along with some provisions on definitions and the scope of what the agreement could cover. Another meeting was held on 21 July for members to share their comments and for the Chair to suggest the next steps for negotiations in the autumn.[27]

Based on the mandate from the WTO's eleventh Ministerial Conference, and the Sustainable Development Goals target 14.6, negotiators are expected to secure an agreement in 2020 on disciplines eliminating subsidies for illegal, unreported and unregulated fishing and prohibiting certain forms of fisheries subsidies that contribute to overcapacity and overfishing, with special and differential treatment for developing and least-developed countries. [28]

Target 14.6 was bolstered by the contribution of 116 voluntary commitments.Of those, 36 have provided updates on their activities. Many of the voluntary commitments registered towards this target do not directly relate to subsidies, but rather to research and information sharing or other issues. That is likely due to the sensitive nature of the WTO negotiations.

Only two directly relevant commitments reported on target 14.6, as detailed in table 7.

[26] U. Rashid Sumaila and others, "Global fisheries subsidies: an updated estimate", *Marine Policy*, vol. 69 (2016), pp. 189–193.

[27] WTO, Fisheries subsidies work resumes in Geneva as COVID-19 restrictions ease (2020). Available at www.wto.org/english/news_e/news20_e/fish_17jun20_e.htm.

[28] Ibid.

Table 7
Impacts and results of voluntary commitments for target 14.6

Aspect of 14.6	Examples of reported results and impacts of voluntary commitments
Information sharing	• **The Organization for Economic Cooperation and Development (OECD) database on policies to support the fisheries sector was developed**. Participating countries provide information annually on their policies that provide support to the fisheries sector. That information is compiled and classified in a database that allows for tracking the scale and composition of support over time. Such a database is a necessary element of target 14.6, as it allows for measuring progress towards the goal of eliminating subsidies that contribute to overcapacity, overfishing or illegal, unreported and unregulated fishing by 2020. The database is also being used, in combination with a new quantitative model, to produce estimates of the relative effects of support policies and the potential gains from reforms. Two reports summarize OECD work in that area: relative effects of fisheries support policies (www.oecd-ilibrary.org/agriculture-and-food/relative-effects-of-fisheries-support-policies_bd9b0dc3-en) and support to fisheries: levels and impacts (www.oecd-ilibrary.org/agriculture-and-food/support-to-fisheries_00287855-en). OECD communicates the data and analytical results to member countries and other interested parties. That includes direct contact with those involved with the discussions at WTO *(14983: Database of support policies to fisheries – The Fisheries Support Estimate (FSE))*
Trade-related aspects of fisheries	• **Technical assistance on issues related to market access and trade-related aspects** UNCTAD, FAO and UNEP. See table 3 for further details of commitment 22226.

Summary of impacts

While the attainment of target 14.6 is in the hands of the WTO negotiators, the OECD database on policies to support the fisheries sector provides important information to those involved with the discussions at WTO.

14.7: By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

The sustainable use of marine resources and the development of sustainable ocean-based economies present vital opportunities for small island developing States and least developed countries to increase economic benefits. Many small island developing States view themselves as "large ocean States", given that their exclusive economic zones are often many times larger than their land areas. Small island developing States and coastal least developed countries are also highly dependent on the ocean and its resources.

Currently, 386 voluntary commitments have been registered as contributing towards target 14.7. Of those, 117 have provided updates on their activities. The voluntary commitments relate to activities to develop national blue economies, as well as various economic sectors. Some of the commitments also include ocean management and conservation, including through marine spatial planning and blue carbon. Blue carbon and marine spatial planning activities are reported on under target 14.2.

The target could be seen as having the following components:

Increase economic benefits to small island developing States, developing States and least developed countries through sustainable use of marine resources (e.g., national blue economies), including through:

a. Sustainable fisheries;
b. Sustainable aquaculture;
c. Sustainable tourism;
d. Other sustainable economic activities;

Table 8 provides a summary of reported results and impacts of voluntary commitments.

Table 8
Impacts and results of voluntary commitments for target 14.7

Aspect of 14.7	Examples of reported results and impacts of voluntary commitments[29]
General economic benefits to small island developing States, including from blue economies	**Blue economy/blue growth transition** • **The New Caledonia Maritime Cluster has presented papers on blue growth strategy**, with priorities around sharing data, implementing marine spatial planning, boosting ecological transition, promoting marine renewable energies, training youth in marine technologies and know-how, and undertaking sustainable development in marine waters and exclusive economic zones. Four projects from a "smart cable" implementation between New Caledonia and Vanuatu to marine biotechnology projects, including a fleet of underwater autonomous vehicles to investigate deep environment or the building up of a marine geospatial data hub will be developed *(18723: New Caledonia Towards Sustainable Blue Growth)* • **The small islands developing States Blue Guardians programme** works on nature-based climate adaptation and mitigation projects; information and data infrastructure for building climate resilience and addressing nationally determined contributions; and the small island developing States regional community exchange. Eight countries are now part of the Blue Guardians proposal: Barbados, Grenada, Mauritius, Saint Vincent and the Grenadines, Samoa, Seychelles, Tonga and Tuvalu *(17770: Small Island States (SIDS) Blue Guardians: Partnership to Protecting Oceans and Climate-resilient Blue Economies)* • **Thirty-eight countries have joined one or more action groups of the Commonwealth Blue Charter, which supports transition to a blue economy.** Those countries include a number of small island developing States. The goals of the action groups are to cross-promote shared technical, scientific and policy solutions to effect broader implementation and change *(15910: Supporting a blue Commonwealth)* **Blue economy financing** • **The Seychelles Conservation and Climate Adaptation Trust is now in its third year of financing projects under the Blue Grants Fund, utilizing proceeds from both the Seychelles marine debt-for-nature swap and the Seychelles' sovereign blue bond.** Local communities, young entrepreneurs, women-led organizations and government bodies have benefited from those three years of disbursement for work that supports the fisheries sector, marine protected areas and sustainable use zones, addressing the impacts of climate change and supporting the Seychelles, blue economy *(16110: Investing in Seychelles' Blue Future)* • **A new OECD report on making development cooperation work for small island developing States explores financing approaches and mechanisms to promote sustainable development and the blue economy** in small island developing States *(15043: Exploring financing approaches and mechanisms to promote sustainable development and the blue economy in small island developing States)*

[29] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.7	Examples of reported results and impacts of voluntary commitments[29]
General economic benefits to small island developing States, including from blue economies (*continued*)	• **Socioeconomic value that ecosystems provide to Aruba estimated by TEEB Aruba**, in order to integrate the value of natural capital in long-term planning contributing to a sustainable economic development of the island *(16198: The Economics of Ecosystems and Biodiversity – TEEB Aruba)* **Projects, technical assistance** • **Eight grant projects in the Caribbean supported by the European Union** are under implementation covering: (1) conservation/restoration of vulnerable ecosystems with focus on marine protected areas; (2) sustainable livelihoods and food security in ecosystem-dependent coastal communities through biodiversity-friendly, income-generating activities and by reducing overfishing; destructive fishing practices; illegal, unreported and unregulated fishing; and coastal degradation and overexploitation due to tourism and recreational use *(18121: Conservation and sustainable use of marine and coastal biodiversity in the Caribbean Sea Basin)* • **A series of in-country technical assistance visits offered to small island developing States by the Centre of Excellence have been launched.** The first mission was to Antigua, where sessions were held to help build road maps for waste management. The second mission was to Jamaica and focused on data and monitoring of renewable energy. Next are missions to Belize, Vanuatu, Seychelles and the Dominican Republic *(16670: A Series of SIDS in-country technical assistance for sustainable development roadmaps)* • **Technology transfer, capacity-building and nature-based solutions, demonstration of renewable energy solutions and alternative transportation solutions** focused on hydrogen and electric vehicles *(21714: The World Team Project – Sustainable solutions: oceans opportunities and small island States (SOS-IS))* **Ocean and climate change** • **Peace Boats Ocean and Climate Youth Ambassador Programme brought young leaders from small island developing States on the front line of ocean degradation and climate change** onboard the Peace Boats vessel to travel through Europe and to New York to call of action on ocean and climate change *(16830: The Peace Boat Ocean and Climate Youth Ambassador Programme)* • **The University of Bergen and the University of the South Pacific have formed a partnership that includes a joint chair on oceans and climate change,** based at the University of South Pacific *(18613: Norway-Pacific Joint Chair of Oceans and Climate Change)*
Benefits from sustainable management of fisheries	**See table 4 for impacts of voluntary commitments specific to small island developing States and least developed countries, such as:** • 19999: Conservation of all species of sharks and rays and their critical habitats within Fijian waters • 19929: Delivering improved coastal fisheries management services in Fiji • 18433: Effective implementation of monitoring, control, surveillance and enforcement programmes for Samoa's fishery waters • 21288: Tuvalu – Near-shore fish-aggregating devices
Sustainable aquaculture	• **Civa Fiji Pearls demonstrated good practice in aquaculture.** It has converted from two-stroke outboards to four-stroke outboards, reducing carbon emissions by roughly 75 per cent compared with 2016. Their spat collectors are now situated at least five nautical miles up current of the farming site to curb inbreeding and disease spreading. All biofouling produced at the farm is now composted to be recycled on an organically certified land farm *(19354: One pearl farm in Fiji to review pratices for better sustainability)*

Aspect of 14.7	Examples of reported results and impacts of voluntary commitments[29]
Sustainable aquaculture (*continued*)	• **After the training the beneficiaries, mainly single mothers in Zanzibar complete their training and produce sponges independently.** They have their own small-scale business and can earn enough to live better with their children through the sale of their 100 per cent sustainably farmed products *(15557: Raising awareness about marine conservation and sustainable resource management and creating independent small businesses by developing aquaculture techniques in order to reduce poverty in Zanzibar)*
Sustainable tourism	• **The Initiative de la francophonie for sustainable tourism in small island developing States has offered support and capacity-building on sustainable tourism and other topics** to Cabo Verde, Comoros, Dominican Republic, Guinea-Bissau, Haiti, Madagascar, Mauritius, Saint Lucia, Sao Tome and Principe, Seychelles and Vanuatu *(16474: Support to the Institut de la Francophonie pour le dveloppement durable, subsidiary body of the Organisation Internationale de la Francophonie)* • **The Nature Conservancy's Mapping Ocean Wealth project has characterized recreational fishing and nature-dependent tourism values** in participating Eastern Caribbean countries (Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines). Those data will support those countries in ongoing and future marine spatial planning through the direct provision of spatially explicit information on their ecosystem service values *(15392: Mapping Ocean Wealth)*

Summary of impacts

The evaluation of target 14.7 suffers from underreporting by holders of voluntary commitments, in that many excellent blue economy initiatives are under way in small island developing States that are not captured in the progress reports. The reports do, however, demonstrate progress in blue economies in New Caledonia, and as part of the SIDS DOCK Blue Guardians programme in Barbados, Grenada, Mauritius, Saint Vincent and the Grenadines, Samoa, Seychelles, Tonga and Tuvalu. The Commonwealth Blue Charter is additionally working with countries that include Belize, Fiji, Kiribati, Mauritius, Seychelles and Vanuatu.

Financing a blue economy transition remains a problem for many countries. The success of the Seychelles Conservation and Climate Adaptation Trust in financing projects under the Blue Grants Fund, utilizing proceeds from both the Seychelles marine debt-for-nature swap and the Seychelles' sovereign blue bond, is particularly notable. In addition, OECD has developed a report that explores financing approaches and mechanisms to promote sustainable development and the blue economy in small island developing States.

Practical project activities are also under way, and are supported by the European Union in the Caribbean, while technical support on renewable energy and waste management is provided in the Caribbean by the Centre of Excellence for the Sustainable Development of SIDS.

Priority issues of small island developing States related to the ocean and climate change are addressed through two initiatives: the Peace Boats initiative for youth, and the University of Bergen and University of South Pacific research-related partnership.

Specific sectors of the blue economy are also addressed through voluntary commitments, with the fisheries commitments discussed in section 14.4. Two aquaculture voluntary commitments demonstrate the potential for that sector to provide sustainable economic benefits for small island developing States, including for coastal communities and marginalized groups such as single mothers (Zanzibar project, voluntary commitment 15557). Sustainable tourism has been heavily impacted by COVID-19, and while one tourism-related

voluntary commitment exists, it, too, is likely to suffer from the sharp decline in tourism visitors caused by the pandemic.

Challenges

Sustainable and stable financing in the long term remains an issue for voluntary commitments in this category. According to the report of the Community of Ocean Action on Blue Economy, 76 per cent of the voluntary commitments faced resource deficiencies, which included staff and expertise, delays in in-kind resources, as well as financial issues. As with commitments related to marine protected areas, consultations in remote locations can become costly.

Another key challenge is coordination among a substantial number of stakeholders, particularly for large regional projects that require the go-ahead from multiple governments, as well as other stakeholders.

Potential gaps to be filled

Many of the gaps that appear in the development of blue economies may be gaps in reporting rather than in implementation. The submitted voluntary commitments, as well as related policy discussions as part of the SIDS Accelerated Modalities of Action Pathway and elsewhere, demonstrate a rich and diverse array of blue economy-related activities and plans by small island developing States and many developing countries, including least developed countries. Thus, it is difficult to assess specific gaps in that regard.

Gaps remain, however, in the specific sectors that small island developing States and least developed countries are developing as part of their blue economies. While fisheries and tourism are common sources of economic development of small island developing States and many developing countries, aquaculture and marine biotechnology are not well developed in most small island developing States and could become components of national blue economies. Many small island developing States are seeking to diversify their economies in light of tourism losses suffered due to COVID-19, and thus new sustainable economic sectors may present some solutions. Additionally, there is also need for further development of renewable energy solutions suitable for island environments and for least developed countries, although work towards this is currently underway in all small island developing States regions.

14.A: Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

The effective implementation of Goal 14 as a whole requires a sound scientific basis for management decisions, as well as the capacity and technology for all countries to undertake scientific research and participate in research collaborations. The science required includes the biology and ecology in the ocean, its physical and chemical aspects, as well as social sciences to better understand the human element of the ocean. Progress has been made in ocean science, including in monitoring, but further work is required to better understand biodiversity in the ocean, in particular understudied regions and species groupings (e.g., the microbial ocean), as well as the deep sea, and to provide for universal participation in marine science.

Target 14.A is supported by 644 registered voluntary commitments. Of those, 189 have provided updates. Many of the 644 voluntary commitments are primarily focused on

various other Goals, but at the same time undertake scientific research and/or capacity development. Those voluntary commitments are reported on under the targets that they primarily relate to. This section focuses on voluntary commitments that have increased scientific knowledge and developed research capacity/technology as their primary focus. They include large international ocean-research collaborations, ocean observation and monitoring, and scientific capacity-building initiatives.

The text of Actions related to achieving this target have several interlinked and inter-dependent components that seek to improve ocean health and enhance the contribution of marine biodiversity to development of developing countries, in particular small island developing States and least developed countries:

1. Increasing scientific knowledge;
2. Developing research capacity;
3. Transferring marine technology, taking into account the guidelines of the Intergovernmental Oceanographic Commission.

Commonly, one voluntary commitment will address at least two out of three components, and sometimes all three.

Table 9 demonstrates examples of the impacts and results of voluntary commitment in addressing target 14.A.

Table 9
Impacts and results of voluntary commitments for target 14.A

Aspect of 14.A	Examples of reported results and impacts of voluntary commitments[30]
Ocean sciences	**Ocean observation, monitoring and research** **Global** • **The Marine Biodiversity Observation Network has been expanding its global leadership to support capacity-building for biodiversity field data collection and data management throughout the Americas.** The Network's Pole to Pole effort is developing a framework for the collection, use and sharing of marine biodiversity data in a coordinated, standardized manner *(21759: Marine Biodiversity Observation Network (MBON))* • **The Local Environmental Observer Network is fully functional** and can be explored at www.leonetwork.org. On the date of that progress report, there were 2,772 registered Network members affiliated with over 1,000 organizations in 651 communities around the world *(21889: Establish the Local Environmental Observer (LEO) Network in all oceans and along all of the world's coastlines within five years)* • **The Global Ocean Oxygen Network helped increase awareness about oxygen** among various stakeholders, carried out capacity-building and undertook scientific work *(15767: Global Ocean Oxygen Network (GO2NE) – Enhancing global ocean oxygen science from local seas to the to the global ocean to preserve ocean health and human well-being)* • **The Global Coral Reef Monitoring Network works through a global network to strengthen the provision of the best available scientific information on and communication of the status and trends of coral reef ecosystems,** for their conservation and management. Status reports have been prepared recently for the Pacific and Western Indian Ocean *(14306: Global Coral Reef Monitoring Network (GCRMN))*

[30] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.A	Examples of reported results and impacts of voluntary commitments[30]
Ocean sciences (*continued*)	• **The Ocean Tracking Network provides technology, data infrastructure and logistical support to use electronic telemetry** to document the movements, survival, intra- and interspecific interactions and habitat use (including occupancy of marine protected areas) of free-ranging at-risk and valued species of marine life. The Ocean Tracking Network has acquired new robotic ocean gliders, which will aid in oceanographic study, and active and passive animal-monitoring activities principally in the Northwest Atlantic. The Network is collaborating with a number of countries on specific applications *(16066: Building the knowledge base for global ocean resource management)* • **Monaco Explorations implemented 15 expeditions between July 2017 and June 2020** in the Strait of Torres (Australia), Colombia (two expeditions on the Caribbean coast), Martinique (French West Indies), Norway, Hawaii (United States), New Caledonia, the Western Mediterranean (two expeditions), Palau and the Gulf of Aqaba. The expeditions involved many scientific partners from the various areas visited and contributed to advancing several research programmes. Scientific papers have begun to be published. In addition, several educational toolkits were produced and distributed in local schools, as well as in schools in the Principality of Monaco *(17314: Support scientific research at sea)* • **Wgdesign has developed a coral reef alert system that determines the probability of a reef warming event.** The Wgdesign dashboard will assist further research and community early alert and monitoring *(14423: Coral reef bleaching alert dashboard/ risk and climate disaster mapping for high risk storm island areas/ medical risk from climate risk allocation)* • The World Meteorological Organization has established the following two networks: **an international network for multi-hazard early warning systems and global meteo-alert system** *(23965: international network for multi-hazard early warning systems (IN-MHEWS) and global meteo-alert system)* and an El Niño early warning system *(15659: Responding to El Niño: improving international coordination for improved early warning)* • The World Meteorological Organization supports optimizing **the use of the available hydro-meteorological infrastructure and knowledge to support decision making to contribute to climate adaptation and mitigation policies in African, Caribbean and Pacific Group of States** *(15752: Weather and climate services for Africa, Caribbean and Pacific (ACP) countries)* **Regional** • **The European Global Ocean Observing System has furthered its efforts to coordinate European ocean observing and data integration.** System activities (e.g., studies, reports, collaborative projects, events) present the state of play in European oceanography, user requirements, data integration and societal engagement for ocean literacy, fostering joint prioritization and sharing of resources, best practices, data, infrastructures, technologies and ideas *(20820: Sustained and integrated ocean observing and open data sharing)* • **The European Marine Observation and Data Network is being deployed** with all European sea basins covered *(18693: Full deployment of European Marine Observation and Data Network (EMODnet) by 2020)* • **In response to the crucial need of data on the status of cetacean populations, the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area coordinated the first ever large-scale survey of marine species in the Mediterranean Sea** during the summer of 2018. A first step before the Black Sea cetacean survey *(16114: ACCOBAMS Survey Initiative: a challenging macro synoptic regional assessment of cetaceans populations for the benefit of regional conservation and economic actors)*

Aspect of 14.A	Examples of reported results and impacts of voluntary commitments[30]
Ocean sciences (*continued*)	**National** • **Ocean Networks Canada's monitoring of the Pacific, Atlantic and Arctic continues to increase over time.** To date, the Network has one regional observatory off the west coast of Vancouver Island (Neptune), one coastal observatory in Saanich Inlet and the Strait of Georgia (Venus), and five community observatories, four of which are in the Pacific and one in the Arctic (Cambridge Bay). Additionally, surface waters are being monitored by mobile sensors in partnership with BC Ferries, indigenous communities and not-for-profit organizations *(28521: Oceanographic monitoring in the Northeast Pacific, Arctic and Atlantic)* • **Since 2006, successive Australian Governments have invested in the Integrated Marine Observing System as a national collaborative research infrastructure.** The system routinely operates a wide range of observation equipment throughout Australia's coastal and open oceans, making all of its data accessible to the marine and climate science community, other stakeholders and users, and international collaborators *(17426: Australia's Integrated Marine Observing System (IMOS) as a contribution to global ocean observing)*
	• **The Samoa Ocean Health Network was launched as a platform for ocean stakeholders to share information and collaborate.** An Ocean Health index workshop completed. Data training for officials done *(16754: Ocean Health Network for Samoa)* • **Through its SnotBot programme, Ocean Alliance has developed a tool that can conduct a non-invasive health assessment of a whale, and will help better understand threats facing whales and how to mitigate them.** By collecting DNA, the genetic diversity of whales can be better understood. Several SnotBot expeditions have now been undertaken in Alaska *(15780: Drones for Whale Research: SnotBot)* **Scientific knowledge products** • **Instituto del Mar del Peru has undertaken activities to increase knowledge about marine biodiversity in Peru, including a series of publications** that draw together information obtained during inventories, surveys, monitoring, research cruises and collaborative research projects. They have also implemented the Coastal Marine Atlas of Peru *(18908: Research for the inventory, monitoring and conservation of the Peruvian marine biodiversity and 18898: Peruvian Coastal Atlas)* • **The Scientific Committee on Oceanic Research has published eLectures on radioactivity in the ocean**, released the 2017 GEOTRACES Intermediate Data Product, supported early-career scientists and sent visiting scholars to Angola, Argentina, Bangladesh, Brazil, Colombia, Costa Rica, Croatia, Ecuador, Indonesia, the Islamic Republic of Iran, Mauritius, Morocco and Mozambique to teach and mentor *(23266: Science to Support SDG-14 Goals)* • **The European Union has released a status report on the state of the ocean**, delivered through its Copernicus Marine Environment Monitoring Service for monitoring the conditions of the oceans, to be updated annually *(18703: First State of the Ocean status report, delivered through EU's Copernicus Marine Environment Monitoring Service (CMEMS))* • **The ecosystem overviews of the International Council for the Exploration of the Sea describe the current state of regional ecosystems**, identify the main human pressures and explain how those pressures affect key ecosystem components at the regional level. The Council now provides ecosystem overviews for nine ecoregions: Barents Sea, Norwegian Sea, Icelandic Waters, Greater North Sea, Baltic Sea, Celtic Sea, Bay of Biscay and Iberian Coast, Oceanic Northeast Atlantic and Azores *(15924: Developing the science basis to support ecosystem based management)*

Aspect of 14.A	Examples of reported results and impacts of voluntary commitments[30]
Interdisciplinary science and policy support	• **The International Decade of Ocean Science for Sustainable Development – The ocean we want for the future we need is soon ready to be launched.** IOC-UNESCO is focusing on the preparation of the Implementation Plan for the Decade *(15527: International Decade of Ocean Science for Sustainable Development – The Ocean we want for the Future we need)* • **Future Seas 2030 has conducted six interdisciplinary workshops with development of evidence-informed scenarios of the future 2030** for each of the 12 key challenges facing the ocean. For each of those futures, corresponding pathways to achievement have been developed, incorporating actions at local, regional and global scales to achieve the 2030 vision. Workshops have been developed *(35402: Creating a vision to guide development of a sustainable ocean future: Future Seas 2030 initiative)*
Interdisciplinary science and policy support (*continued*)	• **A recently established multi-stakeholder platform, the Ocean Knowledge-Action Network, is supported by the international programmes Future Earth and its marine Global Research Projects, World Climate Research Programme-CLIVAR, IOC-UNESCO and International Science Council-Scientific Committee on Oceanic Research, and aims at advancing integrated ocean research globally** to chart a course from knowledge of ocean systems to changes in policies, practices, governance and behaviours that will support sustaining those systems. The Ocean Knowledge-Action Network is also forming working groups on important ocean knowledge-action topics, both topical and cross-cutting *(15422: Advancing solutions oriented integrative ocean sustainability research within the Ocean Knowledge-Action Network (Ocean KAN))* • **United Nations University's Ocean University Initiative with the University of Brest supports science/policy integration.** The Ocean University has organized events and workshops on small-scale fisheries, fisheries and marine environmental management in West Africa, and contributed to international events *(21076: UNU-OCEAN project / Ocean University Initiative)* • **The Western Indian Ocean Marine Science Association, the Nairobi Convention and the Swedish Agency for Marine and Water Management have collaborated to develop a common and transparent decision support tool that facilitates the bridging of science and policy.** Regional sharing of open-source marine data is another expected output of WioSym *(18313: Partnership for implementing SDG14 in the Western Indian Ocean)* • **Research institutes of the Government of Finland have set up a common data portal for their marine information and data**, www.marinefinland.fi. It will offer one-stop-shop to access information about the Baltic Sea from the perspectives of all governance sectors *(20932: Marine Information and Data for Users – www.MarineFinland.fi)* • **Plymouth Marine Laboratory in the United Kingdom contributes to Goal 14 through targeted science activities**, including Western Channel Observatory, which is an oceanographic time-series and marine biodiversity; The Atlantic Meridional Transect multidisciplinary programme, which undertakes biological, chemical and physical oceanographic research during an annual voyage; examination of impacts of, and modelling of, ocean acidification; building socioecological resilience in coral reef ecosystems; and on community-based management of mangrove fisheries *(14995: Ocean futures: solutions from science)* • **World Maritime University opened the Global Ocean Institute** with the support of the Nippon Foundation and the Government of Sweden. The University aims to train a new generation of maritime and ocean leaders through the delivery of post-graduate educational programmes in ocean sustainability, governance and management for specialists. *(21576: Education, training and capacity building)*

Aspect of 14.A	Examples of reported results and impacts of voluntary commitments[30]
Primarily capacity development and technology transfer	• **The United Nations Economic and Social Commission for Asia and the Pacific continues to strengthen Asia-Pacific partnerships for data and statistical capacity for Goal 14.** National pilot studies on ocean accounting have taken place in five countries in Asia and the Pacific. Technical guidance has been developed, and the Global Ocean Accounts Partnership were established *(16008: Strengthening data partnerships for Oceans in Asia and the Pacific)* • **IOC-UNESCO, mainly through its subcommission for the Western Pacific and adjacent regions, assists in advancing ocean knowledge and developing research capacities of countries in the region through a network of research training and research centres.** That initiative has been recognized as a best of practice of countries in the region for capacity development and transfer of marine technology *(15266: Develop research capacity and transfer of marine technology through the UNESCO/IOC Regional Network of Training and Research Centers (RTRCs) on Marine Science in the Western Pacific and adjacent regions in support of the SDG 14.A)* • **The International Council for the Exploration of the Sea is enhancing marine science capacity through training courses in ocean governance.** The courses provided approximately 50 participants with an introduction to key concepts of ocean governance in the context of large marine ecosystems, including transboundary issues, and the connectivity of large marine ecosystem governance to other ecosystem and management concepts *(15932: ICES – Marine science training and capacity building)* • **For the first time, the Global Ocean Science Report assesses the status and trends in ocean science capacity around the world.** The report offers a global record of who, how and where ocean science is conducted: generating knowledge, helping to protect ocean health and empowering society to support sustainable ocean management in the framework of the 2030 Agenda *(16162: Global Ocean Science Report)* • **The International Ocean Institute's regional training programmes offer a targeted regional approach to global ocean governance** with each regional programme addressing the respective regional seas perspectives, issues and mechanisms. The training programmes are offered annually *(18076: International Ocean Institute (IOI)-Ocean Governance training & capacity development)* • **The University of the South Pacific is strengthening institutional capacity in marine research and technology transfer.** A research fellowship with two students at the University Institute of Marine Resources in Fiji started and will focus on the Sustainable Development Goals. Monitoring of pollution (microplastics) has started, a course in physical oceanography is under development, and the Micronesian Centre for Sustainable Transport has been opened and staffed *(19944: Strengthening institutional capacity and research in oceans at The University of the South Pacific)* • **The Association of Pacific Rim Universities developed a network of research centres and experts across disciplines**, collaborated on youth leadership summit, and built a platform connecting latest research and experts across the Asia-Pacific with policymakers and international organizations actively facilitating policy development and implementation *(18938: APRU network of experts, future leaders and policy makers addressing the health of the Pacific Ocean and its marine and coastal resources)* • **Institute of Marine Engineering, Science and Technology has developed a number of programmes to recruit and retain young people in the marine sector.** That includes professional development guidance and opportunities, such as awards, grants and bursaries *(18457: Improving worldwide recruitment and retention of young people into the marine sector to ensure protection of the ocean for future generations)*

Aspect of 14.A	Examples of reported results and impacts of voluntary commitments[30]
Primarily capacity development and technology transfer (*continued*)	• **The UNESCO Ocean Literacy for All initiative is intended to develop a global partnership to raise the awareness on the conservation, restoration and sustainable use of our ocean and its resources** and to build an improved public knowledge base across the world's population regarding our global ocean. Activities include school programmes, conferences and literacy resources *(15187: Ocean Literacy for all: a global strategy to raise the awareness for the conservation, restoration, and sustainable use of our ocean)* • Over 2,500 registered participants from 62 countries attended **the massive open online course One Planet, One Ocean: From Science to Solutions** *(18037: A Massive Open Online Course: One Planet One Ocean: From Science to Solutions)* • **The Blue Solutions Initiative provides a global platform to collate, share and generate knowledge and capacity for sustainable management and equitable governance.** Webinars on successful approaches to ocean management and on-site training on marine and coastal spatial planning, climate change adaptation and integration of ecosystem services into ocean planning. A total of 27 trainings (with approximately 20 participants each) for decision makers and practitioners took place, enhancing capacities in approximately 22 countries. In 88 countries and seven regions, 10 innovative concepts, methods and instruments have been applied, enabling national and regional partner institutions to better contribute to management of marine and coastal biodiversity *(18088: Blue solutions for a healthy blue planet)* • **Scientific knowledge about climate change to high school students** *(33235: Liceu Santista Geography Lab)*
Other	• **Consensus international data quality and peer review standards under development** *(28854: Consensus international data quality and peer review standards)*

Summary of impacts

Ocean observation, monitoring and research

Much progress has been made in undertaking ocean observation and monitoring globally. New techniques, such as ocean tracking, have allowed for better understanding of the movement of species, while DNA techniques provide an improved understanding of genetic diversity. A number of initiatives are missing from either the voluntary commitments or the updates, and they include large, long-standing ocean observation programs such as the Global Ocean Observing System and their global array of Argo floats, as well as data portals such as the Ocean Biogeographic Information System.

While global ocean observation is progressing, with efforts under way to address missing components, including comprehensive monitoring of all marine biodiversity in the ocean, national observation programs are variable. There is also a welcome focus in many newer networks and institutions on addressing interdisciplinary science and the science/policy interface. Many developed countries have long-standing and sophisticated national ocean monitoring, while developing countries may be lacking in basic equipment, vessels and laboratories. The Samoa Ocean Health Network is the only developing country network that reported in the present section.

Many existing global ocean observation networks undertake capacity development to ensure that developing country scientists are able to participate. For example, the Global Ocean Observing System undertakes regular capacity development. The Marine Biodiversity Observation Network has the Pole to Pole Capacity-building and a Community of Practice, which is developing a framework for the collection, use and sharing of marine biodiversity data in a coordinated, standardized manner.

Capacity-building and technology transfer

A large number of capacity-building initiatives exist, which are both global and regional in nature. They include educational institutions, such as the World Maritime University, the International Oceans Institute, the University of the South Pacific, the Association of Pacific Rim Universities and others. They also include scientific institutions, such as the International Council for the Exploration of the Sea; regional institutions, such as the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), and NGOs and funding institutions. The description of the Nippon Foundation Nereus Program (voluntary commitment 15401) highlights the far-reaching impact that scientific collaborations can have on capacity-building (see box 3).

Box 3
Nippon Foundation Nereus Program

The Nippon Foundation Nereus Program (voluntary commitment 15401), which ran over the course of eight years (2011–2019), committed to fostering interdisciplinary research that incorporated both the natural and social sciences. Through a network of early-career PhD and post-doctoral fellows, the network included 49 young researchers from 17 institutions, many of whom have gone on to pursue leadership roles in academia and civil society. The fellowship programme encouraged the young thought leaders to tackle some of the most pressing challenges facing the ocean: marine resource management, social equity, interlinkages between the ocean and public health, and issues related to ongoing debates in ocean governance. The programme also provided a peer network with regular meetings and ongoing mentoring. The programme resulted in more than 393 academic publications, 13 policy briefs directly informing policymakers (including the United Nations Ocean Conference and Goal 14), as well as video summaries of research outcomes. While the programme has ended, the network continues to work together and expand through a new programme (Ocean Nexus at the University of Washington EarthLab).

An interesting regional example is presented by the IOC Sub-Commission for the Western Pacific and adjacent regions network of research training and research centres. The centres, hosted by several countries in the region, assists in advancing ocean knowledge and developing research capacities of countries in the region in their areas of expertise. The centre initiative has been recognized as a best of practice of countries in the region for capacity development and transfer of marine technology.

Technology transfer is still a more underdeveloped area than capacity development, though the two overlap somewhat. That is an area that may need more focus in the future.

Challenges

Funding is a limiting factor for many science networks and capacity development efforts. It is made worse by the COVID-19 pandemic. For example, the Marine Biodiversity Observation Network reports that COVID-19 has forced its Pole to Pole efforts to communicate among members by solely virtual means. A workshop planned for May 2020 had to be cancelled. The Pole to Pole will require financial support for continuing capacity-building efforts. The financial support helps cover travel and also minimal equipment needed, especially in developing countries and island States.

Other challenges include efforts required to locate available data residing in different institutions, making data compatible and providing quality control. Technical challenges are associated with harmonizing data interfaces and

providing easy access to users. Developing countries, in particular, struggle with financing online services, including web mapping.

Potential gaps to be filled

There is still a gap in available socioeconomic information relating to the ocean. In addition, biodiversity information is limited in some undersurveyed regions, for certain species types, as well as the deep sea. Gaps in capacity and technology, including both human and institutional capacity, require further effort to address, including through long-term partnerships and mentoring relationships.

14.B: Provide access for small-scale artisanal fishers to marine resources and markets

Small-scale fisheries are a vital source of livelihoods for millions, particularly in developing countries, and provide food and nutrition for billions. Despite that, small-scale fisheries continue to be underreported and undervalued, causing them to receive little policy attention and investment at the national, regional and international levels. The recent FAO State of the World Fisheries and Aquaculture 2020 Report highlights the importance of fish products in the fight against hunger and poverty, and estimates that the global South, operating in small-scale fisheries, are responsible for 50 per cent of total fish catches. [31]

Overall, 289 voluntary commitments have registered their contribution towards this target, with 72 updates provided. Many of those commitments, while excellent, are very broad, and the present section focuses on those voluntary commitments that specifically address issues relevant to small-scale and artisanal fishers, with the broader commitments included in other relevant sections of this analysis.

The target could be viewed as having four components, as follows:

Providing access to small-scale artisanal fishers to:

1. Marine resources, which may also include management of their resources;
2. Markets (either local, national or global);

While not explicitly mentioned in the target text, achieving the target may also include the following components:

3. Capacity development and technology transfer in communities on issues that relate to fisheries management, market access and other topics of importance to small-scale fishers;
4. Research to better understand the importance and role of small-scale artisanal fisheries.

Those actions are also critical to supporting the implementation of the voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication, which are directly linked to attainment of target 14.B.

Table 10 provides examples of actions, results and impacts from voluntary commitments relating to this target.

[31] FAO, The State of World Fisheries and Aquaculture 2020: Meeting the Sustainable Development Goals (Rome, 2020).

Table 10
Impacts and results of voluntary commitments for target 14.B

Aspect of 14.B	Examples of reported results and impacts of voluntary commitments[32]
Access to marine resources	• **In 2018, the regional plan of action for sustainable small-scale fisheries in the Mediterranean and Black Seas was adopted.** This 10-year road map will boost their economic potential and therefore the viability of coastal communities, contribute to the sustainable management of resources, promote decent working conditions and the role of women, and address climate and environmental challenges *(18708: The EU, together with its Mediterranean partners, has endorsed MedFish4Ever Declaration)* • **In Tuvalu, near-shore fish-aggregating devices have provided benefits to fishing communities**, including: (1) reduced pressure on reef resources by moving the focus to more resilient pelagic stocks; (2) increased catches overall; and (3) less distance to travel to fish, making for better safety, better access for canoes and for those that use powered boats, and reduced fuel consumption *(21288: Tuvalu – Near-shore Fish-Aggregating Devices (FADs))* • **In Ghana, two projects supported by the European Union contribute to sustainable fisheries resources management and increase stakeholder participation in the management of the resources** using the United Nations-FAO principles of Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security *(18133: Protecting fisheries livelihoods in Ghana and Somalia)* • The Marine Responsible Fishing Areas and Marine Life Territories Network, is a conglomerate of organizations of small-scale artisanal fishers, **provided food relief and implemented other actions to help reduce the impact of COVID-19 on small-scale artisanal fishing** communities in the context of the small-scale fisheries guidelines *(14945: Promote information and implementation of the voluntary guidelines for the sustainability of small scale fisheries in the context of food security and poverty eradication)*
Access to markets	• **In Somalia, the European Union has been supporting an NGO called FairFishing**. In 2018, five new facilities were inaugurated, two coastal fishery stations in Laasqorey and Garacaad, and three inland markets in Burco, Galkayo and Qardho. FairFishing employs 40 local people to manage the programme and the new facilities. Those facilities will increase income possibilities in the value chain *(18133: Protecting fisheries livelihoods in Ghana and Somalia)* • **Seven small-scale fisheries in Mexico are under a fishing improvement project scheme and are making progress based on the Marine Stewardship Standard.** Those fisheries are for clams, penshell, yellowtail, ocean tilefish, giant squid, Caribbean lobster and red snapper. Comunidad y Biodiversidad A.C. (COBI) continues to support the small-pelagic fishing industry in maintaining the Marine Stewardship Council certification obtained in 2018. The subjects of the three training workshops were the Marine Stewardship Council, Monterey Bay Aquarium and fair trade standards for sustainable fishing, as well as fishery improvement projects implemented *(15083: Mainstreaming ocean conservation and sustainable fisheries in Mexico through effective participation and citizen science)*
Building fishing community capacity	• **A small-scale fisheries academy was established in Senegal, and work is under way towards its establishment in the United Republic of Tanzania and Kenya to support those countries in the empowerment of women and men in small-scale fisheries** in those countries. Information materials and book chapter under preparation *(28293: Small-Scale Fisheries Academy in Senegal)*

[32] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.B	Examples of reported results and impacts of voluntary commitments[32]
Building fishing community capacity (*continued*)	• CoopeSoliDar RL and the Marine Responsible Fishing Area Network work together with local fishing communities to deal with the **implementation of the small-scale fisheries guidelines as an important tool for a human rights-based approach to conservation and coastal development**. They generate information materials related to guidelines, organized a national congress of small-scale fishers and mollusk gatherers in Costa Rica, and published the voluntary guidelines for the sustainability of small-scale fisheries in the context of food security and poverty eradication in the Garifuna language *(14945: Promote information and implementation of the voluntary guidelines for the sustainability of small scale fisheries in the context of food security and poverty eradication)* • **Friends of Marine Life, an indigenous coastal community voluntary organization in Southern India, has built coastal community capacity** through scuba diving, undertaken coastal clean-ups and monitoring, prepared documentation on ghost nets and undertaken awareness raising *(14351: Promote, sustainably use, and protect kadalamma – the Mother Sea – with indigenous fisherfolk)* • **Fish-smoking techniques and management improved within coastal communities in Liberia and Sierra Leone**: a pilot oven system has been set up in Tombo, Sierra Leone. One in-country training of trainers workshop has been conducted in Tombo with a total participation of 50 local fish processors and 10 fisheries officers. Five local experts have received rigorous training in Iceland in the related fields of technology and management *(17306: Research and capacity development to support livelihood and food security and safety in African Coastal Communities-UNESCO)* • **Promoted better handling of fish by introducing sensory evaluation schemes in the United Republic of Tanzania fisheries:** quality index method schemes for two fish species, Dagaa and Mgebuka, are available for adoption into national regulation on fish handling and monitoring *(17306: Research and capacity development to support livelihood and food security and safety in African Coastal Communities – UNESCO)* • **Improved fisheries data analyses for sustainable use of resources in Sierra Leone and Liberia: a critical mass of specialists from the West Africa region has been trained, enhancing regional capacity to combat illegal, unreported and unregulated fishing and ensure local fishermen safety.** Three workshops have been conducted, one regional (Freetown) and two in-country (Freetown and Monrovia). Six local experts have received rigorous training in Iceland in related fields of data management and analyses, and fisheries policies (four from Liberia and two from Sierra Leone) *(17306: Research and capacity development to support livelihood and food security and safety in African Coastal Communities-UNESCO)*
Increasing understanding of small-scale artisanal fisheries	• **Assessment of contributions of small-scale fisherieds is under way** by FAO, WorldFish, Duke University and partners. **More than 200 scientists have been involved in collating data on small-scale fisheries and in developing country case studies**, with 50 case studies finalized or near completion. Thematic case studies include importance of small-scale fisheries for employment at subnational level, the value chains of small-scale fisheries, gender, and the impacts of small-scale fisheries on ecosystems and vulnerable species *(28237: Illuminating Hidden Harvests: the contribution of small-scale fisheries to sustainable development)*

Summary of impacts

While there are some excellent voluntary commitments that have increased access of small-scale and artisanal fishers to their resources, built their capacity and enhanced the knowledge base overall, target 14.B has thus far had relatively few collective impacts when compared with other targets. This may be due to lack of reporting, or perhaps to lack of participation in voluntary commitments by a number of organizations working with small-scale fisheries.

Access to resources

Access to resources, as well as participation in resource management, has been increased on the regional level by a regional plan of action for sustainable small-scale fisheries in the Mediterranean and Black Sea. It has been increased locally by fish-aggregating devices in Tuvalu, which had made it easier for local fishers, including those using canoes, to access more resilient pelagic fish stocks. In Ghana, two projects funded by the European Union have supported the participation of fishers in resource management. Importantly, in the age when many small-scale fishers and fishing communities have been negatively impacted by COVID-19,[33] the Marine Responsible Fishing Areas and Marine Life Territories Network was organized to provide relief, including food supplies to most the most vulnerable people in communities.

Access to markets

Access to markets has been enhanced on the local scale in Somalia by the establishment of five new market facilities, which have also provided jobs to 40 local people to manage them. These facilities will also increase income possibilities in the value chain. Globally, the Marine Stewardship Council (commitment listed under target 14.4) has helped certify small-scale and artisanal fisheries. Additionally, the NGO COBI in Mexico has helped seven small-scale fisheries make progress based on the MSC Fisheries Standard. They are also supporting the small-pelagic fishing industry in maintaining the certification by the Council obtained in 2018. The certification will help small-scale fishers access global markets.

Capacity development and information

Activities relating to capacity development are the most common voluntary commitment in this category. They include a broad range of activities to help communities understand and implement the small-scale fisheries guidelines as an important tool for a human rights-based approach to conservation and coastal development. They also include specific actions, such as the development of a small-scale fishery academy in Senegal, and an expansion of that endeavour to the United Republic Tanzania and Kenya, as well as community work to improve fish-smoking techniques and management; better handling of fish; increasing capacity to combat illegal, unreported and unregulated fishing; and ensure local fishermen's safety, and increasing coastal community capacity in scuba diving and awareness of marine debris.

Improving available information on small-scale fisheries is key to better understand their role in fisheries overall, and in sustainable development in particular. Thus, the collaboration between FAO, World Fish, Duke University and other partners to assess contributions of small-scale artisanal fisheries globally will be important in focusing more attention to this sector.

A focus on women in fisheries, and their capacity development, is important for reaching this target, as demonstrated in box 4 on the work of the Women in Fisheries Network, Fiji.

[33] N.J. Bennett and others, The COVID-19 pandemic, small-scale fisheries and coastal fishing communities (2020).

Box 4

Women in Fisheries Network, Fiji: promoting gender equality

In their voluntary commitment (19964), the Women in Fisheries Network aimed to afford equal opportunity in training and other forms of capacity-building to improve or acquire new skills for women in the fisheries sector.

The Network was one of three organizations to have undertaken in 2019 the rapid-care analysis supported by Oxfam, of women working in fisheries. From the rapid-care analysis findings it was concluded that on average a woman in Navolau and Nakorotubu districts spends double the number of hours per week on performing unpaid care work than a man but less time for leisure relative to a man. That unequal distribution of unpaid care work is due to gender disparity, limited access to proper infrastructure such as access to water piping, lack of proper sanitation, not enough fishing boats and gear for women, and heavy reliance on one source of livelihood, such as fishing, gleaning of sea-grapes and farming to cater for subsistence and source of income.

Through rapid-care analysis, the network has taken the first step towards shifting power and voices in the communities surveyed, and to share lessons learned.

Source: https://womeninfisheriesfiji.org/launching-of-rca-report/ and the Women in Fisheries Network, Fiji, newsletter.

Challenges

There are several challenges in progress towards this target. Overall, long-term processes that generate relationships of transparency and mutual aid strengthen the resilience of organizations and collective efforts aimed at small-scale artisanal fisheries. It is important to continuously strengthen fisher organizations and to network in order to influence public policies that support and improve the living conditions of the small-scale artisanal fishing sector. Recognizing the importance of traditional knowledge in fishing and the right to decent work are fundamental elements of supporting small-scale and artisanal fishers.

On market access, the majority of small-scale and developing-world fisheries have historically struggled to meet the strict sustainability requirements of the Marine Stewardship Council or have encountered other barriers to entry, for example fishery data deficiency or management and technical capacity constraints. While the number of fisheries in the Council's programme from the global South has increased to 57, there is a need to increase engagement of developing world fisheries in the Council. Greater engagement of the developing world and small-scale fisheries are thus one of the most significant challenges for the Council.

The lack of established and consistent data collection on small-scale fisheries in several countries and the scarcity of data, as well as the challenges of using several diverse and non-conventional data sources, makes it difficult to quantify their importance.

Other challenges mentioned by holders of voluntary commitments include political instability and changes in government policies; fragile in-country infrastructure that requires considerable logistical/managerial support to deal with money transfers, accountability, supervision and so on; and uncertainties relating to adopting of specific capacities/technologies that have been transferred in the long term.

In the context of COVID-19, CoopeSoliDar R.L. reports that artisanal fishers, despite being highly vulnerable in terms of social, environmental and economic stability, possess a great capacity for resilience when facing crisis situations. Those capabilities must be further strengthened during and after an emergency situation. The challenges posed by the pandemic have become an opportunity to innovate solidarity strategies and methods of exchange on social networks. A social

solidarity economy increases the possibilities of a fair and horizontal trade dynamic between producers and consumers.

Potential gaps to be filled

The implementation of this target requires further action across a broader range of countries, particularly in developing countries and in small.

14.C: Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The Future We Want"

Effective implementation of the legal framework for the oceans, with the United Nations Convention on the Law of the Sea at its core, will have a critical impact on progress in all the target areas of Goal 14 and other ocean-related targets of the 2030 Agenda for Sustainable Development. While many steps have been taken to strengthen the implementation of international law, as reflected in the Convention, full and effective implementation is necessary to achieve the conservation and sustainable use of oceans and their resources.[34]

Target 14.C has 326 voluntary commitments registered as contributing towards it. Of those, 88 have provided updates. The coverage of this target is broad, as demonstrated by its wording: "*enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Conventionon the Law of the Sea*"**.**

Many different activities relating to conservation and sustainable use could be incorporated under this target, including many relating to marine conservation, management, fisheries and scientific research. However, this section focuses primarily on those voluntary commitments that specifically pertain to the Convention and other international law, as well as those that aim to further intersectoral ocean governance, including in areas beyond national jurisdiction. In addition, voluntary commitments that aim to provide assistance to developing countries through international development cooperation in a number of Goal 14 areas are included here.

Table 11 provides examples of the impacts of voluntary commitment relating to this target.

Table 11
Impacts and results of voluntary commitments for target 14.C

Aspect of 14.C	Examples of reported results and impacts of voluntary commitments[35]
Improving available information	• **UN-OCEANS aims to enhance the conservation and sustainable use of oceans and their resources by implementing international law, as reflected in the United Nations Convention on the Law of the Sea, underpinning the implementation of Goal 14 and outlined in target 14.C**. Hosted side events to inform participants about regulatory and policy frameworks relevant to marine areas beyond national jurisdiction, coordination towards achieving global goals, and to discuss on how implementation of international law and policy frameworks can contribute to a sustainable ocean-based economy *(16758: UN-OCEANS: Raising awareness of relevant regulatory and policy frameworks and its members activities in support of their implementation, as a foundation for conserving and sustainably using the oceans, seas and their resources)*

[34] From the Interim Assessment of the Community of Ocean Action on implementation of international law as reflected in the United Nations Convention on the Law of the Sea. Available at https://sustainabledevelopment.un.org/content/documents/22781UNCLOS_COA_interim_assessment.pdf.

[35] The information in this table was sourced mainly from reports provided by holders of voluntary commitments to the online registry of voluntary commitments.

Aspect of 14.C	Examples of reported results and impacts of voluntary commitments[35]
Strengthening ocean governance	• **The North East Atlantic Fisheries Commission and the OSPAR Commission are engaging with each other under the collective arrangement in respect of areas-based management in areas beyond national jurisdiction.** That helps deliver respective objectives on protection and sustainable use of the marine environment in the North East Atlantic *(21204: Commitment between the secretariats of the North East Atlantic Fisheries Commission and the OSPAR Commission under the collective arrangement)* • **The Partnership for Regional Ocean Governance is a starting point for the development of a conceptual approach for effective cross-sectoral governance** for the protection and sustainable use of the oceans, and regional exchanges of "good-practice" examples. The Partnership has showcased impactful collaborative solutions for ocean health, developed clear recommendations, catalysed actionable outputs and built partnerships for stronger regional ocean governance *(18439: Partnership for Regional Ocean Governance: International Forum for Advancing Regional Ocean Governance)* • **The MedProgramme aims to accelerate the implementation of agreed-upon priority actions to reduce the major transboundary environmental stresses affecting the Mediterranean Sea and its coastal areas** while strengthening climate resilience and water security and improving the health and livelihoods of coastal populations. The activities supported by the MedProgramme will be developed within a coordinated framework of effective transboundary cooperation, harmonized standards throughout the Mediterranean, indicators and monitoring procedures, information flow and exchanges of experience, with the support of relevant regional bodies and an expanded partnership of agencies and donors *(19949: Mediterranean Sea Programme (MedProgramme): Enhancing Environmental Security)* • **The Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region is addressing land-based sources of pollution, including plastics, supporting ecosystem-based management, and assessing status of marine and coastal environment**. The Action Plan is the regional intergovernmental mechanism established in 1994 by the governments of China, Japan, the Republic of Korea and the Russian Federation *(17490: Strengthening regional cooperation for the protection of the marine and coastal environment in the Northwest Pacific)* • **The Baltic Sea Action Plan of the Helsinki Commission is in the process of being updated to support ocean-related Sustainable Development Goals and to achieve good environmental status** in the Baltic Sea. An update in 2021 with the ocean-related Goals as a framework is planned *(17174: Strengthening the implementation of the HELCOM Baltic Sea Action Plan to support ocean-related SDGs)*
Addressing challenges in developing countries	• **Sweden has adopted a strategy on global development cooperation in the areas of environmental sustainability, sustainable climate and oceans, and sustainable use of natural resources.** That is the first time the ocean has been explicitly included as a priority area for the Swedish global development cooperation. The marine activities focus on international initiatives (World Bank, UNDP, UNEP, International Union for Conservation of Nature, World Resources Institute and others) dealing with, among others, small-scale fisheries, blue economy, marine spatial planning and marine pollution, including plastics *(21416: Swedish strategy for global action on the environment, climate, oceans and natural resources 2018–2022)*

Aspect of 14.C	Examples of reported results and impacts of voluntary commitments[35]
	• **The European Union committed €8.5 million for the launching of a call for proposals that will focus on conservation and sustainable use of marine and coastal biodiversity in the Caribbean Sea basin.** Eight grant projects are currently under implementation: (1) conservation/restoration of vulnerable ecosystems with focus on marine protected areas; (2) sustainable livelihoods and food security in ecosystem-dependent coastal communities through biodiversity-friendly, income-generating activities and by reducing overfishing, destructive fishing practices, illegal, unreported and unregulated fishing, as well as coastal degradation and overexploitation due to tourism and recreational use *(18121: Conservation and sustainable use of marine and coastal biodiversity in the Caribbean Sea Basin)*
Exploring the law of the sea	• **The Institute for the Law of the Sea and International Marine Environmental Law is leading the scientific discourse and public debate project "Free Seas? – A Legal Order for the Seas and Oceans"**. A series of six videos has been produced *(15554: Scientific discourse and public debate on the law of the sea and international marine environmental law)* • **Exploration of the legal possibility of recognizing the Pacific Ocean as a legal person is in keeping with Pacific Islands cultures.** The final objective was to draft with participatory methods by 2020 a convention on the rights of the Pacific Ocean open for signature for all countries. The commitment is currently undertaking a feasibility study *(19759: The Rights of the Pacific Ocean as a Legal Entity: A science based feasibility study)*

Summary of impacts

Improving the available information on the Convention and related agreements, as undertaken by UN-OCEANS, is vital for implementing target 14.C. At the same time, there has been real progress made in cross-sectoral regional cooperation, through the collective agreement of the North East Atlantic Fisheries Commission and the OSPAR Commission, which presents a novel approach for this purpose. The North East Atlantic Fisheries Commission and the OSPAR Commission reinforced regional and sectoral cooperation under the collective arrangement in 2014 by promoting a constructive multilateral dialogue. The collective arrangement allows for information exchange and other modes of cooperation to reinforce regional collaboration in the North-East Atlantic. The voluntary commitment under Goal 14 to promote that approach has resulted in wide dissemination of the approach, with global interest in learning lessons from the North-East Atlantic and exploring the application of that approach in other regions of the world's oceans. The Partnership for Regional Ocean Governance is also exploring methods for effective regional cross-sectoral governance, and is facilitating regional exchanges of "good-practice" examples. Other examples of innovation in regions include the efforts regarding the Mediterranean to address transboundary environmental impacts, Northwest Pacific Action Plan's multifaceted activities related to the Sustainable Development Goals, and the Helsinki Commission's update to the Baltic Sea Action Plan to support the Goals.

Challenges

The challenges cited by the voluntary commitments include the sectoral and often fragmented nature of ocean governance, as well as the complex administrative, political and legal nature of the activities.

Potential gaps to be filled

Many stakeholders will likely require further assistance in better understanding and implementing the United Nations Convention on the Law of the Sea.

3. Other impacts of the voluntary commitments

In addition to the results and impacts discussed in the previous section, the voluntary commitments have had a large collective impact on raising awareness about the ocean and its importance. There have, in particular, been a number of awareness-raising activities focusing on youth that are likely to have a lasting impact. Some examples include the commitment titled "Youth, Ocean and SDG 14 by World Youth Foundation (WYF)", which aims to raise the awareness of young people about Goal 14 and ocean issues, and the Peace Boat Ocean and Climate Youth Ambassador Programme. The Peace Boat Programme brought young leaders from small island developing States onboard the Peace Boats vessel to travel through Europe and to New York to deliver a call to action on ocean and climate change. The programme was also an endorsed event of the 2017 United Nations Climate Change Conference Presidency to highlight the connections between ocean health and climate health and the important role that the ocean plays in combatting climate change.

Box 5
Youth and Goal 14: World Youth Foundation

In their voluntary commitment (20354), the World Youth Foundation (Malaysia) pledged to bring attention and awareness of young people towards Goal 14 and other linked Sustainable Development Goals. The World Youth Foundation organized the International Conference on Youth, Ocean and Goal 14 held in collaboration with Tenaga Nasional Berhad, Malaysian National Commission for UNESCO, International Youth Council, Young Environmental Movement, One Young World, Malaysian Nature Society, the Association of Southeast Asian Nations Youth Organizations and the Association of Southeast Asian Nations Youth Engagement Summit.

The International Conference was attended by 80 young people from 18 countries and generated the following outputs and follow-up measures:

- Youth were educated on the importance of the ocean and gained exposure on issues relating to ocean conservation and preservation. The ultimate expected result is to embed in youth lifelong values to play an active role in conserving the oceans, seas and marine resources for sustainable development in the spirit of Goal 14.
- A campaign on marine litter was developed, which the youth delegates could undertake once they return home. They can educate their local community about ocean threats and promote solutions to protect the ocean. That campaign has the potential to inspire others in the community to amplify their collective voice for environmental change.

In addition, the voluntary commitments have provided employment, including for women, and have provided benefits for marginalized communities or groups, including fishing communities, single mothers, and indigenous peoples. These actions are in keeping with the principle of leaving no one behind that is underscored in the 2030 Agenda.

4. Moving forward: summary of areas that may require further attention in voluntary commitments

Going forward, it is important to take note of the potential gap areas to be filled by new, or expanded, voluntary commitments. Table 12 provides a summary of areas requiring further attention, by Goal 14 target.

Table 12

Goal 14 target	Areas requiring further attention
14.1	• Addressing all parts of the plastics supply chain • Global coordination and assistance with regard to marine litter • Addressing other types of pollution beyond marine litter, particularly nutrient pollution • Building on and scaling up existing initiatives to decarbonize ocean industries
14.2	• Scaling up implementation of an ecosystem approach • Scaling up efforts relating to restoration and rehabilitation of coastal and marine ecosystems, including blue carbon • Further addressing the component of this target relating to "avoiding significant adverse impacts" • Further efforts towards joint implementation of Goals 13 and 14
14.3	• Awareness raising and education, including among policymakers, relating to the importance of monitoring and addressing ocean acidification • Filling geographical gaps in ocean acidification observations around the world • Further addressing adaptation to ocean acidification, including socioeconomic aspects, restoration (blue carbon), and marine protection • Developing further initiatives towards addressing ocean acidification, and in particular reduction of CO_2 emissions, through the implementation of Goal 13 and in the work of the United Nations Framework Convention on Climate Change
14.4	• Scaling up successful efforts towards fisheries sustainability • Issues related to related the reduction of pre- and post-harvest loss and waste • Human rights issues related to fisheries • More work to transition to ecosystem-based fisheries management; to improve international and regional governance mechanisms such as regional fishery bodies (including collaboration between regional fishery bodies and regional seas programmes); apply market-based mechanisms; and to incorporate climate change into fisheries management
14.5	• Addressing gaps in ecological representativity, functionality and connectivity of existing marine protected areas nationally, regionally and globally • Marine protected area design in the context of climate change • Marine protected area design for open ocean areas, including dynamic areas • Further work on management effectiveness, capacity and long-term financing • Monitoring the ecological and socio-economic impacts of marine protected areas
14.6	• Further improving the informational basis on fisheries subsidies and their impacts to inform WTO negotiations

14.7	• Gaps in sectoral representation in blue economies, including marine biotechnology, sustainable aquaculture and renewable/sustainable energy production
14.A	• Gaps in capacity and technology, including both human and institutional capacity, that can be addressed through long-term partnerships and mentoring relationships • Gaps in available socioeconomic information relating to the ocean • Gaps in biodiversity information in some undersurveyed regions, for certain species types, as well as the deep sea
14.B	• The implementation of this target requires further action across a broader range of countries, particularly in developing countries and in small island developing States
14.C	• Many stakeholders will likely require further assistance in better understanding and implementing the United Nations Convention on the Law of the Sea

5. Lessons learned: how to build on the "bright spots"

The voluntary commitments have achieved a great deal, and can provide lessons learned for moving forward in implementing Goal 14. Reflecting on those lessons may help in scaling up the successes or bright spots that have emerged from the voluntary commitments.

a. Grassroots momentum is powerful

The many local commitments relating to marine plastics, particularly beach clean-ups, education and awareness raising, have demonstrated the power of organic, grassroots initiatives. Most of those commitments started small, and used social media or other means to expand their reach. Many relied on existing networks that included schools, church groups, community groups and so on. They had a compelling message: that of the environmental destruction and ugliness created by trash, and human health problems caused by plastics in the marine environment. Most of those initiatives were either not funded or had only minimal funding, and relied on volunteers and donations. Over time, and collectively, they achieved considerable results both in waste collected and in awareness raised.

b. Partnerships are key to success

Expanding on initiatives and making them increasingly impactful requires partnerships. Such partnerships require trust, commitment by all partners, and leadership and coordination. They are a step up from grassroots action in their level of organization, and they require the development of a common vision and actions to achieve that vision.

For the voluntary commitments, partnerships are sometimes initially formed within a given country and have subsequently expanded farther afield, as was the case with the Fiji Locally Managed Marine Areas Network, which started in Fiji and expanded to other Pacific Islands and beyond. Partnerships have often included capacity-building and mentoring relationships, as is the case with the Global Ocean Acidification Network, where scientists from developed and developing countries collaborate, each bringing new knowledge and skills to the table, together with developing and testing new low-cost monitoring technologies suitable for developing countries. The collective global reach of such networks is facilitated through the participation of international organizations, in this case, IAEA and IOC-UNESCO, which can bridge the science/policy interface.

c. Expanding networks will help scale up successful initiatives

In the case of many voluntary commitments, networks grow over time, providing an opportunity to expand successful national initiatives. For example, regional seas programmes have provided for the expansion and networking of marine protected areas over time. They are also proving to be vehicles for developing regional strategies and action plans for marine plastics. However, networking can also include approaches that are not regional, and examples include the twinning arrangements of marine protected areas in Europe and Africa, North America, and South America promoted by the voluntary commitment titled "Regional Marine Protected Areas networks in action". Networks that bring together new equal partners also open themselves up for new knowledge and

creative solutions. For example, South-South networking and small island developing States interregional capacity development for ocean management can have powerful impacts in the long term if sustained and well financed. At some stage, the most pressing global ocean issues also require a global level of collaboration, and that is the case now for marine plastics. Global level collaboration is also needed to further strengthen the ocean-climate change nexus in international policy, as local actions alone cannot address ocean warming, sea-level rise, acidification and de-oxygenation. That does not mean that all impactful initiatives need to be global. Local initiatives are often creative and resourceful, and should be supported in their continued innovation in ways that are culturally appropriate. However, it is important that local solutions are communicated to a global audience.

d. Sustainable, shock-proof funding is important for long-term impact

The COVID-19 pandemic has demonstrated how precarious the funding situation of many marine conservation initiatives can be in a time of crisis. The loss of tourism funding has become an existential threat to many marine protected areas, though marine protected areas with existing trust funds are likely to be more resilient. Diverse, sustainable and innovative long-term financing solutions are now more important than ever. There are successful examples of such financing initiatives within the voluntary commitments. For example, the Seychelles Conservation and Climate Adaptation Trust has financed several rounds of conservation, management and blue economy projects from the Blue Grants Fund that was established from the proceeds of the Seychelles marine debt-for-nature swap and the Seychelles' sovereign blue bond. A conservation trust fund also exists in the Caribbean (the Caribbean Biodiversity Fund), which, while not a voluntary commitment, provides a successful example of a region-wide sustainable conservation funding solution.

e. Moving forward: keeping the inclusivity but providing for accountability

The voluntary commitments have been a success in providing for inclusive participation of all ocean stakeholders from the local to the global levels. New approaches have also been pioneered to keep the momentum of the voluntary commitments going, including in particular the Communities of Ocean Action. While they have achieved success with a core group of participants, the voluntary commitments overall have suffered from a lack of engagement and reporting. Going forward, it is important to look into ways to improve the reporting rate and process. For new voluntary commitments, that may mean ensuring that they have in place a simple monitoring and reporting process, with a baseline and metrics agreed to ahead of time. It is important that the monitoring and reporting not be so complicated that they become discouraging, but that they still provide for accountability and a collective metric for measurement.

This document has provided a summary and an analysis of the Ocean Conference voluntary commitments. As new commitments are being continuously registered, it is expected that this analysis will also require a periodic update. In addition, the financial information related to the voluntary commitments requires further work, and will be updated as information becomes available.

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