DRAFT OUTLINE

Addressing marine pollution

Colombia´s contribution.
February 15th, 2022.

I. Introduction (500 words)

Plastic production and consumption are accelerating at an unprecedented rate, which has led to a global plastic pollution crisis. Plastic pollution is a transboundary problem that requires global solutions to tackle it effectively and not lose time and effort. Unless urgent action is taken, the problem will get progressively worse in the coming years. Plastic litter is already harming many marine species and harms human health in ways we do not yet realize.

To protect nature and future generations from harmful impacts of plastic pollution, there is an emerging global consensus on the need to build an ambitious new legally binding international agreement that holds states to a common standard of action, that applies to all States parties, that sets ambitious actions to address this problem at the global, regional and national level, including setting common objectives, developing concrete actions, strong but also progressive actions and action plans. It is very important that this new treaty strengthens global and regional cooperation and decision-making, informed by science.

Marine pollution in Colombia is caused by multiple factors, including precarious basic sanitation conditions and deficient treatment systems, which contribute to the inadequate disposal of liquid and solid waste generated in socioeconomic (agriculture, mining, tourism, among others) and domestic activities of the coastal and inland population (INVEMAR, 2018). The waste generated in these activities contains organic matter, nutrients, petroleum hydrocarbons, pesticides, heavy metals, microorganisms of fecal origin and plastics that are improperly managed and reach the rivers and the sea. Marine litter is one of the most prominent problems in Colombia, it comes mainly from poor waste management practices; about 65% of the solid waste generated in coastal towns reaches the sea, accumulating in marine and coastal ecosystems. Litter in the sea is generating negative impacts on marine ecosystems and human communities (Garcés et al., 2019), which is why it is considered a relevant problem that has been included as a relevant issue within the Sustainable Development Goal (SDG) No. 14.

The deteriorated water quality conditions, produced by pollutants, on many occasions are responsible of mortalities of organisms and harmful algal blooms; in addition to contamination by hydrocarbons and other pollutants that deteriorate the quality of beaches, mangroves, estuaries and seabeds, and affect their ecosystem services. Despite the country's actions in the creation of policies and the efforts made by the government in recent years aimed at protecting the marine environment, there are still many difficulties in managing marine and coastal ecosystems in a sustainable manner, which is why the articulation and joint work of the country's institutions and society in general is required to prevent and protect marine and coastal ecosystems from stressors and sources of pressure.

II. Status and trends (1500 words)

The case of Colombia as an example:

The coastal zone in Colombia receives the fluvial contributions of ~99 rivers, ~43 in the Caribbean Sea, and ~56 in the Pacific Ocean (INVEMAR, 2019). These tributaries of large basins have become the entry point for polluting waste generated by the socio-economic activities developed in their upper, middle and lower basins, with activities such as agriculture, livestock, mining, industry, as well as domestic waste. For 2019, was estimated that 28 rivers discharged to Colombia's coastal waters about 271,000 tons of NID, 40,521 tons of orthophosphates, 7.67x 107 tons of TSS, 1,165 tons of HPDD and 2.74x1011 tons of CTE. Additionally, in 2016 was estimated the coastal population generated about 2.4 million tons of solid waste, of which it is presumed that ~65% were handled improperly, being disposed of in open dumps, buried in the ground, burned or dumped directly into natural bodies of water (Garcés-Ordóñez et al., 2017, 2020). This is the reason why abundant solid waste is observed floating in the sea or accumulating in mangroves and beaches in the Colombian Caribbean and Pacific (Garcés-Ordóñez et al., 2017, 2020; Garcés- Ordóñez and Bayona, 2019). This situation highlights the need for efficient intervention by the Colombian government in order to deal with this problem.

INVEMAR, the national marine research institute has carried out different studies that show the problem of contamination. In 2019, using the methodology of UNEP et al. (2010), was estimated that the coastal population in Colombia produced a flow of ~740,000 m3 day-1 of domestic wastewater, with an estimated pollutant load of 33,000-ton year-1 of BOD5, 8,000-ton year-1 of total nitrogen, 530-ton year-1 of total phosphorus and 33,000-ton year-1 of total suspended solids. The largest contribution of domestic wastewater is in the Caribbean (617,654 m3 day-1), compared to the Colombian Pacific (119,677 m3 day-1). In most coastal municipalities, wastewater treatment is deficient or nonexistent. Approximately 53% of domestic wastewater is discharged directly into natural water bodies without any treatment and the remaining percentage is discharged with preliminary treatment based on solids and grease traps (Superservicios, 2017). Of the 47 coastal municipalities, only 34% have high sewerage coverage (greater than 80%) in urban areas and 13% in rural areas, the rest do not exceed 50%, especially the settlements located on the Pacific coast.

Between 2017 to 2021, INVEMAR has carried out also studies that show the problem of contamination by marine litter in mangroves, beaches, and coastal waters of Colombia, and the possible ecological impacts. Plastic pollution were evaluated on 43 Caribbean and Pacific beaches, identifying high amounts of wrappers, bags, lids, bottles, cleaning product containers, cutlery, trays, fishing nets, among others. These plastics, which are mostly short-lived or disposable, come from poor waste management practices, tourism, fishing and aquaculture, among others; constitute a major problem on Colombian beaches, indicating to environmental authorities the urgent need to regulate their production and excessive use and promote the change to other easily recyclable and environmentally friendly materials (Garcés-Ordóñez et al., 2020). Additionally, the marine macro-litter (items with sizes >2.5 cm) that accumulates on Colombian beaches is causing impacts on potential tourism, due to the deterioration of the landscape. Microplastics were also found in the digestive tract of different species of commercially important fish (Garcés-Ordóñez et al., 2017, Calderón et al., 2019). These findings highlight the threat of marine litter for the conservation of biodiversity and for public health, and the problem is

more relevant if we take into account population growth trends in coastal areas, which requires key actions to prevent and reduce its negative effects.

- It is estimated that 8.3 million tons of plastics have been manufactured since 1950.
- Nearly 60% of the plastic has arrived in either a landfill or in nature.
- There exist several efforts at different levels to address plastic pollution, but those are insufficient, there are existing gaps that need to be filled to tackle this problem that covers the full lifecycle of plastics and incorporates a circular economy approach.
- It is estimated that 60-99 million tons of mismanaged plastic waste are generated every year and that this number could increase to 155—265 tons by 2050 in a “business as usual” scenario.

III. Challenges and opportunities (2800 words)

Gaps identified in the area relevant to the topic of this IPWG:

- One of the main challenges is related to the technical and financial support. Regarding technical support, it is key to generate a baseline that allows directing management actions at the municipal level supported by scientific assistance to decision making, such as the establishment of regulations on restrictive or permissive matters of certain materials. Financially, it is necessary to have financing mechanisms that allow the implementation of actions that help reduce the problem, treat it and evaluate their efficiency over time.
- The work on recycling stands out as an opportunity, but it is better to promote projects that relates of extended producer responsibility, regulate from a life cycle approach, in order to find leadership from the business sector.
- It is also noted that several initiatives are being worked on at the regional level, contributing to solutions to the problem of marine litter, especially the Action Plan that comes out of the Southeast Pacific Alliance.
- Low prioritization of key information topics for marine pollution prevention and marine and coastal water resource management.
- Lack of management, impact and results indicators in the design of monitoring programs and projects on marine pollution prevention.
- Low free flow and access to information, data dispersed in several public and private entities and technical limitations between storage and processing systems that do not allow data sharing and make it impossible to make comprehensive analyses.
- Heterogeneity in methodologies and standards for data capture and processing, which makes it difficult to compare, use and take advantage of data for complementary analysis with other economic and health data, among others.
- Knowledge gaps on the status and dynamics of plastic pollution in ecosystems (mangroves, seagrasses, corals, coastlines), and evaluation of the ecological, social and economic impacts and risks to public health due to exposure to microplastics.
- Low spatial coverage of harmful algal bloom monitoring to establish the dynamics of the events in some coastlines, and insufficient information on toxins produced by potentially harmful algae for risk management and decision making.

- Low technical capacity to determine the presence of toxins and episodes of intoxication of the population, which does not allow correlating the results of the monitoring of harmful algal bloom events.
- Low use of standardized and sensitive analytical methodologies to measure variables in the marine matrix.
- Lack of a data reservoir with local, regional and global inventory of land and marine pollution sources, and low characterization of specific discharges into the ocean.

The existing global initiatives, binding and non-binding instruments, regional and national action plans, represent a good baseline for the solution but science is clear expressing that this is not enough, those instruments are insufficient to address in a coordinated, global and ambitious manner this transboundary problem.

Measures/interventions should be promoted to fill existing gaps and to assist the Member States in scaling up ocean action based on science and innovation in relation to the topic of this theme:

- Ensure basic sanitation in marine and coastal areas and acquire technological development on the management of ballast water and sediments in ships, and a slow process of international and national coordination at the political and regulatory level on ballast water management issues.
- A global cooperation network should be defined, where the variables and references to be followed for the monitoring of marine pollution stressors such as eutrophication, acidification, plastic pollution, harmful algal blooms, among others, should be established.
- The treaty could encourage normative regulations on the subject in those countries where not much progress has been made, as well as the definition of global goals with a timeframe defined by all countries to combat plastic pollution.
- It could also support the definition of global standards that would allow countries to move in the same direction in terms of eco-labeling, eco-design, substitution, research, among others. Thus, the eventual treaty could define minimum criteria to be regulated by each country in accordance with its legislation. However, it is necessary to review the issue and evaluate whether the country can assume the international standards that would be set within the framework of the possible treaty.
- Financial support must be available to materialize the treaty. A financial mechanism should be foreseen, as in other Conventions such as Minamata or Stockholm, which established the GEF.
- Different instances and initiatives should be foreseen, including support from development banks and cooperation agencies, among others. If the instrument does not have a robust, accessible, and equitable financial mechanism, its targets and objectives could not be accomplished because all States have different capabilities, thus if the ones who need more technical and financial assistance don't have the means to take measures, we will be all failing to achieve an effective solution to this global challenge.
- It is important to conduct and promote research, assessment and monitoring to evaluate the impacts of marine debris on marine-coastal species, habitats, human health, the economy, safety and social values.

IV. Existing Partnerships

Focus could be on scientific and technological innovation-based partnerships As a strategy to monitor water quality in coastal areas and generate information to prevent marine pollution in Colombia, since 2001 the National Monitoring Programme of Marine and Coastal Waters Quality - REDCAM has been carried out, an inter-institutional activity integrated by the Ministry of Environment and Sustainable Development (MinAmbiente), the Regional Environmental Authorities, and the Marine and Coastal Research Institute (INVEMAR) which manages the REDCAM system. The information obtained by REDCAM has been the technical scientific support for different regulatory and national planning instruments, such as the policies for the Sustainable Development of Oceanic Spaces and Coastal and Insular Zones of Colombia - PNAOCI (MMA, 2000) and the Policy for the Integrated Management of Water Resources (MAVDT, 2010); in addition to international commitments such as the Cartagena (Law 57/87), Lima (Law 45/85) and Stockholm (COPs) Conventions of 2001, and the Sustainable Development Goals (SDGs).

Additionally, REDCAM has served as a platform for the development of international projects with cooperation agencies and financial sources such as IAEA, UNEP, CPPS, GEF, REMARCO, Garbage Scientists. GIZ, among others.

The United Nations Environment Programme (UNEP) has presented reports about the Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution.

https://www.unep.org/resources/pollution-solution-global-assessment-marine-litter-and-plasticpollution. And United Nations Decade of Ocean Sciences for Sustainable Development, IODE).

V. Possible areas for new partnerships

New international cooperation networks are needed to address the problem of marine pollution, with a greater effort in technology transfer, strengthening existing national networks and promoting the social appropriation of knowledge at regional, national and local levels. It is essential to keep in mind that the management of a problem such as marine litter or waste management itself is not the responsibility of institutional actors alone, but rather encompasses different sectors and are essential to take them into account in order to strengthen the actions carried out, for example, from the private sector.

To promote the above, a coordination body should be identified and strengthened to promote the management and monitoring of the necessary actions to reduce the problem. Likewise, its management must be linked to the coordination of international, regional and local instruments.

Possible topics for research and monitoring topics include:

- Types of plastics and their impact on human and the environment,
- Alternatives and methods to correct plastic waste management,
- Technology for the development and replacement of harmful chemicals in the design and production of plastics,
- Population-level assessments of the impacts of marine debris on individual species,
- Impacts of abandoned, lost, or discarded fishing gear (ALDFG) on coral reefs,
- Quantification of the impacts of ghost fishing,
- The role of microbial degradation on fate,

- Transport and accumulation of microplastics in sediments and marine life,
- Quantitative assessment to characterize chemical exposure pathways and bioaccumulation of plastics in marine resources,
- Identification of pathogens (human or marine organisms) or harmful algae (e.g., ciguatera) associated with marine debris,
- Research on seabird foraging habitats to understand the relationship between prey and debris types,
- Long-term monitoring of the impacts of marine debris on seabirds and marine mammals as indicator species,
- Quantitative assessment of the economic impacts of marine debris on marine transportation and coastal tourism.

VI. Conclusions and recommendations (1000 words)

Despite the existence of various national and local initiatives to address marine pollution, it remains insufficient. Therefore, effective implementation of public policies at national and local level is needed. The problem of marine pollution requires a holistic approach, involving society and government so that the best decisions can be taken to prevent, reduce and mitigate the pollutants that affect the marine and coastal environment. To control these activities, it is necessary to promote awareness, institutional capacities and develop alternative livelihoods for local communities. In addition, efforts in research and the development of actions for the conservation and preservation of the quality conditions of the marine environment must be strengthened, taking into account the benefits of supporting and regulating ecosystem services in the face of resilience to external factors such as climate change.

Strategies should focus on continue monitoring marine litter pollution and implementing actions to reduce the problem. This must be complemented with effective territorial regulations.

It is necessary to articulate local and community actors to the processes of formulation, implementation, monitoring and evaluation of public policy, that is, to generate spaces for active multilevel and multiscale governance so that national policy actions can materialize in the marine and coastal territories.

States and stakeholders participating in the 2022 UN Ocean Conference should engage actively in the negotiations that are expected to begin this year following the establishment of the Intergovernmental Negotiating Committee at UNEA.5.2. This will mark the inception of a key phase in the development of this regime and delegates must state their nation's views, concerns, lessons learned, and vision about what the treaty should contain.

It is strongly suggested that the participation of the delegations aims to achieve the highest level of ambition, to agree on a legally binding instrument that ensures strong and concrete commitment and action to tackle the problem, with rules, standards, a set of different actions including the progressive implementation, the specification of the procedures that allow the regime to be gradually strengthened over time, provisions of finance and technical resources, capacity building and transfer of marine technologies to tackle plastic pollution, compliance and implementation terms, and the participation of all relevant sectors and stakeholders.

VI. Key questions for the dialogue at the 2022 UN Ocean Conference (300 words)

- What kind of sanctioning measures could prevent marine pollution?
- How could actions prevent marine pollution be encouraged?
- How to achieve a behavioral change in societies to transit to sustainable consumption and production patterns, based on a circular economy approach?
- How can the development and financing of citizen science programs, focused on marine pollution, can be promoted?
- How to advance in the development of basic sanitation projects and demonstrate the positive effects on environmental quality conditions?
- How to include ocean literacy at the global cooperation tables and promote it in schools, universities and research centers?
- How to advance in the creation of regional cooperation networks and promote the exchange of experiences that reduce the gaps between developed and developing countries.

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DRAFT OUTLINE

Managing, protecting, conserving and restoring marine and coastal ecosystems.

Colombia´s contribution.
February 15th, 2022.

I. Introduction (500 words)

Stress removal and conservation measures, remain as one of the most widely used strategies to promote the recovery of marine and coastal ecosystems. However, actively assisting their rehabilitation is a need; not only because their recovery without assistance is insignificant considering the accelerated rates of habitat loss, but also because of the high carbon sequestration capacity that these ecosystems have. These ecosystems could contribute significantly to dealing with climate change. Effects of climate change have already been recognized worldwide, and that have put the planet in a "climate emergency" (Ripple et al., 2019). Consequently, management, conservation and restoration of marine ecosystem is a trending topic nowadays that needs to be strengthened.

The Colombian Ocean Commission has directed the National Plan of Marine Scientific Expeditions as a strategy that contributes to the development of the guidelines established by the political and administrative framework. In this sense, the country has the National Environmental Policy for the Sustainable Development of Oceanic Spaces and Coastal Zones (PNAOCI), the National Policy for Oceans and Coastal Spaces (PNOEC) and, additionally, CONPES 3990: Colombia Bioceanic Power 2030, which establish lines of action that contribute, directly or indirectly, to the management, protection, conservation and restoration of marine and coastal ecosystems.

II. Status and trends (1500 words)

The efforts invested in ecological restoration driven by the goals of global initiatives and celebrated by the United Nations in the framework of the decade of the oceans and restoration, will not only contribute to the achievement of different SDGs, but also have the potential to generate considerable economic, ecological and social benefits. Currently, it is recognized that some of the blue carbon ecosystems have characteristics that make them important for restoration processes since they have a greater capacity to fix CO2, compared to purely terrestrial ecosystems, as well as various other benefits related to biodiversity (Ripple et al., 2019). Accelerating declines in the extent, quality and functioning of the world's marine ecosystems have generated an upsurge in focus on practical solutions, with ecosystem restoration becoming an increasingly attractive mitigation strategy for systems as diverse as coral reefs, mangroves and others (Sheaves et al., 2021). However, marine and coastal restoration is a science and practice relative immature. Considering their increasing attention, it is likely to advance rapidly over the coming decades and become a common intervention strategy that can reverse marine degradation, contribute to local economies, and improve human wellbeing at a scale relevant to addressing global threats (Sanders et al., 2020).

III. Challenges and opportunities (2800 words)

Gaps identified in the area relevant to the topic of this IPWG:

Tools to planning restoration objectives, understanding the interactions in the ecosystems on a big scale to improve the restoration techniques are a need. It is needed also, the design indicators based on ecosystem services, to evaluate the performance and success of restoration and conservation actions. It is a challenge, the proper communication of the needs and achievements of measures taken on the ecosystems to increase public awareness and community engagement. At the same time, it is a need to improve the design and application of payment for ecosystems services schemes in marine and coastal ecosystems and application of politics that let the increase of marine restoration globally. Delivering technical information, doing replicable experiences, methodologies and protocols that allows effective, rapid and large-scale restoration of seas and coasts to be implemented is essential.

Measures/interventions should be promoted to fill existing gaps and to assist the Member States in scaling up ocean action based on science and innovation in relation to the topic of this theme:

- Experiences exchange in practical restoration between scientists, agencies, and countries in order to improve protocols, and restoration implementation.
- Increase technical capacity to restore ecosystems: More scientists need to be former in marine and coastal restoration specifically at high-level studies (PhD) and link them to industries and government agencies.
- Concrete examples where ocean action is scaled up based on science and innovation:

Based on advances on science globally and experience acquired at national level, Colombia has increased in the last years the investment on mangrove restoration. Last year more than $1.000.000 USD were invested in mangrove restoration. Pilot experiences on mangrove restoration in some places in Colombia, have been replicated, adjusted to each context and in some cases scaled up (e.g. Cienaga Grande de Santa Marta mangrove).

IV. Existing Partnerships

The Global Mangrove Alliance: brings together technical experts, civil society organizations, governments, local communities, businesses, funding agencies and foundations to accelerate a comprehensive, coordinated, global approach to mangrove conservation and restoration at a scale that matters (https://www.mangrovealliance.org/).

V. Possible areas for new partnerships

Similar partnerships and networks to global scale to prompt restoration in other submerged ecosystems are needed. For example, seagrasses do not have so much work as mangroves, and these ecosystems could have the potential to develop measures to fight climatic change.

VI. Conclusions and recommendations (1000 words)

Although restoration and conservation measures in mangroves have been the focus in recent years, still it is a need to work in public politics locally and globally. This could increase the impact

on the work performed in these ecosystems. In some countries, deforestation, change in the use of soil, and removal of mangroves occur. To control these activities is a need to improve local awareness, institutional capacities and to develop alternative livelihoods for local communities. Also is recommendable to increase the efforts in research and the development of conservation and restoration actions in seagrasses, considering the regulation services that they provided and the potential to mitigate climate change.

VI. Key questions for the dialogue at the 2022 UN Ocean Conference (300 words)

Some key question to discuss:

- How to make scalable and cost-benefit the restoration of marine and coastal ecosystems?
- How to improve capabilities in marine restoration in different countries?
- How to build restoration and conservation projects sustainable over the time in the long term?
- What methodologies can be used to achieve consensus among communities, researchers and institutions to make conservation and sustainable management decisions in their territories? sustainable management of their territories?
- How can we ensure that the inputs obtained from research are used by agencies for the expansion and creation of new protected areas?
- How to ensure that the community-science relationship achieved through the expeditions is maintained in the long term?
- What tools should be used to manage citizen science processes in hard-to-reach areas?
- How to get communities to use expedition inputs to appropriate their territories and ensure the to take ownership of their territories and ensure the sustainable use of their natural resources?

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DRAFT OUTLINE

Minimizing and addressing ocean acidification, deoxygenation and ocean warming.

Colombia´s contribution.
February 15th, 2022.

I. Introduction (500 words)

The steady increase of carbon dioxide (CO2) in the atmosphere has been affecting the world's oceans, altering the carbonate system, temperature and dissolved oxygen concentration. These effects cause negative changes in ecosystems, biodiversity and the economy of countries, such as fisheries and food security, as well as dramatic changes in protective coastal reefs formed by calcifying invertebrates such as corals, bryozoans, worms and mollusks, whose calcium carbonate structures become vulnerable to acidic environments. As research studies increase, more and more of the effects of this environmental problem on different ecosystems and organisms are becoming known.

II. Status and trends (1500 words)

In Colombia, the marine research institute INVEMAR has advanced in generating knowledge of the current state of the carbonate system in different stations of the marine and coastal zone of the country. INVEMAR acquired the analytical capabilities for the determination of the carbonate system with the quality required for the report of indicator 14.3.1 of SDG 14. With this capacity, the first reports have been made to the indicator, generating relevant information to evaluate the changes in the carbonate system in the water of the marine and coastal zone. However, long term monitoring systems are required to determine the changes and generate new knowledge with proxies to determine the pre-industrial values of pH and temperature, in order to know the temporal variations of these stressors on the ecosystem. Once the measurements of the carbonate system have been strengthened, it is necessary to carry out experimental work on multiple stressors to determine the effects on marine and coastal ecosystems and organisms under different scenarios of acidity, temperature and dissolved oxygen.

III. Challenges and opportunities (2800 words)

Gaps identified in the area relevant to the topic of this IPWG:

- The need of countries to increase research studies associated with the impact on ecosystems and organisms in the country's coastal marine zone. Long-term monitoring is required to evaluate changes in the carbonate system, temperature and dissolved oxygen in the marine and coastal zone.
- Measures/interventions should be promoted to fill existing gaps and to assist countries
- Scaling up ocean action based on science and innovation in relation to the topic of this theme.
- Research on new technologies to control the contribution of CO2 to the atmosphere on a global scale.

IV. Existing Partnerships

The network of marine and coastal stressors of Latin America and the Caribbean - REMARCO, sponsored by the International Atomic Energy Agency IAEA, has been strengthening 18 countries in the region with the analytical capabilities necessary to report of indicator 14.3.1 of SDG 14.

Although the Latin American and Caribbean Network for Research in Coastal and Marine Stressors (REMARCO) does not have a technology development line, the network has high-level scientists that can be supported to start these new developments.

V. Possible areas for new partnerships

Is necessary to strengthen regional networks such as REMARCO and global networks such as GOA-ON to advance in the generation of knowledge for decision makers on ocean acidification.

VI. Conclusions and recommendations (1000 words)

It is recommended to support monitoring and biological experimentation activities to generate early warnings of possible impacts on marine and coastal ecosystems and the loss of their ecosystem services. Promote the use of clean technologies to reduce carbon dioxide emissions into the atmosphere.

VII. Key questions for the dialogue at the 2022 UN Ocean Conference (300 words)

- Do we really have enough knowledge about the effects of increased acidity, temperature and decreased dissolved oxygen in our seas?
- How to advance in the reduction of CO2 emissions by migrating to the use of clean technologies?
- Do we have the technology to design efficient atmospheric CO2 traps on a global scale?

DRAFT OUTLINE

Making fisheries sustainable and providing access for small-scale artisanal fisheries to marine resources and markets.

Colombia´s contribution.
February 15th, 2022.

I. Introduction (500 words)

SDG 14.6 establishes the goal to prohibit certain forms of fisheries subsidies that contribute to overcapacity and overfishing, and the elimination of subsidies that contribute to IUU fishing, by the year 2020. It also calls for the recognition of an appropriate and effective special and differential treatment for developing and least developed countries.

Illegal, Unreported and Unregulated Fishing (PINDNR) represents one of the major catch problems globally and has significant effects on the comprehensive and sustainable conservation of fishery resources. Considering that this activity is carried out both on the high seas and in areas under national jurisdiction (motivated by economic interests and associated with organized crime), it represents then, a serious threat to marine ecosystems, putting efforts at risk national and regional for the management of fishery resources and their conservation.

The 164 members of the World Trade Organization (WTO) are currently negotiating a multilateral agreement to address this mandate. The successful conclusion of the negotiations and the subsequent implementation of the disciplines under the agreement are key for the sustainability of the oceans and the fish stocks, and for supporting livelihoods and food security. Indeed:

- According to data from FAO, fish stocks are at risk of collapsing in many parts of the world due to overexploitation. It is estimated that 34% of global stocks are overfished compared with 10% in 1974, meaning they are being exploited at a pace where the fish population cannot replenish itself.
- Government support, in the form of specific and horizontal subsidies, plays a decisive role in marine fishing activities. State funding — estimated to range from USD 14 billion to USD 54 billion per year globally — enables many fishing fleets to operate longer and farther at sea, to the detriment of marine life.
- Subsidies also allow a reduced number of countries to access and exploit resources in the high seas, creating an uneven playing field and adding pressure to stocks and marine ecosystems, and putting in danger the access of small-scale fishers to the resources.

Following text-based negotiations among members, the Colombian chair, on November 2021, submitted a draft Agreement for ministers' attention ahead of the 12th Ministerial Conference (scheduled to start on 30 November 2021). The draft is based on the collective efforts of WTO members who have intensively worked on the previous version of the text.

However, due to the Covid-19 pandemic, the Ministerial Meeting had to be postponed. This marked the second time that the pandemic has forced a postponement of MC12. Despite the

postponement of MC12, members continue to work on the draft agreement, to reach an outcome in the first semester of 2022. Implementation of the negotiated Agreement is the next step forward.

This proposal for an interactive dialogue should intend to address **i) the importance of the multilateral Agreement on Fisheries Subsidies, as a key element of the global governance on oceans and fisheries, to enhance international cooperation and ii) the required actions and steps to be taken for the successful implementation of any Agreement and for it to be an impactful instrument to support sustainable fishing.**

Finally, the session should intend to highlight the importance of disciplines on fisheries subsidies, especially those contributing to overcapacity and overfishing, for the wider benefit of artisanal and small-scale fisheries.

II. Status and trends (1500 words)

- According to data from the UN Food and Agriculture Organization (FAO), marine fish stocks are at risk of collapsing in many parts of the world due to overexploitation.
- It is estimated that 34% of global stocks are overfished compared with 10% in 1974, meaning they are being exploited at a pace where the fish population cannot replenish itself.
- Declining fish stocks threaten to worsen poverty and endanger communities that rely on capture fisheries for their livelihood and food security.
- Subsidies to fishing and fishing-related activities are estimated to reach up to USD 54 billion per year globally, with high environmental and social impacts.

III. Challenges and opportunities (2800 words)

Gaps identified in the area relevant to the topic of this IPWG

- At the moment of the submitting of this document, negotiations on a WTO Agreement have not yet been finalized. Straddling objectives between food necessities, commercial competition between Members, and collective sustainability have been a negotiation challenge.
- There are different levels of capacity within Members, mainly in developing countries, for the integral and successful implementation of the Agreement.
- There is also a variable capacity of institutional actors (new and variable challenges faced by coastal states, flag states, and RFMO-As in the determination of IUU and/or sustainable levels for the targeted fisheries).

Measures/interventions should be promoted to fill existing gaps and to assist the Member States in scaling up ocean action based on science and innovation in relation to the topic of this theme

- Current dispositions in international agreements do not prohibit forms of fisheries subsidies that contribute to overcapacity and overfishing, nor ensure the elimination of subsidies to illegal, unreported, and unregulated fishing. An intervention is urgently needed, as required by SDG 14.6 by the year 2020.

- Enhanced transparency and monitoring, as well as increased capacities, are needed for oceans governance actors, as part of the successful deployment of such rules.

Concrete examples where ocean action is scaled up based on science and innovation:

- Increased skills, technical and technological capacities for the monitoring and response to IUU activities, as a trigger for the elimination of subsidies.
- Increased skills, technical and technological capacities for the determination of Biological sustainable levels for particular fisheries or stocks or alternative reference points, as key measurements to trigger for the elimination of subsidies.
- Better overall information on good practices for fisheries management and environmentally sound subsidies

IV. Existing partnerships (1200 words)

- Multilateral work by the World Trade Organization (WTO) Secretariat
- Partnership between WTO and FAO secretariat: Access to information and statistics on catches, the status of the fish stocks, trends and practices on conservation and management measures, fleet capacity. Details on the implementation of other Agreements in the area of fisheries, including the PSMA, IPOA, the convention on High Seas, among others.

V. Possible areas for new partnerships (1200 words)

- Partnership between WTO and the International Fund for Agricultural Development, with a view to provide technical assistance and capacity building for Developing Members for the purpose of implementation of the commitments under the Agreement on fisheries subsidies.
- Partnerships between WTO and Regional Fisheries Management Organizations (RFMO) and Regional Fisheries Management Agreements (RFMA) to exchange information on the status of managed fish stocks, conservation and management measures, best practices on IUU determinations, among others. These partnerships would allow for a better implementation of the fisheries subsidies agreement and increased transparency in the WTO.
- Partnerships with other relevant International Organizations, including the International Maritime Organization
- Partnerships with interested parties and stakeholders, that can contribute to a better implementation of the Agreement on Fisheries Subsidies.

VI. Conclusions and recommendations (1000 words)

a. Conclusion of the WTO negotiations on a WTO Agreement of fisheries subsidies is urgently needed
b. Subsequent setup of ocean governance actors for the successful implementation of the adopted rules is a necessary following step.

VII. Key questions for the dialogue at the 2022 UN Ocean Conference (300 words)

- How can UN Members effectively eliminate subsidies that contribute to overfishing and overcapacity and prohibit subsidies to IUU fishing?
- How can the multilateral institutions better support efforts to protect small scale and artisanal fishers and secure their effective access to marine resources and markets?
- What are the expected results and outcomes derived from the conclusion and implementation of a multilateral agreement on fisheries subsidies at the WTO?
- What is needed for the successful implementation of the negotiated rules on fisheries subsidies?
- How can the WTO fisheries agreement contribute to strengthen ocean governance?
- How can the political commitment and flexibility of the States be increased to advance in the negotiation and implementation of the agreement?

DRAFT OUTLINE

Promoting and strengthening sustainable ocean-based economies, in particular for small island developing States and least developed countries

Colombia´s contribution.
February 15th, 2022.

I. Introduction (500 words)

At the international level, and taking the Decade of Ocean Sciences as a juncture, the concept of sustainable Ocean Economy has been strengthened. Since 2016 and thanks to the impetus given by the Organisation for Economic Cooperation and Development (OECD), the concept of Ocean Economy has become more integral, involving central actors in the productive sector and marine ecosystems, where the latter provide intermediate services necessary for the former (OECD, 2016 p. 23). Likewise, the potential to increase the global economy and to provide multiple services has been further identified, as the importance in economic terms of the proper exploitation of the ocean resources is recognized. One of the clearest examples in this regard is maritime transport, which in 2021 transported almost 80% of world trade by volume by this means (UNCTAD, 2021).

II. Status and trends (1500 words)

While it is true that the oceans are of great importance for the economy of a State, it is still necessary to generate greater awareness in the population aimed at the economic sustainability of the oceans; it is also necessary to rigorously deepen through marine scientific research in the knowledge of the territories, identifying the environmental impacts brought about by the development of activities in marine and coastal areas.

As an example, the Colombian Ocean Commission (CCO), through the National Policy on Oceans and Coastal Spaces (PNOEC) and CONPES 3990, seeks to improve the management and use of oceans and coastal spaces. The National Policy on Oceans and Coastal Spaces (PNOEC) and CONPES 3990 seeks better management and sustainable use of marine-coastal resources. Likewise, through the guidelines given by the president of the CCO, 11 strategic lines were established which to achieve the sustainable development, outlining a roadmap for the country. Among others, these are some of the strategic lines:

1. Development of Ports, Docks and Harbors,
2. Development of the Fishing Industry,
3. Naval Industry,
5. Development of Nautical Tourism, Beaches and Low Water Areas,
6. River Development.

We consider this topic as an opportunity to address these issues in a holistic way, and taking into account the particular interests, challenges and opportunities for developing countries, Small Island Development States (SIDS) and Least-Developed Countries (LDCs).

III. Challenges and opportunities (2800 words)

Understanding that within the framework of the United Nations Decade of Ocean Sciences for Sustainable Development, the concept of Ocean Economics has taken on great importance in the search for protection, production and prosperity.

The integral and sustainable development of the oceans must be promoted to contribute to the socioeconomic development of the countries, which will ensure the health and wealth of the ocean for future generations (Oceanpanel, 2020), Trough the joint action of the State entities and institutions involved in the contribution to the fulfillment of Sustainable Development Goal No. 14.

There are also economic activities, such as tourism, that contribute considerably to the socioeconomic development of a territory, especially when the initiatives are led and developed by communities settled in coastal municipalities. However, the great challenge lies in the strengthening of the coordination between communities and the State, which will allow for the provision of tourism services to be adequately oriented and adjusted to the current regulations, guaranteeing quality and generating economic benefits for whoever executes the initiative.

This contributes to the development of the oceans and at the same time contribute to the development of the SDG 11 "Sustainable Cities and Communities" and SDG 8: "Decent Work and Economic Growth".

One of the great challenges for a sustainable economy is to obtain data that contribute in a cross-cutting manner to decision-making by local, regional and national governments. Although ocean data and general statistical information are available, they are not sufficient for a correct visualization of the problems. For this reason, support for the development of marine scientific research projects should continue and statistical data collection in different fields of the productive sector that will allow the generation of tools such as environmental economic valuation, which will substantially contribute to decision-making in favor of the sustainable development of a coastal marine territory.

It is essential to identify each of the potentials of the different coastal regions, since some territories have advantages for certain activities and consequently, it possible to maximize the use of the goods and services offered by the ocean.

IV. Existing Partnerships

Global Ocean Alliance, which aims to promote the conservation of 30% of the global ocean by 2030, in different aspects such as (i) conservation and sustainable use of the ocean as a nature-based solution to contribute to economic development, (ii) increasing resilience to climate change, and (iii) ensuring its long-term health. This alliance seeks to magnify forces in terms of international cooperation, mangrove restoration and environmental awareness.

V. Possible areas for new partnerships

Although major ocean alliances exist, it is important to emphasize that as part of sustainable economic development, it is necessary to create alliances within the framework of research and the generation of alternative of alternative energies in the coastal marine territory.

In some countries, progress has been made in wind and solar energy in continental areas, however, it is necessary to contemplate the marine-coastal and offshore areas, where there is a great potential for the generation of alternative energies such as wind, tidal and solar energy, wave or mixed energy.

VI. Conclusions and recommendations (1000 words)

Maritime awareness must continue to be generated and strengthened considering political dynamics, changes in government, and staff turnover that can blur the objective of adequately and sustainably use and take advantage of the potential of the resources provided by the oceans that contribute to the socioeconomic development of the country.

It is important to emphasize that scientific research must be strengthened and, which will allow us to carry out an adequate analysis on the way in which the oceans should be exploited in a sustainable manner.

VII. Key questions for the dialogue at the 2022 UN Ocean Conference (300 words)

- What could be indicators to measure the effectiveness or proper implementation of sustainable ocean economic development?

- What strategy could be employed to generate greater maritime awareness in the population of a country, which would contribute in the long term to the implementation of transformations for a sustainable ocean economy?

- Can marine scientific research be considered as the cross-cutting basis for the analysis of the development potentials in the territories and why?

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DRAFT OUTLINE

Increasing scientific knowledge and developing research capacity and transfer of marine technology

Colombia´s contribution.
February 15th, 2022.

I. Introduction (500 words)

Scientific research in the marine and coastal environment requires specific and adequate conditions that allow not only the development of activities that generate data and information of interest, it is also necessary to have an infrastructure that allows the storage, processing of information and specific technology that require certain standards of maintenance and operation. The administrative processes that the country has been carrying out to consolidate the efficiency of its research structure require training and interaction with institutions to ensure adequate administrative and operational development of the institutions that contribute to these processes.

Likewise, it is necessary to strengthen capacities at the level of equipment, monitoring stations and human talent for the generation of scientific information that contributes to decision making for the improvement of the quality, conservation and sustainable use of marine-coastal natural resources of national interest. This will allow for the formulation of policies and plans to promote their rational use and increase capacities.

Colombia is almost 50% sea. As a mega-diverse, multi-ethnic and multicultural country, with developing knowledge and without proper appreciation of its two great maritime borders, Colombia has based the well-being and future of its people on nature. Wetlands, mangroves, and coral reefs are critical ecosystems in Colombia to mitigate the effects of climate change and extreme events. The loss of these ecosystems increases the vulnerability to flooding of people with lower incomes. Numerous species of animals and plants have disappeared, others are in critical condition, and the degradation of ecosystems is threatening others due to legal and illegal anthropic diseases. Despite the seriousness of the situation, only the actual loss of a tiny fraction of some groups of animals and plants has been evaluated, without precise knowledge of the losses in ecosystems, genes, and functions, information required to implement measures conservation. Therefore, Scientific knowledge of the ocean is a priority.

II. Status and trends

One of the difficulties for developing countries for the fulfillment of proposed goals and development of research activities for the generation of new knowledge of the marine and coastal environments is associated with the access gaps in terms of science and technology (Alexander et al., 2020). This includes not only research vessels, underwater vehicles and oceanic instruments, but also all kinds of specialized and knowledge-based materials. Ensuring access to marine technologies is fundamental to increase the capacity to generate

scientific information that can provide the necessary information for decision-making (Polejack & Coelho, 2021).

In the framework of achieving the targets proposed in SDG 14, governments have articulated with the different institutions in charge of generating information inputs for decision making by allocating resources for research in the field of marine technology. However, it is necessary to increase capacity in terms of local technology development and equipment maintenance capabilities to reduce the gaps in terms of operational and institutional capacity, and it is necessary to strengthen international cooperation mechanisms in research and transfer of marine technology (Harden-Davies, 2016).

Example: the case of Colombia

In Colombia, the events with the highest occurrence producing the most significant number of people affected are floods. The loss of wetlands aggravates this situation. Around 24% of the areas of the country with wetland characteristics have transformed in the last ten years. Coral reefs mitigate coastal erosion between 55% and 94% and can attenuate wave height between 85% and 92%. Coral reefs and adjacent ecosystems, such as seagrasses and mangroves, protect the coasts from erosion and extreme weather events such as storms, hurricanes, tsunamis, and sea-level rise.

In the status of 400 species of fish evaluated in the red books of Colombia, both freshwater and marine, habitat loss is the primary driver of biodiversity loss of the groups that inhabit them.

Colombian coastal zone 2016-2100 climate change scenarios based on representative changes in the concentration of emissions indicate that by 2100 about 35.3% of the corals would be exposed to sea temperatures above 28.9°C.

For seagrasses, the increase in sea temperature has fewer implications than for corals. By 2100 approximately 7% of the seagrasses areas would have a level of exposure to temperatures above 30°C and would begin to show thermal stress. Global models show a possible increase for the country's marine area regarding marine acidification. However, the models are very general. The country lacks detailed information to measure acidification at the local scale and therefore requires considerable investment to assess the impacts at a more detailed scale.

In Colombia, knowledge of the sea's biodiversity has concentrated in shallow systems. Biological invasions significantly impact ecosystem integrity. The introduction of aquatic predators such as the lionfish (Pterois volitans) detected for the first time at the end of 2008 in the Colombian Caribbean has resulted in the loss or decrease of populations of species native reefs and the alteration of the natural food web. The invasion by lionfish can result in losing 80% of fish species within a reef. This species is the fastest and worst documented marine invasion caused by a fish in history, with a calculated average density of 397 lionfish per hectare in the coral areas.

III. Challenges and opportunities

Gaps identified in the area relevant to the topic of this IPWG:

- Strengthen channels to ensure the transfer of marine technology and capacity building, without which marine sciences cannot progress globally as expected. The difficulties generated at the cost level in the development of research projects due to local currency financing, subject to high fluctuating exchange rates. Equipment acquisition and maintenance processes must be carried out with companies from first world countries, generating high costs and a significant gap to strengthen research capabilities under international standards.
- Measures/interventions should be promoted to fill existing gaps and to assist Member States in scaling up ocean action based on science and innovation in relation to the topic of this theme
- Efforts should be made to effectively implement a technology transfer mechanism and promote the development of local technology, as well as supporting the development of technical capabilities in terms of technological development of instrumentation, maintenance and calibration of equipment according to international standards, in order to achieve the appropriation and institutional strengthening in the short and long term.
- The most significant challenge for local government is reconciling different units of analysis, objectives, approaches, and guidelines derived from marine territorial environmental planning instruments. They must address the environmental determinants established to develop their marine spatial planning processes.
- Countries lack detailed information to measure acidification at the local scale and therefore requires considerable investment to assess the impacts at a more detailed scale.
- Despite recent advances, explorations in deep areas are not enough to fill our most significant knowledge gaps due to their high costs and advanced technology requirements. Another gap detected is the lack of taxonomic expertise for the study of several smaller groups.
- Our knowledge gap about the oceans is vast, despite its crucial role as a source of natural food resources, raw materials, energy resources; as a climatic regulator, producer of most of the oxygen, and from the socio-economic point of view as a provider of wealth, development and support of economic activities for humans.
- In marine-coastal environments, the need for a social approach to restoration is emphasized, considering that these ecosystems are socially and ecologically complex systems that allow the effective intervention of different decision-makers.
- It is necessary to strengthen and develop conceptual and practical governance and management models that favor restoration actions. It is a priority to update and train public servants who generate policies and regulations and authorities in the environmental sector and control agencies on the conceptualization and establishment of procedures for the comprehensive management of biodiversity and its ecosystem services and the protection of biocultural diversity.

IV. Existing partnerships

Following international initiatives such as the Global Ocean Alliance, a 71 country strong alliance led by the UK, many countries have made an ambitious commitments to declare 30 percent of its territory a protected area by 2030.

V. Possible areas for new partnerships (1200 words)

International cooperation on technology transfer and appropriation between North American and European oceanographic equipment manufacturing companies and marine research institutes in developing countries in order to build capacity and establish technology appropriation mechanisms.

Participation of developing countries in international decision-making scenarios such as the Council of Managers of National Antarctic Programs (COMNAP) and the Scientific Committee on Antarctic Research (SCAR), present a great possibility for the development of alliances to strengthen coordination processes, mechanisms for structuring projects and lines of research, as well as for strengthening ff the technical and operational capabilities within the framework of the scientific expeditions.

VI. Conclusions and recommendations

Many challenges can be identified, especially in terms of generating a sense of ownership of the oceans by countries. For this reason, the strengthening of marine research capacities must go hand in hand with the fulfillment of the other Sustainable Development Goals (SDGs), especially the SDGs 14, so that the resulting information is useful to decision-makers and not only in the scientific community. To this end, beyond the desire to generate new information, there must be an approach and initiatives that seek to analyze existing data in a holistic manner, to generate information with greater potential for the management and protection of the oceans. Also, strategies should focus on continuing to monitor marine groups already evaluated to stop the loss trend, to broaden knowledge of the threat status of more biological groups, and to going both to the scientific understanding and to the traditional knowledge of the communities that inhabit the world's many regions.

VII. Key questions for the dialogue at the 2022 UN Ocean Conference

- How to encourage schools to include, in a formal and creative way, marine scientific research from the first levels of education?
- What strategies can be implemented to promote the application of scientific results in different areas of knowledge?
- How to link technological and social development in the promotion of the next generation of ocean science researchers?
- How to promote the development and funding of citizen science programs focused on ocean science?
- Beyond the importance of continuing to generate scientific information, how do we ensure that it is used in a comprehensive and consolidated way for decision-making?
- Additionally, a deficit is identified in the assessment of the contributions to the well-being of this type of ecosystem. Specifically, it is essential to investigate change scenarios over time in marine and terrestrial socio-ecological systems. It is required to know about dynamics, attributes, properties, and interactions between both

systems - social and ecological - to support land planning exercises and evaluate the possible effect of conservation instruments

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