THE QUARTERLY CATCH

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SETTING SAIL FOR SUSTAINABLE SEAS

Unveiling Captivating Articles on Belize's High Seas Fisheries

I am delighted to introduce our first newsletter article for 2024. It is with great pleasure that I share this exciting piece with you, as we embark on a journey to bring you more intriguing topics and vital information.

Our primary objective is to keep you well-informed about the latest developments in Belize and the BHSFU. As an organization dedicated to sustainable high seas fisheries management, we believe in transparency and open communication. Through this newsletter, we aim to keep you abreast of our ongoing efforts and the progress we are making towards our goals.

In the coming months, we will be exploring a range of captivating topics that delve into the intricacies of high seas fisheries management. Our team will look at into pressing issues, innovative solutions, and the challenges we face as we strive for sustainability. We want to spark your curiosity, ignite meaningful discussions, and inspire action.

Our aim is to ensure the long-term viability of high seas fisheries, not only for the present but for future generations as well. By sharing our insights, experiences, and goals, we hope to strengthen the collective consciousness and foster global commitment to responsible fishing practices.

As we embark on this journey, I invite you to actively engage with us. Share your thoughts, questions, and suggestions. Let us know what topics you would like us to explore and any specific areas of interest you may have. Your input is valuable to us, and we strive to create content that is both informative and relevant.

In conclusion, I am thrilled to kickstart the year with this newsletter and the promise of more captivating articles to come. Together let us embark on this voyage of knowledge, understanding, and sustainable high seas fisheries management.

Thank you for your continued support and readership.

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SICA-OSPESCA Framework for Integration & Regional Cooperation

By: Robert Robinson – Deputy Director

The Central American Integration System (SICA) was established in 1991 to promote peace, democracy, and economic development in the region. SICA's membership includes Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. The Organization of Fisheries and Aquaculture of the Central American Isthmus (OSPESCA) is a specialized agency within SICA which was created in 1992 with the objective of promoting sustainable development of fisheries and aquaculture, conservation of marine resources, and cooperation among member states in the region.

The cooperation amongst SICA Member States in the fisheries sector under the framework of OSPESCA involves several key aspects including policy coordination, technical assistance, research and data sharing, and regional cooperation. OSPESCA held its first technical meeting for 2024 in Panama City, Panama from February 26-28 which focused on strategic planning and priority areas in several Regional Fisheries Management Organizations.

The Central American Countries, in the framework of OSPESCA, has made significant progress in joining our efforts to analyse scientific data, participate in multilateral negotiations, and contribute meaningfully to the management and scientific processes of the RFMOs. The region has also taken the initiative to consult with its

international stakeholders including, inter alia, the United States (USA), the European Union (EU), and West African States in the framework of the Ministerial Conference on Fisheries Cooperation among African States bordering the Atlantic Ocean (CONHAFAT/ATLAFCO). While small delegations are often disadvantaged by their lack of human resources, our participation as a Region serves to reduce the workload for each delegation and streamline our position in advance of RFMO meetings. This coordinated effort strengthens our regional position in the international arena and optimizes the decision-making process at the RFMO level.

Generally, the SICA-OSPESCA framework for fisheries cooperation represents a coordinated approach to address the challenges facing the fisheries sector in Central America, both domestically and internationally. As it aims to promote sustainable development, conservation of marine resources, and regional integration, its efforts will undoubtedly enhance the fisheries profile of its Member States and improve the level of participation in high seas fisheries resources, thereby aiding in their economic development.

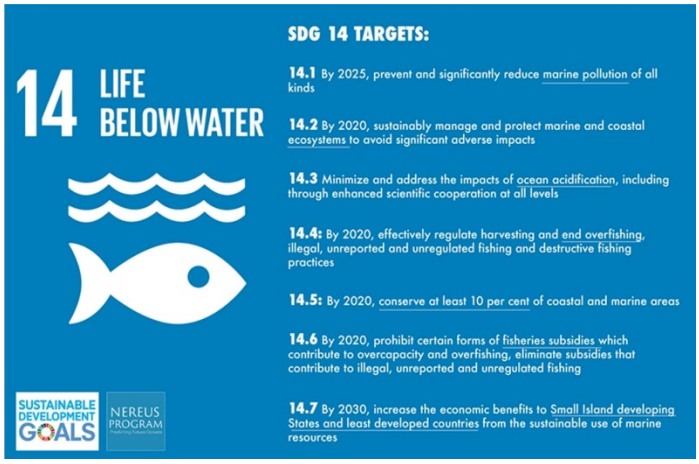
A Closer Look at the United Nations Sustainable Development Goal 14: Life Below Water

By: Delice Pinkard – Compliance and Enforcement Manager

The United Nations' 2030 Agenda for Sustainable Development outlines seventeen sustainable development goals (SDGs) to address global challenges such as poverty, hunger, climate change, and promoting peace and prosperity. SDG 14, which focuses on the preservation of life below water, addresses five key threats to the ocean: coastal eutrophication, ocean acidification, ocean warming, plastic pollution, and overfishing. These threats have proven to be highly detrimental to marine ecosystems, leading to negative consequences such as coral bleaching, fish kills, increased marine mammal mortality, and risks to human health.

Ocean acidification is caused by the absorption of increased levels of carbon dioxide from human activities into the water, leading to a decrease in pH levels, making the oceans more acidic. Ocean warming is closely linked to acidification, as rising sea temperatures impact entire ecosystems. Plastic pollution is another pressing concern, with approximately 23 million tonnes of plastic entering the ocean each year. Effective management of plastic waste is crucial, and there is a need to encourage the adoption of more environmentally friendly alternatives.

Overfishing poses a significant threat to marine ecosystems, as billions of people depend on the ocean as a vital food source. The depletion of fish stocks due to excessive fishing hampers their ability to replenish at a normal rate, putting one-third of species at risk of extinction. Addressing these challenges requires concerted efforts to protect and restore the health of our oceans, implementing sustainable practices, improving waste management, and promoting the adoption of greener alternatives.



Belize, a proud member of the United Nations, has demonstrated its commitment to addressing environmental challenges by adopting an implementation strategy and action plan aimed at phasing out the use of plastics and styrofoam, opting instead for environmentally friendly alternatives. Belize actively participates in the Conference of Parties (COP) of the United Nations Framework Convention on Climate Change, engaging in crucial discussions and actions aimed at enhancing climate resilience and adaptation.

To combat overfishing, Belize's High Seas Fisheries Unit is strengthening its monitoring, control, and surveillance mechanisms by implementing electronic monitoring systems in conjunction with human observers. By engaging with international fisheries organizations, Belize contributes to global efforts to combat overfishing and promote sustainable fisheries practices.

The United Nations 2030 Agenda for Sustainable Development provides a roadmap for countries to collectively address various issues and work towards a more sustainable future. Several upcoming meetings have been scheduled to discuss and advance progress on the SDGs, providing opportunities for countries to share experiences, learn from one another, and collaborate to advance the SDGs.

https://sdgs.un.org/conferences/ocean2025

Communities of Ocean Action Principals Meeting (1-3 Oct 2024)

https://sdgs.un.org/events/communities-ocean-action-principals-meeting-54932

Civil Society Forum – SIDS4 (29 May 2024)

https://sdgs.un.org/events/sids4csoforum

4th International Conference on Small Island Developing States (27-30 May 2024)

https://sdgs.un.org/conferences/sids2024

BHSFU Participates in the 12th Annual SPRFMO Meeting

By: Ernie Howe – Fisheries Officer

The 12th Annual Meeting of the South Pacific Regional Fisheries Management Organization (SPRFMO) took place in Manta, Ecuador from January 23rd to February 2nd, 2024. Belize proudly participated as a full member of this esteemed organization. SPRFMO is committed to fostering collaboration among its contracting parties to develop and implement effective conservation and management measures. These measures aim to safeguard the fish stock in the South Pacific region, combat illegal, unregulated, and unreported fishing activities, and promote sustainable fishing practices. The organization also prioritizes scientific research to enhance understanding of the fish stock's status, providing valuable insights to inform the commission's decision-making process. Ultimately, SPRFMO's overarching objective is to ensure the long-term viability of fisheries resources in the region, benefiting both present and future generations.

The 12th Annual Meeting of SPRFMO saw the adoption of several crucial decisions and conservation measures aimed at ensuring the long-term sustainability of South Pacific fish stocks. Existing Conservation Management measures were amended through 9 key changes, and various important decisions were made. One significant outcome was the establishment of a new allocation criterion for Jack Mackerel.

Additionally, the Salas y Gomez and Nazca ridges were designated as protected areas, contributing to the global goal of achieving 30% marine protected areas on the high seas. These ridges are vital habitats for diverse marine species such as whales, sea turtles, sharks, jack mackerel, deep-water corals, and shallow corals. The commission also recognized the importance of electronic monitoring and decided to explore its use in the Jumbo Flying Squid fishery. This technology would greatly benefit scientific research, biological sampling, and monitoring efforts related to this species.

Furthermore, labour standards and climate change were acknowledged as essential components within SPRFMO and received full endorsement from all members. These topics hold significant importance in ensuring sustainable fisheries management. Lastly, the appointment of a new scientific chair and vice chair from Peru and Chile, respectively, further strengthens the expertise and involvement of these key players within the SPRFMO convention area.

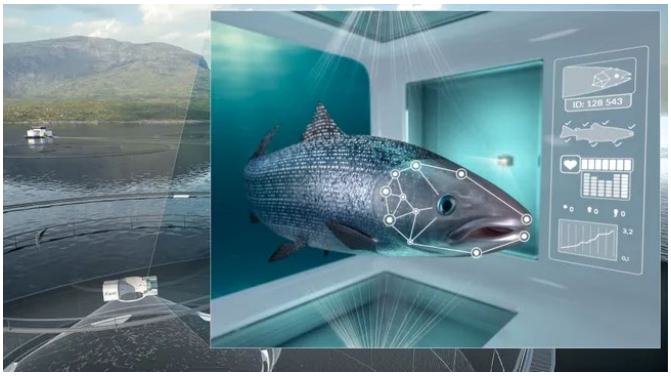
Participating in these RFMO meetings offers numerous advantages, both on a personal level and for the Belize High Seas Fisheries Unit as an organization. These gatherings enable us to enhance our knowledge and capabilities in fisheries management and ongoing research in the field. Moreover, we can share our experiences as a management authority with our counterparts from various countries and organizations who attend these meetings.

As a member of the commission, Belize has benefited from the newly established allocation criteria for Jack Mackerel. This has resulted in an increased quota allocation, providing financial benefits for the Government of Belize. However, due to the assigned quota of Jack Mackerel, we are unable to introduce fishing vessels in the convention area. Furthermore, the commission's recent decision to protect areas on the high seas, such as the Salas y Gomez and Nazca Ridges, positions Belize as a role model for other countries. Our contribution to the preservation of the marine environment through our marine reserves and natural parks serves as a testament to our commitment to environmental protection.

Leveraging AI for Effective Fisheries Management

By: Ian Constantino – Monitoring Officer

The integration of artificial intelligence (AI) into fisheries management holds great promise for enhancing our understanding of marine ecosystems, optimizing fishing practices, and promoting sustainable fisheries for future generations. AI can collect and analyse vast amounts of data quickly and accurately, enabling informed decisions regarding fishing quotas, protected areas, and conservation efforts. It can also enhance monitoring and enforcement of illegal, unreported, and unregulated (IUU) fishing, reducing strain on fish stocks and preserving marine ecosystems.



AI can revolutionize the way we approach fishing operations by analyzing historical data on fishing patterns, oceanographic conditions, and fish behavior. This can lead to increased catch efficiency, reduced resource wastage, and enhanced sustainability in fishing operations. AI powered predictive modeling allows us to

anticipate changes in marine ecosystems, enabling proactive management strategies. By integrating data on climate patterns, ocean currents, and fish stock dynamics, AI algorithms can generate accurate predictions of future ecosystem trends, which inform policymakers and fisheries managers in implementing adaptive management practices, adjusting fishing quotas, and taking proactive conservation measures.

AI algorithms can also be employed to analyse the vast amounts of data collected by Electronic Monitoring Systems (EMS), automatically detecting and classifying different species, estimating fish size, and identifying prohibited or protected species. This streamlines data analysis, reduces human error, and makes more informed decisions regarding resource allocation and conservation measures.

The integration of EMS and AI also holds promise in addressing bycatch, which refers to the unintentional capture of non-target species. By analysing video footage and data from EMS, AI algorithms can identify and quantify instances of bycatch, enabling fisheries managers to implement measures to minimize its occurrence. This proactive approach contributes to biodiversity conservation, promotes sustainable fishing practices, and reduces unnecessary waste in marine ecosystems.

However, while AI offers significant potential, it is crucial to address challenges and ethical considerations. Transparency, accountability, and responsible use of AI technologies should be central to the implementation of AI in fisheries management. Through responsible and thoughtful implementation, AI can serve as a powerful tool to safeguard our oceans and ensure the long-term viability of fisheries for generations to come.

Belize celebrates Historic Ratification of Ocean Biodiversity Agreement

Belize has become the first Caribbean nation to ratify the BBNJ Agreement, a crucial ocean biodiversity agreement under the United Nations Convention on the Law of the Sea. The agreement aims to conserve and sustain marine biodiversity in areas beyond national jurisdiction. The agreement's successful implementation is crucial for the global commitment to protect 30% of the ocean by 2030. Belize's ratification sets a positive example for the Caribbean region, and the nation is working with other Caribbean Community member states to raise awareness and promote regional participation. A workshop is scheduled for April 11 to 12, 2024, and Belize plans to host a broader Caribbean workshop on BBNJ later in the year.

The Science Corner

By: Charles Coc – Fisheries Scientist and Data Officer

Shark Chronicles: Unveiling New Species and Rare Births

Cartilaginous fishes such as sharks, have been around for over 400 million years. The exact origin of sharks is not easy to determine, due to lack of fossils, as their skeletons consisting of cartilage rather than bone. It is intriguing to note that modern sharks are estimated to have emerged during the mid-Cretaceous period, predating dinosaurs, and remarkably survived the mass extinction at the end of the Cretaceous era (Cole & Currie, 2007). Following over 400 million years of evolution, cartilaginous fishes stand as one of the oldest surviving vertebrate groups. In this article, we explore two recent discoveries in the realm of sharks: the unveiling of two new fossil species and the rare birth of a great white shark.

To start, the National Park Service reported a recent excavation in Kentucky and Alabama that led to the discovery of shark fossils and the identification of two previously unknown species. Fossils collected at Mammoth Cave and in northern Alabama enabled scientists to confirm the existence of the shark species *Troglocladodus trimblei* and *Glikmanius careforum*, shedding new light on the history of these incredible creatures (see figure 1). This discovery significantly contributes to our understanding of the evolution of sharks.

Figure 1: Identification of Shark Species *T. trimblei* and *g. careforum*

The second striking discovery was the rare sighting of a newborn white shark (refer to figure 2). This captivating event has fascinated scientists and shark enthusiasts alike. Despite being one of the most iconic sharks, with substantial interest from both the scientific community and the public, significant knowledge gaps persist in white shark life history, particularly regarding breeding and newborns (Gauna & Sternes, 2024). The mystery of where white sharks gives birth and the scarcity of observations of very young white sharks underscore the significance of the sighting of this newborn, further emphasizing the need to protect these endangered species.

Figure 2: Images of White Shark with a white film covering its body observed 0.4 km off the coast of Carpinteria, CA USA (Photo Credits: Carlos Gauna)

To conclude, these recent discoveries and the exceptional sighting of the newborn white shark highlight the ongoing importance of studying and safeguarding these ancient creatures. As we continue to unravel the mysteries surrounding sharks and their evolutionary history, it becomes clear that preserving their habitats and promoting conservation efforts is vital for their survival.

Reference

Cole, N., & Currie, P. (2007). Insights from sharks: Evolutionary and developmental models of fin development. *Developmental Dynamics*, *236*(9), 2421–2431. https://doi.org/10.1002/dvdy.21268

Gauna, C., & Sternes, P. (2024). Novel aerial observations of a possible newborn white shark (Carcharodon carcharias) in Southern California. *Environmental Biology of Fishes*, *0123456789*. https://doi.org/10.1007/s10641-024-01512-7