

Sailing Towards Maritime Excellence: Belize's Delegation Shines at Prestigious Posidonia Maritime Exhibition



We are thrilled to share with you the remarkable highlights of our recent participation in the prestigious Posidonia Maritime Exhibition held in Athens, Greece, from the 3rd to the 7th of June 2024. This momentous event marked a significant milestone for the Belize High Seas Fisheries Unit (BHSFU), as it was our inaugural presence at such a renowned gathering. The exhibition presented us with a valuable opportunity to reconnect with our esteemed deputy registrars, forge new connections with potential clients and stakeholders, and engage in fruitful networking.

Engaging with industry representatives and participating in enlightening discussions allowed us to stay abreast of the latest developments. This knowledge will prove invaluable as we continuously strive to enhance our services and adapt to the evolving needs of the dynamic fishing and maritime industry.

A highlight of our participation was the announcement of our proactive pursuit to digitize issuance of certificates, not only within the fishing domain but across the entire Registry. This visionary initiative received an overwhelmingly positive response from our esteemed deputy registrars and stakeholders. Their enthusiasm for this significant development reaffirms our commitment to aligning ourselves with the top registries in the maritime sector, fortifying our position as a forward-thinking and innovative authority in the industry

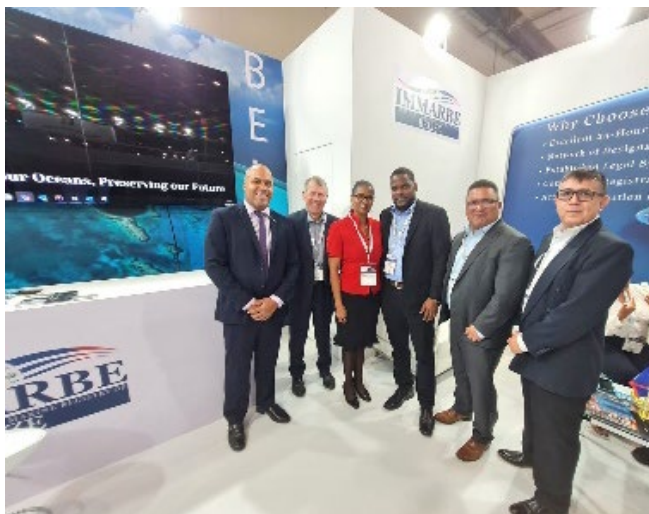
Furthermore, we were introduced to new and innovative vessel monitoring equipment and platforms that have recently entered the market. These cutting-edge platforms offer not only cost-effective solutions but also meet the requirements of the most discerning vessel monitoring platforms. Exploring these emerging options presents us with an exciting opportunity to



enhance the reliability and sophistication of our monitoring solutions, ensuring that we remain at the forefront of monitoring technologies.



We are immensely grateful for the opportunity to participate in this remarkable exhibition, alongside our esteemed sister organizations such as the International Merchant Marine Registry of Belize (IMMARBE), The Belize Companies and Corporate Affairs Registry (BCCAR), the Financial Services Commission (FSC) and Finance Belize, marking the first time an entire delegation from Belize partook in such an event.



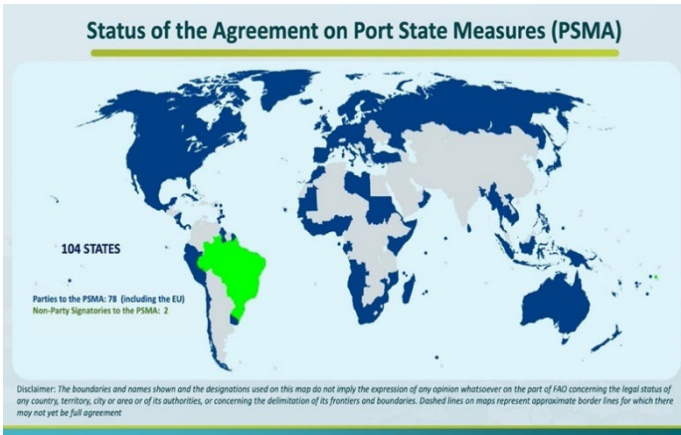
The valuable feedback and guidance we received during our participation will undoubtedly contribute to expanding our business, addressing industry concerns, and positioning us as a reliable and attractive option for vessel registration.

We extend our heartfelt appreciation to all our deputy registrars and stakeholders who joined us in networking and supporting our endeavours. Your unwavering support is instrumental as we forge ahead towards a brighter future for both IMMARBE and the Belize High Seas Fisheries Unit.



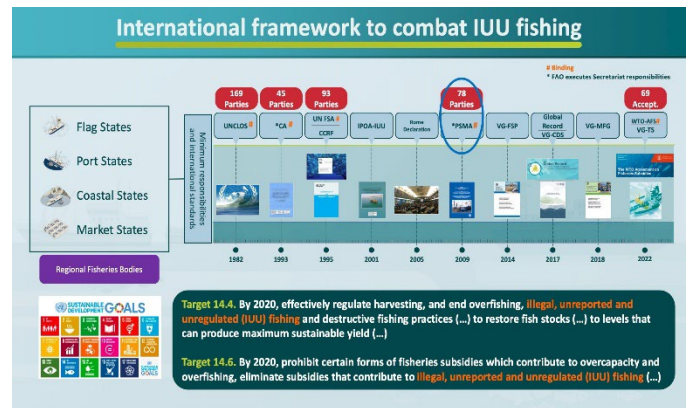
PSMA – Combatting IUU Fishing

By: Robert Robinson – Deputy Director



The Port State Measures Agreement (PSMA) is the first binding international agreement to specifically target illegal, unreported and unregulated (IUU) fishing. Its primary objective is to prevent, deter and eliminate IUU fishing by preventing vessels engaged in IUU fishing from using ports and landing their catches. In this way, the PSMA reduces the incentive of such vessels to continue to operate while simultaneously blocking fishery products derived from IUU fishing from reaching national and international markets. The PSMA was adopted on 22 November 2009 and entered into force in June 2016 after its twenty-fifth ratification. It currently has 78 Parties representing 104 countries across the globe. In the Caribbean, Belize is one of four CARICOM countries that are not yet Parties to the Agreement; however, it is still obliged to implement the provisions of the Agreement when its vessels call to ports of coastal States that are Parties to the Agreement. The PSMA joins the United Nations Convention on the Law of the Sea (UNCLOS), the United Nations Compliance Agreement, and the United Nations Fish Stocks Agreement (UNFSA) to form the international legal framework to combat IUU fishing.

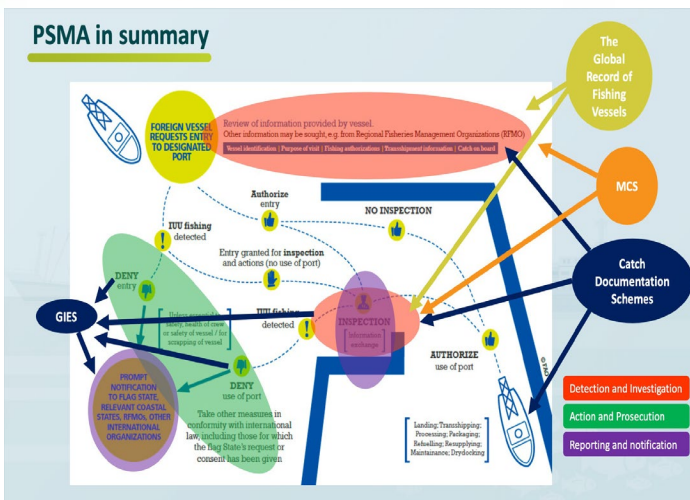
It focuses on strengthening port controls by requiring member countries to implement certain measures when foreign vessels seek access to their ports. These measures include inspections of vessels, monitoring of landings and transshipments, exchange of information between countries, and denying port entry to vessels suspected of engaging in IUU fishing activities. By targeting ports as points of control, the PSMA aims to disrupt the activities of IUU fishing vessels by denying them access to markets and other essential services, ultimately reducing the profitability of illegal fishing operations. This, in turn, helps to conserve fish stocks, protect marine ecosystems, and promote sustainable fisheries management.



The PSMA fosters international cooperation and strengthens the overall governance framework for global fisheries. State Parties to the Agreement commit to a collaborative approach in combating IUU fishing, sharing information, and harmonizing measures across borders. This collective action is essential for addressing the transnational nature of IUU fishing, which often involves vessels operating across multiple jurisdictions.



PSMA in summary



The Benefits of a Marine Spatial Plan Created for Belize's EEZ

By: Delice Pinkard – Compliance and Enforcement Manager

UNESCO defines a Marine Spatial Plan (MSP) as a strategic approach to analyzing and allocating the spatial and temporal distribution of human activities in marine areas. The primary objective of an MSP is to achieve socio-economic and ecological goals through a thoughtful and inclusive political process.

Belize, a Central American country, has taken significant steps towards marine conservation by signing a Blue Bond debt conversion agreement with the Government and The Nature Conservancy (TNC). This agreement has not only allowed Belize to reduce its debt but has also strengthened its commitment to preserving marine ecosystems.

As the PSMA moves toward becoming globally ratified, it is important for Belize and all other States that have not yet ratified this Agreement to do so. Its standardized procedures and information-sharing mechanisms enhance transparency and accountability in the fishing sector thereby contributing to a more sustainable and equitable global fishing industry. This is a pivotal step towards ensuring the long-term viability of ocean ecosystems and the communities that depend on them.



Multi-Stakeholder Marine Spatial Plan Workshop (May 8-12, 2024)



One of the key objectives outlined in this agreement is the establishment of a Marine Spatial Plan that promotes stakeholder engagement and ensures inclusivity. The plan will encompass six crucial sectors, namely Fisheries, Coastal Development, Tourism, Ports and Shipping, Mariculture/Aquaculture, and Renewable Energy.

The creation of this MSP is expected to propel Belize towards achieving the milestone goals set forth in the Blue Bond agreement. By November 2026, the plan is projected to be signed into law, designating Biodiversity Zones covering up to 30% of Belize's Ocean Space. Subsequently, within one year, legally enforceable management plans for these protected zones will be implemented. Belize anticipates that the MSP will foster transparent and equitable utilization of its marine space, ensuring sustainable benefits for all Belizeans and future generations.

By implementing a Marine Spatial Plan, Belize aims to strike a balance between economic development and environmental conservation. The plan's comprehensive approach will enable effective management and protection of marine resources, safeguarding biodiversity and promoting sustainable growth. Through inclusive stakeholder engagement, Belize is paving the way for a transparent and participatory process that will guide the long-term sustainable development of its Exclusive Economic Zone.

References:

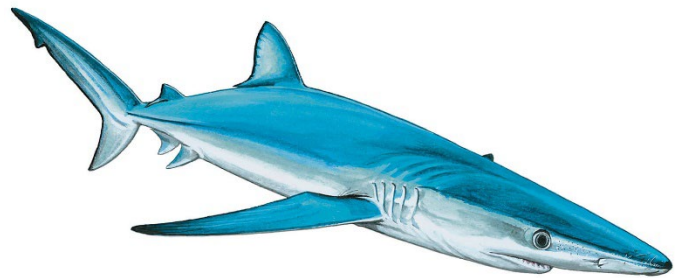
Belize Sustainable Ocean Plan (BSOP). (n.d.). Retrieved June 30, 2024, from bsop.coastalzonebelize.org

UNESCO-IOC. (2021). Marine Spatial Planning. Retrieved June 30, 2024, from UNESCO.

NDF's for CITES Species Listed on Appendix II Taken from ABNJ

By: Ernie Howe – Fisheries Officer

Following a technical meeting held on April 25th and 26th, 2024 in Geneva, Switzerland, by CITES, Mr. Mauro Gongora, representing the Belize Fisheries Department, participated as Belize's Management Authority for CITES. The meeting gathered Parties, government agencies and stakeholders to share their experiences in preparing Non-Detrimental Findings (NDFs) for CITES Appendix II listed species obtained from Areas Beyond National Jurisdiction (ABNJ). An NDF is a scientific analysis determining whether the continued harvest and export of a specified quantity of specimens of CITES-listed species will impact its population.



The BHSFU submitted an eNDF for the Atlantic Blue Shark (Prionace glauca)

Currently, members of CITES are facing challenges when developing NDFs to issue permits and certificates. These are required to authorize an "Introduction from the Sea" or an export/import of CITES listed species taken from ABNJ. An "Introduction from the Sea" is the transportation of any species into a State where those species were taken in the marine environment not under the jurisdiction of any state.



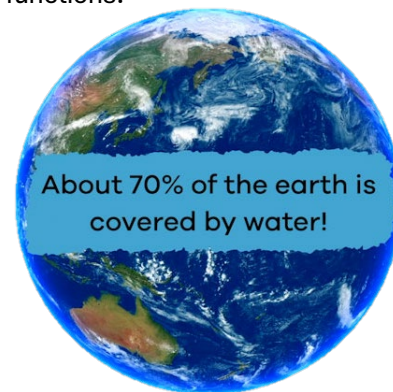
Moreover, various challenges arise in harvesting CITES-listed species on the high seas. Many aquatic species in Appendix II are migratory or straddling stocks, leading to multiple parties harvesting and trading the same populations within Exclusive Economic Zones (EEZs) and from ABNJ. For example, the International Commission for the Conservation of Atlantic Tunas (ICCAT) has over 50 members involved in harvesting CITES-listed oceanic sharks and rays. Following capture, these species are either transshipped, introduced from the sea, or landed in a third country. It is essential for government and scientific bodies preparing NDFs to consider pressure on the stock beyond national jurisdiction, with regional fisheries bodies playing a key role in implementing CITES regulations for commercially fished aquatic species.

Post-meeting, recommendations were submitted to the CITES Secretariat for consideration at the Animals Committee meeting scheduled for July 2024, in Geneva, Switzerland. Proposed recommendations include conducting NDFs at a stock level if different stocks exist for species like sharks or rays, ensuring collaboration between Fisheries management and CITES authorities on ABNJ-related issues, collaborating with Regional Fisheries Bodies (RFBs) and Regional Fisheries Management Organizations (RFMOs) for data, and adopting a regional approach to uphold CITES requirements consistently across all parties.

From Coastal Waters to the High Seas: Decoding the Types of Maritime Zones and their Functions

By: Ian Constantino – Monitoring Officer

One of the most obvious differences between marine zones and land is the vastness of the ocean compared to the limited expanse of land. The ocean covers more than 70% of the Earth's surface, making it the largest ecosystem on the planet. In contrast, land makes up the remaining 29.2% of the earth's surface, with its own varied landscapes and ecosystems. This article focuses on the various maritime zones associated with the oceans and their main functions.



To start, the 1982 United Nations Convention on the Law of the Sea (UNCLOS), also known as Law of the Sea, divides marine areas into five main zones, namely - internal waters, territorial sea, contiguous zone, exclusive economic zone (EEZ), and the high seas. These zones aid to establish a framework for the rights and responsibilities of coastal states, as well as to regulate the various activities such as navigation, fishing, and resource exploitation.

These zones exist in relation to a baseline which is the boundary that delineates the international waters and the territorial sea; and establishes the origin from which all maritime zones are measured.



Internal waters are zones located on the landward side of the baseline or within the boundaries established by archipelagic States for the delimitation of internal waters. Each coastal state has full sovereignty over these waters like its land territory including the right to regulate and enforce laws as necessary. Examples of these types of waters include bays, ports, inlets, rivers, and even lakes that are connected to the sea. There is no right of innocent passage within these zones.

Furthermore, the territorial sea extends seaward up to 12 nautical miles (nm) from its baselines. 1 NM can be converted to 1.1508 land miles or 1.85 KM which is also equivalent to one minute of latitude.

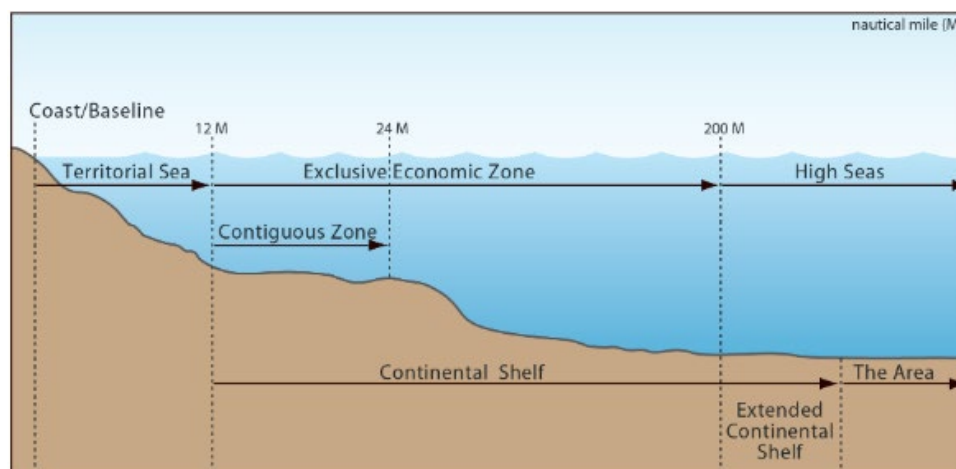
Here in Belize, as in the many other coastal states, we possess sovereignty and jurisdiction over the territorial seas in which our various and abundant marine reserves and protected areas at sea are located. These rights extend not only to the ocean surface but also to the seabed, subsoil, and even the airspace above; however, the rights of the coastal state are limited to innocent passage.

The contiguous zone is adjacent to the territorial sea and may extend up to 24 nm from its baseline. In this zone,

States may exercise control to prevent or punish infringement of its customs, fiscal, immigration or sanitary laws and regulations. Unlike the previous zone, the contiguous zone only gives jurisdiction to a state on the ocean's surface and floor and does not provide any air or space rights.

The EEZ (Exclusive Economic Zone) extends up to 200 nautical miles from a country's coastline, granting the state exclusive rights to explore and exploit natural resources like fish, oil, and gas, and to manage fishing, research, and marine conservation. Established to enhance coastal states' control over their marine resources and prevent conflicts, the EEZ does not restrict freedom of navigation or overflight, except in limited cases.

The ocean surface and water column beyond the EEZ (Exclusive Economic Zone) are known as the high seas. This area is regarded as "the common heritage of all mankind" and falls outside any national jurisdiction. States can carry out activities for peaceful purposes here, including transit, marine science, and undersea exploration. Most industrial commercial fishing vessels operate in this zone.



Maritime Zones under International Law (Image credit: U.S. Department of State)



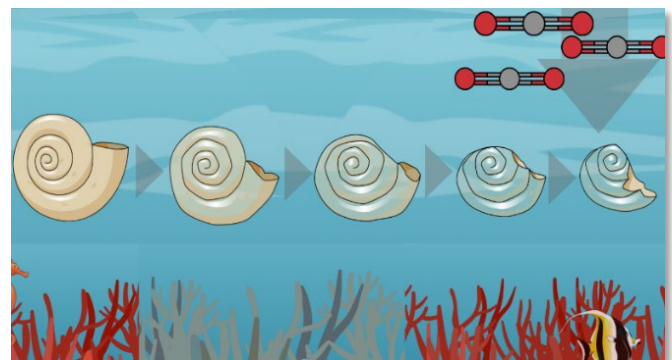
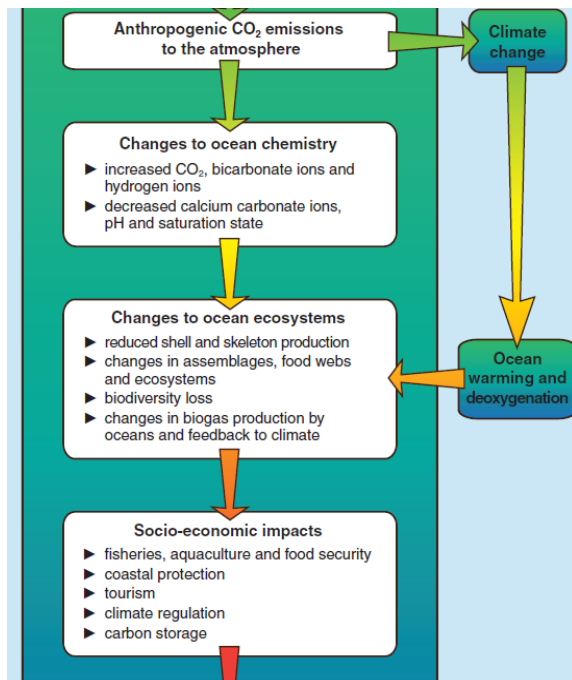
The Science Corner

By: Charles Coc – Fisheries Scientist & Data Officer

Ocean Acidification & Its Effects on Marine Species

Ocean acidification refers to the ongoing decrease in pH levels of the Earth's oceans, caused by the uptake of carbon dioxide (CO₂) from the atmosphere. The fundamental chemistry behind this process involves CO₂ dissolving in seawater, forming carbonic acid (H₂CO₃), which subsequently dissociates into bicarbonate (HCO₃⁻) and hydrogen ions (H⁺). The increase in hydrogen ions leads to lower pH levels, making the ocean more acidic. Historically, the pH of ocean surface waters has remained relatively stable, but industrial activities over the past two centuries have significantly altered this balance. Since the beginning of the industrial revolution, increased atmospheric CO₂ levels have led to a drop in ocean pH by about 0.1 units (Bromhead et al., 2014).

Although seemingly miniscule, it represents a 30% increase in acidity over a short period when compared to the last 300 million years, raising urgent concerns about its impact on marine life. Additionally, ocean acidification alters marine carbonate chemistry by causing a reduction in carbonate ions (CO₃²⁻). These ions are important for the formation of calcium carbonate (CaCO₃), which many marine organisms, including corals, mollusks, and some plankton use to construct their shells and skeletons. With decreasing carbonate ion concentrations, these organisms will find it difficult to maintain their structures, leading to weaker and more brittle shells.



Regarding fishes, acidification of marine waters can hamper their ability to transport oxygen causing increase CO₂ in the blood which can lead to decrease aerobic performance and endurance, which is concerning for fast-swimming species like tunas. Acidified conditions can also alter the functionality of neurotransmitters and sensory receptors, leading to impaired behaviors. This can affect predator-prey interactions and ultimately the survival and reproductive success of species like sharks.



Importantly, early life stages of marine organisms are particularly vulnerable to changes in pH levels. Acidified conditions can lead to developmental abnormalities, reduced growth rates, and higher mortality rates in fish larvae. For species such as tunas and sharks, which have longer life cycles and lower reproductive rates, these impacts can have significant repercussions on population dynamics and sustainability (Baag & Mandal, 2022).

To conclude, ocean acidification has wide-ranging impacts on various marine species crucial for both the economy and ecosystem.

References:

Baag, S., & Mandal, S. (2022). Combined effects of ocean warming and acidification on marine fish and shellfish: A molecule to ecosystem perspective. *Science of The Total Environment*, 802, 149807. <https://doi.org/10.1016/j.scitotenv.2021.149807>

Bromhead, D., Scholey, V., Nicol, S., Margulies, D., Wexler, J., Stein, M., Hoyle, S., Lennert-cody, C., Williamson, J., Havenhand, J., Ilyina, T., & Lehodey, P. (2014). The potential impact of ocean acidification upon eggs and larvae of yellowfin tuna (*Thunnus albacares*). *Deep Sea Research Part II: Tropical Studies in Oceanography*, 113, 268–279. <https://doi.org/10.1016/j.dsr2.2014.03.019>

Ocean Acidification

Y	C	A	T	A	I	T	T	I	T	R	N	A	M
T	D	N	A	I	I	T	T	O	A	E	E	Y	O
I	E	T	Y	T	E	O	O	N	Y	M	N	N	R
L	V	H	O	N	E	T	T	E	A	L	Y	I	T
I	E	R	M	A	R	I	N	E	L	I	F	E	A
B	L	O	C	E	A	N	S	Y	I	M	E	G	L
A	O	P	O	I	O	I	I	I	P	I	T	L	I
N	P	O	E	T	N	M	I	E	T	E	S	S	T
I	M	G	C	H	E	M	I	S	T	R	Y	I	Y
A	E	E	O	N	L	R	O	X	Y	G	E	N	R
T	N	N	E	I	N	F	I	S	H	E	A	T	A
S	T	I	N	C	Y	S	N	E	M	I	A	E	T
U	A	C	I	Y	R	O	S	N	E	S	A	E	E
S	L	E	S	E	M	I	S	S	I	O	N	S	E

MORTALITY RATE
 MARINE LIFE
 ANTHROPOGENIC
 CHEMISTRY
 DEVELOPMENTAL
 FISH
 SUSTAINABILITY
 OXYGEN
 OCEANS
 EMISSIONS
 SENSORY

