The United States Strategic interest and Naval involvement in Blue Economy

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The United States of America is a maritime country with a vast coastline and a rich history of economic growth via maritime activities. A source of vitality, prosperity, and collaboration, the waters of the world have become the nexus for countries around the globe as a way to expand their influence and grow their economic well-being. Between 2014 and 2018 the U.S. maritime related gross domestic product grew to $5.4 Trillion Dollars, equating to 26% of the national GDP.[1] However, many factors, such as population growth, climate change and pollution threaten future long-sustainable maritime operations. The U.S. is taking an active stance to counter these threats and ensure the continued well-being of the oceans around the world by participating in Blue Economy support programs.

What is Blue Economy

Blue Economy, while defined many ways, is generally understood to be the global commitment of environmental sustainability, economic growth and improved livelihood through ocean or ocean related activities. The United States National Strategy has always incorporated an aspect highlighting the importance of maritime security, freedom of navigation and rule-based law as these items are paramount to preserve U.S. prosperity. The Biden administration has taken active steps to incorporate Blue Economy into the United State's strategic vision both in the U.S. and internationally.

How is the U.S. helping with Blue Economy on an international scale?

Internationally, the U.S. sees incredible strength in the unification of multiple nations to focus intentions on mutually beneficial interests. The United States, the first non-ASEAN country to be allowed to name representatives to ASEAN, has leveraged the ASEAN friendship to support more than 20 projects in support of Blue Economy efforts. These efforts prioritize:

1) Combatting illegal, unreported, and unregulated fishing (IUUF)

[1] National Oceanic and Atmospheric Administration (NOAA) and U.S. Department of Commerce, *NOAA Blue Economy: Strategic Plan 2021-2025* (Washington, DC: GPO, January 2021), 3.

2) Climate Change and conservation of ecosystems
3) Maritime safety and security
4) Clean energy infrastructure[2]

The multiple projects reenforce the U.S.-ASEAN relationship and set the foundation for greater cooperation on blue economy initiatives in the future with ASEAN and other coalition groups. Additionally, as the U.S. continues to look to sea power as a primary pillar of economic growth and stability the expansion on blue economy efforts to south-east Asian partners opens the door for increased growth in trade and investment in one of the most important areas in the world due to population and economy. Lastly, in keeping with the 2021 ASEAN leaders' declaration on the blue economy, the U.S. has an opportunity to increase innovation and technology collaboration with ASEAN countries. Empowering the ASEAN community with the tools to protect their sovereign resources will help protect the U.S. commitment to rule-based ocean governance.[3] Overall, the U.S. recognizes the importance of international cooperation regarding blue economy and actively looks to increase partner nation involvement to achieve this vision.

How is the U.S. establishing Blue Economy initiatives domestically?

Nationally, Blue Economy initiatives are a significant contributor to the U.S. economy and plays a very important role in U.S. national strategy. Since the U.S. depends on the ocean for its prosperity ensuring longevity in maritime activities is significant. American's prosperity and security rely on the health and sustainment of their water resources. Some areas which are directly affected by Blue Economy are:

1) Jobs and Income: In 2018, 2.3 million jobs were supported by American Blue Economy.[4] Blue Economy supports several sectors of economic strength. For example, while conservation and reducing pollution is important to ensure healthy fish habitats for sustainable food, they also bring tourist to the shores of America who spend their money on food, hotels, and other goods and services.

[2] Leigh Hartman, "America's Enduring Partnership with ASEAN," *U.S. Mission to ASEAN*, originally published by shareamerica.gov, 14 May 2022. https://asean.usmission.gov/americas-enduring-partnership-with-asean/.
[3] Association of Southeast Asian Nations (ASEAN), "2021 ASEAN Leaders' Declaration on the Blue Economy," ASEAN.org, 26 October 2021. https://asean.org/asean-leaders-declaration-on-the-blue-economy/.
[4] NOAA, *NOAA Blue Economy: Strategic Plan 2021-2025,* 3.

2) Transportation and Trade: The conservation of American coast ways and waterways are critical junctions of infrastructure that support the movement of goods and resources throughout the country. As such, Blue Economy plays an important role in ensuring there are appropriate and necessary precautions to protect these vital pathways and ensure no disruption of goods or services. In the United States, Kentucky has the largest number of navigable waterways, consisting of more than 2,000 miles, which move 100 million tons of cargo each year. In total, the nations inland waterways move more than $229 billion of cargo annually.[5]
3) Economic Growth through Research and Innovation: The U.S. commitment of sustainment, development, and conservation has opened the door for substantial advancement and funding for research and innovation in the alternative ocean-based renewable energy utilizing a whole-of-government approach.[6] Several national strategy documents have been updated to reflect a high emphasis on Blue Economy involvement. For example, Executive Order 14008 brought together several leaders from federal, state, and tribal organizations to promote conservation: with the goal of conserving 30% of U.S. water and lands by 2030. Experts warn this is needed do stem off multiple crisis such as water and food contamination, carbon pollution and reduce the chance of future health emergencies.[7] Another example is the "National Strategy for Mapping, Exploring, and Characterizing the United States Exclusive Economic Zone" which outlines the Federal governments plan to support and advance the Blue Economy through the countries EEZ through the collaboration of both government and non-government entities with a common goal of better understanding the value and potential advantages of resources in the EEZ. The strategy outlines five specific goals, "designed to advance global leadership of the Unites States in ocean S&T

[5] Rep. James Comer, "Inland Waterways' role in Economic Prosperity," *Comer.house.gov,* 29 March 2018. https://comer.house.gov/2018/3/inland-waterways-role-economic-prosperity#:~:text=Nationwide%2C%20our%20inland%20waterways%20move,billion%20worth%20of%20cargo%20annually.

[6] Rachel Christopherson, "The White House Announces 'America's First-Ever Ocean Climate Action Plan,'" *Middlebury Institute of International Studies at Monterey*, 14 June 2022. https://www.middlebury.edu/institute/academics/centers-initiatives/center-blue-economy/cbe-news/white-house-announces-americas-first.

[7] U.S. Department of Interior et al., *Conserving and Restoring America the Beautiful* (Washington, DC: GPO, 2021), 10. *https*://www.doi.gov/sites/doi.gov/files/report-conserving-and-restoring-america-the-beautiful-2021.pdf.

(science and technology), unleash discovery and innovation within the ocean… to advance the Nation's economic, security, and environmental interest."[8]

4) Reduction in Pollution and Fighting Climate Change: While the increased levels of greenhouse gases have been studied for years, recently it has been discovered that the ocean also has been absorbing increased levels of CO2. According to recent studies the ocean has absorbed enough carbon dioxide to lower its pH by 0.1 units, a 30% increase in acidity.[9] While the complete affects of the change in pH Is not fully understood, there is concern about its ability to cause irreversible damage to fish hatcheries, ocean levels and species survival.

These established Blue Economy initiatives currently in place in the U.S. aim to secure economic growth, preserve vital waterways and resources, and reduce or eliminate pollutions negative effect on the environment. This is creating a strong foundation in sustainable economic development, however, there are still many factors hindering its further growth.

What are some factors that are hindering Blue Economy adoption domestically?

While the advancement of doctrine and multi-national collaboration is a significant move in the correct direction there are still many variables that must be managed and overcame prior to large scale adoption in the United States or globally. Some primary issues to overcome are:

1) Regulatory Complexity: The waters that make up the EEZ of the United States are highly regulated to ensure their protection. With the U.S. Government partnering with private sector companies to push innovation and technological advances, the regulatory obstacles required sometimes become complex. This can lead to a business losing interest or a loss of opportunity due to waiting on approvals
2) Funding Constraints: Today's advancements in technology are moving faster and becoming more superior than any other time in history. With so many ideas being pursued across a myriad of fields it limits the amount of money that can be focused specifically for Blue Economy initiatives. Partnering with private sector companies will help offset the limited resources available, but not overcome the barrier of funding without a large shift in monetary appropriations.

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[8] Ocean Science and Technology Subcommittee of the Ocean Policy Committee, *National Strategy for Mapping, Exploring, and Characterizing the United States Exclusive Economic Zone*, (Washington, DC: GPO, June 2020), 19.
[9] Rebecca Lindsey, "Climate Change: Atmospheric Carbon Dioxide," Climate.gov, 23 June 2022. https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide.

3) Environmental Concerns: The U.S. has a long history of marine and environmental conservation using federal protection and regulation. However, the inclusion of Blue Economy must be designed and implemented to protect the environment from a holistic approach and not lead to a new environmental crisis in the future. This will ensure long term health of the ocean's ecosystem.
4) Limited Public Awareness: Despite growing interest in ocean sustainability, many United States citizens are unaware of the Blue Economy concepts or the potential benefits they can provide the country and the world. Building support both financially and through increased interest and participation will be a crucial step for Blue Economy success.

In summary, the factors that the United States faces in implementing Blue Economy domestically range from lack of education and familiarity to funding and regulatory complexity. In order to overcome these challenges, the U.S. will need to streamline Blue Economy education, partner with private sector companies to increase funding and resources and ease the process for private sectors integration and support.

The United States Navy's involvement in Blue Economy

Overall, the Navy's involvement in Blue Economy initiatives is supporting the larger effort to promote sustainable maritime economic policies and conservation efforts. The Navy is responsible for the protection and defense of the United States to include its' interest in maritime driven economic and national security priorities. As the United States' primary maritime organization, the United States Navy is uniquely positioned to further the interest of Blue Economics both at home and abroad.

The Navy has taken a primary stake in the development of offshore energy resources. The Navy has significant expertise in offshore operations, and has been in the development of offshore wind, wave, and tidal energy projects. The Navy also supported the development of offshore oil and gas resources, including through the leasing of offshore areas for exploration and development. "The federal government and the U.S. Navy have spent millions of dollars and decades perfecting equipment and technologies for use of naval ships and underwater operations. Patents for a number of these technologies have been identified as no longer restricted by

national security issues."[10] These technological advancements will be given to private sector companies and educators to expand on the ideas for future use.

Additionally, The Navy's diverse force capable of carrying out marine transportation and integrating with other government and non-government services. Through a Department of Defense acquisition program, the U.S. Navy has the capability to engage with Merchant Marine and civilian tankers to increase marine transport during times of crisis. This allows for incredible marine transportation capability. The Navy is often charged to assist in natural disaster relief around the globe. The ability to maintain a presence in the water far enough away from danger, but close enough to provide assistance is paramount in recovery. U.S. Naval assistance at home and abroad during times of crisis directly contributes to the recovery from the disaster and leads to quicker rebuilding of critical infrastructure to ensure the least amount of economic impact as possible. The use of the Navy's fleet of vessels, to include both above water and subsurface protects maritime shipping through the tracking, reporting, and arresting of those found to put the shipping lanes of the world at risk through the execution of illicit activities. Whether it is smuggling, overfishing, or the theft of natural resources the U.S. plays a pivotal role in maritime security at home and abroad. Supporting maritime security provides critical safeguards around the world and help ensure an all-access approach to maritime trade and resources.

Strategic Partnerships

The Navy continues to be a leader in research and development activities. By leveraging specialized research communities such as the U.S. Naval Research Laboratory and National Oceanic and Atmospheric Administration (NOAA), the U.S. Navy is involved in many programs to support Blue Economy. For example, the program for Ocean and Atmospheric Science and Technology incorporates a number of civilian and governmental employees specializing in marine, ocean, and space science.[11] Included in this division is a program for Marine Meteorology and Space Weather which focuses on "basic research to improve the fundamental understanding of atmospheric processes, and applied research on the data, analysis and prediction systems for

[10] National Energy Technology Laboratory, *Identification of Naval Technologies Transferable to the Offshore Energy Industry,* U.S Department of Energy, December 2004. https://netl.doe.gov/node/4032.
[11] U.S. Naval Research Laboratory, *Ocean and Atmospheric Science and Technology. https*://www.nrl.navy.mil/Our-Work/Areas-of-Research/Ocean-Atmospheric-Science-Technology/.

forecasting environmental parameters critical to Navy and Marine Corps operations in maritime and littoral regions."[12]

Additionally, the U.S. Navy has partnered with NOAA, an agency of the U.S. Department of Commerce, and signed an agreement to expand joint cooperations in such areas as unmanned maritime systems. The new agreement "will enable NOAA to leverage the Navy's expertise, infrastructure, best practices and training to accelerate its science, service and stewardship mission."[13] This is in line with the U.S. Navy's vision to meet the future capabilities required to ensure it can carry out its obligations in support of U.S. national interests. The Navy has invested billions of dollars since the turn of the century into networked unmanned systems that can be utilized for Blue Economy initiatives such as ensuring free and open maritime access.

In addition to the Navy's work and partnerships with research and development divisions, it is also partnered with institutions and energy initiatives to assist in furthering Blue Economy. Old Dominion University (ODU) received a grant from the DoD to begin construction on a 220-turbine wind farm off the coast of Virginia Beach and is partnering with U.S. Navy to "help create a wind energy siting solution, to mitigate the effects of the location decision on military training, readiness, and research."[14]

International Cooperation

Perhaps the most recognized responsibility of the U.S. Navy in promoting Blue Economy is its critical role in advancing national securities strategy through international cooperation and collaboration for maritime activities. In 2022, the Navy released its Indo-Pacific strategy specifically highlighting its roles and responsibilities in enforcing national strategy which in turn furthers Blue Economy in the following ways:

- advance a free and open Indo-Pacific
- build connections within and beyond the region
- drive regional prosperity

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[12] Office of Naval Research, *Marine Meteorology and Space Weather.* https://www.nre.navy.mil/organization/departments/code-32/division-322/marine-meteorology-space.
[13] NOAA and U.S. Department of Commerce, "U.S. Navy will Increase Nation's Unmanned Maritime Systems Operations," (Washington, DC: GPO, 4 August 2020). https://www.noaa.gov/media-release/noaa-us-navy-will-increase-nation-s-unmanned-maritime-systems-operations.
[14] Mike Gooding, "ODU wins DoD Grant to Study Offshore Wind Siting Impact on Military Training," 13 News Now, 26 August 2020. https://www.13newsnow.com/article/news/local/mycity/virginia-beach/helping-military-to-coexist-with-offshore-energy-development-in-atlantic/291-e1cd5ee2-6ba4-4278-b4fb-405fcd2737bb.

- bolster Indo-Pacific security
- build regional resilience to transnational threats

The release of this strategic plan demonstrates the importance the U.S. Navy and the U.S., as a whole, places importance on strategic partnerships in the Indo-Pacific region to further Blue Economy. The U.S. Navy values and recognizes the Indo-Pacific region as the area for future geo-economic competition. [15]

Challenges

Although some of these challenges overlap with challenges facing Blue Economy adoption at the strategic level, due the Navy's multi-faceted approach to Blue Economy it is important to highlight those overlaps. Some of the most noticeable challenges are:

1) Funding: The United States Navy is currently in the process of transitioning its fleet to meet the demands of its current priorities while also investing in new technologies and research. With a finite budget and multiple priorities not all Blue Economy initiatives can be funded at this time.
2) International Cooperation and Historical Challenges: Historic changes have forced the U.S. Navy into seeking development of new regional coalitions. These coalitions, while in the interest of the U.S., have caused the degradation and frustration of regional powers. The rise of regional powers along with the historical challenges the U.S. has managed since the end of the Cold War, forces the Navy to take into account the geo-political and geo-economical factors brought on by the rise of economic competition in the maritime domain. In some cases, this has been at the detriment of furthering Blue Economy initiatives globally.[16]
3) Environmental Concerns: Although the U.S. Navy has taken on Blue Economy initiatives, it has not fully integrated green technology into the fleet. The use of traditional resources such as, nuclear powered submarines and aircraft carriers along with turbo jet engines and other sources of pollution that are counter intuitive to furthering Blue Economy, are still vitally important to the U.S. Navy's ability to carry

[15] White House, *Indo-Pacific Strategy of the United States of America* (Washington, DC: White House, February 2022) 7.
[16] White House, 18.

out its strategic obligations. It will be many years before a fully green capable force at the caliber of today's fleet is feasible.

4) Geopolitical Challenges: Tensions among world powers is a significant factor influencing the Blue Economy initiative. While the partnership with ASEAN and other countries is a great start, actions taken by other superpowers to usurp or undermine international law will continue to be a challenge for the U.S. at home and abroad.

In summary, the U.S. Navy faces a number of challenges in its efforts to support the Blue Economy, including budgetary limitations, historical and international cooperation constraints, environmental concerns and geopolitical factors. Overcoming these challenges will require the Navy to prioritize fiscal allocations, as well as partnering with government and non-government agencies, and international players who also have a commitment for innovation and sustainability.

Conclusion

In conclusion, the United States government across all levels recognizes and supports the importance of the Blue Economy initiative. The United States, relying primarily on maritime power for economic, military, and diplomatic strength is highly vested in the well being and protection of the nation's coastlines and waterways. In addition, the continued support of allied and partner nations to help develop technology, innovation, and economic growth through the continued commitment to a rule based maritime domain is a critical strength for U.S. power. Many factors, such as geo-politics, ill-informed citizen and financial constraints must be overcome to allow the Blue Economy to survive. Despite its future success or failure, the U.S. maintains strong support for global conservation and protection of the world's oceans.

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