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CMSI Workshop on US and Chinese Perspectives on the Blue Economy December 11-12, 2014[1]

Executive Summary

1. "Blue economy" clusters or zones exist in the United States and in China, most prominently in San Diego, CA and Qingdao on China's Shandong Peninsula, respectively. The latter also includes a "Blue Silicon Valley" subzone, among others.

2. Definitions, terminology and exactly what constitutes the "blue economy" (sometimes termed the "ocean economy" or "marine economy") are still being deliberated in the United States, China and beyond.

3. The blue economy is a holistic, ecosystem-oriented development concept that seeks to promote environmental awareness, conservation and sustainability while also promoting economic, industrial and job growth as well as technological innovation in marine, maritime and naval sectors.

4. The United States prioritizes environmental aspects of the blue or ocean economy, whereas China has prioritized industrial growth and ocean-based resourcing efforts.

5. Prospects are high for increased competition *and* cooperation between the United States and China on matters related to the blue economy.

[1] This summary was drafted by the workshop co-host and co-organizer, Kathleen Walsh. Therefore, any errors or omissions are the summary author's alone.

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** Moderator / Discussant / Commentator*

Summary of Presentations

Overview

On December 11-12, 2014, the China Maritime Studies Institute (CMSI) hosted a two-day workshop in Newport, RI entitled **"US and Chinese Perspectives on the Blue Economy."** This was the first-known event to focus on the blue economy concept and comparing and contrasting US and Chinese approaches to this still-evolving concept aimed specifically at more environmentally sustainable economic growth and innovation-oriented, marine maritime and naval development.

Participants from each country included representatives from government, academia, think tanks and industry, including the US National Oceanic and Atmospheric Administration (NOAA), the Joint Staff, US Coast Guard, State Department, Naval Undersea Warfare Center, Naval War College, and US Senate as well as the PRC's State Oceanic Administration (SOA), Qingdao Ocean University and Shanghai Ocean University of China. The workshop was conducted under not-for-attribution rules; this summary therefore presents an overview of the discussion without attribution to individual participants except where permitted.

Session 1 – Understanding the "Blue" Economy

- ***Michael Jones, The Maritime Alliance***
- ***ZHANG Xiaoli, Center for Ocean Economy, Shanghai Ocean University***
- ***Allison Reed, NOAA Office of International Affairs***
- ***Dave Sohier, US Department of State Office of Ocean and Polar Affairs****

The purpose of the initial panel was to discuss the origin, evolution and definition of the term "blue economy" as it applies in China, the United States, and elsewhere around the globe. Precise understanding is difficult: there is no single agreed-upon definition of the term "blue economy." The term is also often used interchangeably with others such as "ocean economy" (used by the United States[2] "marine economy" (used in China) or "maritime economy" along with related "blue" concepts such as "blue tech," "blue jobs," "blue growth," and other "blue"-themed agendas.

The term blue economy, however, is generally understood to apply to areas with bodies of water —oceans, seas, lakes, coastal shores, and rivers— and efforts in these areas to enhance environmental conservation as well as economic development, particularly through advances in technological innovation. These efforts generally adopt a holistic, eco-system-oriented approach to development.

In both Chinese and US conceptions, the blue economy also represents efforts toward a more sustainable approach to development combining land and water resources. In 2014, an Asia Pacific Economic Cooperation (APEC) Ocean and Fisheries Working Group agreed on a common view of the blue economy (for purposes of APEC) as: "an approach to advance sustainable management and conservation of ocean and coastal resources and ecosystems and sustainable development, in order to foster economic growth."[3] This common view is expected to aid coordination among members, connecting local, national and global efforts. But no single approach can

[2] The term "Ocean Economy" is used —though not defined— in the 2013 National Ocean Policy Implementation Plan drafted by the National Ocean Council, which was established by Executive Order 13547 in July 2010. *National Ocean Policy Implementation Plan* (Washington, DC: National Ocean Council, April 2013), https://www.whitehouse.gov/sites/default/files/national_ocean_policy_implementation_plan.pdf. In general, it is the sum of economic activity having to do with coastal and intra-coastal waters, harbors, oceans, rivers, seas and fresh water resources. The US prefers the term "ocean economy" to "blue economy," but both are used.

[3] Asia Pacific Economic Cooperation, "2014 – APEC Ocean-Related Ministerial Meeting Joint Statement," Ministerial Statement (August 28, 2014), www.apec.org/Meeting-Papers/Ministerial-Statements/Ocean-related/2014_ocean.aspx. This common view is contained in the "Xiamen Declaration – Towards New Partnership through Ocean Cooperation in the Asia Pacific Region," so named for the fourth APEC Ocean-Related Ministerial Meeting (AOMM4), which took place in the city of Xiamen, PRC.

fit every country's needs in a diverse Asia-Pacific region. These needs vary from food security to disaster relief to tourism and economic development and beyond.

The blue economy concept is gaining momentum, particularly in Asia. Today's emphasis on the blue economy builds on the United Nations Sustainable Development Conference (commonly referred to as Rio+20) negotiations conducted in 2012 that focused on promoting the "green economy" but emphasized also in side discussions the importance of "oceans" and the notion of a blue economy.

Since then, APEC has taken a more active interest, particularly through efforts led by China as well as Indonesia. China has hosted several APEC Working Groups on the Blue Economy dating back to 2011 with a fourth planned for October 2015. The United States, Indonesia and China also co-sponsored related APEC workshops in 2012 and 2013.[4] Australia, Southeast Asian states, as well as Indian Ocean, South Pacific and Small Island Developing States (SIDS) all have demonstrated interest in pursuing blue economy strategies. In 2015, the Philippines will host APEC, and the blue economy is expected to be a major theme.

Elsewhere, the European Union, South Africa, Canada, Mexico, among others, are pursuing blue economy-oriented development plans. The International Maritime Organization (IMO), International Oceanographic Commission (IOC), and other maritime-focused international governmental organizations are also beginning to explore the issue. US governmental interest in the environmental and economic dimensions of a blue economy is evident through participation in the above fora and development of a US National Ocean Policy in 2010 and establishment of a National Ocean Council in 2013.

The concept of developing a blue economy in the United States sprang initially from grassroots efforts to enhance environmental protection while also expanding economic opportunities. In China, the blue economy development model is mainly a top-down, government-led initiative. There are several blue economy or blue technology clusters in the United States and around the globe. San Diego is the most advanced US cluster and is promoted by a non-governmental organization, The Maritime Alliance, a group that actively studies the issue and engages industry, government, academic, and international institutions. This group and others are trying to estimate the value that blue economies contribute to local, state and national revenue. Doing so is difficult given a dearth of formal surveys or relevant US government statistics specifically targeting ocean or blue economy-related zones, clusters, or industry sectors. Current NOAA estimates of the blue economy in the United States vary between $300 billion to over $6 trillion when adding the growth in "ocean economy" sectors with "coastal economy" numbers. San Diego's blue economy is estimated at somewhere between $1.8 billion and $14 billion. As one participant noted, the ocean or blue economy is "big and invisible and shouldn't be." Participants proposed several reforms that might address this gap, including adoption of more specific blue economy or ocean-related industry codes (i.e., NAICS codes) to facilitate data collection and analysis at the local and national levels, an increase in blue economy-oriented education opportunities (e.g., an "Ocean STEM" initiative), and increased emphasis at the local, national, and international levels on "blue job" opportunities.

In China, the blue economy concept of development has three dimensions: coastal, marine, and ocean (the latter encompassing what were termed "deep sea," "far seas" and "high seas" activities). The focus presently in China is on marine and coastal areas, which include coastal cities, their coastal zones and the surrounding coastal area under provincial jurisdiction. The current near-shore emphasis is due to Chinese strategic priorities and constraints in China's technological, industrial or power projection capabilities. For this reason, the term blue economy is often used interchangeably with "marine economy" in China. Similar to the US conception and others', China's blue economy concept, as

[4] These workshops were convened under the aegis of APEC's Oceans and Fisheries Working Group (OFWG).

outlined in the State Council's *National Plan for the Development of [the] Marine Economy* (2003), includes myriad "ocean-related" industry sectors that study, utilize or exploit ocean, marine or water resources, including marine science, marine engineering, shipbuilding, oil and gas, pharmaceutical and biotechnology enterprises, desalination, and more.

China's blue economy development concept is aimed at coordinating resources from both land and sea in order to develop new resources, new energy, new genetic research, sea farming, and sea-water desalinization, among other interests. A policy of "two coordinations" focuses on combining: 1) the land economy and ocean economy; and 2) the ocean economy and environmental protection. Other underlying objectives of China's focus on the blue economy are to obtain resources from the ocean, to relieve food pressure from depleted land resources, and to relieve pressure from environmental damage to China's land-based resources. The PRC has a total land area of 9.6 million km^2 and 3 million km^2 of water space to use for these purposes and is pursuing development also in the high seas and through cooperative agreements and other means to make use of resources found in Exclusive Economic Zones (EEZs).

China's future blue economy development are expected to focus on high seas and distant seas development, use of the high seas resources "in an orderly manner," management of international maritime affairs as a responsible great power, research and development of science, technology, and innovative ways to explore the high seas and to apply the research results to practical purposes. Emerging industries will include marine bio-pharmacy, bio-products, engineering and equipment manufacture, renewable energy and seawater utilization.

At the national level, 15 Chinese ministries, bureaus, commissions, and departments play a role in administering blue economy efforts, making coordination across the central government difficult as well as coordination with local areas. The State Oceanic Administration (SOA) overseas management of China's ocean development and tracks blue economy revenues calculated as "Global Ocean Product" or "Marine Gross Production." In 2012-13, this figure came to over 5 trillion RMB (US$805B estimated in current dollars) or 9.6% of Chinese Gross Domestic Product (GDP).

Since 2006, the three designated sites for blue economy development in China are along the Yangtze River Delta (Shanghai, Zhejiang and Jiangsu), Pearl River Delta (Guangzhou, Shenzhen, and surrounding area) and the Bohai Economic Circle (Beijing, Tianjin, Hebei, Liaoning and Shandong) in addition to 10 select city sites located along China's coast. Pilot programs are ongoing in Qingdao and environs as part of the Shandong Peninsula Blue Economic Zone Development Plan, in Shanghai and beyond as part of the Zhejiang Marine Economic Development Demonstration Area Plan, and in the Guangzhou area as part of the Guangdong Marine Economic Development Experimental Zone, all of which were approved in 2011. China's concept of a blue economy also includes offshore islands and deep-sea scientific exploration. China's strategy for blue economy development was explained repeatedly in the context of the Zheng He tradition and Xi Jinping's contemporary long-term initiative known as the "1 Belt, 1 Road" or the "New Silk Road and 21st Century Maritime Silk Road."[5]

[5] In remarks to an international forum in March 2015, PRC State Councilor Yang Jiechi explained, "The 21st Century Maritime Silk Road will present a rich and colorful program of cooperation. In addition to maritime transport and resource development, it will involve research, environmental protection, tourism, disaster reduction and prevention, law enforcement cooperation and people-to-people exchanges on the sea. Not only will it look at the development of the blue economy and building of oceanic economic demonstration zones offshore, it will also build onshore industrial parks, marine science and technology parks and training bases for ocean-related personnel." Yang Jiechi, "Session of 'Jointly Building the 21st Century Maritime Silk Road' and Launching of the Year of China-ASEAN Cooperation," Ministry of Foreign Affairs (March 2015) http://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1249761.shtml. China also published in late March 2015 a Belt and Road Action Plan that marks Fujian Province as a "core area" for development. See National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce, "Vision and Actions on Jointly Building

The primary emphasis in the US conception of a blue or ocean economy, among others', is environmental protection whereas, in China, the technological, industrial, and economic aspects of development take priority over environmental considerations. China's approach highlights another distinction in its concept of a blue economy: the ocean in China is viewed principally as an opportunity to exploit "blue" resources beyond the "yellow" land that has been exhausted or polluted due to decades of rapid economic development. While environmental conservation is part of PRC strategies, plans and policies for developing blue economies, environmental considerations in this context have to date received limited attention and are expected to come about through advanced technological innovations that will allow more efficient, less resource-intensive, pollution-minimizing production methods. This approach, and an emphasis on public-private sector collaboration (e.g., research funding for deep sea detection that comes from both government and private industry), aligns with Xi Jinping's emphasis on innovation-driven economic growth.

Participants agreed that there is ample opportunity —and need— for US-Chinese and broader collaboration on blue economy endeavors, particularly scientific and environmental efforts. While each country might define the blue or ocean economy differently, the common aim of more sustainable development and increased scientific understanding of the ocean provides shared interests and the potential to overcome frictions that can arise over water resources even between states with historically good relations (e.g., US-Canada and US-Mexico).

Session 2 – Marine & Maritime Aspects of the Blue Economy

Panel 1

- ***Sandra Whitehouse, Ocean Conservancy***
- ***WEI Bo, APEC Marine Sustainable Development Center, Third Institute of Oceanography, State Oceanic Administration***
- ***Lisa Speer, Natural Resources Defense Council International Oceans Program***
- ***Reed Porter, Environmental Law Institute****
- ***Harlan Doliner, Roger Williams University Law School****

This panel explored the marine and maritime dimensions of the blue economy concept, as interpreted in China and the United States. A key area where US and Chinese concepts of blue economy development align is in the application of maritime zoning or planning efforts. In China this effort is called Marine Functional Zoning (MFZ), whereas in the United States the concept is commonly termed Marine Spatial Planning (MSP).[6] Each approach seeks to manage competing maritime uses and interests, de-conflicting energy, shipping, recreation, aquaculture, conservation and other marine or maritime activities of a commercial or military (naval) nature. The collection of economic and scientific data in both approaches is used to inform decisionmaking on zoning or planning, particularly as marine and maritime economic activities increase as a share of GDP in both countries.

China's MFZ concept stems from a 2002 Law on the Management of Sea Use, which applied for the first time a fee-for-use system. In the 1990s, prior to the imposition of a fee, a 20% GDP growth rate in China's marine and coastal industries had led to substantial misuse and

Silk Road Economic Belt and 21st Century Maritime Silk Road" (March 28, 2015), http://www.en.ndrc.cn/newsrelease/201503/t20150330_669367.html.

[6] Executive Order 13547 on the "Stewardship of the Ocean, Our Coasts and the Great Lakes" outlining the National Ocean Policy as well as the *National Ocean Policy Implementation Plan Appendix* outlining US Government actions use the term "Coastal and Marine Spatial Planning" (CMSP). The CMSP is defined in E.O. 13547 as "a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. Coastal and marine spatial planning identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives."

overuse of marine areas. In 2011, the amount of fees collected reached 96M RMB (US$15M). China's 11 coastal provinces and municipalities employ, or plan to employ, MFZs, which promote science-based, sustainable utilization of the sea area and development of the marine economy while ensuring maritime traffic safety, safeguarding security, national defense, and guaranteed needs of military use of the sea. The coast off Fujian Province and across the Taiwan Strait is considered a particularly important focus of Chinese MFZ efforts. China's blue economy-related marine activities are factored into and coordinated across its Five Year Plans and sector-specific plans, involving 15 different ministries.

China's blue economy concept is currently in a third stage of development. The first stage occurred from the 1980s through 2009, when the concept was largely discussed in academic circles and focused on regional economic planning and technology management. [7] Beginning with the 11th Five Year Plan (FYP) for 2006-2010, regional planning for coastal cities was elevated to a national-level strategy. The second stage (2009-12) was sparked by an important speech by then-Chinese leader Hu Jintao and the start during the 12th FYP (2011-2015) of pilot blue economy development zones in Tianjin and select areas among China's coastal provinces (Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, and Guangxi). The third and present phase, beginning in 2012, is marked by China's pro-active efforts to convene blue economy-related international and regional conferences, fora and workshops, including the APEC meetings noted above.

China's priorities in developing a blue economy focus primarily on promoting ocean or maritime economic activities, secondly on the development of science, technology and innovation to serve ocean, marine, maritime, and naval development, followed by an interest in pursuing sustainable development of a marine economy and environmental or conservation considerations. Public-private sector cooperation is emphasized in Chinese plans and was a theme at the Third APEC Blue Economy Forum held in Qingdao, Shandong Province, in August 2014. China's development approach also specifies a list of proposed "Five Principles of Using the Sea," which include use of planning (such as for land reclamation control systems), intensive monitoring of sea areas, ecological restoration, scientific approaches, and legal considerations. To date, China has established more than 200 Marine Protected Areas.

The Shandong Peninsula Blue Economic Zone is China's first and most advanced of the pilot development zones initiated under the 12th FYP. The zone consists of seven cities and 51 counties and covers 64,000 km^2 on land and nearly 160,000 km^2 of surrounding sea. The aim here is to develop a series of high-technology, ocean-themed industrial parks linking port, energy, and other infrastructure resources in support of an innovative science and technology-based ecosystem that at the same time promotes more sustainable development and environmental conservation efforts through the use of marine functional zoning and marine protected areas or parks. Enhanced management of these zones and parks along with improved economic indexing and coordination of related BE activities are among the recommended next steps for China's pursuit of a blue economy.

In the United States, three regions —New England, the Mid-Atlantic, and the Pacific Northwest— have completed MSP plans to date; six more planning regions are in the process of doing so. Rhode Island, specifically the waters around Block Island, has established the United States' first offshore wind farm, an effort made possible by applying MSP as a decisionmaking tool. Via Rhode Island's Ocean Special Area Management Plan (SAMP), MSP efforts involved myriad stakeholders, including local, tribal, state and federal government, industry, and civic organizations. Planners took into account diverse marine and maritime interests such as commercial, recreational, and naval traffic, underwater resources, cables, unexploded ordinance (from Naval Station Newport's research during World War II), as well as fishing and conservation

[7] Some date China's blue economy concept back to the 1960s but only with respect to development of freshwater aquaculture and "mariculture" (a specific form of aquaculture).

interests. A suggested next step was to incorporate more integrated, multi-purpose uses into MSP efforts.

MSP appropriations in the United States in 2011 amounted to just over $6 million. In implementation, US marine spatial planning efforts were expected to be completed in all regions in 2015 but are progressing on a voluntary basis in each region. US MPS efforts, therefore, appear to be behind China's MFZ efforts overall in terms of implementation. A key difference noted between the US MPS approach and China's MFZs is the latter's focus more on land (or coastal areas as an extension of land-based resources) compared to the United States' focus more on the ocean itself.

Conflict resolution, increasing sustainability and addressing rising marine environmental challenges are common concerns for the United States and China, among others in the Asia Pacific region. Due to increases in overfishing, oil and gas exploration, introduction of invasive species, commercial shipping, EEZ patrols and military transits, ocean acidification and pollution, accidents at sea, tourism and more, environmental concerns are rising as the sea is used increasingly as a source of food, energy, and for industrial development, as well as a transnational channel of goods and services. These common concerns can also be viewed as opportunities for greater US-China cooperation. While the UN Convention on the Law of the Sea (UNCLOS) governs use within states' EEZs, the high seas remains largely ungoverned space in environmental terms. Activities governed by international law include seabed mining, some deep sea fisheries, shipping, and dumping-at-sea of waste; other at-sea activities are *not* regulated on the high seas, including marine scientific research, bioprospecting, laying of cables and pipelines, military activities, dumping at sea of land-based waste, and more. If new rules, norms, and regulations are possible, both the United States and China will be interested in shaping these.[8]

The Arctic is another area where participants suggested both the need and opportunity for US-China cooperation, even as it is likely to become a growing geo-strategic concern. The United States takes over the role of Arctic Chair in 2015; China became an observer to the Arctic Council in 2013. Both countries claim economic and security interests in the Arctic region. The US State Department has identified three key themes for the United States' two-year chairmanship: the impact of climate change, promoting ocean safety, security and stewardship, and improving economic opportunity.[9] China is interested, among other things, in the opening of new trade routes, fishing grounds and arctic exploration. In addition to scientific, economic and security considerations arising from the Arctic's melting ice, the rise in Arctic area transits will increase the need for cold-weather technology, search and rescue capabilities, and international civil-military asset coordination.

Finally, participants agreed that increased, up-to-date marine data and information sharing are needed in order to prepare for, respond to, and effectively coordinate marine efforts such as MSPs, MFZs, disaster response and Arctic search and rescue. The Gulf and Dalian oil spills as well as Hurricanes Sandy and Katrina were mentioned as examples of lessons learned where a lack of sufficient marine-related data readily available to government and industry played a role in limiting the effectiveness and timeliness of disaster response on land and at sea.

[8] In January 2015, a working group of the United Nations agreed to "recommendations for a decision to be taken at the 69th session of the UN General Assembly (UNGA) to develop a new legally binding instrument on [biological biodiversity beyond national jurisdiction] BBNJ under [the United Nations Convention on the Law of the Sea] UNCLOS." IISD Reporting Services, "BBNJ Working Group Concludes Mandate, Agrees on Nature of Future Instrument," Biodiversity Policy and Practice (January 23, 2015), http://biodiversity-L.iisd.org/news/bbnj-working-group-concludes-mandate-agrees-on-nature-of-future-instrument/

[9] The United States assumed the Arctic Council Chair on April 24, 2015. See Secretary of State John Kerry, "Remarks at the Presentation of the US Chairmanship at the Arctic Council Ministerial, US Department of State (April 24, 2015), http://www.state.gov/md241102.htm.

Panel 2

- ***S. Bradley Moran, University of Rhode Island***
- ***LIU Shuguang, Qingdao Ocean University of China***
- ***Kathleen Walsh, US Naval War College***
- ***George Zvara, Naval Undersea Warfare Center****

This panel focused on efforts to advance marine, maritime and naval science, technology and innovation. In the United States, these efforts are coordinated to a degree under the aegis of the National Ocean Policy; China's blue economy-related S&T innovation efforts (including development of a "Blue Silicon Valley") are included in aforementioned five-year plans and identified as a priority as part of Xi Jinping's efforts toward "building China into a maritime power." In both countries, maritime-related S&T and innovation efforts are part of larger plans promoting blue- or ocean-related sustainable economic development.[10] Both countries' plans also depend on development of blue- or ocean-economy-themed clusters or innovation ecosystems.

The US National Ocean Policy (NOP) was established by Executive Order 13547 in July 2010. The National Ocean Policy Implementation Plan (IP) was released subsequently in April 2013, followed by a Marine Planning Handbook in July 2013. The NOP and its IP aim to advance economic growth in the United States through promoting jobs, particularly in coastal regions, developing a workforce with requisite skill sets, and advancing ocean-themed innovation. Discussants suggested, however, that more effort is needed to promote specifically "blue jobs" and to develop the necessary maritime or ocean STEM (science, technology, engineering and math) programs to ensure enduring ocean-related science, technology and innovation. Suggestions for doing so include improved economic data collection to inform investment in ocean industry sectors, establishing X-prize-like challenges in ocean science, technology, engineering and innovation to encourage more students and corporations to pursue ocean STEM-related activities, and developing a long-term "ocean economic strategy."

China's blue economy-related S&T and innovation efforts are focused on developing marine and maritime industry sectors and advancing development of dual-use, deep-water, and high-end commercial and naval technologies. Since China's blue economy plans involve at least 15 different central government ministries or departments governing blue economy efforts by numerous provincial, municipal and local economic regions along China's coast, there is fierce competition for limited funds and resources. The city of Qingdao on China's Shandong Peninsula, however, put forward an ambitious initiative in 2011 to develop a "Blue Silicon Valley" as part of its Blue Economy plans. Qingdao's plan to establish a "Blue Silicon Valley Core Area" (BSVCA) was approved in early 2012. It included establishing a BSVCA administrative board, various planning mechanisms, and ultimately development of a Blue Silicon Valley New Coastal Eco-City. [11]

Qingdao's plans for developing a BSV include leveraging the city's existing advantages, which include a relatively wealthy and environmentally aware populace, healthy tourism industry, nearby underdeveloped lands open to greenfield development, a modern subway system (that is being expanded to reach up to the new BSV area currently under development), construction of a new high-speed rail (from Qingdao to Jinan) and a new port facility (Dongjiakou Port), as well as leading, internationally collaborative, maritime universities such as China Ocean University and Shandong University' Qingdao campus. In order to expand the potential for the BSV to develop into an innovative ecosystem and industrial cluster, a National Deep Sea Research Center will serve as an anchor for government research, along with Qingdao Marine S&T Laboratories, Chinese shipbuilding enterprise research institutes, State Ocean

[10] In the European Union, similar efforts to promote economic growth in blue or ocean sectors are referred to as "blue growth."

[11] The BSV is one of three blue economy-related zones planned for Shandong Peninsula. The others are the West Coast New Economic Zone and the Hongdao Economic Zone).

Administration (SOA) offices, and various other public and private research and development labs co-located in an incubation park sub-zone.

The BSV is modeled after northern California's Silicon Valley as well as maritime innovation clusters found, for instance, in San Diego — which boasts a leading university, US Naval research, and the Scripps Institution of Oceanography— or New England, where the Woods Hole Oceanographic Institution is located among leading universities, maritime industry and public and private researchers. A key difference between the Chinese concept and US counterparts is the predominant top-down, planned approach applied by Chinese policymakers as compared to the more bottom-up development experience of the United States. Both countries, however, seek to benefit from potential spin-on (commercial to military application) and spin-off (defense to commercial application) opportunities that innovative clusters can foster.

Qingdao's Blue Economy Pilot Development Zone is considered China's primary initiative among other blue economy projects, and its Blue Silicon Valley development project a priority within the zone. The BSV appears to be gathering all the key ingredients needed to create an innovation ecosystem and industrial cluster: industry (domestic and foreign-invested), government research (civil and military), local and private-sector funding, academics and students (foreign and domestic), incubation and networking opportunities, as well as international scientific research and exchanges. But it is still early days in the BSV's development, and there is no guarantee that innovative results will emerge even when all the right ingredients are collected in a single locale.

<u>Keynote</u>: VADM Charles W. RAY, US Coast Guard - Commander, Pacific Area

VADM Ray outlined the roles and missions of the US Coast Guard Pacific Area forces, an area of operations that spans the Rocky Mountains to the waters off Africa's East Coast. USCG responsibilities include port security and related domestic security and law enforcement efforts along US coasts and waterways, search and rescue, counter-drug operations, migrant interdiction, defense readiness, and marine safety. Other USCG missions that directly relate to the blue economy concept include marine environmental protection and protection of living marine resources and fisheries within the US Exclusive Economic Zone (EEZ).

In addition, among the activities aimed at enhancing international security and fostering multilateral maritime cooperation is the North Pacific Coast Guard Forum, which convenes Coast Guard leaders from six Asia-Pacific countries: Canada, the People's Republic of China, South Korea, Russia and the United States. Also highlighted was the Coast Guard's Shiprider program, which supports international cooperation through jointly manned crews that conduct training and law enforcement operations. Bilateral Shiprider agreements exist between the United States and several Pacific island countries. The USCG and Chinese Fisheries Law Enforcement Command also have conducted Shiprider operations.[12]

Another mission with implications for blue economy development and US-China cooperation include USCG certification for foreign-flagged vessels seeking to enter US ports, including Chinese ships, and for US-flagged ships serviced in China.[13]

Finally, the Arctic was noted as an area of growing maritime interest and traffic — including transit by Chinese vessels— which means the Arctic is likely to play an increasing role in US Coast Guard duties, particularly in terms of icebreaking services and search and rescue operations.

<u>Session 3 – Naval & Security Implications of Blue Economic Development</u>

- ***ZHU Xuan, China Institute for Marine Affairs, State Oceanic Administration***

[12] For more on the North Pacific Coast Guard Forum and Shiprider program, see Michael Arguelles, "In the Spirit of Cooperation," *Proceedings of the Marine Safety & Security Council* (Spring 2014), 28-30.

[13] For more on US and PRC Coast Guard cooperation, see *China, the United States, and 21st Century Seapower: Defining a Maritime Security Partnership,* Andrew Erickson and Lyle Goldstein, eds. (Newport, RI: Naval Institute Press, 2012).

- ***Peter Dutton, China Maritime Studies Institute, US Naval War College***
- ***SUN Kai, Qingdao Ocean University of China***
- ***Michael Conathan, Center for American Progress***
- ***Paul Giarra, Global Strategies & Transformation****

In these two, related sessions, speakers were asked to outline: 1) potential security challenges; and 2) the potential for enhanced security cooperation.

The first panel was asked to identify specifically any naval and security implications of the blue economy concept (leaving open the possibility of no such connection). In both countries, blue or ocean economy development efforts appear to be mainly civilian initiatives. But the discussion concluded that there are, indeed, naval and security implications due to each state's long-term, strategic blue or ocean economy-related endeavors. Several themes emerged from this discussion.

The first theme emphasized that the ocean is inherently a shared domain, which necessarily evokes competition and/or cooperation in both civil (maritime) and military (naval) spheres. The blue economy concept also promotes the notion of an ecosystem, which ties domestic blue or ocean economy development efforts to the larger marine ecosystem, thereby providing incentives and opportunities for international cooperation. Participants noted that there already is much international maritime cooperation at sea, in laboratories, and in the commercial sphere; the blue or ocean economy development efforts are likely to increase the opportunities for both competition and cooperation, across maritime and naval domains.

Second, modern China is transitioning from a mainly land-oriented power with a continental strategic mindset to a mixed or hybrid strategic orientation that includes both land and sea. This is a deliberate strategic choice, and a significant shift in strategic orientation that represents what one speaker termed the start of a "new epoch" given the likely impact on the global economy of such a strategic transformation by a country as large and increasingly powerful as China. Such a profound shift in strategic outlook will complicate the work of strategists — particularly naval strategists— in the United States and elsewhere.

Third, the nature of seapower is inherently a dual, civil-military endeavor. According to naval strategist Alfred Thayer Mahan, seapower is best understood as: "The sum of a country's natural conditions that enable it to obtain economic power, security, and political influence from and through the sea." In short, as one speaker noted, naval power is a component of seapower, but so is the blue or ocean economy. Through the blue economy China seeks to enhance its maritime power and, as a component of sea power, also its naval capabilities.[14]

Finally, China's One Belt, One Road (1B, 1R) and particularly the latter, Maritime Silk Road (MSR) initiative, was oft cited as an indication of China's interest in expanding both its land and maritime power, as a manifestation of China's modern pursuit of sea power, and as further evidence of China's shifting strategic orientation from the land to the sea. The MSR represents China's pursuit of maritime power as well as, some speakers noted, a post-Zheng He return to Chinese naval and sea power (to include the strategic space or places that will be necessary to secure these interests).

The second panel was asked to outline the potential for US-China cooperation or conflict over blue economy issues. In answering this question, one speaker outlined how China's blue economy concept fits into a broader historic and political context of reforms and explained how the concept has evolved over the past two decades. The "blue" economy — promoted by Hu Jintao and Xi Jinping— joins the ranks of other "colorful" economies in China, including the "red" economy (economic reforms promoted under Deng Xiaoping) and the "green" economy (emphasizing environmental protection and sustainable development, as highlighted under Jiang

[14] For a subsequent description of Chinese military —including naval— strategy, see the recently published PRC White Paper. State Council, "Chinese Military Strategy" (Beijing, May 2015) online at http://eng.mod.gov.cn/Database/WhitePapers/.

Zemin). China's blue economy efforts began in earnest during the 12th FYP (2011-15), which emphasized promoting the development of a marine economy and is tied to the 18th National Party Congress' plan in 2012 to "build China into a strong maritime power." The 21st century has been hailed by China as the "Century of the Ocean."

China's shift toward the sea has roots in earlier development efforts and is driven by the PRC's limited, land-based resources, growing import of goods by sea, an increase in technology that makes ocean resources more accessible, and the promise of economic development from the sea. Blue economy efforts are mainly at present focused on domestic development, but the 2003 National Plan on the Development of the Marine Economy, for instance, applies to several maritime areas –the near sea, islands and adjacent areas, the EEZ and continental shelf, as well as the seabed beyond national jurisdiction. The last is where the potential for conflict was identified as being most likely. Marine resource competition is another area of potential conflict. While the potential for resource competition and conflict exists, the blue economy was said to also provide a "new testing ground" for US-China cooperation and management of potential areas of conflict.

The Maritime Silk Road will contribute to China's ocean economy and, like the blue economy, requires cooperation with other countries. China already is the site of 7 of the top 10 container ports in the world, and this volume of trade requires many types of maritime cooperation. It also requires a secure maritime order, to which China makes contributions. In East Asia, building a blue economy will mean strengthening integrated management of regional seas. However, a maritime economy also requires maritime power, and China's development of maritime power puts it in competition with the United States — especially since the US Rebalance to Asia.

Nevertheless, participants cited many opportunities for increased cooperation, particularly between the United States and China.[15] The 12th FYP's various blue economy development zones across China's coastal provinces present particular opportunities for cooperation. Areas of interest to China include cooperation on scientific and technological research, educational exchanges (such as already occur with the University of Rhode Island, Woods Hole Oceanographic Institution, Scripps Oceanographic Institution, and the Monterey Institute of International Studies), as well as assistance in learning maritime-related management skills, policies and regulations. As noted earlier, the Arctic is an area of particular interest to China. Participants indicated that the potential for Arctic cooperation has been discussed as part of the US-China S&ED (via the Law of the Sea and Polar Dialogue)[16] as well as suggested by the US Representative to the Arctic, Adm. (Ret.) Robert Papp as part of the United States' agenda for its two-year chairmanship of the Arctic Council beginning in spring 2015.

US blue or ocean economy efforts also have focused particularly on domestic reforms, but in a less centralized, more bottom-up manner than seen in China. US industry, think tanks, associations, non-governmental organizations and individuals are involved in pressing for more sustainable fisheries, offshore renewable energy, coastal restoration and other, more sustainable coastal and water-related practices. Particular emphasis is placed on measuring scientifically and quantifying the economic impact of environmental damage as well as of cleanup and savings or profits gained from employing more sustainable products and practices.

[15] US-China maritime cooperation dates back to 1979 with the agreement between the US National Oceanic and Atmospheric Administration (NOAA) and China's State Oceanic Administration (SOA) Protocol on Marine and Fisheries Cooperation. This agreement has been renewed six times and includes dozens of working group meetings. Other areas of US-China maritime cooperation focus on oceanic climate change, coastal zone management, marine information sharing, marine resource development, and polar research.

[16] On US-China S&ED and related dialogues, see US Department of State, "US-China Strategic and Economic Dialogue Outcomes of the Strategic Track (July 14, 2014), http://www.state.gov/r/pa/prs/ps/2014/07/229239.htm

Interest in promoting tourism is another key driver in US efforts to promote a more sustainable ecosystem approach to coastal area management given the direct impact such practices can have on jobs in areas dependent on the ocean or other waters to attract tourists as well as serve fishermen and other maritime industries. The US approach to promoting economic prosperity via environmental sustainability (vice exploitation) and ways of gathering this data for use in making better public policy decisions is an area deemed ripe for possible US-China and greater international cooperation.

As the world depends increasingly on the world's oceans for trade, resources, economic prosperity and security, the potential for both conflict and cooperation increases. The question, participants concluded, is whether the United States, China and other states will deal with this change by operating independently or cooperatively in managing the use of the maritime domain (to include underwater, surface and the air and space above) and the maritime commons. Some cited the tragedy of the commons concept and see conflict as likely, possibly in the form of a maritime "space race" not unlike the previous, Cold-War era competition; others emphasized the inherent shared domain and ecosystem that the ocean represents, suggesting cooperation is essential, lest everyone's interests be diminished by the actions of one or some. Yet elements of both cooperation and conflict are expected to coexist as pursuit of development of blue or ocean economies continues.

Session 4 – Expert Perspectives & Open Discussion on the Future of the Blue Economy Concept

S. Bradley Moran, University of Rhode Island*

This session allowed panelists and participants to highlight takeaways from the workshop and to present ideas on ways forward. Among the takeaways noted included the different historical, political and economic contexts in which China and the United States (among others) have developed and are pursuing the blue or ocean economy concept and how this impacts each country's public- and private-sector initiatives. Both countries share a need for increased planning and coordination in development of maritime zones and addressing different parties' distinct maritime interests; each has developed a maritime spatial zoning tool by which to manage this activity in a more sustainable (versus uncontrolled, exploitative) manner. China's efforts are experimental and top-down in nature, in tune with past economic reform measures. The United States' ocean economy efforts are a combination of bottom-up, iterative, and mostly locally led initiatives paired with national-level policies and coordination activities.

By its nature, however, the blue economy is not only a domestic concern or concept; it incorporates broader maritime concerns such as regional fisheries, global maritime industries, energy exploration, marine scientific research, health and the impact of climate change, the Arctic and other far seas concerns, to name a few. In short, the blue or ocean economy is part of a global maritime commons where the actions of one can impact the many. As such, decisions that the world's two largest economies —the United States and China— make in pursuing a blue or ocean economy are likely to have far-reaching and long-lasting impacts on the globe.

Closing Keynote: The Honorable Sheldon Whitehouse, United States Senate[17]

Senator Whitehouse focused his closing remarks on three core issues: the importance of the oceans to the globe and to each country's way of life; sustainable maritime-related efforts that are happening at the local level that can be —and have been— scaled to national and international activities; and the importance of international cooperation in addressing common concerns on the oceans, providing examples of US-China cooperation in dealing with these ongoing challenges.

[17] Senator Sheldon Whitehouse (D-RI) kindly provided the closing keynote address via videotape rather than as planned, in person, due to the US Senate remaining in session.

The challenges to our oceans are many, including ocean acidification, which is occurring at a rate not seen for the past three hundred million years. Acidification of the oceans is a common concern for all countries, Senator Whitehouse noted, that will require, like other concerns, smart planning and cooperation, including across industries and at local, national and international levels.

As an example of local-level efforts to deal with growing marine and maritime challenges and opportunities, Senator Whitehouse cited Rhode Island's Special Management Area Plan (SAMP). This initiative helped the wind energy industry navigate state and local regulatory policies and effectively coordinated industry, government and public interests.

At the national level, the National Ocean Policy (2010) seeks to provide a US framework for streamlined regulatory planning and processes to promote greater public-private cooperation.

And at the international level, the Senator used the example of his own work with colleagues from both sides of the political aisle to ratify the Port State Measures Agreement. This agreement aims to improve efforts to stem illegal, unreported, and unregulated (IUU) fishing, also known as "pirate fishing." Senator Whitehouse provided an example of how this sort international cooperation can work by describing a recent operation in the North Pacific. This international operation involved a boat that was spotted fishing illegally. It was spotted by a Canadian aircraft that was carrying on board Japanese observers. The suspected boat was then seized by a US Coast Guard ship, which was carrying on board Chinese law enforcement officials as part of a cooperative exchange program. The fishing boat ultimately would be turned over to a Chinese Coast Guard vessel.

Concluding his remarks, Senator Whitehouse noted China's emerging vision of a blue economy that, like US ocean economy efforts, holds great promise for further international cooperation. He commended the 2014 US-China climate change agreement and noted that the concept of a blue or ocean economy is that of an interconnected economy and one that must, therefore, also be a sustainable economy.

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