

Testimony Before the House Subcommittee on Coast Guard and Maritime
Transportation Hearing on “China’s Maritime Silk Road Initiative: Implications
for the Global Maritime Supply Chain”

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*[This testimony represents the personal views of the author only and not those
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Mr. Chairman, Ranking Member and distinguished Members of the Subcommittee, thank you for the opportunity to appear before you to discuss the topic of China’s Maritime Silk Road (MSR) initiative and implications for the global maritime supply chain. This is an important topic, but one that has not received as much detailed attention as it warrants, in my view. So I commend the committee for its focus on this topic. Please note that these remarks represent my personal views and not official views of the U.S. government.

Taking a cue from military practice, here is the bottom line up front: **The United States and China are in a geo-strategic and economic competition in which development of the ocean economy (also referred to as the “maritime” or “blue” economy) will play a critically important role, particularly in terms of maritime (both commercial and naval) technology innovation advances. This competition will determine the future of the global maritime supply chain.**

The Ocean Economy

According to *The Ocean Economy in 2030*, a 2016 report by the Organization for Economic Cooperation and Development (OECD): “The ocean economy makes a significant contribution to the economy – over USD1.5 trillion in value-added in 2010...and by 2030, the ocean economy is likely to more than double” to an estimated \$3 trillion.² This growing strategic sector is particularly important in an age of global trade, investment, and innovation, maritime industry expansion, demographic shifts toward coastal zones, climate change, and an emerging naval contest between the United States and China. How and where the ocean economy develops will determine the future of the global maritime industry, affecting key aspects such as infrastructure and transportation, where the source and centers of maritime innovation will emerge, and which countries will dominate in deciding maritime law, policy, processes, and technical standards (on hardware, software, environmental measures and more), both on land and at sea.

Two important global trends fueling development of the ocean economy and sure to impact the global maritime supply chain are: 1) the expanding numbers and types of Special Economic Zones

(SEZs) around the globe, including specialized maritime industrial-themed development zones; and 2) the related concept of developing maritime clusters or innovation ecosystems designed to spur “blue” economic growth and technological innovation in more sustainable ways. China is at the forefront of both global trends.

Global Expansion of Special Economic Zones Promoting Economic Development

The United Nations Conference on Trade and Development (UNCTAD) published its annual World Investment Report (WIR) 2019, which emphasized the economic importance of special economic zones. The report shows “explosive growth in the use of special economic zones (SEZs) as key policy instruments to the attraction of investment for industrial development.”³

As calculated in *WIR 2019*, worldwide (in 147 countries) there are more than 5,000 SEZs, with 1,000 of these established in the past decade and 500 more currently in planning stages.⁴ This growth has taken place largely since the late 1990s, when there were less than 1,000 SEZs across the globe. China, alone, accounts for 2,543 of all SEZs, or nearly half (47%) of the worldwide total and more than half (53%) of those in developing countries (counting 13 planned zones but not China’s many smaller-sized industrial or science parks and some of its more specialized zones within zones).⁵

As the *WIR 2019* notes, SEZs “are widely used in most developing and many developed economies. Within these geographically delimited areas governments facilitate industrial activity through fiscal and regulatory incentives and infrastructure support.”⁶ The report notes that the United States has 262 SEZs, which represents the highest number among developed economies.⁷ In the United States, SEZs mainly take the form of foreign trade or customs-free zones and “are created at the instigation of local organizations rather than the federal Government”.⁸

The development of SEZs represents generally a top-down or government-driven effort to foster industrial development and can be effective in drawing domestic and foreign investment to economically and strategically critical sectors. Establishing an SEZ provides no assurance of economic success, but such zones can help spur investment, industry and innovation that might otherwise be slow to develop or be inefficiently dispersed or disconnected geographically.

The *WIR 2019* notes that Beijing estimates its 156 high-tech development zones (HTDZs), for instance, have “contributed \$1.42 trillion to China’s GDP, or 11.5 per cent of the economy” in 2017 with high levels of research and development expenditures to total production value as well as being responsible for a large fraction of China’s overall patent activity, though such Chinese economic data is often suspect.⁹ What is clear is that China’s economic rise over the past 40 years is due in part to China’s extensive and continually experimental approach to SEZ development.

For example, China has pioneered a novel form of SEZ focused on enhancing maritime—including commercial and naval—capabilities by establishing a specialized pilot Blue Economy Development Zone in Qingdao, China in 2011. Qingdao is located on the Shandong Peninsula southeast of Beijing and is the location of the PLA Navy’s Northern Theater headquarters. Within Qingdao’s Blue Economy Development Zone, planners also designated what they call a “Blue Silicon Valley” or maritime industry-focused cluster aimed at advancing marine science and technology.

Beijing has since approved additional Blue Economy Development Zones along its long coastline, from Dalian (the northern port home of China’s first aircraft carrier) to Tianjin, Shanghai, Xiamen, coastal sites in Hebei, Jiangsu, Zhejiang and Guangxi Provinces as well as Zhanjiang in Guangdong

Province -- the purported starting point for China's Maritime Silk Road and also headquarters of the PLA Navy's Southern Theater headquarters.

In addition to being coastal centers for development of commercial maritime industry, China's planned Blue Economy Development Zones noted above are strategically located with military and defense industrial interests in mind. As has become commonly understood, China's long-term economic and technological development model remains based on a dual-use, combined, "military-civil fusion" of technology innovation intended for both commercial and defense purposes. This strategic approach applies to the maritime sector as well and will affect how, and the degree to which, US and Chinese maritime stakeholders can engage, in China or overseas, as part of a global maritime supply chain.

As in other countries, China's blue economy concept includes promotion of sustainable maritime development and marine conservation as part of an innovation ecosystem. But foreign researchers note that marine environmental concerns as part of China's maritime and blue economy development plans typically rank as a distant last priority following innovation and industrial development goals, which Chinese researchers also acknowledge. Yet, the "blue" sustainable development component remains attractive to local officials as well as those in developing countries open to or seeking Chinese assistance in establishing blue economy development zones of their own.

In fact, bilateral government-government "partnerships zones" are becoming popular among developing countries, including partnership zones established with and by China. These zones complement China's own China Overseas Cooperation Zones (COCZs), established as of 2006 and of which 20 have been verifiably established, most (7) located in Southeast Asia, with four each in Russia across Africa, among other locations.¹⁰

China is a prominent actor, in fact, in developing *overseas* SEZs of various sorts, including zones with maritime importance. The *WIR 2019* notes that, "The first instance of Chinese involvement in the establishment of SEZs in Africa was in 1999, when China signed an agreement with Egypt to develop an industrial zone in the Suez Canal area. In 2006, as part of the implementation of its 11th five-year plan, China announced the development of 50 SEZs overseas, seven of which were to be in Africa. Subsequently, as Chinese investment and interest in Africa deepened, plans were announced for several additional zones to be built with Chinese support. For instance, China signed an agreement with Djibouti in 2016 to build an FTZ [free trade zone] as part of the Belt and Road Initiative; the first phase of the zone was launched in 2018. This 10-year project, costing \$3.5 billion, is to create Africa's largest FTZ, spanning 4,800 ha. The zone will be managed by a joint venture comprising the Government of Djibouti as the majority shareholder and three Chinese companies: the China Merchants Group, Dalian Port Authority and IZP. Involvement by Chinese development companies has also been reported in Algeria, Angola, Ethiopia, Kenya, Mauritius, Nigeria, Rwanda and Zambia, among others."¹¹ It was not lost on the United States and other naval and maritime powers that China also has built its first overseas military base (a naval support facility) in Djibouti, next to a major port and not far from the U.S. military's own base.

Under the Maritime Silk Road initiative, China has expanded its efforts to promote overseas SEZs, including overseas Blue Economy Zones and other "blue" cooperative programs, as discussed below.

US & International Ocean / Maritime Clusters of Innovation and Sustainable “Blue” Economy Development

The comprehensive OECD study, *The Ocean Economy in 2030*, concludes by recommending a focus for future SEZ development on sustainable development, noting that “the sustainable development agenda increasingly drives MNEs’ [multinational enterprises’] strategic decisions and operations...”¹² The *WIR 2019* report shares this advice, noting that new SEZs focused on meeting sustainable development goals (SDGs) represent a relatively new trend and promising development model.¹³

This dynamic has already begun to emerge in the maritime realm in the form of ocean- or maritime-oriented innovation clusters, many of which include emphasis on sustainable development efforts. According to a *World Ocean Council White Paper*, there are already dozens of (over 40) ocean or maritime industry clusters in development around the globe, including in the United States and China.

As defined by the World Ocean Council (WOC), “Ocean/Maritime Clusters are geographic concentrations of similar or related maritime firms —such as shipping, seafood, marine technology, and/or port operations— that share common markets, technologies, worker skill needs, and are often linked by buyer-supplier relationships and operate in close interactions with another directly and through multiple networks.”¹⁴ As noted, many of these clusters also include a focus on sustainable development. Ocean/maritime clusters are often found within or near SEZs.

These ocean or maritime industry clusters, whether planned (as in China) or forming organically (as is often the case in the United States), seek to enhance prospects for investment, industrial development, and innovation in a fashion similar to that found in Silicon Valley’s networked cluster of ICT industry firms and related organizations. This innovation ecosystem model concept promotes continuous and sustainable (in this case, maritime) industry development through establishment of formal and informal networks among the area’s varied stakeholders, setting up opportunities for both competition and cooperation to ensure a thriving business environment, both literally and figuratively.

The WOC maritime clusters report concludes, in fact, that, “the way forward is a focus on business growth and investment opportunities for responsible, sustainable ocean use (sometimes referred to as the ‘Blue Economy’ and ‘Blue Growth’), which considers the intersection of ocean economic benefits, environmental health and societal value in policies and best practices...Ocean/Maritime Clusters can lead ocean sustainable development and realize economic benefits.”¹⁵ In other words, maritime clusters ought to focus not only on promoting industry and innovation but also on more environmentally friendly, sustainable development-oriented practices such that today’s profits don’t lead to tomorrow’s marine ecological disaster.

The development of innovative maritime clusters that also promote environmental sustainability is an area in which the United States is likely to be more competitive with other countries, particularly China and developing economies, where environmental laws, regulations and practices are less established or advanced. In this regard, US maritime stakeholders could learn much from European countries, too, where environmental policies are prompting innovative approaches to maritime development and use of marine space. Yet, the United States presently lacks a clear strategy for sustainable development of the maritime sector, relying instead mainly on local and state leaders to foster enhanced maritime trade through investment, innovation *and* sustainability with only limited federal attention to the ocean economy overall.

China, alternatively, in addition to having experimented with development of SEZs for four decades, already has a vision and plans for all of the above and is implementing its plans both domestically and internationally, the latter as part of Xi Jinping’s Maritime Silk Road initiative. A European Council on Foreign Relations April 2018 study determined, for instance, that “Europe should emulate China’s blue economy as an engine of growth and wealth and encourage innovation to respond to well-funded Chinese industrial and R&D policies.”¹⁶ In short, Beijing is ahead of the rest of the world in conceiving a national and international strategy to leverage ocean/maritime/blue economy opportunities and could reap significant, first-mover commercial and defense industrial as well as technological advantages as a result. If so, China’s efforts could quickly shape the global maritime supply chain in surprising and strategically complicated ways for the United States and our allies, partners and friends across the globe.

China’s Maritime Silk Road, Maritime Vision & Action Plan

In 2013, Xi Jinping introduced China’s Maritime Silk Road as part of a larger “One Belt, One Road” strategic initiative (see Figure 1, bottom dotted line below).

Figure 1: “1 Belt, 1 Road” (一带一路): “New Silk Road Economic Belt, 21st Century Maritime Silk Road” (Xinhua, 2013)



As explained by PRC State Councilor Yang Jiechi in 2015, “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. Not only will we go utilizing the oceanic resources, we

will also protect well our oceanic environment. Not only should we deliver a good life to our people along the coast, we should also bring about an interconnected development of the hinterland and coastal regions to achieve common prosperity.”¹⁷ These are hefty promises and ambitious plans. While it’s unclear if China can achieve these aims, it’s fairly certain Beijing will try.

The inclusion of “development of the blue economy” in Xi’s MSR initiative is significant. Though China’s blue economy development efforts date back formally to the Hu Jintao era (2002-2012/13), Beijing’s initial enthusiasm for this development concept as a means of spurring China’s domestic maritime economy and dual commercial and naval technology innovation efforts appeared to wane for a time, becoming mired in bureaucratic rivalries or technology transfer challenges and other matters. Xi’s inclusion of the blue economy in the MSR appears to have revitalized the idea as an attractive means of promoting foreign direct investment and foreign maritime technology transfer in China’s blue economy development zones but also, perhaps primarily, through China’s development of *overseas* blue economy development zones.

Where China has found it harder in some ways to continue to attract US and other foreign ocean researchers, scientists, venture capitalists, entrepreneurs, academics, businesses, and other innovative actors to China, the MSR envisions China building a network of overseas BE development zones along the MSR as a means of achieving the same foreign technology transfers while emphasizing the opportunities such zones also provide local overseas economies and communities, presenting such development zones as a “win-win” deal.

In mid-2017, Beijing announced a new *Vision for Maritime Cooperation*, which built on Xi Jinping’s *Belt and Road Action Plan* announced in 2015.¹⁸ These two documents, in particular, provide a blueprint of China’s plans to develop an integrated global maritime industrial production, supply and technological development chain across the MSR.

China’s vision and action plans clearly outline how Beijing seeks to develop an overseas network of maritime industrial zones and innovative maritime clusters that are integrated with China’s domestic maritime sector. This ocean economy network is being built, in part, through development of what Beijing has termed “Blue Passages”, “Blue Economic [cross-border regional] Corridors”, “Blue Partnerships”, “Blue Carbon Programs”, and the aforementioned “Blue Economic Zones” in cooperation with neighboring, regional and international partners.¹⁹ These plans cover most of the globe, including all of the Indo-Pacific, stretching into the Mediterranean through to the Arctic and into the deep ocean.

China has advanced also the related concept of building a digital or “Information Silk Road” aimed at connecting maritime infrastructure and networking blue development efforts along the MSR. The 2015 Belt and Road Action Plan proposes, for instance, a range of development programs: “cross-border optical cables and other communication trunk line networks” (transcontinental submarine & satellite); plans to “form an infrastructure network connecting all sub-regions in Asia” as well as prioritizing facilities and network “connectivity”; standardized transportation, maritime, customs, logistics, info-technology and technical standards; promotion of “green and low-carbon infrastructure construction and operation management”; and the establishment of maritime cooperation centers and other collaborative efforts in ocean engineering, exploration, environmental protection industries, hydropower, and more.

Xi’s 2017 *Maritime Vision* further advises that “Countries along the Road are encouraged to enhance cooperation through pairing sister ports and forging port alliances. Chinese enterprises will be guided to participate in the construction and operation of ports. Projects for the planning and

construction of submarine cables will be jointly advanced to improve connectivity in international communications.”

Finally, the 2017 *Vision* also offers planning assistance in promoting a full range of blue economy activities, noting: “China is prepared to provide technical assistance to countries along the Road in drafting plans for sustainably utilizing marine resources. Enterprises are encouraged to participate in marine resource utilization in a responsible way...China will join in efforts by countries along the Road in establishing industrial parks for maritime sectors and economic and trade cooperation zones, and promote the participation of Chinese enterprises in such endeavors. Demonstration projects for developing the Blue Economy will be implemented and developing countries along the Road will be supported in mariculture to improve livelihoods and alleviate poverty. China will also work with countries along the Road in developing marine tourism routes and high-quality tourism products, and in setting up mechanisms for tourism information sharing.”

Thus, in the case of maritime competition, China’s strategic intentions under Xi’s leadership are clear, and much of the PRC’s basic long-term development plans publicly available to assess. The challenge for analysts and officials, therefore, lies more in determining whether, why, how far, and how fast China might succeed—or not—in implementing its ambitious plans. In conceiving its MSR initiative and network of ocean/maritime/blue economy zones and clusters, China’s strategic head start provides a competitive advantage but one that will not necessarily be maintained, particularly if the United States and its allies and partners decide to implement a strategy and plan(s) of our own to contend in this strategically critical space.

Given China’s clear rejection under Xi’s leadership of Western, liberal-democratic values as well as the Trump administration’s adoption of tariffs as a means to compel change in Chinese trade and investment activities, the growing geo-strategic and economic competition between China and much of the rest of the developed world is intensifying. It is unclear if the US and Chinese economies will be “decoupled”, as suggested by some White House officials. But the intensifying strategic competition is, at the very least, likely to complicate and slow future development of the global maritime supply chain, which could evolve into separate industrial spheres of influence. In that case, China’s head start in terms of strategic development of an ocean economy at home and abroad could prove more challenging.

Advances in the Ocean/Blue Economy in the United States

In trying to understand China’s innovation efforts and blue economy endeavors, I have conducted a modest amount of research in the United States and Europe to get a better idea of how these activities compare. In the United States, my outreach efforts indicate that ocean and blue economy activities remain largely local- or state-led initiatives driven by area entrepreneurs and officials seeking to leverage *existing* as well as emerging, start-up maritime enterprises and innovative opportunities. This primarily bottom-up (rather than top-down driven) approach to innovation is characteristic of how the United States historically has developed innovative opportunities, networks and clusters and represents an important comparative advantage. In this respect, maritime innovation in the United States appears to be robust and dynamic.

At the same time, however, as ocean/maritime/blue economies continue to grow and expand around the United States, the federal government can play an important supporting role to local ocean/maritime/blue innovation efforts by providing data and other information on the totality of these local efforts, regular analyses of these activities, and by providing some amount of funding to assist local actors to better understand how they fit into the larger picture—domestically and

globally— as well as how they might find opportunities to engage within and outside their region, whether through business ventures, research collaborations, or federal R&D opportunities.

The federal government also can play an important role in collecting data to help officials better understand and leverage local, regional and national economic centers of maritime innovation. Such efforts are already taking place. Though often under the national radar. For instance, local-level efforts to understand what stakeholders already or potentially could be involved in regional ocean/maritime/blue economy clusters are occurring and local parties are working to connect stakeholders to one another through business, academic and government-sponsored conferences, workshops, contact lists, and more. In the absence of a national-level strategy, these laudable local-level efforts are occurring in an often ad-hoc manner and/or by parties with an interest in only a section(s) of the maritime economy, which means opportunities are being lost. Also, information on potential stakeholders as well as a systemic understanding and analyses of strategic implications are likely to be incomplete.

Such local, ad-hoc, or area-specific efforts are also very unlikely to provide national leaders with a clear understanding of how competitive the United States is —or is not— in maritime development and innovation vis-à-vis other countries, particularly China. If the United States wishes to ensure the global maritime supply chain remains one in which U.S. researchers, enterprises, policy, technologies and standards play a leading and essential role, then a more strategic and systemic approach is needed to understand changes to the global maritime supply chain, and particularly the role played by ocean/maritime/blue economy and innovation zones and clusters being formed across the United States and internationally.

Recommendations for a Strategic Way Ahead

There is much that Congress can do to support the United States' leadership in ocean science, maritime industry, blue technology, marine conservation and sustainable maritime development, all of which will impact the global maritime supply chain as well as Coast Guard and U.S. Navy development and acquisition efforts. Below are a few ideas for the Committee's consideration.

- ***The United States needs a comprehensive strategy focused on how to both facilitate and leverage development of the ocean or blue economy at home and abroad.***

The Trump administration in 2018 revoked the Obama-era *National Ocean Policy*, replacing it with a brief Executive Order focused on “ocean-related matters” that mentions in the body “environmental” interests and “sustainable use” substantively only once, each, and “innovation” not at all.²⁰ Under new, joint leadership of the Office of Science and Technology Policy (OSTP) and Council of Environmental Quality (CEQ), the latter initiative appears to be a low priority for the current administration. This observation is supported by the brief section on “oceans” in the White House budget R&D memo that directs “Departments and agencies should prioritize new and emerging technologies and collaborative approaches to efficiently map, explore, and characterize the resources of the U.S. exclusive economic zone...[and] should also focus on processing and making publically available data that characterize natural resources and human activities and on R&D that improves understanding of and supports effective responses to changes in the ocean system”.²¹ This narrow scope and limited efforts effectively represent a strategic step backward in meeting US national security, economic, technological and sustainable development interests.

While the United States' advantage in innovation stems mainly from local community and state-level, bottom-up, entrepreneurial activities, a national strategy for development of the ocean or

blue economy can facilitate and help coordinate such efforts to ensure local-level advances also serve national economic and defense requirements.

- ***Congress should continue to support ocean science research and, if necessary, mandate a comprehensive ocean economy strategy (per above) to guide national priorities.*** Ocean science, technology engineering and math (O-STEM) educational support starting at K-12 programs and carrying through to graduate education and federal laboratory research, is essential, particularly where these programs engage with other actors as part of ocean / maritime zones and clusters.
- ***Congress can authorize executive departments and agencies to develop and facilitate adoption of export control policies, processes and expertise specific to the expanding and increasingly global maritime industry sector.***

Ocean science and research is by nature a global enterprise, including work by and with Chinese scientists and researchers; maritime innovation and technology development, however, must be carefully protected in the face of decades of Chinese efforts to exploit foreign technology transfers. US ocean/maritime/blue economy actors are becoming increasingly engaged around the globe. At the same time that we must find ways to leverage the maritime S&T and R&D that is taking place around the country and across the globe, doing so involves inherent risks, particularly when interacting with Chinese and other foreign counterparts. That is not a reason not to engage, but cause to do so strategically while taking care to protect intellectual property and other U.S. assets — for instance, by applying hard lessons learned in assisting emerging ocean/maritime/blue economy and innovation clusters across the United States in establishing strong export control and technology transfer expertise and corporate or university research policies *before* problems arise.

Just as other countries seek to secure a presence in our Silicon Valley in order to be on the ground where computer software and other new technologies are being developed, the United States should *encourage* an American presence in overseas ocean / maritime clusters and blue economy zones so as to ensure US companies and researchers have knowledge of, and familiarity with, what maritime industry developments and ocean innovations are occurring elsewhere around the globe and in a timely fashion; US federal R&D labs should also focus on understanding what implications are arising from these emerging ocean/maritime centers.

- ***More specifically, Congress could support research —particularly field research— aimed at gaining a deeper understanding of whether, how effectively, and how quickly China's MSR network and related maritime industrial and innovation plans are being implemented.***

Many research institutions around the world are trying to analyze and assess China's MSR. These laudable efforts exist far and wide but are typically intermittent and generally lack a consistent, long-term or comprehensive focus. Congress might usefully provide funding for a public repository of such information and analyses, which would aid US and allied research efforts into China's near- and long-term MSR activities. Earlier this year, I recommended the U.S. Navy establish (or support) a dedicated Blue Century Initiative Institute as a research center and repository of information and analysis on the developing concept of an ocean/maritime/blue economy in order to aid its own strategic and innovative endeavors. Such a one-stop public research institute and library also could serve —or be leveraged by— the U.S. Coast Guard. If any such center were to be established, it should include a focus on technological innovation but also on *sustainable development* dynamics to ensure that any work takes into account the full range of commercial and military maritime advances that are possible as well as

ensure a *sustainable* ecosystem of maritime innovation develops to serve near- and long-term US economic and national security interests.

- **At a minimum, Congress can support research specific to development of blue technology.** As this subcommittee noted in its May 2018 hearing, “Blue technology’ is a term that describes a wide swath of technologies and systems that support, sustain, and integrate the U.S. and global ocean economy. Accordingly, systems and technologies such as autonomous vehicles, sensors (both remote and in situ), ocean observation platforms, and hydrographic services, among many others fall under the term. The integration of advanced blue technologies could improve operational efficiencies and the Coast Guard’s mission performance...improved understanding of the maritime environment, and optimal deployment and use of conventional Coast Guard assets (e.g., cutters, aircraft, small boats, etc.)”²² Blue technology holds promise far beyond traditional maritime industries and, thus, represents a worthwhile focus for U.S. scientific research funding.
- ***Finally, as many before me have advised, Congress should ratify the United Nations Convention on the Law of the Sea (UNCLOS) so that the United States can be a constructive and driving force in shaping critical decisions made or influenced at this important international legal forum (and to which China is a member).*** If Congress determines ratifying UNCLOS is not in the U.S. interest, then it is advisable for the United States to initiate an alternative or follow-on treaty or forum to address the future sustainability and use of the world’s oceans.

Thank you for your invitation. I stand ready to provide answers to any questions you might have.

Notes

¹ These views are based in part on research conducted for a forthcoming volume on strategic implications of China and the blue economy, as well as ongoing research and presentations on this topic dating back to 2013.

² OECD. *The Ocean Economy in 2030* (Paris: OECD Publishing, 2016). The ocean economy is sometimes also called the “maritime” or “marine” or “blue” economy. All of these terms include some degree of maritime industrial development, technological innovation, sustainable development, and environmental conservation as economic elements and as parts of an ecosystem. According to the OECD, “the ocean economy represents the sum of the economic activities of emerging ocean-based industries (i.e. renewable energy) and established ones (i.e. capture fisheries), together with the goods and services of marine ecosystems...” OECD, “The Ocean Economy and Innovation: Promoting Sustainable Seas and Oceans with Innovation,” *STI in Focus*, Directorate for Science, Technology and Innovation (April 2017), <http://www.oecd.org/sti>.

³ United Nations Conference on Trade and Development (UNCTAD), *World Investment Report: Special Economic Zones* (New York, NY: United Nations Publications, June 2019), p. iv. (Hereafter *WIR 2019*).

⁴ *WIR 2019*, p. xii.

⁵ *Ibid.*, pp. 135-143.

⁶ *Ibid.*, p. xii.

⁷ *Ibid.*, pp. 152-3.

⁸ *Ibid.*, p. 153.

⁹ *Ibid.*, p. 134.

¹⁰ *Ibid.*, p. 157.

¹¹ *Ibid.*, pp. 149-150.

¹² OECD. *The Ocean Economy in 2030*, p. xiv.

¹³ *WIR 2019*, p. 205.

¹⁴ Hansen, Eric Rolf, et al., *Ocean / Maritime Clusters: Leadership and Collaboration for Ocean Sustainable Development and Implementing the Sustainable Development Goals*. World Ocean Council White Paper, Economic Transformations Group & World Oceans Council, 2018, p. 4.

¹⁵ Hansen, et al., p. 3.

¹⁶ Mathieu Duchatel and Alexandre Sheldon Duplaix, *Blue China: Navigating the Maritime Silk Road to Europe*, European Council on Foreign Relations *Policy Brief - Summary* (ECFR/ECFR/255, April 2018).

¹⁷ China Ministry of Foreign Affairs, Press Release (March 28, 2015), http://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1249761.shtml

¹⁸ See, respectively, "Vision for Maritime Cooperation under the Belt and Road Initiative," *Xinhua News Agency* (June 20, 2017), http://news.xinhuanet.com/english/2017-06/20/c_136380414.htm; and *One Belt One Road Action Plan*. Beijing: Xinhua News Agency, March 2015. Both documents were available in English-language translations.

¹⁹ Regional Economic Zones include, for instance, the Beibu Gulf Economic Zone; there are thus far six Regional "Blue" (Economic) Corridors (on land & sea), including the China-Pakistan Economic Corridor (CPEC), Bangladesh-China-India-Myanmar, China-Indochina Peninsula, New Eurasian Land Bridge, China-Mongolia-Russia, and China-Central Asia-West Africa; "Blue Partnerships" exist with the European Union and some island states; and various "Blue Passages" are envisioned connecting China's domestic ocean economy to those elsewhere, namely: China-Oceania-South Pacific, China-Indian Ocean-Africa-Mediterranean Sea, and others (including one passage that seeks to connect China to the Arctic).

²⁰ Executive Order 13840, entitled "Ocean Policy to Advance the Economic, Security and Environmental Interests of the United States", was issued June 19, 2018 and overrides Obama-era policies establishing the National Ocean Policy. See Executive Office of the President, "Executive Order 13840," *The Federal Register* (June 19, 2018) 83 FR29431, pp. 29431-29434

²¹ Executive Office of the President, "Memorandum for the Heads of Executive Departments and Agencies on Fiscal Year 2021 Administration Research and Development Budget Priorities" (August 30, 2019), <https://www.whitehouse.gov/wp-content/uploads/2019/08/FY-21-RD-Budget-Priorities.pdf>.

²² Subcommittee on Coast Guard and Maritime Transportation of the Committee on Transportation and Infrastructure, "Hearing on Blue Technologies: Use of New maritime Technologies to Improve Efficiency and Mission Performance" (Washington, DC: Government Printing Office, May 6, 2018), p. iv.