



# Developing a Blue Economy in China and the United States

By Michael Conathan and Scott Moore May 2015

Center for American Progress



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# Introduction and summary

As the world population balloons toward more than 9 billion people by 2050,<sup>1</sup> nations will need new resources from a finite amount of space to meet soaring demand. And as more people move to coastal regions, their minds will inevitably be drawn to the sea. After all, more than two-thirds of our planet is covered with ocean, and the seas boast tremendous economic development, transportation corridors, sources of oil and gas, and cornucopias of seafood. Oceans also provide less-tangible benefits that are often difficult to quantify, including moderating the planet's climate by absorbing roughly 90 percent of the heat trapped by a thickening atmospheric blanket of carbon pollution.<sup>2</sup> They produce more than half of the oxygen we breathe.<sup>3</sup> In coastal regions, healthy coral reefs and other wetlands ecosystems safeguard communities from storm surges and flooding events, sequester massive amounts of carbon, and filter out other pollution produced on land.

To sustain a 21st century population boom, we must balance marine economic development with protection of the ocean's environmental services that have sustained life on our planet for millions of years. This report examines the different ways that two nations, China and the United States, are approaching this dilemma by promoting a concept known as the "Blue Economy."

The Blue Economy represents a relatively new manner of describing ocean economic development that began to emerge first among many island nations, including tiny developing countries such as the Republic of Seychelles, as well as the archipelagic giant Indonesia, the fourth-most-populous country in the world.<sup>4</sup> It's now gaining recognition in some of the world's biggest and most powerful nations, including China and the United States, which have increasingly begun to turn to the concept of the Blue Economy to promote development of their ample ocean and coastal resources. Honing the Blue Economy's focus could ultimately pay dividends by allowing economic growth to blossom alongside environmental sustainability.

China has not typically been at the top of the list of countries that rely most heavily on their ocean resources. Its exclusive economic zone, or EEZ—the area of ocean space over which a nation has sole right to extract resources including minerals and fish—is the subject of ongoing debate, with China claiming a vast area of the South China Sea that neighboring countries also claim. But China has sought to expand the economic contributions it receives from offshore resources.

The United States, which boasts the largest EEZ in the world,<sup>5</sup> has also looked beyond its shores to support its economy. Given both nations' economic clout, the United States and China have tremendous potential to develop and implement policies that promote marine environmental protection and to prove that these strategies do not preclude the possibility of economic growth.

Yet as the Blue Economy emerges as a means of quantifying the economic benefit of ocean industries and resources, its true definition remains opaque. Adding up the contributions of all economic activity related to ocean and coastal ecosystems is a relatively simple means of drawing boundaries. But it fails to account for the reality that industrial development frequently comes with an environmental cost. Offshore fossil-fuel extraction, for example, carries the risk of spills, which lead to the degradation of natural resources, and will increase emissions of carbon pollution and other greenhouse gases. In other cases, promoting one industry means preventing another; for example, an area designated for shipping lanes would be off-limits to construction of an offshore wind farm. As a result, the ocean economy cannot simply be relabeled the Blue Economy. The world needs a new definition of what constitutes a Blue Economy both in order to promote the economic benefits of ocean industries and to ensure sustainable development.

In January 2014, developing nations came together for two days in Abu Dhabi to explore and develop the concept of the Blue Economy under the auspices of the U.N Sustainable Development Knowledge Platform.<sup>6</sup> Their efforts were based on a concept paper that established the Blue Economy as a “framework for sustainable development.” It explained that “at the core of the Blue Economy concept is the de-coupling of socioeconomic development from environmental degradation ... founded upon the assessment and incorporation of the real value of the natural (blue) capital into all aspects of economic activity.”<sup>7</sup>

According to international law, countries have sole economic jurisdiction over ocean space that extends 200 nautical miles out from their shores.<sup>8</sup> Small-island developing states have embraced the concept of the Blue Economy as a means of maximizing the benefits that accrue from their greatest asset: their marine

resources. The Seychelles, for example, has a land area of 455 square kilometers, or 175 square miles—roughly three times the size of the District of Columbia. Yet it has dominion over an EEZ that encompasses more than 1.3 million square kilometers, or more than 514,000 square miles—nearly twice as large as Texas.<sup>9</sup>

While island nations clearly have much to gain from improved management of their ocean resources, so do larger coastal nations, including the two economic leviathans: the United States and China. In both nations, efforts are underway to better understand, define, and promote the Blue Economy. This report explores the concept’s development, detailing the similarities and differences, and makes recommendations for how the United States and China can promote a collaborative understanding of how to value the ocean’s natural resources around the globe.

This report also proposes three key recommendations to help the United States and China account for the true value of robust marine natural resources and to boost cooperation as they increasingly look to their offshore regions for economic growth. Specifically, the United States and China should:

- Jointly develop a methodology to account for the long-term economic contributions of healthy coastal and ocean ecosystems
- Establish joint initiatives under the U.S. Department of State’s EcoPartnerships program, incorporating ocean planning and Blue Technology clusters
- Enhance and expand existing bilateral partnerships and develop new agreements to ensure sharing of best practices and consistency of oceanographic data collection and dissemination

Leaders in both China and the United States understand the need to boost economic growth, while curbing environmental degradation and reducing carbon pollution and other emissions that fuel climate change. Now, it’s time for them to turn their attention to their vast areas of ocean space and implement policies that acknowledge the true economic and environmental opportunities that exist offshore.

# China's Blue Economy

As a steady drip of media reports attests, China's environment is under growing strain as a result of high levels of pollution and overuse of natural resources. The concept of environmental protection is gaining greater traction among Chinese citizens. In early March, a documentary film called "Under the Dome" went instantly viral in China, amassing more than 100 million views in its first 24 hours and an estimated 300 million views before the central government banned its distribution, according to a report by *The Guardian*.<sup>10</sup> The film is a 143-minute exploration of China's environmental degradation through the eyes of its citizens, and it includes a direct plea for citizens to make their voices heard—a rare call to action in a society that typically does not permit such grassroots activism.

China's environmental challenges do not stop at the water's edge. According to the latest Marine Environment Bulletin published by China's State Oceanic Administration, large parts of the country's coastal areas and territorial seas are heavily polluted. Nutrient pollution, including nitrogen and phosphate runoff, is a major problem in China's estuarine regions, creating massive algal blooms.<sup>11</sup> These lead to severe eutrophication—more commonly referred to in the United States as dead zones, where a lack of oxygen in the water kills all marine life that cannot escape to healthier areas. In major industrial regions, particularly the Bohai Sea, heavy metal pollution is increasingly severe, with marine sediments bearing growing concentrations of mercury, cadmium, and petroleum compounds.<sup>12</sup> China's near-shore fisheries are also overexploited, reducing fish landings in coastal areas and pushing fishing fleets further and further offshore.<sup>13</sup> Moreover, oil and gas production and transport has become a significant problem for the marine environment. In 2010, a major spill near Dalian in northeast China covered some 430 square kilometers and killed large numbers of fish and wildlife.<sup>14</sup>

Partially in an attempt to show that it is addressing these marine environmental challenges, China has embraced the concept of the Blue Economy. However, the Chinese approach differs somewhat from the way the concept is defined in other nations. Globally, this ocean management and governance approach stresses the environmental, as well as economic benefits, of sustainable development in

the world's coastal and marine areas. Meanwhile, the Chinese model stresses an integrated, cross-sectoral approach to the development of coastal areas—offering lessons for other countries, such as the United States, that are seeking similar approaches to marine regional planning. But China's emphasis is not on environmental protection. The Chinese government has taken a few important steps to better protect marine ecosystems, but its primary focus has been on economic development—an approach that marginalizes the key role that ecosystem protection plays in sustaining productive ocean environments.

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## The evolution of China's Blue Economy

China has roughly 9,000 miles of coastline, nearly all of which runs from the North Korean border to the north to the Vietnamese border to the south. It also includes the coastlines of several island possessions. The Chinese government's interest in the Blue Economy concept dates back to the 11th Five-Year Plan, Beijing's strategic economic development plan, which covered the years 2006 through 2010 and included a set of specific data that covered the marine economy.<sup>15</sup> Performance during this period was impressive, registering average annual growth of 13.5 percent and creating some 33 million jobs by the end of 2010.<sup>16</sup> Accordingly, in the 12th Five-Year Plan, spanning the years 2011 through 2015, China's supreme executive body, the State Council, issued a new set of specific targets for China's Blue Economy, including total output value growth of 8 percent per year, value-added growth of 9 percent annually, and a goal for the Blue Economy to make up 10 percent of total national gross domestic product, or GDP, by 2015.<sup>17</sup> In addition, the targets strongly incentivized research, development, and innovation, specifying that research and development expenditures should account for 2 percent of total output value for the marine economy as a whole.<sup>18</sup> The inclusion of such specific and ambitious targets for Blue Economy sectors as part of China's strategic economic development plan suggests the degree to which it has attracted the attention of senior Chinese government officials.

Nonetheless, it should be clear that the term “Blue Economy” does not necessarily mean the same thing in the Chinese conception as in the Western conception. Instead of referring to a new model of marine resource use that emphasizes environmental sustainability, the Chinese concept instead signifies the integrated development of coastal and marine resources as part of a strategic, national economic development plan. This role is articulated in the 2008 National Marine Industrial Development Plan, which proclaims that “marine industry must occupy a very important strategic position” in China's “socialist modernization.”<sup>19</sup>



The National Marine Functional Zoning Plan shows the emphasis placed on coordinated development of both land and sea resources. The plan, originally issued by the State Council in 2002, establishes “land-sea coordination,” or *lvhai tongchou*, as a central principle of zoning in coastal areas.<sup>20</sup> Indeed, ocean planning—in which multiuse industrial development and conservation zones are planned for holistic use of marine regions—plays an important part in China’s policy framework for the Blue Economy, which currently relies heavily on economic development plans for specific coastal areas. In 2011, for example, as part of the 11th Five-Year Plan Marine Economic Development Strategy, the State Council released plans to create a “Blue Economic Zone” in Shandong Province, centered on the coastal city of Qingdao and intended to focus regional economic planning on the Blue Economy. The concept generated significant growth in Qingdao’s GDP and was judged a success. The State Council approved an expansion known as the “Qingdao West Coast New Area,” which is intended to serve as a hub for deep-sea and offshore exploration, eventually sustaining a regional Blue Economy of 1 trillion yuan by 2020.<sup>21</sup>

As described by the State Oceanic Administration, the structure of China’s Blue Economy includes virtually the complete range of economic sectors. In addition to traditional marine resource uses such as fishing, shipping, and oil and gas production, China’s marine economic development strategy also includes tourism, as well as new and emerging activities such as marine bioprospecting, which is the search for new organisms that might prove valuable to the pharmaceutical or cosmetic industries.

In this broad definition, China’s Blue Economy appears geared for significant expansion and is poised to play a major role in the country’s economic growth in coming years. According to the latest 2013 data, China’s gross national product from its marine economy increased 7.6 percent over 2012. Services such as tourism account for the majority of China’s Blue Economy, with tourism itself accounting for some 35 percent of the total. Interestingly, while more traditional resource exploitation activities such as oil and gas development grew slowly, at only 0.1 percent from 2012, newer resource uses such as ocean mining—literally, the retrieval of minerals from the seabed—grew rapidly, at nearly 14 percent. Marine bioprospecting, meanwhile, grew by 21 percent.<sup>22</sup>

This growth potential, particularly in higher-value-added industries, appears to have attracted high-level attention. At the 2014 Chinese Communist Party Work Conference, where national priorities for the coming year are discussed, China’s leaders pledged to continue to develop the country’s marine economy, indicating its continued importance in the country’s strategic economic development strategy.<sup>23</sup>

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## Lessons learned from China's Blue Economy

China's efforts to develop its Blue Economy offer several lessons for other countries seeking to better utilize their marine resources, including the United States. First, the formulation of integrated resource use and development plans across disparate economic sectors—including fisheries, energy, and tourism—has the potential to highlight common-sense and win-win policy options to enhance economic development and protect the marine environment. Second, specific policy support given to innovative, high-growth-potential industries, such as marine bioprospecting, may underpin regional economic development in coastal regions and help sustain vibrant entrepreneurial ecosystems centered on marine and oceanic resources.

China's past emphasis on growth in the Blue Economy risks ignoring the need to limit exploitation of marine resources to sustainable levels. But more recently, the Chinese government has appeared willing to benefit from the experience of other countries in finding ways to sustainably develop and utilize offshore and coastal regions. In September 2014, under the auspices of the Asia-Pacific Economic Cooperation grouping, China hosted an Ocean-Related Ministerial Meeting, where delegates pledged to pursue sustainable ocean development under the Blue Economy concept, which they called “an approach to advance sustainable development and conservation of ocean and coastal resources and ecosystems ... in order to foster economic growth.”<sup>24</sup>

China is advancing its vision for the Blue Economy within the national government and has developed it exceedingly well in specific local regions. However, allowing the weaker, localized government entities additional control may not translate into significant gains in conservation because broader environmental initiatives are still left to the national government. Therefore, economic development has remained the priority, leaving environmental protection somewhat further down the list. This approach aligns more with simple accounting of the ocean economy—all industries that operate or rely on operations in the marine environment.

While the Chinese model of the Blue Economy presents ideas to utilize the country's marine resources, the American experience offers several lessons for how the development of the Blue Economy can simultaneously increase prosperity and enhance marine environmental protection. The next section outlines the U.S. definition of Blue Economy development and offers key lessons that China and other nations can emulate.

# The U.S. Blue Economy

According to a 2014 National Ocean Economics Program study, “[i]n 2010 the ocean economy comprised over 2.7 million jobs and contributed over \$258 billion to the GDP of the United States.”<sup>25</sup> Meanwhile, in 2012, shore-adjacent counties were home to 48.8 million jobs and contributed \$6.6 trillion to the U.S. GDP.<sup>26</sup> The U.S. population tends to cluster in coastal counties, where roughly 10 percent of the land area is home to nearly 40 percent of American citizens.<sup>27</sup> But the coastal economy figures really provide a backdrop from which we can break out the specific marine-related industries that comprise components of the Blue Economy. For the purposes of this report, the more relevant figures are those that define the ocean economy.

The United States has no direct federal program specifically targeted at promoting the concept of the Blue Economy. But in areas where the goals of a Blue Economy have been developed, environmental sustainability is a foundational priority. Of course, environmental stewardship has not always been paramount to U.S. management of its oceans and coasts. In fact, the case can still be made that the United States has not done enough to prioritize marine protection in its ocean policy and that it still has ample room to improve its environmental stewardship. For example, the Department of the Interior plans to forge ahead with oil and gas development in the remote and dangerous waters of the Arctic Ocean, despite its own findings that full, sustained production in the region would have a 75 percent chance of resulting in a “major spill”<sup>28</sup> and the fact that the closest Coast Guard station or major port facilities are hundreds of miles away.<sup>29</sup> Similarly, the failure to adequately address runoff from agricultural activity is a direct contributor to a dead zone in the Gulf of Mexico. This area—depleted of oxygen to the point that it can no longer support life—was roughly the size of Connecticut in 2013.<sup>30</sup>

Still, there is progress, and the case for promotion of the Blue Economy is growing. In June 2009, less than three months after being sworn in as administrator of the National Oceanic and Atmospheric Administration, or NOAA, Jane Lubchenco defined the Blue Economy as “a vibrant, ocean-based economy that is economically and environmentally sustainable.” Lubchenco contended that the Blue Economy’s development is “essential to the nation’s health, prosperity, and well-being.”<sup>31</sup>

Lubchenco's enthusiastic endorsement of the concept notwithstanding, it has fallen to nongovernmental organizations and academic communities to define the Blue Economy in the United States and to advocate for its consideration in the development of ocean and coastal management initiatives. As a result, the concept in the United States tends to focus more on methods of evaluating and promoting the economic contributions of industries that link ocean health and economic growth; rely on healthy oceans and coasts to be profitable; contribute to restoration of ocean resources; or result in greater understanding of the ocean's potential contributions to society.\*

Healthy ecosystems have inherent economic value, even if that value is often difficult to quantify. Coastal wetlands ecosystems, for example, serve as pollution filtration systems, buffers for storm-surge flooding, and nurseries for commercially and recreationally important fish species. They also provide recreational opportunities and enhance property values. A 2014 Center for American Progress and Oxfam America study of the economic value of these areas found that for three specific sites in the continental United States, every dollar invested by NOAA to restore degraded coastal wetlands ecosystems returned more than \$15 in net economic benefits.<sup>32</sup> Studies such as this one make a strong case that the United States and other countries must look past the immediate returns of industrialization of the world's oceans and pay greater attention to the long-term value of foregoing development.

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## Measuring America's Blue Economy

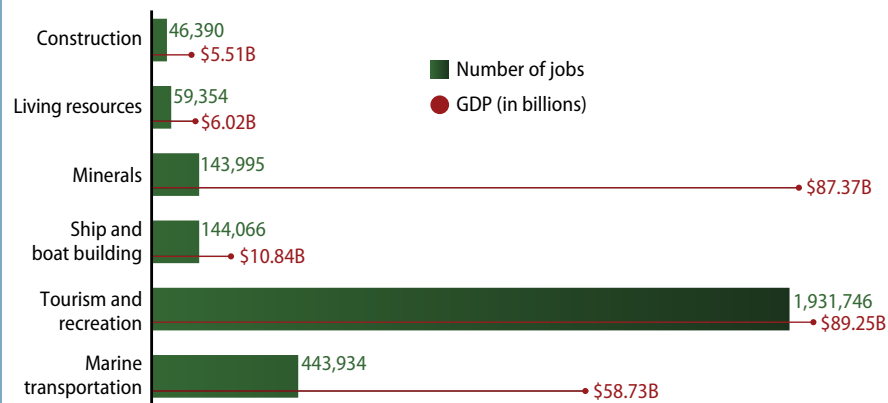
There is no hard and fast line that defines the boundaries of sustainability as a concept. For example, one could make the case that technological developments to reduce emissions from the shipping industry or advancements in oil spill cleanup technology should be counted as part of the Blue Economy because they generate economic activity from the process of making industrial activity less environmentally harmful. Determining a comprehensive definition of the Blue Economy that includes directly comparable subcategories will allow greater appreciation for the economic contributions of this vital sector both in the United States and globally. A single international term could allow all nations to work collaboratively toward improving management of the world's marine natural resources.

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\* For the purposes of this document, the concept of the Blue Economy in the United States should be understood to include the Great Lakes in addition to marine resources.

In the United States, the current pre-eminent tool for quantifying these marine economic contributions is the National Ocean Economics Program, or NOEP, operated as part of the Center for the Blue Economy, an academic institution at the Middlebury Institute of International Studies at Monterey in California. NOEP uses government data to quantify the economic contributions of the ocean economy and coastal economy.<sup>33</sup> The ocean economy includes industries “explicitly [tied] to the ocean, or ... partially related to the ocean and located in a shore adjacent zip code.” The coastal economy is “the sum of all economic activity occurring in counties defined by states as part of their coastal zone management program or part of a coastal watershed.”<sup>34</sup>

**FIGURE 1**  
**The United States' ocean economy**



Notes: "Construction" includes activity related to marine infrastructure, including ports, piers, energy development platforms, and beach renourishment. "Living resources" includes fishing and aquaculture. Minerals includes sand and gravel mining, as well as oil and gas activities. "Ship and boat building" includes construction and manufacturing of military, commercial, and recreational vessels. "Tourism and recreation" includes restaurants, hotels, and activities such as surfing and diving. "Marine transportation" includes freight and passenger transportation, as well as manufacturing of search and navigation equipment.

Source: Judith T. Kildow and others, "State of the U.S. Ocean and Coastal Economies 2014" (Monterey, CA: National Ocean Economics Program, 2014), available at [http://cbe.miiis.edu/noep\\_publications/1/](http://cbe.miiis.edu/noep_publications/1/).

U.S. ocean and coastal economies are major drivers of the nation’s prosperity, but the sweeping categorization promoted by NOEP does not acknowledge the environmental ramifications of some of the largest contributing industries. Activities such as minerals extraction can be major economic contributors, but they also can put at risk other segments of the economy that rely on healthy, unspoiled oceans and coasts in order to exist at all. For example, far fewer Americans would spend their vacation dollars for a trip to beaches stained with spilled oil or a portion of their grocery budget on seafood tainted with pollution.

Industries in the Gulf of Mexico experienced this calamity firsthand in the aftermath of the BP Deepwater Horizon oil spill in spring 2010, when an estimated 5 million barrels of oil gushed from a ruptured wellhead.<sup>35</sup> The oil and gas industry is clearly a huge economic driver for producing states in the Gulf of Mexico, but other industries felt the brunt of the disastrous spill. A 2012 study published in the *Canadian Journal of Fisheries and Aquatic Sciences* found that the midpoint estimate of losses to just the commercial and recreational fishing industries over the “next 7 years” would be approximately \$8.7 billion.<sup>36</sup>

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## Lessons learned from the U.S. Blue Economy

The United States’ best practices for measuring the Blue Economy can provide a useful guide for China. To explore the concept of the Blue Economy with a more direct focus on the overlap between economic growth and environmental sustainability, CAP’s Ocean Policy program published an issue brief in June 2012. “The Foundations of a Blue Economy” focused specifically on four aspects of U.S. ocean and coastal economies that contribute to or rely on healthy oceans and coasts and simultaneously serve or have the potential to serve as major economic drivers in their own right: sustainable fisheries, recreation and tourism, coastal ecosystem restoration, and offshore renewable energy development.<sup>37</sup> The overarching goal of this approach is to ensure that the economic contributions of healthy coastal ecosystems are adequately evaluated so communities and decision makers at all levels of government can promote and implement policies that provide the greatest economic and environmental benefits over the long term.

This approach is by no means comprehensive of all ocean-related economic activity, as it excludes some of the largest financial sectors that operate in the offshore space, particularly shipping and offshore minerals development, including oil and gas drilling. Other organizations within the United States have sought to promote the concept of the Blue Economy by including new and emerging industries. These industries include technological innovators in sectors such as environmental safety and compliance, marine robotics, aquaculture, desalination, and marine biotechnology.

NOEP also analyzes data on the development of service industries that support these innovators, including the portions of the financial and insurance sectors that allow development of blue research and technology. These sectors are sometimes collectively referred to as the “New Blue Economy” or “Blue Tech.”

These sectors are fundamental to a strategy of developing “Blue Clusters,” which both the United States and China are currently implementing. This practice involves promoting the symbiotic growth of ocean-related industries, particularly in the research and high-tech sectors, co-located in a single geographic area. As mentioned above, China is developing a “Blue Economic Zone” in the city of Qingdao in Shandong Province.<sup>38</sup> Meanwhile, in the United States, an organization called The Maritime Alliance and the city of San Diego, California, have promoted a similar approach to blue growth. Their model encourages businesses and industries that rely on the maritime sector to operate in close geographic proximity in what is known as a Blue Tech, or maritime technology, cluster, as detailed in the San Diego Maritime Industry Report 2012.<sup>39</sup> This allows the component sectors to collectively take advantage of economies of scale, operate more collaboratively when appropriate, and deliver their products and services more efficiently to consumers and clients. One way to think of this approach is similar to a shopping mall—one-stop shopping for users to connect with developers and purveyors of maritime technology.

Just as China is pursuing a National Marine Functional Zoning Plan, the U.S. government is also in the process of prioritizing ocean planning. In 2010, President Barack Obama established a National Policy for the Stewardship of the Ocean, Our Coasts, and the Great Lakes.<sup>40</sup> Among other priorities, the National Ocean Policy Implementation Plan encourages regional groupings of coastal states to collaborate on regional ocean plans to help optimize current and future uses of ocean space.<sup>41</sup> The Northeast and mid-Atlantic regions are well into their ocean planning processes, and in 2014, the Caribbean region initiated a regional planning process of its own, calling the effort “key to supporting healthy marine ecosystems and the economies of our coastal communities.”<sup>42</sup>

# Recommendations: Lessons learned and opportunities for collaboration

Clearly, there are some similarities and some differences in how the United States and China approach development of the Blue Economy. Just as ocean currents circle the globe, making marine ecosystems inherently interrelated, so should the two approaches blend and lead to greater collaboration. Here, we outline three key recommendations for cooperation between the world's two largest marine economic engines.

## Jointly develop a methodology to measure long-term economic contributions of healthy coasts and oceans

Both China and the United States will continue to develop their coastal and ocean economies. As the global population increases, additional industrial activities and uses of offshore space will inevitably emerge as a result of quests for resources, transportation corridors, and space for infrastructure projects such as port facilities. Yet any expansion of industrial development in the ocean must incorporate principles of natural resource valuation. The resources themselves contribute value to society, and industrial development that harms or removes these resources therefore comes at a cost. A salt marsh, for example, serves as a natural buffer to flooding and storm surge, and once it is destroyed and turned into built infrastructure, the land and surrounding land become subject to additional risk and damages when flooding occurs. Without adequate accounting for these costs, nations cannot make accurate long-term projections for economic returns; they may be able to calculate projected benefits, but the true costs will never be known. Robust, healthy ocean and coastal ecosystems provide value, even if that value may be difficult to quantify.

The United States and China are strongly positioned to increase understanding of these values, which may change the calculus about the benefits that industrial development could actually provide to society. While the economic benefits of letting nature run its course may be real, if no one makes a direct profit, there are fewer advocates to generate support in the court of public or political opinion. In this instance, China—with its strong, centralized government and nontraditional



capitalist structure—may actually be in a better position than the United States to institute policies that reflect the principles of nonmarket natural resource valuation. The central government, after all, should have a greater focus on the good of the nation as a whole, not just the good of its corporate entities. Meanwhile, American academic institutions have been investigating these concepts for decades, and sharing that knowledge with China can lead to more rapid assimilation of natural resource valuation methods into national decision making.

### Develop joint initiatives for ocean planning and Blue Technology clusters

A promising step toward more robust Sino-American cooperation on the Blue Economy is the development of new initiatives on marine development under the U.S. State Department's EcoPartnerships program, which supports joint efforts between cities and states in the United States and China to address shared environmental challenges. At present, many EcoPartnerships focus on climate- and energy-related issues. But one initiative between the cities of Seattle, Washington, and Dalian, Liaoning Province, focuses on mitigating the environmental impact of large port facilities. Additional partnerships could come to fruition in the area of Blue Tech. San Diego, California, and Qingdao, Shandong Province, are two cities that have become highly invested in the promotion of maritime technology development, providing Blue Economic Zones for companies to establish themselves in these communities.

U.S. and Chinese officials should make it a priority to connect regions in the two countries that are developing the concept of ocean planning, sometimes referred to as marine spatial planning. The idea is that as new uses—such as offshore renewable energy and seabed mining—emerge and compete for ocean space with existing industries—such as shipping and fisheries—the government should develop a method of zoning the ocean to ensure that these activities can efficiently coexist. China has already established its National Marine Industrial Development Zoning Plan. The U.S. National Ocean Policy also prioritizes ocean planning initiatives that bring neighboring state representatives together with federal and tribal entities, marine industries, and conservation groups to collaboratively discuss management of their shared ocean space and resources. Forging partnerships between areas such as Qingdao and like-minded areas in the United States, such as Massachusetts and Rhode Island—where the concept of ocean planning has taken root—can help strengthen cooperation at both subnational and intergovernmental levels.

## Enhance and develop bilateral partnerships and best practices in data collection and sharing

With both the United States and China investing heavily in the sustainability of ocean industries and marine scientific research, there is ample opportunity for both nations to share their discoveries and best practices. The United States and China should both take advantage of economies of scale and accelerate the rise of sustainability and understanding of the value of marine natural resources. One area where bilateral cooperation exists and has been highly effective is the partnership between the U.S. Coast Guard and its Chinese fishery enforcement counterparts. Through this program, members of China's Fisheries Law Enforcement Command ride aboard U.S. Coast Guard cutters operating in the Pacific Ocean to assist in the battle against illegal, unreported, and unregulated fishing activity in international waters.<sup>43</sup>

A specific issue that appears ripe for cooperation is oil spill response. Unfortunately, both China and the United States have suffered large-scale oil spills in recent years, which have resulted in large economic and environmental losses. An EcoPartnership project—perhaps coupled with a structured intergovernmental initiative between the U.S. Coast Guard and the Chinese State Oceanic Administration—could help both countries develop more-effective procedures to respond to oil spills and minimize economic and environmental harm. Regions where oil production and import facilities are concentrated—such as the Liaoning, Shandong, and Tianjin provinces in China and Texas and Louisiana in the United States—would be natural focal points for an EcoPartnership centered on oil spill response.

Furthermore, both countries should continue to develop their scientific ocean observing capacity through the deployment of buoys, mobile instruments, and satellites. As these integrated ocean observing systems expand, a bilateral agreement to share scientific data and develop complementary data collection and dissemination methodologies would clearly benefit not just the United States and China but also global understanding of oceanographic conditions and the changing climate.

# Conclusion

Last fall, when the United States and China finalized their groundbreaking agreement on reducing carbon pollution and other greenhouse gas emissions,<sup>44</sup> it signaled Beijing's openness to serious commitments on environmental protection. With two of the world's largest economies committing to serious, meaningful action to address climate change, the rest of the world has an example to follow. Now, the two nations have an opportunity to build on that cooperation with future agreements on management of our planet's threatened marine ecosystems.

Our oceans hold vast economic development potential, but they are also fundamental to maintaining human life on this planet—as moderators of temperature, providers of nourishment and energy, and as the source of more than half the oxygen we breathe. Fortunately for us, economic growth does not require environmental degradation. In fact, protecting fully functioning marine ecosystems may be the smartest investment of capital that we as a society can make.

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As progressives, we believe America should be a land of boundless opportunity, where people can climb the ladder of economic mobility. We believe we owe it to future generations to protect the planet and promote peace and shared global prosperity.

And we believe an effective government can earn the trust of the American people, champion the common good over narrow self-interest, and harness the strength of our diversity.

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We develop new policy ideas, challenge the media to cover the issues that truly matter, and shape the national debate. With policy teams in major issue areas, American Progress can think creatively at the cross-section of traditional boundaries to develop ideas for policymakers that lead to real change. By employing an extensive communications and outreach effort that we adapt to a rapidly changing media landscape, we move our ideas aggressively in the national policy debate.

