

South China Sea Today: China's Destruction of Biodiversity

Constance Chen

It has been said that civilization is born from water. In the beginning, we Americans relied on the Mississippi for nourishment and trade. The Egyptians did the same with the Nile. Several Asian countries, however, face a unique problem regarding the need for water-based bounties.

The South China Sea is located just southeast of China and has been a crucial body of water ever since the Babylonians first sailed it in 425 BCE. It was an important ocean, linking Asian civilizations to the world through silk trade and commercial fishing. However, there are seven national claimants to the South China Sea (China, Brunei, Indonesia, Malaysia, the Philippines, Taiwan, and Vietnam), and just like siblings, the biggest has been trying to assert its dominance over the shared resource for over five decades.

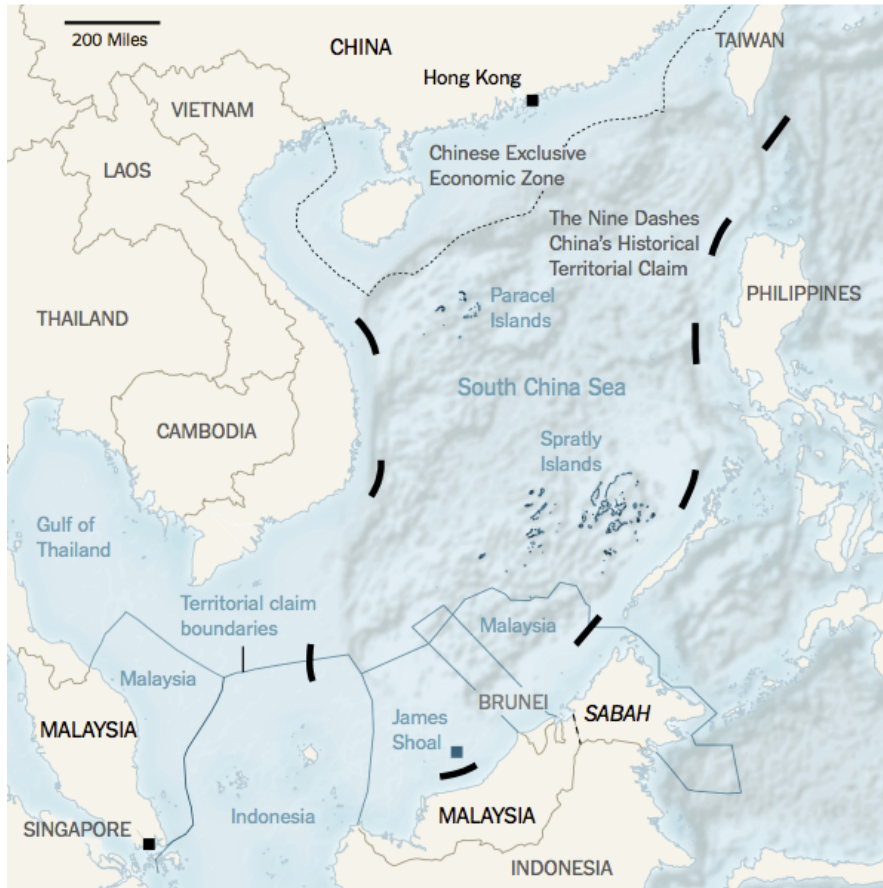
China is one of the many claimants of the riches of the South China Sea and in 2011, declared that “actions taken by China’s competent authorities are regular maritime law enforcement and surveillance activities in the waters are under the jurisdiction of China” (Desierto 260). This is a fundamental issue considering China. From the time of their initial claim in 1958 to the present day, the PRC has violently pressured other coastal nations out of the sea, and even out of other countries’ own territorial zones. Recorded incidents involving Chinese intervention include the following and have been occurring since the 1970s:

1. China Coast Guard conducted “regular patrols” into Indonesia’s exclusive economic zone off the coast of the northern islands of Natuna.
2. The flanking of Malaysian state oil company Petronas’ oil exploration vessel by Chinese ships, including those from the Coast Guard.

3. China Coast Guard vessels colliding with Philippine fishing boats and often seizing their fishing catches.
4. The collision and sinking of a Vietnamese fishing boat reportedly due to “illegal entry” and refusal to leave after being ordered to do so by the Chinese Coast Guard.

Because of these illegal Chinese interventions, the Philippines brought a case against China to the U.N Law of the Sea Convention (UNCLOS) in 2013. After three years of proceedings in which the PRC sent no legal representatives, the U.N. tribunal found in favor of the Philippines and deemed China’s actions in the South China Sea violations of international maritime law. However, on the day the decision was announced, China’s Foreign Ministry issued an official statement stating, “China’s territorial sovereignty and maritime rights and interests in the South China Sea shall under no circumstances be affected by those awards on 12 July, 2016... China opposes and will never accept any claim or action based on those awards” (Desierto 261). The foreign ministry’s official announcement further claimed historic rights to the sea that the UNCLOS tribunal rejected out of hand.

These historic rights are based upon a nine-dashed line that inscribes more than five million square kilometers of the sea and dates to 1947. According to the official proclamation, the “Nine-Dash Line” was found on an old map that represented in detail the South China Sea as part of China’s exclusive territory. China’s “historical” claims not only encroach on the exclusive economic zones of surrounding countries—Vietnam, Malaysia, Philippines, Brunei, Indonesia, and Taiwan—but also take up nearly the entire sea. In short, this claim represents nothing short of a maritime monopoly. Of course, this virtual monopoly China is unlawful and poses an immediate danger to the environment in the region. (See a recent projection of the area of claim below)



What makes the immediate provocation of coastal nations the most obvious flashpoint of PRC overreach; however, there are even more worrisome issues than this, issues that have global implications.

South China Sea's Bounty

It is estimated that the South China Sea holds an estimated 213 billion barrels of oil, 266 trillion cubic feet of natural gasses, large deposits of rare earth metals, and one-third of the entire world's marine biodiversity (Vagg and Hamilton). Just in 2020, even as the COVID-19 pandemic tore through Asia, Chinese coast guard ships were sinking Vietnamese fishing boats that they claimed to be encroaching on their maritime territory (McNamara). Especially in the last several years, China has not been afraid of bullying other countries out of equal claims to these

resources. They've been known to pressure Southeast Asian countries out of competition for oil, implement fishing bans, and increase their military presence along trade routes. The focus of this paper is to investigate what the disastrous effects of China's increased control of the South China Sea has on the biodiversity of resources in the sea.

To begin, we must establish a clear understanding of what exactly the sea has to offer, and what China has done to maintain control over the South China Sea. Not only does the South China Sea hold about one third of the world's marine biodiversity, it also provides one tenth of the global fishing catch (Schearf). Major species of fish include hairtail, mackerel, black scraper, and many different species of crab and shrimp. These fish have diversified and gathered in the South China Sea due to the area's abundance of natural coral structures that create shelter and food for the biota. It is important to note here that the fishing industry usually tracks marine life reproduction in order to fish sustainably. In cases where the rate of fish harvested exceeds the rate of fish reproduction, fishing becomes dangerous and no longer sustainable for that body of water. Other resources previously mentioned include oil and natural gas. Below is a chart detailing the sheer quantity found in each sea region.

Region of South China Sea	Potential Oil and Gas Reserves
Southern China	1500 million barrels
South of Hainan Island	210 million barrels
Gulf of Tonkin	95 million barrels
South Vietnam	2847 million barrels
Sunda Shelf	180 million barrels
Borneo/Sarawak	9260 million barrels
Philippines	409 million barrels

Source: Swire Institute of Marine Science and Department of Ecology and Biodiversity, University of Hong Kong:

In addition to the pure mass of oil, the oil contains tons of hydrocarbons, making it more desirable for manufacturers. The sea is also rich in minerals. These minerals contain a set of 17

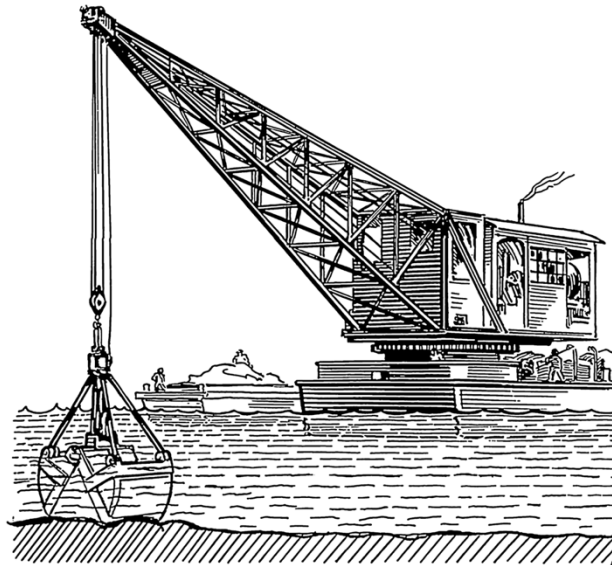
elements on the periodic table that play a critical role in next generation technology. From smartphones to electric cars, these elements do it all. It is no wonder that China claims for itself the sea and all its resources.

To ensure control of these resources, China has been increasing the number of militarized artificial islands they've built in the sea (see John Carrington's article for more information on this). China has also increased commercial fishing, paying fishermen to maintain a Chinese presence in the sea by flying the PRC flags. Adding on the aforementioned monopoly they have over oil and natural gas exploration; it is pretty clear that China has a chokehold on the resources the sea has to offer. China's refusal to share these resources is but the first issue, but a far larger and more immediate problem is the immediate danger the South China Sea faces with China's overreach. There are numerous research articles and journals detailing the geopolitical and economic implications of China's overreach in the South China Sea, but only few on the disastrous impact on the health and wellness of the sea's resources. Thus begins a detailed exploration into the direct effect China has on depleting the rich resources of the South China Sea.

Island Building

In order to increase military presence in a maritime area, the PRC's key tactic has been by dredging to convert rocks and shallow shoals into islands. Interestingly, and unsurprisingly, From drone overviews, it appears that the country has built an estimated 3,200 acres of artificial islands within the South China Sea (McNamara). The environmental consequences of these fake islands are significant. Floating islands are dangerous to the military personnel assigned to guard them; therefore these artificial military islands are built atop dredged coral. The dredging process

is known as one where large anchor-like metal structures are dragged behind boats to “harvest” the coral as demonstrated below.



The coral is then piled under the water to form a foundation for the island. The immediate threat is obviously that the destruction of coral destroys the homes of marine life, but there are far greater consequences. Dredging at the velocity required to destroy entire reefs can change natural wave patterns, disrupt migration corridors of tuna in the sea, and create sand plumes that either block out sunlight, killing marine plants, or infect the gills of fish effectively suffocating them. This invasive process also harms marine life reproduction by destroying fish larvae nestled in coral (McNamara). As much as these artificial islands have contributed to the direct destruction of marine life, they also increased the threat of overfishing.

Expanding Commercial Fishing

The growth of artificial islands have opened the South China Sea to increased fishing due to the ships abilities to refuel and rest at the new islands, allowing them to travel farther than before.

China has also been utilizing fishing to claim territory. Aside from placing fishing bans on other

countries who wish to utilize the sea, the PRC has paid fishermen to maintain a presence in the sea and report back to the Chinese government if they find other countries' fishermen present (Wee).



Chinese fishing vessels as a blue-water navy

It is in fact the use of these fishermen as political chess pieces that caused the sinking of the Vietnamese fishing boat. The problem of overfishing in the South China Sea is that the fishing practices used are unsustainable. Fishermen will selectively overfish for certain species while simply dumping other unwanted ones back injured or dead (Poling et al.). Since the 1950s, there has been a nearly 90 percent decline in estimated fish stock in the South China Sea. Should this aggressive fishing continue, the sea is expected to be entirely depleted in the next 20 years (Poling et al.). This is no small statistic. Just consider for a moment how heart-wrenching it is that the sea with a third of the entire world's maritime diversity being completely void of life. The thing is, China has imagined that future and shows little worry because the more wildlife and coral habitat they destroy, the more oil and natural gasses they can harvest.

Oil and Natural Gas Mining

Offshore oil drilling is incredibly dangerous for the marine environment simply due to the mechanisms necessary to reach the oil. Using sonar, ships estimate drilling sites and use a mobile drilling/ production rig to reach the oil. These rigs drill down deep into the ocean floor searching for oil and setting pipes once they hit the oil (Freudenrich and Strickland). Note that due to the ambiguous nature of sonar and the unpredictability of the ocean, all drilling sites are simply guesses. This means drilling may occur in areas with no oil whatsoever, destroying marine life in vain. This drilling is known to cause changes in natural currents in the ocean, negatively affect fish reproduction, destroy natural flora and fauna, and endanger the people working aboard the rigs. For example, in 2010 a deep-3`water rig exploded killing 11 people and releasing more than 200 million gallons of oil into the Gulf of Mexico. A study estimated that over 82,000 birds, 6000 sea turtles, and 26,000 marine mammals were killed by either the explosion or the oil spill (“Exxon, Be Gone”). These environmental concerns in conjunction with China’s increased pressure caused countries like Vietnam to pull their oil exploration projects from the South China Sea (McNamara), but China used their absence as an opportunity to develop their own oil exploration – estimating a 2.3 trillion dollars’ worth. Alongside the dangers of physically extracting oil, the increased presence of oil shipping barges and general shipping activity increases the risk of potential gas and oil leakages into the waters.

Long-term Effects

China’s actions are actively harming the South China Sea’s maritime ecosystem. Since China’s overreach leading to excessive fishing, fishing catch rates have declined by 70 percent while fish stock measurements have reported a 9 percent decrease (Harrington). As China declares fishing

bans on other countries, they themselves maintain their fishing rates, contributing to 20 percent of the world's overall catch primarily from the South China Sea. Should these aggressive fishing practices continue, the sea will be depleted of life in the next decade. As for the island-building dilemma, sources report that China has already destroyed at least 100 square miles of coral reefs and aim to dredge more (Long). The South China Sea only has 90 percent of conservable reefs left, meaning they have the ability to be saved if China stops their island-building immediately, but given the nation's history of ignoring geopolitical and climate scientists, this is unlikely to happen (Long). In terms of the long-term effects of oil mining and spilling, the outcomes are bleak.

Even if fish, shellfish, and coral are not immediately exposed to the oil, they are adversely affected. For example, adult fish may experience symptoms such as reduced growth, enlarged livers, changes in heart and respiration rates, fin erosion, and reduction in reproductive abilities ("How does oil impact marine life?"). These effects are quite alarming considering the already low population of fish in the South China Sea due to overfishing. With all this discussion on just how dangerous China's advances are, we must now discuss how we can help the maritime inhabitants of the South China Sea who cannot advocate for themselves.

Potential Solutions

Given China's history of ignoring regulations set forth by UNCLOS and its surrounding countries, business may be better positioned than governments to propose changes. Many private companies are creating tools that climate scientists can utilize to better inform China on their ecological impacts on the environment. Satellite systems and AI are already in use to collect massive amounts of climate-based data for scientists to analyze and Microsoft, Google, and Amazon are becoming more transparent about climate data (Harrington). With the global

pressure of businesses refusing to partner with a country so callous about their environmental footprint we may be able to push China economically into greater environmental awareness. The principal challenge with this tactic is the PRC is a global force when it comes to trade. Thus, considering the global dependency on China for resources such as rubber, plastics, and electronics, convincing allies in surrounding countries to bypass China would be extremely difficult. While there is no straightforward solution, comprehending the environmental problem is a step in the right direction. Hopefully with greater awareness, more people will take up the challenge of protecting the most biotically diverse ocean in the world.

Works Cited

Desierto, Diane A. "China's Maritime Law Enforcement Activities in the South China Sea."

International Law Studies, vol. 96, no. 257, 2020, pp. 258-273.

"Exxon, Be Gone." *Center for Biological Diversity*,

<https://www.biologicaldiversity.org/campaigns/Exxon-Be-Gone/index.html>. Accessed 18 November 2022.

Freudenrich, Craig, and Jonathan Strickland. "Offshore Oil Drilling | HowStuffWorks." *Science |*

HowStuffWorks, <https://science.howstuffworks.com/environmental/energy/oil-drilling8.htm>. Accessed 18 November 2022.

Harrington, Kent. "The South China Sea's Environmental Crisis by Kent Harrington." *Project Syndicate*,

28 January 2022,

<https://www.project-syndicate.org/commentary/china-driving-south-china-sea-environmental-crisis-by-kent-harrington-2022-01>. Accessed 18 November 2022.

“How does oil impact marine life?” *National Ocean Service*, 26 February 2021,

<https://oceanservice.noaa.gov/facts/oilimpacts.html>. Accessed 18 November 2022.

Long, Drake. “Experts Raise Alarm Over Destruction of Coral Reefs in South China Sea.” *Radio Free Asia*, 5 October 2020,

<https://www.rfa.org/english/news/china/southchinasea-coral-10052020190143.html>. Accessed 18 November 2022.

McNamara, Ryan. “The Environmental Collateral Damage of the South China Sea Conflict.” *New Security Beat*, 2020,

<https://www.newsecuritybeat.org/2020/10/environmental-collateral-damage-south-china-sea-conflict/>. Accessed 17 November 2022.

Poling, Gregory B., et al. “Illuminating the South China Sea's Dark Fishing Fleets.” *Stephenson Ocean Security Project*, 9 January 2019,

<https://ocean.csis.org/spotlights/illuminating-the-south-china-seas-dark-fishing-fleets/>. Accessed 17 November 2022.

Schearf, Daniel. “S. China Sea Dispute Blamed Partly on Depleted Fish Stocks.” *VOA*, 16 May 2012,

<https://www.voanews.com/a/south-china-sea-dispute-blamed-partly-on-depleted-fish-stocks/666766.html>. Accessed 17 November 2022.

Vagg, Xander, and Tucker Hamilton. “Resources in the South China Sea - American Security Project American Security Project.” *American Security Project*, 4 December 2012,

<https://www.americansecurityproject.org/resources-in-the-south-china-sea/>. Accessed 17 November 2022.

Wee, Teo Cheng. “South China Sea - Part Three: China's front-line fishermen.” *The Straits Times*, ASIA, 29 October 2012,

<https://www.straitstimes.com/asia/east-asia/south-china-sea-part-three-chinas-front-line-fisherme>
n. Accessed 17 November 2022.