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SEA ASSURANCE: HOW CHINAS SPRATLY MILITARIZATION IMPACTED GREAT POWER COMPETITION

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THESIS

SEA ASSURANCE: HOW CHINA'S SPRATLY MILITARIZATION IMPACTED GREAT POWER COMPETITION

by

Aaron B. Box

June 2021

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By creating islands in the Spratlys and placing airfields, radars, and missiles on them, China fundamentally changed Great Power Competition (GPC). To measure and understand these changes within relevant policy communities, this thesis asks two questions: First, how did Spratly militarization impact U.S-China competition within GPC using a diplomatic, information, military, and economic (DIME) framework? Second, how did Spratly militarization affect maritime strategy?

Using data within each DIME category and scholarly analysis, this thesis finds that Spratly militarization significantly impacted competition informationally and militarily but with lesser impact to diplomacy and economics. Within maritime strategy, Spratly militarization displayed an entirely new concept that this thesis defines as sea assurance. Using this new terminology, this thesis finds that Spratly militarization provided China with ability to protect or control more than half of the South China Sea, including a major sea line of communication and multiple maritime chokepoints.

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SEA ASSURANCE: HOW CHINA'S SPRATLY MILITARIZATION IMPACTED GREAT POWER COMPETITION

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BS, Florida State University, 2008

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
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LIST OF ACRONYMS AND ABBREVIATIONS

ASCM	Anti-Ship Cruise Missile
C4ISR	Command, Control, Communication, Computers, Intelligence, Surveillance, Reconnaissance
CCG	Chinese Coast Guard
CISR	Counter Intelligence, Surveillance, Reconnaissance
DIME	Diplomacy, Information, Military, Economics
GPC	Great Power Competition
ISR	Intelligence, Surveillance, Reconnaissance
NM	Nautical Mile
PLAN	People's Liberation Army Navy
PAFMM	People's Armed Forces Maritime Militia
SCS	South China Sea
SLOC	Sea Line of Communication
SAM	Surface to Air Missile
UN	United Nations

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I.   INTRODUCTION

Less than a decade ago, no country wielded land-based missiles from any island in the South China Sea (SCS). Today, China is capable of launching modern anti-ship and surface-to-air missiles from its outposts in the Spratly Islands. By creating and arming islands adjacent to major sea lines of communication (SLOC), China changed maritime strategy for any country with economic, political, or security interests in the SCS; but experts disagree about the overall strategic impact of those changes, particularly as it relates to modern Great Power Competition (GPC).

By establishing island-like features specifically for the purpose of defending disputed territory in the SCS, China demonstrated a new form of maritime strategy. The Spratly Islands area includes hundreds of features, many of which are below the water at high tide. Before 2014, three relevant features—Fiery Cross Reef, Mischief Reef, and Subi Reef—were barely above water at low tide. Unlike existing maritime strategy practices—sea control, coastal defense, anti-access area denial, etc.—China, in peacetime, created dry land within a disputed area and promptly equipped that land with radars, missiles, and port facilities. Technological development made this feat possible only within the last two decades; building militarized outposts on fabricated islands is a never-before-utilized maritime strategy worth analysis.

In obsolete charting maps, the Spratly Islands were not labeled as the territory of any state, but simply "dangerous grounds," largely because no country cared to claim them.[1] Though they are called the Spratly Islands, a 2016 ruling by the Permanent Court of Arbitration stipulated that none of the features were truly islands, but rather "rocks or low-tide elevations."[2] Over the last few decades, access to resources and trade routes made the Spratlys more desirable. In 2016, Katherine Morton characterized disputes in the SCS,

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[1] Clarence J. Bouchat, *Dangerous Ground: The Spratly Islands and U.S. Interest and Approaches*, Strategic Studies Institute (Carlisle, PA: U.S. Army War College Press, 2013), 1.

[2] Euan Graham, "The Hague Tribunal's South China Sea Ruling: Empty Provocation or Slow-Burning Influence?" Council on Foreign Relations, August 18, 2016, https://www.cfr.org/councilofcouncils/global-memos/hague-tribunals-south-china-sea-ruling-empty-provocation-or-slow-burning-influence.

writing, "this juxtaposition between historic struggles over maritime rights and the shifting boundaries of maritime order means that the prospects for regional stability now hang in the balance. China's quest to become a global maritime power is the crucial link between the past and the future that could tip the balance of state interests in either a positive or a negative direction."[3] In simpler words, the SCS is crucial to regional stability; China's actions there matter.

A.   RESEARCH QUESTIONS AND MAIN FINDINGS

First, this thesis analyzes the military, economic, and political ramifications of this militarization and seeks to answer the following questions: What is the strategic significance for China of its militarization of the Spratly Islands and how has militarization affected China's standing in GPC? Specifically, has Spratly militarization benefited China diplomatically, informationally, militarily, and/or economically (DIME)? Separately, this thesis seeks to answer the question: How has China's militarization in the Spratly's impacted maritime strategy? In response to this question, this thesis proposes a new term in maritime strategy: *sea assurance,* the peacetime establishment of permanent or semi-permanent anti-ship capabilities covering international or disputed waters.

B.   SIGNIFICANCE OF THE RESEARCH QUESTIONS

These research questions are significant because they concern the SCS, one of five areas identified by international relations expert Graham Allison as holding potential for conflict between the United States and China.[4] More specifically, the research questions are important for at least four reasons. First, to understand the nuances of renewed GPC, one must understand the various games being played on the global stage and the respective arenas those games occupy. The maritime strategy research question focuses on the Spratly Islands as the arena and asks how their militarization affected the rest of the gameboard.

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[3] Katherine Morton, "China's Ambition in the South China Sea: Is a Legitimate Maritime Order Possible?" *International Affairs* 92, no. 4 (2016): 910.

[4] Richard Javad Heydarian, The Indo-Pacific: Trump, China, and the New Struggle for Global Mastery (Singapore: Springer Nature, 2020), 2.

Second, this research is significant in relation to the categories of DIME—diplomacy, information, military, and economics. In diplomacy, this research evaluates significant changes (both regional and global) due to Spratly militarization. Informationally, the questions define significant capabilities gained by Spratly militarization and strengthening of political narratives formed by China. Militarily, this research explores significant advantages gained by Spratly militarization in both combat scenarios and deterrence. In economics, this research explores the relationship of Spratly militarization to China's larger Belt and Road Initiative (BRI), control of major SLOCs, and control of natural resources.

Third, these research questions fit into larger international relations debates on the theoretical (and real) struggle between China and the United States. Specifically, these research questions apply to nuances of realist arguments—the diplomatic ramifications of Spratly militarization related to what Stephen Walt calls "balancing" or "band-wagoning" and accusations that Xi Jinping seeks "Asian hegemony."[5]

Lastly, the second research question explores fundamental developments in maritime strategy and proposes a new term: sea assurance, the peacetime establishment of anti-ship capability in disputed/international waters. Similar to the concept of "Command of the Sea," as described by Alfred Mahan and his naval theory successors, sea assurance involves establishing military advantage of the sea prior to a conflict, potentially as a deterrent to conflict.[6] This research analyzes China's militarization of the Spratly Islands in the context of sea assurance and evaluate its implications for other aspects of GPC.

C.   LITERATURE REVIEW

To fully capture the intertwining aspects of this study, three overarching discussions must be addressed and evaluated: China's intent in militarizing the Spratly

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[5] Stephen Walt, *The Origins of Alliances* (Ithaca: Cornell University Press, 1987), 147–180; "China's Missile Offense: Beijing is Militarizing Island Outposts in the South China Sea," *Wall Street Journal* (Online), Feb 18, 2016, http://libproxy.nps.edu/login?url=https://search-proquest-com.libproxy.nps.edu/docview/1766108846?accountid=12702.

[6] Alfred Mahan, *The Influence of Sea Power Upon History* (Boston, MA: Little, Brown, and Co., 1890); Barry Posen, "Command of the Commons," *International Security* 28, No. 1 (Summer 2003): 5–46.

Islands, the strategic significance of the SCS, and what is required for China to gain sea assurance. Each of these debates involves different schools of thought.

1. China's Intent in Militarizing the Spratly Islands

The question of China's military intent in the SCS is largely debated amongst international relations theorists and military analysts/policymakers. To simplify the broad and complicated arguments, three schools of thought exist: China's behavior in the SCS threatens United States interests; China's behavior in the SCS does not threaten United States interests; or China's actions are not binarily determinable.

The first school of thought includes those that suggest China holds threatening and offensive intent in the SCS and point to China's actions as being counter to international law and aggressive seizing of disputed territory. China's relevant actions, in this case, are its seizure of disputed territories in the Spratly Islands, in the Paracel Islands, and Scarborough Shoal. Aaron Friedberg suggests China is "both ambitious and deeply insecure" and would "use every instrument at their disposal to reshape Asia and the world in ways that serve their interests."[7] In this article, Friedberg adopts a cynical view of China's actions and its implications for future international developments. Jansen Tham points out, in a 2018 article, "most worryingly, the deployment of missiles—for the first time—provides China with offensive power projection capabilities, augmenting its existing anti-access, area-denial (A2/AD) naval strategy against its primary rival, the United States."[8] The missile deployment Tham refers to are on three outposts in the Spratly Islands that were mostly underwater reefs before 2013. In 2013 and 2014, China quickly dredged massive amounts of sand from the ocean floor to form islands and proceeded, in 2018, to

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[7] Aaron Friedberg, "The Signs Were There," *Foreign Affairs 97*, no. 4 (July/August 2018): 188, http://libproxy.nps.edu/login?url=https://search-proquest-com.libproxy.nps.edu/docview/2058267252?accountid=12702.

[8] Jansen Tham, "Is the South China Sea Dispute a Foregone Conclusion?" *The Diplomat,* May 9, 2018, http://libproxy.nps.edu/login?url=https://search-proquest-com.libproxy.nps.edu/docview/2036281257?accountid=12702.

arm these islands with airfields, radars, and missiles.[9] In his 2020 book, Richard Javad Heydarian describes China's increased maritime assertiveness as "an important indication of the calibrated nature of its (expansionist) maritime strategy, which is sensitive to the prevailing balance of power or alignment of forces (*Shi*) in the international system."[10] In essence, Heydarian accuses China of taking advantage of a void in international oversight by quickly creating and militarizing areas of disputed territory for an expansionist gain.

The second school of thought includes scholars who contend that China's actions in the SCS are entirely defensive and nonthreatening. Zhou Fangyin counters the accusation of China's aggressive behavior by stating, "Ironically, the adoption of a more assertive approach by China over the SCS disputes is very much defensive in nature, with the key aim of preventing losses."[11] Zhou's article acknowledges many of the flags alarmists point to regarding China's behavior, but claims they miss the intricacies that are more consistent with a defensive state.[12] Zhu Feng goes a step further by suggesting that China's claim is legitimate and any international criticism is irrelevant. In a 2015 article, Zhu states, "Conducted in accordance with international laws, China's IRC [island and reef construction] activities on the Nansha Islands are infrastructure construction activities within Chinese territory. Foreign countries can observe, but they have no right to point fingers at China."[13] Zhu suggests that China's activity is solely for the purposes of "improving the living conditions of island inhabitants, national defense, scientific research, ecological protection, etc., is by nature the fundamental rights of a maritime country."[14] To those that criticize China's activities, he accuses them of maliciously sensationalizing

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[9] Michael Smith, "China Missile Reports Eclipse U.S. Trade Talks," *The Australian Financial Review,* May 5, 2018, http://libproxy.nps.edu/login?url=https://search-proquest-com.libproxy.nps.edu/docview/2034275004?accountid=12702.

[10] Heydarian, *The Indo-Pacific,* 171.

[11] Zhou Fangyin, "Between Assertiveness and Self-Restraint: Understanding China's South China Sea Policy," *International Affairs* 92, No. 4 (2016): 889.

[12] Zhou, "Between Assertiveness," 870.

[13] Feng Zhu, "Will Island and Reef Construction Change the Status Quo in South China Sea," *China International Studies* 52 (May/June,2015): 16.

[14] Zhu, 16.

the topic because "China is not yet powerful enough to engage in equal dialogue with the United States on Asia-Pacific maritime issues."[15] If threat requires intent and capability, Zhu suggests the latter is absent, regardless of the former. Michael Beckley offers a similar suggestion in his 2018 book. He argues that China's relative power is misconstrued and is not equal to the United States in "net" power, the amount of power a country gains minus the costs of achieving or using it.[16]

The third school of thought includes scholars who avoid the debate over China's exact intent and focus on what the United States and China can do to avoid a potential gravitation toward war—a risk that Allison calls the "Thucydides Trap" and what John Mearsheimer describes as "China's Unpeaceful Rise."[17] Though Allison first used the phrase "Thucydides Trap" in a 2015 article and developed the concept into a 2017 book, he claims that China and the United States are capable of mitigating the major conflict that plagued great powers for centuries. Philip Saunders and Julie Bowie published articles on United States and China competition and cooperation both before and after China put missiles on the Spratly Islands; their claim is "the two countries will maintain an ambiguous relationship marked by a mixture of cooperation and competition" and military relationships are key to preventing misunderstandings.[18]

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[15] Zhu, 32.

[16] Michael Beckley, *Unrivaled: Why America Will Remain the World's Sole Superpower* (Ithaca: Cornell University Press, 2018), 1–15.

[17] John Mearsheimer, "China's Unpeaceful Rise," *Current History* 105, no. 690 (April 2006): 160–162. http://libproxy.nps.edu/login?url=https://search-proquest-com.libproxy.nps.edu/docview/200776171?accountid=12702; Graham Allison, *Destined for War: Can America and China Escape Thucydides's Trap?* (Boston: Houghton Mifflin Harcourt, 2017), 12.

[18] Phillip C. Saunders and Julia G. Bowie, "US–China Military Relations: Competition and Cooperation," *Journal of Strategic Studies* 39, vol. 5–6 (2016): 679, DOI: 10.1080/01402390.2016.1221818; Phillip C. Saunders and Julia C Bowie, "US–China Military Relations: Competition and Cooperation in the Obama and Trump Eras," *Reshaping the Chinese Military: The PLA's Roles and Missions in the Xi Jinping Era* 1, (2019): 103, https://doi.org/10.4324/9780429465109-5.

2. Strategic Importance of the SCS

The complicated perception and importance of this body of water is evident even in its name. The body of water this research refers to as the SCS is also known as the East Sea by Vietnam and the West Philippine Sea by the Philippines.[19] In addition to the many claims on it, scholars discuss the SCS's strategic importance largely in three categories: diplomatic, economic, and military. Figure 1 depicts the various claims.
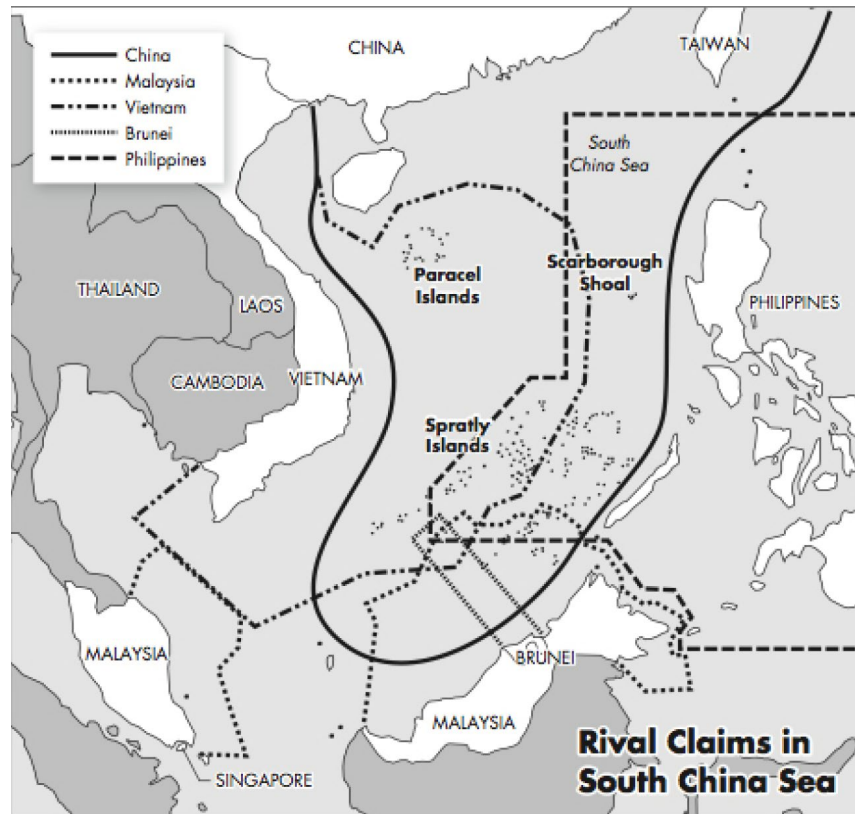

Figure 1.   Rival Claims in the SCS[20]

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[19] Bill Hayton, *The South China Sea: The Struggle for Power in Asia* (London: Yale University Press, 2014), ix.

[20] Source: John Mearsheimer, *The Tragedy of Great Power Politics* (New York: W. W. Norton, 2014), 371.

The first category is the SCS's diplomatic importance, with the issue of sovereignty at its center. As Figure 1 shows, there are at least five claimants to the features in the SCS: Vietnam, the Philippines, Brunei, Malaysia, and China. What is often overlooked is Taiwan's claim, independent from China's. Near the center of the Spratly Islands, Taiwan claims and occupies one of the largest features, Itu Aba. The largest claim in Figure 1 is the Nine Dash Line, China's claim to the SCS. As Saunders and Bowie note, individual sovereignty causes disputants to "battle over the EEZ [Exclusive Economic Zone] rights, extraction of resources, and law enforcement."[21] Since China's claim encompasses the entire SCS, sovereignty matters create diplomatic tension with other claimants. Bill Hayton explains that "recognised [sic] possession of an island gives the owner rights to the sea, to the fish swimming around it and to the minerals that may lie on or below the seabed. More recently, possession has come to mean much more. For some, it has become the difference between pride and humiliation."[22]

The second category is the SCS's unique economic importance, which is due to two factors: a major SLOC runs through it and vast amounts of natural resources lie under the seabed. According to David Feith, nearly $5 trillion worth of trade passes through the SCS annually.[23] This number includes 80 percent of China's oil imports as estimated in Taylor Fravel's article "China's Strategy in the South China Sea."[24]

In addition to the amount of trade shipped through the SCS, the area is abundant with natural resources, including fisheries, natural gas, and oil. In a 2018 article, the United

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[21] Saunders and Bowie, "US–China Military Relations: Competition and Cooperation in the Obama and Trump Eras," 72.

[22] Hayton, *The South China Sea*, xiii.

[23] David Feith, "China's Next Sea Fortress; A Triangle of Outposts in the South China Sea could Give Beijing Control Over Major Shipping Lanes and a Military Launchpad into the Pacific," *Wall Street Journal (Online),* August 3, 2015, http://libproxy.nps.edu/login?url=https://search-proquest-com.libproxy.nps.edu/docview/1700775991?accountid=12702.

[24] M. Taylor Fravel, "China's Strategy in the South China Sea," *Contemporary Southeast Asia* 33, No. 3 (2011): 296.

States Energy Information Administration reported "11 billion barrels of oil and 190 trillion cubic feet of gas lie within the seabed of the South China Sea."[25]

The third category, perhaps the most evident and concerning aspect, is the South China Sea's military importance. As China demonstrated, the features in the SCS can become islands built upon reefs and those islands can support airfields, troop infrastructure, an array of radars, and missiles of any type. As Saunders and Bowie suggest, "militarization is a useful mechanism for subduing the opponents, especially from a position of strength."[26] Whereas all claimants are equal in their desire for sovereignty and resources, China is militarily out of reach with its "HQ-9B surface-to-air-missiles (SAMs), YJ-12B anti-cruise ballistic missiles (ACBMs), and electronic jamming equipment."[27] With these advanced weapons, Heydarian continues that "many believe that it's just a matter of time before the Asian powerhouse establishes, or tries to establish, an exclusion zone in the area."[28] These islands provide a significant power projection opportunity for any nation, but China is well ahead of any other claimants.

3. Sea Control in the South China Sea

The concept of sea assurance stems from command of the sea; however, instead of wartime control of a body of water, sea assurance refers to peacetime establishment of anti-ship capabilities outside a country's recognized territory. Because sea assurance is a new concept, the relevant literature largely regards command of the sea generally and China's efforts to obtain it.

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[25] Angaindrankumar Gnanasagaran, **"**Is Joint Exploration the Answer to the South China Sea Dispute?" *The Asean Post*, March 25, 2018, https://theaseanpost.com/article/joint-exploration-answer-south-china-sea-dispute.

[26] Saunders and Bowie, "US–China Military Relations: Competition and Cooperation in the Obama and Trump Eras," 73.

[27] Heydarian, *The Indo-Pacific,* 151–152.

[28] Heydarian, 152.

The concept of command of the sea was first introduced by Alfred Thayer Mahan in his *The Influence of Sea Power Upon History*.[29] In a 2003 article, Barry Posen refers to command of the sea as a necessary element of United States hegemony and claims, "command means that the United States gets vastly more military use out of the sea, space, and air than do others; that it can credibly threaten to deny their use to others; and that others would lose a military contest for the commons if they attempted to deny them to the United States."[30]

There is little academic scholarship that directly addresses this concept with China's military reform efforts in the last two decades, but Toshi Yoshihara and James Holmes, prominent scholars of Chinese command of the sea, directly evaluate this link in their 2005 article "Command of the Sea with Chinese Characteristics." In this article, they refer to China's fourth Defense White Paper (2004) as a distinct shift in China's military aims by stating, "the paper calls for the People's Liberation Army (PLA) to craft military forces capable of 'winning both command of the sea and command of the air.' This is the first mention of command of the 'commons'—the seas, skies, and space—in an official directive, bespeaking Beijing's new, more assertive and outward-looking attitude toward China's strategic environment."[31]

In response to China's significant military reforms in the early 2000s and 2010s, Yoshihara and Holmes provided warnings to the United States. In their article, "Responding to China's Rising Sea Power," they claim that China may soon be able to hold control of all merchant movement through the SCS and "freedom of the sea would exist no more."[32] In their "Deterring China in the 'Gray Zone': Lessons of the SCS for United States Alliances," they cite China's use of bolstered maritime law enforcement force to create a "virtually resistance-free environment in which to pursue its strategic

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[29] Mahan, *The Influence of Sea Power*, 11.

[30] Posen, "Command of the Commons," 8.

[31] Toshi Yoshihara and James Holmes, "Command of the Sea with Chinese Characteristics," *Orbis* 49, no. 4 (Fall 2005): 678, https://doi.org/10.1016/j.orbis.2005.07.008.

[32] Toshi Yoshihara and James Holmes, "Responding to China's Rising Sea Power," *Orbis* 61, no. 1 (2017): 94, https://doi.org/10.1016/j.orbis.2016.12.009.

aims." Essentially, by bolstering its naval forces and militarizing the Spratly Islands, China appears to have drastically improved its position on the spectrum of command of the sea as it pertains to the SCS.

Most of the existing literature on the SCS shares one limitation for the purposes of this thesis: it was written before China deployed anti-ship and surface-to-air missiles on Spratly outposts. For example, Michael Beckley wrote that China has "little hope of establishing sea control anywhere in the southern portions of the South China Sea," and in a conflict near Malaysia or Indonesia, "China's navy would have to transit several days each way between the combat theater and China's naval base on Hainan."[33] In fact, China's missiles on the Spratly Islands cover most of the south portion of the SCS in addition to providing port facilities to the Chinese Navy (eliminating a transit from Hainan). Since Beckley's book was published in September 2018, it is unclear if he was aware of the extent of Spratly militarization or found it insignificant. This research explores the impact of Spratly militarization to include missile systems and port facilities.

D.   POTENTIAL EXPLANATIONS AND HYPOTHESES

In evaluating China's level of sea assurance in the SCS by militarizing the Spratlys and the subsequent effects on GPC in a DIME framework, three hypotheses are possible. First, the most likely result of Spratly militarization is that China achieved sea assurance in the SCS that greatly benefited China in every DIME category of GPC. Evidence for this hypothesis would require reasonable demonstration of China's ability to control the SCS along with clear, beneficial changes to its diplomatic relationships, information capability, military capability, and economic situation.

A second hypothesis is that Spratly militarization aided China's effort of sea assurance but largely impacted only the military and economic aspects of GPC. This hypothesis would require demonstration that China is potentially on course for sea assurance in the SCS but lacks full control and would need a number of other developments for sea assurance. This hypothesis would also suggest that Spratly militarization mostly

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[33] Beckley, *Unrivaled*, 92.

benefited China militarily and economically with little to no impact on China's diplomatic standing or informational capabilities.

A third hypothesis is that Spratly militarization does not significantly impact China's sea assurance and is only of military benefit in a wartime scenario. This hypothesis would likely result from significant evidence of China's defensive intent, with little expectation of Spratly militarization being used for control of the surrounding water outside of full-on war and no measurable effect on China's economic ventures.

Finally, additional evidence may reveal alternative hypotheses that unexpectedly combine factors of the aforementioned hypotheses. For instance, perhaps China achieved demonstrable sea assurance by militarizing the Spratlys and did not measurably benefit in any category of DIME. Or, for example, China has no control over the SCS but Spratly militarization benefited its diplomatic position with ASEAN, etc.

E.   RESEARCH DESIGN

This research first analyzes United States-China competition in the categories of DIME before and after Spratly militarization. By comparing Spratly-relevant DIME changes over time, this research discerns how Spratly militarization impacted United States-China competition. In areas where Spratly militarization had no measurable effect, this research evaluates what conditions determined its lack of significance.

In addition to the primary academics previously discussed, this research uses credible press reports, data from the World Bank, World Trade Organization (WTO), Center for Strategic and International Studies' (CSIS) Asia Maritime Transparency Initiative (AMTI), unclassified maritime traffic sources, defense studies, and diplomatic statements. These sources are best suited for an all-source approach to defining GPC within DIME categories and their changes over time.

To evaluate diplomatic aspects, this research analyzes China's diplomatic relations before and after Spratly militarization using academic assessments and quantifiable measures. Specifically, this research uses ideal point as a metric of diplomatic support. To evaluate information aspects, this research uses technical measurements of China's

capabilities in intelligence, surveillance, and reconnaissance (ISR) and counter-ISR developed from Spratly militarization. To evaluate military aspects, this research uses academic and defense analyst assessments of China's military capabilities developed from Spratly militarization. To evaluate economic aspects, this research uses WTO data, maritime traffic data, and analyst assessments of potential indicators related to Spratly militarization.

F.   THESIS OVERVIEW

This thesis includes five chapters. Following the introduction, Chapter II provides a background and context of the situation, including a relevant history of the GPC, the SCS, and maritime strategy concepts. Chapter III discusses Chinese militarization of the Spratly Islands—the physical buildup of the islands and subsequent military improvements and the effect of Spratly militarization on GPC within the DIME framework. Chapter IV explains sea assurance and analyzes how Spratly militarization impacted China's level of sea assurance in the SCS. Chapter V concludes with the findings of this research, its implications for United States policy, and recommendations for future research.

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II.   COMPETITION, SOUTH CHINA SEA, AND SEA CONTROL

As described in Chapter I, this thesis finds that China's militarization of the South China Sea impacted United States-China competition primarily in the information and military categories of DIME. To frame the analysis and arguments of following chapters, this chapter provides the background of three important elements: United States-China competition, the SCS, and command of the sea. Moving from broad to specific, this chapter first provides a brief overview of United States-China competition within GPC. Once the global stage is set, this chapter provides background on the maritime domain enveloping the Spratly Islands, the SCS, by discussing its history and broader significance. Finally, the last section discusses the Mahanian concept of command of the sea, its development, and current subcategories.

A.   UNITED STATES-CHINA COMPETITION

Great power competition is an underlying concern for much of United States policy. The April 2021 Annual Threat Assessment from the Office of the Director of National Intelligence states that the United States will face a "diverse array of threats" against the "backdrop of great power competition."[34] In a report to Congress, Ronald O'Rourke argues that renewed GPC has led "to a renewed emphasis on grand strategy and geopolitics," which makes GPC "a starting point for discussing United States defense levels, strategy, plans, and programs."[35] The primary players of current GPC for the purposes of this thesis are the United State and China due to competing interests in Asia. Russia is generally included in discussions of GPC; however, Russia is of little or no relevance to the effect of China's actions in the Spratly Islands. Thus, this thesis focuses on United States-China competition and evaluates how China's actions in the Spratly

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[34] Office of the Director of National Intelligence, *Annual Threat Assessment of the U.S. Intelligence Community* (Washington, DC: Office of the Director of National Intelligence, April 9, 2021), https://www.dni.gov/index.php/newsroom/reports-publications/reports-publications-2021/item/2204-2021-annual-threat-assessment-of-the-u-s-intelligence-community.

[35] Ronald O'Rourke, *Renewed Great Power Competition: Implications for Defense – Issues for Congress,* CRS Report No. R43838 (Washington, DC: Congressional Research Service, 2021), 2, https://crsreports.congress.gov/product/pdf/download/R/R43838/R43838.pdf.

Islands impacted its overarching competition with the United States. Other areas of competition—South Asia, the Middle East, Europe, etc.—are beyond the scope of this thesis. This section briefly provides the historical perspective of GPC, notable causes of current GPC, and how Spratly militarization relates to contemporary GPC.

Great power competition is not a new concept; similar jockeying for power was displayed by the nations of the ancient world. Major turning points in GPC were generally marked by conflict. In particular, Graham Allison directly compares modern day GPC with the circumstances leading to the Peloponnesian War in his article and subsequent book referring to the "Thucydides Trap."[36] Allison evaluates great power struggles since the Peloponnesian War and argues that power is a key factor in conflict between international rivals.[37] For the purposes of this thesis, though, the current international system began after World War II.

Following World War II, the United States and Russia became the primary players of GPC while China developed from extreme impoverishment to rising power. Though the Cold War was not without conflict (Korean War, Vietnam War, etc.), GPC did not result in a great power war—a potentially apocalyptic war, no less. Following economic decline, the Soviet Union fell in 1991.[38] With China's economic boom under Deng Xiaoping, the fall of the Soviet Union set the stage for the heir-apparent to GPC with the United States.

When Russia ceased to be a significant threat to the United States, an economically rising China was still not quite a global power of concern.[39] With the Cold War over and the United States still in a complicated but comfortable peace with China, GPC largely took a pause in the early 1990s. Some have called this time period the "unipolar

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[36] Graham Allison, "The Thucydides Trap: Are the U.S. and China Headed for War?" *The Atlantic*, September 24, 2015; Allison, *Destined for War.*

[37] Allison.

[38] Jane Burbank and Frederick Cooper, *Empires in World History: Power and the Politics of Difference* (Oxford: Princeton University Press, 2010), 435–436; William Daugherty, *Executive Secrets* (Lexington, KY: University Press of Kentucky, 2004), 189.

[39] Michael Fabey, *Crashback: The Power Clash Between the U.S. and China in the Pacific* (New York: Scribner, 2017), 62.

moment."[40] As a prelude to the Taiwan elections in 1996, China began live fire exercises near Taiwan as well as a planned amphibious assault exercise.[41] The United States responded by sending two carrier strike groups to the Taiwan Strait. Though China was growing confident as a rising power, this incident was a humble reminder that China was not ready to challenge the United States on the global stage. China realized the strategy of "hide our capabilities and bide our time" set forth by Deng Xiaoping, would apply near its own coasts until it achieved military parity with the United States[42] Throughout the late 1990s and early 2000s, China focused its economic success into a vastly more capable military and, most notably, maritime defense.

Why is GPC important today? The unipolar moment of United States hegemony began to decline around 2006 and ostensibly ended by 2014 with the relative strengthening of Russia and China.[43] The United States then shifted forces and focus from conflicts in the Middle East to Asia. Acknowledged in the 2015 National Security Strategy and described as a "pivot" or "rebalance to Asia," this shift largely began the current era of United States-China competition at the forefront of GPC.[44]

B.   THE SOUTH CHINA SEA

Because it is at an intersection of economic, security, and sovereignty issues, the SCS is a unique microcosm of GPC. Great powers and their allies rely on the resources within and passing through the SCS, and because of these resources, seek security and

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[40] O'Rourke, *Renewed Great Power Competition,* 1.

[41] Aaron Friedberg, A Contest for Supremacy: China, America, and the Struggle for Mastery in Asia (New York: W. W. Norton and Co., 2011), 96–97.

[42] Friedberg, 142–145.

[43] O'Rourke, *Renewed Great Power Competition,* 1.

[44] Phillip C. Saunders, "China's Rising Power, the U.S. Rebalance to Asia, and Implications for U.S.-China Relations," *Issues & Studies* 50, no. 3 (September 2014): 19.

sovereignty.[45] This section briefly covers the history and important aspects of the SCS to contextualize the importance of activity in the Spratly Islands.

1.   Competitive History

Countries around the SCS, particularly China and Vietnam, claim to have proof of sovereignty from hundreds, if not thousands, of years ago. Recent evidence starts in the early 1900s, when Chinese naval commander Li Zhun inspected various islands in the SCS. These inspections led to China forming a plan to develop the Paracel Islands in the north SCS.[46] In the 1930s, France claimed sovereignty over the Paracels as the protectorate of Vietnam. Most activity during those times involved the economic benefits of fishing or guano collection in addition to sovereignty.

Immediately after WWII, the United States and Allies debated what to do with Japan's claimed islands in the SCS. Japan would lose its acquisitions, but it was not clear who rightfully claimed which islands. Unfortunately, the issue was left generally vague after the San Francisco Conference.[47] In 1946, with the independence of the Philippines and China's establishment of a fledgling navy, claimants began a rush for the islands. France attempted to keep as much of the Paracels and Spratlys as possible; China, then the Republic of China (ROC), marked Itu Aba; and the Philippines claimed the Spratlys.[48] China's fundamental territorial claim was first made in a statement issued by Chinese premier Zhou Enlai in August 1951. In the statement, Zhou declared China's sovereignty over the Paracel and Spratly Islands.[49]

As the Vietnam War ended, Vietnam increased its focus on claims in the SCS. "Prior to 1975, Beijing and Hanoi engaged in no arguments about territory, including the

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[45] The works of King C. Chen, Michael Fabey, Humphrey Hawksley, Richard Javad Heydarian, and Bill Hayton referenced in this thesis are a few of the many books dedicated to South China Sea issues.

[46] King C. Chen, *China's War With Vietnam, 1979: Issues, Decisions, and Implications* (Stanford, California: Hoover Institution Press, 1987), 44.

[47] Chen, 45.

[48] Hayton, *The South China Sea*, 58.

[49] M. Taylor Fravel, "China's Strategy," 293.

Paracels and Spratlies [sic]…After 1974, however, the situation gradually developed into dispute."[50] In 1973, Vietnam occupied islands in the Paracels, harassed Chinese fishermen, and began drawing up contracts with foreign companies for oil exploration.[51] In the same year, Vietnam announced the incorporations of eleven islands in the Spratlys into one of its districts; China responded by occupying the Paracel Islands after a brief conflict with Vietnam in January 1974.[52] From 1974 to present day, China and Southeast Asian countries incrementally developed outposts and engaged in sporadic, low-level conflicts over fishing, oil, land reclamation, and/or development.[53] For example, China forcibly seized features in the Paracel and Spratlys from Vietnam in 1974 and 1988 as well as Scarborough Shoal from the Philippines in 2012.[54]

China and Vietnam hold the largest claims, and both are based on historic claims to sovereignty and occupation or inspection of various islands. The other claimants—Malaysia, Brunei, and the Philippines—hold claims more in line with the United Nations' definition of an Economic Exclusionary Zone (EEZ) as defined in the 1982 UN Convention on the Law of the Sea (UNCLOS).[55] Figure 2 shows the current state of claimants of the Spratly Islands.

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[50] Chen, *China's War,* 42.

[51] Chen, 42.

[52] Chen, 46.

[53] Fabey, *Crashback,* 104.

[54] Humphrey Hawksley, *Asian Waters: The Struggle Over the South China Sea & the Strategy of Chinese Expansion* (New York: Overlook Press, 2018), 96.

[55] Fabey, *Crashback,* 87.
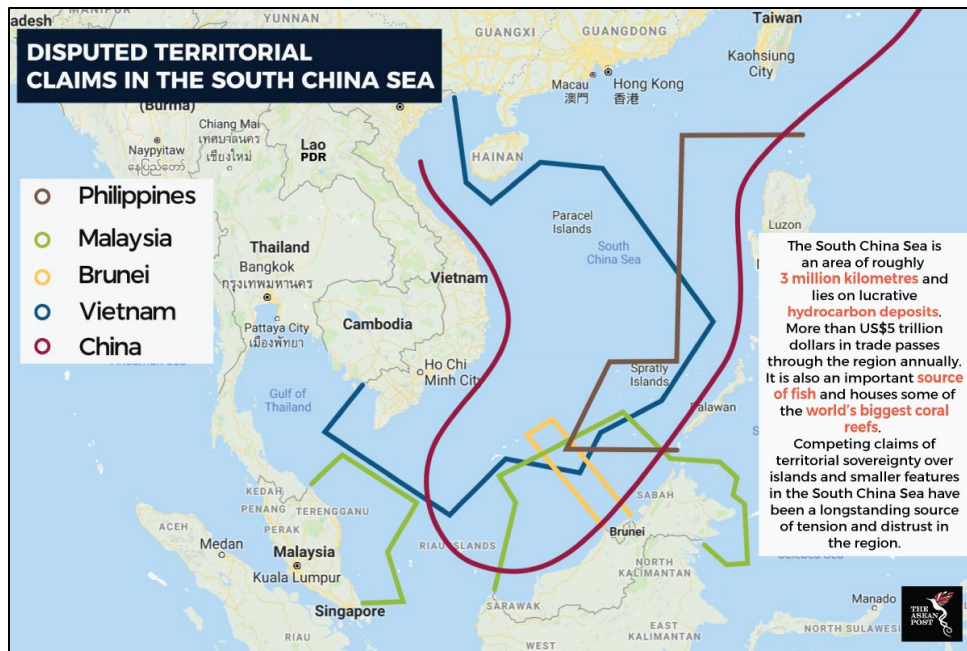
Figure 2.   Disputed Claims in the SCS [56]

The key takeaway from Figure 2 is the many claims entangling the Spratly Islands. China's claim to the Spratly Islands is part of its overarching claim to the SCS. In addition to sovereignty of the massive area, the claim affects numerous significant waterways—internationally, passage from Singapore, Palawan passages, passage toward San Bernardino Strait, and Luzon Strait passage; regionally, the Gulf of Tonkin and Gulf of Thailand.

The current state of claimed territories is the result of a surge of interest from all countries bordering the SCS following the UN establishment of EEZs. Without a formal negotiation between claimants or international arbitration to establish which feature belonged to which country, each claimant resorted to *de facto* occupation and *fait accompli* diplomacy. Examples of these methods include the Chinese seizure of Scarborough Shoal from the Philippines in 2012. Similarly, the Philippines established *de facto* control of Second Thomas Shoal by grounding a WWII-era amphibious ship on the feature.[57] This

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[56] Source: Gnanasagaran.

[57] Hawksley, *Asian Waters,* 47.

ship, the Sierra Madre, houses a complement of Filipino marines to ensure the feature does not change to other claimants. Thus, each country developed the features it occupied and increased defenses where they were able. China's developments are, by far, the most militarily capable.

2.   Available and Prospective Resources

The SCS is rich with natural resources, primarily fish, oil, and natural gas. Though other estimates are lower, China assesses the amount of oil around 125 billion barrels and natural gas at approximately 500 trillion cubic feet.[58] The determination of EEZs by UNCLOS changed the previous game of first come, first served into a matter of economic sovereignty. To achieve international recognition of ownership of nearly all SCS resources, UNCLOS gave China a reason to attempt enforcing its claim over most of the SCS, the Nine Dash Line.[59] In addition to oil, the SCS is one of "the earth's most productive fishing zones" and provides about half of the fish eaten in China, the Philippines, and Vietnam.[60]

Aside from natural resources, the SCS is economically important as a sea line of communication (SLOC). Approximately 80 percent of all trade is carried by sea, and about 20–33 percent of global trade passes through the SCS.[61] Based on a study conducted by the National Bureau of Economic Research in November 2020, if east-west trade through the SCS were halted, the economies of Taiwan and Singapore would contract by 20–30 percent and the economies of Hong Kong, Vietnam, the Philippines, and Malaysia would drop by 10–15 percent.[62] China's economy, on the other hand, would suffer a 0.7 percent loss because of its domestic markets and ports outside the SCS.[63] China certainly conducts

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[58] Hawksley*, 79.

[59] Fabey, *Crashback,* 184.

[60] Bouchat, *Dangerous Ground*, 4.

[61] David Uren, "Southeast Asia Will Take a Major Economic Hit if Shipping is Blocked in the South China Sea," *The Strategist,* December 8, 2020, 1, https://www.aspistrategist.org.au/southeast-asia-will-take-a-major-economic-hit-if-shipping-is-blocked-in-the-south-china-sea.

[62] Uren, 1.

[63] Uren, 1.

a significant amount of trade through the SCS, but a conflict in the area would be an inconvenience to China and devastating to its neighbors.

In addition to trade, the SCS SLOC is an important element of China's larger economic ambitions vis-à-vis the Belt and Road Initiative (BRI), also known as One Belt One Road (OBOR). In total, BRI is a massive and complex infrastructure investment venture with over 130 countries and thousands of projects.[64] China officially started BRI in 2013, between 2013 and 2020, invested nearly $800 billion in numerous sectors, mostly transport and energy.[65] BRI is an independent factor of GPC as a major Chinese economic project. However, BRI is also related to the Spratly Islands because of BRI's maritime focus and the "road" part of the Belt and Road Initiative: the 21st Century Maritime Silk Road (MSR).[66] Somewhat counterintuitively, the road is a series of ports and coastal infrastructure to connect Southeast Asia, South Asia, Africa, and the Mediterranean.[67] The MSR depends on stable (or at least Chinese-controlled) trade through the SCS.

C.   MARITIME STRATEGY: COMMAND OF THE SEA AND SEA DENIAL

A shift in maritime strategy is at the core of China's impact on GPC through Spratly militarization. To understand how China changed the norms of maritime strategy, this section explains its basic elements and evolution. Alfred Thayer Mahan described the key elements of maritime strategy. Those terms gave way to further evaluation and analysis of various aspects that contribute to modern analysis. In his iconic work *Influence of Sea Power Upon History*, Mahan coined the term "command of the sea" to describe how

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[64] "BRI Projects," Belt and Road Initiative website, accessed 10 November – 17 December 2020, https://www.beltroad-initiative.com/projects.

[65] American Enterprise Institute (AEI) Database (object name China Global Investment; accessed November 10 – December 17, 2020), https://www.aei.org/china-global-investment-tracker; Nadège Rolland, "China's 'Belt and Road Initiative': Underwhelming or Game-Changer?," *The Washington Quarterly* 40, no. 1 (April 2017): 127, DOI:10.1080/0163660X.2017.1302743.

[66] William A. Callahan, "China's 'Asia Dream': The Belt Road Initiative and the New Regional Order*," Asian Journal of Comparative Politics* 1 (2016): 236–237.

[67] Callahan, 236.

seafaring nations thought about and achieved power in the maritime domain.[68] Generally, Mahan defined "command of the sea" and "sea power" as a nation's ability to ensure maneuver of its naval and commercial vessels in the maritime domain while limiting an adversary's ability to maneuver in that domain.[69] This broad definition lacks nuance and is rarely applicable in the modern maritime environment. Using Mahan's concepts and terminology, Geoffrey Till observed that Mahan did not provide explicit definitions of the terms he put forth (sea power/seapower and command of the sea).[70] As Milan Vego, another maritime strategist, suggests, "the concept of command or control of the sea has undergone numerous changes in the course of the history of naval warfare."[71] Both Till and Vego provided specificity to the broad Mahanian concepts of sea control and sea denial.

The first major component of command of the sea is sea control. In his book *Maritime Strategy and Sea Control*, Vego provides a basic definition of sea control as the "ability of combatants to enjoy naval dominance."[72] Till expands on this dominance as "the capacity to control the sea to the extent they need to in order to do what they feel they have to at and from the sea, whether that be to protect their offshore estate, their sea lines of communication or their territory from attack, or to threaten someone else's."[73] Similarly, maritime strategist, Barry Posen, elaborates on "command" as getting "vastly more military use out of the sea, space, and air than do others" and being able to "credibly threaten to deny their use to others."[74] These strategists highlight the key aspects of sea control: using the sea for one's purposes while preventing enemy usage. Given this general

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[68] Mahan, *The Influence of Sea Power*, 112.

[69] Mahan, 14.

[70] Geoffrey Till, *Seapower: A Guide for the Twenty-first Century, 4th ed* (London and New York: Routledge, 2018), 24.

[71] Milan Vego, *The Objectives of Naval Warfare,* (Newport: Naval War College, June 2015), 2.

[72] Milan Vego, *Maritime Strategy and Sea Control* (New York: Routledge, 2016), *i.*

[73] Till, *Seapower,* 17.

[74] Posen, "Command of the Commons," 11.

concept of sea control, the level of control can be further specified depending on two adversaries' respective ability to operate.

Till elaborated on the command of the sea concept by providing levels of sea control based on a nation's ability to freely operate.[75] Till equated Mahan's "command of the sea" with what he calls "absolute sea control."[76] Though Till provided levels, these are theoretical instead of practical; it is a practical impossibility for any nation to achieve absolute sea control. Instead, sea control is a continuously shifting state of play between forces in conflict. Sea control requires both one's ability to utilize a body of water, but also the prevention of enemy use in the same area. In comparing sea control vs. sea denial, Vego states, "obtaining or gaining sea control is a *positive object* while denying that control is a *negative object.*"[77] For the purposes of this thesis, sea denial is the most important element. Sea denial is an essential element of sea control. China's militarization of the Spratly Islands is a form of preemptive sea denial or, as this thesis proposes, it is the establishment of sea assurance, discussed at length in Chapter IV. Vego also says that sea denial can be described as "preventing partially or completely the enemy's use of the sea for military and commercial purposes."[78] China's use of the Spratly Islands to achieve preemptive sea denial (sea assurance) is the focus of the analysis provided in Chapter IV.

D.   CONCLUSION

This chapter has examined GPC as a key factor in both Chinese and United States decision making. In militarizing the Spratly Islands, China impacted GPC in several categories. The primary impact of that militarization is through a new aspect of maritime strategy that changed the nature and dynamics of the SCS. The importance of the Spratly Islands and the multi-faceted impacts of their militarization also effected economic, diplomatic, and security issues. The next chapter discusses each of the impacts individually

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[75] Till, *Seapower,* 190.

[76] Till, 190.

[77] Milan Vego, *Maritime Strategy and Sea Denial* (New York: Routledge, 2019), 18.

[78] Milan Vego, 18–19.

and argues each category of effect influences other categories to form the overall change to GPC from Spratly militarization. This overarching change is understandable as a new evolution of maritime strategy—from command of the sea to control/denial, and, finally, a peacetime variant called sea assurance.

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III. CHINA SPRATLY MILITARIZATION AND IMPACT ON UNITED STATES-CHINA COMPETITION

To understand the importance of sea assurance and its relevance to maritime strategy, this chapter analyzes China's Spratly militarization and its impact on U.S-China competition. To measure such a broad topic as China-United States competition, this research uses the DIME framework and measures effects as either beneficial, harmful, or neutral to the United States and/or China. This chapter proceeds in three sections. The first section provides a more focused background on Spratly development. The second section evaluates the diplomatic, information, military, and economic (DIME) impact of Spratly militarization. The concluding section provides an overall analysis of the impact of Spratly militarization.

Why does this thesis use DIME as the framework? As alluded to in Chapter II, GPC has been an overarching condition of international relations since the beginning of human state-making. Such competition is impacted by every aspect of societal interaction, and those interactions evolve over time. To analyze and understand changes in these numerous exchanges, it is necessary to define major categories of potential impact. Diplomacy, information, military, and economics broadly capture many perceivable interactions. The DIME framework is one often used by military analysts, decision makers, and academics. Using the categories of the DIME framework allows for more useful evaluation of the overall impact of Spratly militarization on GPC.

A. MILITARIZATION BACKGROUND

This section provides specifics on how China developed its claimed features in the Spratlys. First, this section explains the transformation of underwater features into usable bases. Next, it explains the military equipment China built on the new features.

1. Physical Buildup of the Spratly Islands

Before being able to build airfields on Spratly outposts, China was faced with the task of turning underwater features into usable land. One could argue that the creation of the islands was the event of militarization; however, the islands could only be effectively

utilized for military purposes once airfields were complete. Figure 3 shows dredging operations at Fiery Cross and is a good representation of what dredging operations looked like on all features.

Figure 3.   Fiery Cross Reef Dredging, 2014 (left and center) to 2015 (right)[79]

As the result of dredging operations in 2014 and 2015, China created seven new islands.[80] As depicted in Figure 3, the features of the Spratly Islands were mostly underwater at high tide; China used multiple dredgers to move sand up to create dry land. Johnson Reef, a smaller feature near the center of the Spratly Islands, was the first new feature dredged in January 2014.[81] Hughes Reef, near the center of the Spratly Islands, and Cuarteron Reef, the southernmost feature, were dredged starting in March 2014.[82] Fiery Cross Reef and Gaven Reef, also near the center of the Spratly Islands, were dredged beginning in August of 2014.[83] The last two to begin dredging operations were Mischief and Subi Reefs in March 2015.[84] This physical buildup allowed the installation of infrastructure in subsequent months and, ultimately, military equipment and infrastructure.

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[79] Source: Asia Maritime Transparency Initiative (AMTI)/Center for Strategic and International Studies (CSIS) (object name Spratly Islands; accessed April 15, 2020 – June 1, 2021), https://amti.csis.org/island-tracker/china/#Spratly%20Islands.

[80] Asia Maritime Transparency Initiative (AMTI)/CSIS (object name Island Tracker; accessed April 15, 2020 – April 9, 2021), https://amti.csis.org/island-tracker/china.

[81] AMTI.

[82] AMTI.

[83] AMTI.

[84] AMTI.

This construction formed what former INDOPACOM commander, retired Admiral Harry Harris, called a "Great Wall of Sand" in a March 2015 speech.[85]

2.   Military Buildup of the Spratly Islands

The physical creation of the islands in 2014 was the beginning of China's plan, but China's intention to militarize the islands was denied by Xi Jinping and not globally realized until 2016. As stated by *The Maritime Executive*, "in 2015, Chinese President Xi Jinping pledged that China had no intention of militarizing its bases in the SCS. However, in December 2016, satellite imagery showed air defense weaponry installed on several of the Chinese-controlled islands."[86] The three areas of the Spratly outpost militarization are: airfields, information warfare systems, and missiles.

The first area of militarization is airfields. China currently operates airfields on three outposts—Fiery Cross, Subi, and Mischief Reefs. China was not the first to construct airfields on the Spratly Islands, but its airstrips are nearly three times larger than the other claimants and the only airstrips capable of full-scale military operations.[87] Satellite imagery first revealed complete airfields on the three outposts in late 2015 and 2016. Fiery Cross appeared operational in September 2015; Mischief and Subi appeared operational in mid-late 2016.[88]

The second area of militarization is ISR and CISR systems. China installed radar systems on all outposts as well as jamming equipment on the three major outposts in early

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[85] Fabey, *Crashback,* 188.

[86] "China Acknowledges Militarization of its Spratly Island Bases," *The Maritime Executive*, April 11, 2018, https://www.maritime-executive.com/article/china-acknowledges-militarization-of-its-spratly-island-bases.

[87] Michael Chase, "China's Airfield Construction at Fiery Cross Reef in Context: Catch-Up or Coercion?" Center for Strategic and International Studies (CSIS), https://amti.csis.org/chinas-airfield-construction-at-fiery-cross-reef-in-context-catch-up-or-coercion.

[88] AMTI/CSIS (object name Fiery Cross Reef, accessed April 15, 2020 – June 1, 2021), https://amti.csis.org/fiery-cross-reef; AMTI/CSIS, (object name Mischief Reef, accessed April 15, 2020 – June 1, 2021), https://amti.csis.org/mischief-reef; AMTI/CSIS, (object name Subi Reef, accessed April 15, 2020 – June 1, 2021), https://amti.csis.org/subi-reef.

2018.[89] As with most electronic devices, jamming equipment ranges in size; the exact type or amount of jamming equipment is not available in unclassified literature. Unlike airfields, jamming equipment is highly mobile and not easily observable.

The third area of militarization is missiles. The most glaring militarization of the Spratly Islands was China's placement of missiles on the three major outposts. By May 2018, China deployed anti-ship cruise missiles (ASCM) and surface-to-air missiles (SAM) on Fiery Cross, Subi, and Mischief Reefs.[90] The deployment was somewhat expected due to the previous construction of missile shelters in the summer of 2017.[91] Despite Xi Jinping's suggestions otherwise, the movement of missiles to the Spratly Islands clearly signaled China's intent to militarize the area. In militarizing the Spratly Islands, China developed a wide range of new capabilities approximately 500 nautical miles (NM) away from its mainland. To protect the outposts from attack, all seven outposts were also equipped with multiple close-in weapons systems (CIWS).[92] These improvements and respective capabilities are discussed in greater detail in Section B (Subsections 2 and 3) of this chapter.

B.   EFFECT OF SPRATLY MILITARIZATION ON U.S.-CHINA COMPETITION

As stated by China's State Council Information Office, the Spratlys are a focal point of GPC between the United States and China.[93] Before China placed missiles on the outposts, a study for Congress suggested, "the home to one-third of all global maritime

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[89] Michael Gordon, "China Installed Military Jamming Equipment on Spratly Islands, U.S. Says," *Dow Jones Institutional News* (New York), April 9, 2018.

[90] Amanda Macias, "China Quietly Installed Missile Systems on Strategic Spratly Islands in Hotly Contested South China Sea," CNBC, May 2, 2018, https://www.cnbc.com/2018/05/02/china-added-missile-systems-on-spratly-islands-in-south-china-sea.html.

[91] Wyatt Olson, "China Steps Closer to Military Dominance in South China Sea with Missile Shelters, Hangars," *TCA Regional News* (Chicago), June 29, 2017, 1.

[92] AMTI/CSIS, (object name Spratly Island Defenses, accessed April 15, 2020 – June 1, 2021), https://amti.csis.org/chinas-new-spratly-island-defenses.

[93] The State Council Information Office of the People's Republic of China, *China's National Defense in the New Era* (Beijing: Foreign Languages Press, July 2019), 6.

traffic 'will be virtually a Chinese lake' by 2030."[94] Though some defense analysts were concerned with the militarization, others were concerned with the lack of American alarm; "Beijing is betting that American leaders and voters won't appreciate the military, diplomatic and economic stakes in the conflict…Americans still dismiss China's maritime conquests as mere scuffles over 'a bunch of rocks.'"[95] Former United States Pacific Fleet commander, Admiral Scott Swift (retired), states that "the strategic significance of [China-United States] competition… [is that] freedom of navigation is being impeded in the diplomatic domain, the information domain, yes, the military domain, [and] the economic domain."[96] This section reviews the impact of Chinese militarization of the Spratly Islands in terms of the effect it has had on the four domains of DIME.

1.   Diplomatic Effects

To analyze the diplomatic effect of China's Spratly militarization, this thesis uses "ideal point" analysis based on United Nations (UN) voting records.[97] Ideal point analysis is based on the idea that how a country votes in UN decisions can be viewed as diplomatic movement if one country changes its voting pattern to be more like China. This analysis, conducted by Erik Voeten, reduces a country's hundreds of annual votes to a number on an ideological scale for that year.[98] By comparing two countries' ideal points from voting data, one can surmise potential ideological alignment. The figures provided show the countries compared to China and the United States. The United States and China regularly occupy different areas of the ideological spectrum. If a country displays a significant shift in ideal point from China toward the United States immediately following 2014, it could represent a noteworthy diplomatic effect from Spratly militarization.

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[94] "China's Missile Offense."

[95] Feith, "China's Next Sea Fortress," 1–3.

[96] Admiral Scott Swift, USN (retired), "Chinese Coercion in the South China Sea," November 14, 2019, *International Security: Off the Page*, produced by Morgan Kaplan, podcast, streaming, 47:17, https://www.belfercenter.org/OffthePage#!episodes.

[97] Erik Voeten, Anton Strezhnev, and Michael Bailey, "United Nations General Assembly Voting Data," Harvard Dataverse, April 19, 2020, https://doi.org/10.7910/DVN/LEJUQZ.

[98] Voeten, Strezhnev, and Bailey.

Based on ideal point analysis, some claimant countries drifted away from China, but none moved toward the United States Essentially, though public and private statements reflected anger toward China's actions, these sentiments were not reflected in official support of either the United States or China in UN voting patterns. In evaluating public statements and expert analysis, claimant countries felt threatened by China's militarization of the Spratlys and were underwhelmed by the lack of forceful United States response. As Heydarian states, "Washington sought to maintain an 'impossible trinity,' whereby it claimed neutrality on the South China Sea disputes, while simultaneously developing closer strategic ties with China as well as upgrading partnership and alliances with rival claimant states such as the Philippines (treaty ally), Taiwan (de facto ally), and Vietnam (strategic partner)."[99] There is no evidence that Russia and East Asian countries were concerned enough about Spratly militarization to trigger a diplomatic reaction.

China's militarization of the Spratly Islands is one aspect of what the Office of the Secretary of Defense reported as China's "coercive approach."[100] Because of this approach, Ketian Zhang describes China as a "cautious bully" in characterizing China's penchant for exerting influence below of the line of conflict.[101] As part of her argument, Zhang argues that China uses "grey-zone coercion" (both military and nonmilitary actions) to influence the behavior of other countries.[102] Perhaps demonstrating the success of such an approach, the other SCS claimants responded to Spratly militarization with harsh rhetoric and calls for United States intervention, but no real shift in diplomatic activity.

a.   *East Asian Impact*

China's East Asian neighbors are not claimants to the Spratly Islands; however, the militarization of the SCS potentially allows China to control maritime movement in a major

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[99] Heydarian, *The Indo-Pacific,* 155.

[100] Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China* (Washington, DC: Office of the Secretary of Defense 2020), 70.

[101] Ketian Zhang, "Cautious Bully: Reputation, Resolve, and Beijing's Use of Coercion in the South China Sea," *International Security 44, No 1* (Summer 2019): 117.

[102] Zhang, 121–122.

SLOC. The creation and militarization of outposts establishes two dangerous scenarios for the rest of East Asia. The first scenario is China potentially restricting or limiting trade through the SCS, through which approximately five trillion dollars passes annually.[103] China would not likely stop its trade outright since Japan and South Korea are two of China's primary trade partners. However, Spratly militarization gives China the physical capability to regulate the major trade routes through the SCS—including the Strait of Malacca, near Palawan, the San Bernardino Strait, or the Luzon Strait.[104]

The second scenario is China using similar tactics in its disputes with East Asian countries. As David Feith states, "China's preferred principle is might makes right," and if the United States is unable to deter China in the SCS, China could undo decades of "stability in East Asia."[105] China ignoring arbitration of territorial claims and, instead, seizing, creating, and militarizing disputed areas sets a dangerous precedent settling other disputes in its proximity—Scarborough Reef, the Senkaku Islands in the East China Sea, fishing rights in the Yellow Sea, or Taiwan autonomy (on Itu Aba or at home). Japan would likely display a much greater reaction if China took military action at the Senkaku Islands.[106] Similarly, South Korea would likely react to Chinese action near its coast in the Yellow Sea. Taiwan's concerns for seizing claimed territory are more existential than South Korea or Japan.

Based on these scenarios, one might expect to see clear diplomatic backlash against China, however, the quantifiable data suggests no change at all. As depicted in Figure 4, neither Japan nor South Korea displayed a significant shift in ideal point after the militarization of the Spratlys in 2015.

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[103] Feith, "China's Next Sea Fortress," 1.

[104] CIA World Factbook (object name China; accessed April 15 – June 12, 2020), https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html.

[105] Feith, "China's Next Sea Fortress," 2.

[106] Hawksley, *Asian Waters,* 135–136.
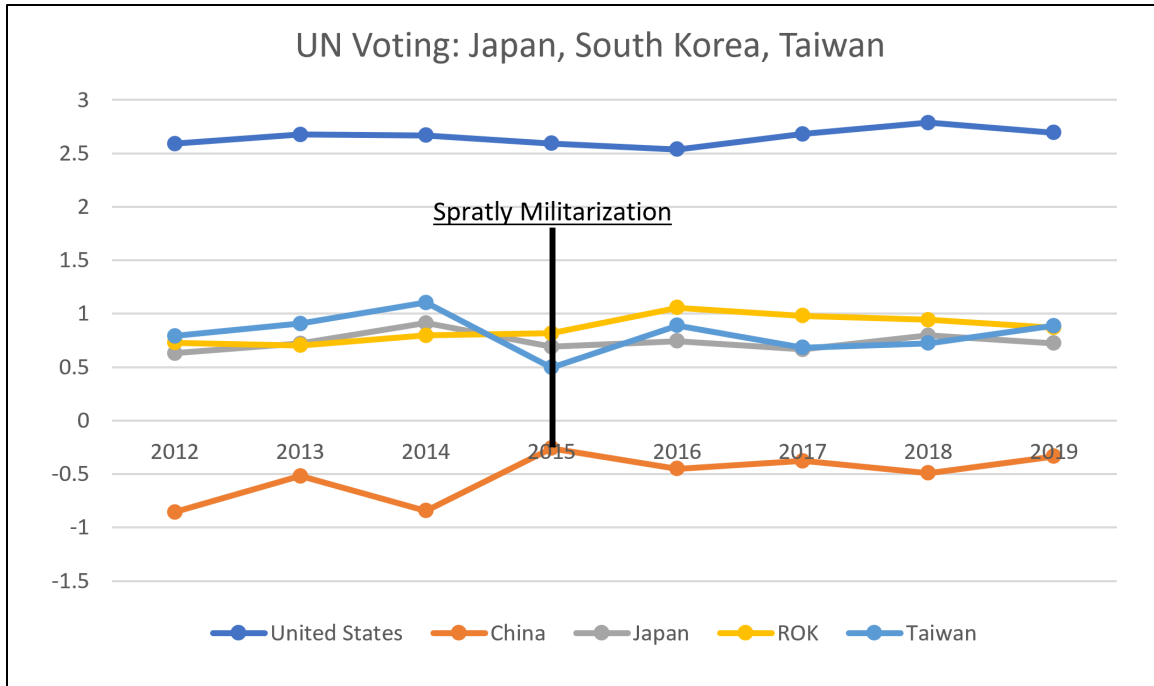
Figure 4.   Ideal Points of United States, China, Japan, South Korea, and Taiwan[107]

Judging the relative distance between China (orange), South Korea (yellow), Taiwan (light blue) compared to the United States (dark blue), South Korea and Taiwan shifted slightly toward the United States in 2016. However, since the shift was less than half a point and within half a point of South Korea and Taiwan's average ideal points since 2012, it does not suggest a significant diplomatic change due to China's Spratly militarization. The same is true of Japan (grey) as it displayed almost no shift whatsoever after 2015. The lack of diplomatic change after Spratly militarization is potentially because China's East Asian neighbors were not directly threatened by Spratly militarization as the other claimants of the Spratlys.

b.   *Southeast Asian Impact*

The countries more immediately threatened by militarization of the Spratlys are Southeast Asian nations, specifically the other Spratly claimants—the Philippines,

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[107] Adapted from Voeten, Strezhnev, and Bailey, "United Nations General Assembly Voting Data."

Malaysia, Brunei, and Vietnam. Their economic concerns are similar to East Asian countries—China's ability to impact trade and precedence of unilateral action. The latter was proven at Scarborough Reef in 2012.[108] As a benefit of its coercive approach, China's Spratly militarization established de facto control over disputed features and the surrounding waters; this action prevented other claimants from the "friendly consultations and negotiations" China promised them in 2002.[109] As quoted by Fravel and Miura, Zuo Xiyin suggests, "land reclamation has created a 'new normal' in which China now has greater bargaining leverage in its disputes 'due to dramatic changes in its actual control of the area.'"[110] As for rhetorical responses, claimants diplomatically responded in two general ways: blatantly opposed to China's actions or no clear response. Vietnam and the Philippines opposed China's actions, but Malaysia and Brunei remained relatively quiet about China's actions.

The Philippines' reaction to Spratly militarization was in concert with its existing disputes with China. China used the auspices of fisheries protection to seize Scarborough from the Philippines, which caused the Philippines to file a case against China with the Hague in 2013.[111] This demonstrated China's willingness to abuse Southeast Asian countries for its own benefit. The seizure of Scarborough also weakened the Philippines' trust in the United States to back Southeast Asian nations. In 2016, after China's militarization of the Spratlys, the Permanent Court of Arbitration ruled against China's claims in the SCS, but China did not accept the ruling.[112] Via President Rodrigo Duterte,

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[108] Hawksley, *Asian Waters,* 46; Scarborough Shoal is a feature and fishing ground near the Philippines. In 2012, Chinese Coast Guard forced Philippines boats away from the shoal and have maintained control since.

[109] Fabey, *Crashback,* 184.

[110] Zuo Xiyin, *Xi Jinping guanyu guofang he jundui jianshe zhongyao lunshu xuanbian (san)* [An anthology of important expositions on national defense and military building (3)] (Beijing: *Zhongyang Junwei Zhengzhi Gongzuobu pianyin* [General Political Department of the People's Liberation Army], 2016), 145, quoted in M. Taylor Fravel and Kacie Miura, "Stormy Seas: The South China Sea in US-China Relations," (MIT Research Paper, September 21, 2020), 14, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3680649.

[111] Feith, "China's Next Sea Fortress," 1.

[112] Hawksley, *Asian Waters,* 46.

the Philippines diplomatic reaction was rhetorical and ambiguous. As Michael Beckley states, "Duterte has repeatedly threatened to downgrade the United States-Filipino alliance, but he also has authorized the United States to upgrade its military facilities in the Philippines… instructed Filipino troops to 'fight to the death' to defend these islands against China, and threatened … to ride out to other Chinese-claimed features on his jet ski and plant Philippine flags on them too."[113] Other examples of Philippines' ambiguity include its 2018 cooperative initiatives with China and simultaneous efforts to "develop maritime-defense capabilities."[114] As of April 2021, the Philippines recently lodged two diplomatic complaints against China from two events: in February 2020, China aimed a weapon system toward a Philippine corvette and, in March 2021, China stationed approximately 200 hundred People's Armed Forces Maritime Militia (PAFMM) vessels at a Philippine-claimed Spratly feature, Whitsun Reef.[115] The latter event harkens to China's seizure of the Paracels from Vietnam in 1974, China's seizure of Mischief Reef in 1994, and China's seizure of Scarborough Reef in 2012.[116]

While the Philippines and Vietnam are "at the forefront of a maritime dispute with China in the South China Sea" according to Renato Cruz de Castro, Vietnam's clash with China is distinct from that of the Philippines.[117] Of all the claimants, Vietnam's history of struggling with China for SCS features is the bloodiest, largely due to the 64 men killed by Chinese machine guns in the battle for Johnson Reef in 1988.[118] A decade earlier, China

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[113] Beckley, *Unrivaled*, 95–96.

[114] "Chapter Six: Asia," *The Military Balance* 120, no. 1 (February 2020): 224, https://doi.org/10.1080/04597222.2020.1707967

[115] Renato Cruz De Castro, "Implications of the Recent Philippines-China Naval Stand-Off," CSIS, May 7, 2020, https://amti.csis.org/implications-of-the-recent-philippines-china-naval-stand-off; Samir Puri and Greg Austin, "What the Whitsun Reef Incident Tells Us About China's Future Operations at Sea," IISS, April 9, 2021, https://www.iiss.org/blogs/analysis/2021/04/whitsun-reef-incident-china.

[116] Lucio Blanco Pitlo III, "The Philippines and China Spar AMTI, April 6, 2021, https://amti.csis.org/the-philippines-and-china-spar-anew; Hawksley, *Asian Waters,* 97.

[117] Renato Cruz De Castro, "Intergovernmentalism: The Philippines' Changing Strategy in the South China Sea Dispute and Its Impact on the Association of Southeast Asian Nations (ASEAN)," *Journal of Current Southeast Asian Affairs* 39, no. 3 (2020): 339.

[118] Hayton, *The South China Sea*, 83.

violently seized the Paracel Islands from Vietnam.[119] Vietnamese leadership was not as vocal as President Duterte but demonstrated its concern with China's actions by increasing joint exercises with the United States and challenging China's claims to hydrocarbon within the Vietnamese EEZ.[120] An AMTI report in February 2021 revealed Vietnam was also increasing defenses at Spratly outposts West Reef and Sin Cowe Island.[121]

In contrast to the Philippines and Vietnam, Malaysia and Brunei were "less critical and more inclined to downplay" China's actions.[122] Both Brunei and Malaysia potentially prioritized their economic relationship with China over their territorial claims in the Spratly Islands.[123] Despite the apparent degradation in diplomatic relations with the Philippines and Vietnam, ideal point analysis showed Southeast Asian claimants did not significantly respond via UN voting patterns. As depicted in Figure 5, Vietnam, the Philippines, Malaysia, and Brunei maintained approximately the same relative ideal point before and after Spratly militarization. This lack of significant shift suggests Spratly militarization was not enough of a problem to change the UN voting patterns of the Southeast Asian claimants to align with the United States more closely.

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[119] Hawksley, *Asian Waters,* 183.

[120] Fabey, *Crashback,* 31, 118, 222.

[121] "Vietnam Shores Up Its Spratly Defenses," AMTI/CSIS, February 19, 2021, https://amti.csis.org/vietnam-shores-up-its-spratly-defenses.

[122] Mohammad Zaki Ahmad and Mohd Azizuddin Mohd Sani, "China's Assertive Posture in Reinforcing its Territorial and Sovereignty Claims in the South China Sea: An Insight into Malaysia's Stance," *Japanese Journal of Political Science* 18 (2017): 67, DOI:10.1017/S1468109916000323.

[123] "Brunei Maintains a Low Profile in Pressing Its South China Sea Claims," *World Politics Review,* January 28, 2016, https://www.worldpoliticsreview.com/trend-lines/17799/brunei-maintains-a-low-profile-in-pressing-its-south-china-sea-claims; Michael Hart, "Brunei Abandons South China Sea Claim for Chinese Finance," *Geopolitical Monitor*, April 4, 2018, https://www.geopoliticalmonitor.com/brunei-abandons-south-china-sea-claim-for-chinese-finance.
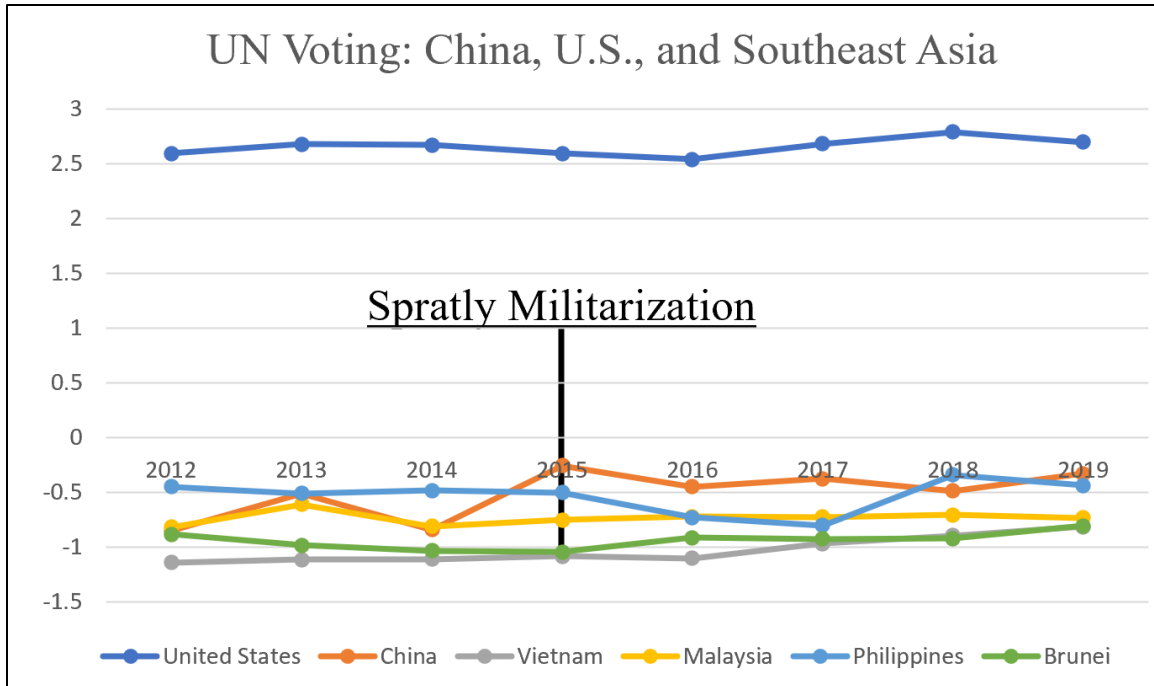
Figure 5.   Ideal Points of United States, China, and Southeast Asian Claimants[124]

Overall, China's Spratly militarization (and United States response) resulted in no significant diplomatic change with East Asian and Southeast Asian countries. Despite potential trade impacts to East Asian countries and clear rhetorical irritation from Southeast Asian countries, ideal point analysis showed a neutral reaction.

2.   Information Effects

To evaluate the change of information effects as a result of Spratly militarization, this thesis uses Command, Control, Communications, Computers, Information, Surveillance, and Reconnaissance (C4ISR) and counter-ISR (CISR). Legal and psychological effects could also be argued under the category of information, but as previously discussed, those topics more aptly apply to the diplomatic changes of Spratly militarization. Spratly militarization primarily affected China-United States competition in three ways. First, radars and aircraft drastically increased China's ability to detect and track

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[124] Adapted from Voeten, Strezhnev, and Bailey, "United Nations General Assembly Voting Data."

maritime forces in the SCS. Second, communications equipment increased China's ability to conduct command and control (C2) in the Spratlys. Third, China gained the ability to restrict adversary ISR via jamming equipment.

a.   *Detect and Track Maritime Forces*

One of the first improvements to the Spratly outposts was radar; China has put in place approximately 40 total radar installations.[125] Figure 6 shows China's radar coverage of the SCS before 2014 and after completion of militarization in 2015. The numerical change in coverage (based on optimal atmospheric conditions) is approximately 1,000 square nautical miles in 2014 to approximately 150,000 square nautical miles by the end of 2015, an increase of 150 times the previous radar coverage.[126] Of note, in addition to the "Big Three" outposts, four additional outposts were equipped with radars, perhaps suggesting more improvements are to follow on those outposts.[127]

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[125] Alexander Neill and Meia Nouens, "China's Radar Installations in the Spratly Islands – What do They Tell us About Its Ambitions for the South China Sea?" International Institute for Strategic Studies (IISS), February 19, 2018, https://www.iiss.org/blogs/analysis/2018/02/china-radar.

[126] Adapted from Neill, Nouens, and Google Earth Pro.

[127] Neill and Nouens, "China's Radar Installations."
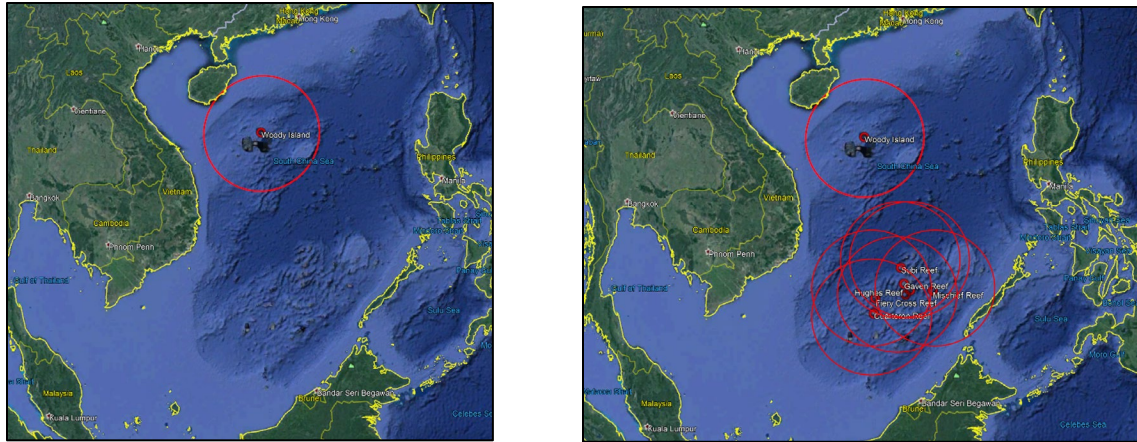
Figure 6.   SCS Radar Coverage before (left) and after (right)
Militarization[128]

In addition to ground-based radars, the airfields on the Big Three outposts provide
China with the capability to conduct airborne ISR. China's primary ISR aircraft is the Y-8
with an approximate range between 700 and 3,000 nautical miles depending on payload.[129]
The new version of the Y-8 is the Y-9 with a range between 1,300 and 2,100 nautical
miles.[130] To account for variation between aircraft type and payload, Figure 7 uses 1,000
nautical miles for ISR coverage range (500 NM out and 500 NM back).

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[128] Adapted from Neill, Nouens, and Google Earth Pro.

[129] "Y-8," Janes, November 13, 2020, https://customer-janes-com.libproxy.nps.edu/Janes/Display/JAU_A191-JAU.

[130] Janes, "Y-8."
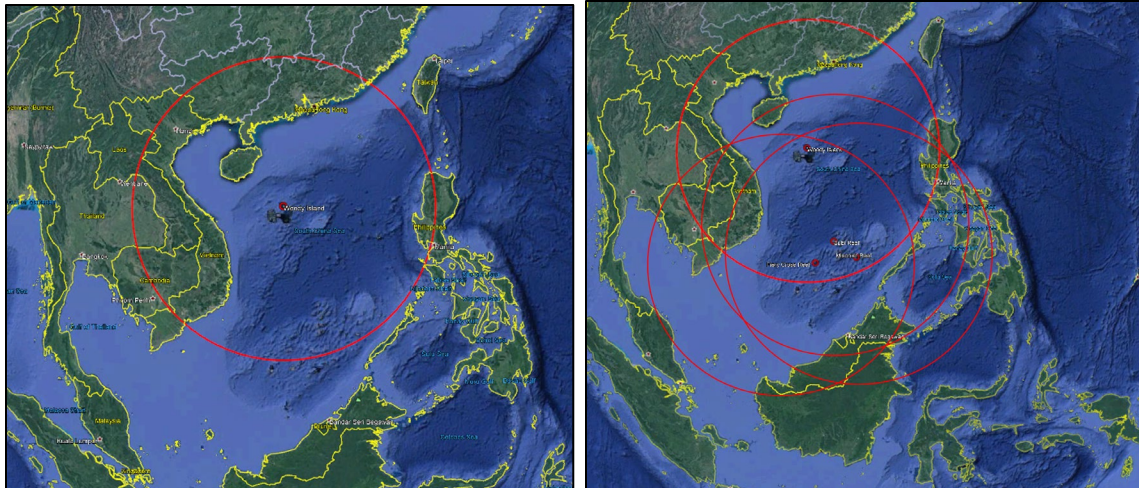
Figure 7.　　SCS Airborne ISR Coverage before (left) and after (right)
Militarization [131]

ISR aircraft from Woody Island allow China to detect and track maritime forces in most of the SCS, but the airfields on the Big Three outposts extend Chinese airborne-ISR coverage into the Sulu and Celebes Seas and beyond the SCS toward Thailand and Singapore. The port facilities available at the Big Three also allow military vessels and PAFMM, with a typical range of 3,000 to 5,000 NM, to resupply and conduct limited repairs in the Spratly Islands instead of traveling nearly 500 NM to Hainan Island.[132] Though these vessels have a military function (and economic, for PAFMM), their radars also allow them to act as tactical ISR assets.

b.　　C2 and EW in the Spratlys

In addition to information collection via ISR platforms, the militarization of the Spratly Islands provided China with new communication and jamming capabilities. Through satellite communication equipment, the Spratly outposts gained the ability to conduct C2 of PLA(N), CCG, and PAFMM either from the outposts or mainland China

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[131] Adapted from Neill and Nouens, "China's Radar Installations," and Google Earth Pro.

[132] "Jiangkai," Janes, February 25, 2021, https://customer-janes-com.libproxy.nps.edu/Janes/Display/jfs_a723-jfs_; "Luyang," Janes, February 25, 2021, https://customer-janes-com.libproxy.nps.edu/Janes/Display/jfs_b684-jfs_; Google Earth Pro.

(Southern Theater Command or Strategic Support Force).[133] These communication outposts also provided greater access to China's Beidou Satellite Navigation system and potential guidance to strategic missiles (DF-21D or DF-26 anti-ship ballistic missiles).[134] By 2018, China reportedly installed jamming equipment on the Spratly outposts.[135] Though exact ranges are difficult to identify, jamming equipment provided a CISR capability, potentially against air, ship, or space information gatherers.[136]

The overall information impact is significant. Radars provide the ability to detect and track vessels in and around the Spratly Islands. Communication outposts allow for enhanced C2 in the Spratlys. Airfields drastically extend airborne-ISR capability, and jamming equipment allows China to disrupt adversary information capabilities.

3.   Military Effects

Perhaps unsurprisingly, the most significant change to China-United States competition from China's Spratly militarization is in the military category. The overall military result has been a significant increase in China's missile coverage in the SCS. This missile coverage benefits China both as power projection and preparation/prevention of major conflict. Fravel states, "China hopes to create a boundary around its continental and maritime periphery that will increase the cost for other states to conduct military operations against targets on the mainland."[137] In addition to allowing China to project its own power several hundred miles farther, Spratly militarization also limits the United States from projecting power "near and into Chinese territory."[138] As with information capability, China enhanced its military capability using three domains: air, ground and sea.

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[133] Neill and Nouens, "China's Radar Installations."

[134] Neill and Nouens.

[135] Gordon, "China Installed."

[136] Gordon.

[137] M. Taylor Fravel, "China's Search for Military Power," *The Washington Quarterly* 31, no. 3 (Summer 2008): 131.

[138] Saunders and Bowie, "US–China Military Relations: Competition and Cooperation," 679.

a.   *Airborne Capabilities*

Shortly after physically creating the features from dredged sand, China constructed operational airfields with 10,000-foot airstrips. This length is significant because it allows operations of larger aircraft—namely, bombers. These outposts have been compared to "stationary aircraft carriers," however, each outpost is more than ten times wider and ten times longer than China's current aircraft carriers.[139] At that size, each outpost is able to store a large number of various aircraft in addition to the requisite repair facilities and logistics support. Figure 8 depicts the combat ranges of China's primary anti-ship aircraft, the J-11B, JH-7, and H-6 bomber.[140]

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[139] "China's Missile Offense;" Google Earth Pro.

[140] "J-11," "JH-7," and "H-6," Janes, December 7, 2020, https://customer-janes-com.libproxy.nps.edu/Janes/Display/JAWAA261-JAWA.
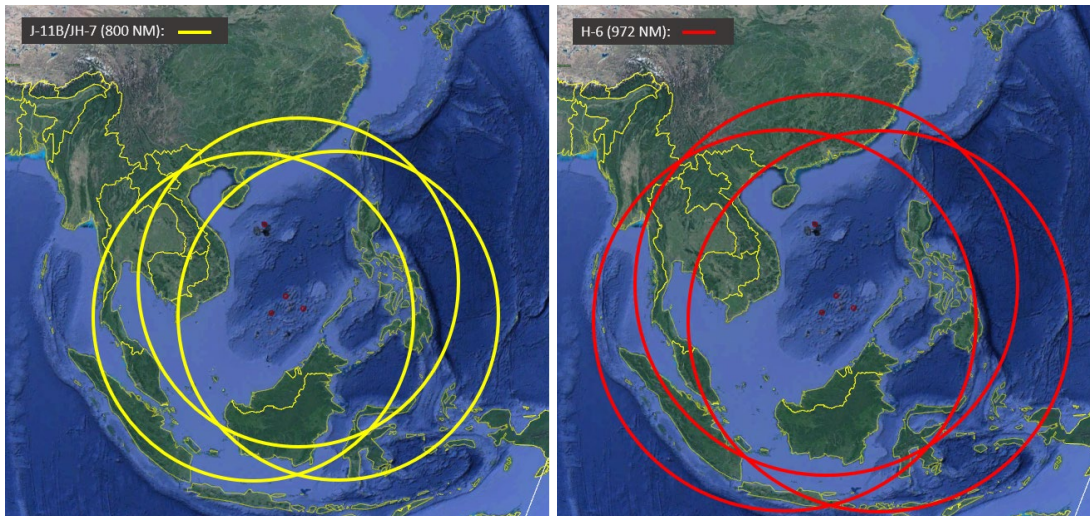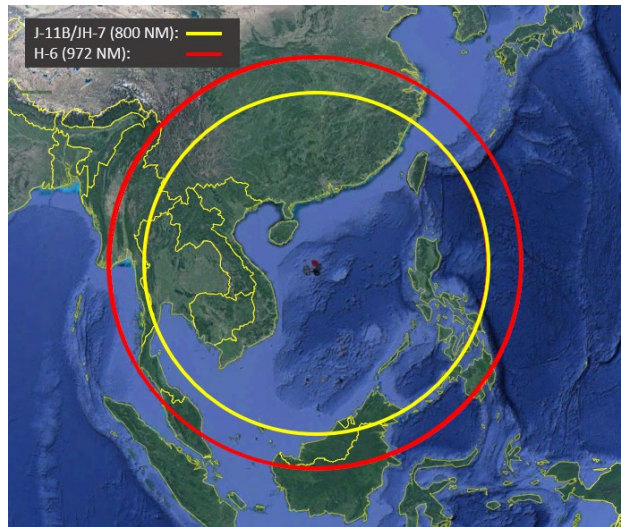
Figure 8.   SCS Airfield Ranges, before (above) and after (below)
Militarization[141]

As seen in Figure 8, China's ability to project anti-ship capabilities before 2014 were restricted to Woody Island or mainland China airbases. The addition of Spratly outposts expanded China's anti-ship capability to include all of Borneo, the Java Sea, the Strait of Malacca, and Palau.[142] In addition to an air-to-air function, the J-11B and can

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[141] Adapted from "J-11/JH-7/H-6," Janes, and Google Earth Pro.

[142] Adapted from "J-11/H-6," Janes, and Google Earth Pro.

carry YJ-91 anti-ship missiles, which have a range of 8 NM.[143] The JH-7 can also carry theYJ-91 as well as the YJ-83K, which has a range of 97 NM.[144] The PLA(N) H-6s are primarily for anti-ship missions and carry the YJ-83K as well as the YJ-12, which has a range of 270 NM.[145] In short, before 2014, China could launch anti-ship capable aircraft from one base in the SCS, which could fly as far east as the Western Pacific via the Luzon Strait, as far south as the central Celebes Sea, and as far west as the Gulf of Thailand. After militarization, China gained the ability to launch aircraft from four bases in the SCS and engage enemy ships in the Indian Ocean, south of the Java Sea, and in the Western Pacific beyond Palau. As depicted in Figure 9, the length of the Spratly airfield runways is the prime difference between China and other claimants with developments.

143 "YJ-91," Janes, December 9, 2019, https://customer-janes-com.libproxy.nps.edu/Janes/Display/JALW3680-JALW.

144 "YJ-83K," Janes, September 11, 2020, https://customer-janes-com.libproxy.nps.edu/Janes/Display/JALW2892-JALW.

145 "YJ-12," Janes, June 4, 2018, https://customer-janes-com.libproxy.nps.edu/Janes/Display/JNW_0005-JNW.
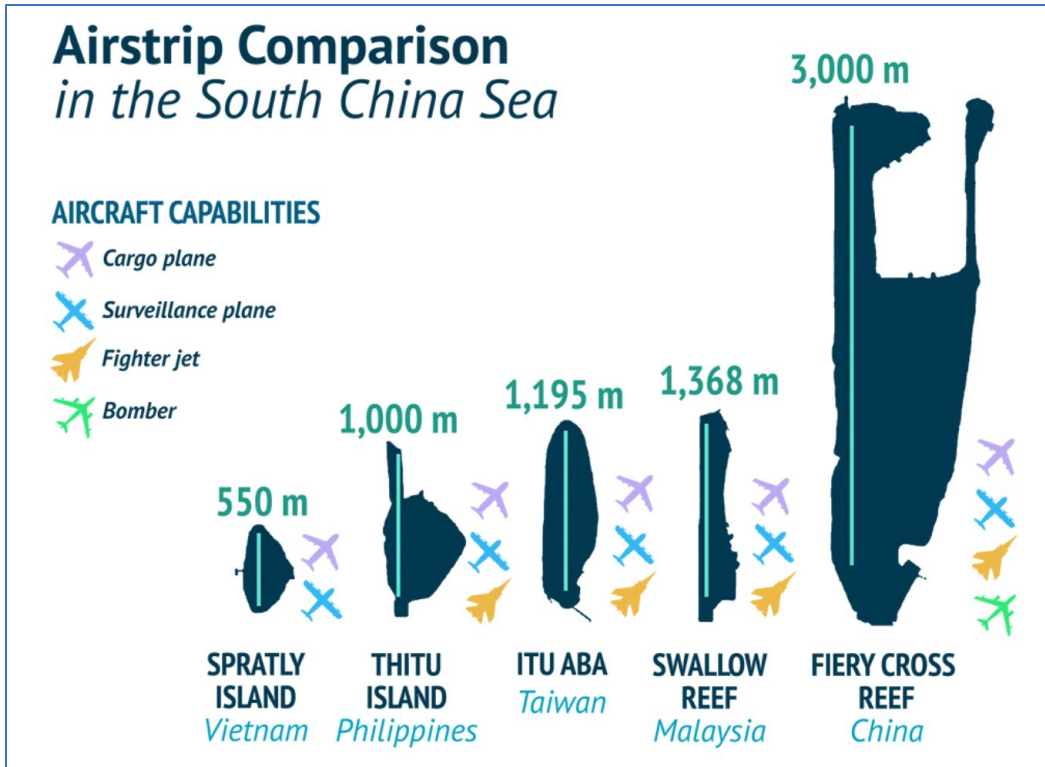
Figure 9. Comparison of Airstrips in the SCS[146]

Figure 9 shows China's airstrips are significantly longer than other claimants and the only airstrips capable of supporting bombers. Each of China's Big Three outposts have runways of this length, giving it a significant military advantage against other Spratly claimants and any country that may seek to militarily challenge China in the SCS. Short of conflict, China's increased capability from Spratly airfields gives it the credible means to enforce an Air Defense Identification Zone (ADIZ) like the ADIZ it declared over the East China Sea in late 2013.[147] These airfields also give China the capability to hold any naval vessel at risk long before the vessel enters the SCS.

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146 Source: "Airpower Projection," AMTI/CSIS, July 29, 2015, https://amti.csis.org/airstrips-scs.

147 Fabey, *Crashback,* 139–141.

b.   *Ground-based Capabilities*

Besides airfields, the Big Three outposts are equipped with missiles—both surface-to-air (SAM) and anti-ship cruise missiles (ASCM). In 2018, China deployed HQ-9B SAMs to the Big Three outposts, enabling them to engage aircraft in nearly all the SCS and further support potential enforcement of an ADIZ over China's claim of the Nine Dash Line.[148] Figure 8 depicts the SAM coverage added in 2018 as well as a portion of China's Nine Dash Line, what it claims as sovereign territory. Before 2018, China did not have SAMs on any outpost in the Spratly Islands.
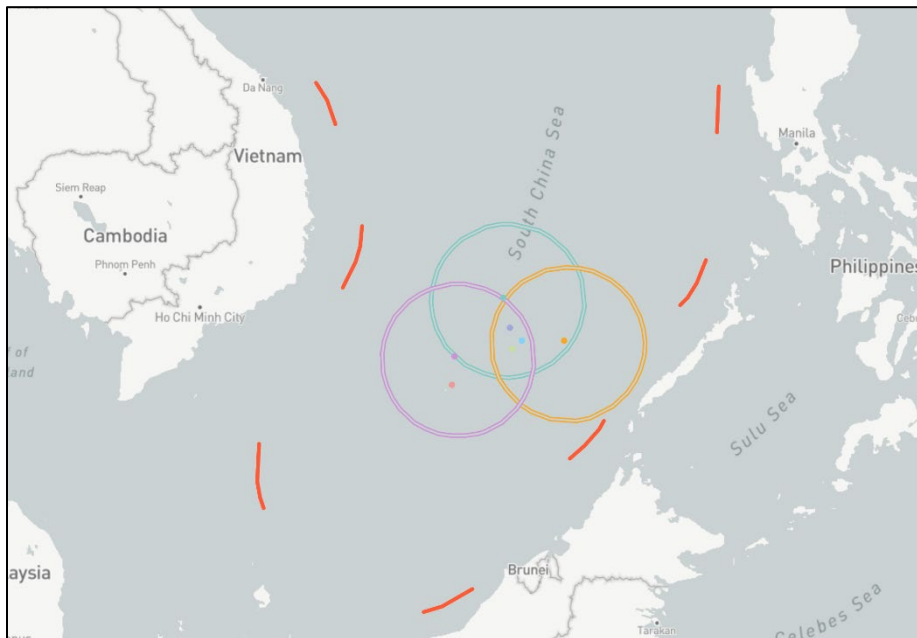
Figure 10.   SCS SAM Coverage in the Spratly Islands[149]

As depicted in Figure 10, the HQ-9 has a range of 54 NM.[150] The Big Three SAMs do not extend to land and are mostly for defense of the outposts and their aircraft. Of note,

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[148] Macias, "China Quietly Installed."

[149] Source: "Airpower Projection."

[150] "HQ-9," Janes, April 27, 2020, https://customer-janes-com.libproxy.nps.edu/Janes/Display/JLAD0520-JAAD.

every other claimant with an airfield in the Spratlys is within missile range upon take off. These SAMs give China the ability to hold any aircraft in the Spratly Islands at risk without utilizing airborne platforms.

In 2018, China also deployed the second type of ground-based system, YJ-12B ASCMs. These ASCMs enable China to engage surface vessels from the Sulu Sea to the coast of Vietnam.[151] Before 2018, China did not have ground-based ASCMs in the Spratly Islands. The YJ-12B has a range of 270 NM; Figure 11 depicts their coverage of the Spratly Islands.
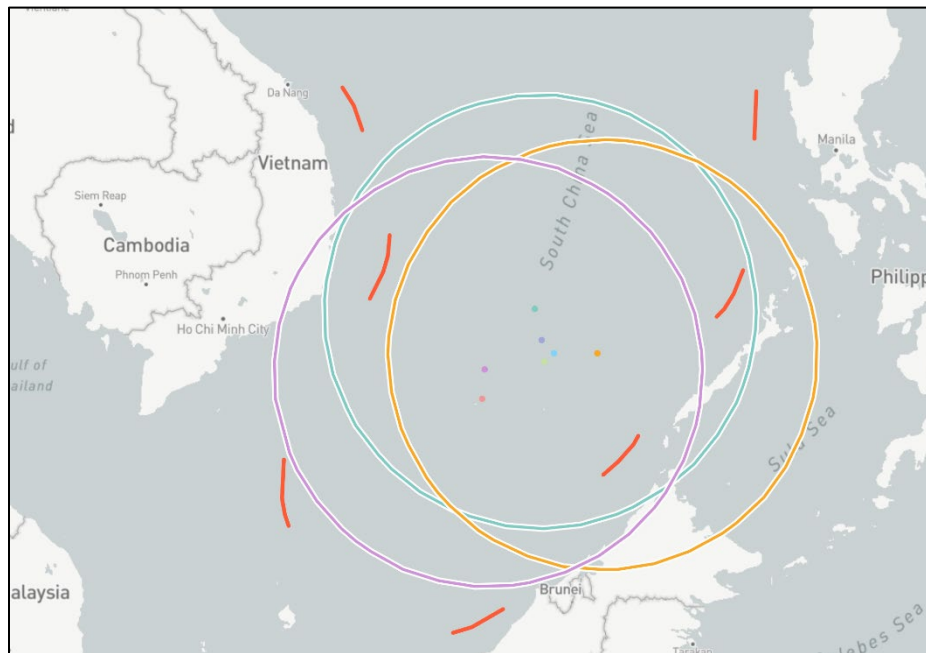
Figure 11. Spratly ASCM Ranges[152]

Of note, every vessel that travels through the SCS is within strike range of China's ASCMs. As depicted in Figure 11, the YJ-12B systems on the Big Three outposts provide

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[151] Macias, "China Quietly Installed."

[152] Source: "Airpower Projection."

overlapping ASCM coverage of most of the Spratly Islands. These missiles give China a dedicated anti-ship capability covering most of the SCS.

c. Seaborne Capabilities

During their creation, the Spratly outposts were dredged to allow large vessels to dock and operate near the outposts. Additional infrastructure allows the repair and replenishment of military vessels as needed. These ports provide a significant logistic capability, enabling military vessels to operate farther from the mainland and closer to other claimants and potential conflicts. PLA(N), CCG, and PAFMM vessels potentially conducting coercion of other claimants or surveillance of United States vessels were previously required to return to mainland China. After Spratly militarization, the endurance of Chinese vessels increased by the availability of supplies at its Spratly outposts.

Overall, the greatest impact to United States-China competition from Spratly militarization was the increase in China's military capabilities. These added capabilities were gained from military-purpose airfields, advanced ASCMs, and SAM systems. Indirectly, the ports of these outposts logistically support naval operations several hundred miles away from mainland China.

4. Economic Effects

Considering the amount of money and effort put into militarization, one might expect China to benefit economically. Spratly militarization did not provide China with additional revenue such as tourism, and, based on World Trade Organization data and Harvard's Atlas of Economic Complexity, China also did not experience a significant increase in relative trade or oil consumption compared to the other claimants.[153] One interesting correlation with Spratly militarization was the significant increase in the number of Chinese merchant vessels. In 2018, the same year China put missiles on the Spratlys, the number of Chinese merchant vessels (including oil tankers and bulk carriers) increased from approximately 4,500 to nearly 6,000, quadruple the increase seen between 2016 and

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[153] World Trade Organization Database (object name China, Brunei, Malaysia, Philippines, Vietnam, 2013–2021; accessed April 2021), https://data.wto.org.

2017.[154] Though there is no evidence of direct economic benefit, Spratly militarization provided China with indirect economic benefits in two ways: additional protection of its MSR and enhanced support to coercion of other claimants for natural resources in the SCS.

a.   Trade and BRI

The Maritime Silk Road (MSR), depicted in Figure 10, is a sea route that starts "from southern Chinese provinces of Fujian through Southeast Asia, extending to South Asia and Western and North Africa then cutting through the Mediterranean to Europe."[155] BRI infrastructure projects are the framework of BRI, but the maritime traffic is the lifeblood. China's ability to control the SCS SLOCs directly affects its credibility with other countries involved. By militarizing the Spratlys, China took effective steps to control the major SLOCs in the SCS and tacitly fortify the MSR aspects of BRI.[156] According to Heydarian, BRI is "above all, about laying the foundation of a 'Chinese world order'" and its security is paramount.[157]

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[154] UN Conference on Trade and Development (object name Maritime Profile: China; accessed April 2021), https://unctadstat.unctad.org/CountryProfile/MaritimeProfile/en-GB/156/index.html.

[155] Heydarian, *The Indo-Pacific,* 121.

[156] Fravel, "China's Search," 131.

[157] Heydarian, *The Indo-Pacific,* 2.

The Road rekindles pre-existing stresses and strains between China and regional states, oscillating between the exacerbation of anxieties over China's strategic intentions and a regional arms build-up, and moderation through pursuit of common maritime economic development and shelving of territorial disputes.

The Road is impacted by and impacts maritime and jurisdictional disputes, affecting the perceptions of the South East Asian claimant states.

The Road attracts Association of Southeast Asian Nations (ASEAN) given their strong interest in improved connectivity and economic opportunities.

The Road makes some regional states nervous in that it is an extenuation of China's growing economic, diplomatic and military might, and is accompanied by uncertainty towards US engagement, lack of an effective and regionally-led security architecture, ambiguity about China's vision for the regional security space and intra-ASEAN discrepancies on how to engage collectively or as individual members.

Figure 12.   The Maritime Silk Road in the SCS[158]

[158] Richard Ghiasy, Fei Su and Lora Saalman, *The 21st Century Maritime Silk Road: Security Implications and Wars Forward for the European Union,* Stockholm International Peace Research Institute (SIPRI), 2018, 18.

China's MSR includes infrastructure improvement to ports shown in Figure 12, but the aspect affected by Spratly militarization is the SLOC. Figure 13 provides a depiction of maritime traffic through the SCS. In 2016, China was the top importer and exporter of trade through the SCS and imported 42 percent of the oil transiting in the SCS.[159] Shown in the previous information and military sections, Spratly militarization nearly doubled China's ISR and missile coverage of the SLOC. With ASCM coverage of the SLOC, China gained the ability to control major avenues of trade, protecting its own trade while potentially limited trade of other countries.[160]

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[159] Anthony H. Cordesman and Max Molot, *The Critical Role of Chinese Trade in the South China Sea*, CSI, 2019, 4; U.S. Energy Information Administration (EIA) (object name China; accessed April 2021), https://www.eia.gov/todayinenergy/detail.php?id=36952.

[160] Maritime Awareness Project Database (object name Maritime Traffic Density; accessed April 2021), https://map.nbr.org/interactivemap; Adapted from Neill and Nouens, "China's Radar Installations." Jane's, and Google Earth.
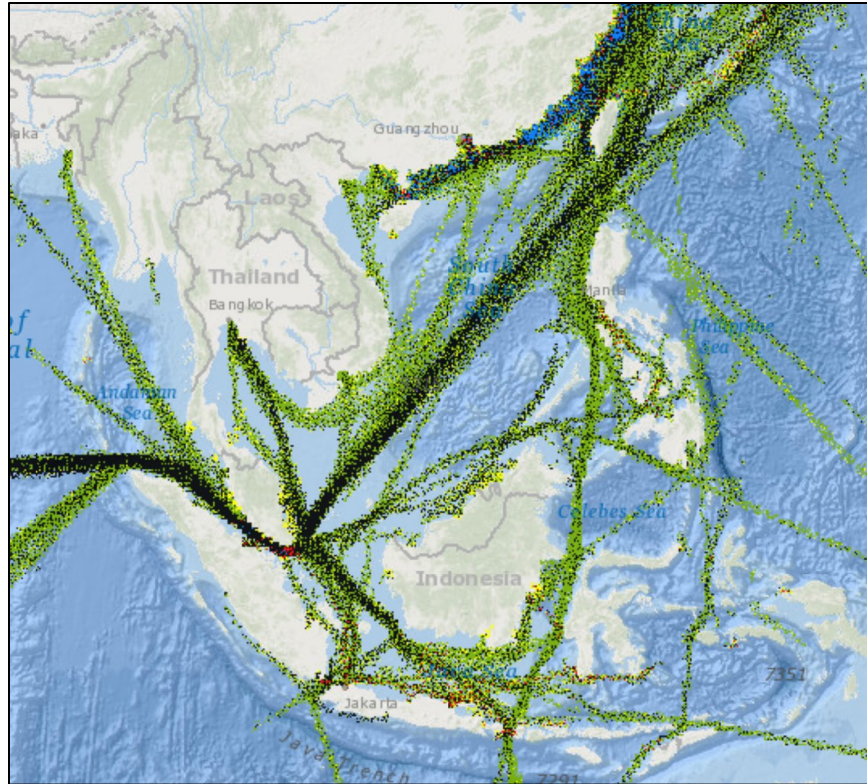
Figure 13.   SCS Maritime Traffic Density (2016)[161]

        Depicted in Figure 13, most maritime traffic in the SCS passes through the Strait
of Malacca. As Bill Hayton suggests, "one of the reasons to build these big runways [in the
Spratlys]…is to project power closer to the Malacca Strait…so it can protect trade routes
that are coming from the Middle East and try and frustrate any theoretical plan by the
United States to blockade the strait and starve China into submission."[162] The concept of
Spratly militarization as a means to assure control the SCS SLOCs is discussed further in
Chapter IV.

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        161 Maritime Awareness Project.

        162 Bill Hayton, "BBC Correspondent Bill Hayton: Who Owns the South China Sea?" August 26,
2016, Commonwealth Club of California, video, 54:10,
https://www.youtube.com/watch?v=1bp9LyCThD4.

b. ***Natural Resources***

As discussed in Chapter II, the SCS is rich in natural resources, specifically oil, natural gas, and fish. The militarization of the Spratly islands does not directly impact China's ability to utilize these resources, but the placement of missile systems and added facilities increases China's ability to monitor and coerce other claimants also utilizing resources in the area. As depicted in Figure 14, the Spratly Islands sit atop and near vast oil and gas reserves.

Figure 14.   SCS Oil and Gas Reserves[163]

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[163] Maritime Awareness Project Database (object name Oil and Gas Reserves; accessed April 2021), https://map.nbr.org/interactivemap.

In 2014, China and Vietnam clashed over China's oil rig, *Haiyang Shiyou* 981, within Vietnam's claimed EEZ. The event involved "fishing crews and coast guards from both s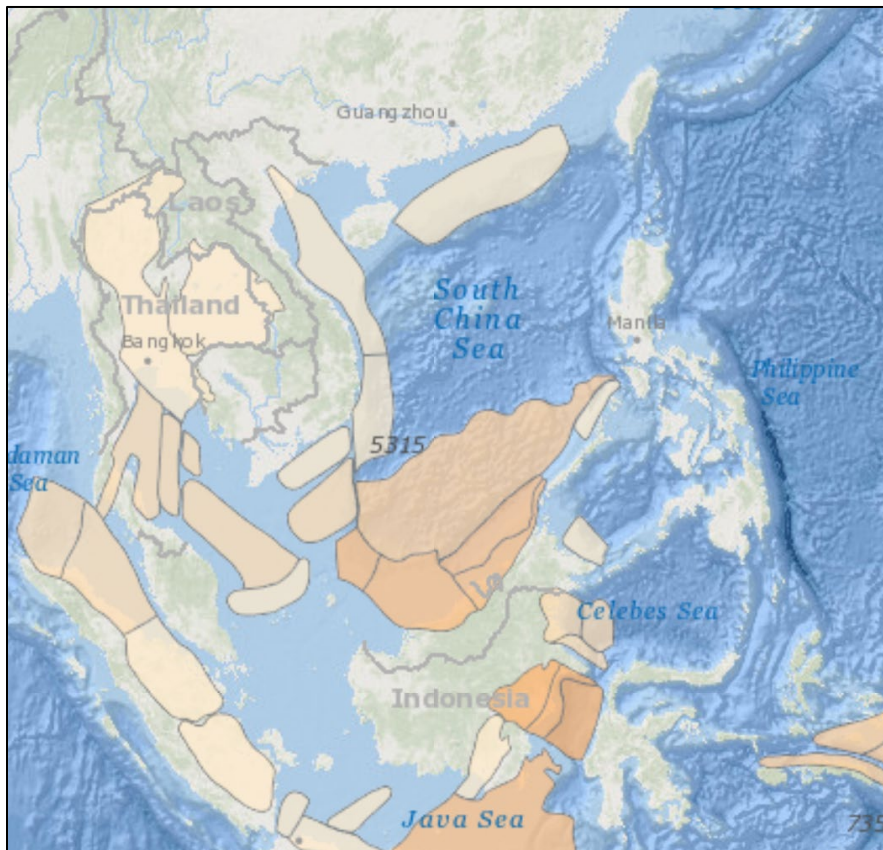ides on dozens of boats and the sinking of a Vietnamese vessel." [164] Because of Spratly militarization, if an event like the 2014 *Haiyang Shiyou* 981 incident occurred near Vietnam's southern coast, China would have significantly more firepower to persuade Vietnam from upholding its claim.

In addition to oil rigs, China uses unilateral fishing bans over the SCS, that do not apply to Chinese vessels with official licenses.[165] Because Vietnam and the Philippines do not want their acceptance of a ban to appear as recognition of China's sovereignty in the SCS, these bans result in an "increasing number of clashes between fishermen from Vietnam and the Philippines sailing into the closed area and Chinese maritime authorities determined to enforce their regulations."[166] As mentioned, the PAFMM play a unique role in the SCS. This fishing fleet is composed of over 200,000 registered vessels that provide most of China's fish and account for a third of global fish catch.[167] The PAFMM are also able to continue fishing while the CCG enforces fishing bans against other countries in the SCS. Although indirect, Spratly militarization provides additional ports to PAFMM and CCG operations, extending diplomatic and economic effects hundreds of miles from mainland China.

Overall, there was no direct economic benefit to China or the United States due to Spratly militarization. However, militarization gave China the ability to control a major avenue of trade as well as vast areas of natural resources. Though no evidence suggested quantifiable economic change, militarization likely bolstered China's ability to coerce other claimants from utilizing natural resources in the SCS.

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[164] Hawksley, *Asian Waters,* 80.

[165] Hayton, *The South China Sea*, 242.

[166] Hayton, 242.

[167] "Catching Controversy: China's Maritime Militia," Janes, April 2021, https://customer-janes-com.libproxy.nps.edu/Janes/Display/jdw64077-jdw-2017.

C. CONCLUSION

The overall impact of Spratly militarization on China-United States competition was most significant in information and military categories of DIME due to the increased coverage of ISR platforms and anti-ship missiles. The addition of bomber-capable airfields allowed China to operate a variety of ISR and anti-ship air platforms in areas that were out of range before 2015. Radar, SAM, and ASCM missile systems provided China with overlapping ISR and missile coverage of the southern half of the SCS. As summarized in Table 1, Spratly militarization affected competition neutrally and indirectly in the diplomatic and economic categories of DIME.

Table 1.　　Summary of Impact within DIME

Category	Militarization Impact on Competition
Diplomatic	- Neutral for U.S. and China, no clear diplomatic swing from East Asian or Southeast Asian countries - Enhanced China's coercion operations in the Spratly Islands
Information	- Significant benefit to China - Addition of radars and airfields nearly doubled China's information collection capability in the South China Sea
Military	- Significant benefit to China - Bomber-capable airfields and a variety of missile systems drastically increase China's overlapping ASCM capability inside the Spratly's and beyond the first island chain
Economic	- Neutral/indirect effect for China - No direct benefit or harm economically - Increase of ASCM coverage and addition of Spratly ports allows increased coercion of other claimants in clashes over natural resources - Missile coverage over SCS SLOC allows protection/control of trade route vital to MSR and BRI

The diplomatic impact was ultimately neutral due to no quantifiable diplomatic change from East Asian or Southeast Asian countries, despite rhetoric from Vietnam and the Philippines. Zhang's analysis of China as a "cautious bully" potentially suggests that militarization coerces other claimants below the line of conflict.[168] Similarly, the economic impact was neutral because Spratly militarization did not directly result in economic benefit for China. However, militarization extended China's ability to operate military, coast guard, and maritime militia vessels to protect its MSR as well as enforce China's claims to fish, oil, and natural gas in the SCS. China's neighbors felt threatened by the militarization but expected additional action from the United States in preventing China's developments.

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[168] Zhang, "Cautious Bully," 117.

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IV. SEA ASSURANCE AND THE SOUTH CHINA SEA

This thesis proposes a new term within maritime strategy: sea assurance. In the case of the Spratly Islands, China's militarized outposts assure China's ability to utilize the Spratly Islands and most of the southern SCS—not necessarily assurance to control, but rather assurance of advantage. Assurance exists when one country wields a discernible anti-ship advantage in a disputed area. As of the writing of this thesis, China holds a discernible anti-ship advantage in the Spratly Islands. Along with its capabilities in the Paracel Islands, Spratly militarization also assured China's ability to control the SCS SLOC. This chapter explains the concept of sea assurance by defining sea assurance, exploring how it is achieved, and explaining why it matters. To illustrate the finer points of sea assurance, this chapter uses China's militarization of the Spratlys as demonstration of sea assurance.

A. SEA ASSURANCE DEFINED

Sea assurance is the peacetime establishment of permanent or semi-permanent anti-ship capability in disputed or international waters. Sea assurance is essentially the opposite of sea denial: instead of denying enemy access, sea assurance provides a broader protection—assurance—to the state that has accomplished it. Another way to understand sea assurance is as peacetime arrangements that increase a nation's ability to achieve sea control in wartime. This peacetime fortification can act as a deterrent because it forces adversaries to reconsider the cost of battle and forces other claimants to evaluate the cost of defending their own claims. As a strategy, sea assurance is a goal or an end state. Through its militarization of the SCS, China has ensured security for its fishing and economic interests and expanded other elements of national power. To describe sea assurance more fully, this section dissects the critical aspects of the concept. "Sea" describes the relevant domain as distinct from air, space, land, or cyber. "Assurance" describes the effect of guaranteeing a country access to a portion of that domain. Three elements make sea assurance distinct from other maritime strategy concepts: use in peacetime, use of permanent or semi-permanent means, and coverage of non-territorial waters.

1.   Peacetime

The first element of sea assurance is its application only in peacetime. This makes sea assurance distinct from sea control and sea denial because those concepts only apply during wartime. As one might expect, it is impossible to militarily control an area if attack is not a viable option. While an attack may occur during peacetime, it generally signals the beginning of conflict instead of the perpetuation of peace. On sea control, Vego states, "perhaps it is needless to say that no country possesses sea control in peacetime. Struggle for sea control starts with the first encounter of the opposing forces in combat."[169] In addition to sea control, Vego suggests sea denial is not possible during peacetime. He states, "actions to deny control of the sea are carried out in case of a war at sea, not in peacetime."[170] Till, on the other hand, references the possibility of sea control in peacetime as a "strategic advantage," but proceeds to discuss diplomatic applications of maritime force; he does not specify how a country may control the sea in peacetime.[171] Aside from one reference from Till, maritime strategists tend to agree that sea control and sea denial only exist in wartime. Thus, China's establishment of anti-ship capabilities in the Spratly's would support sea control or sea denial in wartime, but those concepts do not accurately describe China's militarization of the Spratlys during peacetime.

2.   Permanence

The second element of sea assurance is the permanent or semi-permanent quality. From before Mahan, fleets have been considered the primary tools toward achieving sea control against other fleets.[172] Ships are inherently transient while operating; they lack the ability to guard a given area on a permanent basis. However, they are reliant on permanent structures, ports. By building ports in disputed areas, a nation gains the ability to continuously operate their fleets beyond sovereign seas and extend the anti-ship

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[169] Vego, *Maritime Strategy and Sea Control,* xi.

[170] Vego, *Maritime Strategy and Sea Denial*, 18–19.

[171] Till, *Seapower,* 229.

[172] Vego, *The Objectives of Naval Warfare,* 1.

capabilities of those ships. Particularly as two sea-faring nations come closer to conflict, the methods and range of sea assurance may include transient assets (ships/aircraft) supported by permanent structures (ports/airfields). Because sea assurance ends once conflict begins, strategists must consider tactical assets for sea assurance if they fulfill a semi-permanent mission. While ships and aircraft are transient, persistent combat patrols by these platforms can enable a semi-permanent anti-ship capability covering disputed or international waters. The permanent ports and airfields built on China's Big Three outposts enable China the option to wield a persistent anti-ship capability well beyond the SCS.

When conflict is possible or likely, intent becomes a factor of maritime strategy. If the intent of positioning a semi-permanent anti-ship capability is to hold other forces at risk for a deterrent or coercive effect, then sea assurance is being exercised. On the contrary, if the intent is to attack another force (despite being in peacetime), preemptive sea control may be a better description for the activity. Aircraft can exercise sea assurance even though they are not inherently semi-permanent. The use of air patrols provides a persistent anti-ship capability. Thus, the individual aircraft is not a tool of sea assurance by itself, but the airfield providing persistent operations is. China's Big Three outposts demonstrate this aspect of sea assurance. Each have permanent airfields and permanent missile bunkers capable of supporting mobile assets. When in place, these mobile missile systems and aircraft provide a semi-permanent, anti-ship capability that covers most of the southern SCS.

3. Disputed/International Waters

The third element of sea assurance concerns disputed or international waters versus recognized sovereign territory. If a nation establishes anti-ship capability on the mainland of its sovereign territory, it would be coastal defense; if the nation establishes the capability on a recognized, sovereign island, it would be island defense. Sea assurance is distinct because the country is establishing anti-ship capability outside its sovereign territory. In the case of China's militarization of the Spratlys, China's sea assurance efforts gave it recognized sovereign territory (12 nautical miles from the feature's baseline) though not an EEZ claim. An anti-ship capability in a disputed area is not a prerequisite for sovereign territory, but sea assurance likely reduces another claimant's options to overturn the claim.

Military capabilities aid China's fait accompli strategy. As discussed in Chapter II, China seized Mischief Reef from the Philippines when it was a disputed feature, but now that China built up and militarized it, other countries recognize (or at least do not openly challenge) the territorial seas around Mischief Reef.

B.   SEA ASSURANCE ACHIEVED

Sea assurance is achieved once a permanent or semi-permanent anti-ship capability is established in disputed or international waters. To have a credible anti-ship capability, two things are required: the ability to detect ships and the ability to attack them. A country may use several methods to achieve sea assurance depending on its technological capabilities and diplomatic situation. For example, China's creation of features within disputed territory was possible because of dredging technology. Once China dredged enough dry land onto the features, building military infrastructure and installing radars were not substantially different from building such infrastructure on mainland China.

In the Spratly Islands and SCS, China uses both outposts and maritime platforms to maintain sea assurance. China can detect foreign ships using radar on its outposts as well as PLAN, CCG, and PAFMM vessels (supported by port facilities on the outposts). China can attack those ships using ASCMs on the Big Three and missiles equipped on PLAN vessels. Within the Spratly and Paracel Islands, China has permanent sea assurance. By using PLAN vessels to monitor any foreign warship within the Nine Dash Line, China maintains semi-permanent sea assurance over the entire SCS.[173] As of May 2021, China does not have ISR aircraft, bomber aircraft, nor anti-ship ballistic missiles (ASBMs) deployed to the Spratly outposts. Because of the airfields and aircraft support infrastructure built at the Big Three, China could deploy aircraft and ASBMs to the Spratlys within days. If China deployed enough aircraft to maintain persistent operations, China would gain the ability to detect and/or attack ships hundreds of miles beyond the Nine Dash Line, as

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[173] Chinese shadowing operations in the South China Sea witnessed by the author during support to Freedom of Navigation Operations conducted in 2018.

depicted in Figures 7 and 8. If China deployed ASBMs to the Big Three, it would be able to attack ships as far away as Guam and Australia.[174]

Similar to sea control, sea assurance is a fluid concept; however, unlike sea control, permanent sea assurance is possible. A country may use permanent anti-ship capabilities, such as land based ASCMs, or permanent structures that allow for persistent use of tactical assets, such as ports/airfields enabling ships/airplanes to operate. Some blurry areas exist with regard to conflict—for example, at what point are a country's actions aggressive instead of guaranteeing its own access to the sea? Another blurry area is the level of dispute—how many other nations need to recognize sovereignty before the area is no longer in dispute? These questions are beyond the scope of the thesis but are valuable in seeking to determine the scope and effect of sea assurance in specific situations.

C. THE VALUE OF SEA ASSURANCE

In examining the importance of sea assurance, two underlying questions exist. First, why is it important as a concept? As a concept, sea assurance is important because it helps define a previously overlooked area of maritime strategy. It provides definable changes of the sea domain within peacetime. Anti-ship capabilities can act as a deterrent to conflict. If Nation X wants to challenge Nation Y in a disputed area, they must consider the probable conflict. If Nation Y achieves sea assurance in an area where Nation X has no anti-ship capability, Nation X must consider options other than conflict, including capitulation. In this example, sea assurance achieves a victory short of war. If capabilities between two countries are near peer, neither country could claim sea assurance and any pre-conflict considerations would require wargaming of potential sea control. As discussed in Chapter III, China's strategy in the SCS largely exists in the gray zone, just short of conflict, thus preventing other nations from taking a firm stance against its actions. However, China's slow but steady progression toward acquiring disputed features has had significant consequences—loss of territory by other claimants, increased threat to other claimants over resources, enhanced control of a major SLOC, etc. Sea assurance allows analysts and

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[174] Adapted from Google Earth and O'Rourke, *Renewed Great Power Competition,* 4.

policy makers to scrutinize China's actions and define the limits of acceptable behavior in international waters.

The second question is: why is sea assurance valuable to a country? In short, sea assurance involves a country establishing military capability beyond its sovereign territory. Doing so is beneficial for at least four reasons: de facto control of a disputed area, control of international sea lanes, deterrence of adversaries from operating in a body of water, and uninhibited expansion of capabilities useful in wartime. In the United States military, threat is widely regarded as a combination of capability and intent. Sea assurance allows a country to build capability during peacetime; once intent changes, ability to threaten changes simultaneously. China's militarization of the Spratlys gave it permanent sea assurance around the disputed islands and supported semi-permanent sea assurance in the southern SCS. As a result, China deterred claimants (and the United States) from challenging its claims. China's sea assurance also allowed China to protect its interests vis-a-vis the SCS SLOC and natural resources. Several indicators suggest sea assurance is part of China's SCS strategy—administration of Zhongsha Islands, control of Scarborough Shoal, and PAFMM occupation at Whitsun Reef. These actions suggest China plans to expand its sea assurance of the SCS.

In addition to what China already created and militarized, Bill Hayton speculates that China may be preparing to create additional islands from nothing near the center of the SCS.[175] China recently authorized its Xisha District to administer both the Xisha Islands (Paracel Islands) and the Zhongsha Islands. This announcement by China is either in error or supports assumptions that China intends to develop and militarize as much of the SCS as it is allowed.[176] The Zhongsha Islands are "known to the rest of the world as Macclesfield Bank, an underwater feature."[177] Hayton suggests the correct response is either ridicule for China's mistake or concern "that China is attempting to rewrite

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[175] Bill Hayton, "China Establishes Two Districts," *Threader*, April 20, 2020, https://threader.app/thread/1252162894403428354.

[176] Smith, "China Missile Reports."

[177] Hayton, "China Establishes."

international law and claim bits of underwater seabed hundreds of miles from its shores."[178]

D.   CONCLUSION

Overall, China's militarization of the Spratlys demonstrates the need for evaluation of existing maritime strategy concepts; its grey zone strategy in the SCS requires more defined concepts between peace and war. China is the first country to accomplish sea assurance by establishing permanent anti-ship capabilities within a disputed area. Each component of sea assurance differentiates it from other existing concepts while also accurately describing China's activity in the SCS. This strategic concept relates to current events because countries, like China, seek to compete with global powers below the threshold of conflict. Though China is the first to accomplish this type of capability in disputed waters, other countries will likely attempt their own version of sea assurance unless halted by international law or direct conflict. Technological advancement allows for the creation of islands as well as the possibility for naval platforms to remain at sea for increasingly longer durations. These developments require a new way of considering strategy on the seas.

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[178] Hayton.

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V.   CONCLUSION

As detailed in this thesis, China's militarization of the Spratly Islands had a significant, continuous impact on United States-China competition and demonstrated a new aspect of maritime strategy—a concept that this thesis defines as sea assurance. This chapter provides a summary of findings along with an examination of the hypotheses provided in Chapter I. Next, this chapter provides implications of these findings for United States policy. Finally, this chapter offers recommendations for future research.

A.   SUMMARY OF FINDINGS

The research for this thesis was designed to test three potential hypotheses to explain the impact of Chinese militarization of the Spratly Islands. Using the DIME model that considers the diplomatic, informational, military, and economic aspects of power, these hypotheses were that Spratly militarization was significant across all categories of DIME; significant in only two categories; or not significant at all. The findings of this research most align with hypothesis two, though not in the two categories expected. Spratly militarization has benefited China in the categories of information and military power.

As discussed in Chapter III, Spratly militarization has had an impact on all four categories of Chinese power; however, China did not directly benefit diplomatically or economically based on the criteria used. Militarization did benefit China informationally as measured by change in current ISR coverage and capability of air ISR coverage. It also benefitted China militarily with a significant increase in permanent anti-ship missile coverage of the SCS and potential basing of military aircraft. This thesis used UN voting data as a metric for diplomatic effect and determined China did not benefit from Spratly militarization; however, if one considers China's coercive strategy as a form of effective diplomacy, militarization likely benefited such a strategy. Similarly, China did not directly benefit economically from militarization; however, by covering most of the southern SCS with anti-ship missile coverage, China gained the ability to protect or control a major SLOC. This SLOC through the SCS is also vital to China's broader economic ambitions vis-à-vis the Maritime Silk Road and BRI. These direct and indirect effects of Spratly

militarization demonstrate the value of a new form of maritime strategy called sea assurance.

China's militarization of the Spratly Islands marks a new chapter in maritime strategy. For the first time in history, a country has created new islands in a disputed area and equipped them with radar and anti-ship missiles. This dramatic change to existing maritime strategy has given China new capabilities that cannot be adequately described using traditional terms such as sea control or sea denial; China's actions and its resultant increased maritime capabilities require consideration of a new name: sea assurance. Sea assurance can be seen as the opposite of sea denial: rather than simply denying the enemy fleet access, sea assurance provides a much broader umbrella of protection—assurance—to the state that has accomplished it.

Three specific characteristics are required for maritime activity to give a maritime power sea assurance: activities occur in peacetime, they are (semi)permanent, and they take place beyond territorial waters. Unlike sea control and sea denial, sea assurance only exists in peacetime. Unlike traditional maritime operations, maritime activity that can provide sea assurance is permanent, such as through the construction of islands, or semi-permanent, such as through persistent operations of transient platforms. And unlike coastal or island defense, sea assurance only exists in disputed or international waters.

As the thesis title suggests, the most significant overarching result of China's Spratly militarization is the establishment of sea assurance in most of the SCS. With fixed missile systems at the Big Three outposts (Fiery Cross, Subi, and Mischief Reefs), China holds persistent sea assurance of the Spratly Islands. With airfields long enough for ISR and bomber aircraft, China holds the potential for sea assurance as far as Singapore, the Celebes Sea, and beyond the Philippines. If China deployed ASBMs to the Big Three, it would hold sea assurance as far as Australia and Guam. Spratly militarization and subsequent sea assurance benefited China as a deterrent to other claimants and United States maritime operations in the SCS. Sea assurance in most of the SCS gives China the ability to control the SCS SLOC and protect its claims within the Nine Dash Line.

B.   IMPLICATIONS FOR UNITED STATES POLICY

The findings of this thesis provide two valuable insights for United States policy: first, they help to understand China's strategic trajectory in the SCS; and second, they suggest options for United States strategy in the SCS and elsewhere.

China's coercive strategy of militarizing disputed areas shows no sign of stopping. China's behavior in the Paracels and Spratlys suggests China intends to establish sea assurance over the entire SCS, possibly by militarizing Scarborough Reef and Macclesfield Bank. As discussed in Chapter III, United States neutrality on sovereignty issues in the Spratlys weakened other claimants' ability to resist Chinese coercion.

To bolster relationships with its ASEAN partners, the United States should seek to deter China from further militarization of the SCS as well as increase sea assurance capabilities of the other Spratly claimants. By assisting other Spratly claimants in militarization of their own outposts, the United States could lead China to lose its monopoly on control of the region. One typical method the United States uses to limit China's perception of control over a sovereign, archipelagic territory is through Freedom of Navigation Operations (FONOP).[179] While United States FONOPs demonstrate a great power's ability to transit non-sovereign territory, they have not prevented China from increasing its military capability in the region (e.g., YJ-12 ASCMs placed on the Big Three in 2018) nor occupying new disputed features (e.g., Whitsun Reef occupation by PAFMM).[180] Therefore, in addition to continuing FONOPs and bolstering other claimant capability, the United States should engage the international community via the UN to determine the limits of acceptable behavior in disputed and international seas. As with the previously discussed UNCLOS and the 2016 tribunal ruling, the UN can decide the legality of nation's occupying, building up, and militarizing disputed areas prior to international

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[179] Typical U.S. Freedom of Navigation Operations involve a U.S. warship operating just outside the territorial seas of another country. Eleanor Freund with Harvard's Belfer Center provides a thorough explanation of Freedom of Navigation Operations conducted by the U.S. up to 2017 along with their intent in *Freedom of Navigation in the South China Sea: A Practical Guide*, June 2017, https://www.belfercenter.org/publication/freedom-navigation-south-china-sea-practical-guide.

[180] Heydarian, *The Indo-Pacific*, 151–152; Cruz de Castro, "Implications of the Recent Philippines-China Naval Stand-Off," 1.

arbitration of sovereignty.[181] These decisions can be ignored, as demonstrated by China's response to the 2016 tribunal ruling, but if the decisions are not made by an international body, China has no reason to change its current strategy.

The second reason these findings are valuable is they provide the United States with new maritime strategy options. Assuming the UN makes no decision regarding establishment of anti-ship capabilities in disputed or international waters, the United States can also seek sea assurance either for itself or its partners. Specific to the Spratly Islands, the United States can support Philippine and Vietnamese expansion and upgrading of its outposts to deter potential Chinese coercion. The United States could also support Malaysian and Bruneian sea assurance efforts, though these countries may be less likely to counter China, as discussed in Chapter III. Beyond the SCS, the United States could support Japanese sea assurance at the Senkaku Islands. This suggestion may be controversial due to Japan's aversion to appearing aggressive and the potential for escalation with China. On the other hand, United States inaction in the SCS ostensibly ceded the Spratlys to China; perhaps aggressive action, however controversial, is needed to deter Chinese occupation of disputed territories.

For itself, the United States can consider methods of sea assurance as an extension of coastal defense for the continental United States or for its bases globally. As this thesis is being written in May 2021, it is perhaps inconceivable that the United States needs an in situ anti-ship capability to protect its interests; however, as the Director of the Defense Intelligence Agency has described, the primary competitor to United States global power is actively expanding its "operational reach."[182] The United States must consider potential threats to its bases, trade routes, and sovereign territory. Due to enhanced missile technology, discussed in Chapter III, such threats can strike from hundreds of miles into international waters, putting strategic bases, such as Guam and Hawaii, at risk. Even within smaller seas like the Arabian Sea, United States forces can increase their defense capability

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[181] Graham, "The Hague Tribunal's South China Sea Ruling," 1.

[182] Defense Intelligence Agency, *Worldwide Threat Assessment,* (Washington, DC: Defense Intelligence Agency, April 26, 2021), 1.

by establishing anti-ship capabilities within international waters. The legality and potential escalation effects are murky, which has allowed China to assure its adjacent waters with little substantive backlash. To determine United States sea assurance options and limits to future Chinese sea assurance, United States-led international policy discussion is paramount.

C.   RECOMMENDATIONS FOR FUTURE RESEARCH

This thesis used specific criteria to measure the effects of China's Spratly militarization and proposed a new maritime strategy concept; as such, there are numerous avenues of future research. The competitive relationship between the United States and China is extremely complicated, even when narrowed to the categories of DIME. Future research should evaluate United States-China competition in other geographic regions within the DIME framework.

Each category of DIME represents additional areas of research related to the SCS. Diplomatically, future research may examine the individual relationships between China and the other claimants to help explain each nation's behavior and help predict future behavior. As touched on in Chapter III, every claimant holds a variety of intertwining political interests related to the SCS. Future research should evaluate the role of international organizations—such as ASEAN and the UN—in the behavior displayed in the SCS. Future research should evaluate other informational aspects of power beyond ISR, e.g., media influence, intelligence collection, or public affairs. Militarily, future research could evaluate potential war scenarios between claimants and evaluate current military might compared with future aspirations or unexpected developments. Economically, future research could evaluate potential results of China's resources exploration, potential limits on other claimant's exploration, and the environmental impact of the resource struggles discussed in Chapter III. Future research may also focus on China's BRI interests as related to the SCS and MSR. Lastly, using the DIME framework, future research could examine

China's behavior as related to international relations theories such as realism, liberalism, and constructivism.[183]

As a new concept, sea assurance offers a myriad of future research opportunities. Future research should consider historic examples that may apply to the criteria provided in this thesis and challenge the assertion made here that China's actions in the Spratly Islands are unique. Furthermore, future research should evaluate the usefulness of sea assurance as a concept. Future research should examine potential ways for nations to achieve sea assurance. A number of developing technologies offer great power competitors the opportunity to create weapon systems with greater range, more efficient power consumption (e.g., nuclear and solar), and with limited or no personnel involved (autonomous and unmanned systems). These technologies combined have the potential to turn futuristic concepts of defense into reality. Finally, beyond the sea, future research should evaluate assurance in other domains. The key components of sea assurance—permanence, peacetime, and disputed/international—also exist in air, space, and cyber domains. What would assurance in those domains look like and have they been attempted? Developments in space perhaps pose the best example of nations attempting to find cooperation regarding military activities in international domains.[184] Competition between the United States and China is likely to persist in all domains for at least the next century. Future research should seek to be policy-relevant and focus on ways to achieve desirable outcomes.

D.   CONCLUSION

China's militarization of the Spratly Islands marked both a significant expansion of Chinese capability in the SCS and a new way of affecting the maritime domain. By forming new islands and equipping them with airfields, radars, and missiles, China overcame an obstacle to maritime strategy: impermanence. With its military outposts in disputed waters,

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[183] A plethora of literature exists on each school of IR theory. For additional information on each school, see the works of John Mearsheimer and Stephen Walt (realist); G. John Ikenberry and Robert Keohane (liberal); and Martha Finnemore and Alexander Wendt (constructivist).

[184] Dr. James Clay Moltz has written extensively on space capabilities development and the associated diplomatic aspects; see his *Asia's Space Race* (2012) and *The Politics of Space Security* (2019).

China subverted outside opinion on its claims to sovereignty and laid the groundwork for similar resolution of its other disputed territories. In addition to solidifying its regional claims and protecting its economic interests, China demonstrated a new way to win the commons—sea assurance.

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