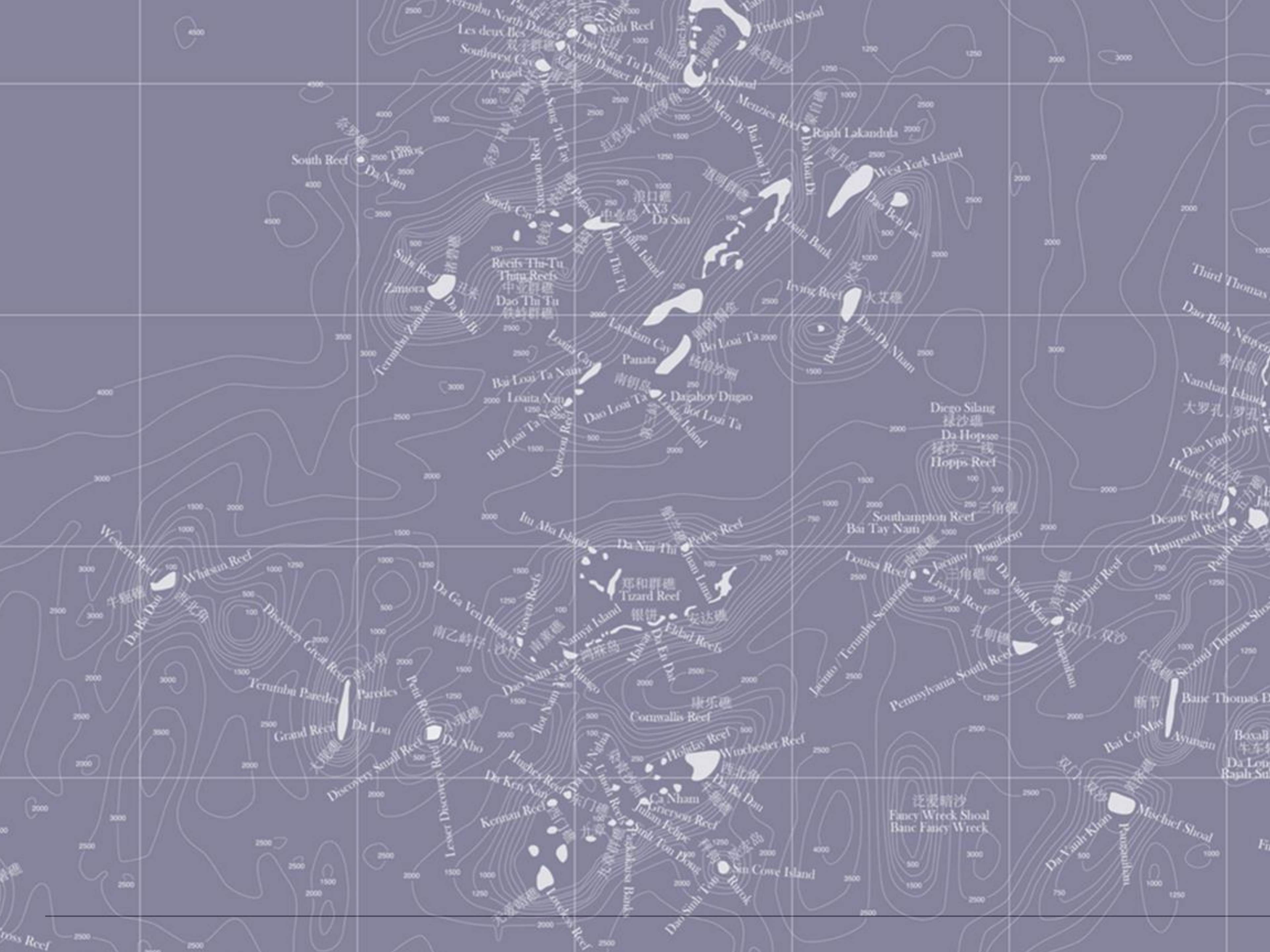
RAE2026
The South China Sea Monument

Prof. Laurent Gutierrez

UoA38

Multi Component Output 2

11.2025



Trident Shoal
North Reef
Les deux Iles
Southwest Cay
Loaita Bank
Menzies Reef
Rajah Lakandula
West York Island
South Reef
Da Nam
Sandy Cay
Extension Reef
浪口礁
XX3
Da San
中业岛
Thitu Island
Dao Thi Tu
Subi Reef
Zamora
Reefs Thi-Tu
Thitu Reefs
中业群礁
Dao Thi Tu
铁峙群礁
Irving Reef
火艾礁
Lankiam Cay
Panata
Loaita Cay
Bai Loai Ta Nam
Loaita Nan
Dao Loai Ta
Dagahoy Dugao
Quezon Reef
Diego Silang
Da Hop
Hopps Reef
Third Thomas
Nanshan Island
Itu Aba Island
Petley Reef
Southampton Reef
Bai Tay Nam
Deane Reef
Western Reef
Whitsun Reef
郑和群礁
Tizard Reef
Louisa Reef
Mischief Reef
Gaven Reefs
Namyit Island
Eldad Reefs
Discovery Great Reef
Terumbu Paredes
Paredes
Grand Reef
Da Lon
Petit Reef
Da Nho
Cornwallis Reef
Pennsylvania South Reef
Banc Thomas
Ayungin
Holiday Reef
Winchester Reef
Discovery Small Reef
Hughes Reef
Kennan Reef
Lesser Discovery Reef
Ca Nham
Grierson Reef
Sin Cowe Island
Fancy Wreck Shoal
Banc Fancy Wreck
泛爱暗沙
Mischief Shoal

Contents

South China Sea Monument

Descriptor

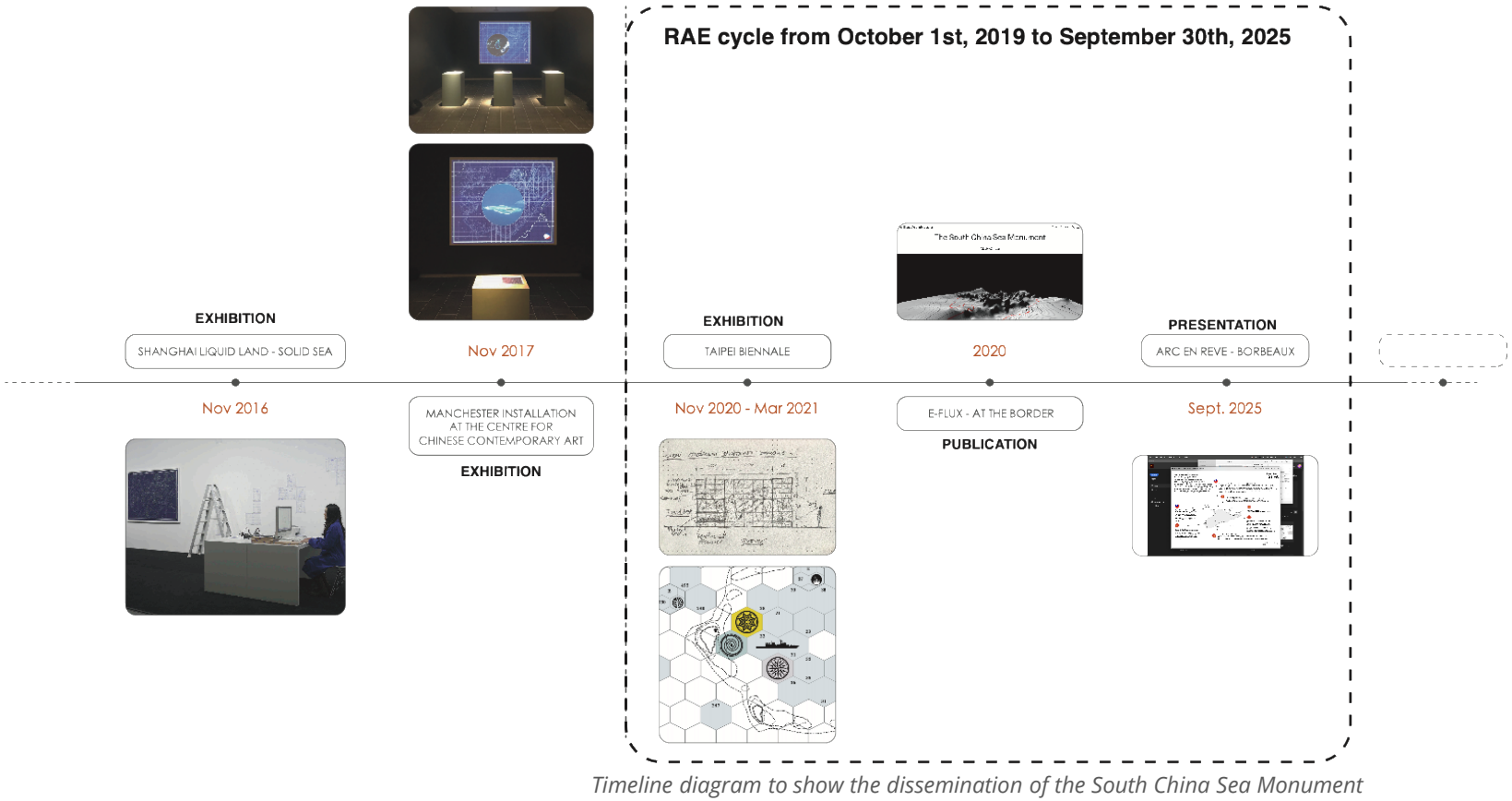
South China Sea Monument (2016–2020) is an environmental art research project examining the contested waters of the semi-enclosed South China Sea—one of the world's most disputed regions. Initially the research centred on the Spratly Islands, exploring territorial claims and the intricate mapping of a heavily militarised zone. The initial work, '*Liquid Land Solid Sea*', visualised the area's geopolitical and environmental flux, shaped by both human intervention and natural forces. Early iterations in Shanghai (2016) and Manchester (2017) highlighted the islands' unstable geology and the overlapping sovereignty disputes involving China, Taiwan, the Philippines, Malaysia and Brunei. The multiplicity of island names across languages underscored the region's complexity.

In 2019, the research expanded as an interdisciplinary collaboration. As nations fortified maritime borders rather than fostering ecological stewardship, the research team, including maritime lawyer Agnes Chong and geographer Eric Laflamme, proposed repurposing the initial mapping to establish a legal framework for an extraterritorial Marine Protected Area (MPA). This shift emphasised biopolitics, as articulated by Michel Foucault in the 1970s and later redefined by philosopher Bruno Latour through his theories on the ecological regime and critical zones.

This evolution led to its commission for the 2020 Taipei Biennale, curated by Latour. COVID-19 in Hong Kong and Latour's terminal illness limited the presentation and dissemination. Despite this, the research underscored the need to rethink maritime governance through ecological and legal lenses, transcending territorial conflicts for sustainable stewardship. The themes continued and were re-presented at Arc En Reve, Bordeaux, France in 2025.

Note: None of this material was submitted in the RAE 2019/20. The preliminary research began prior to the RAE 2026 the new research is fully part of Gutierez's research 2019–25.

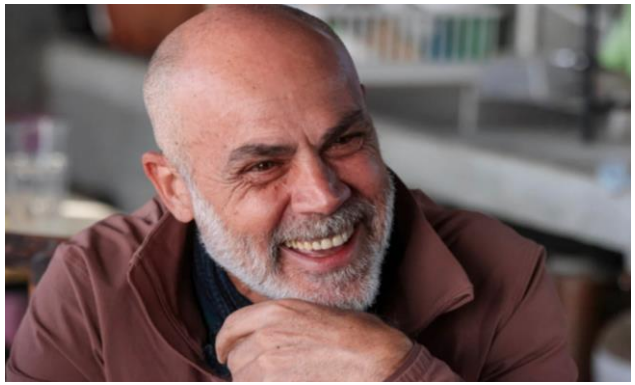
Research Timeline



Timeline diagram to show the dissemination of the South China Sea Monument

The research programme for this multi-component output (MCO) was initiated before the current RAE period; however, no prior material was submitted in RAE2020. The work progresses iteratively, continually evolving to address its changing context. Each iteration yields a unique formal output, ensuring that all submissions are original to this cycle.

Professor LAURENT GUTIERREZ



Laurent Gutierrez (Prof., PhD) is a multidisciplinary scholar, architect (DPLG), artist, and cofounder of *MAP Office* (1995–2021), an international practice developed with Valérie Portefaix. With a PhD in Architecture from RMIT University (2015), he is a full professor at The Hong Kong Polytechnic University's School of Design, where he directs the Master of Design in Transitional Environments Design (TED). His work bridges academia and practice, advancing systems thinking, regenerative development and design-led transitions towards resilient futures. Gutierrez's artistic and architectural projects have been shown at leading institutions—including the MoMA, the Guggenheim and the Venice Biennale—marking his early focus on spatial politics and 'territories of globalisation'. Since RAE2020, his practice has shifted towards ecological engagement, merging art, architecture and activism to address planetary crises. Projects such as *Ghost Island* (MCO1) and this body of work, *South China Sea Monument* (MCO2), epitomise this evolution, employing regenerative frameworks to dissect the geopolitical dimensions of ecological systems. By interrogating intersections of human and environmental narratives, his current work redefines design as a tool for cross-scalar intervention—from local ecosystems to global flows of capital and waste. This conceptual transition—from mapping spatial hierarchies to unravelling ecological interdependencies—reflects his commitment to regenerative knowledge production, where creative practice becomes a catalyst for socio-environmental change.

Research Questions

RQ1

How do cartographic and artistic methods for mapping the Spratly Islands enhance our understanding of the geopolitical instability and environmental fragility in the South China Sea?

RQ2

How does language, such as the naming of contested islands, illuminate the complex conflicts in the region?

RQ3

How did the project's transition from mapping territorial disputes to advocating for an MPA recontextualise the challenges in the South China Sea through the perspectives of biopolitics and Bruno Latour's 'Ecological Regime' and additionally illustrate the applicability and limitations of international law, such as the United Nations Convention on the Law of the Sea, (UNCLOS) in the South China Sea dispute?

Research Output

Exhibitions (3)

- Liquid Land | Solid Sea Installation and performance at Pearl Lam Gallery, Shanghai (2016)
- Liquid Land | Solid Sea Installation at the Centre for Chinese Contemporary Art, Manchester (2017)
- TAIPEI BIENNALE – The South China Sea Monument, curated by Bruno Latour, Taipei, Taiwan ROC (our participation to the exhibition was aborted due to the COVID-19 pandemic) (2020)

Academic Papers Peer Review (1)

- E-FLUX - At the Border, edited Nick Axel, Jan Boelen, Charlotte Dumoncel d'Argence, Nikolaus Hirsch (eds), The South China Sea Monument, E-flux architecture, https://www.e-flux.com/architecture/at-the-border/325758/the-south-china-sea- monument/ (2020)

Prototypes (3)

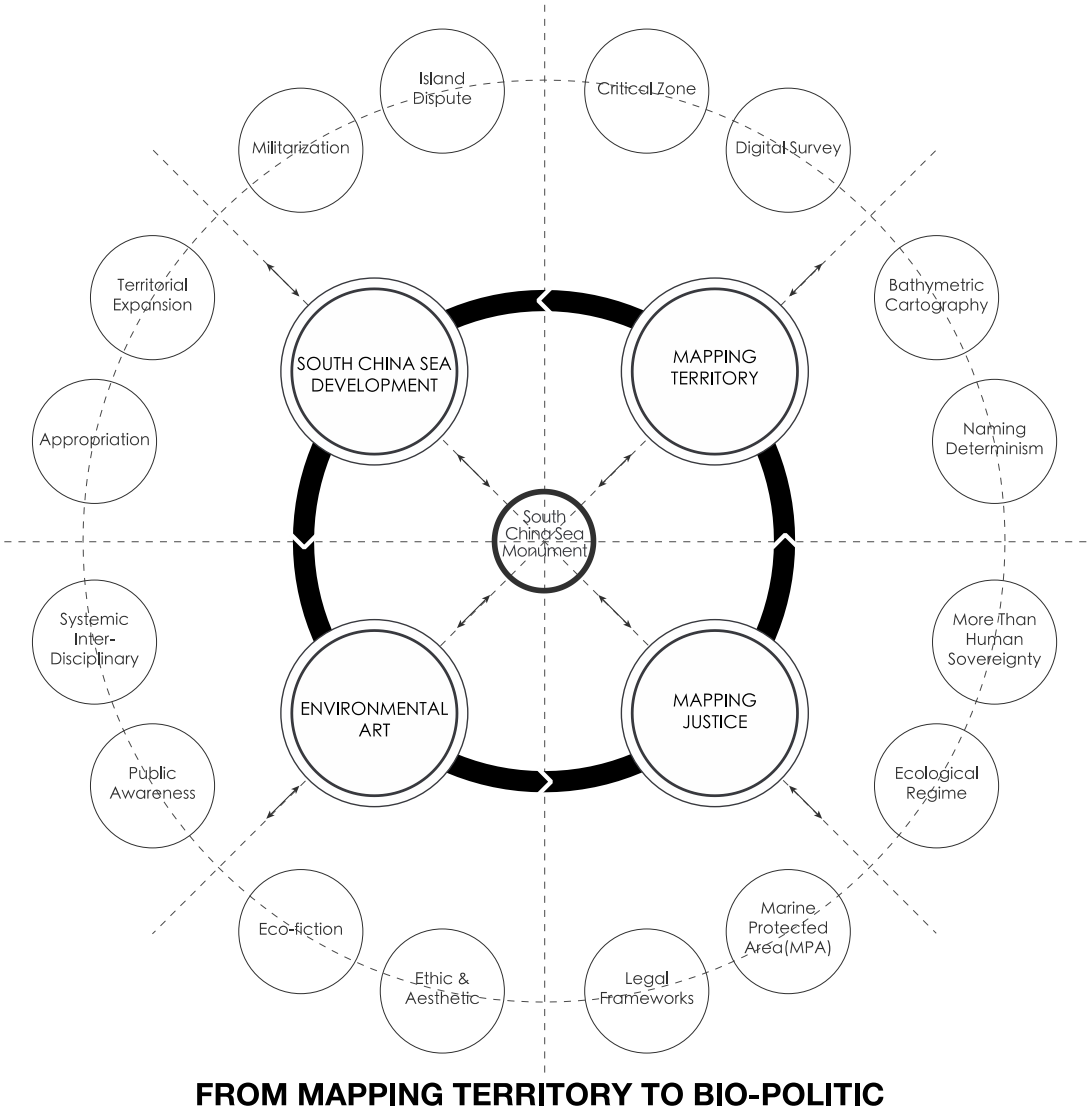
- Mapping based on research material and historical cartography (2016-2020)
- Strategic Game ((2020)
- Mural (2020)

Public Presentation (1)

- Presentation at Arc en Reve (Centre of Architecture, Bordeaux) (2025)

RAE cycle from October 1st, 2019, to September 30th, 2025 (see timeline p. 31)

Research Field & Key References



Key Research Field

From Mapping Territory to Biopolitic and Environmental Justice

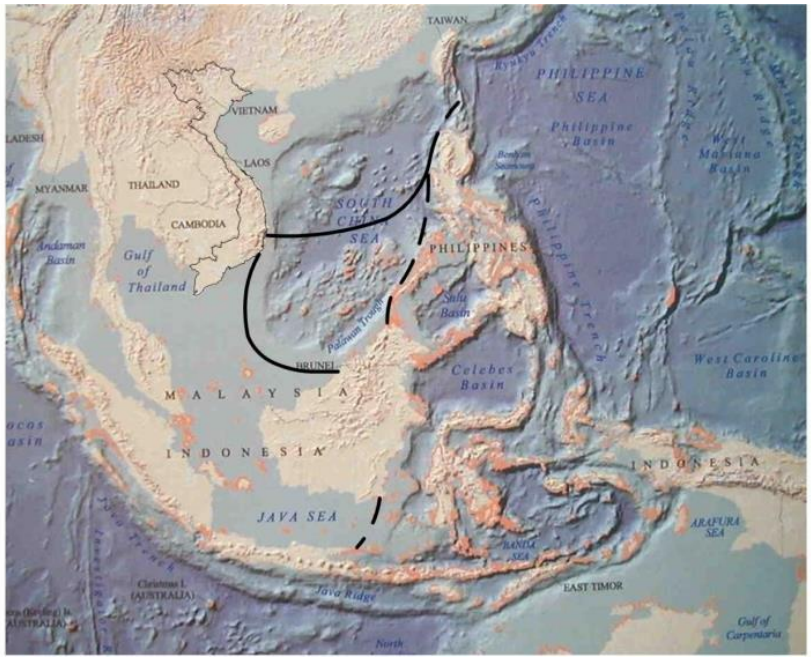
- Mapping Territory
- South China Sea Development
- Environmental Art
- Mapping Justice

Diagram 1. System causal map to demonstrate the correlation between different key research fields.

Research Field & Key References

Ecological Crises in the South China Sea

The South China Sea is a semi-enclosed body of water located south of China, encompassing approximately 1.4 million square miles. It borders several countries, including Vietnam, the Philippines, and Malaysia.[1] It is one of the busiest shipping routes in the world and is rich in marine resources, such as fish and oil. However, rapid economic development has led to multiple ecological crises in the region. Activities such as overfishing, marine pollution and land reclamation have severely disrupted the ecological balance of the South China Sea.[2] Overfishing has resulted in dwindling fish stocks, threatening the marine food chain. Additionally, pollution from various sources has degraded water quality, adversely affecting marine life. The construction of artificial islands has directly destroyed critical habitats, such as coral reefs, leading to a decline in biodiversity.



Despite the escalating severity of these ecological crises, they largely went unnoticed by the public before 2016. The changes in the marine environment were often overlooked, lacking effective communication and education, which resulted in a general unawareness of the potential threats these crises pose to global marine ecology and human livelihoods.

Figure 1. The 'Coral Sub-Triangle' in the South China Sea (Vo Si Tuan, 2014).

Research Field & Key References

Local Policy Shortcomings

Before 2016, development policies in the South China Sea primarily focused on resource exploitation and economic gains, often neglecting the importance of ecological protection. During this period, countries engaged in competitive resource management without effective cooperative mechanisms, leading to ongoing environmental degradation. Although some nations proposed the establishment of marine protected areas, actual implementation was insufficient, resulting in a lack of collaborative frameworks for multinational conservation efforts. This short-sightedness in policy direction significantly threatened the region's ecosystems and laid the groundwork for future sustainability challenges. Therefore, it is crucial to reassess policy approaches to achieve a balance between ecological protection and economic development.

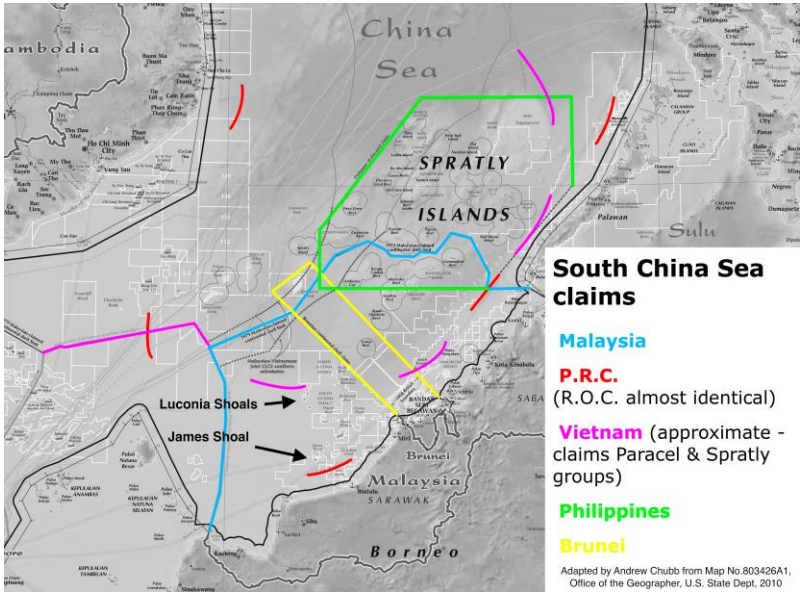
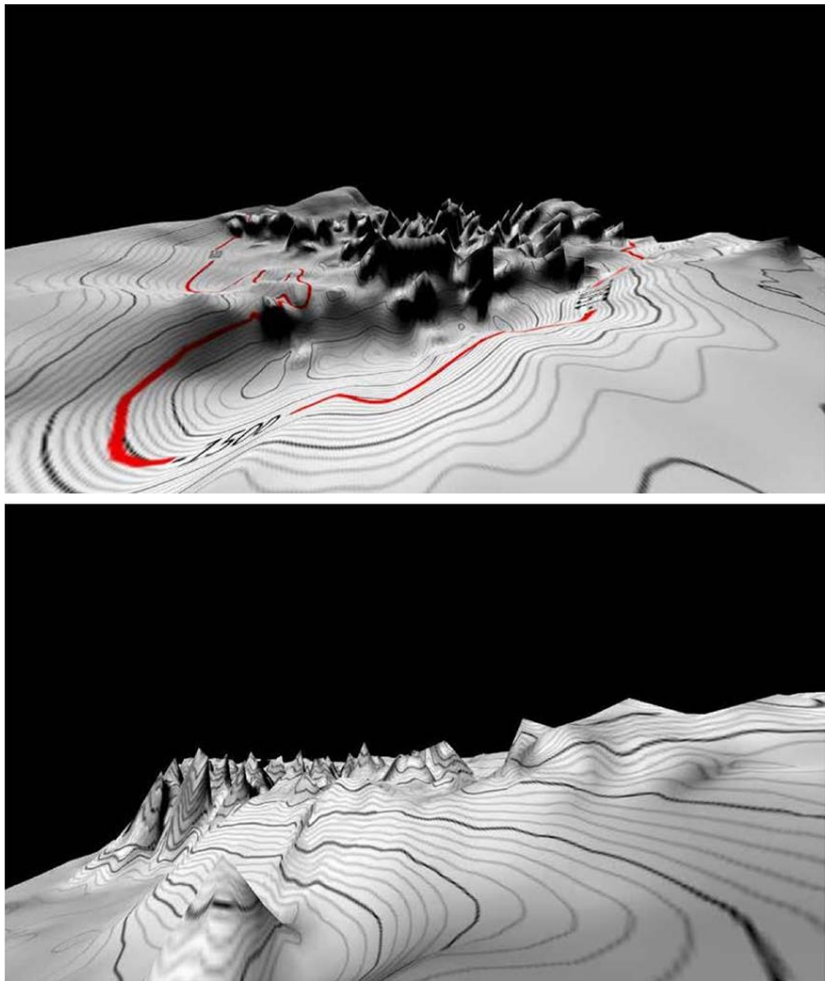


Figure 2. The South China Sea disputed territories.

Research Methods, Prototypes & Materials



Methods

- Desk research
- Mapping technique
- Anthropological survey (Layang Layang)
- Cartographic data coding

Prototypes

- Report of 164 geographic location – 500-page document
- Bathymetric map of the MPA
- Law and codes for the planned MPA

Materials

- Mural – Cross-section of the MPA
- Game board for Tizard Bank

Figure 3.1 and 3.2. Mapping the South China Sea. Image: MAP Office and Eric Laflamme, 2019.

Research Methods, Prototypes & Materials

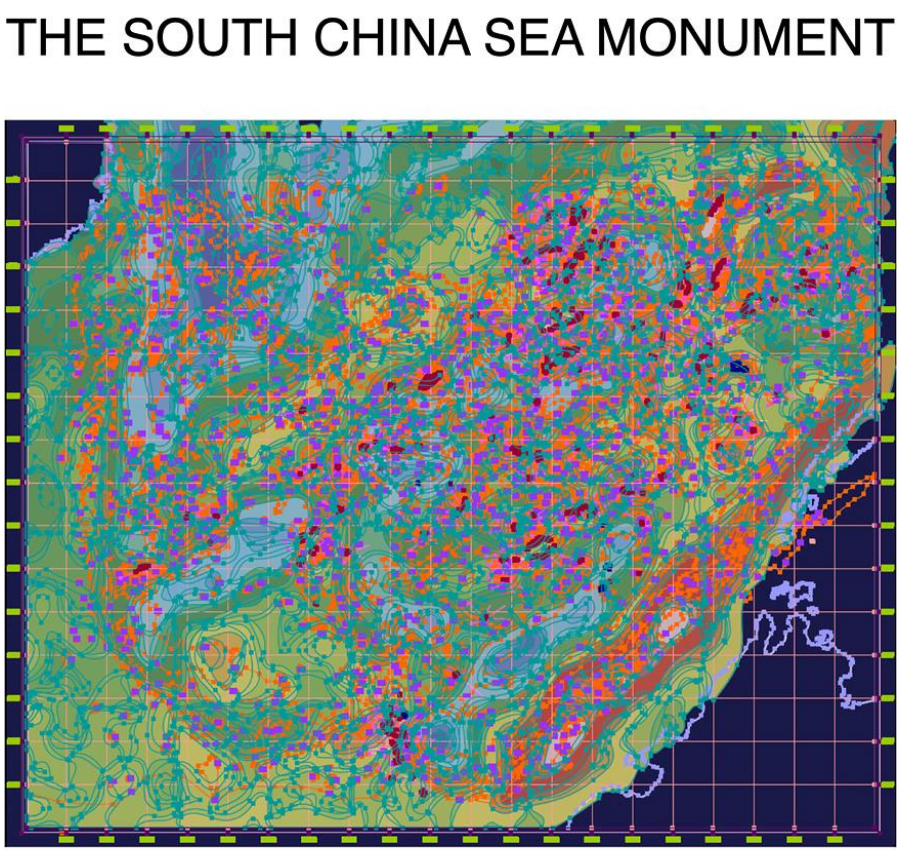


Figure 4. Mapping the South China Sea. Image: MAP Office and Eric Laflamme, 2019.

The Sea (2D)

The 'South China Sea Monument' project is founded on a collection of maps and drawings that systematically retrace the natural islands, islets, rocks, reefs, shoals and other geographic features of the South China Sea.[5] Selection criteria are based on geology and landforms, climate and hydrology, ecology and biogeography, and the interactive relationship between land and sea. This approach also incorporates the narrative of the oceans as a 'global commons' under international law.

Through comprehensive research and cartographic analysis, a database has been established encompassing islands, shoals, banks and sandbars in the South China Sea. This database integrates spatial and nomenclatural information for 166 features within the Spratly Islands, 42 within the Paracel Islands and 3 within the Scarborough Shoal, utilising historical and contemporary multisource maps, archival records and real-time maritime charts.

Research Methods, Prototypes & Materials

Preparatory Research - Board on Geographic

Board on Geographic

Names (BGN)	English	Chinese	Vietnamese	Malaysia	Filipino	French	Feature	Latitude	Longitude
001 Acis Shoals		Ya-hsi An-sha		Beting Liku			reefs	03° 38' 00" N	112° 30' 00" E
002 Aitken Reef		Jiing Jiao		Terumbu Datuk Landih			reef	05° 52' 00" N	112° 33' 00" E
003 Alexandra Bank		Reniun Tan	Bai Huyen Tran			Banc Alexandra	reefs	08° 02' 00" N	110° 37' 00" E
004 Alicia Annie Reef	Alicia Anne	Xian'e Jiao	Da Suoi Ngoc		Arellano		reef (tide)	09° 23' 00" N	115° 27' 00" E
005 Alison Reef		Liumen Jiao	Da Toc Tan		De Jesus		reefs	08° 49' 00" N	114° 06' 00" E
006 Amboyna Cay	Amboina Cay	Anbo Shazhou	Dao An Bang	Pulau Kecil Amboyna	Kalantiyaw	Caye Amboyne	island	07° 53' 51" N	112° 55' 00" E
007Amy Douglas Bank		Antang Tan		Mahiwagang Diwata			bank	10° 48' 00" N	116° 15' 00" E
008 Ardasier Breakers		Xibo Jiao				Brisants Ardasier	reef	07° 56' 00" N	114° 03' 00" E
009 Ardasier Reef		Guangxingzi Jiao		Terumbu Ubi			reef	07° 36' 00" N	113° 56' 00" E
010 Ardasier Reefs	Ardasier Bank	Andu Tan	Bai Kieu Ngua / bai Ngua	Permatang Ubi	Antonio Luna	Banc Ardasier	reefs	07° 41' 00" N	114° 17' 00" E
011 Baker Reef	Bakers Reef	Gongzhen Jiao					reef	10° 44' 00" N	116° 10' 00" E
012 Barque Canada Reef		Bai Jiao	Bai Thuyen Choi	Terumbu Perahu	Masca(r)do		reef (tide)	08° 10' 00" N	113° 18' 00" E
013 Bombay Castle		Pengbo Bao	Da Ba Ke				reef	07° 56' 00" N	111° 42' 00" E
014 Bombay Shoal		Pengbo Ansha	Bai Cai Mep		Abad Santos	Banc Bombay	reef	09° 26' 00" N	116° 55' 00" E
015 Boxall Reef		Niuchelun Jiao	Da Long Dien		Rajah Sulayman		reef	09° 36' 00" N	116° 11' 00" E
016 Brown Reef	Brown Bank	Zong Tan Tsung				Banc Brown	reef	10° 40' 00" N	117° 20' 00" E
017 Buck Reef	Faxian Ansha			Terumbu Linggir			reef	05° 49' 00" N	112° 33' 00" E
018 Carnatic Shoal		Hongshi Ansha		Beting Sikatuna	Sikatuna	Banc Carnatic	reef	10° 06' 00" N	117° 21' 00" E
019 Central Reef		Zhong Jiao Chung Chiao		Terumbu Gitna	Gitnang Quezon		reef (tide)	08° 55' 00" N	112° 21' 00" E
020 Charlotte Bank			Bai Dong Son			Charlotte Banc	reef	07° 07' 00" N	107° 37' 00" E
021 Collins Reef	Johnson Reef North	Guihan Jiao	Da Co Lin		Roxas	Banc Johnson	reef (tide)	09° 45' 00" N	114° 13' 40" E
022 Commodore Reef	Commodore Shoals	Siling Jiao	Da Cong Do	Terumbu Laksamane	Rizal Reef		reef (tide)	08° 21' 30" N	115° 13' 40" E
023 Comus Shoal		Huanle Ansha		Beting Merpati			shoal	05° 00' 00" N	112° 55' 00" E
024 Connell Reef		Yinbo Ansha		Terumbu Dato Talin			reef	05° 07' 00" N	112° 35' 00" E
025 Cornwallis Reef		Kangle Jiao					reef	10° 00' 00" N	114° 24' 00" E
026 Cornwallis South Reef	Cornwallis Shoal	Nanhua Jiao	Da Nui Le		Osmeña	Récif Cornwallis Sud	reef	08° 43' 00" N	114° 11' 00" E
027 Coronation Bank		Kangtai Tan					bank	09° 20' 00" N	111° 50' 00" E
028 Cuarteron Reef	Cuateron Reef	Huayang Jiao	Bai Chau Vien	Terumbu Calderon	Calderon		reef (tide)	08° 51' 30" N	112° 50' 00" E
029 Dallas Reef		Guangxing Jiao	Da Da Lat	Terumbu Laya	Rajah Matanda	Récif Dallas	reef	07° 38' 00" N	113° 53' 00" E
030 Deane Reef		Wufang Xi					reef	10° 30' 00" N	115° 42' 00" E
031 Dickinson Reef		Wufang Tou					reef	10° 32' 00" N	115° 46' 45" E
032 Director Shoal / Reef		Zhixiang Jiao			Tamban		shoal	08° 28' 30" N	115° 55' 30" E
033 Discovery Great Reef		Daxian Jiao	Da Lon	Terumbu Paredes	Paredes	Grand Récif	atoll	10° 04' 00" N	113° 51' 00" E
034 Discovery Small Reef	Lesser Discovery Reef	Xiaoxian Jiao	Da Nho			Petit Récif	atoll	10° 00' 00" N	114° 00' 00" E
035 East Reef	East London Reef	Dong Jiao	Da Dong	Terumbu Silangan	Silangan	Récif Est	reef (tide)	08° 49' 00" N	112° 36' 00" E
036 Eldad Reef		Anda Jiao	Da En Dat		Malvar		reef (tide)	10° 21' 00" N	114° 42' 00" E
037 Elizabeth Shoals				Beting Burgai			reef	03° 50' 00" N	113° 15' 00" E
038 Erica Reef	Eploa Reef	Boji Jiao	Da En ca	Terumbu Sinut	Gabriela Silang		atoll	08° 06' 00" N	114° 09' 00" E
039 Fairie Queen		Xianhou Tan		Mahiwagang Diwata	Diwata		shoal	10° 37' 00" N	117° 35' 00" E
040 Fancy Wreck Shoal		Fan'ai Ansha				Banc Fancy Wreck	reef	09° 44' 00" N	114° 41' 00" E
041 Fiery Cross Reef	Fierry Cross	Yongshu Jiao	Da Chu Than	Kalingan		Récif Croix de Feu	reef (tide)	09° 38' 00" N	112° 57' 00" E
042 First Thomas Shoal	Thomas Shoal First	Xinyi Jiao	Bai Suoi Nga		Bulig	Banc Thomas Premier	reef	09° 20' 00" N	115° 56' 00" E

Figure 5. Spratly Islands Extract of listing of given names by the claiming communities, 2016 Research materials for preparation of the early audio recording as part of early presentations .

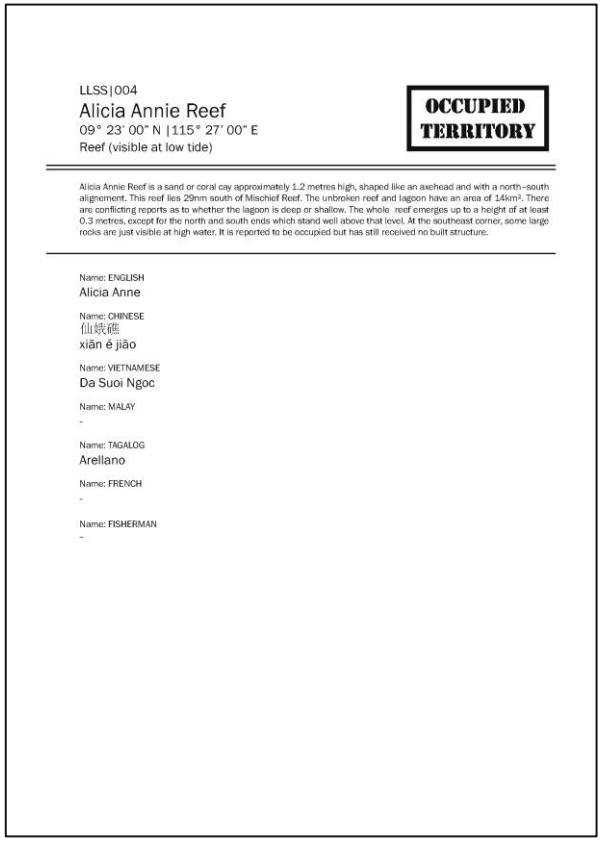
Research Methods, Prototypes & Materials

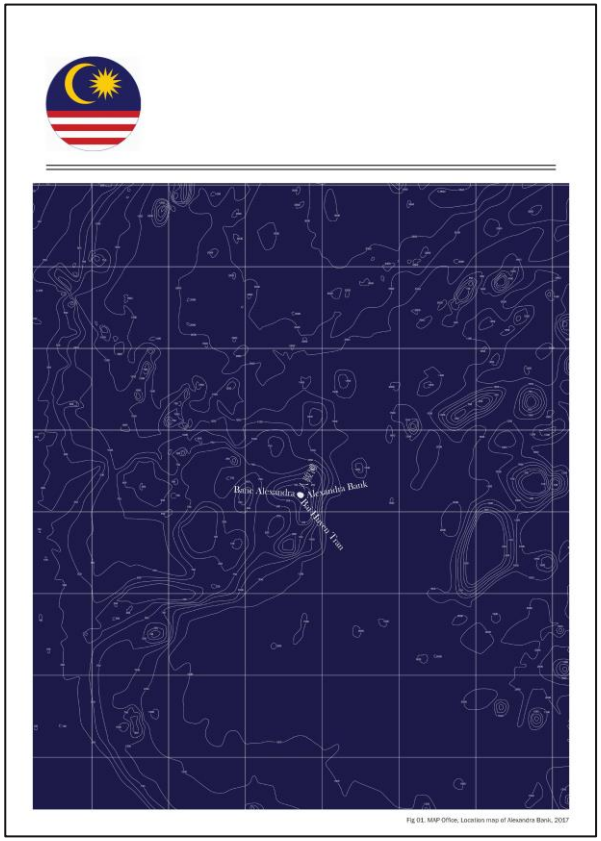
The Sea (2D)

Mapping the South China Sea presents significant challenges. Based on our mapping, the South China Sea contains over 160 small islands, atolls, coral reefs, shoals, sandbars and rocks, most of which are uninhabited, with many submerged at high tide and some permanently underwater.[6] An initial database was compiled to organise the names and locations of each atoll, island, shoal, coral reef and emergent rock. By analysing historical maps from diverse sources alongside daily-updated open sea maps and navigational charts, it is possible to accurately identify key islands and geomorphological units and document their historical evolution and changes in sovereignty.

Building upon this foundation, systematic records of island development and anthropogenic influences have been established, resulting in the creation of an 'Island Development Archive'. This archive not only encompasses the physical and geographic attributes of the islands but also provides detailed accounts of military installations, fisheries development, artificial island construction and population movements by various claimant states.

For instance, since the 1970s, numerous shoals have been utilised by different states to establish outposts, military bases or observation stations, with some sites evolving into tourist resorts. The Philippines deployed the *Madre de Dios* vessel as a garrison, Vietnam established outposts on oil platforms, and Malaysia converted Swallow Reef into a hybrid military–tourism facility. These developments have substantially altered the ecological and sociopolitical landscape of the South China Sea islands.





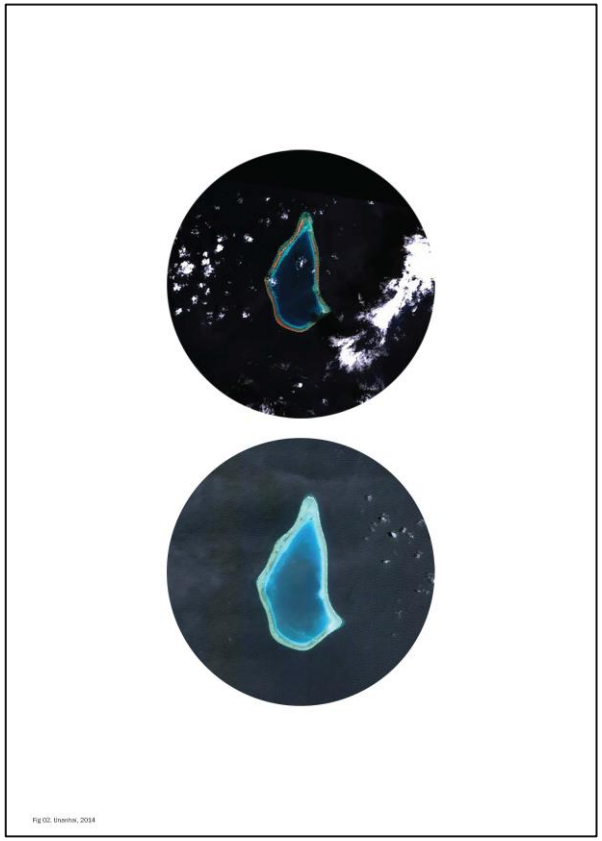


Figure 6. Liquid Land I Solid Sea -Taxonomy of 164 geographic locations (Shoals, Reefs, Islands, Sand Cays, Atolls, Banks…) – Report of 500 pages.

Research Methods, Prototypes & Materials

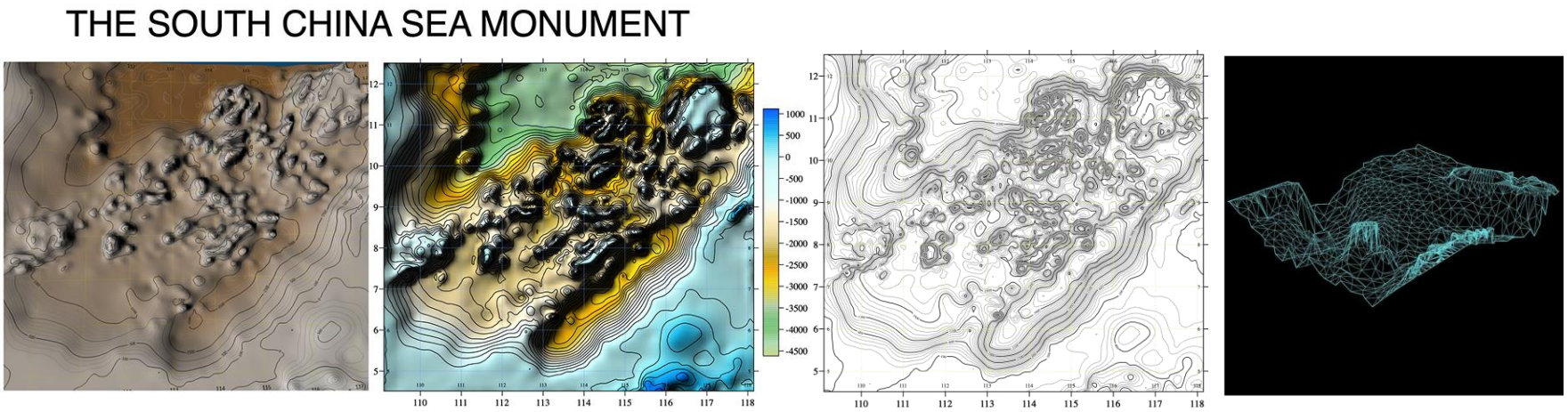


Figure 7. Mapping the South China Sea. Bathymetric studies, geolocation and 3D rendering - Image: MAP Office and Eric Laflamme, 2019.

This comprehensive dataset (see previous pages) permits inferences regarding ecological impacts and the severity of marine pollution.[7] The South China Sea ranks as the world's fourth-largest marine production area annually; however, prolonged overfishing and destructive fishing techniques, including blast fishing and electrofishing, have precipitated drastic declines in adult fish populations, with localised extinctions documented.[7] Unsustainable fishing practices have also caused severe degradation of coral reef ecosystems. The construction of artificial islands within the Spratly and Paracel archipelagos has damaged coral reef habitats, contributing to diseases among fish, sea turtles and marine mammals.[8] It is estimated that rehabilitation of damaged coral reefs to 60% cover will require at least a decade.[8] This ecological deterioration poses a threat to the food security of an estimated 270 million people, of whom over 127 million reside in rural areas, and 38 million live below the poverty line.[8] *https://www.e-flux.com/architecture/at-the-border/325758/the-south-china-sea-monument/*

The geolocation of the South China Sea Monument is an original collaboration between geographer Eric Laflamme and the author. It is based on the interpretation of multiple existing bathymetric maps and open source sea data.

Research Methods, Prototypes & Materials

The Sea (2D)

Moreover, the complex toponymy of South China Sea features reflects the region's colonial history and multifaceted territorial claims. The Board of Geographic Names (BGN) provides widely used English names; however, each geographic feature frequently possesses multiple designations in Chinese, Filipino, French, Malay and Vietnamese, as well as vernacular names given by local fishermen. For example, the Spratly Islands are alternatively known as Storm Island, 南沙群岛 (Nan Sha Qun Dao), Đảo Trường Sa, Lagos and Îlot de la Tempête. The fluidity of place names continues to be a critical issue in ongoing sovereignty disputes. In 2017, Indonesia formally designated the waters north of Natuna Island as the 'North Natuna Sea' and published a new map, thereby becoming the seventh claimant to the South China Sea.[9]

Territorial boundaries have remained a contentious issue in international politics. Since the sixteenth century, European powers, including the Netherlands, the United Kingdom, France, Spain and Portugal, have asserted 'historical sovereignty' through territorial competition and cartographic claims. China asserts sovereignty over the Paracel and Spratly Islands based on the principle of 'historical title', emphasising discovery by Chinese vessels as early as the second century BCE.[10] China's first formal sovereignty claim was presented by its ambassador to the United Kingdom in 1876; however, British forces subsequently destroyed camps on some islands and claimed extensive territories. France undertook similar actions in 1933, followed by Japan establishing military garrisons on certain islands in 1939. Post-World War II, with increased American involvement, the territorial maps of the South China Sea have continued to evolve, while regional security remains characterised by the absence of a clear grand strategic order.[11]

This has resulted in recurrent maritime and aerial military tensions between Beijing and Washington, affecting littoral states as they seek to safeguard their interests. The South China Sea accommodates one-third of global shipping traffic, with an annual trade volume of approximately USD 5.3 trillion, including USD 1.2 trillion in US–China trade, and accounts for 12% of the world's fish catch. These industries are of critical economic importance to the claimant states.

Research Methods, Prototypes & Materials

The Sea (2D)

The ecological crisis in the South China Sea is increasingly acute. The combined effects of artificial island construction, overfishing, giant clam harvesting and intensive shipping have placed coral reefs, fish populations and other marine organisms at risk of extinction. Within the Spratly Islands alone, coral reef damage is projected to require at least ten years for partial recovery. The degradation of coral reefs further endangers fish stocks, exacerbating regional food insecurity.

Through systematic mapping and data collation, this study elucidates the complex geopolitical dynamics of the South China Sea and provides a robust empirical foundation for subsequent ecological and social impact analyses. These geographic and ecological archives are intended to support future environmental art presentations and policy simulation exercises, thereby fostering greater awareness among the public and policymakers of the urgent need for ecological protection and regional cooperation in the South China Sea.

Research Methods, Prototypes & Materials

The Islands (2.5D)

The South China Sea is situated atop a drowned continental shelf, a submerged platform shaped by complex tectonic forces that create a dynamic underwater landscape ranging from very shallow waters to deep canyons and trenches. On its surface, chains of small islands, sandbanks and rocks delineate the atolls, whose elevations fluctuate with tides and storms, which occasionally submerge these low-lying landforms. Collectively, these features form extensive archipelagic clusters, each subject to varying degrees of territorial claims by surrounding states.

This maritime space is highly contested, with six claimant states—China, Taiwan, the Philippines, Vietnam, Malaysia and Brunei—engaged in overlapping disputes over its sovereignty. The principal archipelagos include the Pratas Islands, Paracel Islands and Spratly Islands, alongside two significant submerged features—Macclesfield Bank and Scarborough Shoal—which are all contested to varying extents.[12] The Spratly Islands alone are claimed by six states, while the Paracel Islands and Scarborough Shoal involve disputes principally among China, Vietnam, Taiwan and the Philippines.[13] The Pratas Islands and Macclesfield Bank are primarily claimed by China and Taiwan.[14]

At low tide, many reefs emerge just above the waterline; however, except for a few exceptions such as Gangan and Pagasa Islands, these features lack fresh water sources or arable soil, raising important legal questions regarding their qualification as 'islands' under international law.[15] Regarding artificial islands, an international tribunal has clarified that artificial islands do not enjoy the same legal status as natural ones, complicating sovereignty and maritime entitlements further.[16]

Research Methods, Prototypes & Materials

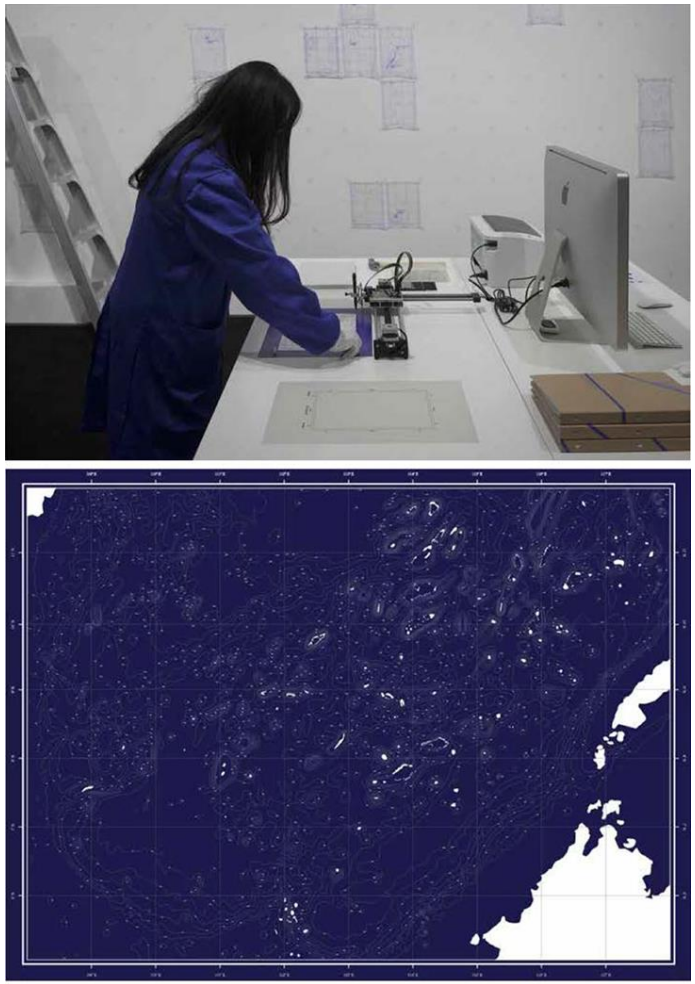
The Islands (2.5D)

Starting in the 1970s, various claimant states began establishing rudimentary military outposts on tiny sandbars scattered throughout the South China Sea. These ranged from fragile bamboo stilt structures to more permanent concrete pillboxes. The surrounding lagoons provided modest sustenance for small rotating military contingents. The Philippines was the first to undertake a military occupation, using the grounded World War II vessel *Sierra Madre* as a garrison on the Second Thomas Shoal—an installation still in use today despite its deteriorated condition.[17] Vietnam adopted a pragmatic approach by anchoring outposts directly onto oil rigs, rapidly creating a network of surveillance stations along its maritime borders.[18] Malaysia entered the contest in the early 1980s, notably establishing a base on Swallow Reef (Pulau Layang Layang), initially as a Special Forces encampment and later developing it into a semi-military tourist destination accessible to expert divers during the hammerhead shark mating season.

A significant escalation occurred in January 1988 with the construction of China's first oceanic observation stations, including installations on the mainland coast, the Paracels and the Spratly Islands. These stations were established under UNESCO's Global Sea Level Observing System initiative.[19] The same year witnessed the first armed clash between China and Vietnam at Johnson Reef, marking a turning point in the intensifying territorial contest. During this period, known as the '1988 Invasion', China seized Subi Reef from the Philippines, erecting the first military and radar installation in the contested area.

Over the past decade, China has engaged in large-scale land reclamation, notably on Eldad Reef, constructing advanced military islands that serve as visible manifestations of a long-simmering conflict. This transformation has propelled the South China Sea disputes into international media attention and global geopolitical discourse. Through meticulous compilation and analysis of historical and contemporary data, an atlas documenting 170 geographic features and detailed information on 65 occupied territories was created, thus providing a comprehensive cartographic and historical record.

Research Methods, Prototypes & Materials



The Islands (2.5D)

Building on this extensive body of research, the project 'Liquid Land – Solid Sea' reconstructs the spatial and political narratives of the South China Sea's contested islands through dynamic mapping installations presented in exhibitions held in Shanghai and Manchester. These installations integrate multilingual soundscapes and archival records documenting the development and renaming of 166 geographical features, effectively translating complex data on geopolitical tensions and ecological degradation into an immersive sensory experience. By making visible the irreversible environmental damage and the fraught contestation over marine resources, the exhibitions compel audiences to engage critically with the ethical challenges of ocean governance in the Anthropocene era. In doing so, they transform extensive cartographic and historical research into a powerful visual and experiential medium that raises awareness and fosters dialogue concerning one of the most contested and ecologically fragile maritime regions in the world.

This mapping existing prior to the RAE period (2016) serves as the basis for the South China Sea Monument. Multiple corrections and interpretations happened in 2020.

Figure 8. MAP Office, Liquid Land | Solid Sea Installation and performance at Pearl Lam Gallery, Shanghai, 2016.

Research Methods, Prototypes & Materials

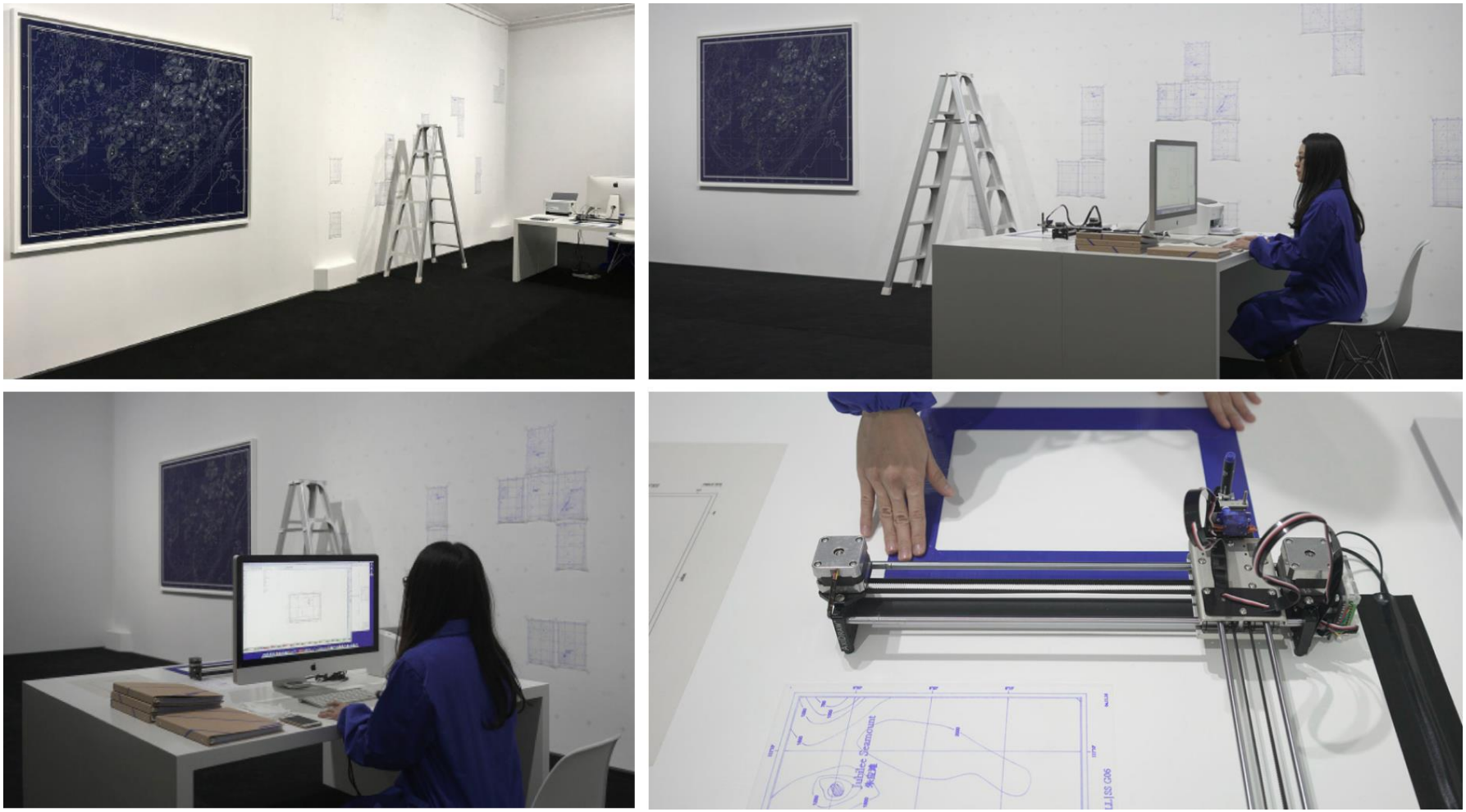


Figure 9. MAP Office, Liquid Land | Solid Sea Installation.

Research Methods, Prototypes & Materials

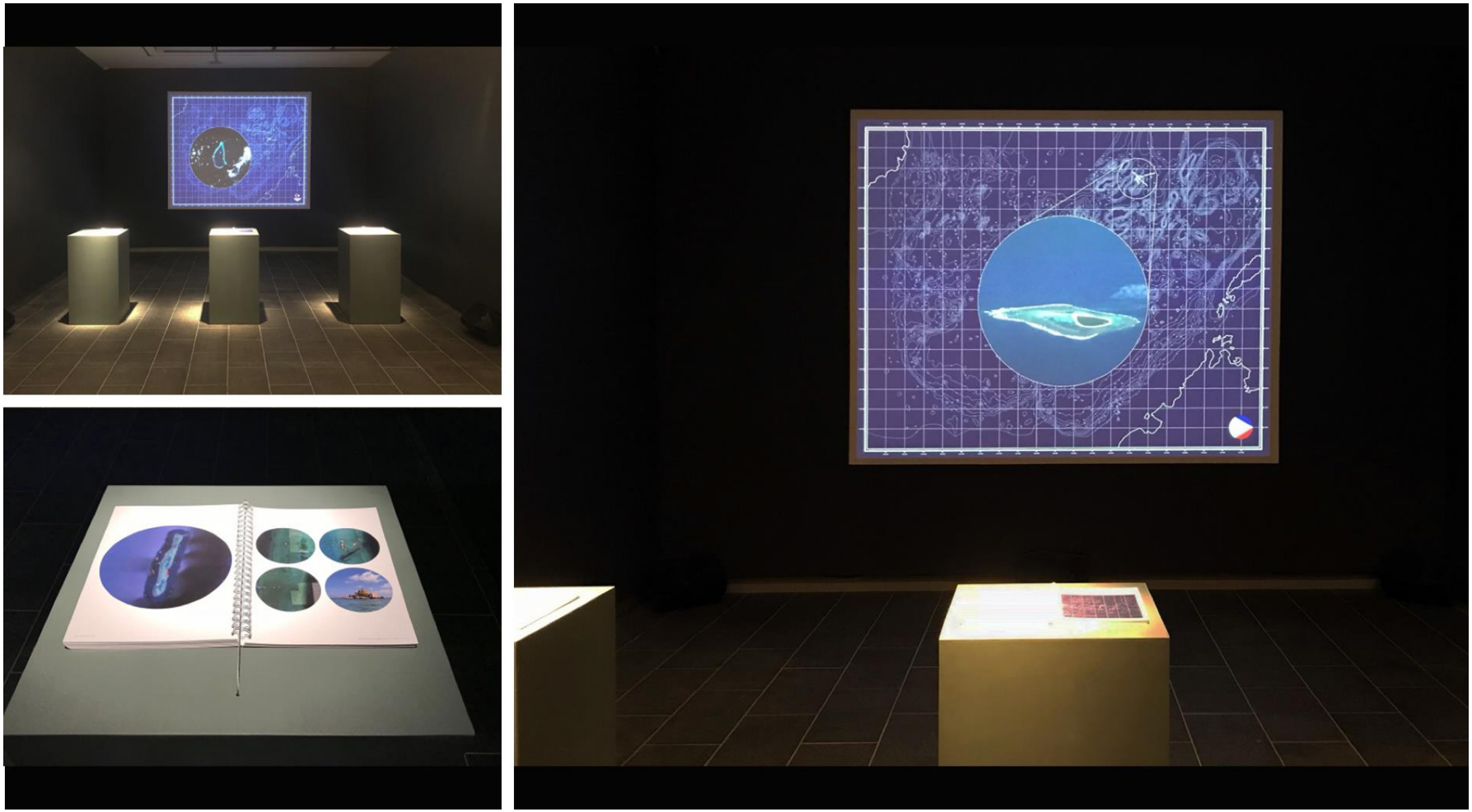


Figure 10. MAP Office, Liquid Land | Solid Sea Installation at the Centre for Chinese Contemporary Art, Manchester, 2017.

Research Methods, Prototypes & Materials

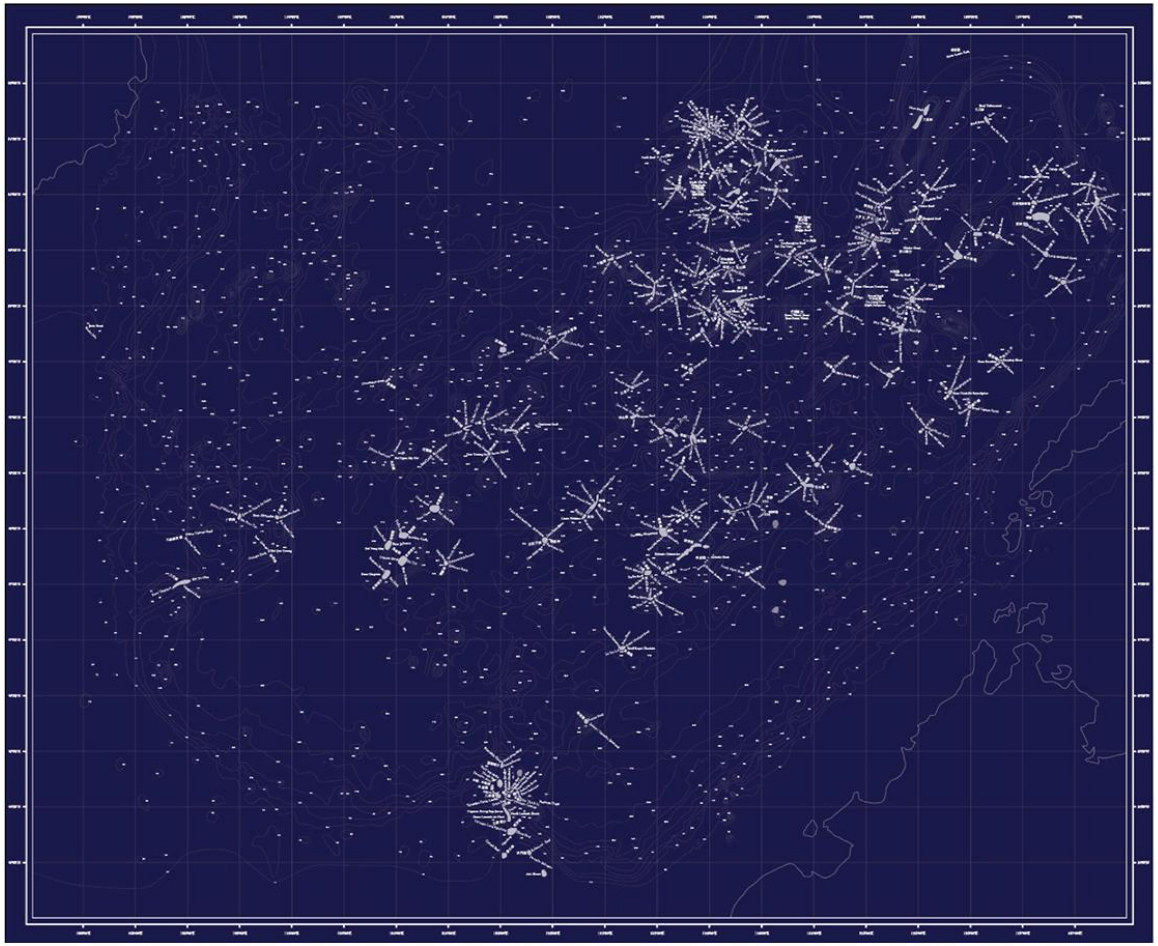


Figure 11. MAP Office, Liquid Land - Solid Sea, 2017.

Research Methods, Prototypes & Materials

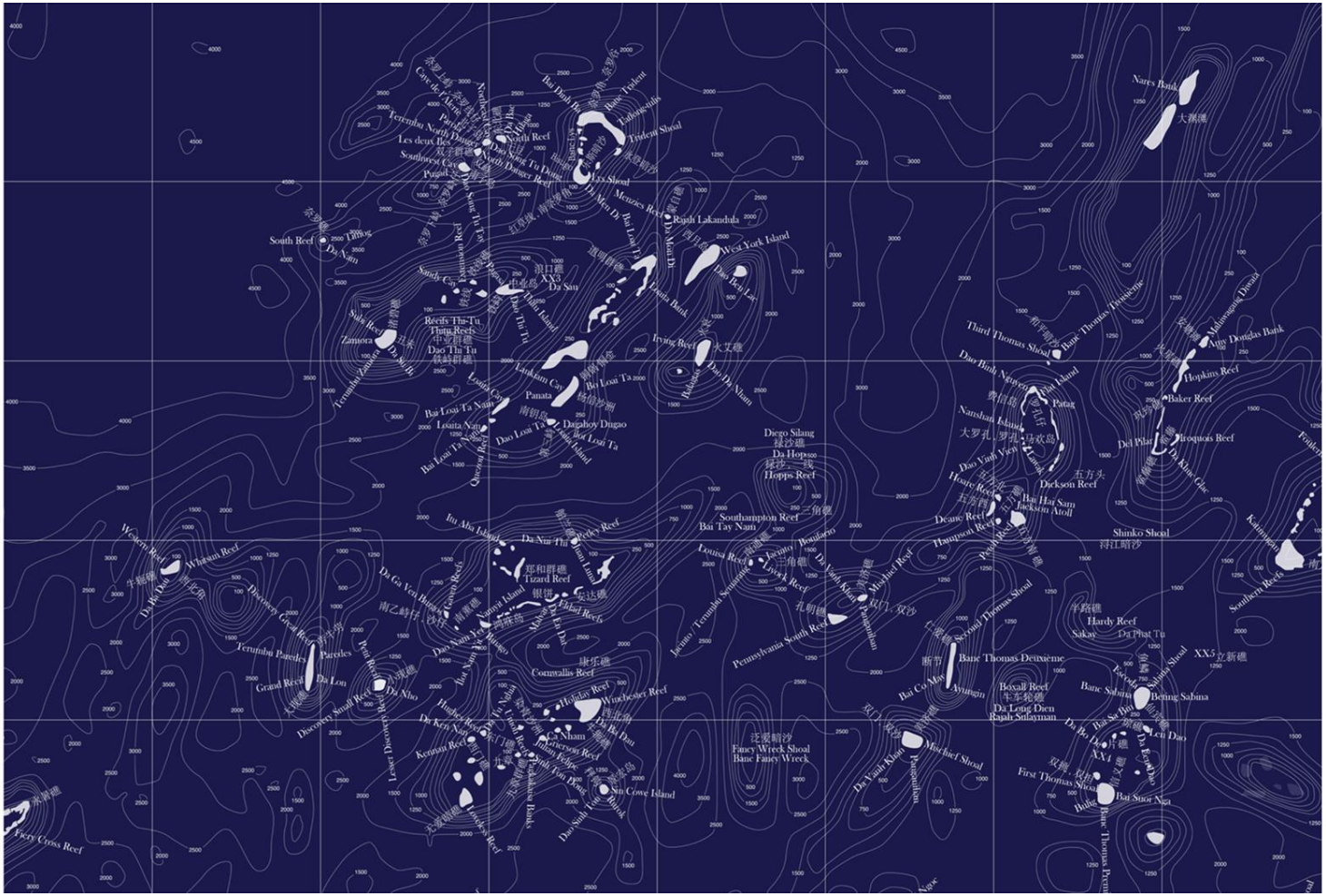


Figure 12. MAP Office, Liquid Land - Solid Sea (detail), 2017.

Research Methods, Prototypes & Materials

The Deep (3D)

The South China Sea overlies a marginal basin formed by a subduction zone where tectonic plates converge. With an average depth of approximately 1,200 metres, the undulating seabed bathymetry creates a complex underwater terrain, generating strong currents and dynamic surface waves. Over the past two decades, multiple international scientific expeditions have conducted drilling and seafloor observations, utilising advanced deep-submersible vehicles to collect samples of fauna, flora, water and sediments from depths reaching 7,000 metres. These deep-sea ecosystems represent unique biological communities whose study enriches our understanding of global environmental changes and oceanic biodiversity.

Despite this scientific progress, the South China Sea's trenches and seabed remain largely unexplored beyond research purposes. Meanwhile, untapped oil and gas reserves have become focal points in escalating geopolitical tensions, with energy companies from the United States and its regional allies engaging in joint exploration projects. The South China Sea's plight illustrates a broader pattern of exploiting marine resources for economic gain while neglecting the resulting degradation of marine biodiversity. Annually, goods valued at approximately USD 5.3 trillion transit its sea lanes, including USD 1.2 trillion in US trade.[20] Proven hydrocarbon reserves include 11 billion barrels of oil and 190 trillion cubic feet of natural gas, with undiscovered reserves estimated at a minimum of 12 billion barrels of oil and 160 trillion cubic feet of natural gas.[20] Additionally, the fisheries sector accounts for 12% of the global catch, valued at USD 21.8 billion in 2012.[21] The strategic significance of the South China Sea also extends to the transit of 16 trillion cubic feet of liquefied natural gas (LNG) annually, representing half of the global LNG trade.[22]

Beyond resource extraction, concerns extend to sunken cultural heritage, predominantly shipwrecks, which have suffered damage or destruction due to illegal activities since the 1980s. This adds an additional layer of complexity to the already fraught maritime environment.

Research Methods, Prototypes & Materials

The Law (4D)

The South China Sea epitomises ongoing challenges in international maritime law and the arbitration of sovereignty disputes. The so-called 'ASEAN Way'—characterised by an aversion to legalistic conflict resolution—has further complicated efforts towards a peaceful settlement.[23] A notable example occurred in 2016 when China declined to participate in arbitration proceedings initiated by the Philippines at the Permanent Court of Arbitration. The reluctance of claimant states to engage in multilateral dialogue impedes the prospect of resolving competing claims through legal means.

The contemporary threats to the Pacific region demand innovative and cooperative protection mechanisms that ensure both lasting peace and environmental preservation. Presently, environmental protection efforts are insufficient to counteract the damage wrought by oil exploration, land reclamation, large-scale fishing and heavy navigation traffic.[24] Both coastal and noncoastal states bear legal obligations to preserve the marine environment under international law[25]; however, states consistently fail to meet these responsibilities.[26] For example, effective environmental impact assessments must precede land reclamation activities to mitigate harm to marine ecosystems.[27] Such protections are optimally realised through collaborative multilateral governance rather than isolated national actions. The continuation of unilateral, environmentally detrimental activities must cease in order to allow ecological recovery in the South China Sea.[28]

The 2012 United Nations Conference on Sustainable Development underscored the imperative that states fulfil their environmental obligations to safeguard the global commons for present and future generations.[28] Accordingly, comprehensive environmental impact assessments should be mandated for all activities within the South China Sea, with an emphasis on the common good.[28] Territorial claims and associated assertive actions should be substantially curtailed, and the establishment of an international peace park has been proposed as a means to protect marine biodiversity.[29]

Research Methods, Prototypes & Materials

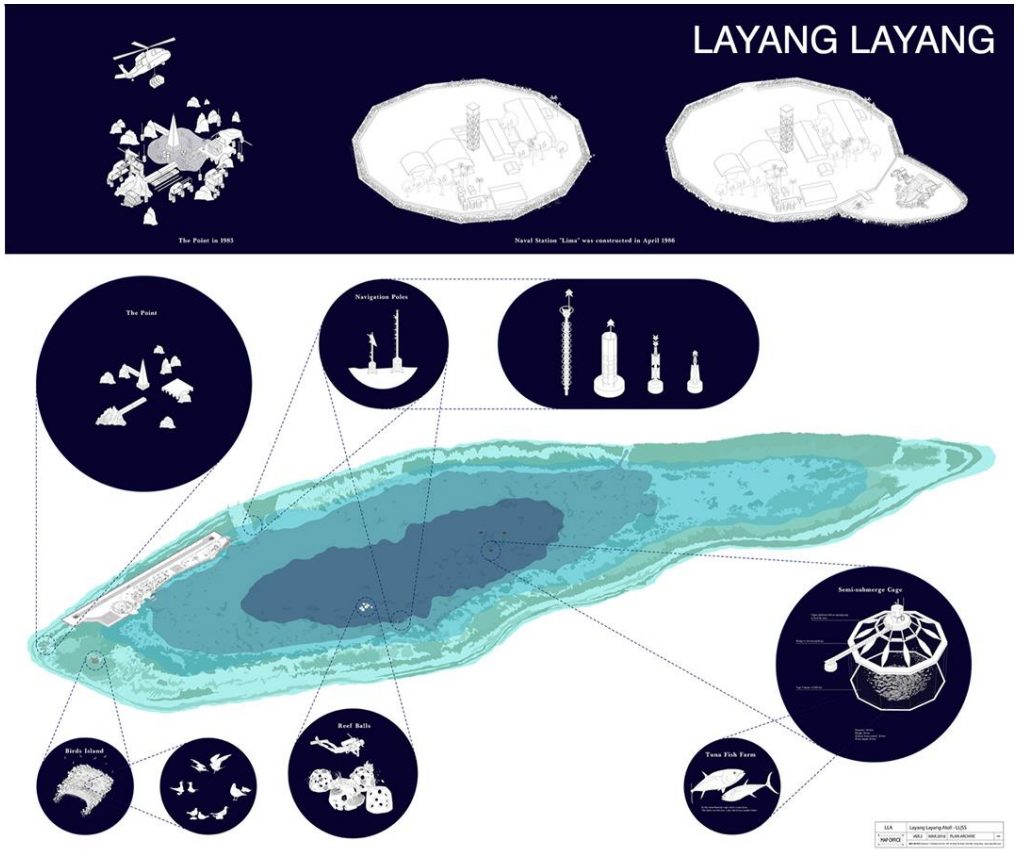


Figure 13. Malaysia made its first move on the South China Sea in 1983, when the Royal Malaysian Navy set up a base at Swallow Reef (Layang Layang).

The Law (4D)

Amid the noise of these territorial conflicts, the sea is suffering.[30] If the sea had a voice, what would it say? Judging by what we know about the extent of environmental damage to the South China Sea, we can only imagine. But we can look at the indicators by scientific professionals who warn us to reduce and find sustainable alternatives for our continued activity. Otherwise, we might reach a point where it is no longer possible to heal and where our only fate is extinction.[30]

This complex interplay of geopolitical tensions and environmental degradation reveals a critical deficit: the lack of effective multilateral cooperation and integrated policy frameworks capable of addressing the South China Sea's ecological and legal challenges. The prevailing fragmented approach underscores the urgent need for a paradigmatic shift in both national and public consciousness—recognising the interdependence of states and stakeholders and fostering active participation in cooperative ocean governance.

Research Methods, Prototypes & Materials

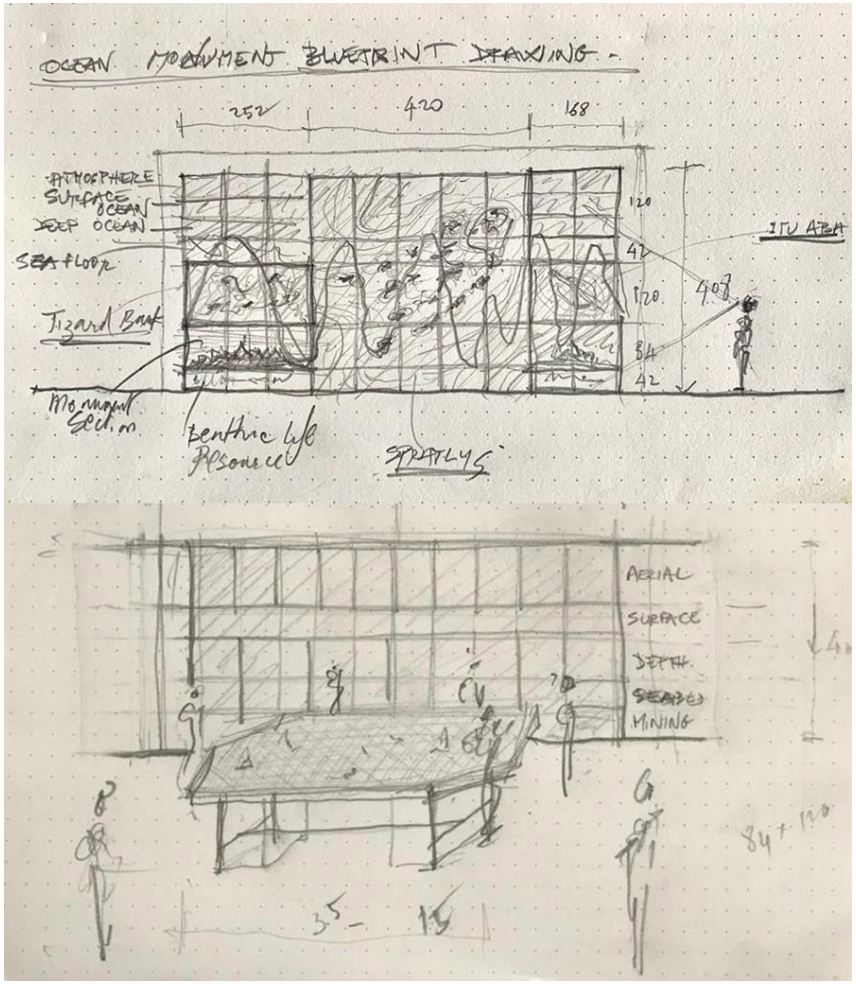


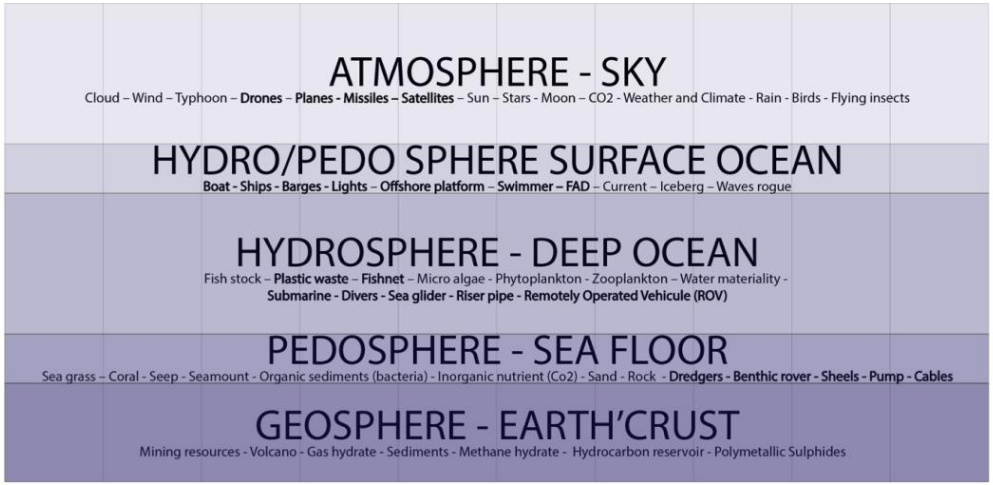
Figure 14. South China Sea Monument – Initial sketches for the Taipei Biennale 2020.

Towards Systemic Multilateral Solutions

In response to this necessity, collaboration with both maritime law expert Agnes Chong and geographer Eric Laflamme has led to the proposal of a novel legal framework accompanied by a series of detailed maps delineating an offshore MPA beyond national jurisdictions. This MPA would be governed under the dual auspices of the United Nations Convention on the Law of the Sea (UNCLOS) and the Convention on Biological Diversity (CBD), aiming to safeguard marine biodiversity in areas currently lacking effective protection.[31]

Building on this foundation, plans were developed to translate theoretical frameworks into practical engagement through the Taipei Biennial. The intention was to employ interactive gaming experiences to raise awareness in participants about the complex legal overlays and frameworks, simulate ecological pollution scenarios and immerse users in decision-making and remedial processes. This approach sought to enhance public and governmental awareness of and involvement in ecological conservation, fostering collaborative solutions to policy impasses that have hindered progress in South China Sea cooperation.

Research Methods, Prototypes & Materials



BIRDS	SATELITTES	DRONES	SUN	CLOUD	RAIN	TYPHOON	MOON/STARS	PLANES	MISSILES
LIGHTS	BOAT	SWIMMER	WAVES	BARGES	ICEBERG	SHIPS	OFFSHORE	FAD	ISLAND
PLANKTON	FISHSTOCK	DIVER	SUBMARINE	PLASTIC WASTE	FISHNET	FISHSCHOOL	SEA GLIDER	RISER PIPE	ALGAE
SEA CRAWLER	CABLE	PUMP	CORAL	SEDIMENTS	SEEP	SAND	CRAWLER	BENTHIC ROVER	SEAMOUNT
GAS HYDRATE	POLYMETALLIC	SEDIMENTS	HYDRO CARBON	HYDROCARBON	METHANE HY-	METHANE HY-	GAS HYDRATE	SEDIMENTS	POLYMETALLIC

Figure 15. South China Sea Monument – Initial sketches for the Taipei Biennale 2020.

Towards Systemic Multilateral Solutions

Unfortunately, due to the COVID-19 pandemic, the Taipei Biennial exhibition was unable to proceed as planned. Nonetheless, this initiative highlights the critical importance of evolving beyond traditional disciplinary boundaries and unilateral policies towards innovative, systemic and cross-sectoral collaboration to effectively address marine environmental governance in contested spaces such as the South China Sea.

Research Methods, Prototypes & Materials

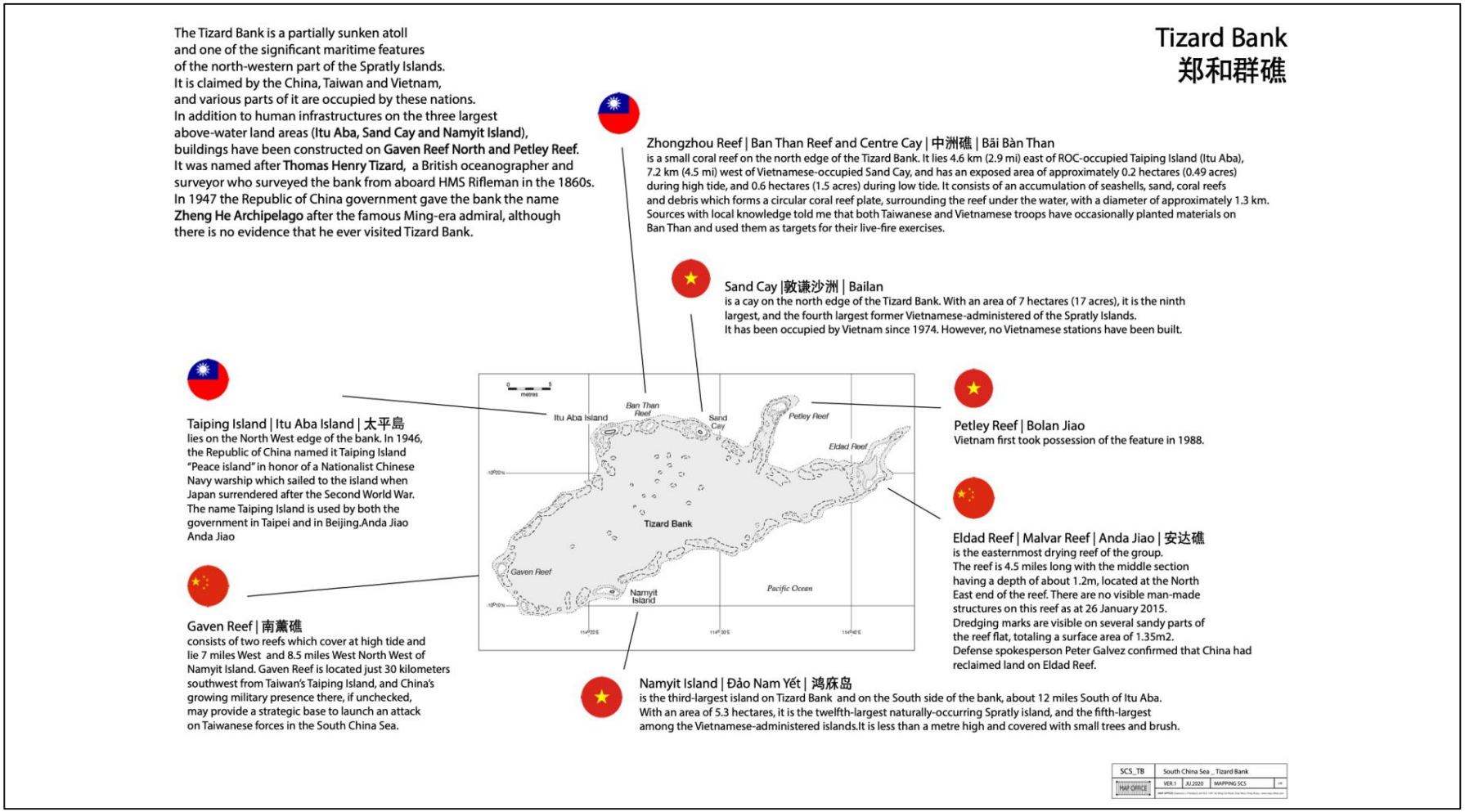


Figure 16. South China Sea Monument – Board game for the Taipei Biennale 2020.

Research Methods, Prototypes & Materials

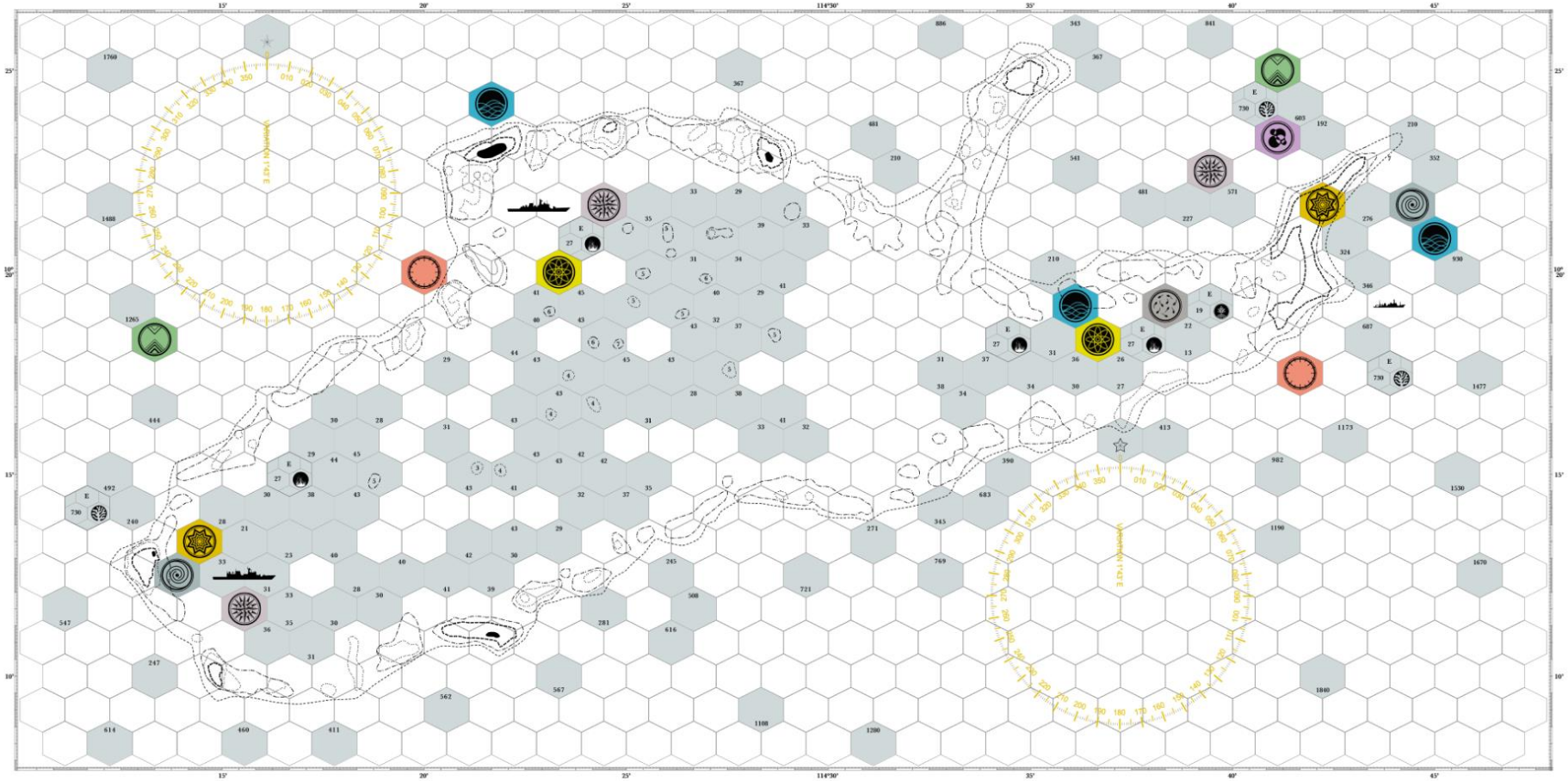


Figure 17. South China Sea Monument – Board game for the Taipei Biennale 2020.

Research Methods, Prototypes & Materials

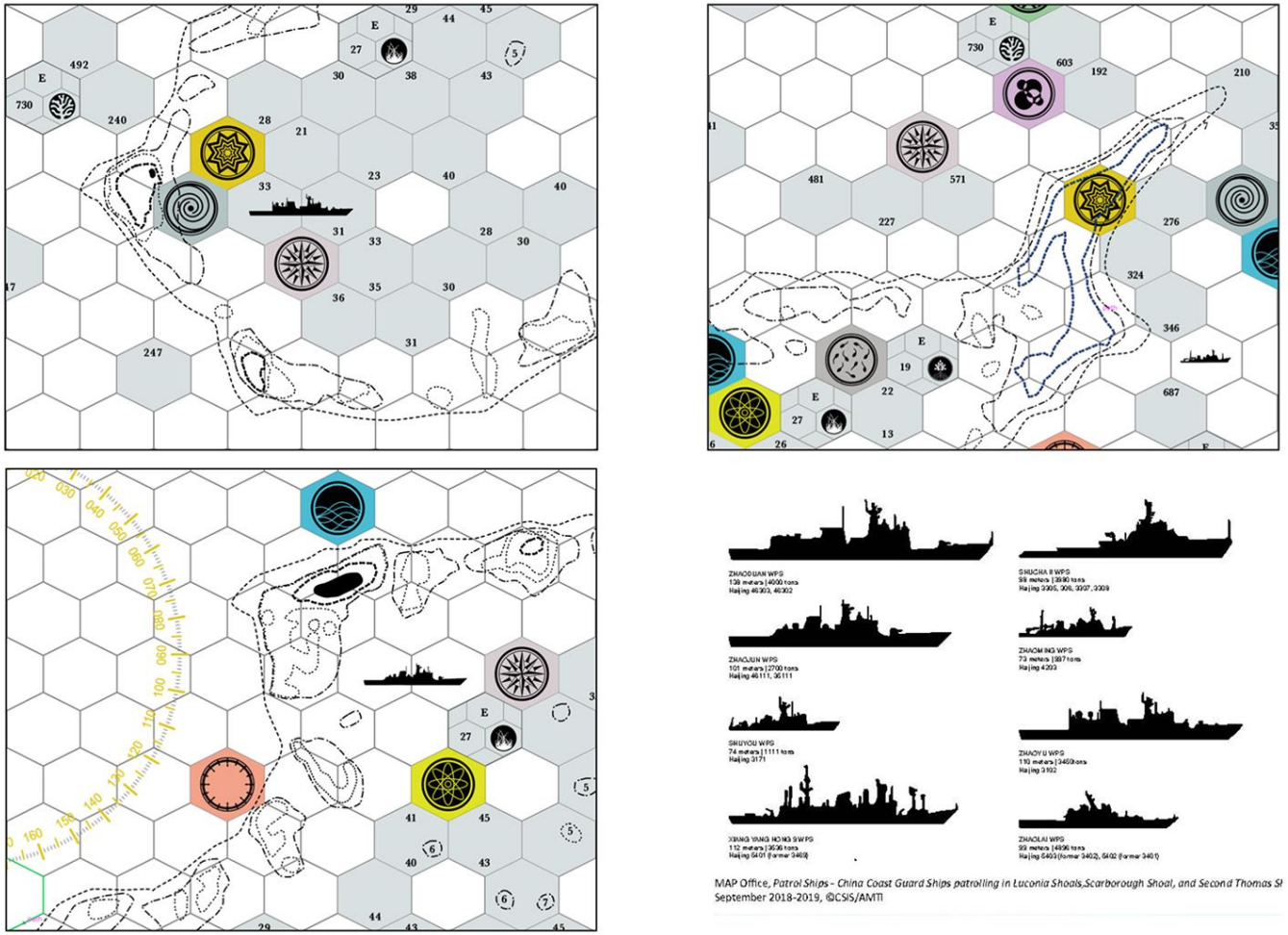


Figure 18. South China Sea Monument – Board game (details) for the Taipei Biennale 2020.

Research Methods, Prototypes & Materials

Taipei Biennial 2020 – Curators

Paris, April 12th,

Re: letter of recommendation for *MAP office*.

We would like to confirm our interest in inviting the collective *MAP office* to the Taipei Biennial 2020.
The biennial, titled "You and I don't live on the same planet" will deal with the new geopolitical configurations implied by the ecological mutation.

MAP office work creates sensitive and poetic installations, while actively engaging with the subject they study. They also explore the topic of extractivism, and make invisible territories visible, which echoes our current concept.

For this reason we really hope we will manage to show their project in the framework of the Taipei Biennial, provided that we manage to gather the necessary funds for it.

PROJECT ABORTED

Yours sincerely,

Bruno Latour & Martin Guinard-Terrin

Figure 19. Taipei Biennale – Invitation letter from Curators, 2020.

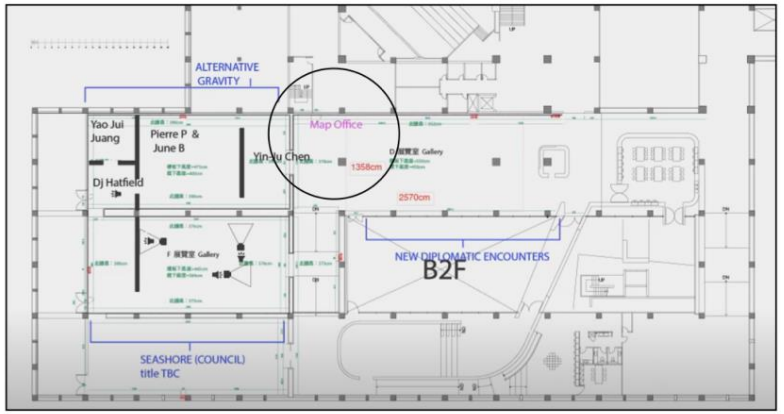


Figure 20. Taipei Biennale – Floor Plan, 2020.

Research Outcomes, Findings & Further Research

Outcomes & Findings

The ‘South China Sea Monument’ project explores the complex geopolitical and ecological dimensions of the South China Sea. This area, rich in resources and contested by multiple nations, illustrates the tension between sovereignty, environmental sustainability and international law.

The recent decisions (2025) by Chinese authorities to extract energy resources such as ‘flammable ice’ and set up a permanent underwater base are strong signals for an advocacy of an MPA.

Outcomes & Findings

- The South China Sea as a geopolitical complexity
- The environmental fragility and degradation of the SCS
- The legal and ethical argument for an ‘ecological regime’

Further Research

- Further impact assessment, such as hazard risk vulnerability assessment
- Public awareness campaign
- Systemic thinking tools for establishing a holistic perspective

Research Dissemination

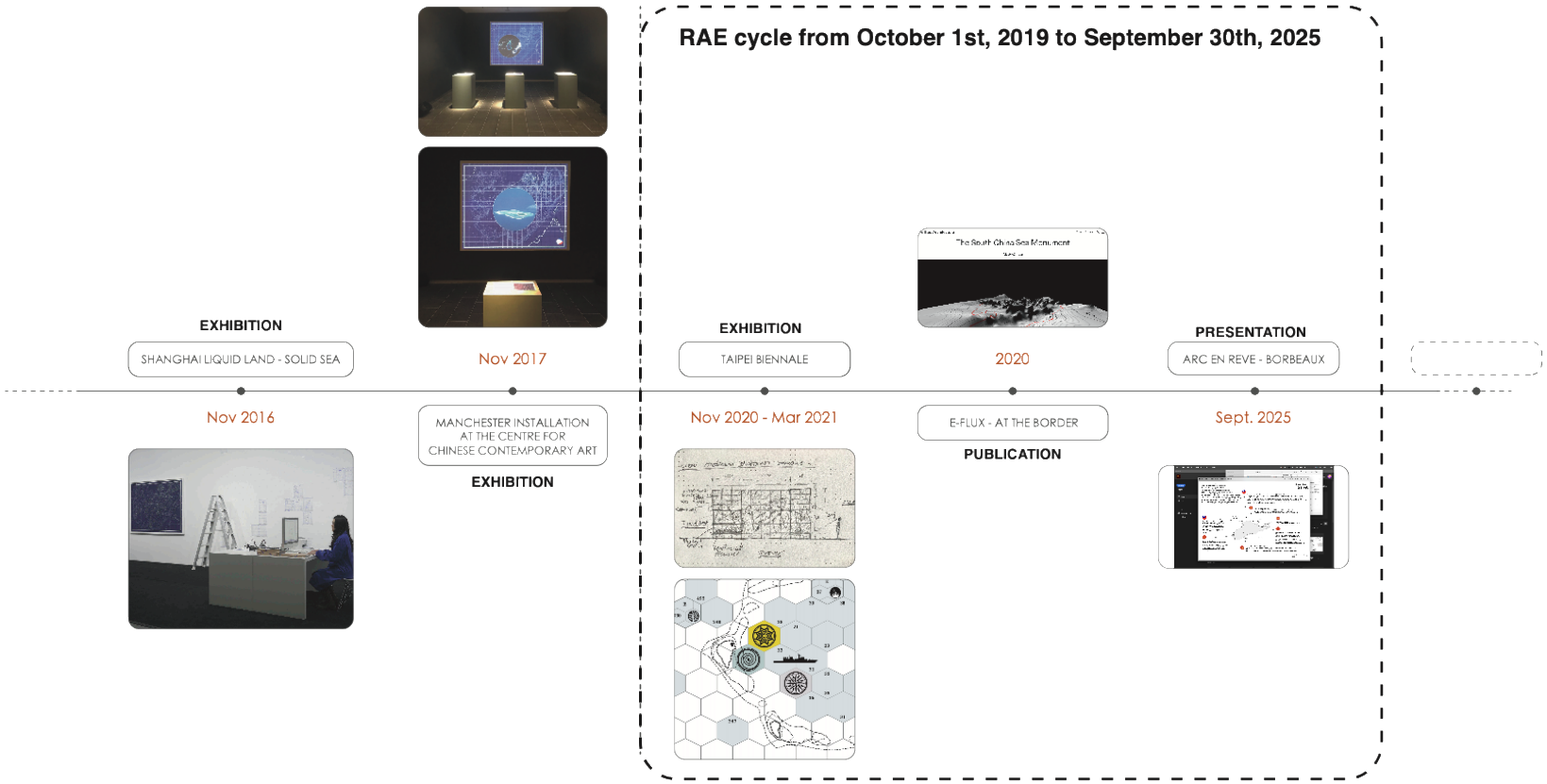


Diagram 2. Timeline diagram to show the dissemination of the South China Sea Monument

References

1 Schofield, C. (2016). Understanding competing maritime claims in the South China Sea. ISEAS – Yusof Ishak Institute.

2 McManus, J. W., Shao, K.-T., & Lin, S.-Y. (2010). Toward establishing a Spratly Islands international marine peace park: Ecological importance and supportive collaborative activities with an emphasis on the role of Taiwan. Ocean Development and International Law, 41(3), 273.

3 Hehe. (2021, October 21). Nuage Vert, Helsinki | HEHE. http://www.hehe.org/projets/nuage-ver-no-1-helsinki

4 Eliasson, O. (n.d.). Ice Watch • Artwork • Studio Olafur Eliasson. https://olafureliasson.net/artwork/ice-watch-2014/

5 Schofield, C. (2016). Understanding competing maritime claims in the South China Sea (p. 23). ISEAS – Yusof Ishak Institute.

6 South China Sea. (n.d.). Wikipedia. https://en.wikipedia.org/wiki/South_China_Sea

7 McManus, J. W., Shao, K.-T., & Lin, S.-Y. (2010). Toward establishing a Spratly Islands international marine peace park: Ecological importance and supportive collaborative activities with an emphasis on the role of Taiwan. Ocean Development and International Law, 41(3), 273.

8 McManus, J. W. (2017). Offshore coral reefs and high-tide features of the South China Sea: Origins, resources, recent damage and potential peace parks. In M. Hiebert (Ed.), In the wake of the arbitration: Papers from the Sixth Annual CSIS South China Sea Conference (pp. 124, 137–142). CSIS Center for Strategic and International Studies.

9 Connelly, A. L. (2017, July 19). Indonesia's new North Natuna Sea: What's in a name? The Interpreter. https://www.lowyinstitute.org/the-interpreter/indonesia-s-new-north-natuna-sea-what-s-name

10 Ma, X. (2017). Historic title over land and maritime territory. Journal of Territorial and Maritime Studies, 4(1), 31–46.

11 Acharya, A., & Tan, S. S. (2006). Betwixt balance and community: America, ASEAN, and the security of Southeast Asia. International Relations of the Asia-Pacific, 6(1), 40.

References

12 Lin, K.-C., & Gertner, A. V. (2015). Maritime security in the Asia-Pacific, China and the emerging order in the East and South China Seas. Chatham House, The Royal Institute of International Affairs.

13 Lin, K.-C., & Gertner, A. V. (2015). Maritime security in the Asia-Pacific, China and the emerging order in the East and South China Seas (p. 5). Chatham House, The Royal Institute of International Affairs.

14 Pedrozo, R. (2014). China versus Vietnam: An analysis of the competing claims in the South China Sea. CNA Occasional Paper.

15 This question is the key to the Philippines' case against China at the Permanent Court of Arbitration in The Hague: Is Itu Aba an "island" or "rock" under Article 121(3) of the United Nations Convention on the Law of the Sea (UNCLOS)?

16 Mirasola, C. (2015, July 15). What makes an island? Land reclamation and the South China Sea arbitration. Asia Maritime Transparency Initiative. https://amti.csis.org/what-makes-an-island-land-reclamation-and-the-south-china-sea-arbitration/

17 AFP. (2015, July 15). Philippines repairs crumbling South China Sea ship outpost. https://www.defensenews.com/global/asia-pacific/2015/07/16/philippines-repairs-crumbling-south-china-sea-outpost/

18 Kreuzer, P. (2016). A comparison of Malaysian and Philippine responses to China in the South China Sea. The Chinese Journal of International Politics, 9(3), 239–276.

19 Li, L. (2018). China's policy towards the South China Sea: When geopolitics meets the law. New York: Routledge.

20 Lin, K.-C., & Villar Gertner, A. (2015). Maritime security in the Asia-Pacific, China and the emerging order in the East and South China Seas (p. 5). Chatham House, The Royal Institute of International Affairs.

21 Fabinyi, M. (2016, July 30). The destruction beneath the waves of the South China Sea. Asia & the Pacific Policy Society. https://www.policyforum.net/destruction-beneath-waves-south-china-sea/

22 Storey, I., & Lin, C.-Y. (Eds.). (2016). The South China Sea dispute: Navigating diplomatic and strategic tensions. ISEAS – Yusof Ishak Institute.

References

23 Jenne, N. (2016). Managing territorial disputes in Southeast Asia. Journal of Current Southeast Asian Affairs, 36(3), 35–61.

24 Hoi, N. C., & Dang, V. H. (2018). Environmental issues in the South China Sea: Legal obligation and cooperation drivers. International Journal of Law and Public Administration, 1(1), June 2018.

25 United Nations Convention on the Law of the Sea, Articles 56 and 58.

26 PCA. (2016). South China Sea arbitration between the Philippines v China, Award, July 12, 2016; Houdre, C. (2018, July 12). Environmental ramifications of the South China Sea conflict: Vying for regional dominance at the environment's expense. Georgetown Environmental Law Review. https://www.law.georgetown.edu/environmental-law-review/blog/environmental-ramifications-of-the-south-china-sea-conflict-vying-for-regional-dominance-at-the-environments-expense/

27 Singh, A. (2016, August 13). Why the South China Sea is on the verge of an environmental disaster. The National Interest. https://nationalinterest.org/blog/the-buzz/why-the-south-china-sea-the-verge-environmental-disaster-17348

28 United Nations Conference on Sustainable Development. (2012, June 20–22). The Future We Want. Rio de Janeiro, Brazil.

29 McManus, J. W., Shao, K. T., & Lin, H. J. (2015). Toward establishing a Spratly Islands international marine peace park. Ocean & Coastal Management, 113, 146–159.

30 Juinio-Meñez, M. A. (2015). Biophysical and genetic connectivity considerations in marine biodiversity conservation and management in the South China Sea. Journal of International Wildlife Law & Policy, 18(2), 110–119.

31 United Nations. (1982). United Nations Convention on the Law of the Sea. https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

32 Convention on Biological Diversity. (1993). Convention on Biological Diversity. https://www.cbd.int/convention/