

ARBITRATION UNDER ANNEX VII OF THE UNITED NATIONS
CONVENTION ON THE LAW OF THE SEA



REPUBLIC OF THE PHILIPPINES

v.

PEOPLE'S REPUBLIC OF CHINA

SUPPLEMENTAL DOCUMENTS OF THE PHILIPPINES

VOLUME IV
ANNEXES

19 NOVEMBER 2015

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Annex 757

J. Hardy & S. O'Connor, "China's first runway in Spratlys under construction", *IHS Jane's Defence Weekly*
(16 Apr. 2015)

China's first runway in Spratlys under construction

James Hardy, London and Sean O'Connor, Indianapolis. Additional reporting by Michael Cohen, Manila - IHS Jane's Defence Weekly

16 April 2015



China has begun runway construction at Fiery Cross Reef in the Spratly Islands, satellite imagery dated 23 March and provided by Airbus Defence and Space shows. © CNES 2015, Distribution Airbus DS / IHS: 15359923

Key Points

- Satellite imagery shows that China has begun building a runway on reclaimed parts of Fiery Cross Reef in the Spratly Islands
- The imagery, provided by Airbus Defence and Space, also shows China building islands on Subi Reef that if linked up would provide enough land for another airstrip

China has begun to build its first airstrip in the Spratly Islands, according to *IHS Jane's* analysis of Airbus Defence and Space satellite imagery taken in March.

The 23 March images show a paved section of runway 503 m by 53 m on the northeastern side of Fiery Cross Reef, which China began to turn into an island in late 2014. Paving and ground preparation of other sections of the runway has also begun further along the island. In addition, workers have paved about 400 m by 20 m of apron.



Airbus Defence and Space imagery shows runway construction underway at Fiery Cross Reef. (© CNES 2015, Distribution Airbus DS / Spot Image / IHS) 1569027

Other imagery taken in March also shows China could be building a second airstrip-capable island on Subi Reef.

China's island building at Fiery Cross Reef has created a landmass that is capable of housing a runway about 3,000 m long. This would be well within the parameters of existing People's Liberation Army Air Force runways on mainland China, which vary in length from about 2,700 m to 4,000 m at most.

The runway at Woody Island in the Parcel Islands was about 2,300 m before upgrade work started there in 2014; satellite imagery suggests China is also expanding that to be about 3,000 m long.

The 23 March imagery of Fiery Cross Reef also shows further dredging on the new island's southwestern side, close to the extant platform that China originally built on the reef. The imagery also shows floating cranes consolidating the integrity of new island's harbour by placing concrete blocks on the interior walls; an exterior sea wall

has also been extended, presumably to provide better protection for ships in port.

Airbus imagery taken of Subi Reef – also in the Spratlys – on 6 February and 5 March shows land reclamation on this site too. The 6 February image shows three islands being created. By 5 March, at least nine dredgers are creating larger landmasses on the reef that if joined together could create enough land for another 3,000 m-long airstrip.

While Fiery Cross Reef is to the west of the Spratly Islands archipelago, Subi Reef is on the north side of the island group and is only 25 km from Thitu/Pagasa island, which is occupied by the Philippines and has a civilian population.

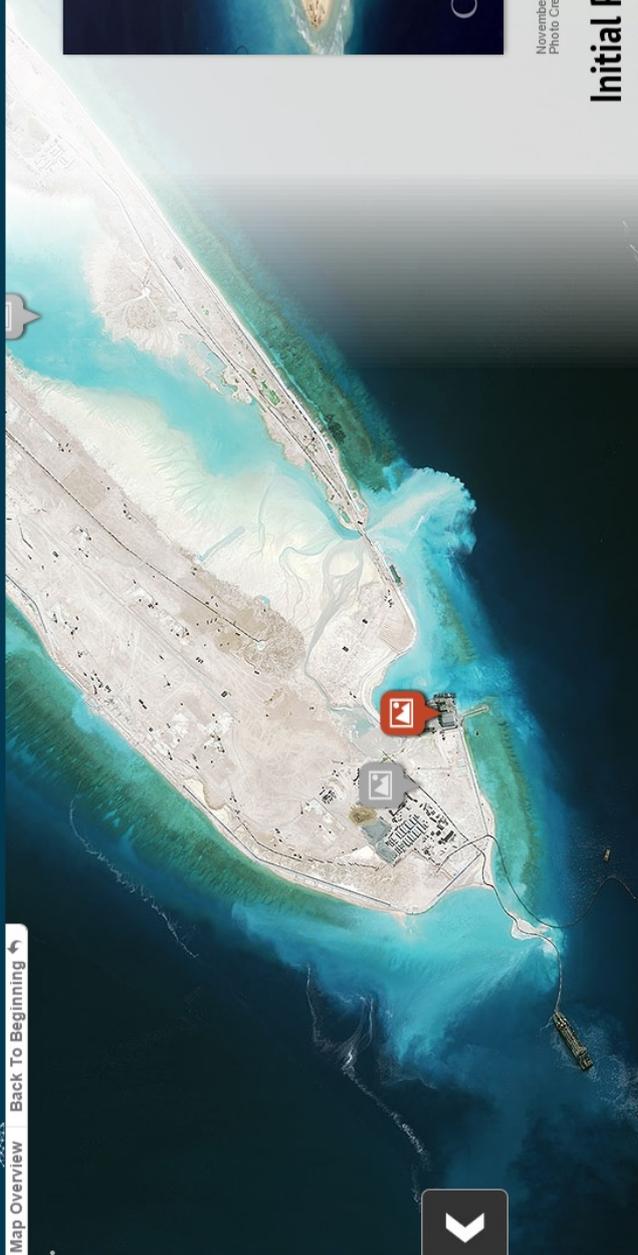
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Annex 758

Asia Maritime Transparency Initiative, “Fiery Cross Reef: Initial Purpose”, *available at* <http://amti.csis.org/fiery-cross/> (last accessed 1 May 2015)



Enlarge

November 15, 2015
Photo Credit: Asia Maritime Transparency Initiative

Initial Purpose

In the 1990s, analysts believed that the outpost at Fiery Cross served the purposes of signals intelligence, radar operations, coastal defense missile deployment, and/or logistical stationing. In 1995, a PLA newsletter reported that a South China Sea Fleet naval base has successfully integrated a system for the procurement, transport and supply of materials to islands and reefs in the Spratlys. After some 30 supply operations, the program has improved the speed and quality of transport, shortening transit times to less than one-fifth of what was previously required. This may suggest a logistical role for Fiery Cross. As China began its 2014 Spratly land efforts, Fiery Cross facilities served as a base of operations for reclamation in other locations, before Beijing began to develop the reef itself.



Annex 759

“China breaks ground on lighthouse project in South China Sea”, *Reuters* (26 May 2015)

Industries | Tue May 26, 2015 1:57am EDT

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China breaks ground on lighthouse project in South China Sea

BEIJING

May 26 China hosted a groundbreaking ceremony for the building of two lighthouses in the disputed South China Sea, state media said on Tuesday, a move that is likely to escalate tensions in a region already jittery about Beijing's maritime ambitions.

China's Ministry of Transport hosted the ceremony for the construction of two multi-functional lighthouses on Huayang Reef and Chigua Reef on the disputed Spratly islands, state news agency Xinhua said, defying calls from the United States and the Philippines for a freeze on such activity.

The reefs are known in English as Cuateron Reef and Johnson South Reef.

The Ministry of Transport did not answer calls for comment.

Last year, the Philippines accused China of reclaiming land on Johnson South Reef, apparently to build an airstrip.

China claims most of the South China Sea, through which \$5 trillion in ship-borne trade passes every year, and the Philippines, Vietnam, Malaysia, Taiwan and Brunei have overlapping claims.

Xinhua said the lighthouses were built "to improve the navigation safety in the South China Sea". It did not elaborate.

In recent weeks, the United States has clashed with China over Beijing's construction activities in the South China Sea. The Pentagon believes the work is aimed at cementing China's claim to the vast majority of the South China Sea - an area thought to have significant energy reserves and rich fishing grounds.

Washington is particularly concerned that China may at some point declare an exclusion zone in the sea that could limit free movement of ships and aircraft.

On Monday, China's foreign ministry said it had lodged a complaint with the United States over a U.S. spy plane that flew over parts of the South China Sea.

The Philippines' defence minister said on Monday that Manila was seeking a "stronger commitment" from the United States to help its ally with activities in the South China Sea.

Beijing says the South China Sea issue should be resolved by direct talks between those involved and has bristled at what it sees as unwarranted U.S. interference. (Reporting by Sui-Lee Wee; Editing by Jeremy Laurence)



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Annex 760

“China to Construct Two 50m Lighthouses in Huayang Jiao [Cuarteron Reef] and Chigua Jiao [Johnson South Reef]”, *Xinhua* (26 May 2015)

China to Construct Two 50m Lighthouses in Huayang Jiao [Cuarteron Reef] and Chigua Jiao [Johnson South Reef]

Xinhua News Agency, Beijing, May 26 report. On May 26, the Ministry of Transport held the Nansha lighthouse construction commencement ceremony in Huayang Jiao of the Chinese Nansha Islands. According to the Ministry's information, in order to improve the ability to assist in civil navigation in the Nansha sea region, the Ministry of Transport will construct two multi-functional lighthouses at Huayang Jiao and Chigua Jiao. Completion of the lighthouses will provide highly effective navigation and assistance services for vessels of various countries passing through the sea region, and will greatly enhance navigational safety of vessels in the South China Sea.

According to sources, construction of the two lighthouses will adopt a circular two-dimensional design incorporating Chinese design and style elements. The structure of the lighthouse will be 50 meters tall, equipped with 4.5 meter lanterns designed to be visible at 22 nautical miles.

The South China Sea is an important international oceanic transport channel; 50% of commercial vessels in the world pass through it each year. At the same time, the South China Sea is also an important fishing ground in which many fishing vessels carry out their work. Because of high vessel density in the region, there are occasional maritime traffic accidents. Lighthouses are important navigation aid and public service facilities for safe ocean travel, and are generally established at important ports and key positions on transport routes. The lens at the top of the lighthouse is used to reflect light onto the ocean surface to guide vessels or to mark dangerous regions.

Xinhua News Agency, Beijing, May 26 report (Reporters Zhu Jiani and Liu Hua). Ministry of Foreign Affairs spokesperson Hua Chunying stated on the 26th that Chinese construction of major lighthouses in South China Sea constituted its significant performance of its international responsibility and obligation. China's next step will be to continue construction of other civilian facilities on other relevant islands and reefs in South China Sea.

At the regular press conference that day, a reporter asked: Today China held the lighthouse construction commencement ceremony at Huayang Jiao in South China Sea; what is the purpose behind China's construction of the lighthouse?

Hua Chunying said that China has always expressed that the main purpose of Chinese construction in the South China Sea Islands is to better carry out China's international responsibilities and obligations in terms of maritime search and rescue, disaster prevention and relief, maritime scientific research, meteorological observations, protection of the ecology and environment, navigation safety, and fishery and production services.

"For its next step, China will continue the construction of other civilian facilities on relevant islands and reefs in the South China Sea to better serve the coastal nations of the South China Sea as well as the vessels from various countries that pass through the sea region," said Hua Chunying.

我在华阳礁赤瓜礁建两座50米高灯塔

新华社北京5月26日电5月26日,交通运输部在我国南沙群岛华阳礁举行南沙灯塔建设开工仪式。据介绍,为提升南沙海域民用导航助航能力,交通运输部将在华阳礁、赤瓜礁建设两座多功能灯塔。灯塔建成后,将为航经该海域的各国船舶提供高效导航助航服务,大大提高南海海域船舶航行安全。

据了解,此次建设的两座灯塔均采用圆形平面设计,融入中国元素设计造型风格。灯塔塔身高50米,并配置4.5米灯笼,设计灯光射程22海里。

南海是重要的国际海上运输通道,每年全球50%的商船航经南海。同时,南海也是重要的渔场,大批渔船常年在南海作业,船舶密度大,海上交通事故时有发生。灯塔是海上安全航行的重要导航助航公益服务设施,一般建设在重要港口、航道关键位置,通过塔顶透镜折射灯光照射海面,引导船舶航行或指示危险区域。

新华社北京5月26日电(记者朱佳妮、刘华)外交部发言人华春莹26日表示,中方在南海建设大型灯塔是履行相关国际责任和义务的重要举措,下一步将继续在南沙有关岛礁上建设其他民事设施。

在当日例行记者会上,有记者问,今天中方在南沙华阳礁举行了灯塔建设开工仪式。请问中方建设灯塔的目的是什么?

华春莹说,中方多次表明,中方南沙岛礁建设的主要目的是为了更好地履行在海上搜寻与救助、防灾减灾、海洋科研、气象观察、生态环境保护、航行安全、渔业生产服务等方面承担的国际责任和义务。

“下一步,中方将继续在南沙有关岛礁上建设其他民事设施,更好地服务南海沿岸国家和航经该海域的各国船只。”华春莹说。

Annex 761

Eric Niiler, “What happens to a coral reef when an island is built on top?”, *Washington Post* (6 July 2015)

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Health & Science

What happens to a coral reef when an island is built on top?

By Eric Niller July 6

Marine biologist John McManus, who has been studying Pacific coral reefs for the past 30 years, remembers a two-day boat journey a few years ago to a remote part of the Spratly Islands, a chain of low-lying coral and rocky reefs in the South China Sea.

“You are traveling along in open ocean waters, then you come upon a place where the waves are breaking, then everything beyond the reef is flat, like a giant pool,” said McManus, who is director of the National Center for Coral Reef Research at the University of Miami.

Today, seven such coral reefs are being turned into islands, with harbors and landing strips, by the Chinese military. Not only is this work threatening China’s relations with the United States and several other Pacific nations, it is also destroying a rich ecological network, according to McManus.

“This is devastating,” he said. “It’s the worst thing that has happened to coral reefs in our lifetime.” U.S. officials estimate that the Chinese military has built up the shallow tropical seafloor with reclaimed sand, steel, wood and concrete barriers to create 2,000 acres of new territory.

Chinese officials have said that [“rigorous” testing is done before any construction](#) to protect the reef environment and that beyond military uses the created islands will improve China’s capabilities for [“search and rescue at sea, fishing security, disaster prevention and relief, and meteorological monitoring.”](#)

While China’s construction has raised tensions in the region, it is also provoking questions about how long these bases will be able to withstand the severe storms that are frequent in that part of the Pacific Ocean.

“You can build an island if you do it right,” said Robert Dalrymple, a professor of civil engineering at Johns Hopkins University. “But it is not clear these islands will be permanent unless they can deal with erosion. They will wash

away, just like putting sand on East Coast beaches.”

Artificial islands have been built for coastal resorts or airports in shallow waters off Florida, the Caribbean, the Arabian Sea and many other areas. The Philippines and Vietnam have erected outposts — many of them on wooden stilts — in the South China Sea in the past two decades in an effort to support territorial claims. But the Chinese efforts dwarf these projects. At some of the new islands, the Chinese are building concrete breakwaters hundreds of feet long to hold the sand in place.

Dalrymple has visited construction projects in China and says the country clearly has the engineering expertise to handle huge amounts of dredged material. Other experts say that the Chinese are working quickly, rather than carefully, to create the artificial islands.

“The engineering feats are incredible in terms of speed,” said Patrick Cronin, a senior analyst at the Center for a New American Security, a Washington think tank. Cronin has been briefed on the island-building by senior U.S. officials. “They have not only doubled the land mass . . . but [also] have created forward staging bases of both military and civilian use. Dredging machines didn’t just build islands, but also dug deeper shipping channels.”

The results can be seen in [unclassified satellite images](#) posted by the Asian Maritime Transparency Initiative at the Center for Strategic and International Studies, another think tank. Time-lapse images show coral rings in an azure sea being filled in by white sand dredged from the nearby seafloor, followed by the arrival of construction cranes, workers and then multistory buildings.

Among the projects described on the CSIS site are:

- An airstrip almost two miles long on Fiery Cross Reef.
- Radar facilities and a helipad on Cuarteron Reef.
- A new dock and gun emplacements on Gaven Reef.
- Expansion on Hughes Reef from an outpost on stilts measuring less than a tenth of an acre to a 380-acre multilevel facility and harbor for both civilian and military ships.
- Dredging at Mischief Reef, which lies within what the Philippines considers its economic zone with floating naval docking stations.
- New piers, access channel and possible landing strip at Subi Reef.

- Desalination pumps and a concrete plant on Johnson South Reef.

While the artificial islands seem solid in the satellite images, the Pacific Ocean isn't always peaceful, says Steve Elgar, a senior scientist in ocean physics and engineering at the Woods Hole Oceanographic Institute in Woods Hole, Mass.

He wonders how long they will survive the wind-driven waves, some as high as 30 feet, that develop far out at sea and then roll in with no landmass to stop them. Such rocky islands as Hawaii, Guam and the Philippines are surrounded by coral reefs that help break up the force of waves traveling across the ocean. But the new bases in the Spratlys don't have that protection.

"They are in the middle of the ocean, 1,000 miles from north to the south," Elgar said. "With these huge fetches [distances that wind blows unobstructed over water], they have got to get big waves just from the wind blowing. They are exposed out in the middle of nowhere."

Other ocean scientists worry about the effect of dredging and island creation on surrounding marine life. The Spratlys contain major fishing grounds for several Asian nations, and the local marine biodiversity has been on the decline for the past two decades, according to a 2013 study by Australian and Chinese scientists.

The [report, which appeared in the journal Conservation Biology](#), found that coral cover had declined to about 20 percent (from about 60 percent) within the Spratly archipelago over the preceding 10 to 15 years. "Climate change has affected these reefs far less than coastal development, pollution, overfishing, and destructive fishing practices," according to the report, which warned that the declines in the reefs were "unfolding as China's research and reef-management capacity are rapidly expanding."

Greg Mitchell, a professor of marine ecology at the Scripps Institution of Oceanography in La Jolla, Calif., researches Pacific reef ecosystems. He says the new Chinese dredging and installation of concrete piers are probably destroying what's left of the local ecology.

"If the islands had been left alone, they would probably be very diverse," Mitchell said. "But all of the fishing fleets from Asia have been there hunting everything from sea cucumbers and giant clams and sharks for fins. My guess is the biodiversity has been altered already. But now, they are burying the ecosystem and destroying it."

Niiler is a freelance writer based in Maryland.

Annex 762

A. Sawitta Lefevre & T. Leong, “China wants no talk of South China Sea at ASEAN meeting”, *Reuters* (3 Aug. 2015)

World | Mon Aug 3, 2015 4:33pm EDT

Related: WORLD, CHINA, SOUTH CHINA SEA

China wants no talk of South China Sea at ASEAN meeting

KUALA LUMPUR | BY AMY SAWITTA LEFEVRE AND TRINNA LEONG



Chinese dredging vessels are purportedly seen in the waters around Mischief Reef in the disputed Spratly Islands in this still image from video taken by a P-8A Poseidon surveillance aircraft provided by the United States Navy May 21, 2015. REUTERS/U.S. NAVY/HANDOUT VIA REUTERS

Chinese Vice Foreign Minister Liu Zhenmin said on Monday the disputed South China Sea should not be discussed at a meeting of the Association of Southeast Asian Nations (ASEAN).

Liu, speaking to Reuters on the sidelines of the 48th ASEAN Foreign Ministers Meeting, which kicks off in Kuala Lumpur on Tuesday, said the meetings should avoid all talk on the sensitive issue, adding that countries outside ASEAN should not interfere.

"It should not be discussed," said Liu. "This is not the right forum. This is a forum for promoting cooperation. If the U.S. raises the issue we shall of course object. We hope they will not."

But in Washington, State Department Deputy spokesman Mark Toner said tensions in the South China Sea would be discussed as part of regional security concerns.

"This is a forum in which critical security issues need to be brought up and discussed, and frankly, ... we believe that the developments in the South China Sea meet that criteria," Toner told a daily briefing.

The issue was not on the official agenda, but expectations were high that it would be discussed against a backdrop of increasing tensions and overlapping claims in the potentially energy-rich South China Sea.

The United States, worried about China's increasing assertiveness in the region, is expected to repeat a call for Beijing to halt land reclamation on islands in disputed waters.

Neither the United States nor China are members of ASEAN but have been invited to participate alongside other countries outside the group. U.S. Secretary of State John Kerry will be in Kuala Lumpur on Wednesday and Thursday.

A draft of the joint statement to be issued at the end of the ASEAN meeting, seen by Reuters, said leaders were concerned with recent developments "which have the potential to undermine peace, security and stability in the South China Sea."

It added that there was a need urgently to address the erosion of trust among parties on these matters.

China claims most of the South China Sea, through which \$5 trillion in ship-borne trade passes every year, and rejects the rival claims of Vietnam, the Philippines, Brunei, Malaysia and Taiwan.

"FREEZE" PROPOSAL "UNREALISTIC"

Speaking to reporters in Singapore, Chinese Foreign Minister Wang Yi dismissed a proposal to freeze provocative activities in South China Sea.

"What to freeze? Every country has a different consideration," he said ahead of his visit to Malaysia.

"What's the standard for freezing? Who is to judge the process of the freezing activity? These are very complex questions. So the freeze proposal may seem even-handed, but it's actually unrealistic and will not work in practice," said Wang.

China has repeatedly urged Washington not to take sides in the escalating maritime dispute over the area.

Last week, China accused the United States of "militarizing" the South China Sea by staging patrols and joint military drills there.

With the disputed area becoming Asia's biggest potential military flashpoint, China and Southeast Asian nations have agreed to set up a foreign ministers' hotline to tackle emergencies in the South China Sea, a senior official of the ASEAN grouping said on Friday.

(Additional reporting by Rujun Shen in Singapore; Writing by Amy Sawitta Lefevre; Editing by Mike Collett-White and Cynthia Osterman)



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Annex 763

Trefor Moss, “Asean Urged to Stand Up to Beijing Over South China Sea”, *Wall Street Journal* (4 Aug. 2015)

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WORLD | ASIA

Asean Urged to Stand Up to Beijing Over South China Sea

Malaysia tells Asean to step up its role in solving long-standing territorial disputes in the South China Sea



Malaysia's Prime Minister Najib Razak speaking at the 48th Association of Southeast Asian Nations foreign ministers meeting in Kuala Lumpur on Aug. 4. PHOTO: REUTERS

By TREFOR MOSS

Aug. 4, 2015 8:16 a.m. ET

KUALA LUMPUR, Malaysia—An alliance of Southeast Asian nations should be central to tackling the region's territorial disputes, Malaysian Prime Minister Najib Razak said, setting up a potential clash with China.

At the start of a summit here involving the 10 members of the Association of Southeast Asian Nations, Mr. Najib said it was time for Asean to “take a more active role” in safeguarding regional security, including handling “overlapping [territorial] claims.”

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Malaysia, Brunei, the Philippines and Vietnam are locked in territorial disputes with China in the South China Sea. These have worsened in recent months, with Chinese island-building projects in contested waters upsetting rival claimants. Asean has generally taken a back seat, however, since most of its members aren't directly involved in the disputes.

But on Tuesday, Asean Secretary-General Le Luong Minh agreed with Mr. Najib's call for a more assertive and collectively responsive Southeast Asia, criticizing Beijing for "eroding the very trust and confidence...between Asean and China" through its "reclamation activities, illegal fishing bans and the harassment of fishermen" in the South China Sea. He urged Beijing to engage "in a really meaningful phase of consultations" with Asean to ease tensions.

The U.S. has likewise encouraged Asean to impose itself on the South China Sea problem. It would only be "natural" for Asean to address what is a "critical aspect of regional security," State Department deputy spokesman Mark Toner said in Washington on Monday.

U.S. Secretary of State John Kerry arrived in the Malaysian capital Tuesday and will likely meet his Chinese counterpart, Foreign Minister Wang Yi, later this week, Mr. Toner said.

China has repeatedly urged the U.S. to stay out of South China Sea disputes. In a commentary Tuesday, the official Xinhua news agency said: "Hyping up the South China Sea issue will undermine the generally stable situation in the region, which has not come about easily."

China would work with Asean to develop a proposed code of conduct regulating behavior in the South China Sea, Mr. Wang told reporters in Singapore on Monday, while restating China's long-held position that Asean has no role to play when it comes to resolving the disputes.

He also rejected American proposals for a moratorium on reclamation activities,



opposing any intervention by “non-regional countries,” and said an Asean summit was no place to air territorial grievances.

“China has never believed those multilateral forums are the appropriate place for discussing specific bilateral issues,” Mr. Wang said.

Mr. Najib disagreed on Tuesday, calling on the bloc to speak with a “united voice” on thorny regional challenges like territorial disputes.

The recent establishment of an Asean-China hotline to help manage maritime emergencies was one encouraging sign of progress



An airstrip construction on the Fiery Cross Reef in the South China Sea is pictured in this April 2, 2015 handout satellite image. PHOTO: AGENCE FRANCE-PRESSE/GETTY IMAGES

between the two sides, Mr. Minh said in an interview. “On the other hand...we have seen the continuation of very complicated and dangerous developments, especially the reclamation activities,” he said. The construction of at least seven artificial islands by China was still going on, he said, even while Beijing was talking to its Asean partners about the proposed code of conduct.

‘We are still witnessing negative developments in the South China Sea, affecting the peace and stability we’ve been able to maintain for decades.’

—Asean Secretary-General Le Luong Minh

“We are still witnessing negative developments in the South China Sea, affecting the peace and stability we’ve been able to maintain for decades,” he said.

China could win back Southeast Asia’s trust by entering into “a new phase of consultations” that would swiftly produce a legally binding code of conduct, Mr. Minh said.

Richard Javad Heydarian of Manila’s De La Salle University said Mr. Najib had shown Beijing “it can’t impose its agenda on Asean. But despite this show of independence, he believed the bloc would likely limit itself to light verbal censure this week to safeguard its valuable economic ties with Beijing.

Write to Trefor Moss at Trefor.Moss@wsj.com

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Annex 764

A. Sawitta Lefevre & T. Leong, “Southeast Asian nations back halt to land reclamation in South China Sea”,
Reuters (4 Aug. 2015)

World | Tue Aug 4, 2015 7:31am EDT

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Southeast Asian nations back halt to land reclamation in South China Sea

KUALA LUMPUR | BY AMY SAWITTA LEFEVRE AND TRINNA LEONG



(L-R) Myanmar's Foreign Minister Wunna Maung Lwin, Philippine's Foreign Secretary Albert del Rosario, Singapore's Foreign Affairs Permanent Secretary Chee Wee Kiong, Brunei's Foreign Minister Mohamed Bolkiah, Laos' Foreign Minister Thongloun Sisoulith, Malaysia's Foreign...

REUTERS/OLIVIA HARRIS

Southeast Asian countries on Tuesday backed a U.S. call to halt land reclamation in the South China Sea, underlining unease in the region over Beijing's continued expansion on disputed islands.

China has said it does not want the issue raised at this week's meeting of foreign ministers from the Association of Southeast Asian Nations (ASEAN) in Kuala Lumpur.

But Malaysia Foreign Minister Anifah Aman said member nations agreed that "exercising self-restraint in the conduct of activities that would complicate or escalate tension must be enhanced" in the South China Sea.

Philippines Foreign Minister Albert Del Rosario accused China of carrying out "massive reclamation activities" in the disputed waters.

"We see no let up on the unilateral and aggressive activities of our northern neighbor in the South China Sea," he said at a meeting in the Malaysian capital.

"The massive reclamation activities ... have undermined peace, security and stability in the South China Sea," he said, urging Southeast Asian countries to address the issue with China.

In an earlier statement, Del Rosario said the Philippines was ready to help de-escalate tensions if China and other claimant states agreed to be bound by the same conditions.

Neither China nor the United States are members of ASEAN, but both will be represented during several days of talks. U.S. Secretary of State John Kerry is in Kuala Lumpur on Wednesday and Thursday.

"The Philippines fully supports and will pro-actively promote the call of the United States on the '3 halts': halt in reclamation, halt in construction, and halt in aggressive actions that could further heighten tensions," Del Rosario said in a statement.

"We will agree to be bound only if China and other claimant states agree to the same."

"BEYOND PHILOSOPHICAL DISCUSSIONS"

Singapore's Foreign Minister K. Shanmugam told reporters in Kuala Lumpur that the South China Sea could not be ignored, adding that Singapore was not happy with an informal code of conduct signed by ASEAN and China in 2002.

"South China Sea is an issue. We cannot pretend that it's not an issue," he said.

"We have got to move beyond philosophical discussions to actually say what is in the substance of the agreement."

In a speech at a Singapore university on Tuesday, Kerry addressed tensions in Asia and said that the United States wanted a region where "countries cooperate to prevent small disputes from growing into large ones."

Malaysia, the current chair of ASEAN, has said the topic was not off-limits and would be raised. In opening remarks on Tuesday, Aman said ASEAN should play a major role in reaching an "amicable" solution to the territorial dispute.

China claims most of the South China Sea, through which \$5 trillion in ship-borne trade passes every year. The Philippines, Vietnam, Malaysia, Taiwan and Brunei have overlapping claims.

China has shown no sign of halting its construction of artificial islands in disputed areas.

It has also accused the United States of militarizing the South China Sea by staging patrols and joint military drills, while the United States has called for a halt in China's artificial island building in the area.

Chinese Foreign Minister Wang Yi, in comments likely to provoke regional neighbors and Washington, said the United States and the Philippines should "count how many runways there are in the South China Sea and who built them first."

In a front page commentary on the overseas edition of the Communist Party's official People's Daily, a senior academic said that the U.S. was teaming up with Japan to "disrupt" the South China Sea.

"Japan has been cooperating with the United States to hype up the 'China threat', making noise for their alliance to interfere in the South China Sea," Su Xiaohui, a senior researcher at the Foreign Ministry-backed China Institute of International Studies, wrote.

"This is not beneficial to regional peace and stability."

(Additional reporting by [Ben Blanchard](#) in BEIJING, Manual Mogato in MANILA, [David Brunnstrom](#) in SINGAPORE and Angie Teo in KUALA LUMPUR; Editing by [Mike Collett-White](#))



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Annex 765

Trefor Moss, “China Official Says Island-Building Has Stopped in Disputed Seas”, *Wall Street Journal* (5 Aug. 2015)

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China Official Says Island-Building Has Stopped in Disputed Seas

U.S. officials are skeptical about whether activities have stopped



An island under construction by China in February at Kagitingan Reef in the South China Sea's disputed Spratley Islands.
PHOTO: EUROPEAN PRESSPHOTO AGENCY

By **TREFOR MOSS**

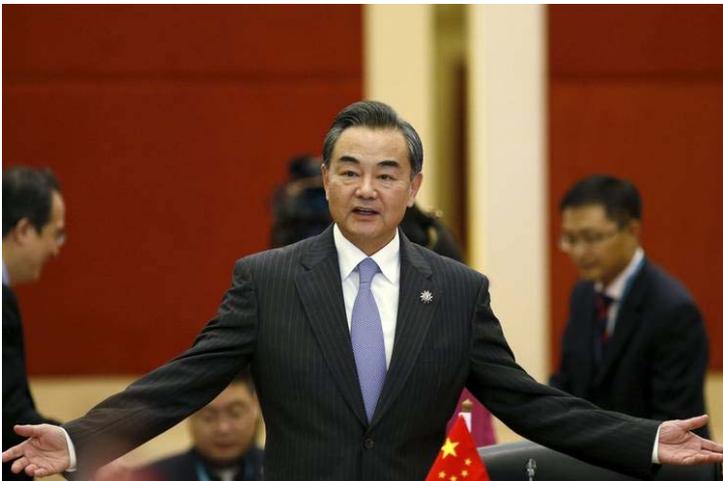
August 5, 2015

KUALA LUMPUR, Malaysia—China's foreign minister said at a Southeast Asian summit that it had halted land-reclamation efforts in the disputed South China Sea in an attempt to smooth tensions with its territorial rivals. But the statement was greeted

with skepticism by U.S. officials.

While Beijing previously said it would halt its island-building projects, Chinese Foreign Minister Wang Yi told reporters on Wednesday that the controversial activities had stopped. But U.S. officials questioned whether China had really halted its land-reclamation drive.

Mr. Wang apparently was trying to reassure neighboring countries about China's intentions during meetings of the Association of Southeast Asian Nations this week in Malaysia, involving the 10 Asean members and other Asia-Pacific countries, including China and the U.S.



Chinese Foreign Minister Wang Yi said at the Asean meeting that China had halted land-reclamation efforts in the disputed South China Sea, an announcement that was met with skepticism by U.S. officials. *PHOTO: OLIVIA HARRIS/REUTERS*

EARLIER COVERAGE

- Images Show China's Construction of Airstrip on Disputed Reef (<http://blogs.wsj.com/chinarealtime/2015/07/03/new-images-show-chinas-swift-construction-of-airstrip-on-disputed-reef/>) (July 2)
- China to Build Military Facilities on South China Sea Islets (<http://www.wsj.com/articles/china-to-build-military-facilities-on-south-china-sea-islets-1434436700>) (June 16)
- China's Island-Building Poses Dilemma for U.S. (<http://www.wsj.com/articles/chinas-island-building-poses-dilemma-for-u-s-1433102116>) (May 31)

Billing China as the region's indispensable partner, Mr. Wang told Asean that China has the money, technology and know-how to help the countries develop their infrastructure and grow their economies.

China's construction of artificial islands in at least seven locations in the disputed Spratly Islands during the past year damaged China's image in parts of Southeast Asia, particularly upsetting rival South China Sea claimants Brunei, Malaysia, the Philippines and Vietnam. China claims almost all of the South China Sea and says it has the right to build there.

China's decision to forge ahead with the artificial islands, despite its neighbors concerns, has unsettled several countries. On Tuesday, Asean Secretary-General Le Luong Minh said China's expansionism in the South China Sea was "dangerous" and eroded the trust between China and Asean. Malaysian Prime Minister Najib Razak said Asean countries should work together to address China's territorial challenge. The Philippines and Vietnam have both repeatedly protested Beijing's island-building program.

Mr. Wang offered a new 10-point plan to boost China-Asean relations, which he said would overtake any territorial frictions. In doing so, he presented China as a force for good in Southeast Asia. "China has no intention of competing with other countries" when it comes to working with Southeast Asia to spur development, he said.

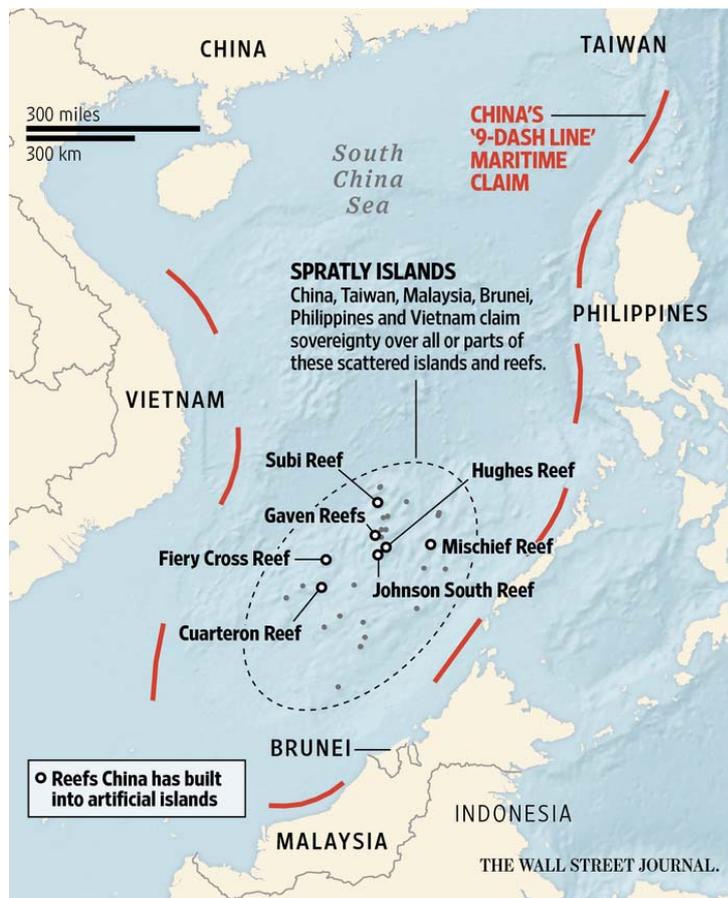
China has accused the U.S. of sowing dissent in the region by talking up the issue of the South China Sea disputes and encouraging regional allies like the Philippines to stand up to Beijing. China is also wary of the U.S.-led Trans-Pacific Partnership, a proposed free-trade group from which China is currently excluded.

U.S. officials played down the foreign minister's comments about halting land reclamation, saying Washington is skeptical that the work had stopped. Even if there has been a pause in construction, U.S. officials said it would be difficult to determine whether the stoppage was permanent or temporary.

Earlier Wednesday Mr. Wang met with U.S. Secretary of State John Kerry, who had called for a freeze on China's reclamation activities in the run-up to the talks in the Malaysian capital.

Mr. Kerry "encouraged China ... to halt problematic actions," according to a senior U.S. official familiar with the discussions. "Secretary Kerry reiterated his concern about rising tensions over disputed claims in the South China Sea and China's large scale reclamation, construction and militarization of features there," the official said.

Satellite images reveal that China has been building a large airstrip on one of these man-made features, raising concerns that Beijing may attempt to enforce an air-defense



identification zone in the South China Sea. The U.S. has made it clear that it will oppose any attempt to limit freedom of navigation in the disputed sea, through which around \$5 trillion in maritime trade passes annually.

The State Department official also said Mr. Kerry had discussed Chinese President Xi Jinping's visit to the U.S. next month—a possible factor in China's attempts to ratchet down regional tensions at the Asean talks.

Mr. Wang said the opportunities of China-Asean cooperation far outweighed any tensions, noting that Southeast Asian countries had

responded positively to recent Chinese development initiatives, such as Beijing's new Asian Infrastructure Investment Bank, and its Maritime Silk Road project designed to boost regional commerce.

Mr. Wang's conciliatory message was welcomed in some quarters. Thailand's deputy prime minister, Tanasak Patimapragorn, chairman of the Asean-China ministerial meeting that took place Wednesday, praised China's willingness to work with Asean countries, and said that a "new phase of consultations" would soon deliver a legally binding code of conduct for the South China Sea. Thailand isn't involved in any territorial dispute with China.

—Adam Entous contributed to this article.

Write to Trefor Moss at Trefor.Moss@wsj.com

Correction:

Around \$5 trillion in maritime trade passes through the South China Sea every year. An

earlier version of this article incorrectly said the amount is around \$5 billion. (Aug. 6, 2015)

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Annex 766

“Asean talks: Beijing’s South China Sea island-building ‘increasing tensions’”, *The Guardian* (6 Aug. 2015)

Asean talks: Beijing's South China Sea island-building 'increasing tensions'

South-east Asian foreign ministers say China's land reclamation poses risk to stability of region, but Beijing hits back at 'division and antagonism'

Staff and agencies

Thursday 6 August 2015 22.22 EDT

China's land reclamation in the South China Sea has "increased tensions" in the region, south-east Asian foreign ministers said at the close of talks dominated by Beijing's island-building.

The declaration, contained in a final communique, followed a warning by US secretary of state John Kerry that Washington would not tolerate any restrictions on freedom of navigation in the strategically important waters.

The south-east Asian ministers' joint final statement noted "the serious concerns expressed by some ministers on the land reclamations in the South China Sea".

It said the land works "have eroded trust and confidence, increased tensions and may undermine peace, security and stability in the South China Sea" - but without specifically singling out Beijing.

The communique was hashed out after two days of wrangling over how hard to pressure China on its controversial drive to expand tiny reefs and build military posts in the disputed waters.

China claims most of the South China Sea, through which \$5tn in ship-borne trade passes every year. The Philippines, Vietnam, Malaysia, Taiwan and Brunei also have overlapping claims.

In a statement released just before midnight on Thursday, China's foreign ministry accused the Philippines foreign minister of teaming up with his Japanese counterpart to "attack" China's South China Sea policy.

"First off, the situation in the South China Sea is generally stable, and there is no possibility of a major clash," the statement cited Chinese foreign minister Wang Yi as telling the forum, which was attended by foreign ministers from around the region.

"China opposes any non-constructive words and acts which widen division, exaggerate





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in the United States.

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tion must be

Let me be clear: the United States will not accept restrictions on freedom of navigation and overflight, or other lawful uses of the sea,” he told reporters.

Diplomatic sources said the Philippines and Vietnam - which have been in the most direct confrontation with China - had called for strong language.

But they said there had been pushback from Beijing’s traditional allies among the association. Cambodia, Laos and Myanmar traditionally side with China within Asean.

Wang told the forum that China is the real victim in the South China Sea, pointing to what he said was the “occupation” of some of its islands there, including by the Philippines. “But to maintain and protect the peace and stability of the South China Sea, we have maintained huge restraint,” he added.

He said Japan had built up a remote island in the Pacific called Okinotori to enforce Japanese territorial claims. China has previously refused to recognise Tokyo’s claims to an exclusive economic zone around Okinotori, which lies about halfway between Guam and Taiwan, 1,700km (1,050 miles) from Tokyo. “Before criticising others, Japan must first take a good look at its own words and behaviour,” Wang said.

The United States and south-east Asian nations have called for a halt to further island-expansion and construction by China. Wang, however, said Wednesday that land reclamation had “already stopped” - a claim some diplomats said was met with scepticism at the gathering.

Kerry told reporters after the close of the talks: “The Chinese have indicated that they have stopped. I hope it is true. I don’t know yet.”

Reuters and Agence France-Presse contributed to this report.

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Annex 767

Gordon Lubold, "Pentagon Says China Has Stepped Up Land Reclamation in South China Sea", *Wall Street Journal* (20 Aug. 2015)

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WORLD | ASIA | CHINA NEWS

Pentagon Says China Has Stepped Up Land Reclamation in South China Sea

Report says China has reclaimed 2,900 acres across disputed Spratly islands



The Pentagon said in a report China has reclaimed 2,900 acres of land mass across a string of islands in the South China Sea known as the Spratlys, up nearly 50% from May. *PHOTO: TONGLIAN/ZUMA PRESS*

By **GORDON LUBOLD**

Updated Aug. 20, 2015 11:25 p.m. ET

WASHINGTON—A new Pentagon report says China’s reclamation of landmass among a string of artificial islands in the South China Sea has grown dramatically in recent months, and that Beijing is aggressively patrolling the waters there to assert its territorial claims.

The Pentagon report, issued late Thursday, said that, as of June, China has reclaimed 2,900 acres of landmass across a string of islands in the South China Sea known as the Spratlys, up nearly 50% from May, when the Pentagon said Beijing had claimed about 2,000 acres.

Washington fears that the islands will be used for military purposes and could create instability in one of the world’s biggest commercial shipping routes as China lays claim to what several other countries see as international waters. And, as China’s assertiveness grows, the risk of conflict with the U.S. and its allies grows along with it, defense officials have said.

The report comes about a month before a high-profile visit to Washington by Chinese President Xi Jinping, where the South China Sea issue, along with cybersecurity and monetary policy are likely to come up. Taken together, the issues portend a potentially difficult visit for Mr. Xi and for the Obama administration.

The rate of growth of the islands from China’s development activity has accelerated considerably, according to the report, which is titled “The Asia-Pacific Maritime Security Strategy” and was required by Congress in a 2015 defense bill.

The new Pentagon report reflects continuing U.S. skepticism of China’s claims earlier this month that it has halted its land reclamation activity. China said in early August that it had ceased reclamation operations, but U.S. officials questioned whether the actions had been stopped or would remain halted.

A spokesman for the Chinese embassy in Washington said late Thursday that China stopped reclamation in June. The spokesman, Zhu Haiquan, said that the facilities being built on the islands include those for the public good.

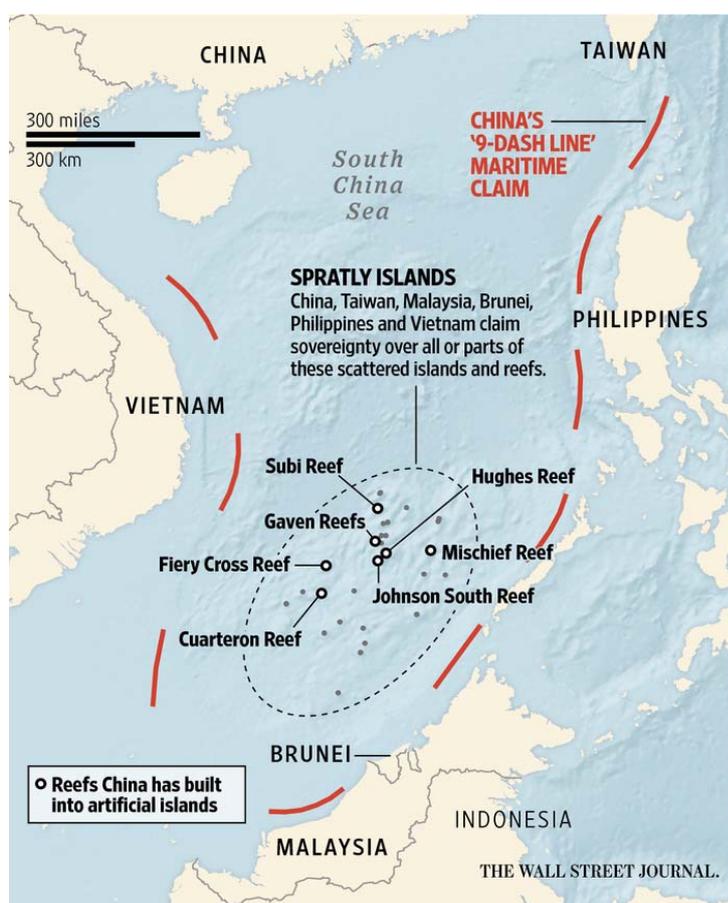
“China stands ready to open these facilities to other countries upon completion,” Mr. Zhu said. “We hope the U.S. side will view this in an objective and balanced way and respect regional countries’ efforts to maintain the peace and stability of the South China Sea.”

While not directly contradicting the Chinese claim, a Pentagon spokesman challenged

Beijing late Thursday to elaborate on its plans.

“We encourage China to clarify whether this statement applies to all Chinese outposts in the Spratlys and Paracels, and whether China is permanently committing to stop further reclamation activities,” the spokesman said.

Before this year, defense officials estimated that Beijing had only reclaimed about 500 acres of landmass to build the artificial islands, mostly built atop of semi-submerged reefs by using dredged material from the seafloor.



The islands are big enough to erect buildings and house equipment, and, in one case, support a 3,000-foot runway.

Several of China’s neighbors make claims to the islands, including Brunei, Malaysia, the Philippines, Taiwan and Vietnam.

But China’s reclamation projects are far more aggressive than its neighbors’, the report says. In less than two years, China has reclaimed 17 times more land than any other claimant has in the past 40 years—accounting for about 95% of all reclaimed land in the Spratlys, according to the report.

Vietnam has reclaimed about 80 acres, Malaysia has reclaimed 70 acres, the Philippines has reclaimed 14 acres and Taiwan has reclaimed eight acres, the report says.

In May, The Wall Street Journal reported that U.S. surveillance confirmed the Chinese had placed two mobile artillery units on one of the artificial islands known as Johnson Reef.

Beijing says that construction of the islands, which sit about 700 miles off the Chinese coastline, is well within its rights as a sovereign nation. In a statement on Friday, China's Foreign Ministry reiterated its position that the South China Sea isn't a U.S.-China issue and that it "is resolving disputes with countries directly concerned through negotiation and consultation."

The report indicated that at some sites, China has excavated deep channels and has built new berthing areas to allow access for larger ships that could be used to assert territorial claims.

"Though other claimants have reclaimed land on disputed features in the South China Sea, China's latest efforts are substantively different from previous efforts both in scope and effect," the report said. "The infrastructure China appears to be building would enable it to establish a more robust power projection presence into the South China Sea."

Meanwhile, China is ramping up patrols of the area, taking "small, incremental steps" in the disputed areas that avoid military conflict, but work to "increase its effective control" over the islands, the report said. The report also cites expanded use of the Chinese Coast Guard, which Beijing is using to enforce its claims in both the East and South China Seas.

"China prefers to use its government-controlled, maritime law enforcement ships in these disputes, and operates [People's Liberation Army Navy] vessels over the horizon so they are ready to respond to escalation," the report says.

Although China isn't the only country to use nonmilitary assets to conduct "worrying or dangerous actions" against other countries in the region, China's use of such vessels "has been, by far, the most active," the report said.

Some U.S. military leaders have pushed the Pentagon to be more aggressive in countering China's moves in the South China Sea, arguing for more assertive maritime and air patrols to fly within the 12 nautical mile territorial limit of some of the disputed islands that China claims. But some officials inside the Pentagon and at the White House say they have resisted flying such patrols for fear of provoking China.

Concerns linger that, if left unchecked, China's claims to the islands could destabilize one of the world's busiest commercial shipping routes.

On Thursday, Defense Secretary Ash Carter reiterated to reporters that the military

would fly and steam where and when it wanted. But it remains unclear if the U.S. has ever actually flown or navigated to within the 12-nautical mile zone of those islands, which would likely result in a response from Beijing.

“The United States will continue to fly, sail and operate wherever international law permits,” Mr. Carter said. “As we’ve always the right to do, we will continue to do that, and none of this is going to change our conduct in any way.”

Write to Gordon Lubold at Gordon.Lubold@wsj.com

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Annex 768

“The dredger, China’s weapon of maritime expansion”, *Want China Times* (20 Aug. 2015)



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The dredger, China's weapon of maritime expansion

Staff Reporter 2015-08-20 15:27 (GMT+8)

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A Chinese dredger operates in the Wuqiao waterway, Yangtze river, Jan. 15, 2014. (Photo/Xinhua)

With one of the largest fleets of dredgers in the world, China has been carrying out its maritime expansion program through land reclamation in the disputed South China Sea, according to the Duwei News, a a US-based political media outlet operated by overseas Chinese.

Satellite images taken on Aug. 11 and Aug. 16 indicate that China had stopped its reclamation at Hughes and Mischief reefs, just as the country's foreign minister Wang Yi had promised earlier. Yet while very few concrete buildings can be seen on Mischief Reef, a large white structure and four blockhouses on Hughes Reef had already been completed.

China's fleet of dredgers is the primary reason why it can complete its massive island-building projects in a very short period of time.

Back in 2001, China could only dredge 300 million cubic meters of

land per year. Between 2005 and 2011, the country built 20 dredgers with a bale space of more than 9,000 cubic meters, greatly increasing the amount of sand it could dredge per year. A further 44 cutter suction dredgers were built between 2004 and 2011.

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Annex 769

“China’s land reclamation in South China Sea grows: Pentagon report”, *Reuters* (21 Aug. 2015)

World | Fri Aug 21, 2015 6:53pm EDT

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China's land reclamation in South China Sea grows: Pentagon report

WASHINGTON



An aerial photo taken through a glass window of a Philippine military plane shows the alleged on-going land reclamation by China on mischief reef in the Spratly Islands in the South China Sea, west of Palawan, Philippines, May 11, 2015. REUTERS/RITCHIE B. TONGO/POOL

China has reclaimed more land in the disputed Spratly Islands of the South China Sea than previously known, according to a new Pentagon report, and a senior U.S. defense official said it was unclear whether Beijing had stopped island-building in the region.

"China has said that it ... has stopped reclamation. ... It's not clear to us that they've stopped," Assistant Defense Secretary David Shear told a Pentagon briefing on Friday as the department released a report on its Asia-Pacific Maritime Security Strategy.

Shear said ongoing Chinese activity may simply be "finishing up" what Beijing started rather than adding more territory, but "we are watching it carefully" for signs of further construction or militarization.

The report said Beijing was in the process of completing a runway on one of its seven man-made outposts. Once the airstrip on Fiery Cross Reef is operational, China could potentially use it as an alternative runway for carrier-based planes, allowing the Chinese military to conduct "sustained operations" with aircraft carriers in the area, the report said.

China's sole aircraft carrier, a Soviet-era ship bought from Ukraine and refitted in China, has carried out exercises in the South China Sea but is not yet fully operational. Some experts believe China will deploy domestically built carriers by 2020 as part of plans to develop an ocean-going "blue water" navy.

At the reclamation sites in the Spratlys where China is in the building phase, it has

excavated deep channels and constructed new berthing areas to allow access for larger ships, the report said.

"The infrastructure China appears to be building would enable it to establish a more robust power projection presence into the South China Sea," it added.

Since China's land reclamation efforts began in December 2013, it had reclaimed more than 2,900 acres (1,170 hectares) of land as of June 2015, the report said. U.S. officials had previously put the total at 2,000 acres (809 hectares).

In a statement, China's Foreign Ministry said China had "completed the relevant island and reef area reclamation project" at the end of June.

Construction activities were "completely within the scope of China's sovereignty", it added.

In early August, Foreign Minister Wang Yi said Beijing had halted land reclamation.

China says the outposts will have undefined military purposes, as well as help with maritime search and rescue, disaster relief and navigation.

Asked about the possibility of China declaring an air defense identification zone, or ADIZ, over the South China Sea, Shear said he thought the United States would reject it, just as it did the ADIZ that Beijing declared over the East China Sea.

An ADIZ requires an aircraft flying into the zone to identify itself, giving the country that established the zone more time to protect itself against potentially hostile aircraft.

China claims most of the South China Sea, through which \$5 trillion in ship-borne trade passes every year. The Philippines, Vietnam, Malaysia, Taiwan and Brunei also have overlapping claims.

The reclamation campaign significantly outweighed efforts by other claimants in size, pace and nature, the Pentagon report said.

China had reclaimed 17 times more land in 20 months than the other claimants combined over the past 40 years, accounting for approximately 95 percent of all reclaimed land in the Spratlys, it added.

(Reporting by [David Alexander](#) in Washington, additional reporting by Michael Martina in Beijing; Writing by [Dean Yates](#); Wditing by Will Waterman and Ken Wills)



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Annex 770

“Third South China Sea airstrip being built, says expert, citing satellite photos”, *The Guardian* (15 Sept. 2015)

Third South China Sea airstrip being built, says expert, citing satellite photos

CSIS thinktank says retaining wall and other preparations made for landing strip as Beijing continues to upset US and the region with island-building

Reuters in Washington

Monday 14 September 2015 20.24 EDT

China appeared to be building a third airstrip in contested territory in the South China Sea, a US expert said on Monday, citing satellite photographs.

The photographs taken for Washington's Center for Strategic and International Studies (CSIS) thinktank on 8 September are said to show construction on Mischief Reef, one of several artificial islands China has created in the Spratly archipelago.

The images showed a rectangular area with a retaining wall three kilometres (1.8 miles) long, matching similar work by China on two other reefs, Subi and Fiery Cross, said Greg Poling, director of CSIS's Asia Maritime Transparency Initiative (AmTi).

"Clearly what we have seen is going to be a 3,000-metre airstrip and we have seen some more work on what is clearly going to be some port facilities for ships," he said.

Security experts said the strip would be long enough to accommodate most Chinese military aircraft, giving Beijing greater reach into the heart of maritime south-east Asia where it has competing claims with several countries.

News of the work comes ahead of a visit to Washington next week by President Xi Jinping of China. US worries about China's increasingly assertive territorial claims are expected to be high on the agenda.

A spokesman for the US defence department, Commander Bill Urban, declined to comment specifically on Poling's assessment but repeated US calls for a halt to land reclamation, construction and militarisation of South China Sea outposts to "ease tensions and create space for diplomatic solutions".

"China's stated intentions with its programme and continued construction will not reduce tensions or lead to a meaningful diplomatic solution," he said.

A new airstrip at Mischief Reef would be particularly worrying for the Philippines, a rival claimant in the South China Sea. It would allow China to mount "more or less constant" patrols over Reed Bank where the Philippines has long explored for oil and gas, Poling said.

Three airstrips, once completed, would allow China to threaten all air traffic over the

features it has reclaimed in the South China Sea, he said, adding that it would be especially worrying if China were to install advanced air defences.

Satellite photographs from late June showed China had almost finished a 3,000-metre airstrip on Fiery Cross.

Satellite images from earlier in 2015 showed reclamation work on Subi Reef creating land that could accommodate another airstrip. Poling said the latest images made it obvious that such an airstrip was being built at Subi.

China stepped up creation of artificial islands in the South China Sea in 2014, drawing strong criticism from Washington.

Asked about Mischief Reef on Monday, China's foreign ministry spokesman Hong Lei repeated China's claim to "indisputable sovereignty" over the Spratly Islands and its right to establish military facilities there.

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Annex 771

David Brunnstrom, “China continued South China Sea reclamation despite halt claim: expert”, *Reuters* (15 Sept. 2015)

China continued South China Sea reclamation despite halt claim -expert

WASHINGTON, SEPT 15 | BY DAVID BRUNNSTROM



China was carrying out land reclamation in contested waters of the South China Sea this month, more than four weeks after saying it had stopped such activity, a U.S. expert said on Tuesday, citing recent satellite images.

The evidence of continued dredging in the Spratly archipelago could complicate a visit to the United States by Chinese President Xi Jinping next week, when U.S. concerns about China's assertive pursuit of territorial claims in Asia are expected to be high on the agenda.

Bonnie Glaser, of Washington's Center for Strategic and International Studies think tank, said images taken in early September showed dredging activity at both Subi Reef and Mischief Reef in Spratlys.

The dredgers at Subi could be seen pumping sediment on to areas bordered by recently built sea walls and widening the channel for ships to enter waters enclosed by the reef.

At Mischief Reef, a dredger was expanding a channel to enable easier access for ships, possibly for future use as a naval base, Glaser said.

On Aug. 5, Chinese Foreign Minister Wang Yi said Beijing had halted land reclamation in the South China Sea.

Glaser said China's activity appeared to be focused on construction for military use.

Images of Fiery Cross Reef showed a completed and freshly painted 3,000 meter runway, helipads, a radar dome, a surveillance tower and possible satellite communication facilities, she said.

Security experts say a 3,000 meter strip would be able to accommodate most Chinese military aircraft.

Glaser said China's apparent preparations to build similar airstrips on Subi and Mischief Reefs raised questions about whether it would challenge freedom of navigation in the air and sea in the future.

"The persistence of dredging, along with construction and militarization on China's artificial islands, underscore Beijing's unwillingness to exercise self-restraint and look for diplomatic paths to reduce tensions," she said.

"On the eve of President Xi Jinping's visit to the United States, Beijing appears to be sending a message to President Barack Obama that China is determined to advance its interests in the South China Sea even if doing so results in heightened tensions with the United States."

On Monday, Greg Poling, director of CSIS's Asia Maritime Transparency Initiative (AMTI), which obtained the images, said three airstrips in the Spratlys would allow China to threaten all air traffic over features it has reclaimed there.

China's Foreign Ministry maintains China has "indisputable sovereignty" over the Spratly Islands and has a right to establish military facilities there. (Reporting by David Brunnstrom; Editing by Ken Wills)



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Annex 772

Truong Tan Sang, “Vietnam leader: China island building violates international law”, *The Japan Times* (29 Sept. 2015)

The Japan Times **NEWS**

Truong Tan Sang | AP

ASIA PACIFIC

Vietnam leader: China island building violates international law

AP

[ARTICLE HISTORY](#) | SEP 29, 2015

NEW YORK – Vietnam’s president told The Associated Press on Monday that China’s island-building in the disputed South China Sea violates international law and endangers maritime security.

President Truong Tan Sang also urged the U.S., which has expressed mounting concern over China’s assertive behavior, to fully lift a ban on lethal weapons sales to Vietnam.

Sang said that would demonstrate to the world that U.S.-Vietnam relations have been fully normalized 40 years after the end of the Vietnam War.

Sang was speaking in an interview with The AP as world leaders gathered at the United Nations.

Communist-ruled Vietnam and China have long-standing fraternal ties but tensions have grown over oil exploration in disputed waters, and as China has undertaken massive land reclamation in the Spratly island chain, also claimed by Vietnam.

“The East Sea is indeed a hot spot of the region and the world at this point, and in the last year China has done large-scale reclamation of submerged islands to make them very big islands,” Sang said, using the name Hanoi uses for the South China Sea.

“We believe that these acts by China violate international law,” he said, citing the U.N. convention of the law of the sea. He added that it also infringes a declaration of conduct reached in 2002 by members of the Association of Southeast Asian Nations.

He said the concerns of Vietnam and other Southeast Asian nations are “obvious and easy to understand because the acts by China seriously affect the maritime safety and security in the East Sea.” He underscored the importance of a peaceful environment to realize new goals for sustainable development just agreed at the U.N.

In Washington last week, China’s President Xi Jinping said the Chinese have “the right to uphold our own sovereignty” in the South China Sea, where Vietnam, the Philippines, Taiwan, Brunei and Malaysia also have competing claims to tiny islands and reefs. China has reclaimed about 3,000 acres (1,200 hectares) of land in the past year-and-a-half by dredging sand from the ocean bed, and is building airstrips and other facilities that the U.S. is concerned could have military uses.

While Sang talked tough on China, he had warm words for the United States, and looked for further steps to cement stronger ties.

“The moment the United States fully lifts the ban on lethal weapons sales to Vietnam will send a signal to the whole world that the Vietnam-U.S. relations have been fully normalized” and there’s no mistrust between the two nations, Sang said.

A visit by President Barack Obama to Vietnam — possibly this fall, when the U.S. leader is due to visit the region — would also consolidate a comprehensive partnership formalized between the former enemies when Sang visited Washington in 2013, he said.

Last October, the U.S. announced it would allow sales, on a case-by-case basis, of lethal equipment to help the maritime security of Vietnam — easing a ban in place since communists took power at the end of the Vietnam War in 1975. But the Obama administration has said that Vietnam needs to improve human rights conditions for the relationship to reach its fullest potential. U.S. lawmakers also feel that Hanoi should clean up its human rights act before getting privileges in the Trans-Pacific Partnership trade deal currently under negotiation. Vietnam is one of 12 nations in the agreement that appears close to completion.

Sang expressed willingness to keep discussing human rights with the U.S. He said that a chapter on human rights is now included in Vietnam's constitution, and that implementing legislation would be enacted in the "next few years" so those rights are fully in place "on the ground."

Human rights groups remain critical of Vietnam's record. While conditions have improved sharply compared to the immediate post-war era of re-education camps, its record on freedom of expression is poor and the government remains intolerant of dissent. According to the U.S. State Department, at the end of 2014, Vietnam was holding about 125 political prisoners.

Annex 773

“China completes construction of lighthouses in disputed South China Sea”, *The Guardian* (9 Oct. 2015)

China completes construction of lighthouses in disputed South China Sea

The United States and the Philippines opposed the construction, as tensions in the region mount over Beijing's maritime ambitions

Reuters in Shanghai

Friday 9 October 2015 23.09 EDT

China has completed the construction of two lighthouses in the disputed South China Sea, the official Xinhua news agency reported, as tensions in the region mount over Beijing's maritime ambitions.

A completion ceremony was held for the lighthouses on Huayang Reef and Chigua Reef in the Spratly islands, Xinhua said late on Friday. The United States and the Philippines have opposed the construction.

China claims most of the energy-rich South China Sea, through which \$5 trillion in ship-borne trade passes every year, and the Philippines, Vietnam, Malaysia, Taiwan and Brunei have overlapping claims.

China said on Friday it would not stand for violations of its territorial waters in the name of freedom of navigation, as the US considers sailing warships to waters inside the 12-nautical-mile zones around islands it has built in the Spratly chain.

Washington has signalled it does not recognise Beijing's sovereignty over the several islands China has built on reefs in the Spratly archipelago and says the US navy will continue to operate wherever international law allows.

The issue is central to increasingly tense relations between the United States and China, the world's two largest economies.

Beijing has said construction in the region is to help maritime search and rescue, disaster relief, environmental protection and navigational security. It has also said it will continue to build other installations to better serve countries in the region and vessels navigating those waters.

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Annex 774

“Lighthouses at Huayang Jiao [Cuarteron Reef] and Chigua Jiao [Johnson South Reef] in Nansha Islands Completed by China, Begin Emitting Light”, *NetEase Military* (10 Oct. 2015)

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Lighthouses at Huayang Jiao [Cuarteron Reef] and Chigua Jiao [Johnson South Reef] in Nansha Islands Completed by China, Begin Emitting Light

10-10-2015 07:40:00 Source: Xinhua Net

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Xinhua News Agency, Beijing, October 9 report. The Ministry of Transport held the completion and light-emission ceremony at Huayang Jiao and Chigua Jiao in South China Sea, and announced that the two large multi-function lighthouses would become operational and begin emitting light.



The lighthouse in Nansha

Xinhua News Agency, Beijing, October 9 report. On the 9th, the Ministry of Transport held the completion and light-emission ceremony at Huayang Jiao and Chigua Jiao in the South China Sea, and announced that the two large multi-function lighthouses would become operational and begin emitting light. The completion of these two lighthouses filled in the gap of civilian navigation aid facilities in the Nansha water region, and will greatly improve the transportation environment in the South China Sea. The lighthouses will provide public services including navigation guidance, safety information, and emergency rescue for vessels from various countries passing through the region; this will reduce navigation risks to vessels and reduce maritime accidents.

According to information from the Ministry of Transport, construction of the lighthouses at Huayang Jiao and Chigua Jiao began in May 26 of this year. The bodies of the lighthouses were built with a cylindrical and a tapered cylindrical shaped steel-reinforced concrete structure. The two lighthouses are 50 meters tall, emit white light at night, designed to be visible at 22 nautical miles in 8 second intervals. The lighthouse is also equipped with 4.5 meter lanterns. Multiple materials, such as copper, steel, and steel alloy were used for various needs in construction. Methods such as zinc coating and anti-corrosive spray paint were also used to improve anti-corrosive functionality of the lighthouses and lanterns. The lighthouse is equipped with an automatic identification system (AIS) base station and a very high frequency (VHF) base station for vessels, providing highly effective

navigational aid services such as positioning reference, navigation guidance, and navigation safety information. This will benefit navigation, vessel traffic management, and emergency search and rescue in the surrounding waters.

The South China Sea is a very important maritime channel between China and the rest of the world; it is also the maritime corridor between the Pacific Ocean and the Indian Ocean. According to sources, in the past, vessel navigational safety assurance facilities, maritime emergency rescue abilities, and oil spill response abilities and facilities have long been inadequate in the South China Sea region. These inadequacies have affected and limited transportation safety and socioeconomic development in the South China Sea. The completion and light-emission by Huayang and Chigua lighthouses mark a good beginning for China's development and construction of civilian navigation guidance facilities in the South China Sea.

The Ministry of Transport's next step is to continue promoting construction in the South China Sea for navigation security, emergency response, and lifesaving rescue. It will devote effort to creating a maritime safety chain in the South China Sea and to weaving a safety net for maritime transport. In doing so, it will better bear and perform international responsibilities and obligations in terms of maritime search and rescue, disaster prevention and relief, maritime scientific research, meteorological observations, protection of the ecology and environment, navigation safety, and fishery and production services. It will provide navigation guidance and aid services to the coastal nations of the South China Sea as well as the vessels from various countries that pass through the sea region.

(Original title: Lighthouses at Huayang Jiao and Chigua Jiao in Nansha Islands Completed by China, Begin Emitting Light)

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新华社北京10月9日电 交通运输部9日在南海华阳礁举行华阳灯塔和赤瓜灯塔竣工发光仪式，宣布两座大型多功能灯塔正式发光并投入使用。



位于南沙的灯塔

新华社北京10月9日电 交通运输部9日在南海华阳礁举行华阳灯塔和赤瓜灯塔竣工发光仪式，宣布两座大型多功能灯塔正式发光并投入使用。这两座灯塔的建成，填补了南沙水域民用导助航设施的空白，将大大改善南海水域通航环境，可为航经该水域的各国船舶提供航路指引、安全信息、应急救助等公益服务，降低船舶航行风险，减少海损事故发生。

据介绍，华阳和赤瓜灯塔于今年5月26日开工建设，分别采用圆柱和锥筒柱形钢筋混凝土塔体结构。两座灯塔塔身高50米，夜间发白光，设计灯光射程22海里，周期8秒。灯塔还配置

了4.5米灯笼，根据不同部件需求，采用铜、钢、合金钢等多种材质制作，并采用镀锌和喷涂防腐油漆等工艺，提高了灯笼防腐性能。灯塔安装了船舶自动识别系统（AIS）基站和甚高频（VHF）基站，可为船舶提供定位参考、航路指引、航海安全信息等高效的导航助航服务，有利于提升周边水域助航、通航管理以及应急搜救能力。



南海是联系中国与世界各地非常重要的海上通道，同时也是太平洋和印度洋之间的海上走廊。据了解，一直以来，在南海海域，船舶航行安全保障设施、海上应急救助力量以及船舶溢油反应力量和设施严重不足，影响和制约了南海海域通航环境安全和社会经济发展。华阳和赤瓜两座灯塔建成发光，是我国开展南海民用导航助航设施建设的有益开端。

下一步，交通运输部将继续推进南海海域航海保障、应急响应和人命救助设施的建设，致力于打造南海海域海上安全链，编织航运安全网，更好地承担和履行海上搜寻与救助、防灾减灾、海洋环境保护、航行安全、海洋渔业生产等方面的国际责任与义务，为南海水域各国和航经该海域的各国船只提供导航助航服务。

（原标题：中国在南沙赤瓜礁华阳礁两灯塔建成开始发光）

Annex 775

Tom Phillips, “Beijing summons US ambassador over warship in South China Sea”, *The Guardian* (27 Oct. 2015)

[Skip to main content](#)

theguardian

Beijing summons US ambassador over warship in South China Sea

Chinese foreign ministry says Washington acted illegally when USS Lassen entered waters near disputed Spratly archipelago

[Tom Phillips](#) in Beijing

Tuesday 27 October 2015 11.38 EDT Last modified on Wednesday 28 October 2015 06.51 EDT

China has reportedly summoned the US ambassador after Washington launched a direct military challenge to Beijing's territorial claims in the [South China Sea](#) with naval manoeuvres near two artificial islands.

State television reported that the Chinese vice-foreign minister, Zhang Yesui, had branded the move "extremely irresponsible" when meeting with the US ambassador to [China](#), Max Baucus.

Chinese authorities said earlier they had monitored, followed and warned US warship USS Lassen as it "illegally" entered waters near the disputed reefs, and urged Washington to "immediately correct its mistake".

The US defence secretary, Ash Carter, confirmed under questioning from the Senate Armed Services Committee on Tuesday that the warship had passed within 12 miles of a Chinese artificial island.

The [USS Lassen](#) began its mission through waters near the disputed Spratly archipelago at about 6.40am local time on Tuesday.

"The operation has begun ... It will be complete within a few hours," a senior US defence official told Reuters.

The guided-missile destroyer reportedly received orders to travel within 12 nautical miles (22.2km, or 13.8 miles) of the Spratlys' Mischief and Subi reefs, which are at the heart of a controversial Chinese island building campaign that has soured ties between Washington and Beijing. Chinese officials were not informed of Tuesday's mission, US officials said.

Addressing journalists in Beijing on Tuesday afternoon, Lu Kang, a foreign ministry spokesman, said China was strongly dissatisfied with America's actions, which he described as a threat to China's sovereignty.

But he refused to be drawn on whether China would consider a military response. "I will not answer hypothetical questions," Lu said. "We hope that the US side will not take actions that will backfire."

Lu warned that further “provocative actions” might lead to accelerated Chinese construction in the South China Sea: “It would be a pity for us to realise that we have to strengthen and speed up relevant construction activities.”

The Chinese embassy in Washington said the concept of “freedom of navigation” should not be used as an excuse for muscle-flexing and the US should “refrain from saying or doing anything provocative and act responsibly in maintaining regional peace and stability”.

Earlier, as reports of the freedom of navigation operation emerged, China’s foreign minister, Wang Yi, warned Washington to “act prudently to avoid provocation”.

China’s official news agency, Xinhua, said Wang had urged the US to “think twice, and not act rashly and make trouble out of nothing”.

Ian Storey, a South China Sea expert at Singapore’s Institute of South East Asian Studies, said Washington’s decision to deploy a warship rather than a smaller vessel underlined its determination to issue a powerful signal of intent.

“They’ve gone in heavy. There is not much else heavier than that except an aircraft carrier,” he said. “They want to send a very clear message to China that they are serious about this.”

Rory Medcalf, the head of the National Security College at the Australian National University, said the operation was “a warning for China not to overplay its hand in signalling that America is not welcome in the South China Sea”.

Storey said the “\$64,000 question” was how Beijing would respond to the long-anticipated US move, which follows months of escalating tensions in the region, where Beijing has overlapping territorial claims with countries including Vietnam and the Philippines.

“China will have to react – it cannot not react to this,” Storey said. “Nationalism in China is such that China will be expected to make a robust response to this.”

“This is why the US has had to consider these operations very carefully,” he added. “They’d have to take into account how China would respond. And if China does move to challenge these operations using coastguard operations or naval ships then that raises the risk of a collision or worse.”

China’s military buildup in the South China Sea – including the construction of a 3km runway capable of supporting fighter jets and transport planes – has become a major source of tension between Beijing and Washington.

Subi and Mischief reefs were submerged at high tide before China began a massive dredging project in 2014. It now claims a 12 nautical mile territorial limit around the artificial islands, although the UN Convention on the Law of the Sea says such limits cannot be set around man-made islands built on previously submerged reefs.

The US president, Barack Obama, said he had held “candid discussions” with his Chinese counterpart, Xi Jinping, over the issue during Xi’s recent state visit to the US.

However, Medcalf said Tuesday's operation, for which the navy had been preparing for months, indicated Washington was unsatisfied with the outcome of those talks.

"Clearly there was a decision to wait until after the Xi Jinping visit and I suspect to base American behaviour on the outcomes of that visit," he said.

Speaking earlier this month, officials in Beijing cautioned the US against "provocative" actions in the South China Sea. "China will never allow any country to violate China's territorial waters and airspace in the South China Sea," foreign ministry spokeswoman Hua Chunying said.

China claims most of the South China Sea, one of the world's busiest sea lanes, although Vietnam, Malaysia, Brunei, the Philippines and Taiwan have rival claims. Beijing says the islands will have mainly civilian uses as well as undefined defence purposes.

But satellite photographs have shown the construction of three military-length airstrips by China in the Spratlys, including one each on Mischief and Subi reefs.

Pentagon officials have spent months lobbying for the White House to take a harder line on China's actions in the South China Sea, which is a key global shipping lane, through which more than \$5tn of world trade passes every year.

"There are billions of dollars of commerce that float through that region of the world," White House spokesman Josh Earnest told a news briefing. "Ensuring that free flow of commerce ... is critical to the global economy."

Carter has accused Beijing of constructing "massive outposts" in the South China Sea that increase "the risk of miscalculation or conflict" in the region.

"Make no mistake, we will fly, sail and operate wherever international law permits," the US defence secretary said this month. "We will do that in the time and place of our choosing."

Pentagon officials said Tuesday's mission, the first such operation since 2012, would be followed by many others.

Earlier reports said the ship would likely be accompanied by a US navy P-8A surveillance plane and possibly a P-3 surveillance plane, which have been conducting regular surveillance missions in the region.

"The United States' credibility is at stake here," said Storey. "If it just did a one-off symbolic drive-by then US credibility suffers in the region so this I think is going to be the first of many such operations in the future."

Pentagon officials say the US regularly conducts freedom of navigation operations around the world to challenge excessive maritime claims.

In early September, China sent naval vessels within 12 miles of the Aleutian islands off Alaska. China said they were there as part of a routine drill following exercises with Russia.

The Australian defence minister, Marise Payne, said her country had not been involved in Tuesday's manoeuvres but indicated support for the US move.

“It is important to recognise that all states have a right under international law to freedom of navigation and freedom of overflight, including in the South China Sea. Australia strongly supports these rights,” Payne said in a statement.

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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, “Cuarteron Reef Tracker”, *available at* <http://amti.csis.org/cuarteron-reef-tracker/> (accessed 1 Nov. 2015)

CUARTERON REEF TRACKER

This gallery covers Chinese development at the newly reclaimed Cuarteron Reef, which is located in the London Reefs, on the Western side of the Spratly Islands.

Featured Facts

What's on Cuarteron Reef right now?

231,100

Square meters reclaimed

Access channel 125 meters wide

Breakwaters

Multiple support buildings

Possible communication antennas x5

Possible radar facility

Possible radar tower under construction x2

Concrete plant x3

Helipad x2

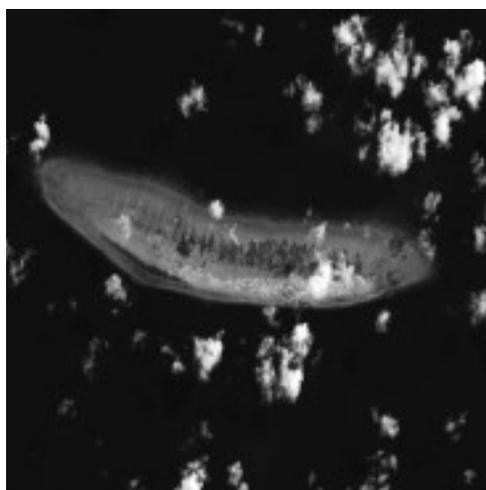
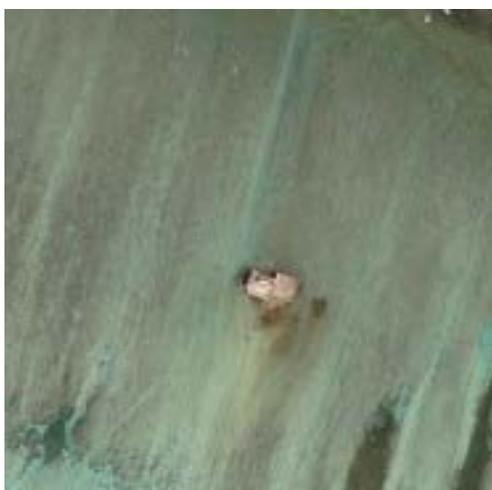
Preexisting large multi-level military facility

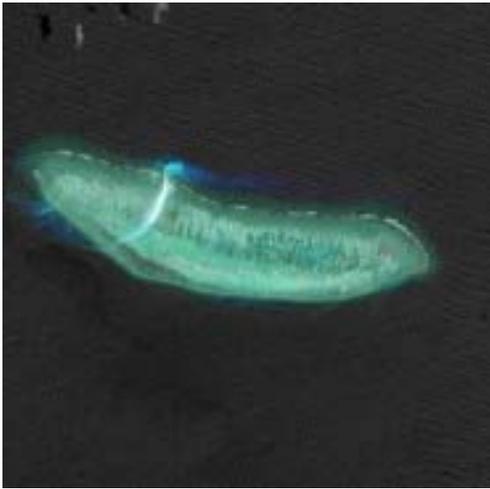
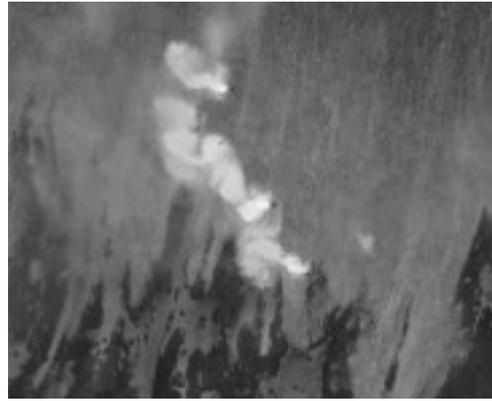
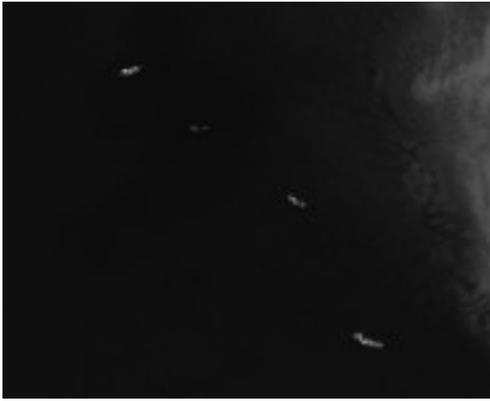
Preexisting satellite communication antenna

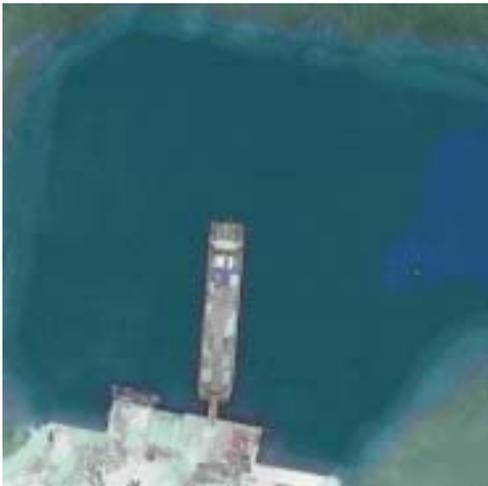
Reinforced seawalls

Possible gun or missile emplacements x5

Cuarteron Reef, located in the London Reefs, was also the site of significant dredging and construction during the summer months of 2014. Prior to this time, the reef held a concrete supply platform with communications equipment and radars, like many of China's other land features in the Spratly Islands. As imagery from November 2014 demonstrates, China has since built an artificial island at Cuarteron and is also building structures on the island.







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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, “Fiery Cross Reef Tracker”, *available at* <http://amti.csis.org/fiery-cross-reef-tracker/> (accessed 1 Nov. 2015)

FIERY CROSS REEF TRACKER

This gallery covers Chinese development at the newly reclaimed Fiery Cross Reef, which lies on the west side of the Spratly Islands.

Featured Facts

What's on Fiery Cross Reef right now?

2,740,000

Square meters reclaimed

3000m airstrip (under construction)

Harbor large enough to receive tankers and major surface combatants (630,000 square meters)

Multiple cement plants

Multiple support buildings

9 temporary loading piers, one preexisting pier

Preexisting air-defense guns

Possible radar tower under construction

Possible gun emplacements x8

Preexisting anti-frogmen defenses

Preexisting communications equipment

Preexisting greenhouse

Helipad x2

Preexisting military facility

Preexisting pier

New multi-level administrative facility adjacent to airstrip

Lighthouse x2

Possible satellite communication antennas x10

PRC dredgers have created a land mass that spans the entire existing reef and is approximately 3,000 meters long and 200-300 meters wide. China is currently building an airstrip with an estimated final length of 3,110 meters, long enough to allow any PRC military aircraft to land. AMTI has obtained and released the first publicly available photos of this airstrip development. China has also begun development of port facilities which may be capable of docking military tankers. What will the implications of this development be for the region?

Click here to explore (<http://amti.csis.org/fiery-cross/>) an in-depth interactive analysis of developments at Fiery Cross Reef.











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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, “Gaven Reef Tracker”,
available at <http://amti.csis.org/gaven-reef-tracker/> (accessed 1 Nov. 2015)

GAVEN REEF TRACKER

This gallery covers Chinese development at the newly reclaimed Gaven Reef, located in the Tizard Banks, near the center of the Spratly islands.

Featured Facts

What's on Gaven Reef right now?

136,000

Square meters reclaimed

Access channel 122 meters wide

Port area 66,402 square meters

Anti-air guns

Possible large radio communication antenna being constructed

Construction support structure

Possible gun emplacements x8

Naval guns

New military facility

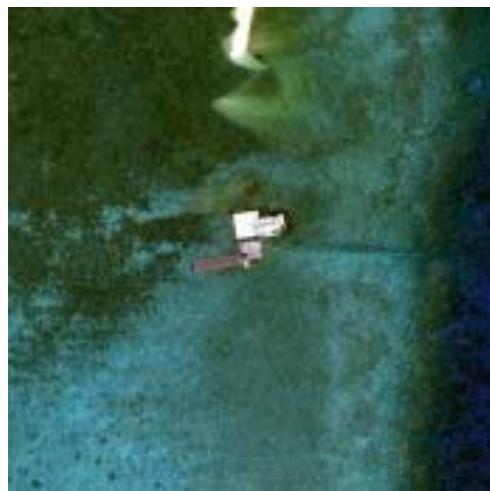
Helipad x2

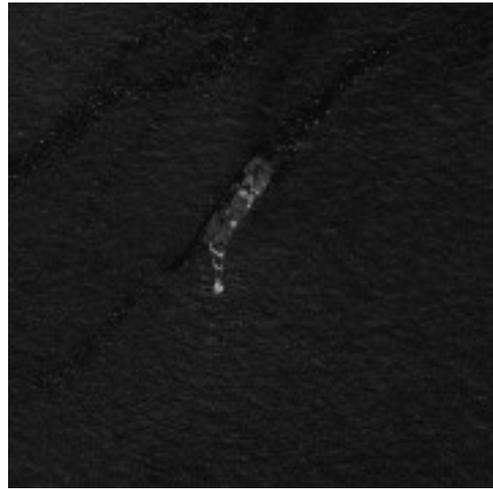
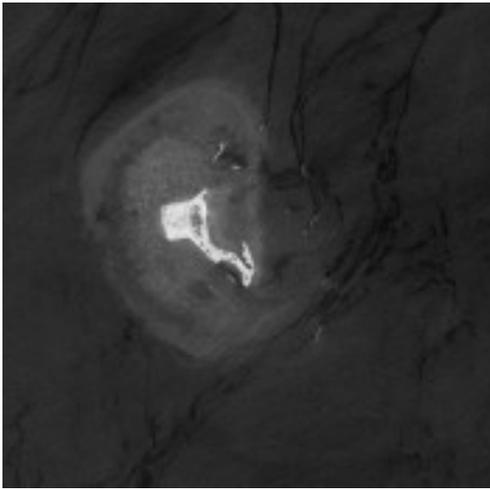
Preexisting military facility

Reinforced seawalls

Cement Plant

Chinese construction at Gaven Reef in the Tizard Banks began sometime after March 30, 2014. According to IHS Jane's, imagery dated August 7, 2014, shows the construction of an artificial island in the intervening months. The new, rectangular, artificial island is approximately 300 meters by 250 meters. A channel was also cut out of the center of the reef. All told, approximately 114,000 square meters of new land has been created. Images dated November 15, 2014, show that a causeway now links the new island with a small facility that had long stood on the reef. A new building on Gaven Reef is almost identical to one on Hughes Reef, and includes a main square building with what appears to be an anti-aircraft tower. This suggests that Beijing may have standardized the design of certain facilities and is now implementing them across its new islands. China has had a troop and supply garrison on Gaven Reef as far back as 2003. This has included a large supply platform where ships can dock, several gun emplacements, and radar and communications equipment.







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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, “Hughes Reef Tracker”,
available at <http://amti.csis.org/hughes-reef-tracker/> (accessed 1 Nov. 2015)

HUGHES REEF TRACKER

This gallery covers Chinese development at Hughes Reef in the Union Banks, located in the northern Spratly Islands.

Featured Facts

What's on Hughes Reef right now?

76,000

Square meters reclaimed

Access channel 118 meters wide

Coastal fortifications

Four Defensive Towers

Harbor 292,000 square meters

Port 35,350 square meters

Multi-level military facility

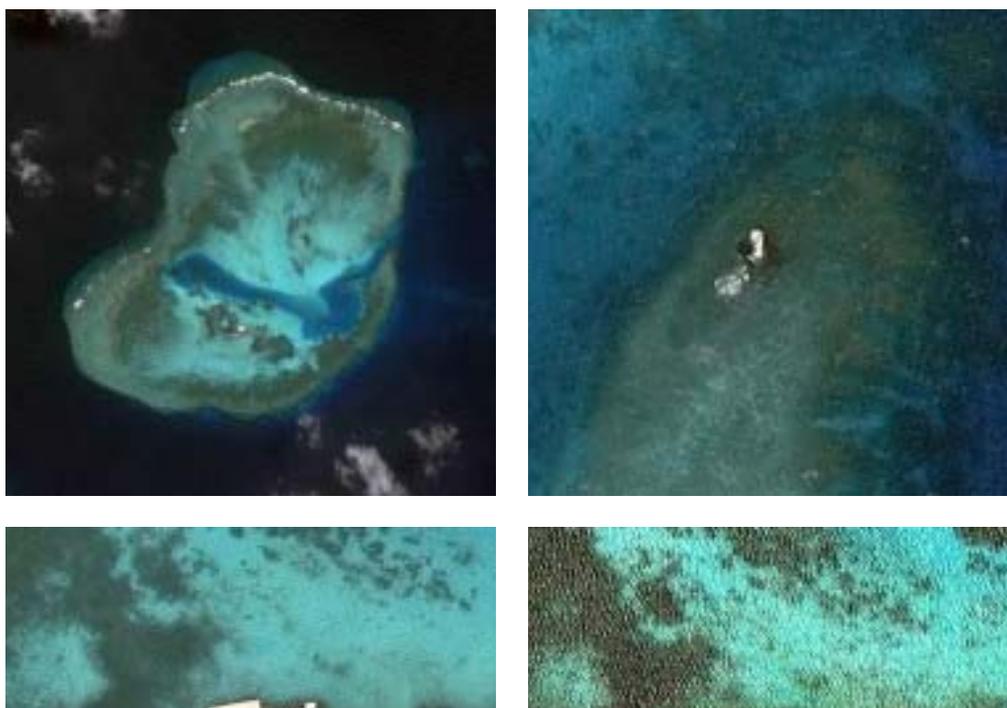
Possible gun emplacements x5

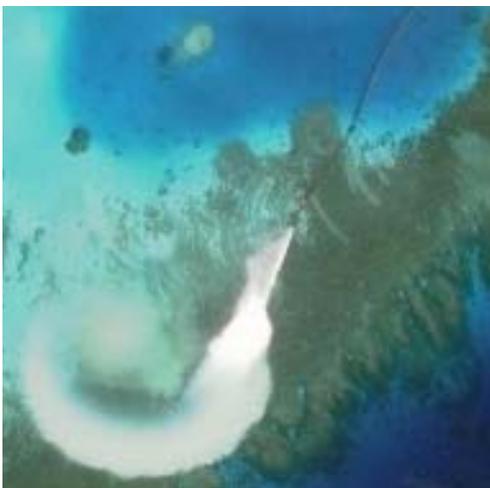
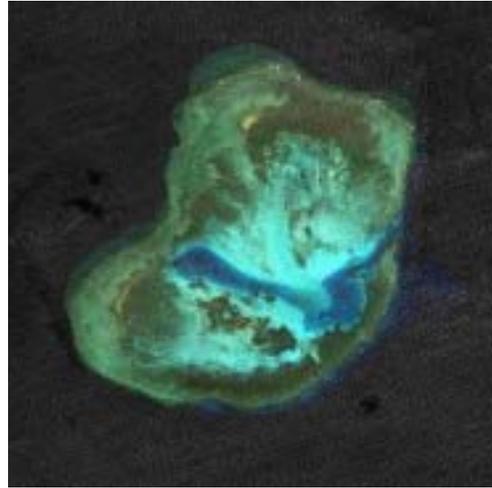
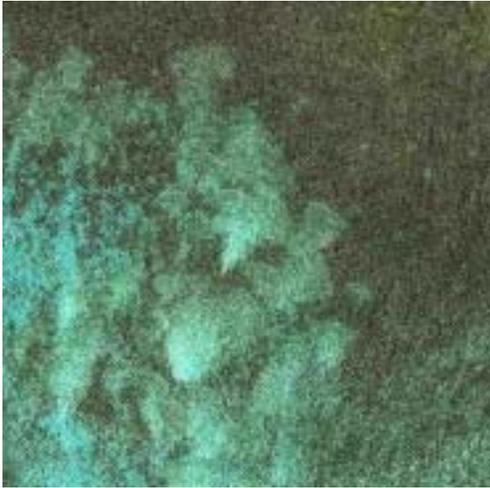
Possible Radar Facility Under Construction

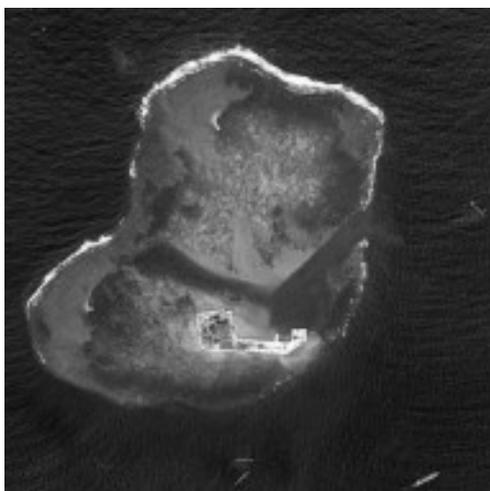
Preexisting Helipad
Preexisting Light House
Reinforced Seawalls
Cement Plant

Reclamation and building efforts on Hughes Reef in the Union Banks appear to have begun in Summer 2014. Digital Globe imagery from 2004 showed only a 380 square meter concrete platform at the reef. According to IHS Jane's, that platform has now been incorporated into a landmass of 75,000 square meters. The original small platform remains, but reclaimed land and a large facility have been constructed around it.

IHS Jane's reports that the facility on Hughes Reef is nearly identical to that on Gaven Reef, and comprises a main, square building and an anti-aircraft tower. This suggests that China has standardized plans for its new island facilities in the South China Sea. Construction at Hughes Reef is ongoing. There was significant development on the right side of the island between November 15 and December 12, 2014.









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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, “Johnson Reef Tracker”,
available at <http://amti.csis.org/johnson-reef-tracker/> (accessed 1 Nov. 2015)

JOHNSON REEF TRACKER

This gallery covers Chinese development at Johnson South Reef, located in the Northwest of the Spratly Islands at Union Banks.

Featured Facts

What's on Johnson Reef right now?

109,000

Square meters reclaimed

Access channel 125 meters wide

Concrete plant

Defensive Towers

Desalination pumps

Fuel dump

Multi-level military facility

Possible radar facility

Small port with limited berth space and two loading stations

3,000 square meter harbor area

Possible weapons tower x4

Agricultural, lighthouse, and possible solar farm (44 panels)

Preexisting communications facility

Preexisting garrison building

Helipad x2

Roll on Roll off docks

Preexisting large multi-level Military Facility

Preexisting pier

Reinforced Seawalls

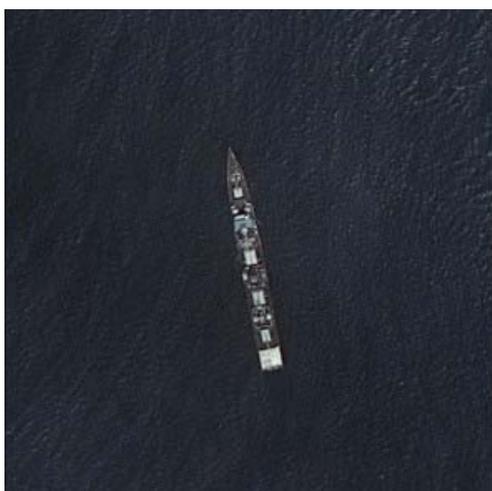
Possible satellite communication antennas x3

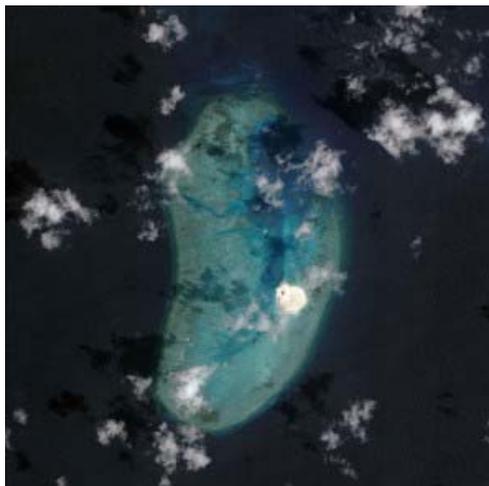
Possible radar tower under construction x2

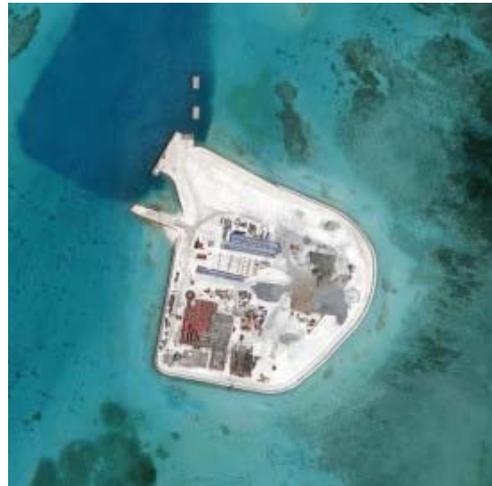
Wind turbines x2

Johnson South Reef is a 7.2 square kilometer submerged reef in the Union Banks. Until early 2014 the only manmade feature on the reef was a small concrete platform that housed a communications facility, garrison building, and pier. This platform is now surrounded by an island that is approximately 400 meters across at its widest points and now has an area of about 100,000 square meters.

There has been some speculation that Beijing may build an airstrip on Johnson South Reef, although experts have argued that any such airstrip would be too small to have a significant strategic impact. Significant progress was made toward the construction of new buildings on Johnson South Reef between November 15 and December 12, 2014.









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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, Subi Reef Tracker,
available at <http://amti.csis.org/subi-reef-tracker/> (accessed 1 Nov. 2015)

SUBI REEF TRACKER

This gallery covers Chinese development at Subi Reef, located in the Northern Spratly islands.

Featured Facts

What's on Subi Reef right now?

3,950,000

Square meters reclaimed

Access channel 230 meters wide

Temporary Loading Piers x 11

Potential 3000m airstrip

Large multi-level facility with existing structure

Possible satellite communication antennas x7

Possible security and surveillance tower with radome

Reinforced seawalls

Helipad

Preexisting military facility

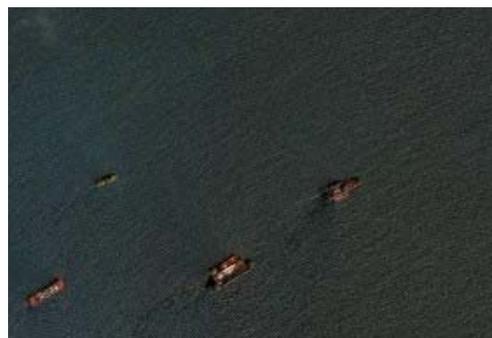
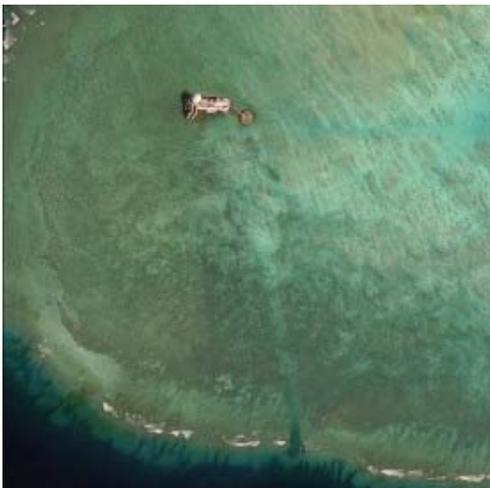
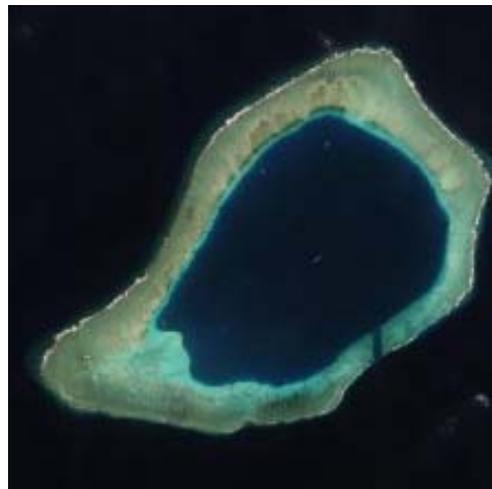
Concrete plant x3

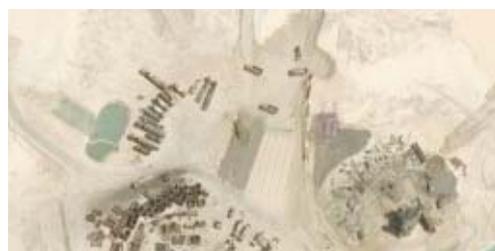
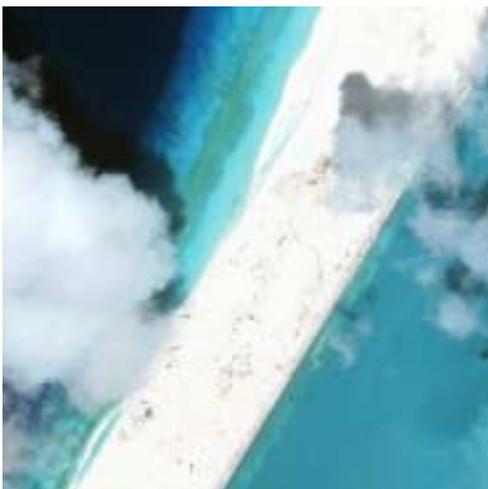
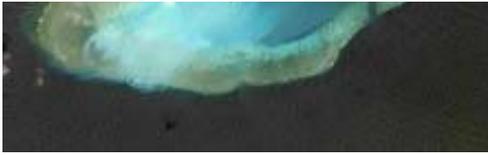
Subi Reef was occupied by the PRC during its 1988 push to increase its footprint in the South China Sea. It has remained China's northernmost outpost in the Spratly Island grouping since then. The reef is 25 kilometers (km) from Philippine civilian populations and 14km from the Thitu Reef cluster occupied by the Philippines.

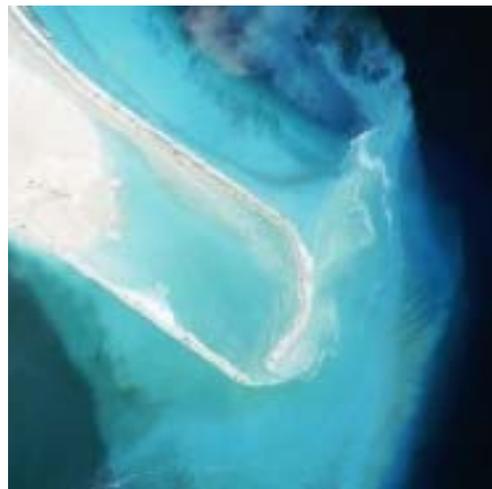
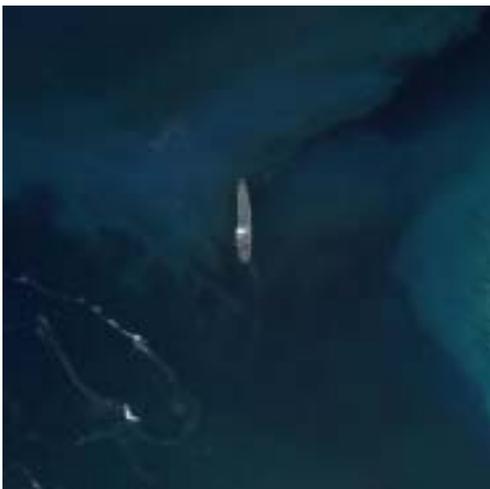
The entire Subi reef feature is diamond shaped, measuring 6.9km on the longer axis and 5km along the shorter axis. It surrounds a lagoon measuring 3.5km at its maximum width. In its natural state, the reef is submerged at high tide, with some breakers breaking the surface at low tide. IHS Jane's reports that China began construction on Subi and Cuateron Reefs in the early 1990s. In 1997, the reef had two wooden barracks, a satellite communications antennae and a helicopter pad. In 2010, reports of a lighthouse emerged followed in 2011 construction, which included a 20m diameter dome. The Philippines reported the upgraded facilities probably including radar equipment.

The PRC began land reclamation on Subi in July 2014. While it appears that the first air strip is being laid at Fiery Cross Reef, IHS Jane's has estimated that if reclamation at Subi continues it will also provide an adequate base for another air strip. Reports have emerged that the current facilities house up to 200 troops.











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Center for Strategic & International Studies, Asia Maritime Transparency Initiative, Mischief Reef Tracker,
available at <http://amti.csis.org/mischief-reef-tracker/#> (accessed 1 Nov. 2015)

MISCHIEF REEF TRACKER

AMTI has released never-before-published images of China's land reclamation efforts on Mischief Reef in the Spratly Islands. These construction efforts appear to have begun in early 2015.

Featured Facts

What's on Mischief Reef right now?

5,580,000

Square meters of land reclaimed

Access channel

Fortified Seawalls

Temporary loading piers x9

Cement Plant x9

Pre-existing military facilities (2)

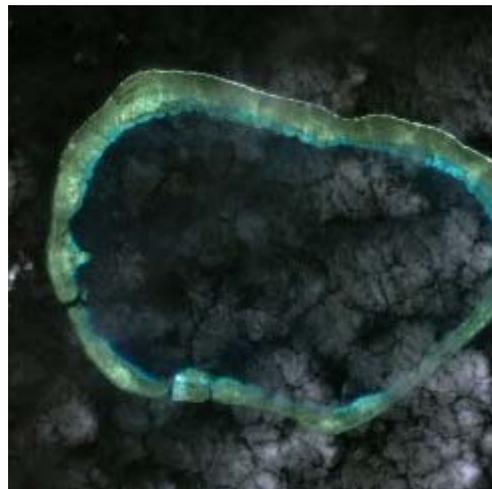
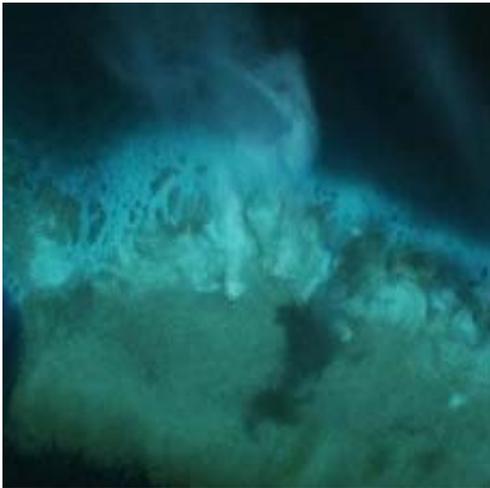
Preexisting shelter for fishermen

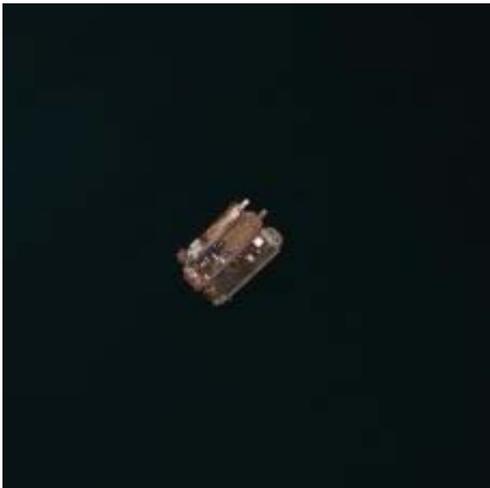
Possible satellite communication antennas x3

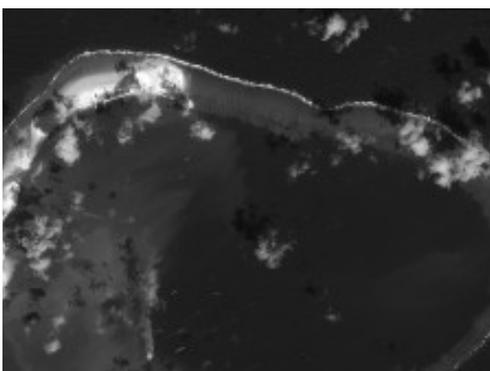
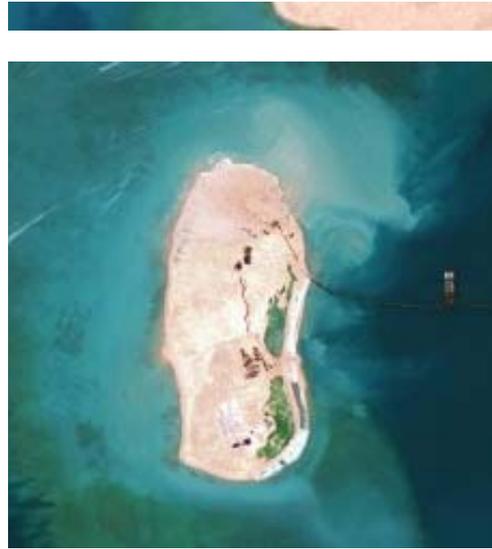
Mischief Reef falls within the exclusive economic zone of the Philippines, lying 129 nautical miles from Palawan. In relation to other Spratly features, the reef is 51 nautical miles (nm) from Nanshan Island, occupied by the Philippines, and relatively close to other island features claimed by Vietnam (57 nm), Taiwan (74 nm) and the PRC (62 nm). If Spratly features are excluded, the nearest land feature belonging to the PRC (Hainan Island) is 599 nautical miles away. Many have speculated that the by widening the entrance to the reef, China intends to create a naval base on the reclaimed reef. Click on an image to enlarge and read more information.

[Click here \(/mischief-reef/\)](/mischief-reef/) to explore an in-depth interactive analysis of developments at Mischief Reef.











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[Analysis \(http://amti.csis.org/analysis/\)](http://amti.csis.org/analysis/)

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Promoting openness and exchange in maritime Asia.

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Annex 783

Armed Forces of the Philippines, *Aerial Photographs of On-Going Reclamation at Gaven Reef* (2014)

GAVEN REEF (PROC)

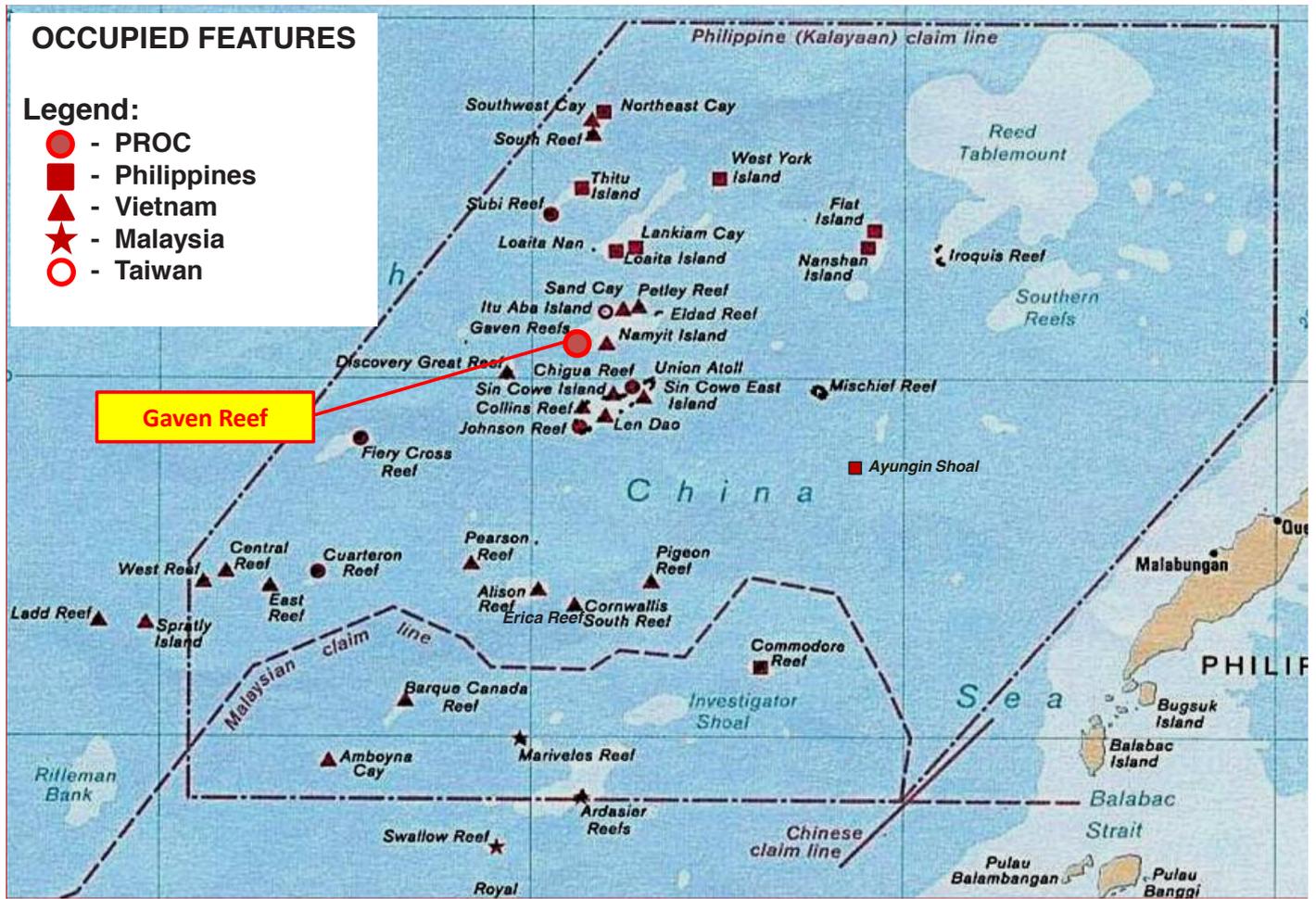




Photo Taken By: 300TH AMSG & 220TH AW-PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

GAVEN REEF (PROC)

LAT/LONG: N 10° 12.9713' E 114° 13.8889'

Photo Altitude: 5,000 Feet

04 APRIL 2014

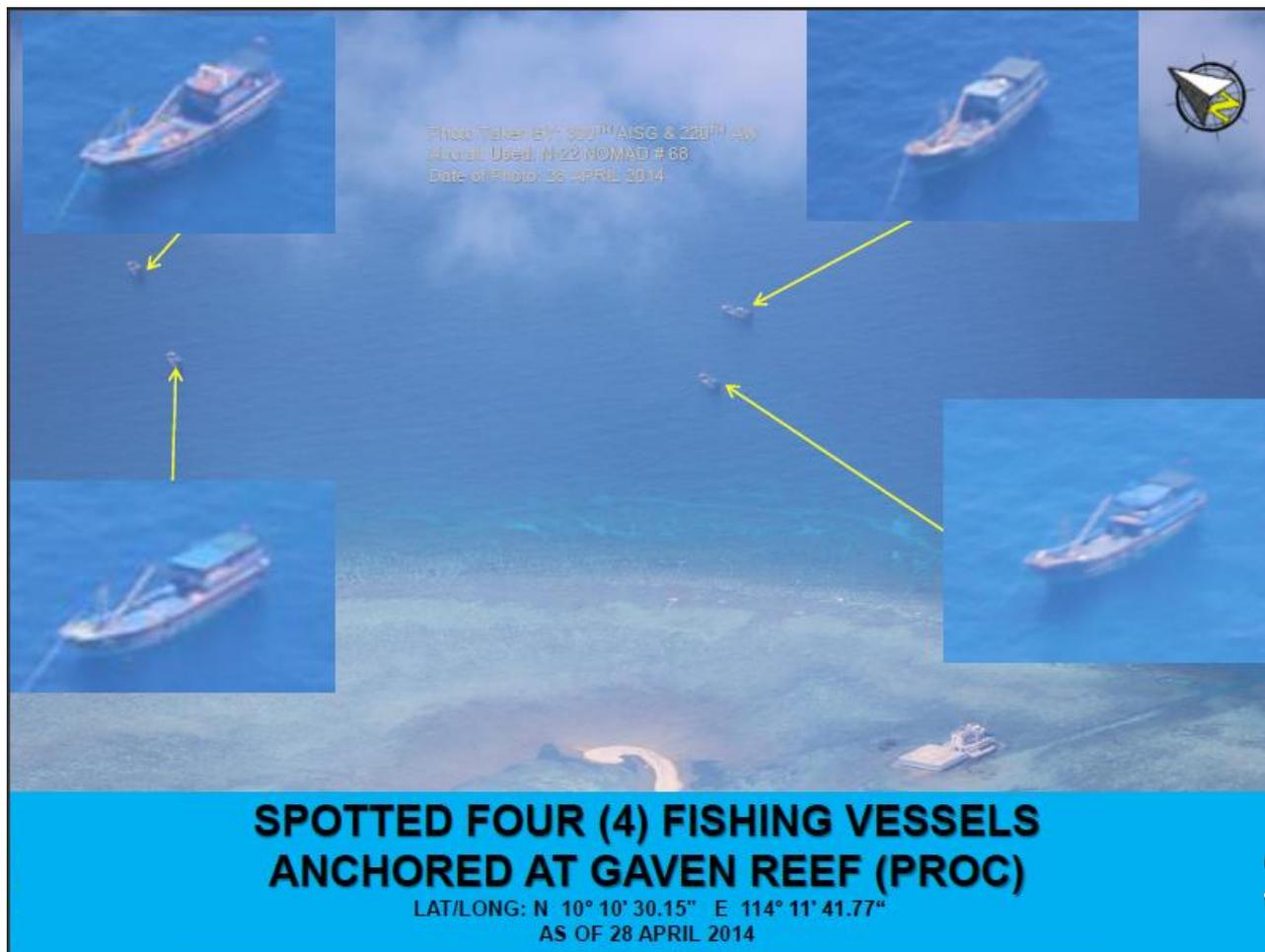


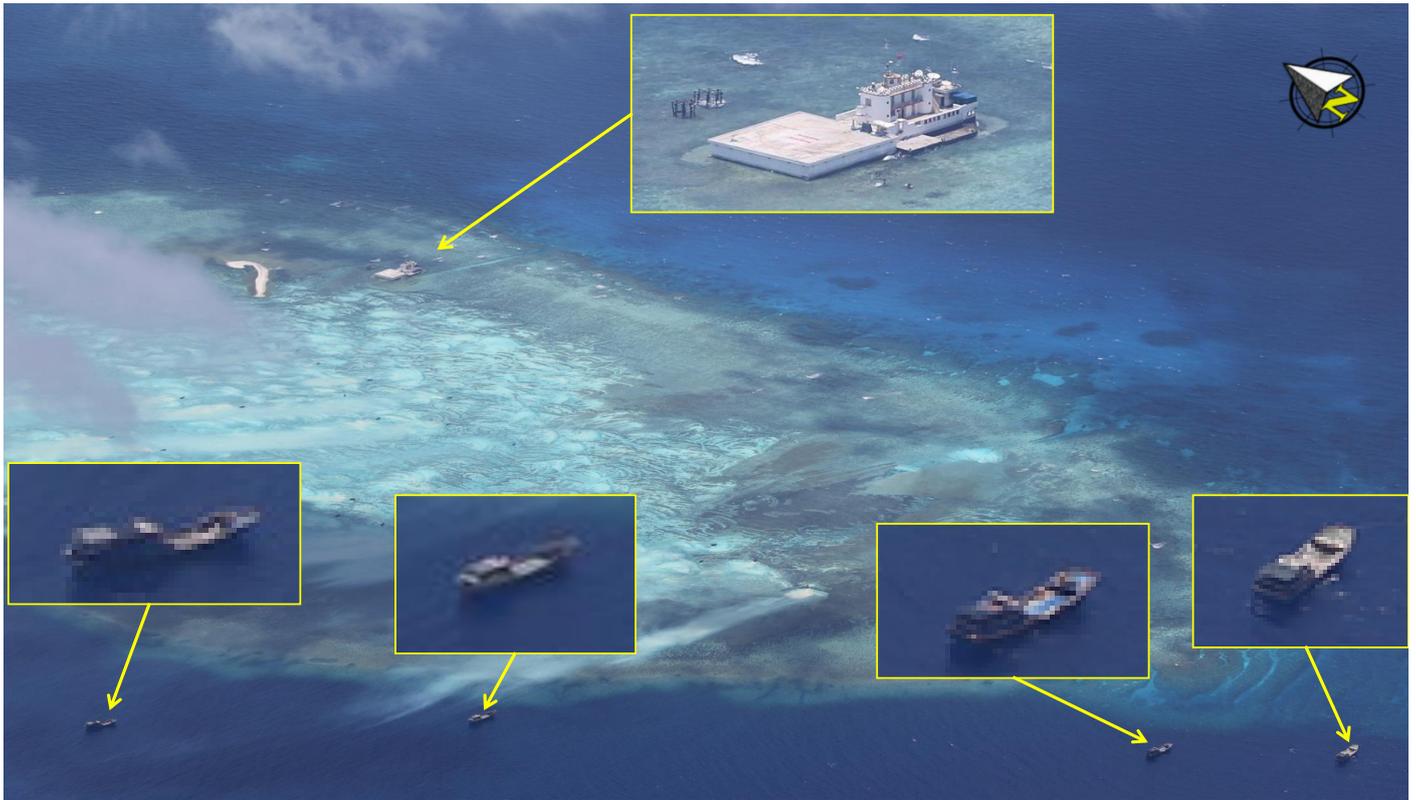


Photo Taken BY: 300TH AJSB & 220TH AW
Aircraft Used: N-22 NOMAD # 68
Date of Photo: 28 APRIL 2014



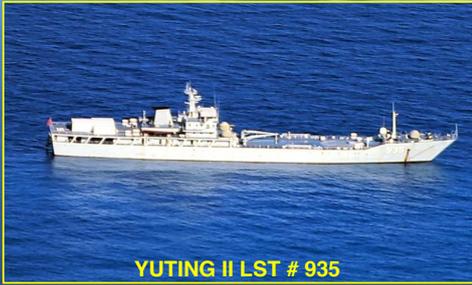
GAVEN REEF (PROC)

LAT/LONG: N 10° 10' 30.15" E 114° 11' 41.77"
AS OF 28 APRIL 2014



**FOUR (4) FISHING VESSELS
ANCHORED WITHIN GAVEN REEF (PROC)**

LAT/LONG: N 10° 10' 30.15" E 114° 11' 41.77"
AS OF 05 MAY 2014



YUTING II LST # 935



RECLAMATION SITE



MAIN STRUCTURE

ON-GOING RECLAMATION AT BURGOS (GAVEN) REEF

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"
05 JUNE 2014



CUTTER SUCTION DREDGER

CUTTER SUCTION DREDGER

**ON-GOING RECLAMATION AT
BURGOS (GAVEN) REEF**

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"
05 JUNE 2014



**ON-GOING RECLAMATION AT
BURGOS (GAVEN) REEF**

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"
05 JUNE 2014



**ON-GOING CONSTRUCTION ON RECLAIMED AREA (EAST PORTION)
BURGOS (GAVEN) REEF**

OCCUPIED BY CHINA

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

08 JUNE 2014



**ON-GOING CONSTRUCTION ON RECLAIMED AREA (WEST PORTION)
BURGOS (GAVEN) REEF
OCCUPIED BY CHINA**
LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"
08 JUNE 2014

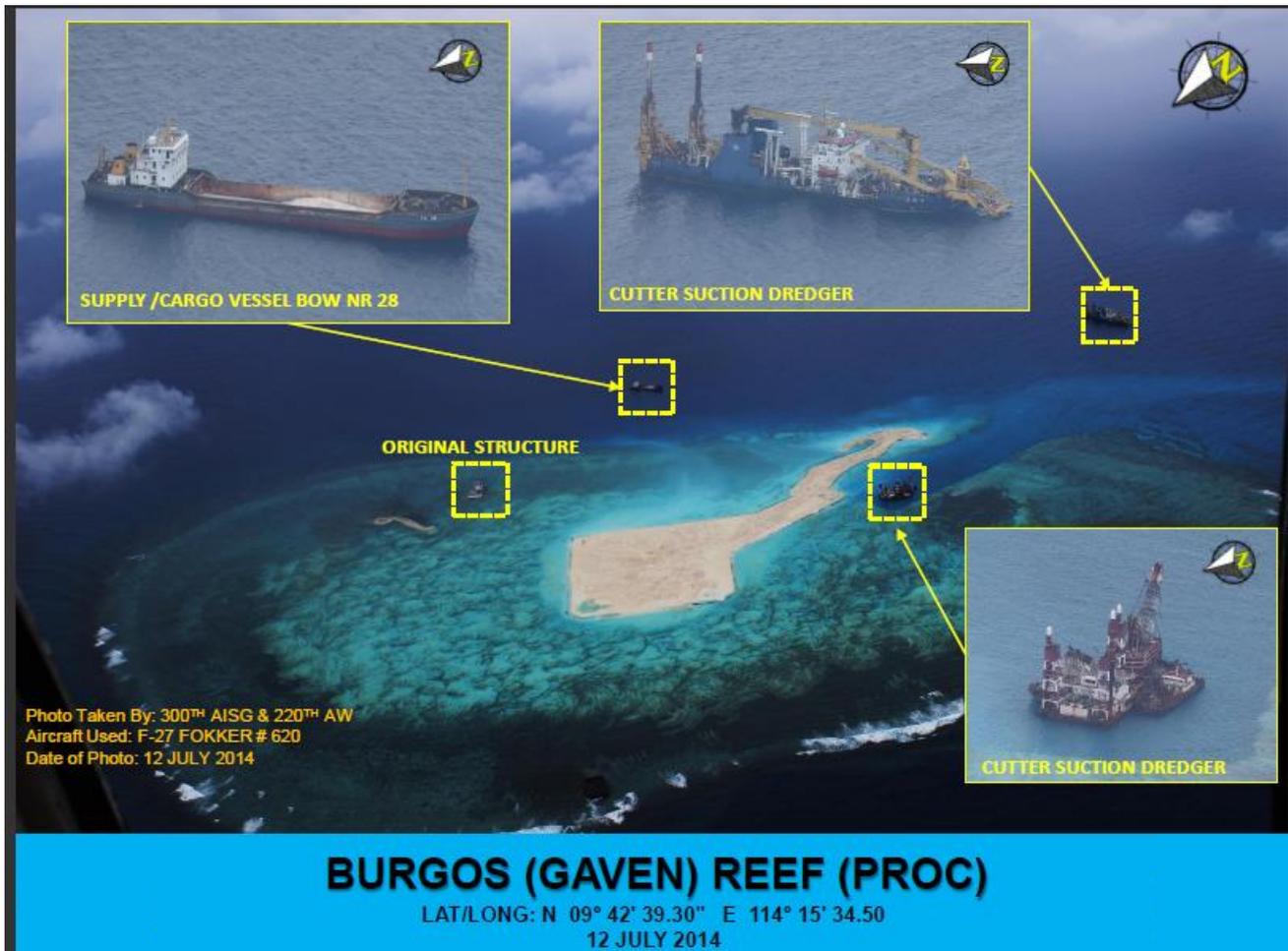


Photo Taken By: 300TH AISG & 220TH AW
Aircraft Used: F-27 FOKKER # 620
Date of Photo: 12 JULY 2014



ORIGINAL STRUCTURE



**RECLAIMED AREA ON
BURGOS (GAVEN) REEF (PROC)**
LAT/LONG: N 09° 42' 39.30" E 114° 15' 34.50
12 JULY 2014

Photo Taken By: 300TH AISG & 220TH AW
Aircraft Used: F-27 FOKKER # 669
Date of Photo: 18 JULY 2014



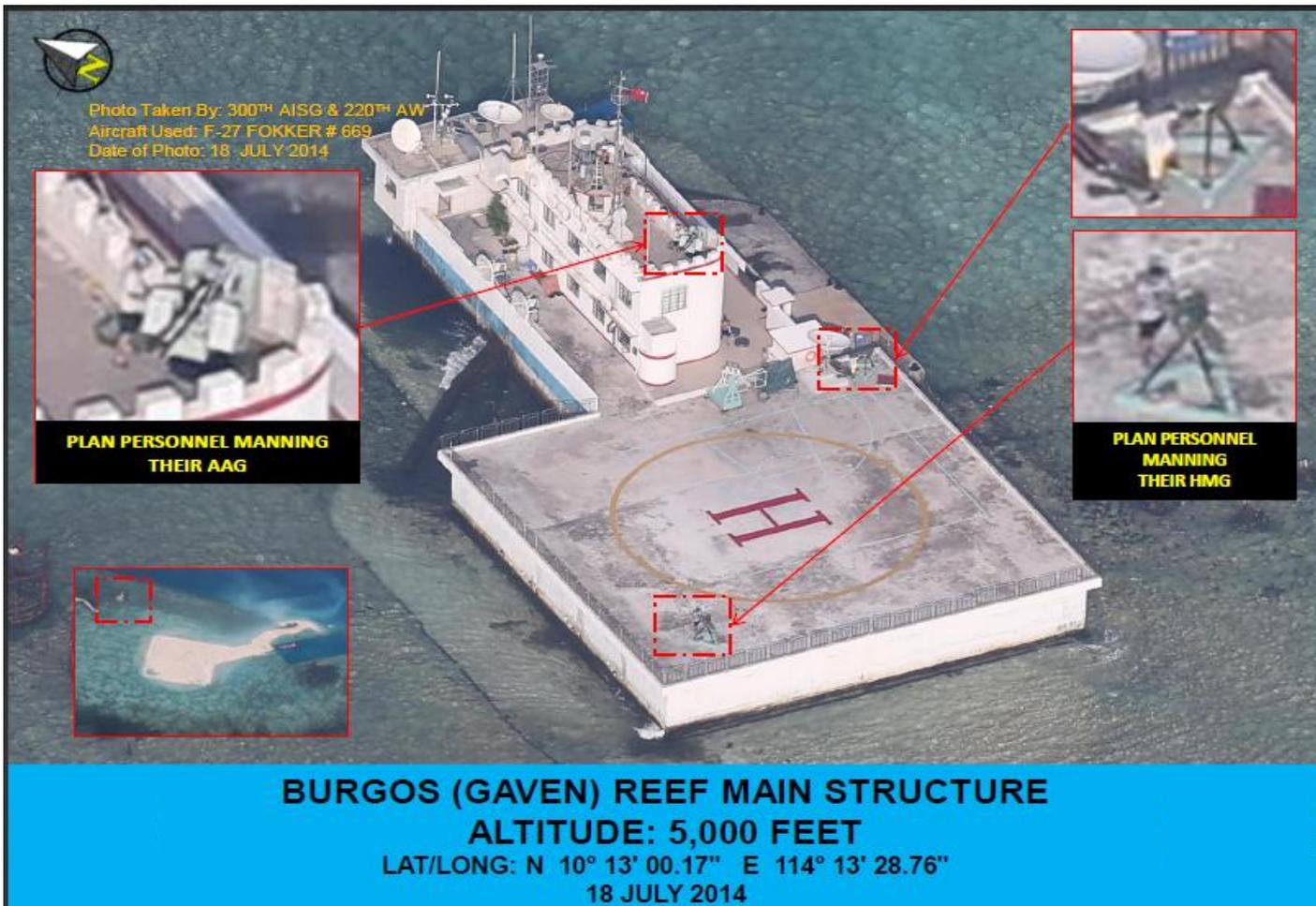
BURGOS (GAVEN) REEF

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
18 JULY 2014









GAVEN REEF

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"

29 JULY 2014



GAVEN REEF

ALTITUDE: 5,000 FEET

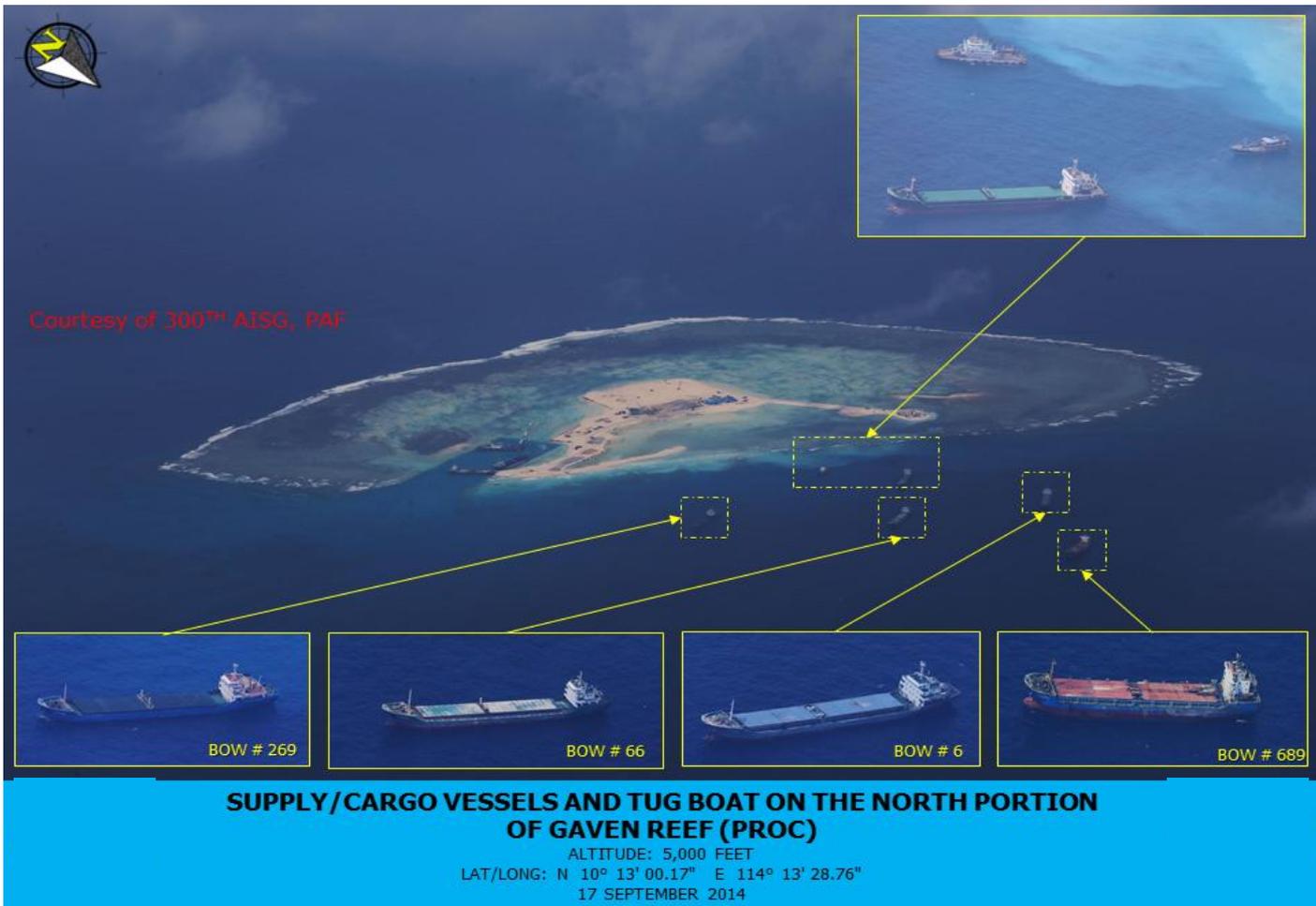
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"

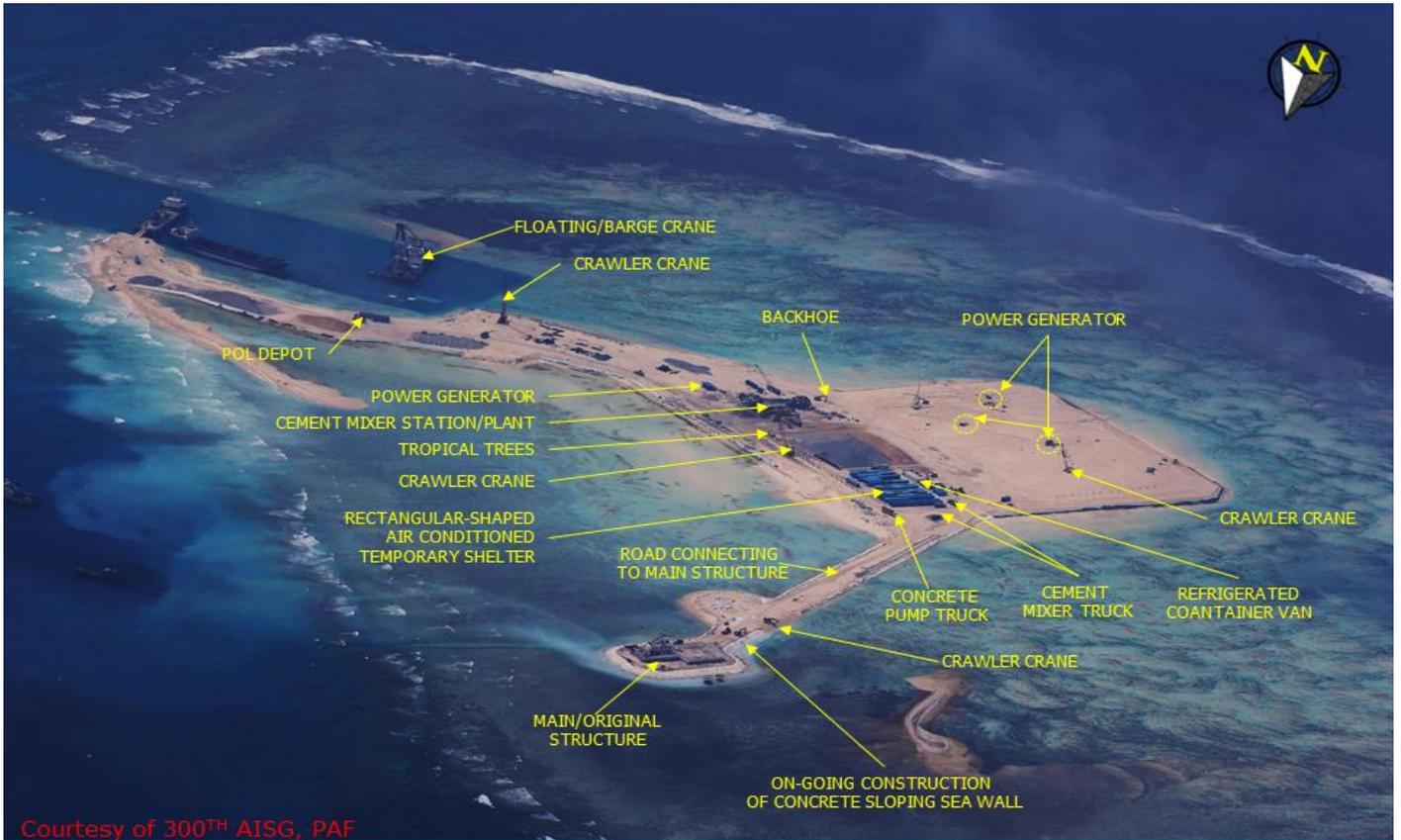
29 JULY 2014



**GENERAL LOCATION OF CHINESE SUPPLY VESSELS
ANCHORED ON THE QUAY OF GAVEN REEF**

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
29 JULY 2014





Courtesy of 300TH AISG, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014



Courtesy of 300TH AISC, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014



Courtesy of 300TH AISG, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC)

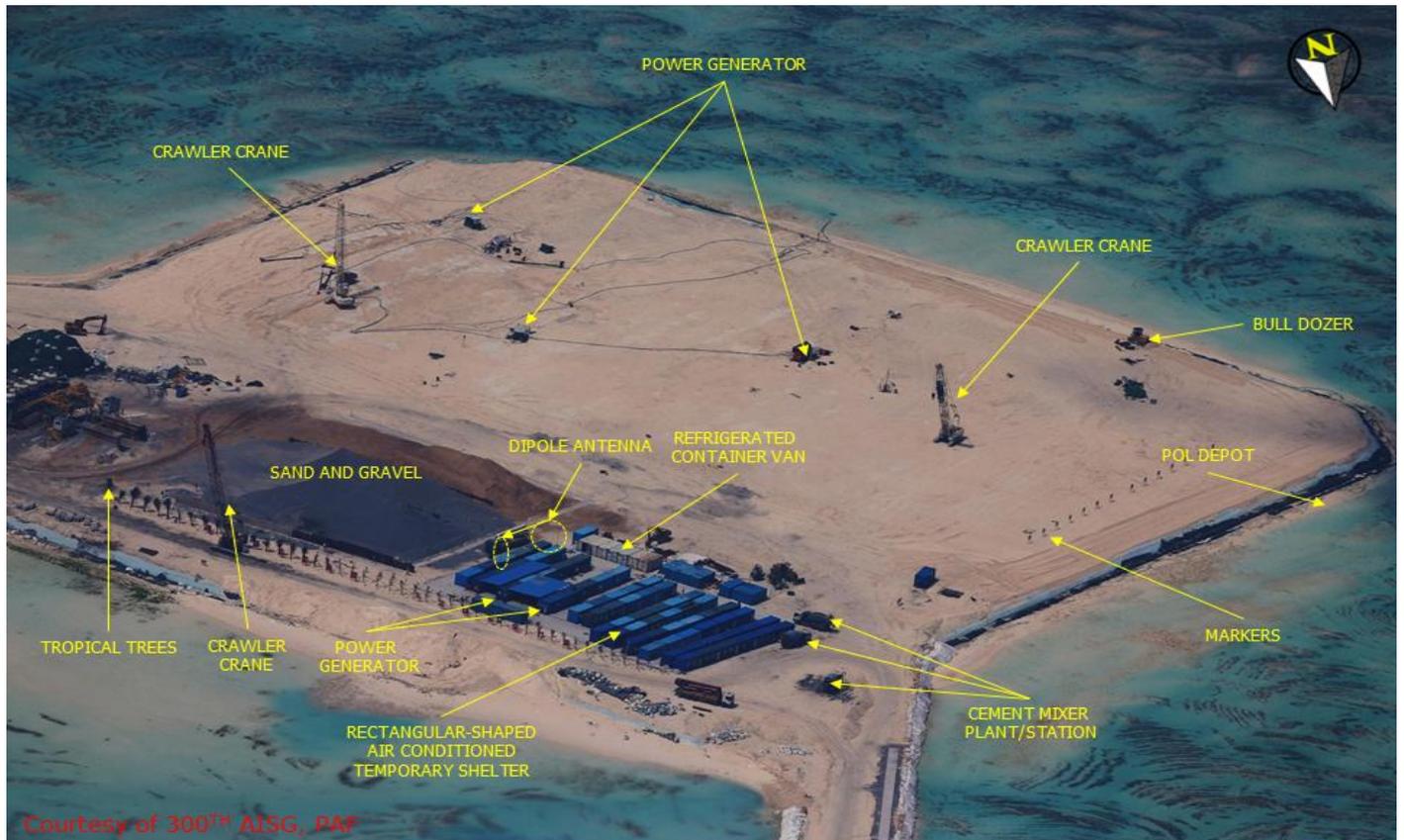
ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014



Courtesy of 300TH AISG, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014



Courtesy of 300th A1SG, RAAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC)

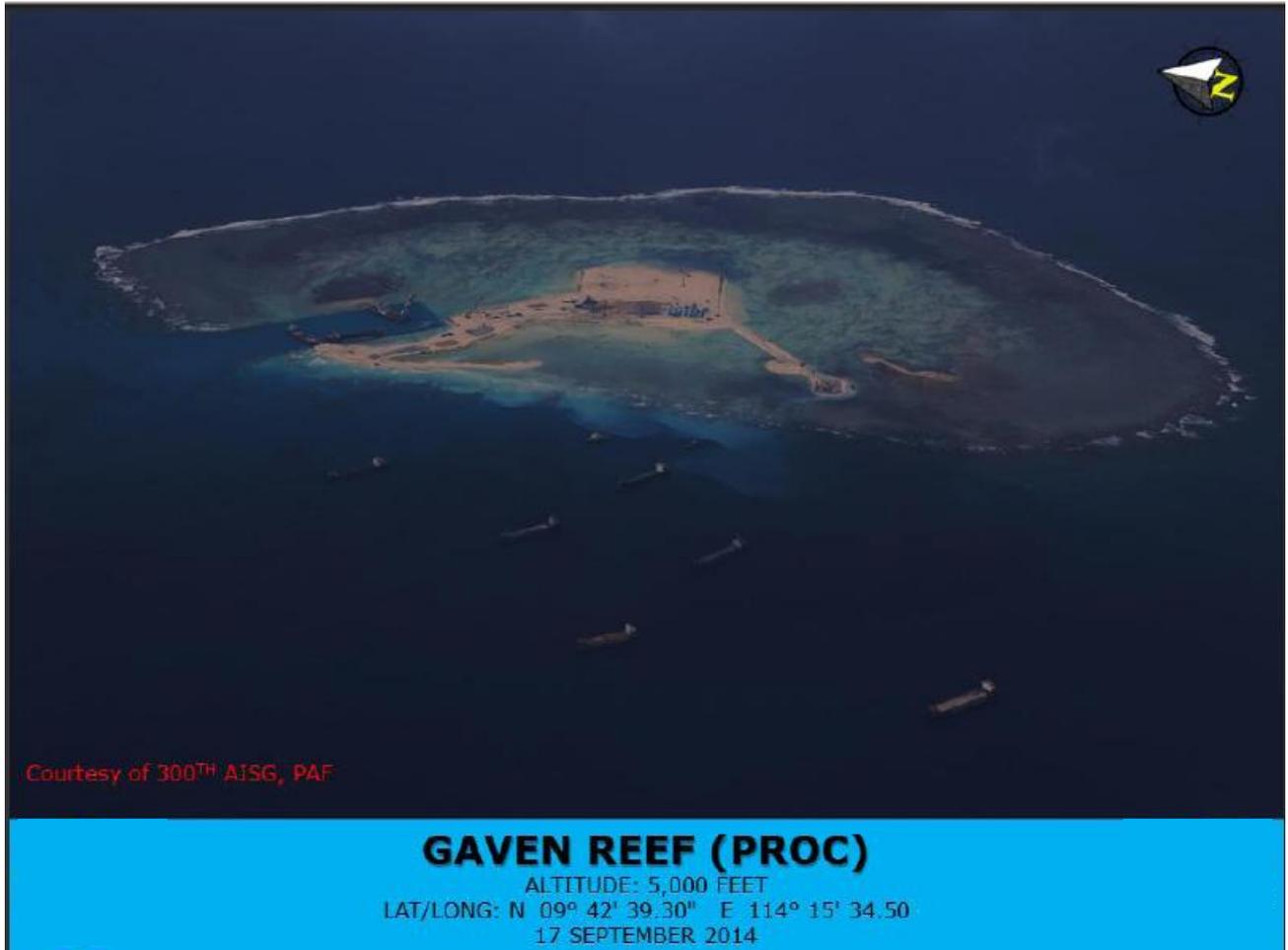
ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014



Courtesy of 300TH AISC, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC) MAIN STRUCTURE

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014





Courtesy of 300th AISG, PAF

GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 42' 39.30" E 114° 15' 34.50"
17 SEPTEMBER 2014







RECLAIMED AREA AT GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

05 SEPTEMBER 2014



CHINESE VESSELS SPOTTED AT GAVEN REEF

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

05 OCTOBER 2014



RECLAIMED AREA AT GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

21 OCTOBER 2014

Annex 784

Armed Forces of the Philippines, *Aerial Photographs of Kennan Reef* (2014-2015)

CHIGUA REEF (PROC)

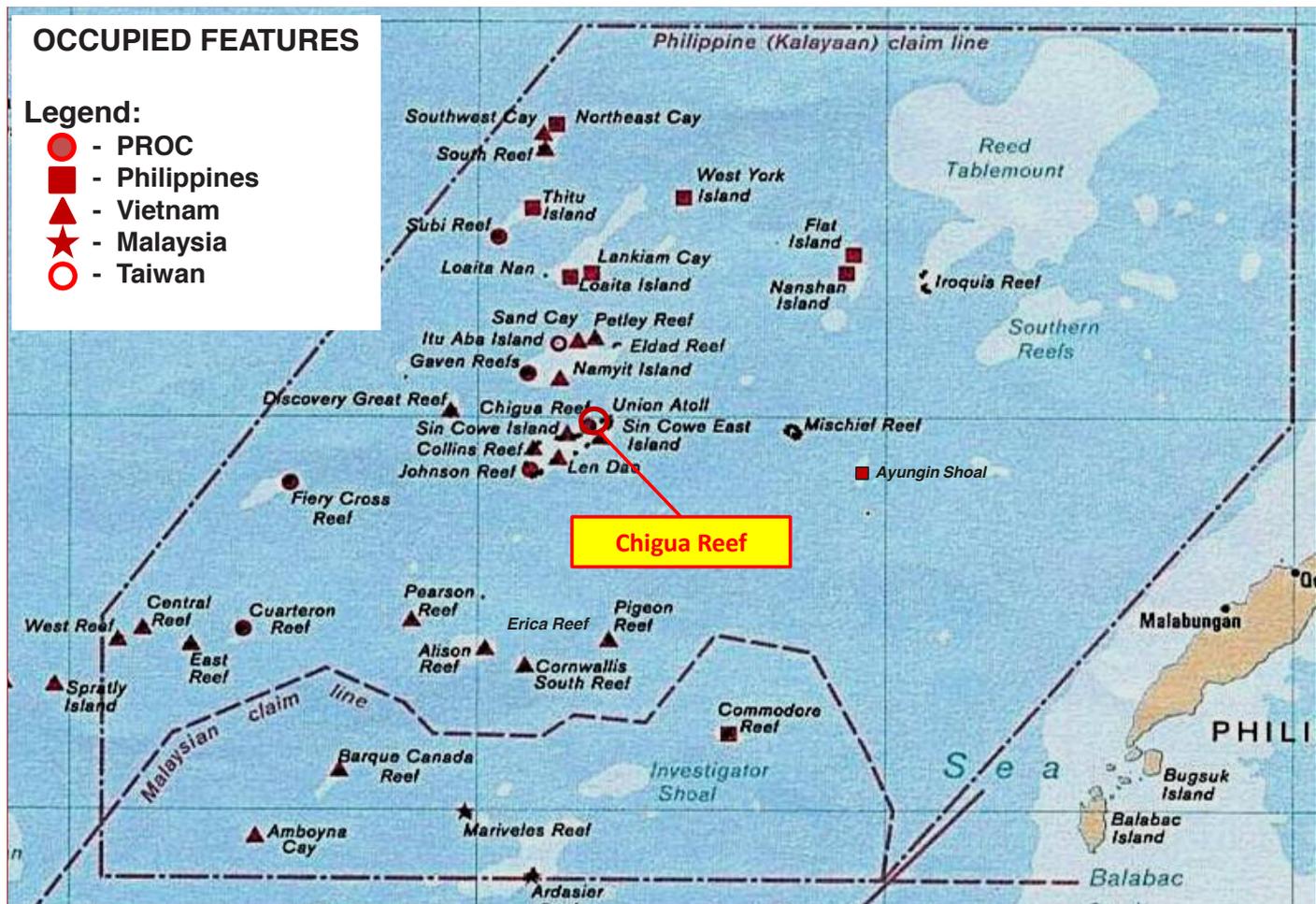




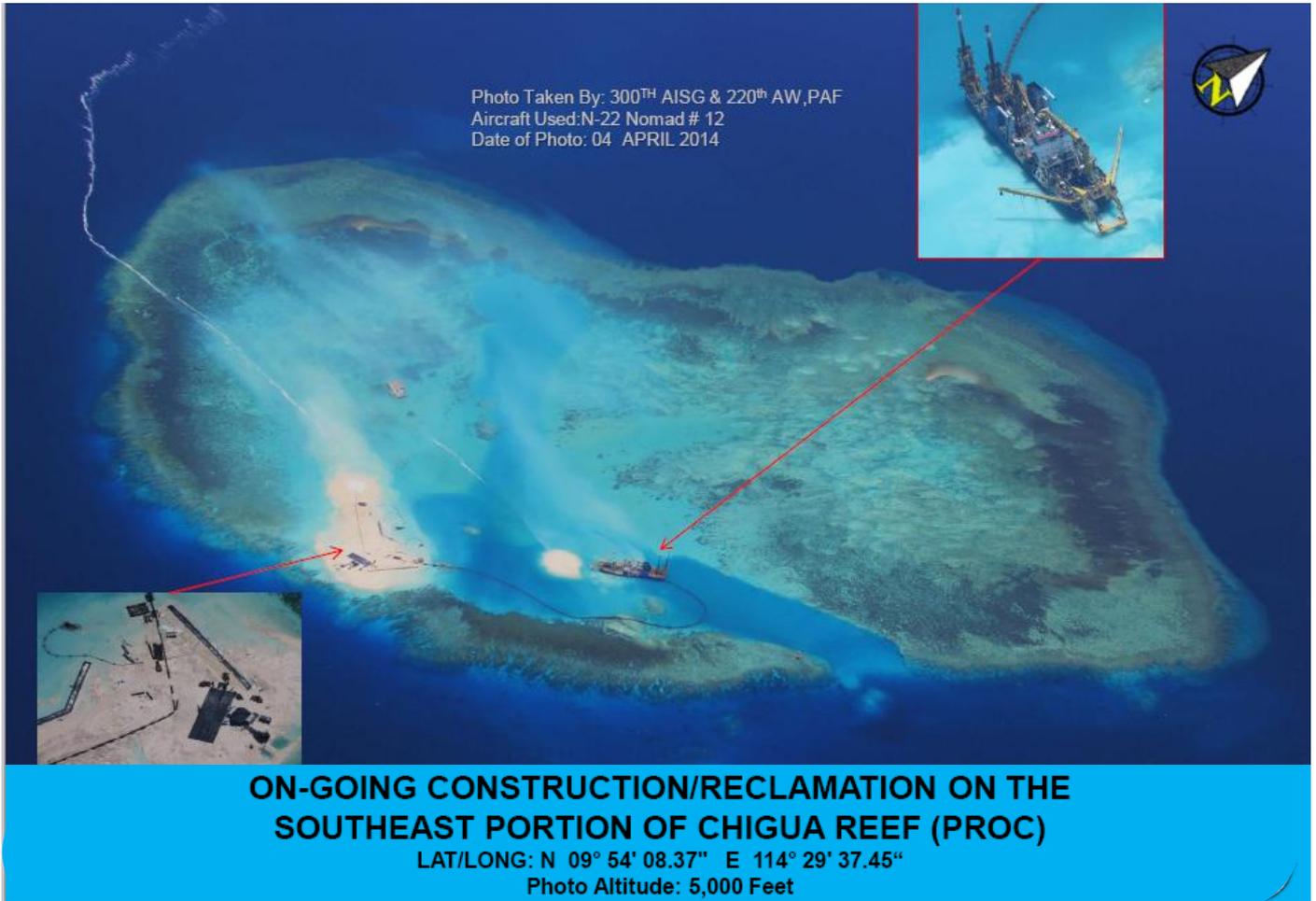
Photo Taken By: 300TH AISG & 220TH AW PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

CHIGUA REEF (PROC)

LAT/LONG: N 09° 54' 08.37" E 114° 29' 37.45"

Photo Altitude: 5,000 Feet

04 April 2014





**ON-GOING CONSTRUCTION/RECLAMATION ON THE
SOUTHEAST PORTION OF CHIGUA REEF (PROC)**

LAT/LONG: N 09° 54' 08.37" E 114° 29' 37.45"

Photo Altitude: 5,000 Feet

04 April 2014



CUTTER SUCTION DREDGER: Equipped with a rotating cutter head cutting hard soil into fragments. The cut soil is then sucked in by dredge pumps. The material is then pumped ashore using pumps and a floating pipeline.



Photo Taken By: 300TH AISG & 220th AW,PAF
Aircraft Used:N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

SPOTTED CUTTER SUCTION DREDGER AT EAST PORTION OF CHIGUA REEF (PROC)

LAT/LONG: N 09° 54.5000' E 114° 29.5001'

Photo Altitude: 5,000 Feet

04 April 2014



**ON-GOING CONSTRUCTION/RECLAMATION
AT CHIGUA REEF(PROC)**

LAT/LONG: N 09° 54' 20.8" E 114° 30' 55.7"
PHOTO ALTITUDE: 5,000 Feet
09 APRIL 2014

CHIGUA REEF (PROC)

(area being reclaimed within the vicinity as of 09 April 2014)





Photo Taken BY: 300TH AISG.PAF & 220th AW.PAF

**ON-GOING CONSTRUCTION/RECLAMATION
AT CHIGUA REEF(PROC)**
LAT/LONG: N 09° 54' 20.8" E 114° 30' 55.7"
PHOTO ALTITUDE: 5,000 Feet
09 APRIL2014



Photo Taken BY: 300TH AISG,PAF & 220th AW,PAF
Aircraft Used:N-22 Nomad # 12
Date of Photo: 09 APRIL 2014

**SPOTTED CUTTER SUCTION DREDGER ON THE
NORTHEAST OF CHIGUA REEF(PROC)**

LAT/LONG: N 09° 54'.658" E 114° 30.62

PHOTO ALTITUDE: 5,000 Feet



Photo Taken By: 300TH AIGS & 220TH AW
Aircraft Used: N-22 NOMAD F 12
Date of Photo: 28 MAY 2014

**ON-GOING CONSTRUCTION/RECLAMATION AT
CHIGUA (KENNAN) REEF (PROC)**

Land area: 68,112 sq.m. (approx.)
LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"
28 MAY 2014



Photo Taken BY: 300TH AISG & 220TH AW
Aircraft Used: N-22 NOMAD # 12
Date of Photo: 08 JUNE 2014

KENNAN (CHIGUA) REEF

OCCUPIED BY CHINA

LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"

08 JUNE 2014

Photo Taken BY: 300TH AISG & 220TH AW
Aircraft Used: N-22 NOMAD # 12
Date of Photo: 08 JUNE 2014



MAIN STRUCTURE

**ON-GOING CONSTRUCTION ON RECLAIMED AREA
KENNAN (CHIGUA) REEF
OCCUPIED BY CHINA**
LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"
08 JUNE 2014



Photo Taken BY: 300TH AISG & 220TH AW
Aircraft Used: N-22 NOMAD # 12
Date of Photo: 08 JUNE 2014



**ON-GOING CONSTRUCTION ON RECLAIMED AREA
KENNAN (CHIGUA) REEF
OCCUPIED BY CHINA**
LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"
08 JUNE 2014





Photo Taken By: 300TH AISG & 220TH AW
Aircraft Used: F-27 FOKKER # 620
Date of Photo: 11 JULY 2014



**ON-GOING CONSTRUCTION ON RECLAIMED AREA
KEENAN (CHIGUA) REEF (PROC)**
LAT/LONG: N 09° 54' 34.16" E 114° 29' 45.58"
11 JULY 2014





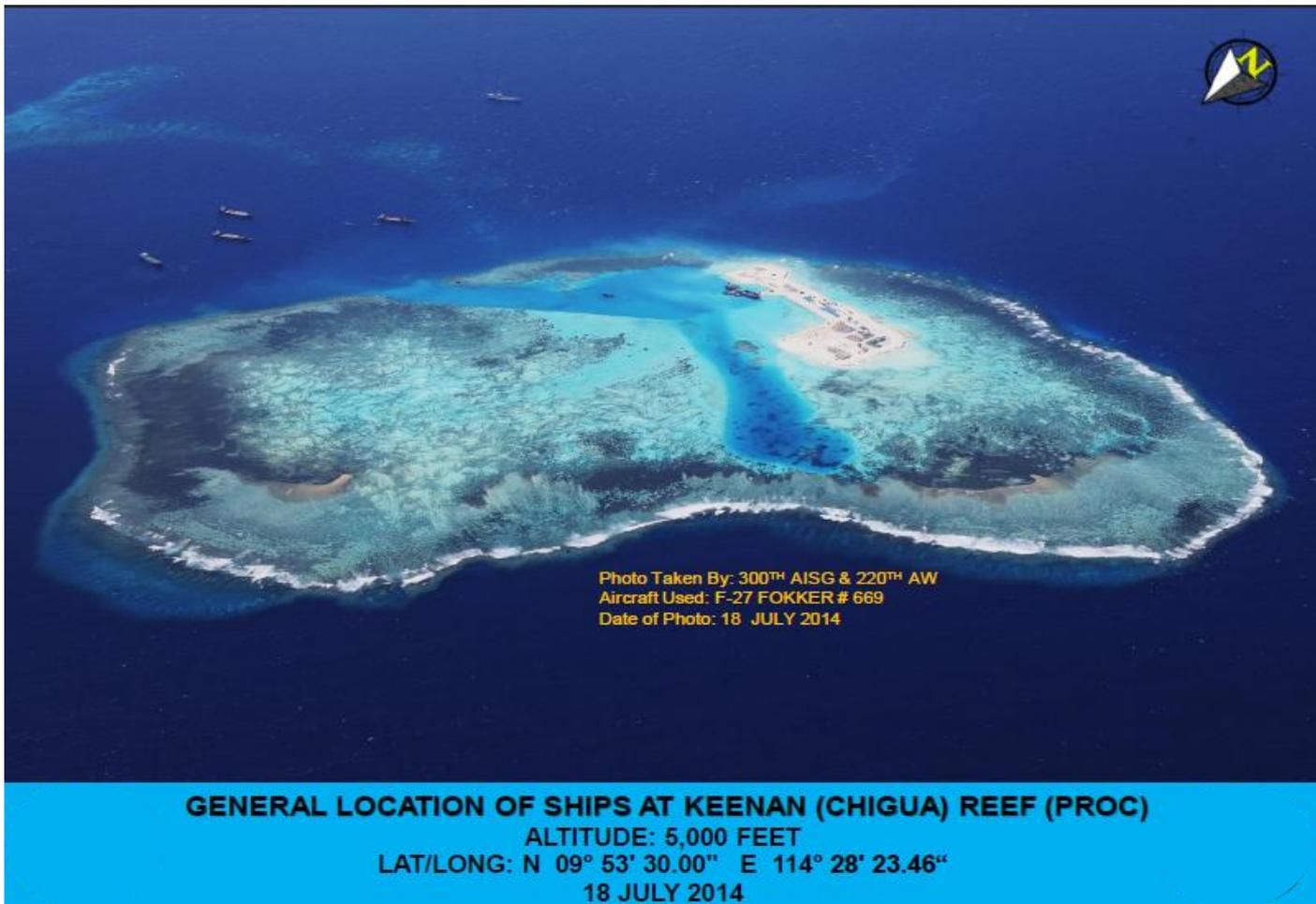




Photo Taken By: 300TH AISG & 220TH AW
Aircraft Used: F-27 FOKKER # 669
Date of Photo: 18 JULY 2014

ON-GOING CONSTRUCTION ON RECLAIMED AREA
KEENAN (CHIGUA) REEF (PROC)
ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
18 JULY 2014



**ON-GOING CONSTRUCTION ACTIVITY ON RECLAIMED
AREA OF KEENAN (CHIGUA) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
18 JULY 2014



KEENAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"

29 JULY 2014



ON-GOING CEMENT LAYING

TEMPORARY SHELTER

SAND AND GRAVEL



**ON-GOING CONSTRUCTION ACTIVITY ON RECLAIMED
AREA OF KEENAN (CHIGUA) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
29 JULY 2014



**ON-GOING CONSTRUCTION ACTIVITY ON RECLAIMED AREA OF
KENNAN (CHIGUA) REEF (PROC)**

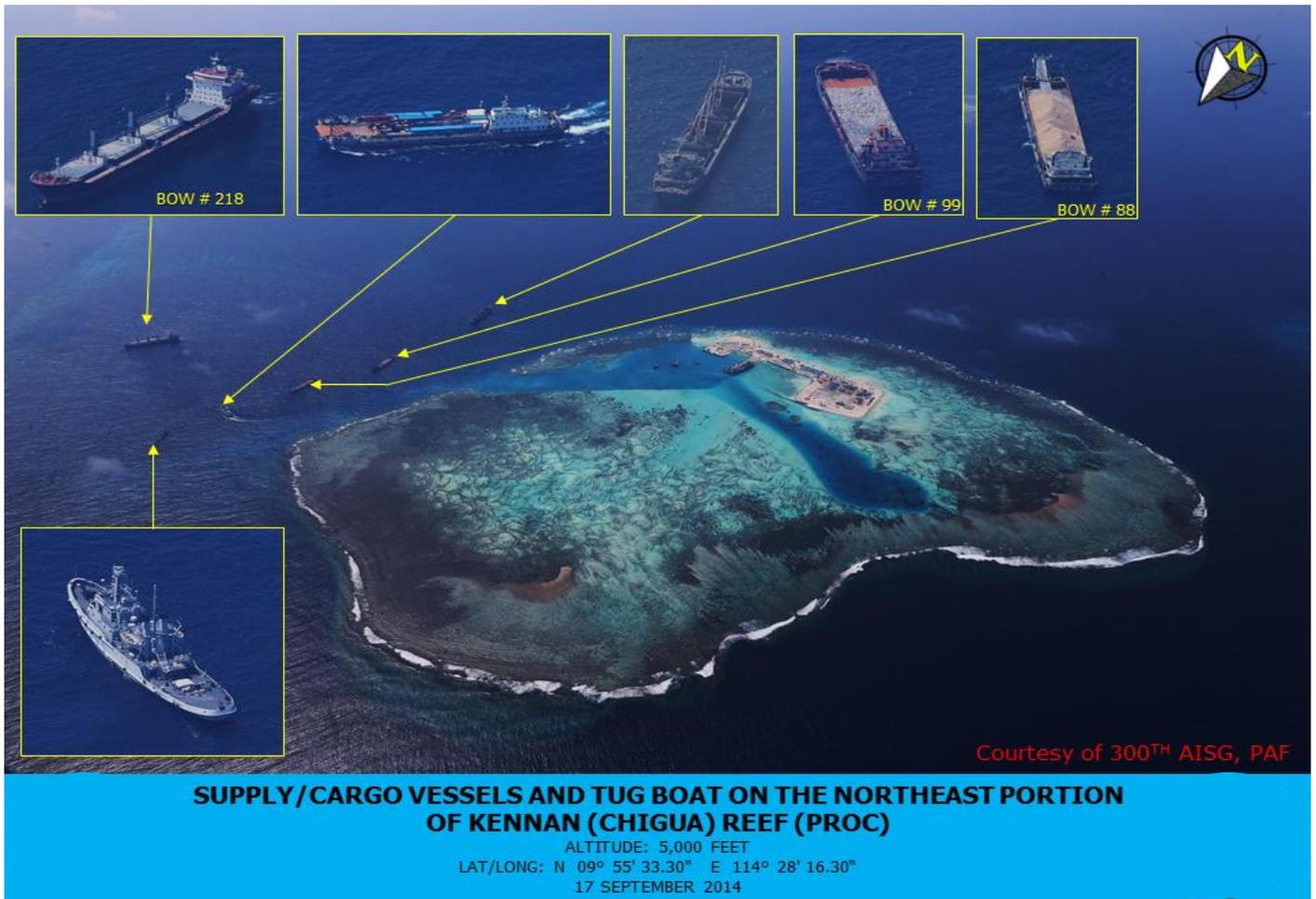
ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
12 AUGUST 2014



Courtesy of 300TH A1SG, PAF

**ON-GOING CONSTRUCTION ACTIVITY ON RECLAIMED AREA OF
KENNAN (CHIGUA) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
12 AUGUST 2014







Courtesy of 300TH AISG, PAF

ON-GOING CONSTRUCTION ACTIVITIES ON KENNAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"
17 SEPTEMBER 2014



ON-GOING CONSTRUCTION ACTIVITIES ON KENNAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET
 LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"
 17 SEPTEMBER 2014





ON-GOING CONSTRUCTION ACTIVITIES ON KENNAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 55' 33.30" E 114° 28' 16.30"
17 SEPTEMBER 2014



Courtesy of 800th AFS, PAF

KENNAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
17 SEPTEMBER 2014



Courtesy of 300TH AMSG, PAF

KENNAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"

17 SEPTEMBER 2014







KENNAN (CHIGUA) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"

05 OCTOBER 2014



KENNAN (CHIGUA) REEF (PROC)
ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
05 OCTOBER 2014





KENNAN (CHIGUA) REEF (PROC)
ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 53' 30.00" E 114° 28' 23.46"
21 OCTOBER 2014



FURNISHED TO: A2

RECLAIMED AREA AT CHIGUA(KENNAN) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 54' 10.95" E 114° 29' 52.39"

28 JANUARY 2015



"DANXIASHAN" YUTING-II TYPE 072III-CLASS LANDING SHIP BOW # 934

CARGO/SUPPLY VESSELS BOW NUMBERS "699" AND "588"

FURNISHED TO: A2

CHIGUA(KENNAN) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 54' 10.95" E 114° 29' 52.39"
28 JANUARY 2015



**ON-GOING CONSTRUCTION OF MULTI-STOREY CONCRETE
STRUCTURE AT CHIGUA (KENNAN) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 54' 10.95" E 114° 29' 52.39"
28 JANUARY 2015



FURNISHED TO: A2

**ON-GOING CONSTRUCTION OF THREE (3) RECTANGULAR AND ONE (1)
OCTAGONAL CONCRETE STRUCTURES AT CHIGUA(KENNAN) REEF (PROC)**

ALTITUDE: 5,000 FEET

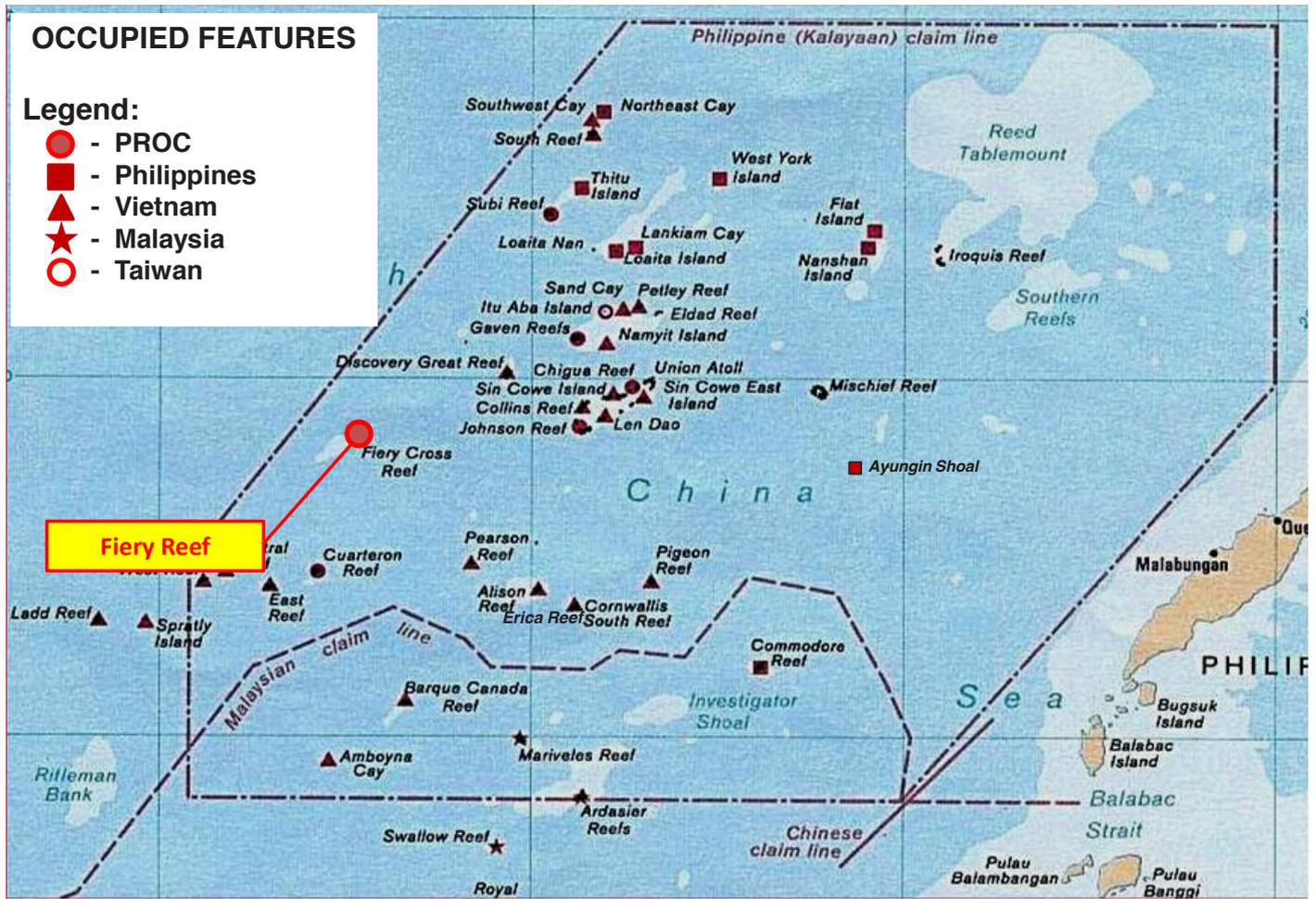
LAT/LONG: N 09° 54' 10.95" E 114° 29' 52.39"

28 JANUARY 2015

Annex 785

Armed Forces of the Philippines, *Aerial Photographs of On-Going Reclamation at Fiery Cross Reef* (2014-2015)

FIERY CROSS REEF (PROC)

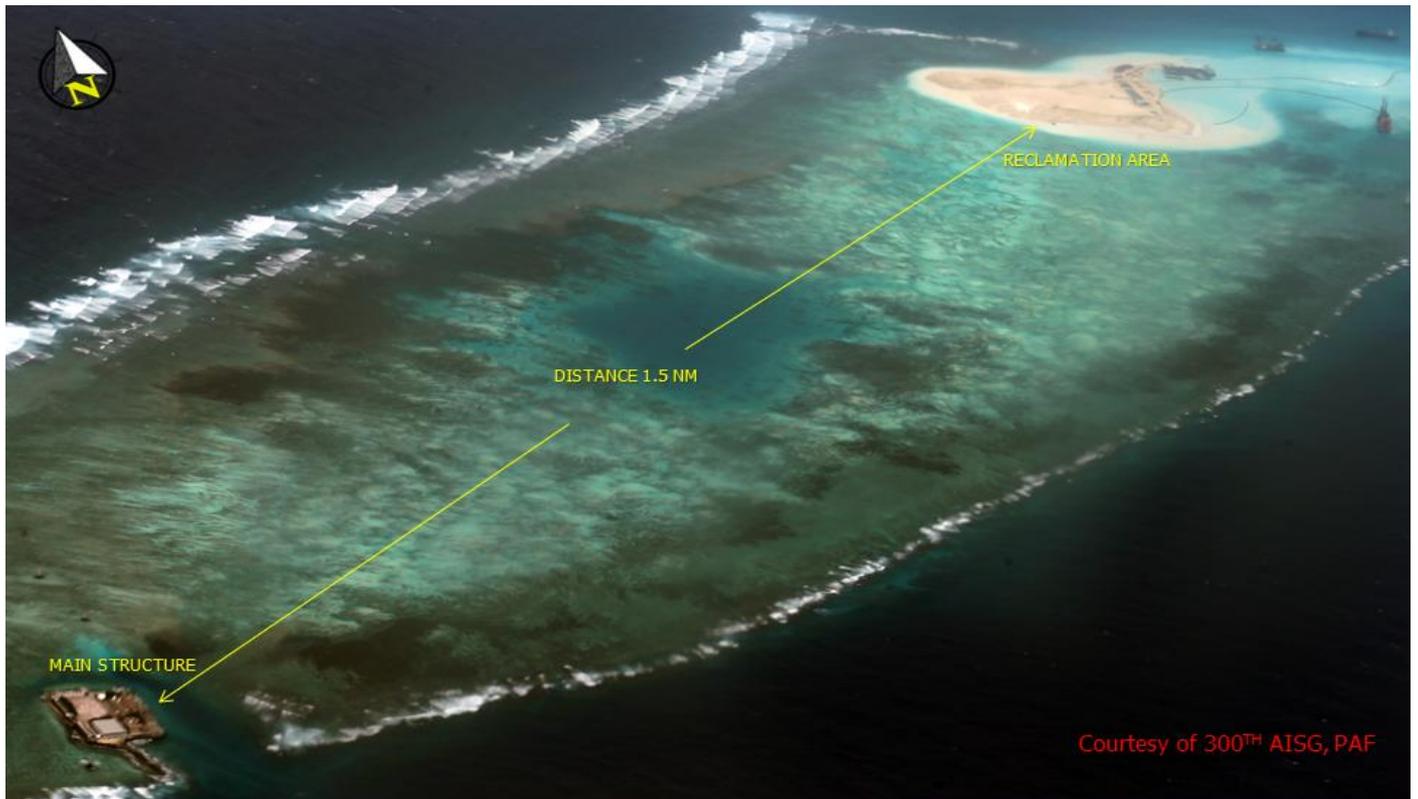




Courtesy of 300th AISG, PAF

**GENERAL LOCATION OF VESSELS, DREDGERS AND TUG BOATS
AT KAGITINGAN (FIERY CROSS) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 33' 00.00" E 112° 54' 00.01"
29 JULY 2014

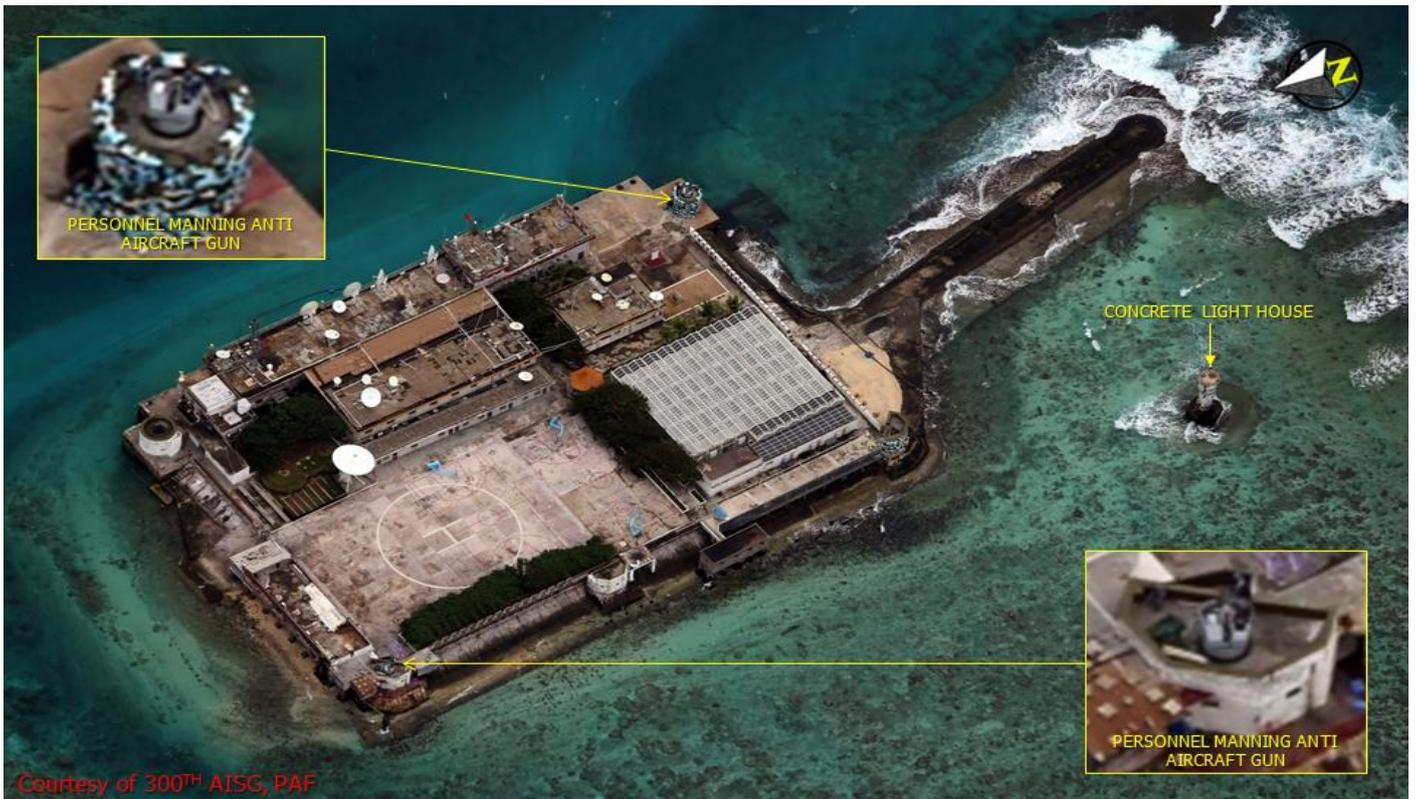


KAGITINGAN(FIERY CROSS) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 32' 03.30" E 112° 52' 50.10"

13 SEPTEMBER 2014



Courtesy of 300th AISG, PAF

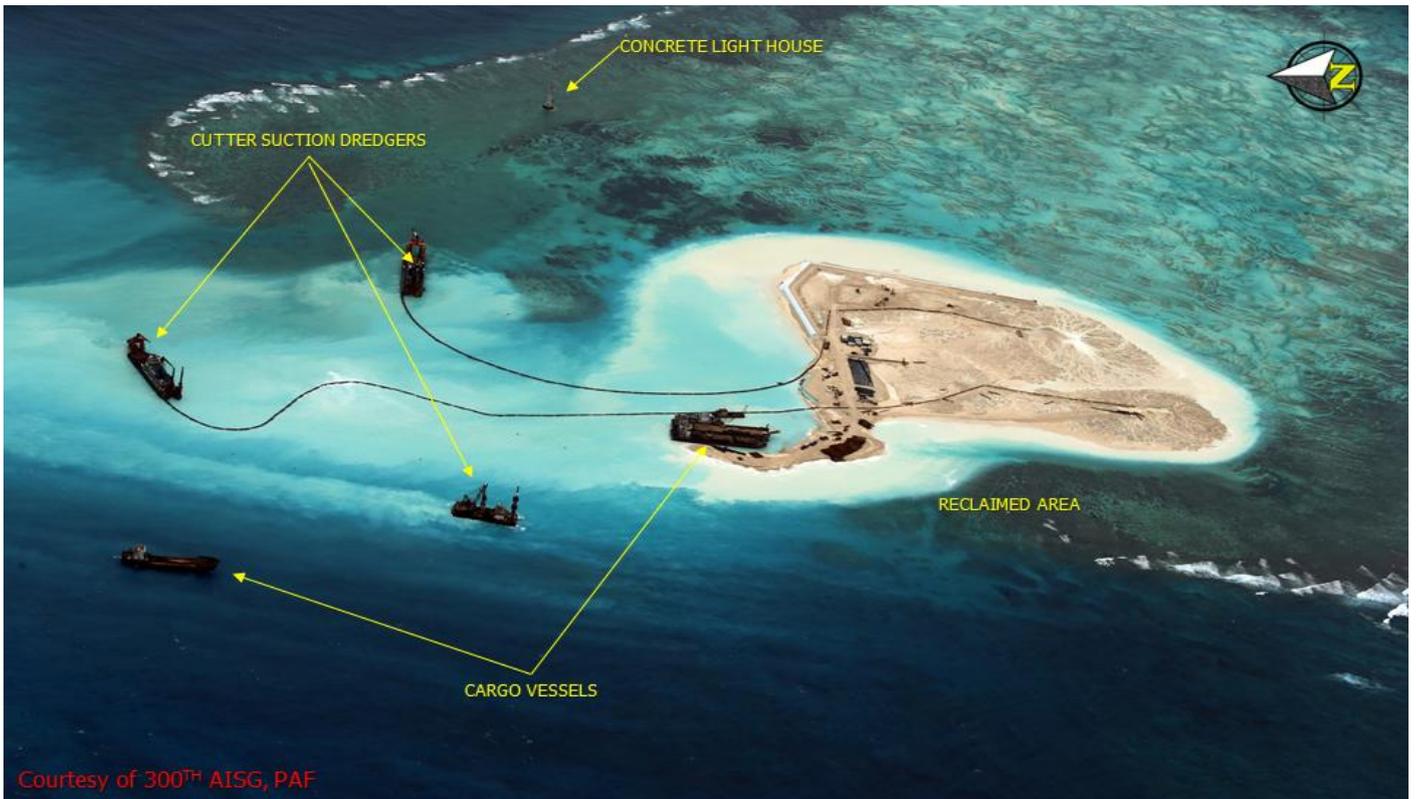
KAGITINGAN (FIERY CROSS) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 32' 03.30" E 112° 52' 50.10"
13 SEPTEMBER 2014



ON-GOING RECLAMATION AT KAGITINGAN (FIERY CROSS) REEF (PROC)

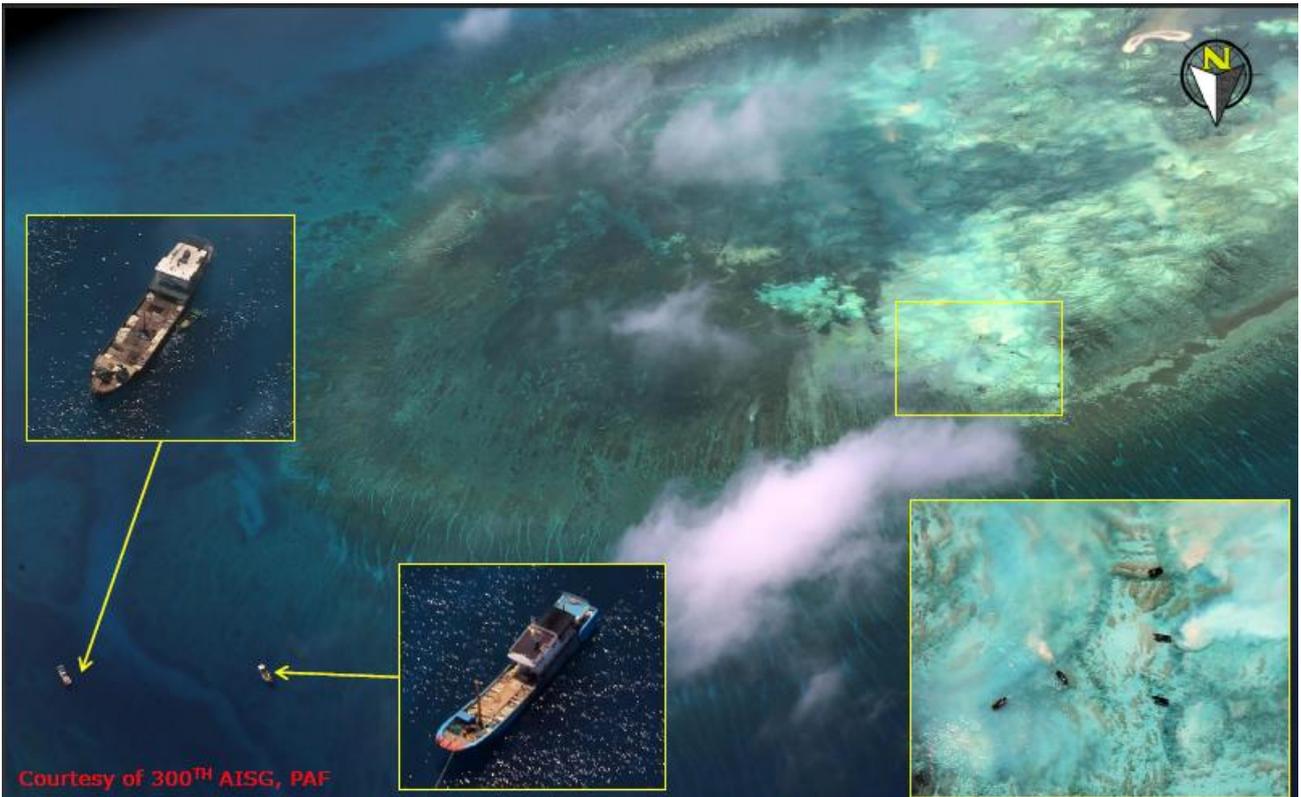
ALTITUDE: 5,000 FEET
LAT/LONG: N 9°33'26.94" 112°53'57.97"E
13 SEPTEMBER 2014



**ON-GOING RECLAMATION AT KAGITINGAN
(FIERY CROSS) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: 9°33'26.94"N 112°53'57.97"E
13 SEPTEMBER 2014





Courtesy of 300th AISG, PAF

**TWO CHINESE FISHING VESSELS WITH FIVE SMALL BOATS SPOTTED
POACHING AT A REEF APPROX 8NM NORTHEAST OF
FIERY CROSS (KAGITINGAN) REEF (PROC)
LAT/LONG: N 09° 39' 56.00" E 112° 59' 35.69"
25 SEPTEMBER 2014**

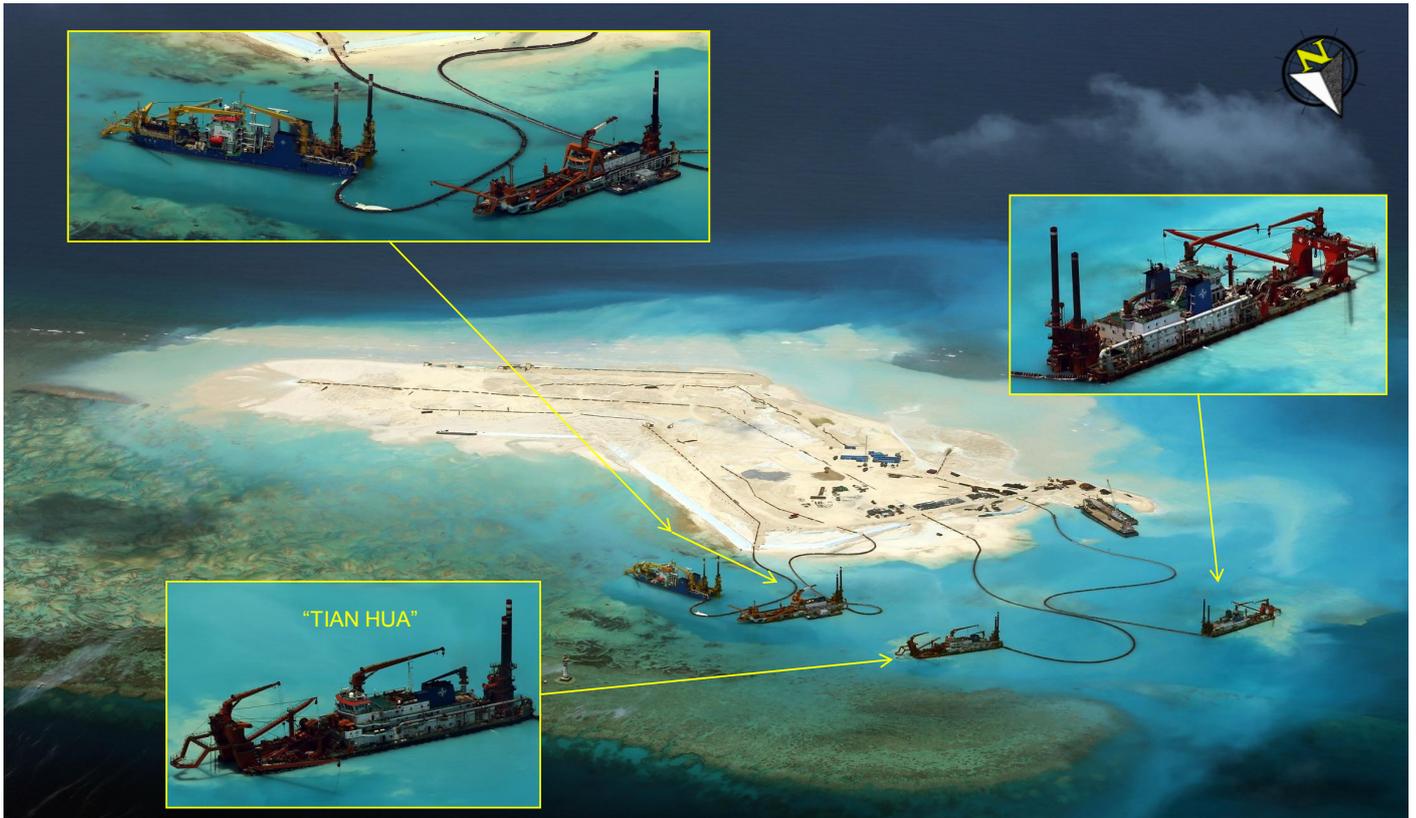




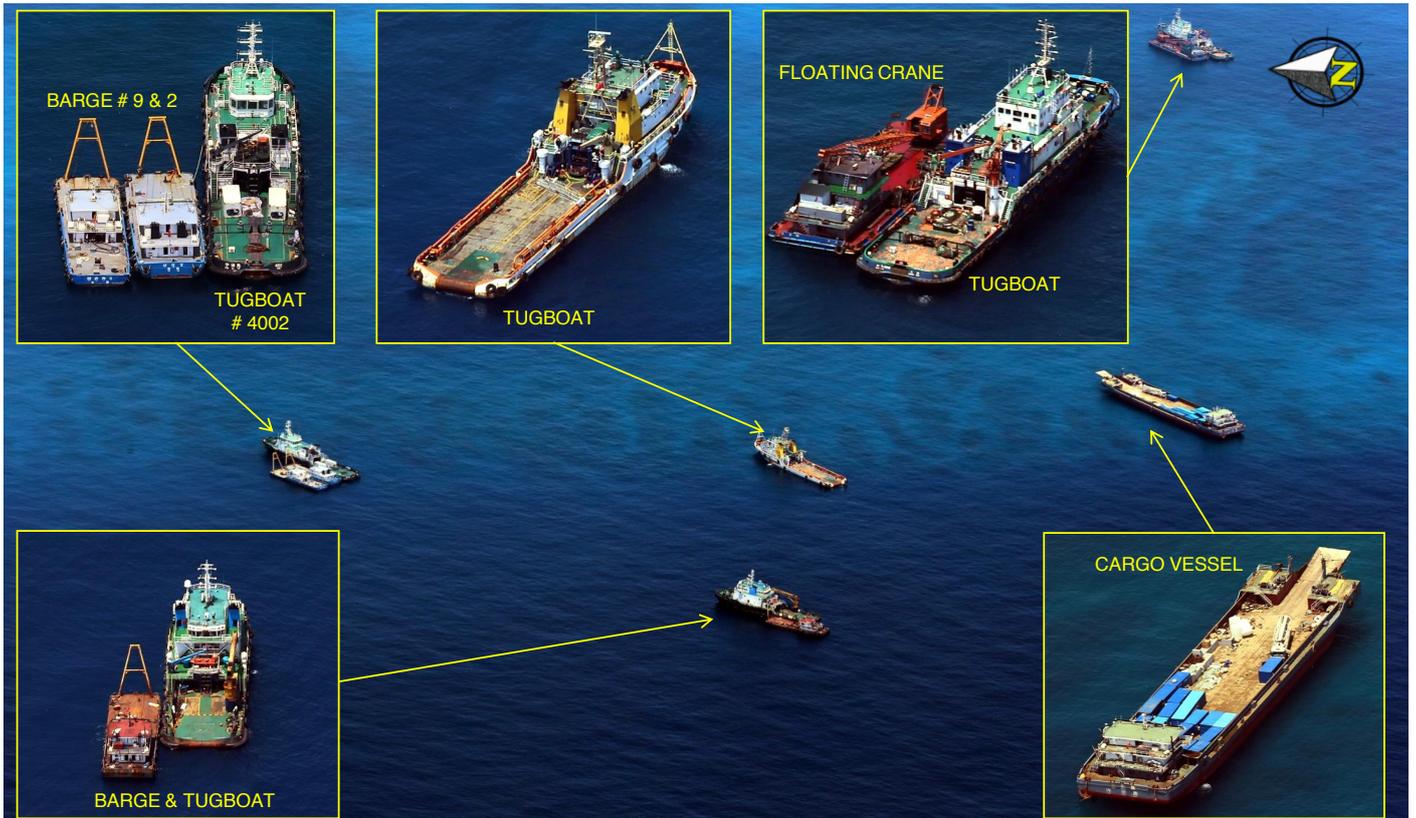
Courtesy of 300TH AISG, PAF

**ONGOING RECLAMATION AT
KAGITINGAN (FIERY CROSS) REEF (PROC)**
LAT/LONG: N 09° 32' 03.30" E 112° 52' 50.10"
25 SEPTEMBER 2014

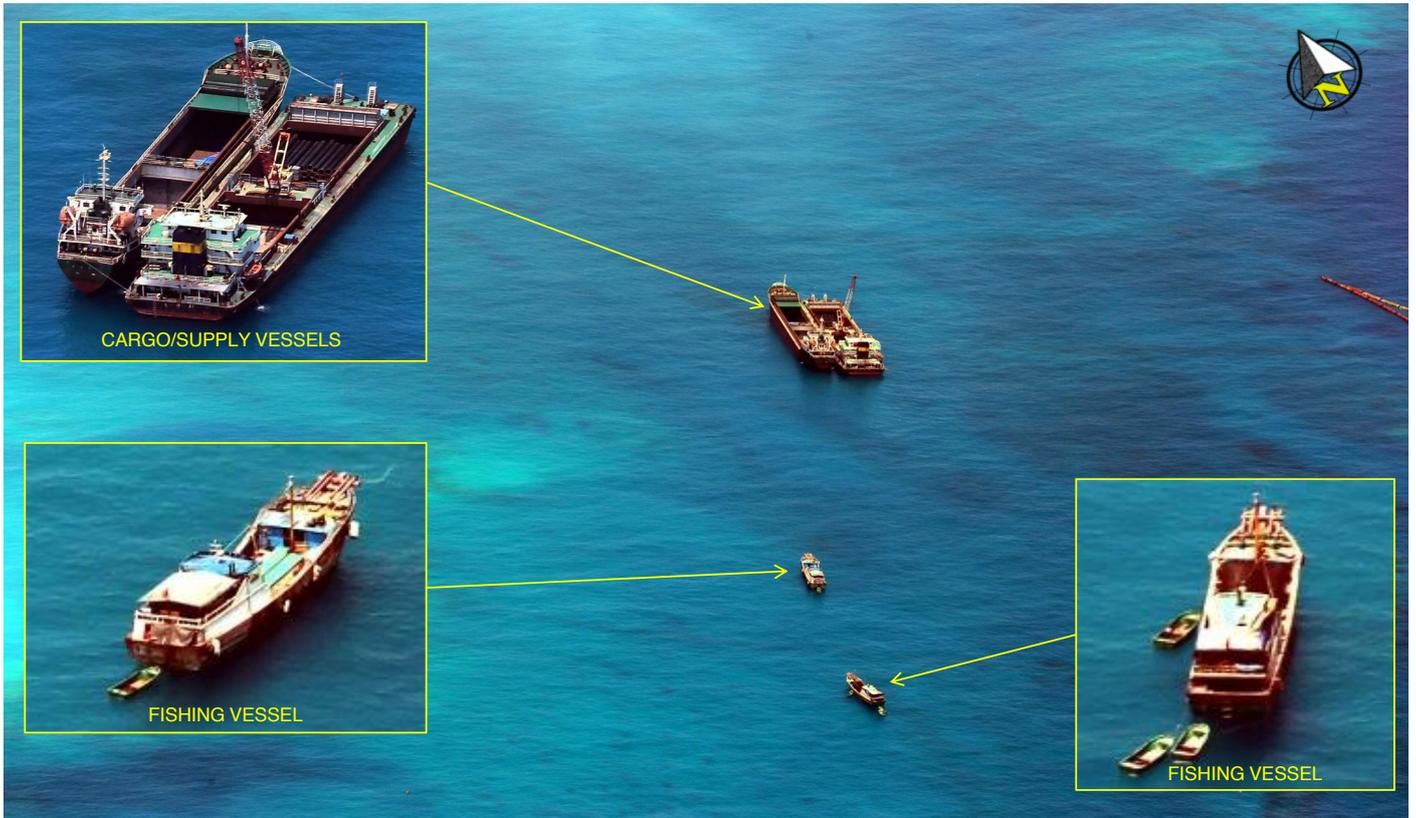




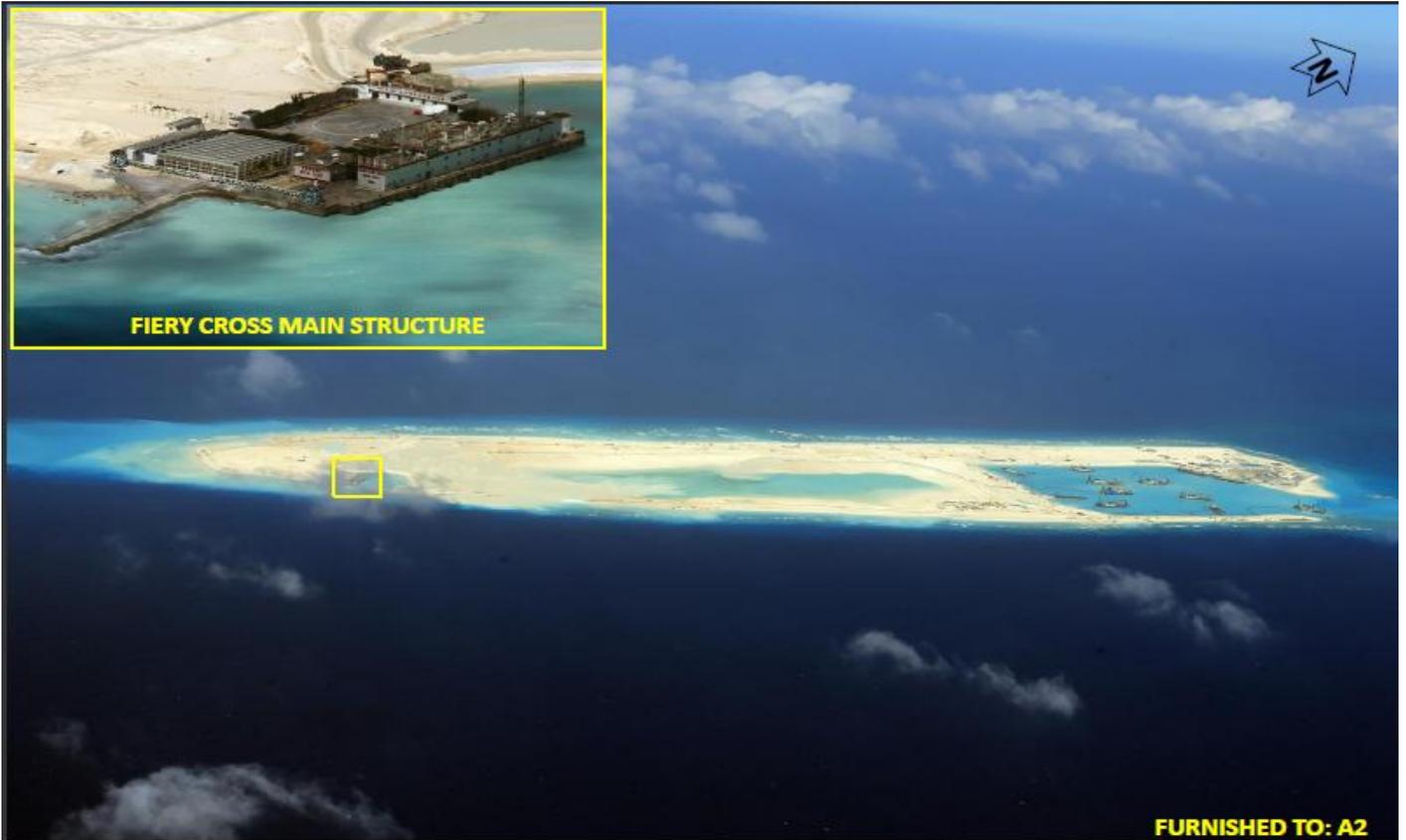
**CUTTER SUCTION DREDGERS AT
KAGITINGAN (FIERY CROSS) REEF (PROC)**
LAT/LONG: N 09° 32' 03.30" E 112° 52' 50.10"
04 OCTOBER 2014



**SHIPS AND VESSELS AT
KAGITINGAN (FIERY CROSS) REEF (PROC)**
LAT/LONG: N 09° 32' 03.30" E 112° 52' 50.10"
04 OCTOBER 2014



**SHIPS AND VESSELS AT
KAGITINGAN (FIERY CROSS) REEF (PROC)**
LAT/LONG: N 09° 32' 03.30" E 112° 52' 50.10"
04 OCTOBER 2014



FIERY CROSS MAIN STRUCTURE

FURNISHED TO: A2

KAGITINGAN (FIERY CROSS) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 35' 51.60" E 112° 55' 47.51"
28 JANUARY 2015



FURNISHED TO: A2

**SEVEN (7) CUTTER SUCTION DREDGERS AND SEVEN (7) CARGO/SUPPLY VESSELS
AT KAGITINGAN (FIERY CROSS) REEF (PROC)**

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 35' 51.60" E 112° 55' 47.51"

28 JANUARY 2015



ON-GOING RECLAMATION ACTIVITY AT KAGITINGAN (FIERY CROSS) REEF (PROC)
ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 35' 51.60" E 112° 55' 47.51"
28 JANUARY 2015



FURNISHED TO: A2

ON-GOING RECLAMATION ACTIVITY AT KAGITINGAN (FIERY CROSS) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 35' 51.60" E 112° 55' 47.51"

28 JANUARY 2015



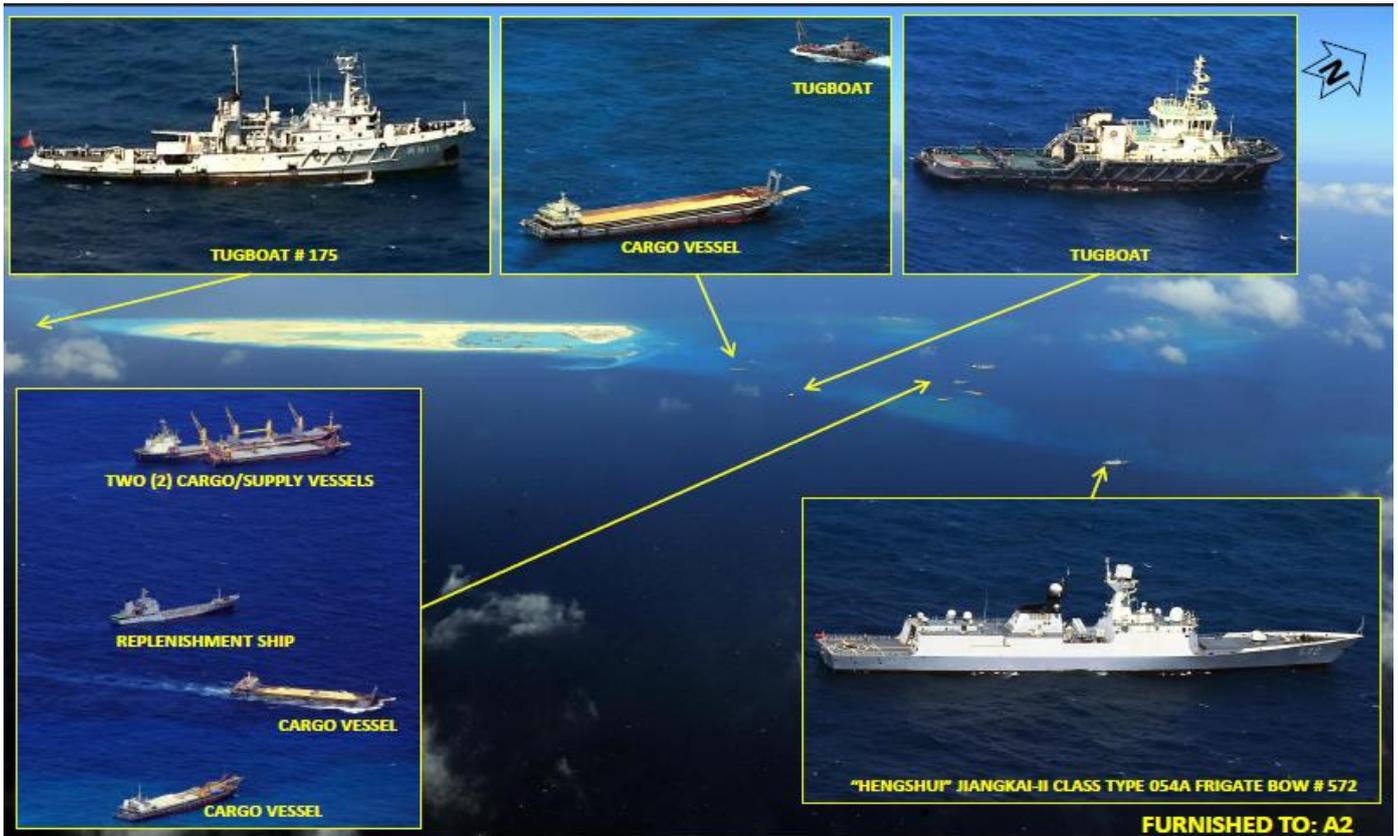
FURNISHED TO: A2

ON-GOING RECLAMATION ACTIVITY AT KAGITINGAN (FIERY CROSS) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 35' 51.60" E 112° 55' 47.51"

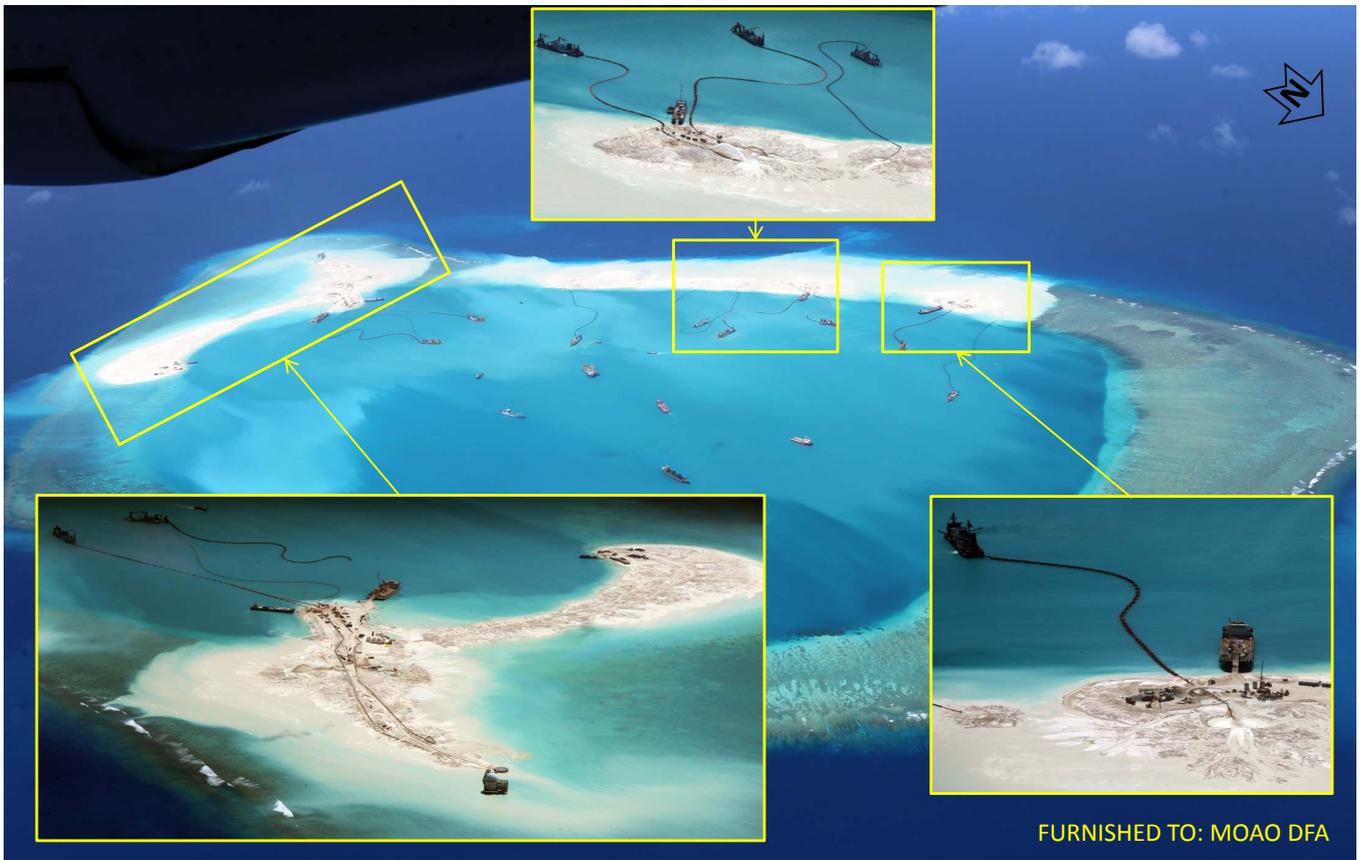
28 JANUARY 2015



**DISPOSITION OF CHINESE SHIPS, CARGO/SUPPLY VESSELS AND TUGBOATS
AT KAGITINGAN (FIERY CROSS) REEF (PROC)
ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 35' 51.60" E 112° 55' 47.51"
28 JANUARY 2015**

Annex 786

Armed Forces of the Philippines, *Aerial Photographs of On-Going Reclamation at Subi Reef* (Feb. 2015-
Mar. 2015)



**GENERAL AREA LOCATION OF THE ON-GOING DREDGING
AT ZAMORA (SUBI) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015



ON-GOING SAND DREDGING AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
19 FEBRUARY 2015



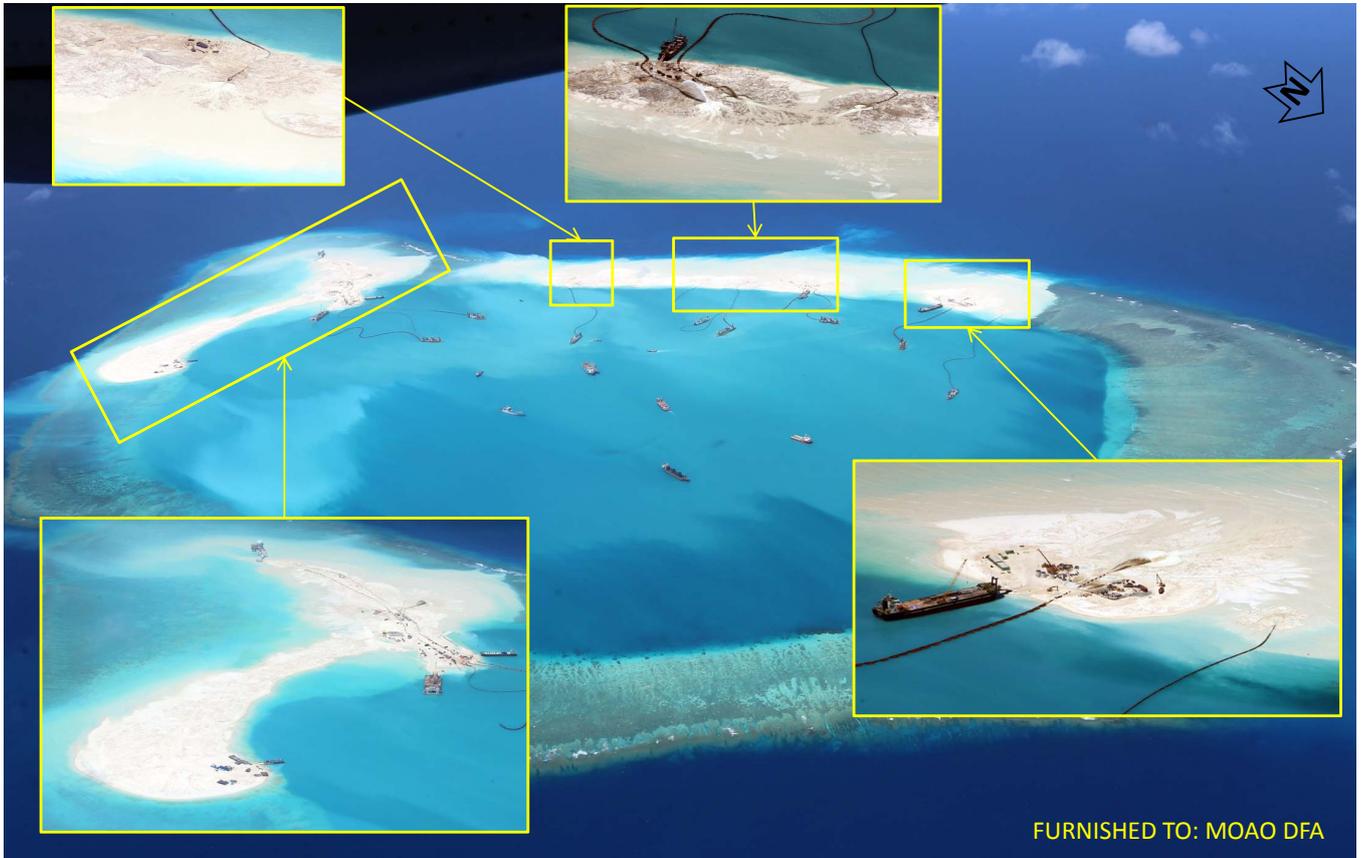
ON-GOING SAND DREDGING AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
19 FEBRUARY 2015



ON-GOING SAND DREDGING AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015



FURNISHED TO: MOAO DFA

**GENERAL AREA LOCATION OF THE RECLAIMED AREA
AT ZAMORA (SUBI) REEF (PROC)**

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015



RECLAIMED AREA AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015



FURNISHED TO: MOAO DFA

RECLAIMED AREA AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"

06 MARCH 2015



FURNISHED TO: MOAO DFA

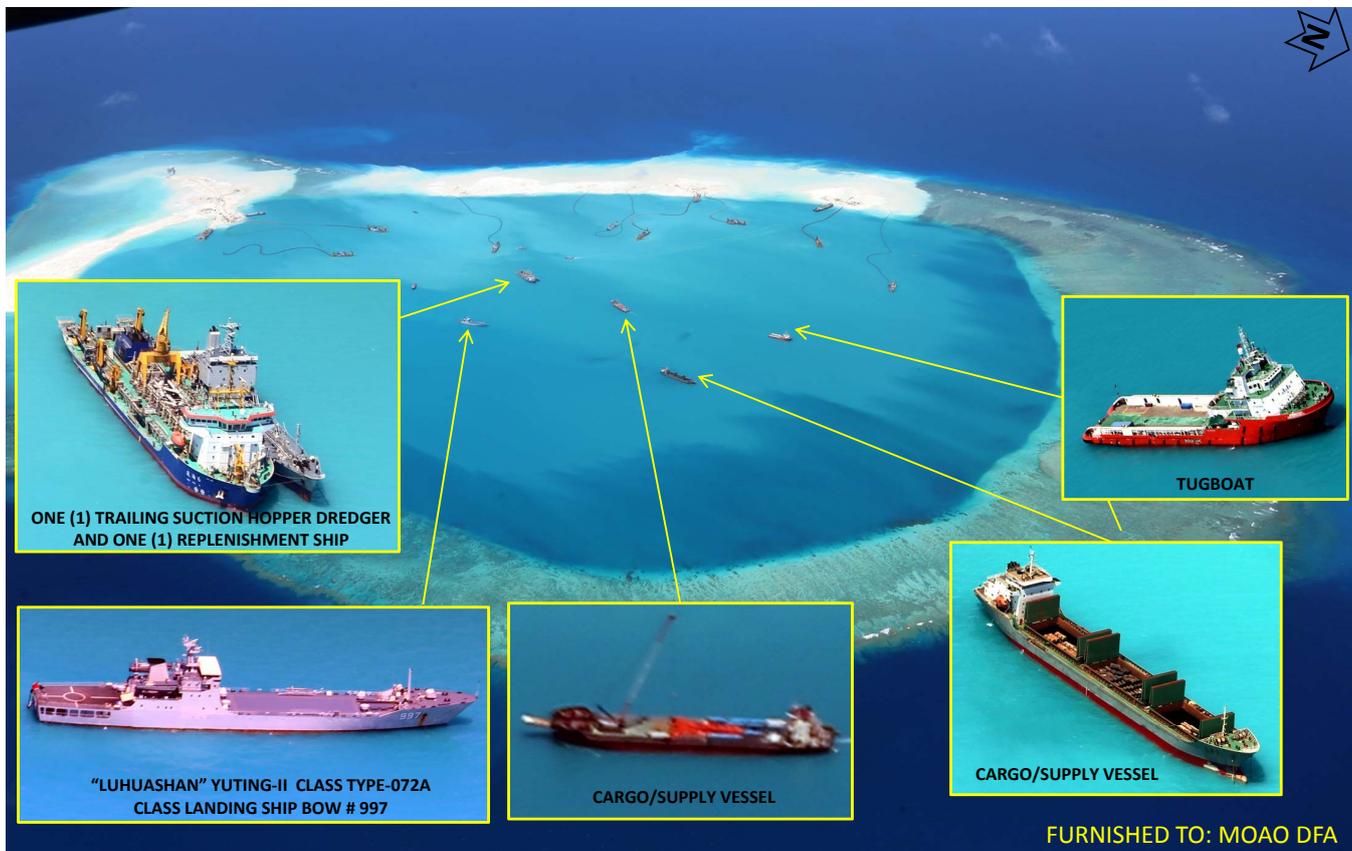
RECLAIMED AREA AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015



RECLAIMED AREA AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015



DISPOSITION OF OTHER SHIPS/VESSELS SPOTTED AT THE LAGOON OF ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"
06 MARCH 2015

Annex 787

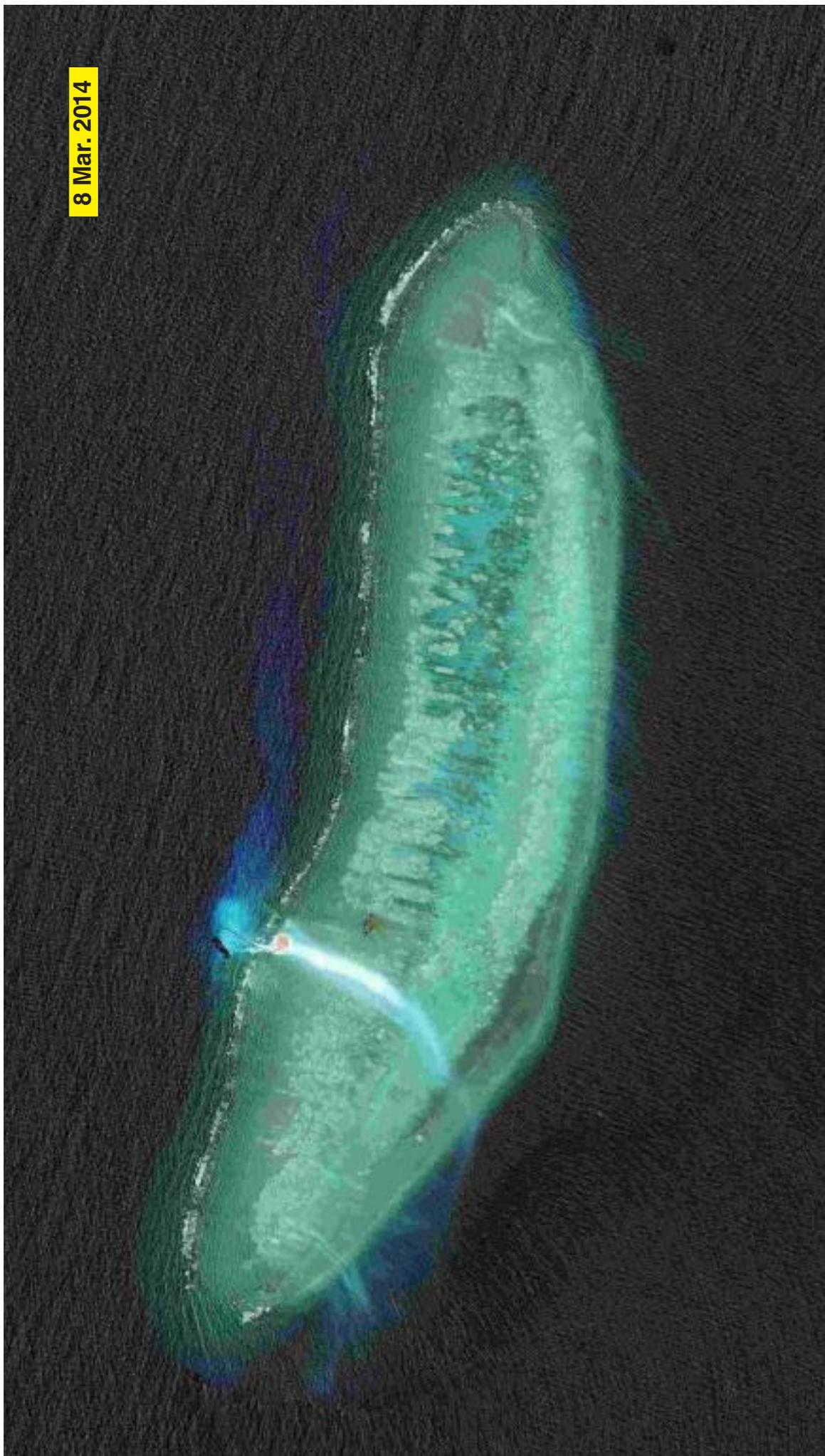
Compilation of Images of Cuarteron Reef (various sources) (compiled 13 Nov. 2015)

Cuarteron Reef

14 Jan. 2012



8 Mar. 2014



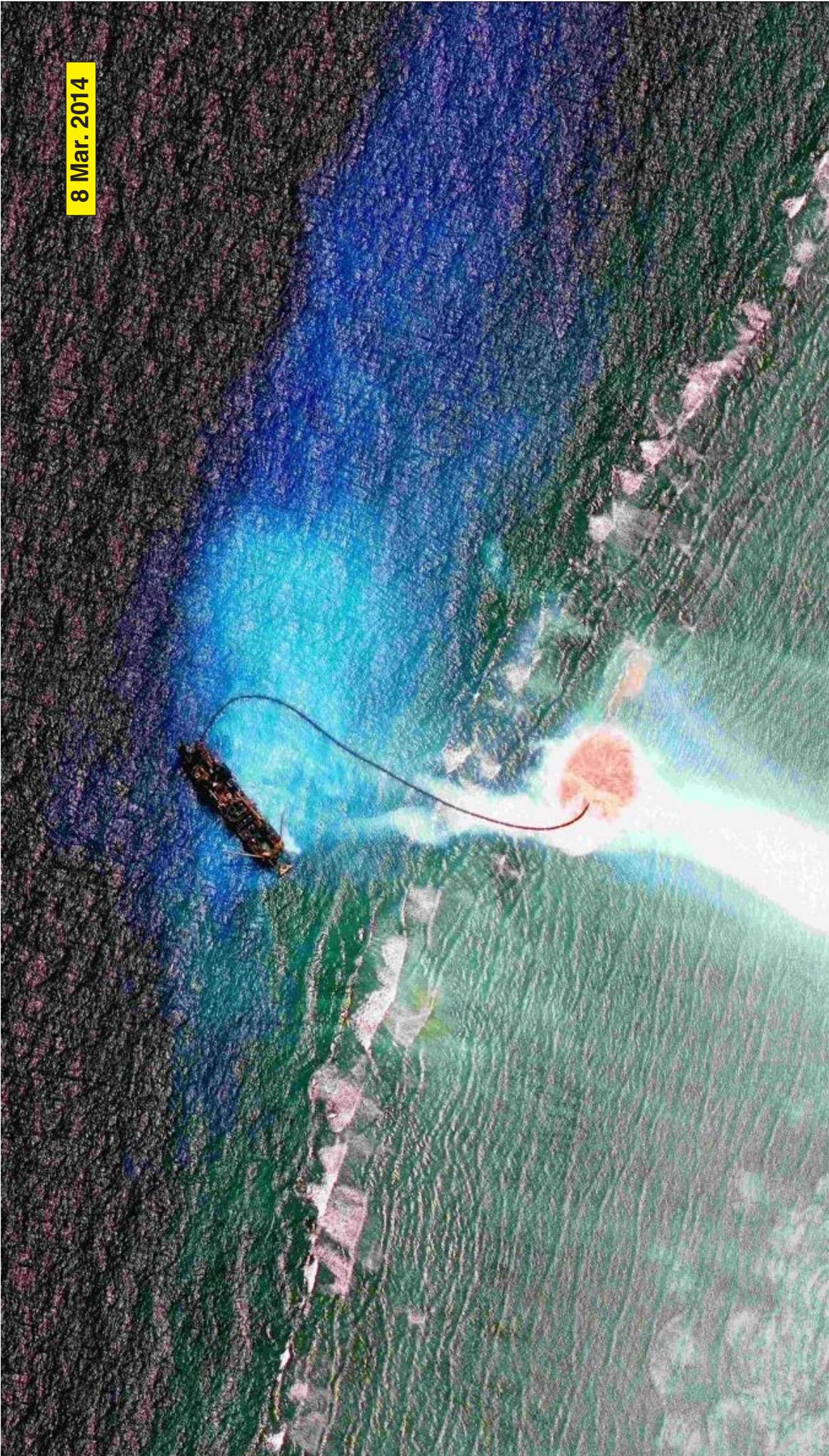
24 Sep. 2014



23 Aug. 2015



Enlargements of Satellite Images



8 Mar. 2014

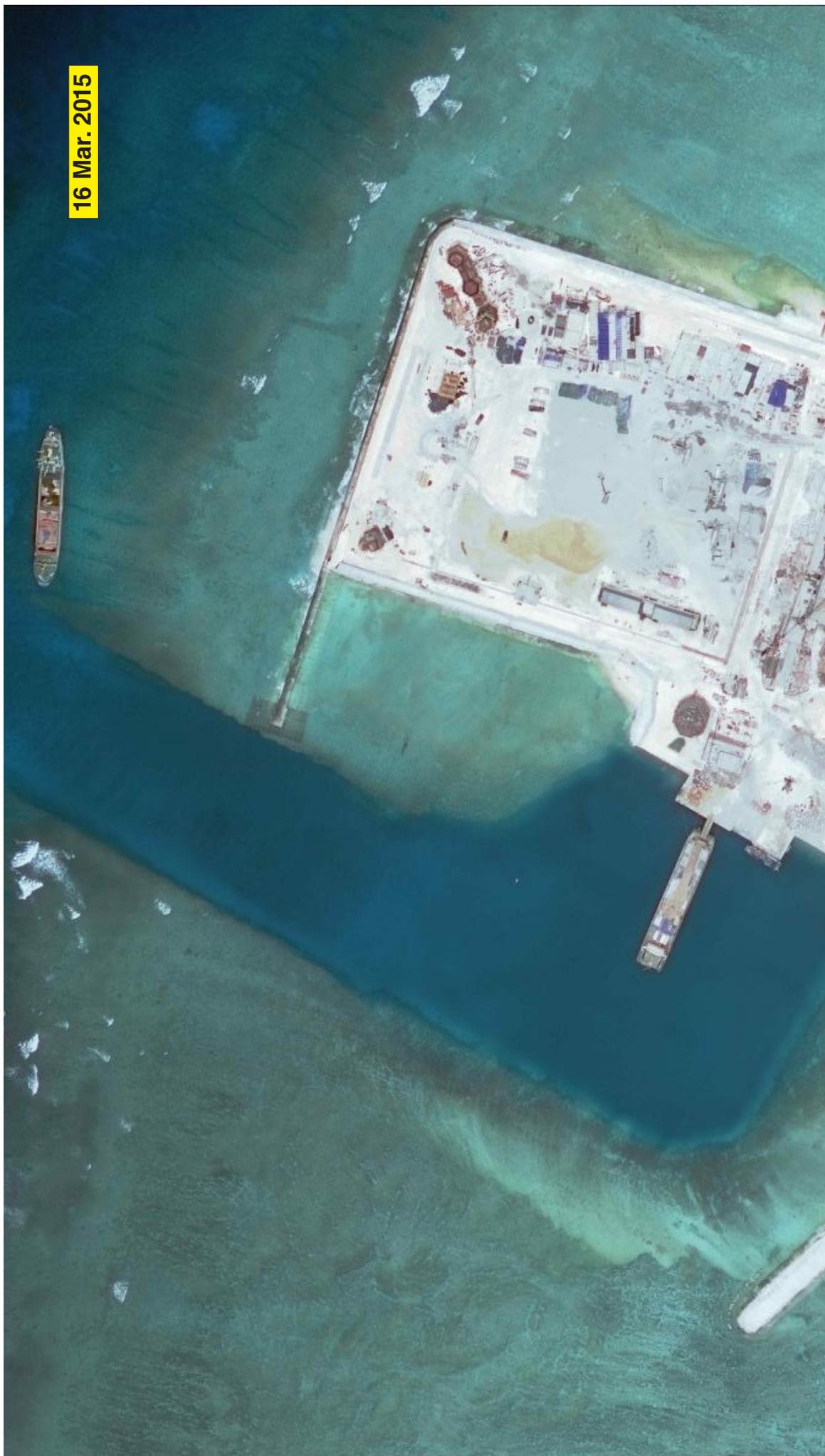


24 Sep. 2014

16 Mar. 2015

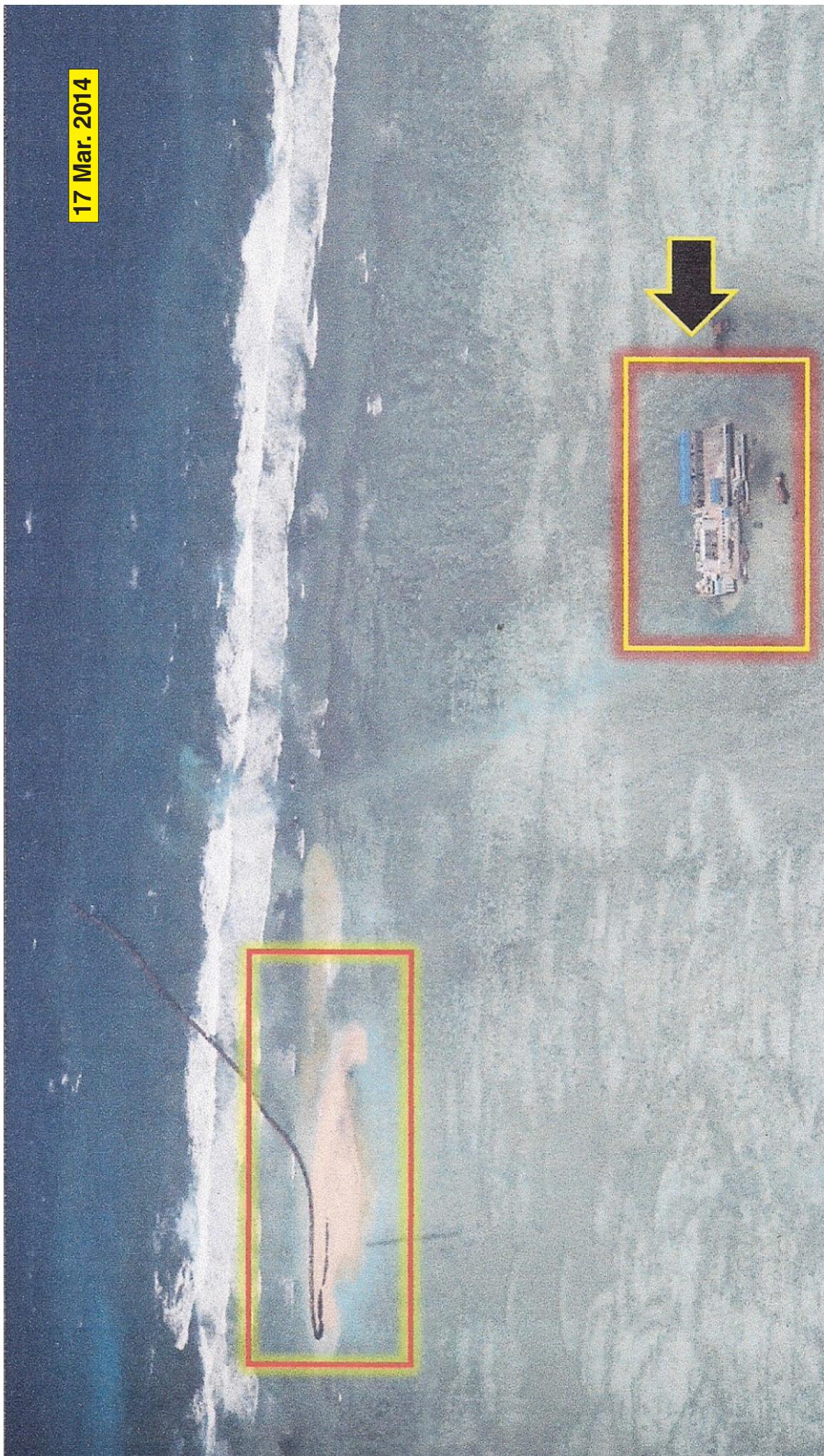


16 Mar. 2015



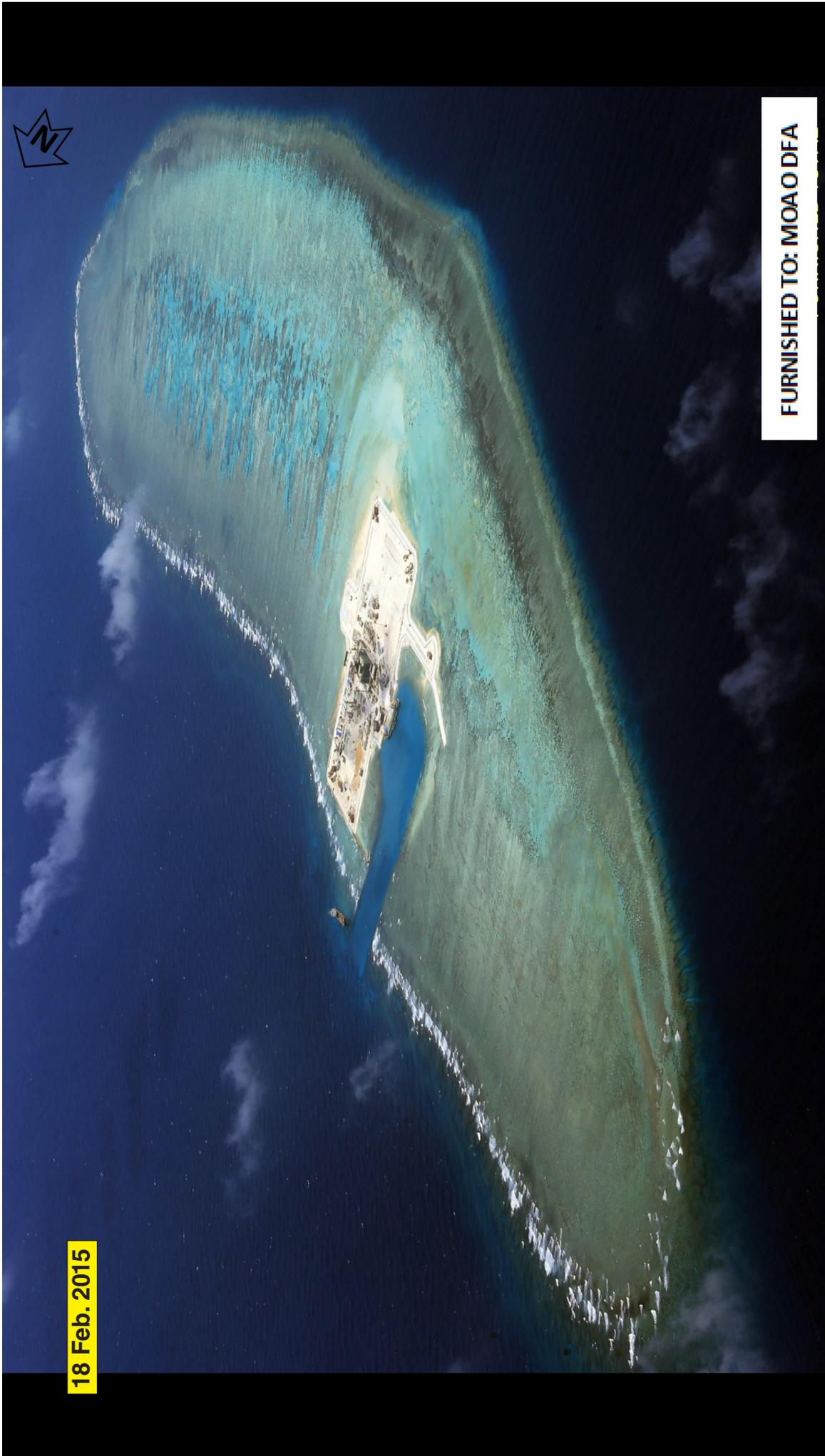
Oblique Photos

17 Mar. 2014





15 Nov. 2014



18 Feb. 2015

FURNISHED TO: MOAO DFA

18 Feb. 2015



FURNISHED TO: MOAO DFA



Annex 788

Compilation of Images of Fiery Cross Reef (various sources) (compiled 13 Nov. 2015)

Fiery Cross Reef



17 Jan. 2012



26 Sep. 2014



18 Mar. 2015



19 Oct. 2015





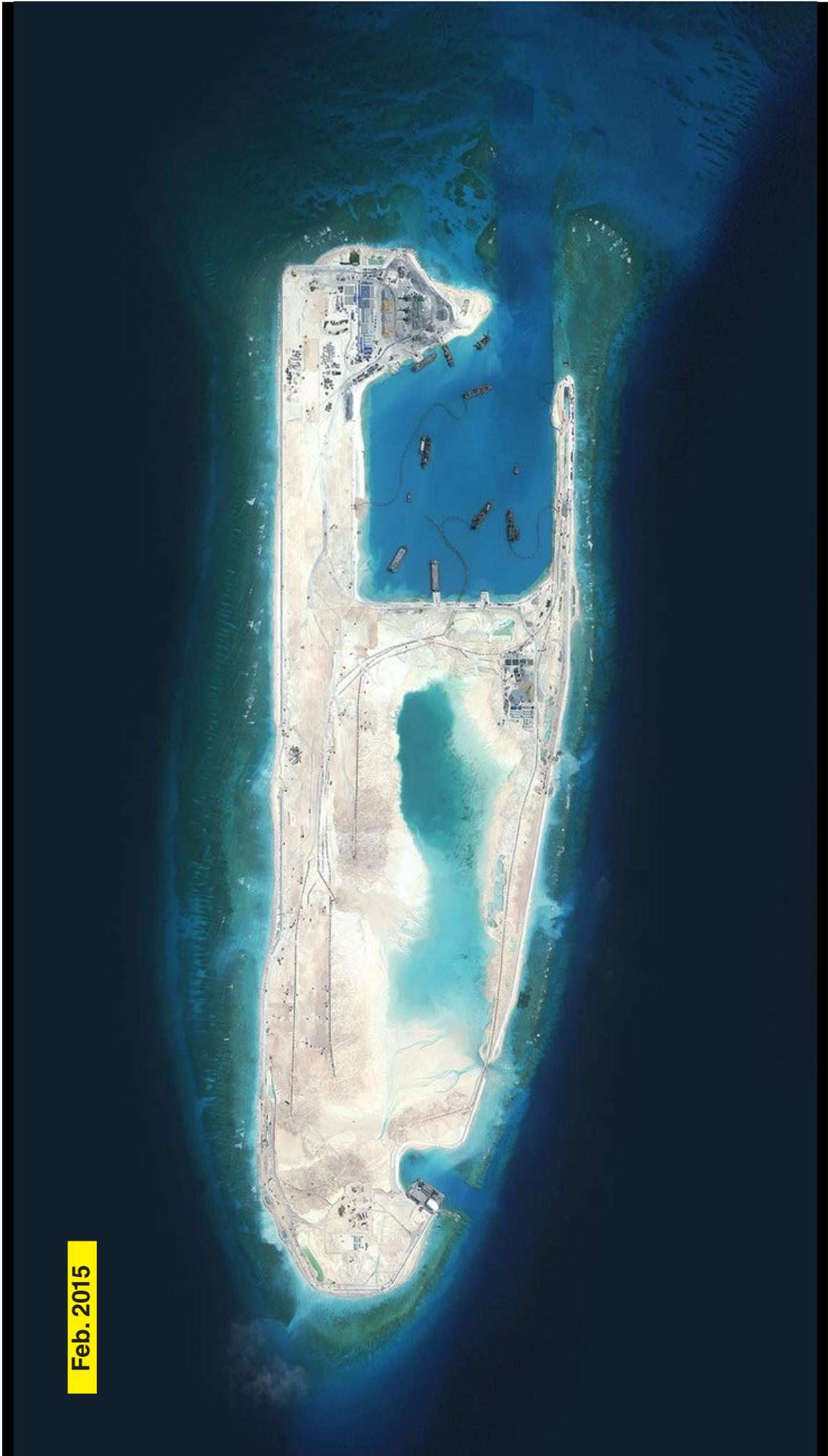
Sep. 2014



Nov. 2014



Dec. 2014



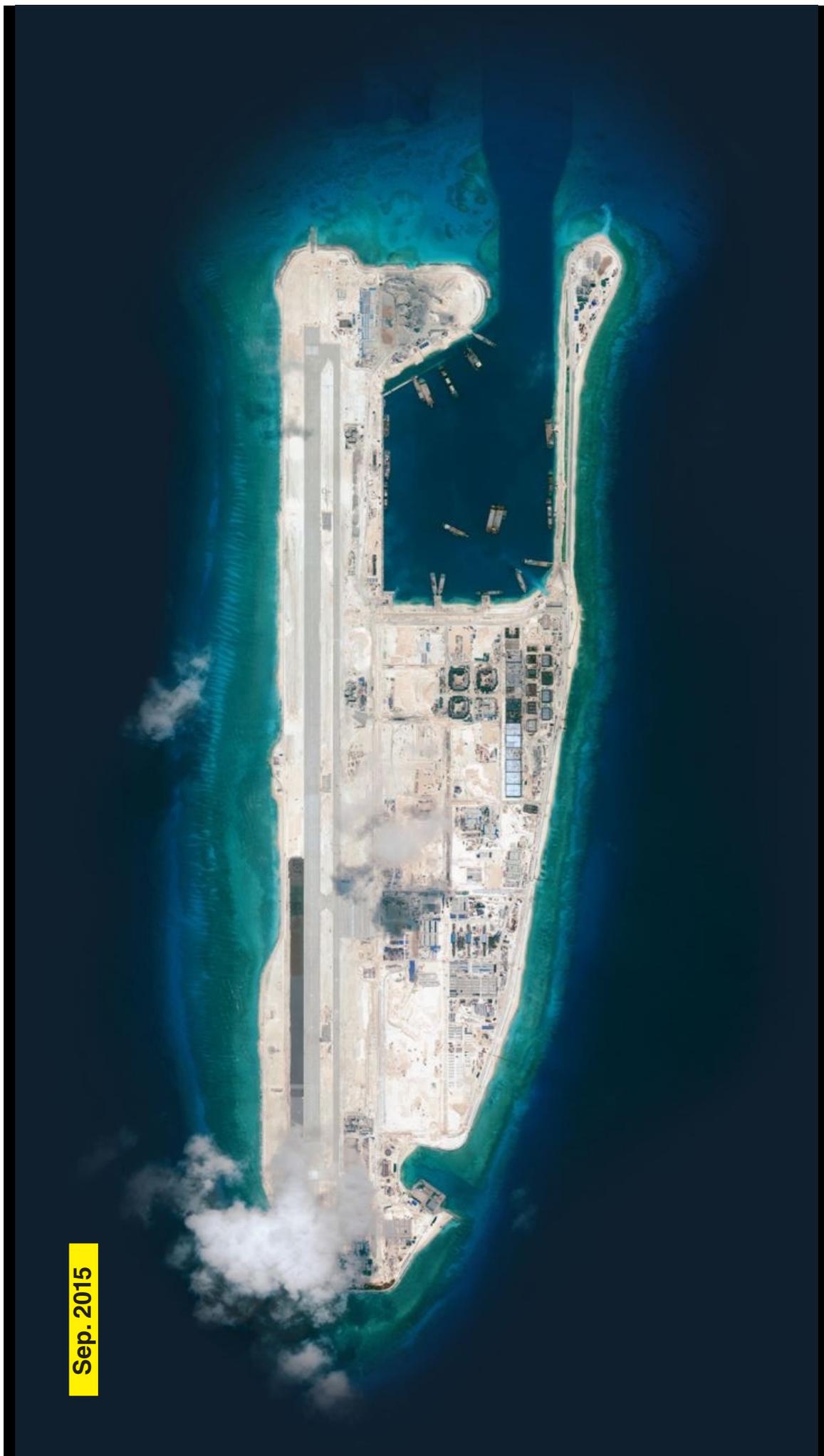
Feb. 2015



Apr. 2015



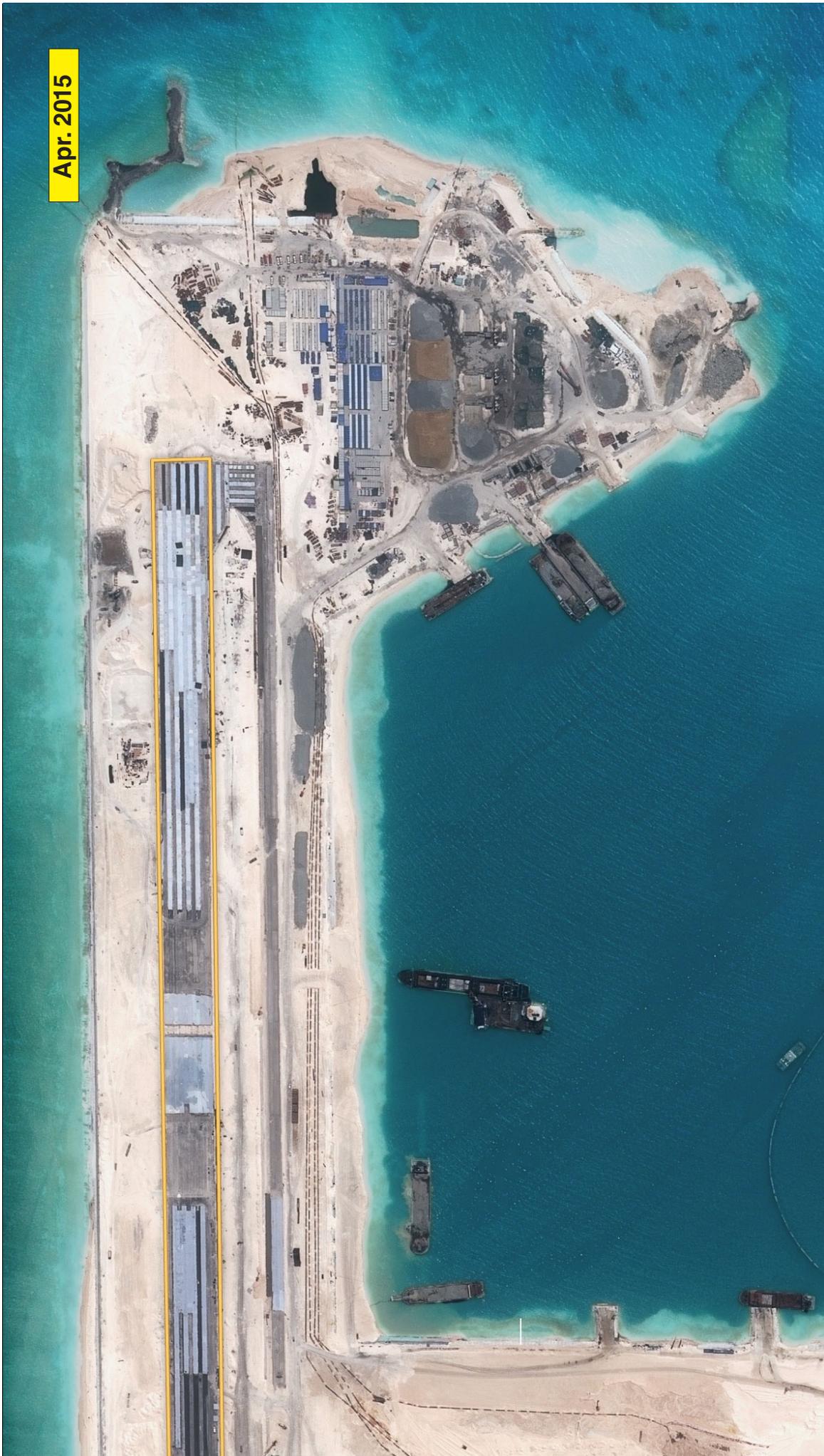
May 2015



Sep. 2015

Enlargements of Satellite Images

Apr. 2015



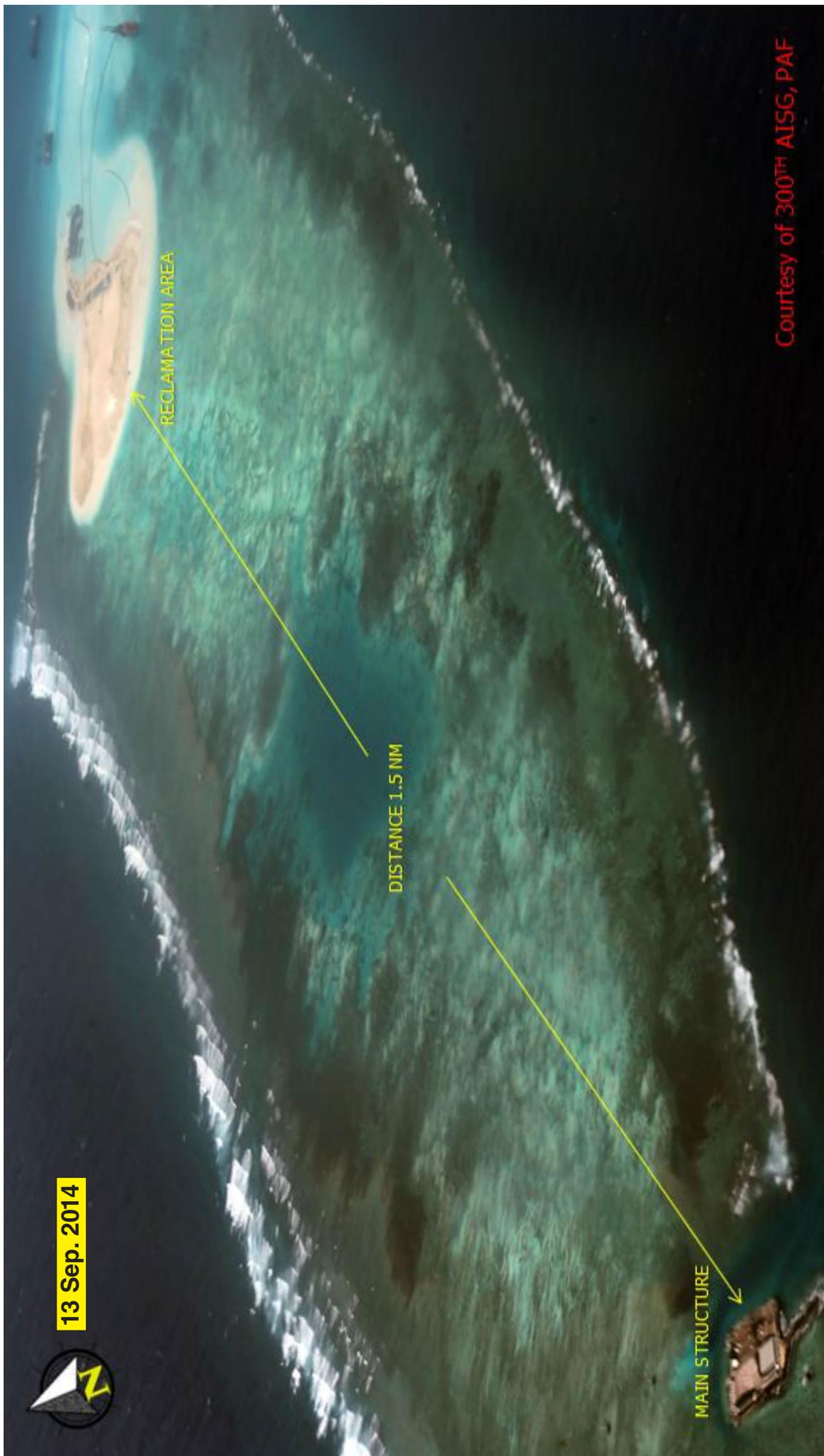
Apr. 2015



Sep. 2015



Oblique Photos



13 Sep. 2014



RECLAMATION AREA

DISTANCE 1.5 NM

MAIN STRUCTURE

Courtesy of 300TH AMSG, PAF



13 Sep. 2014

CONCRETE LIGHTHOUSE

PERSONNEL MANNING ANTI
AIRCRAFT GUN

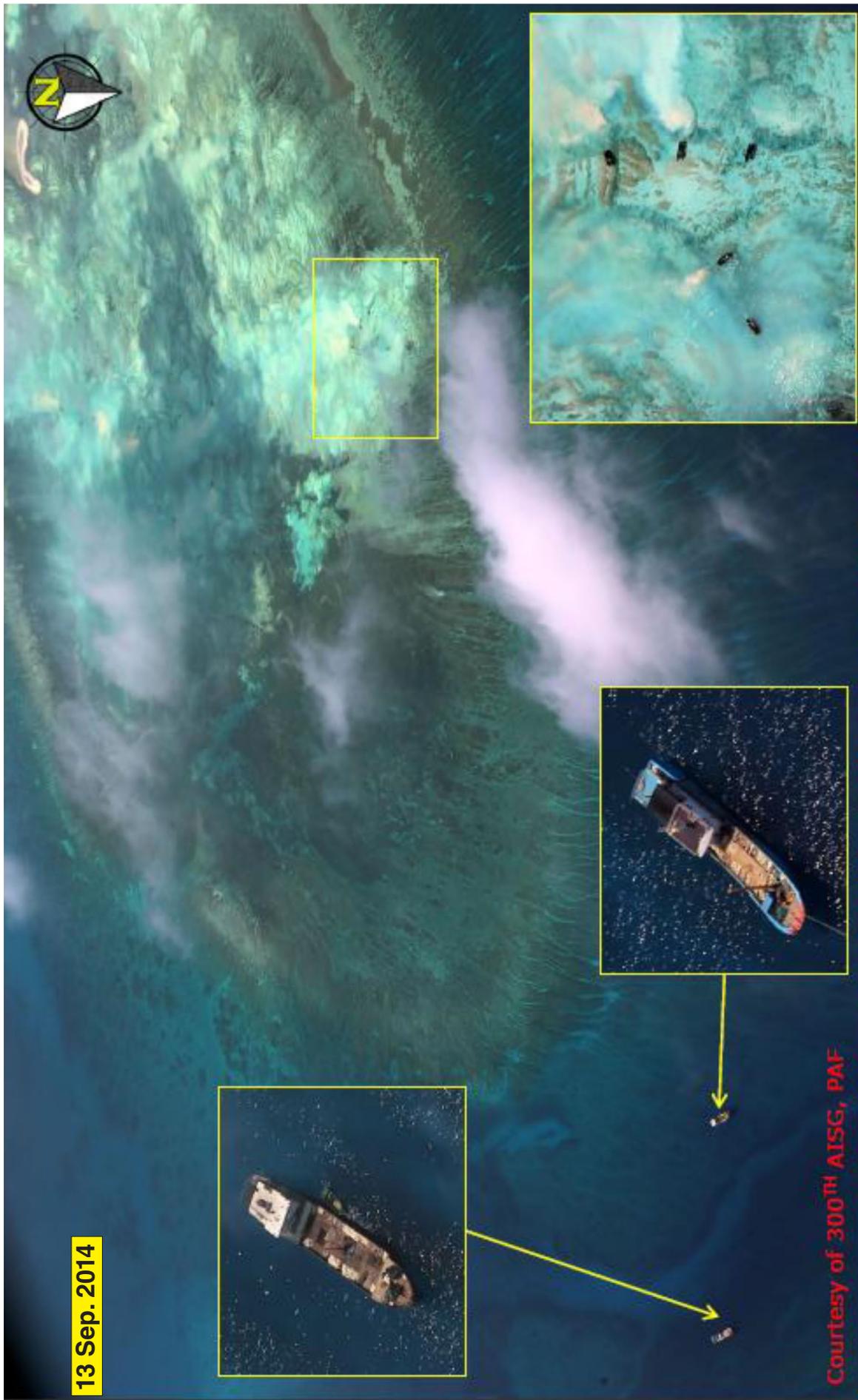
PERSONNEL MANNING ANTI
AIRCRAFT GUN

Courtesy of 300TH AISG, PAF











25 Sep. 2014

Courtesy of 300th AFSG, PAF



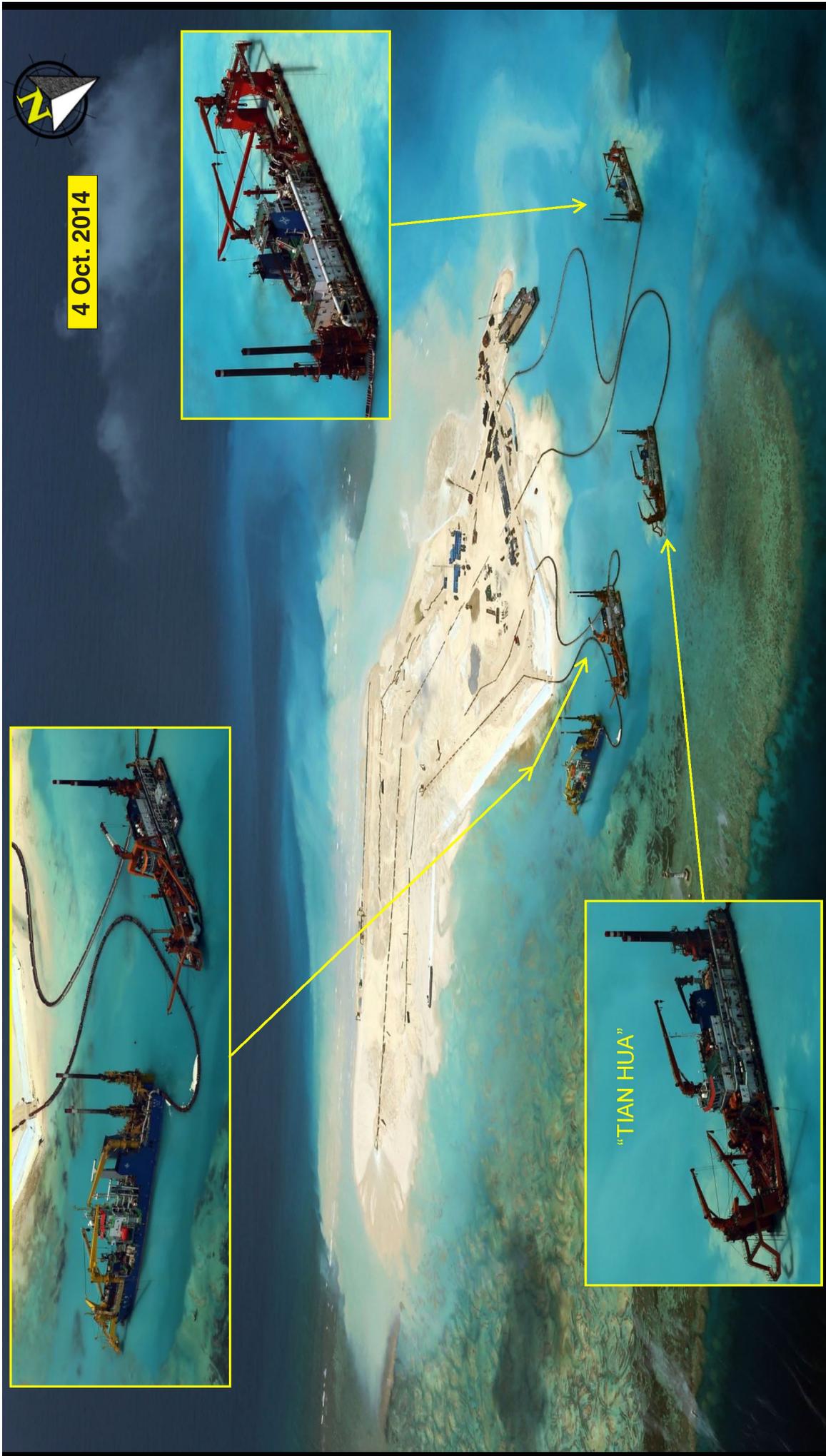
25 Sep. 2014

Courtesy of 300TH AISG, PAF



25 Sep. 2014

Courtesy of 300TH AISC, PAF





Nov. 2014

CSIS



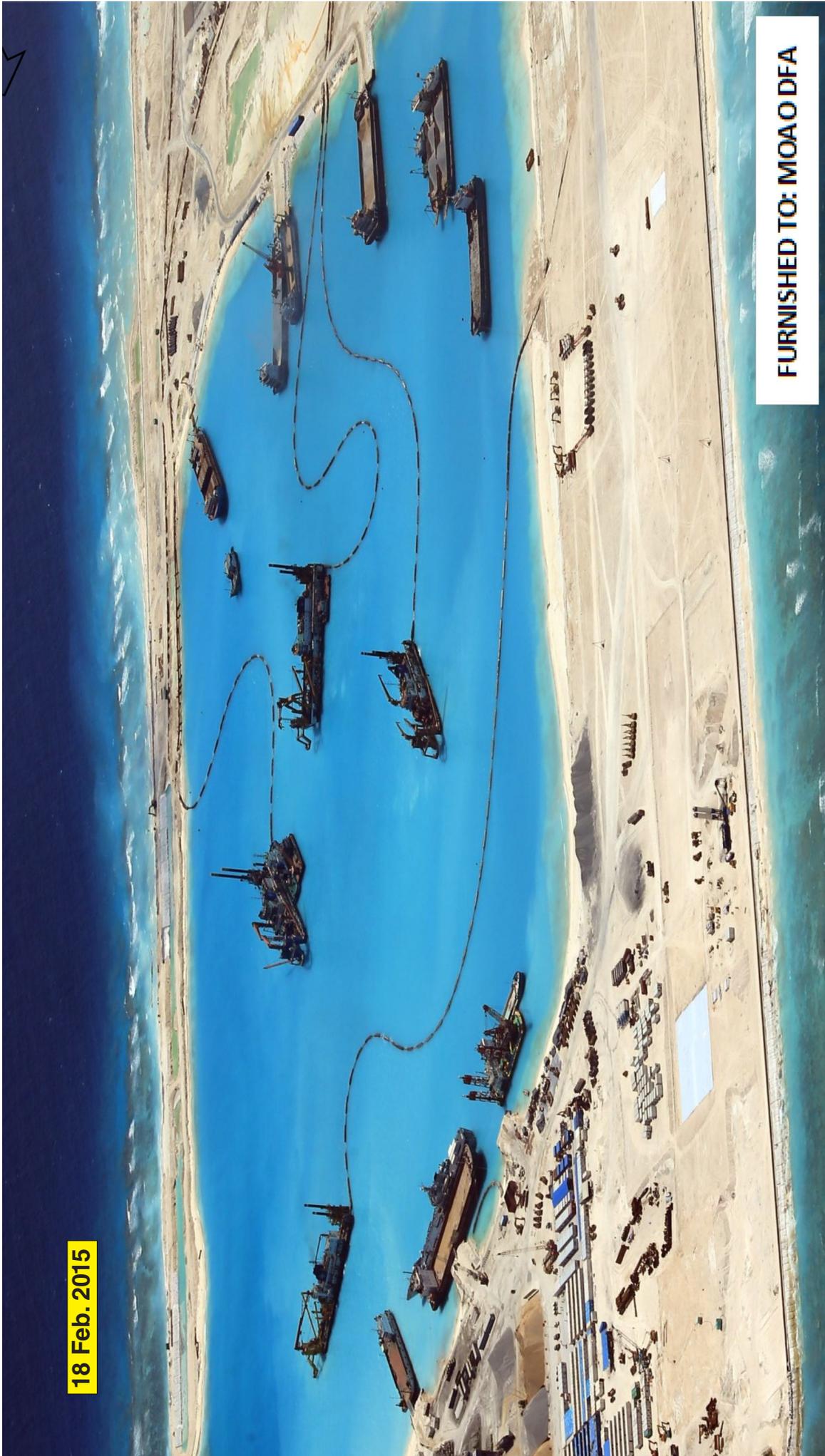
28 Jan. 2015

FURNISHED TO: A2



28 Jan. 2015

FURNISHED TO: A2



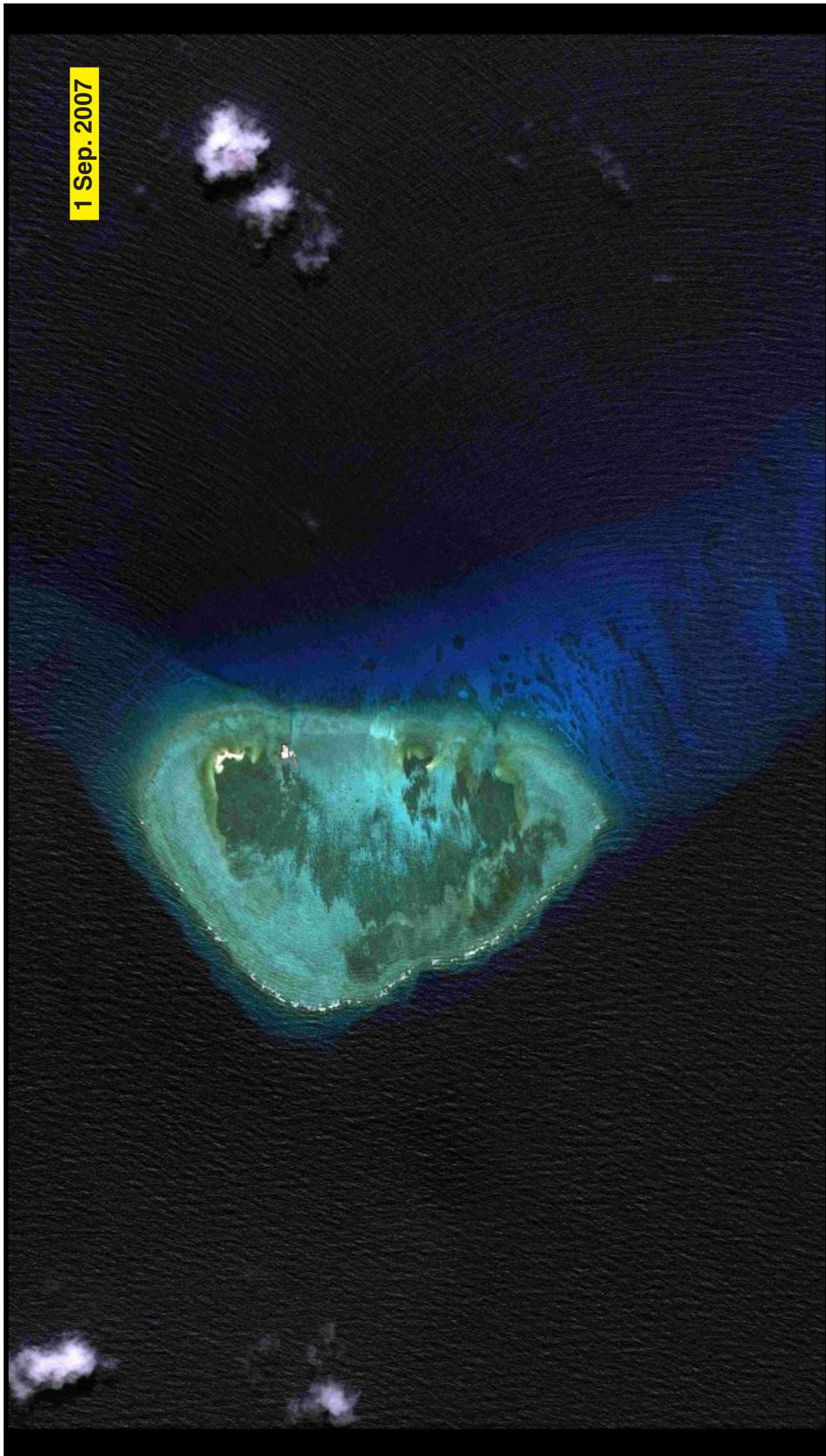
18 Feb. 2015

FURNISHED TO: MOAO DFA

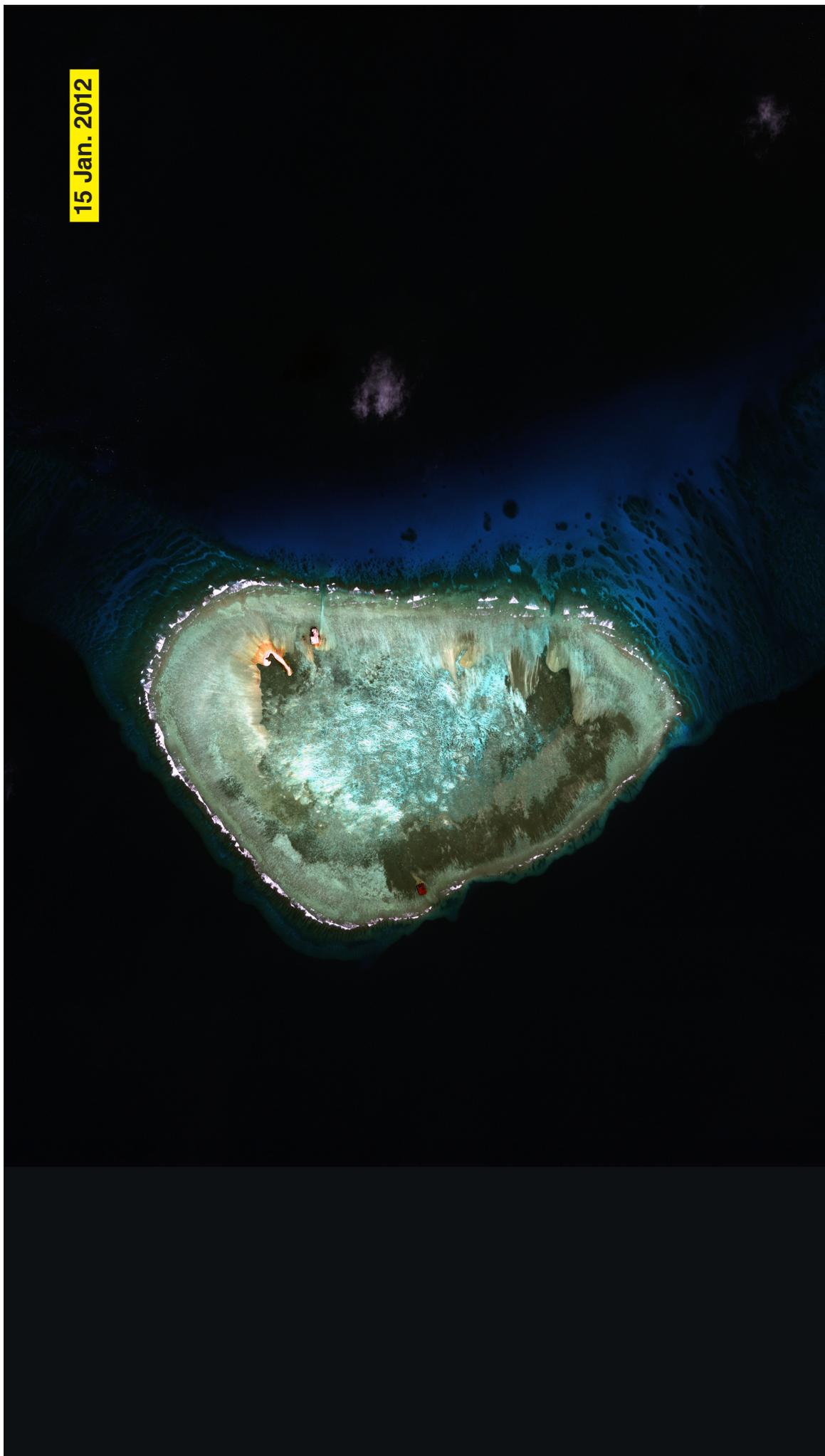
Annex 789

Compilation of Images of Gaven Reef (various sources) (compiled 13 Nov. 2015)

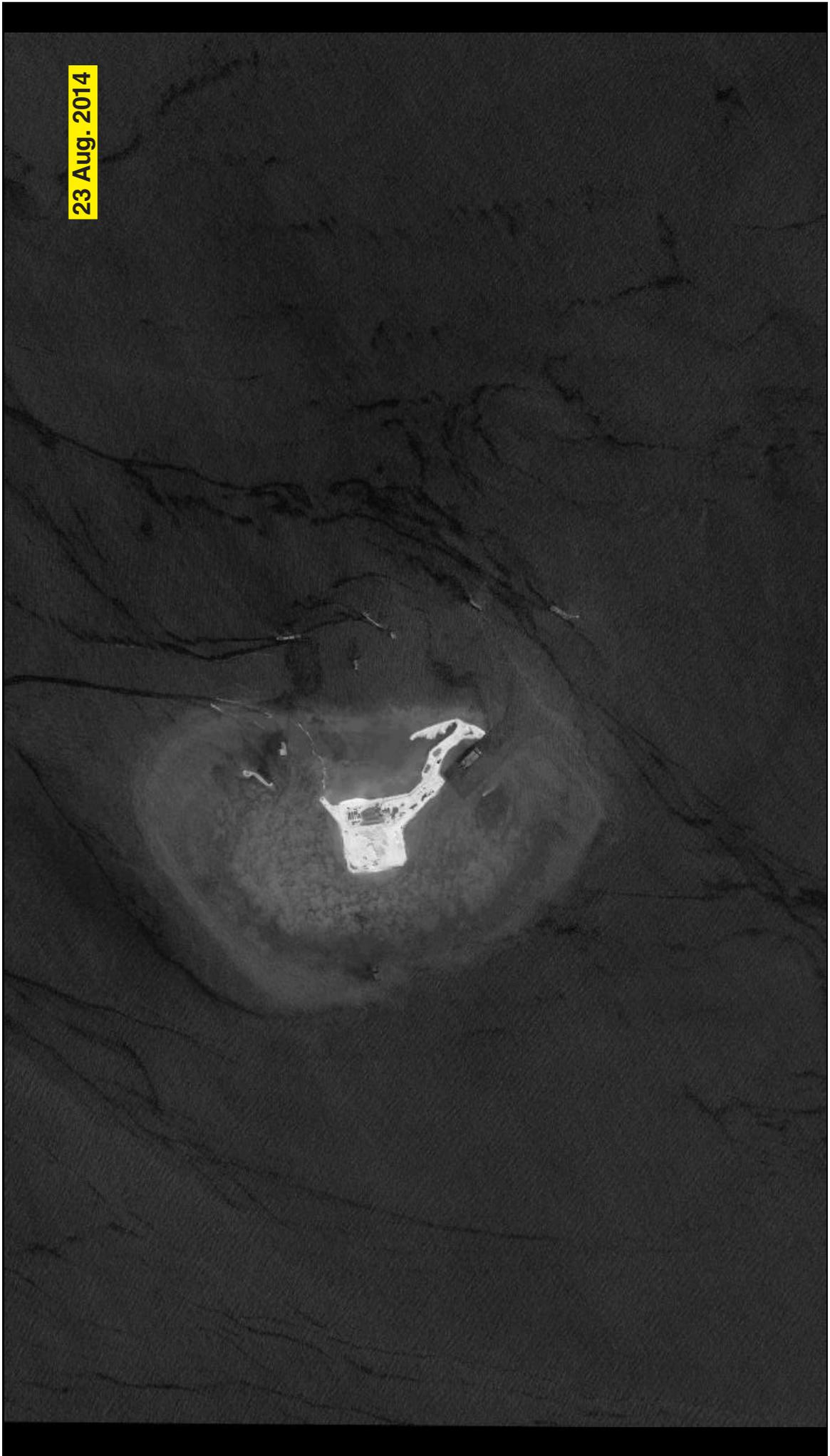
Gaven Reef



15 Jan. 2012

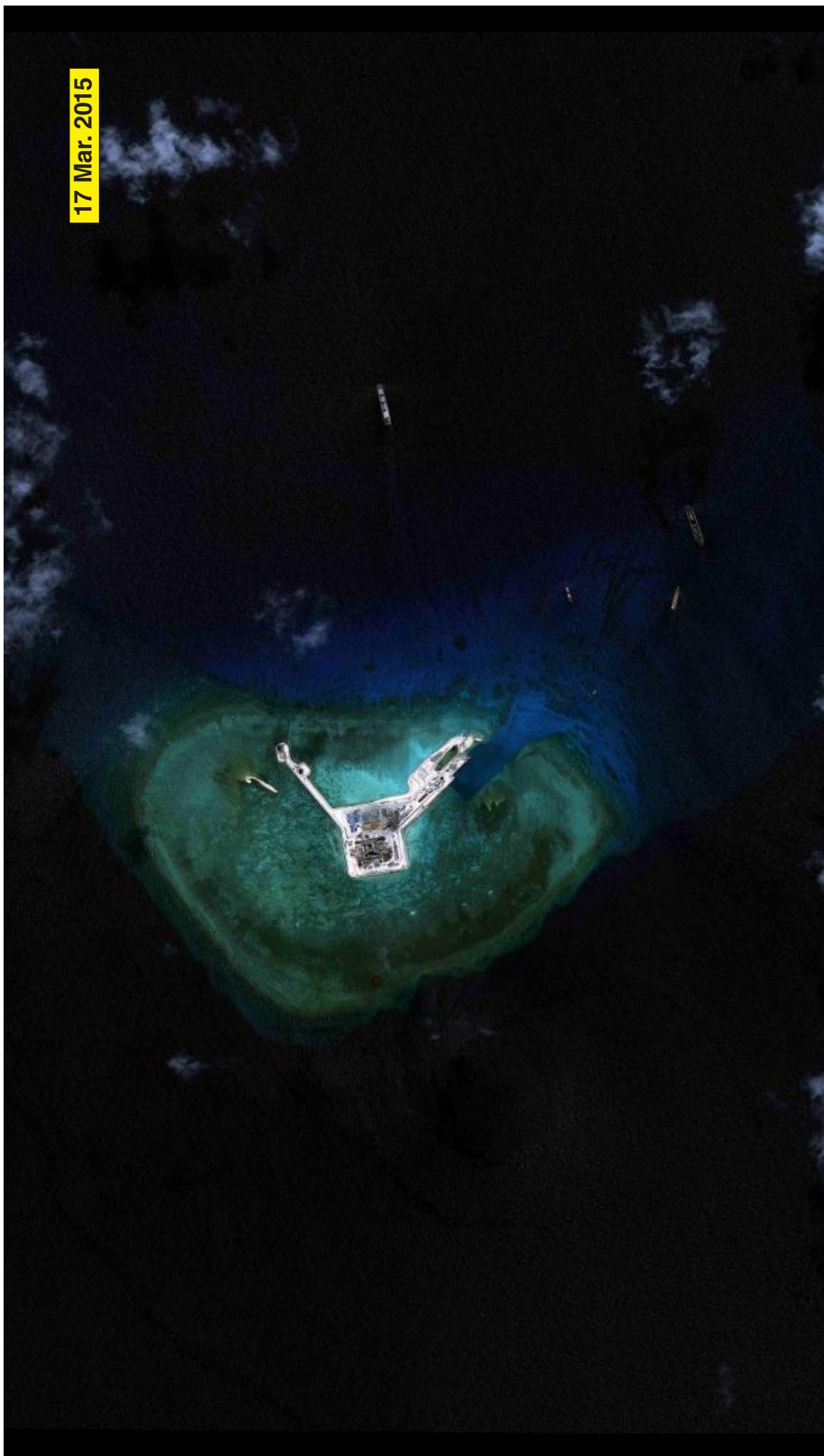


23 Aug. 2014



20 Oct. 2014





17 Mar. 2015

6 Nov. 2015



Enlargements of Satellite Images

1 Sep. 2007





8 Jun. 2014

ON-GOING CONSTRUCTION ON RECLAIMED AREA (EAST PORTION)

BURGOS (GAVEN) REEF

OCCUPIED BY CHINA

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

08 JUNE 2014



8 Jun. 2014

ON-GOING CONSTRUCTION ON RECLAIMED AREA (WEST PORTION)

BURGOS (GAVEN) REEF

OCCUPIED BY CHINA

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

08 JUNE 2014



20 Oct. 2014

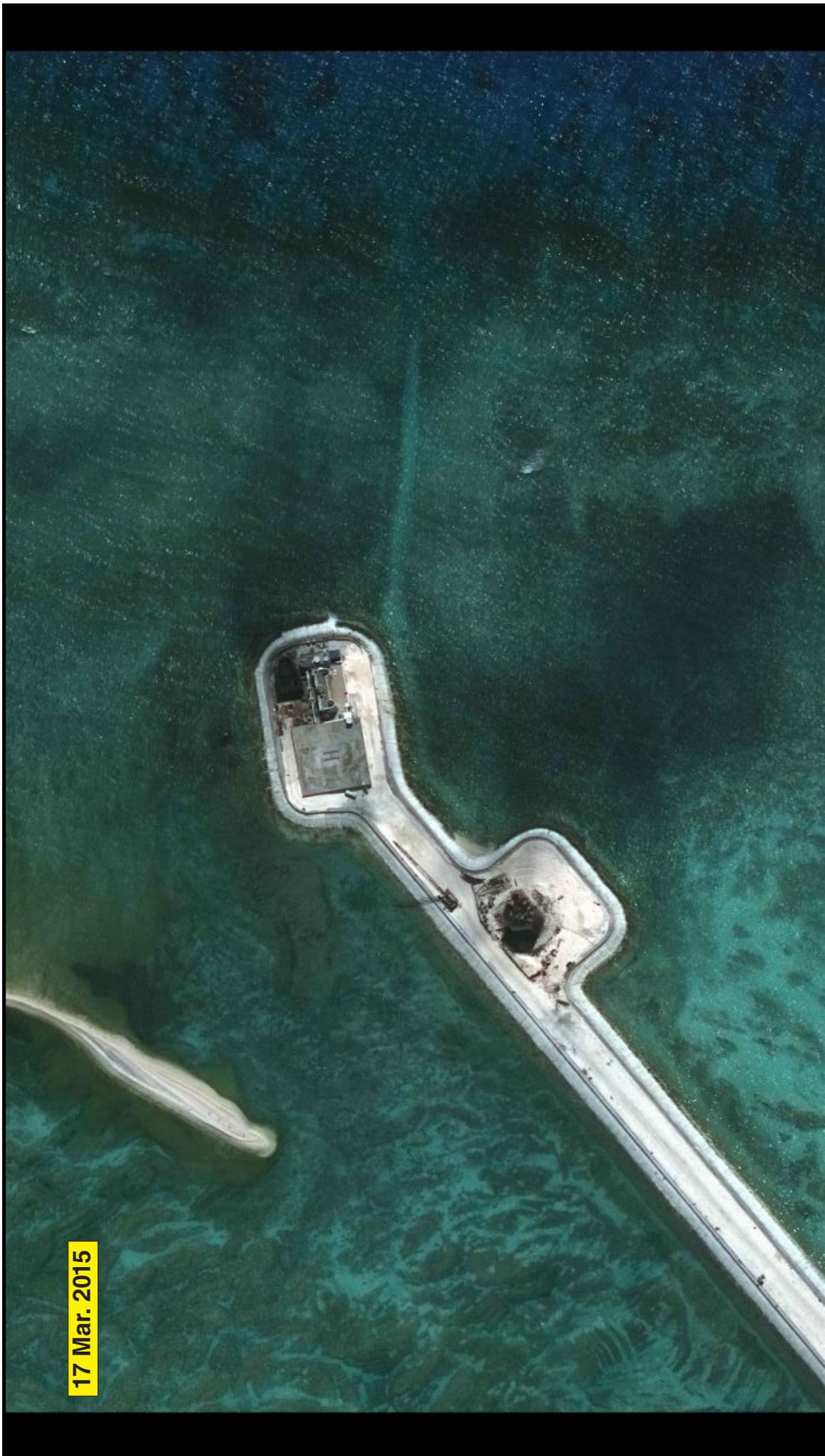




20 Oct. 2014

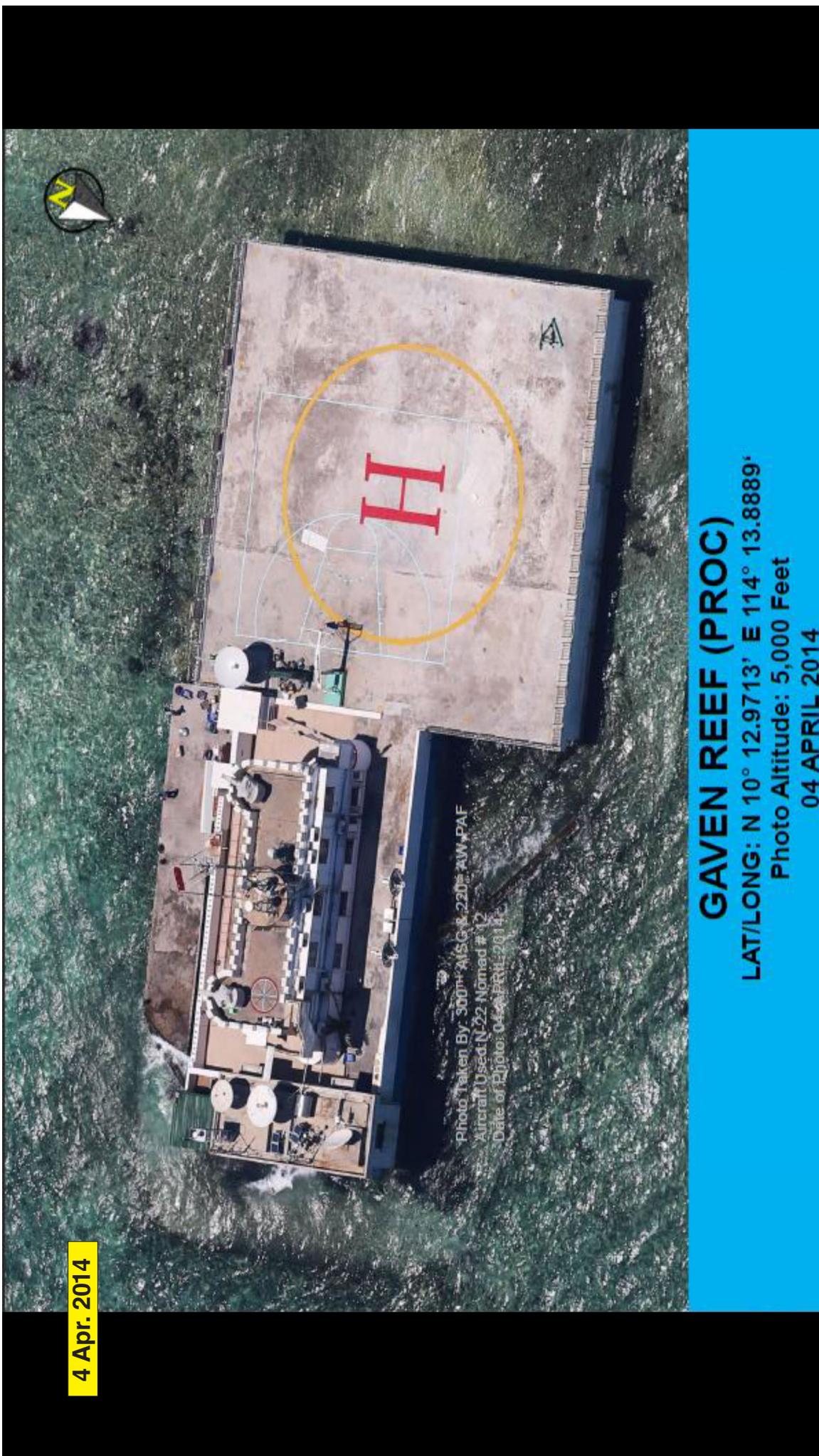
17 Mar. 2015





17 Mar. 2015

Oblique Photos



4 Apr. 2014

Photo Taken By: 300th AMSG, 220th AW, PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

GAVEN REEF (PROC)
LAT/LONG: N 10° 12.9713' E 114° 13.8889'
Photo Altitude: 5,000 Feet
04 APRIL 2014

5 Jun. 2014



**ON-GOING RECLAMATION AT
BURGOS (GAVEN) REEF**

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

05 JUNE 2014



5 Jun. 2014

**ON-GOING RECLAMATION AT
BURGOS (GAVEN) REEF**

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

05 JUNE 2014

18 Jul. 2014

Photo Taken By: 300TH AISC & 220TH AW
Aircraft Used: F-27 FOKKER # 669
Date of Photo: 18 JULY 2014



BURGOS (GAVEN) REEF

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"

18 JULY 2014

18 Jul. 2014



Photo Taken By: 300TH A1SG & 220TH AW
Aircraft Used: F-27 FOKKER # 669
Date of Photo: 18 JULY 2014

RECLAIMED AREA OF BURGOS (GAVEN) REEF

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"

18 JULY 2014

29 Jul. 2014



GAVEN REEF

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
29 JULY 2014

29 Jul. 2014



MAIN STRUCTURE

GAVEN REEF

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"

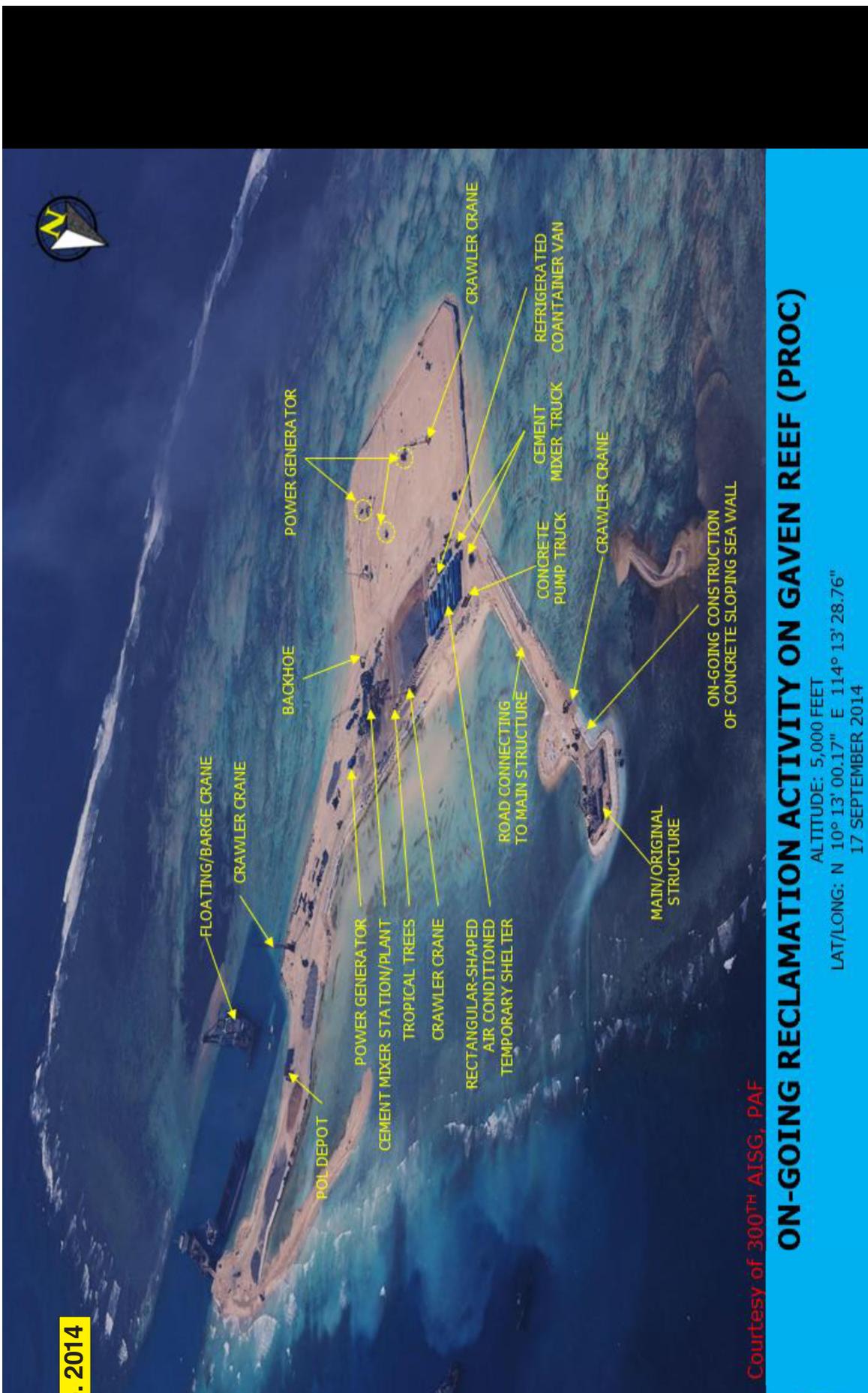
29 JULY 2014

5 Sep. 2014



RECLAIMED AREA AT GAVEN REEF (PROC)
ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"
05 SEPTEMBER 2014

17 Sep. 2014



Courtesy of 300TH AMSG, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET
 LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
 17 SEPTEMBER 2014

17 Sep. 2014

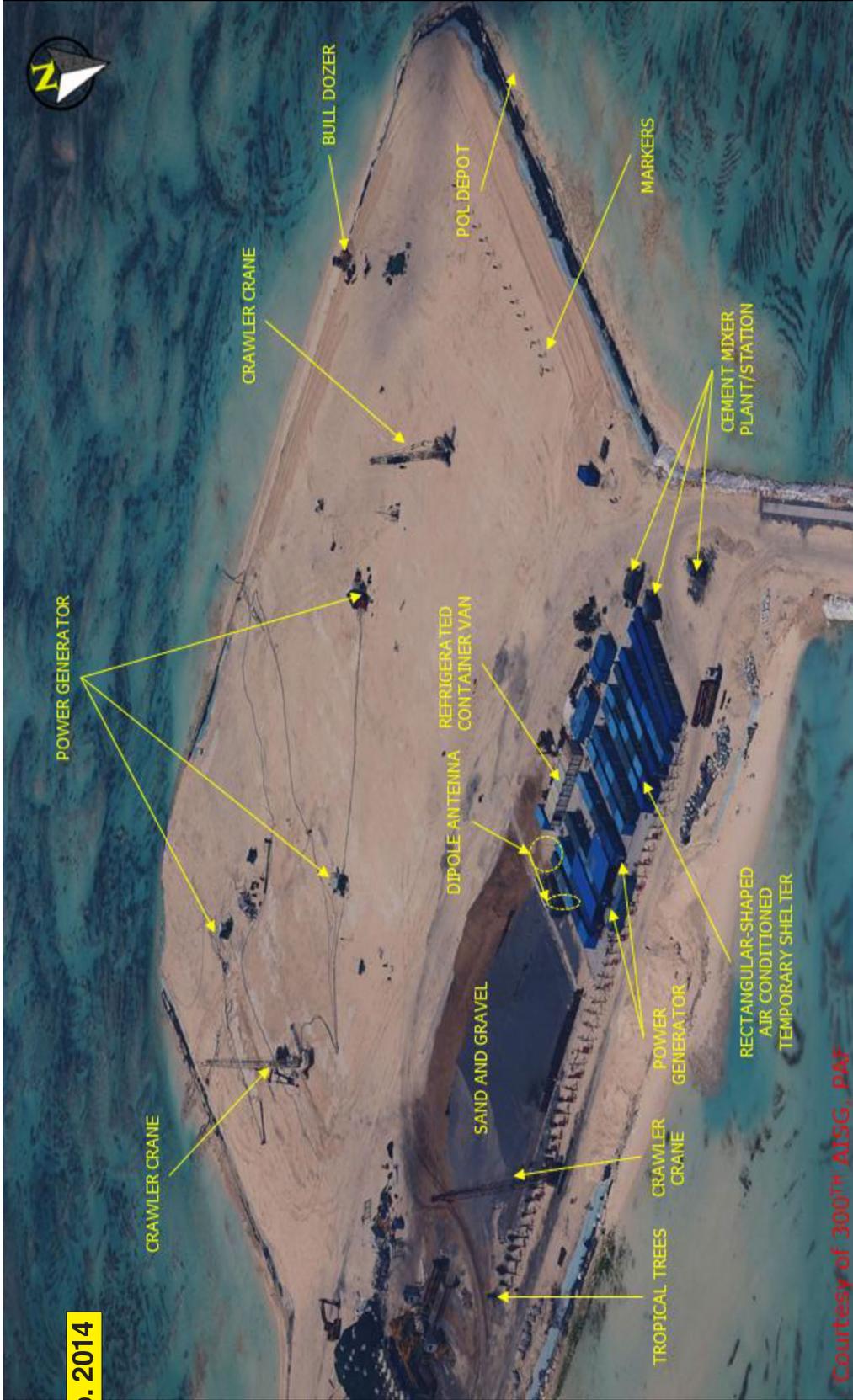


Courtesy of 300TH AMSG, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF

ALTITUDE: 5,000 FEET
 LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
 17 SEPTEMBER 2014

17 Sep. 2014



Courtesy of 300TH AMSG, RAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
17 SEPTEMBER 2014

17 Sep. 2014



Courtesy of 389TH AMSG, PAF

ON-GOING RECLAMATION ACTIVITY ON GAVEN REEF (PROC) MAIN STRUCTURE

ALTITUDE: 5,000 FEET
 LAT/LONG: N 10° 13' 00.17" E 114° 13' 28.76"
 17 SEPTEMBER 2014

17 Sep. 2014



Courtesy of 300TH A1SG, PAF

GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 42' 39.30" E 114° 15' 34.50"

17 SEPTEMBER 2014

25 Sep. 2014



Courtesy of 300th AISC, PAF

RECLAIMED AREA AT GAVEN REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 14' 56.20" E 114° 11' 13.20"

25 SEPTEMBER 2014



15 Nov. 2014

CSIS

Annex 790

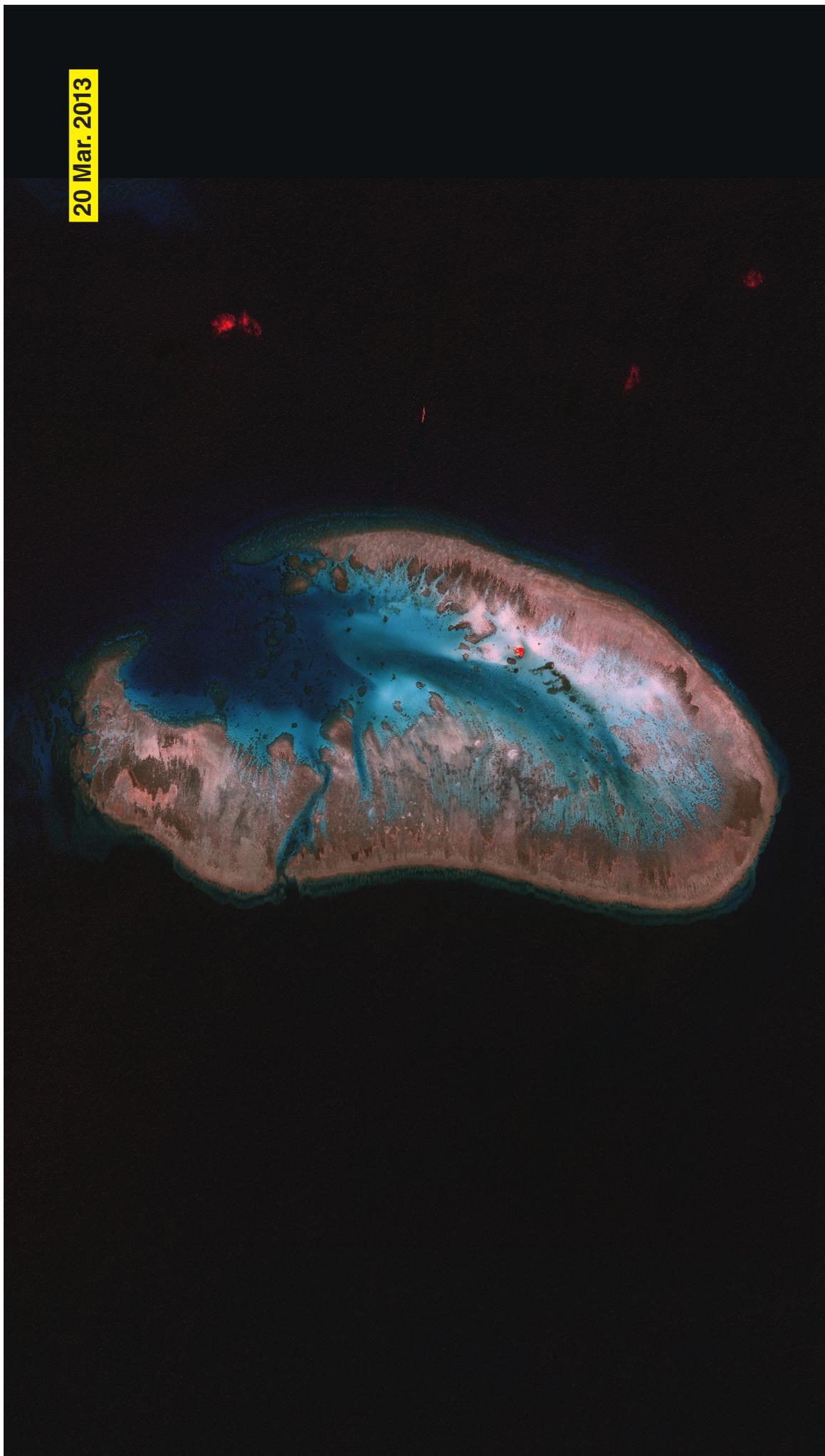
Compilation of Images of Johnson Reef (various sources) (compiled 13 Nov. 2015)

Johnson South Reef

29 Nov. 2004



20 Mar. 2013



22 Jan. 2014



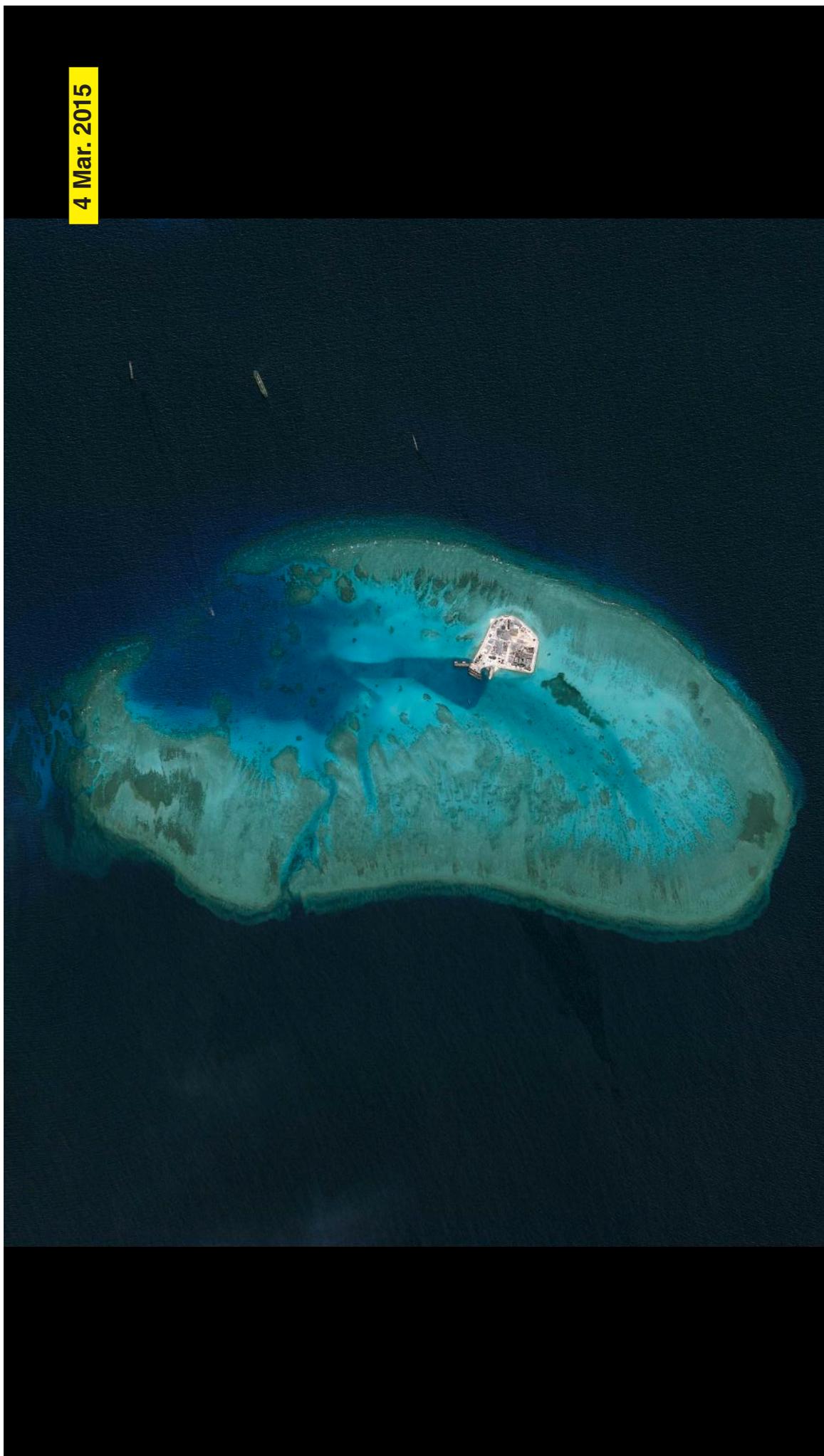
19 Jul. 2014



4 Nov. 2015



4 Mar. 2015



6 Nov. 2015



Enlargements of Satellite Images

29 Nov. 2004



22 Jan. 2014



5 Apr. 2014



4 Nov. 2014



4 Mar. 2015



May 2015



Oblique Photos



13 Mar. 2012



CHINESE STRUCTURE

JOHNSON REEF (PROC)

N 09° 42.0' E 114 ° 22.0'

13 March 2012



Feb. 2013

JOHNSON/MABINI REEF (PROC)

N 09° 42.0' E 114 ° 22.0'

February 2013

25 Feb. 2014



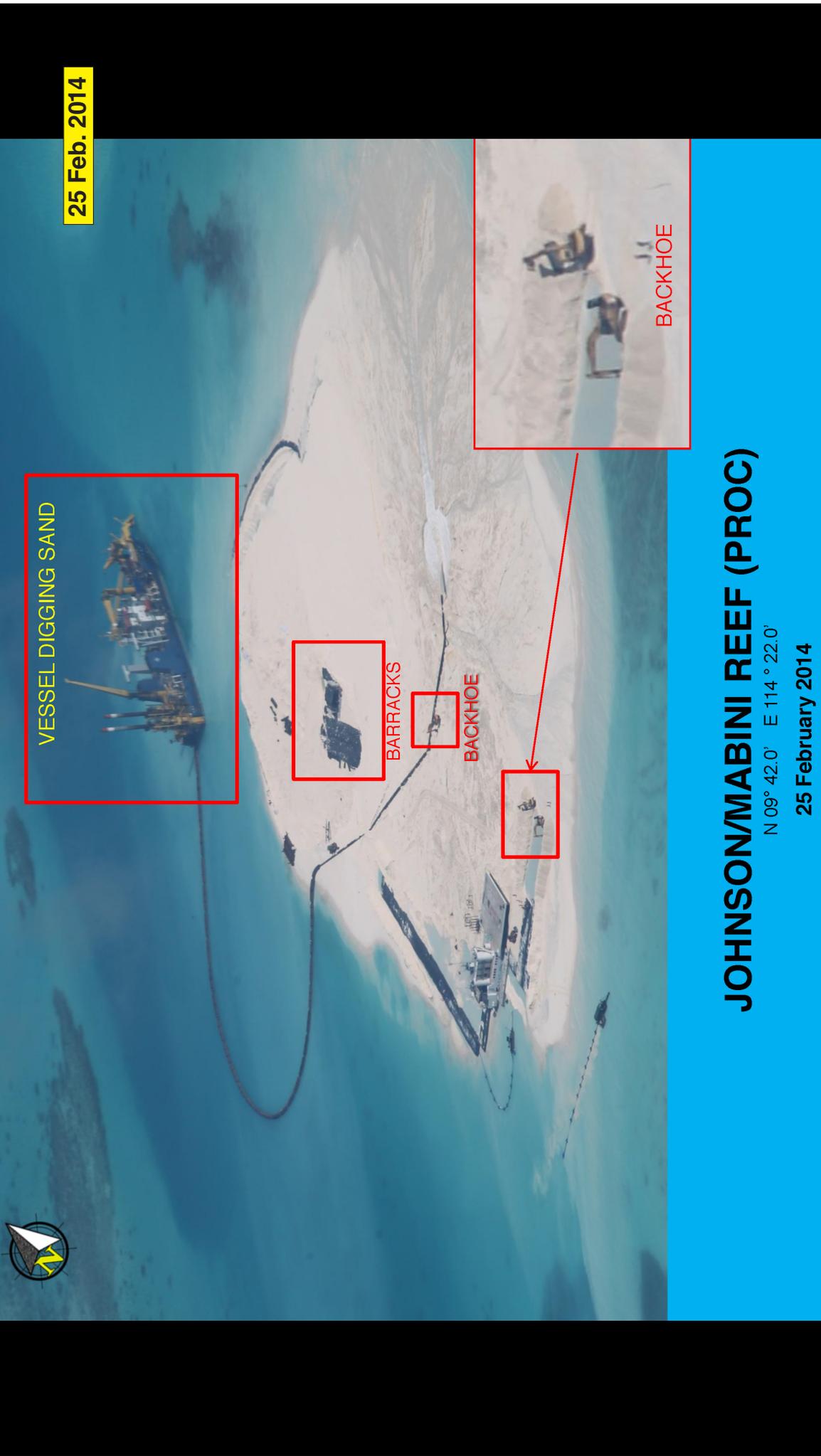
CHINESE STRUCTURE

JOHNSON/MABINI REEF (PROC)

N 09° 42.0' E 114 ° 22.0'

25 February 2014





25 Feb. 2014

VESSEL DIGGING SAND

BARRACKS

BACKHOE

BACKHOE

JOHNSON/MABINI REEF (PROC)

N 09° 42.0' E 114° 22.0'

25 February 2014





4 Apr. 2014

Photo Taken By: 300TH A1SG & 220TH AW, PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

JOHNSON/MABINI REEF (PROC)

N 09° 42.0' E 114° 22.0'

04 April 2014

5 May 2014



Photo Taken BY: 300TH AIGS & 220TH AW
Aircraft Used: N-22 NOMAD #68
Date of Photo: 05 MAY 2014

**ON-GOING RECLAMATION AT JOHNSON (MABINI) REEF (PROC)
Land area: 90,632 sq.m. (approx.)**

LAT/LONG: N 09° 45' 33.00" E 114° 16' 01.60"
05 MAY 2014



28 May 2014

Photo Taken By: 300TH AISC & 220TH AW
Aircraft Used: N-22 NOMAD # 12
Date of Photos: 28 MAY 2014

ON-GOING RECLAMATION AT JOHNSON (MABINI) REEF (PROC)

Land area: 79,464 sq.m. (approx.)

LAT/LONG: N 09° 45' 33.00" E 114° 16' 01.60"

28 MAY 2014

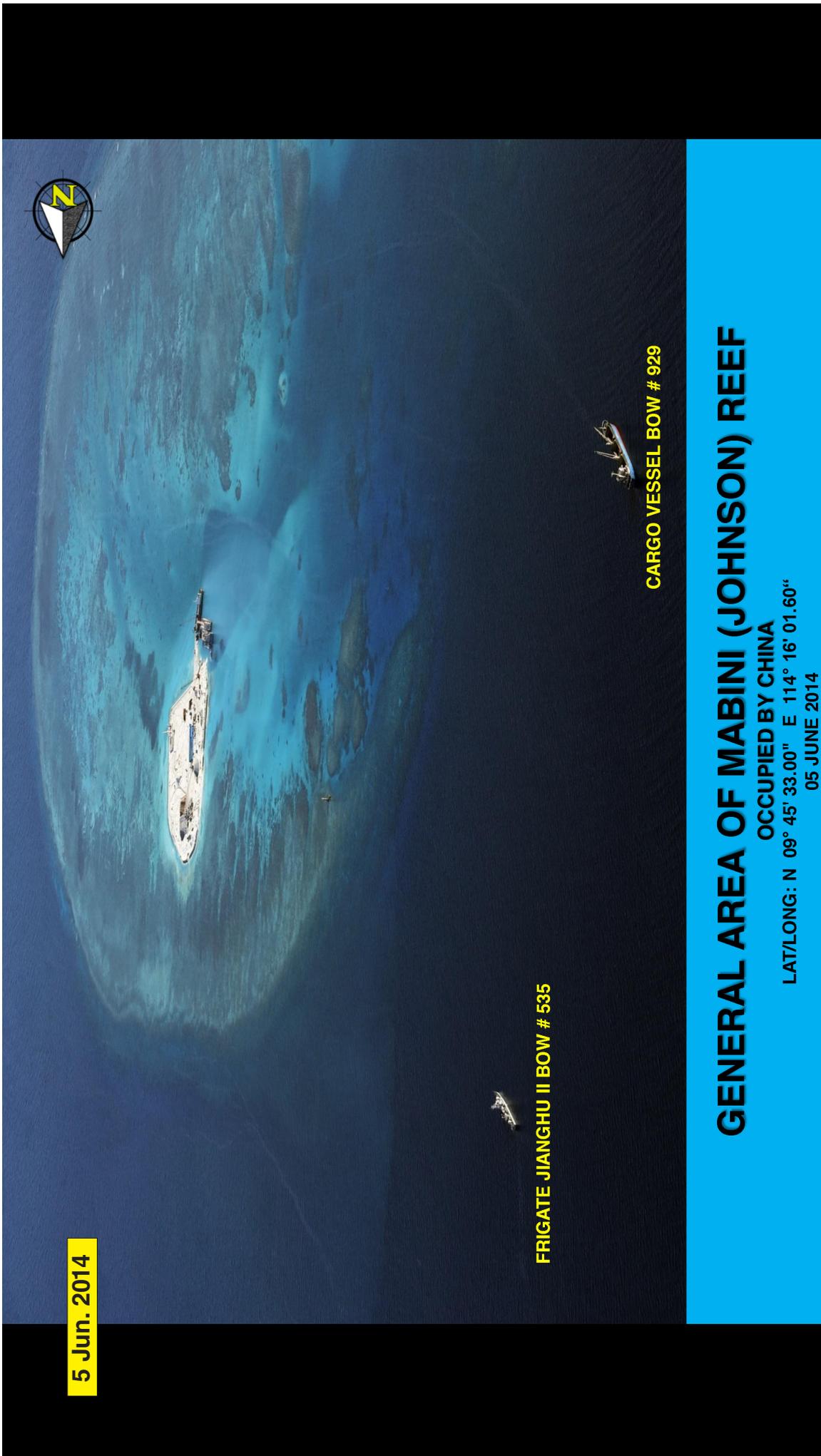


5 Jun. 2014

ON-GOING CONSTRUCTION ON RECLAIMED AREA (NORTH PORTION)

**MABINI (JOHNSON) REEF
OCCUPIED BY CHINA**

**LAT/LONG: N 09° 45' 33.00" E 114° 16' 01.60"
05 JUNE 2014**



5 Jun. 2014



FRIGATE JIANGHU II BOW # 535

CARGO VESSEL BOW # 929

GENERAL AREA OF MABINI (JOHNSON) REEF

OCCUPIED BY CHINA

LAT/LONG: N 09° 45' 33.00" E 114° 16' 01.60"

05 JUNE 2014

29 Jul. 2014



ON-GOING CONSTRUCTION ACTIVITY ON RECLAIMED AREA OF MABINI (JOHNSON) REEF (PROC)

ALTITUDE: 5,000 FEET
LAT/LONG: N 09° 41' 39.39" E 114° 16' 12.48"
29 JULY 2014

5 Oct. 2014



JIANGWEI TYPE 058H2G FRIGATE SHIP
"HUAINAN" # 540

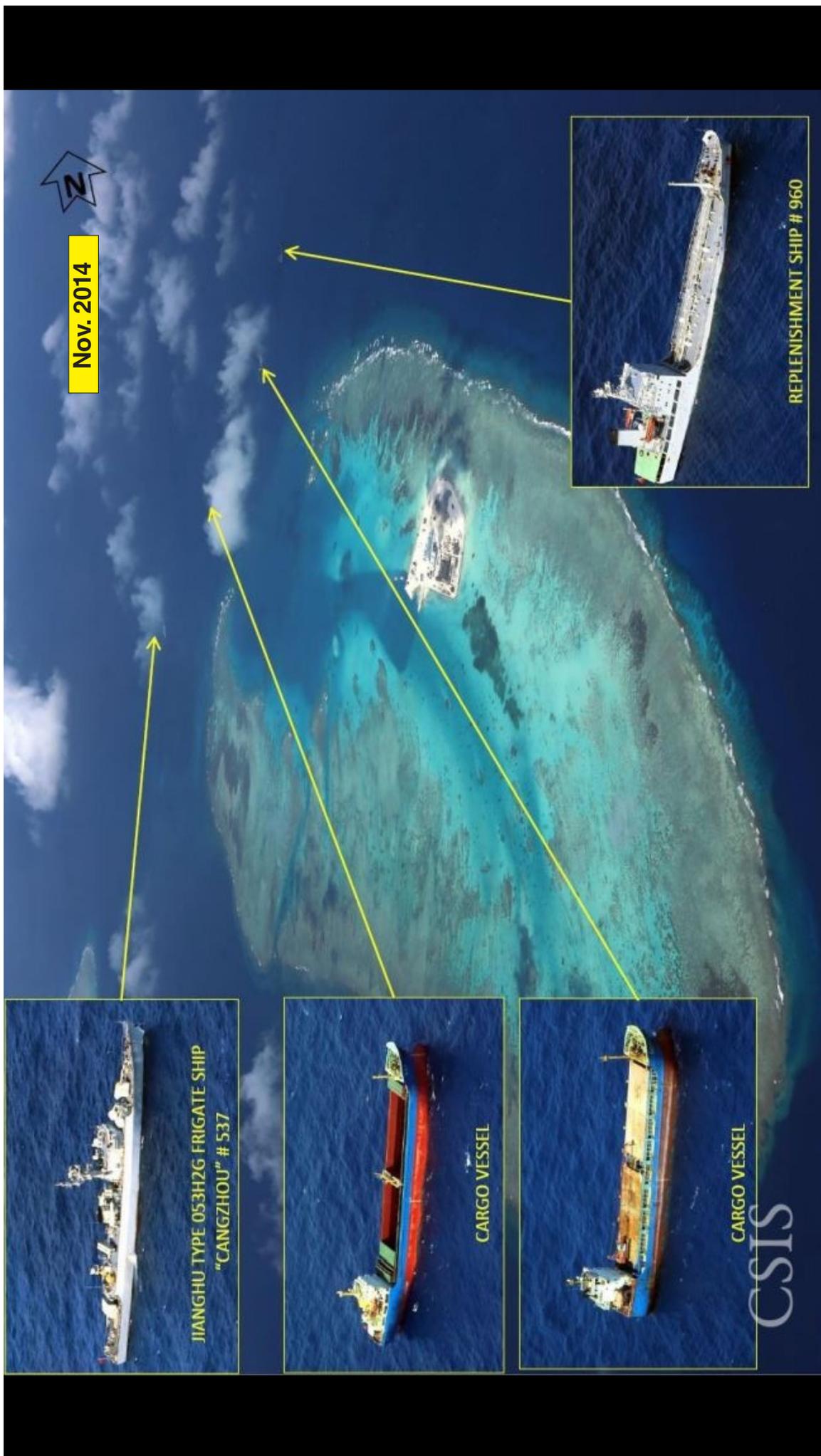


MABINI (JOHNSON) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 45' 33.00" E 114° 16' 01.60"

05 OCTOBER 2014





12 Dec. 2014

CSIS/AMTI

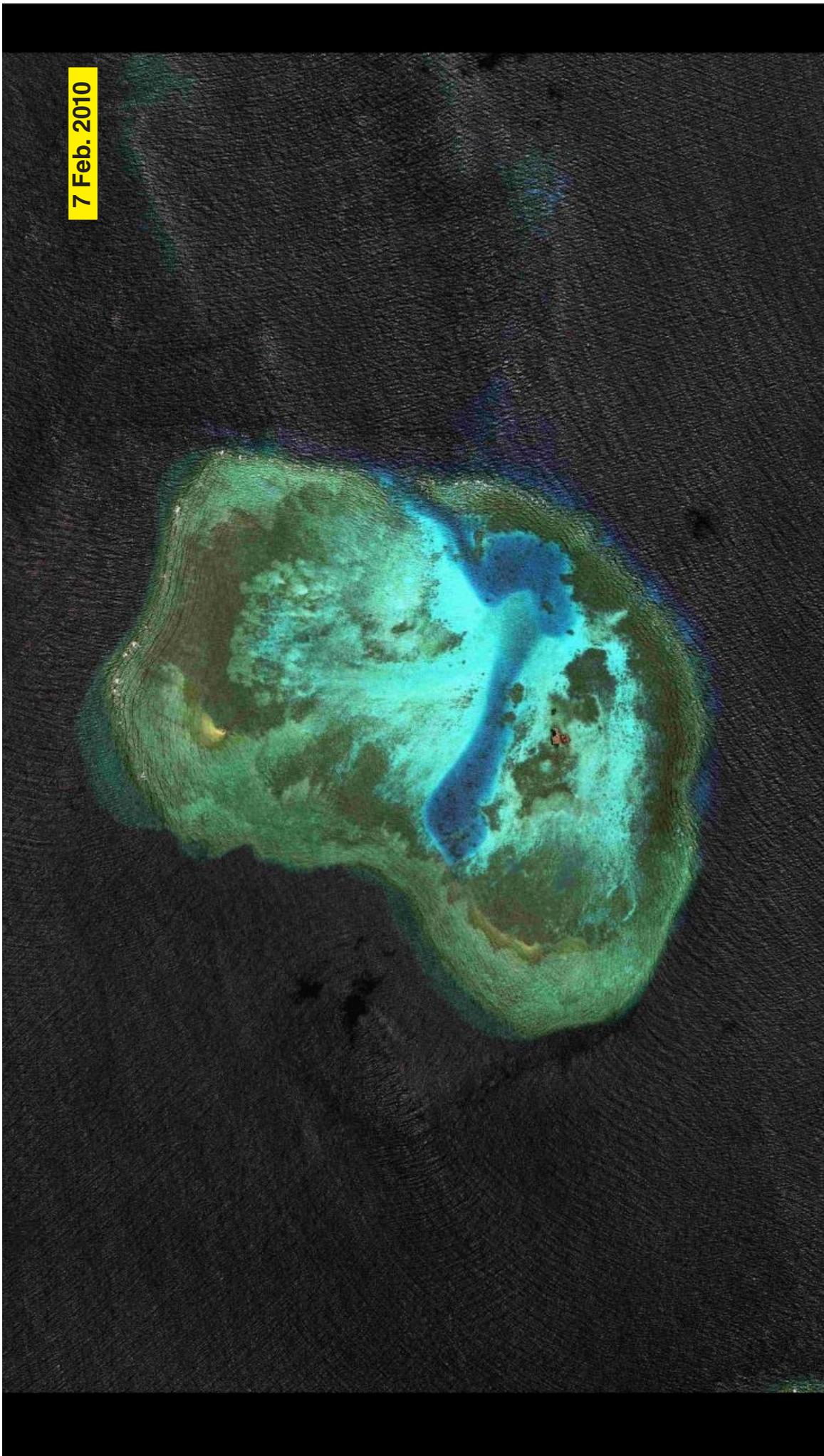
Annex 791

Compilation of Images of McKennan (Hughes) Reef (various sources) (compiled 13 Nov. 2015)

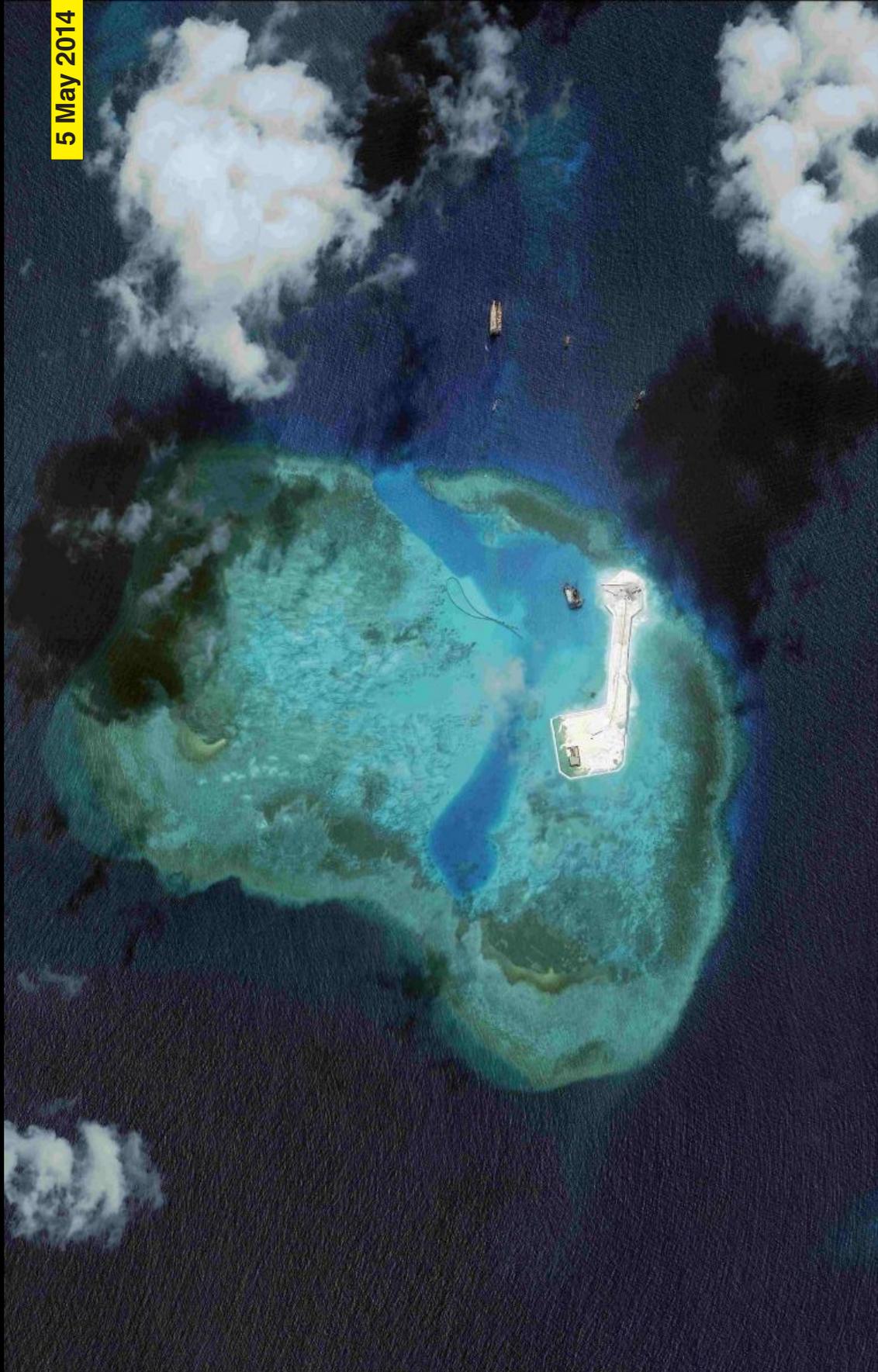
Hughes Reef



7 Feb. 2010



5 May 2014



25 Sep. 2014



16 Mar. 2015



22 Sep. 2015



Enlargements of Satellite Images

12 Mar. 2008



28 Mar. 2014



25 Sep. 2014



25 Sep. 2014



16 Mar. 2015



16 Mar. 2015



Oblique Photos



Photo Taken By: 300TH AISG & 220TH AW PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

4 Apr. 2014



4 Apr. 2014

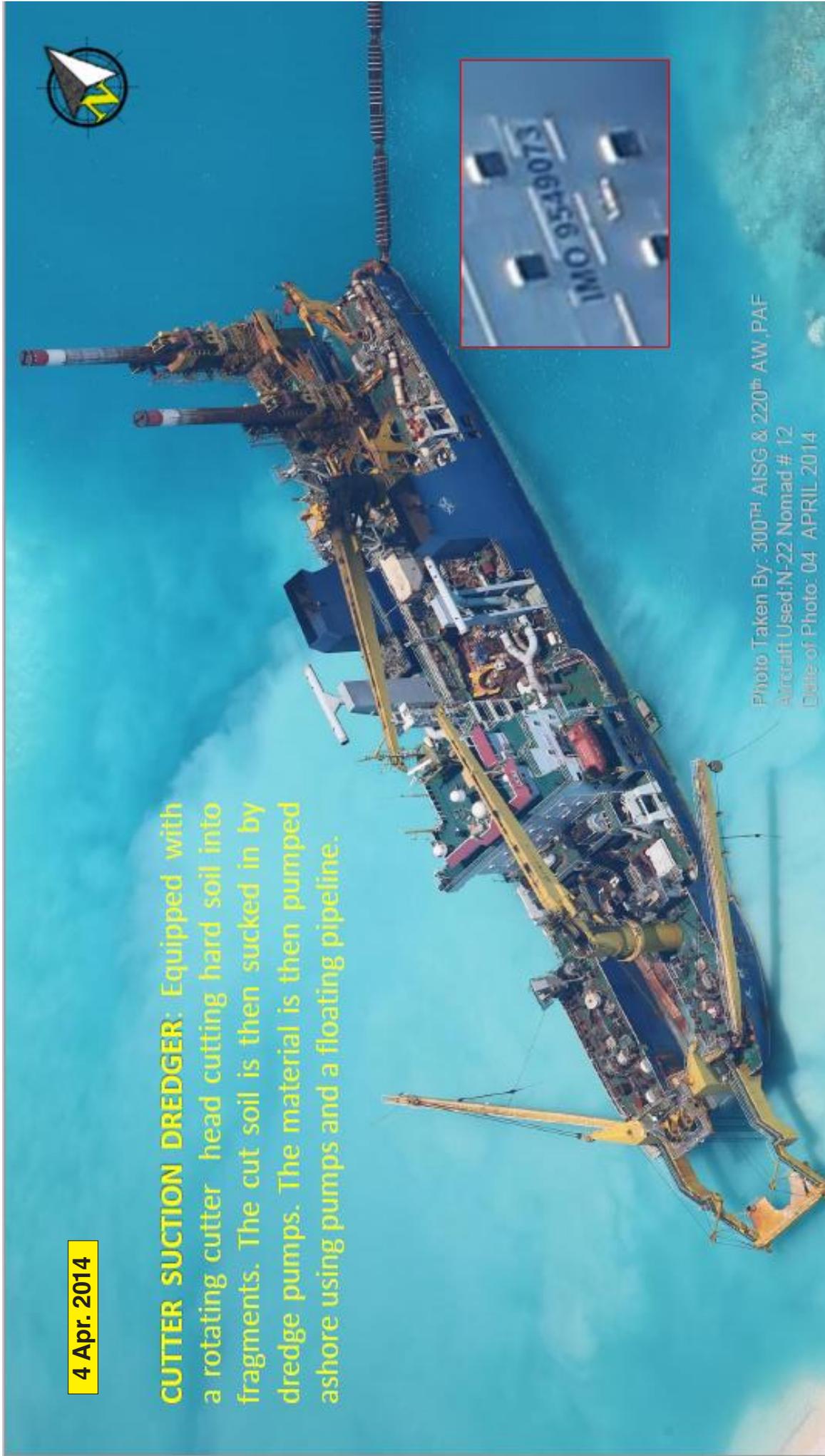
Photo Taken By: 300TH AISG & 220TH AW, PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014

4 Apr. 2014

CUTTER SUCTION DREDGER: Equipped with a rotating cutter head cutting hard soil into fragments. The cut soil is then sucked in by dredge pumps. The material is then pumped ashore using pumps and a floating pipeline.



Photo Taken By: 300TH AISG & 220TH AW, PAF
Aircraft Used: N-22 Nomad # 12
Date of Photo: 04 APRIL 2014





9 Apr. 2014



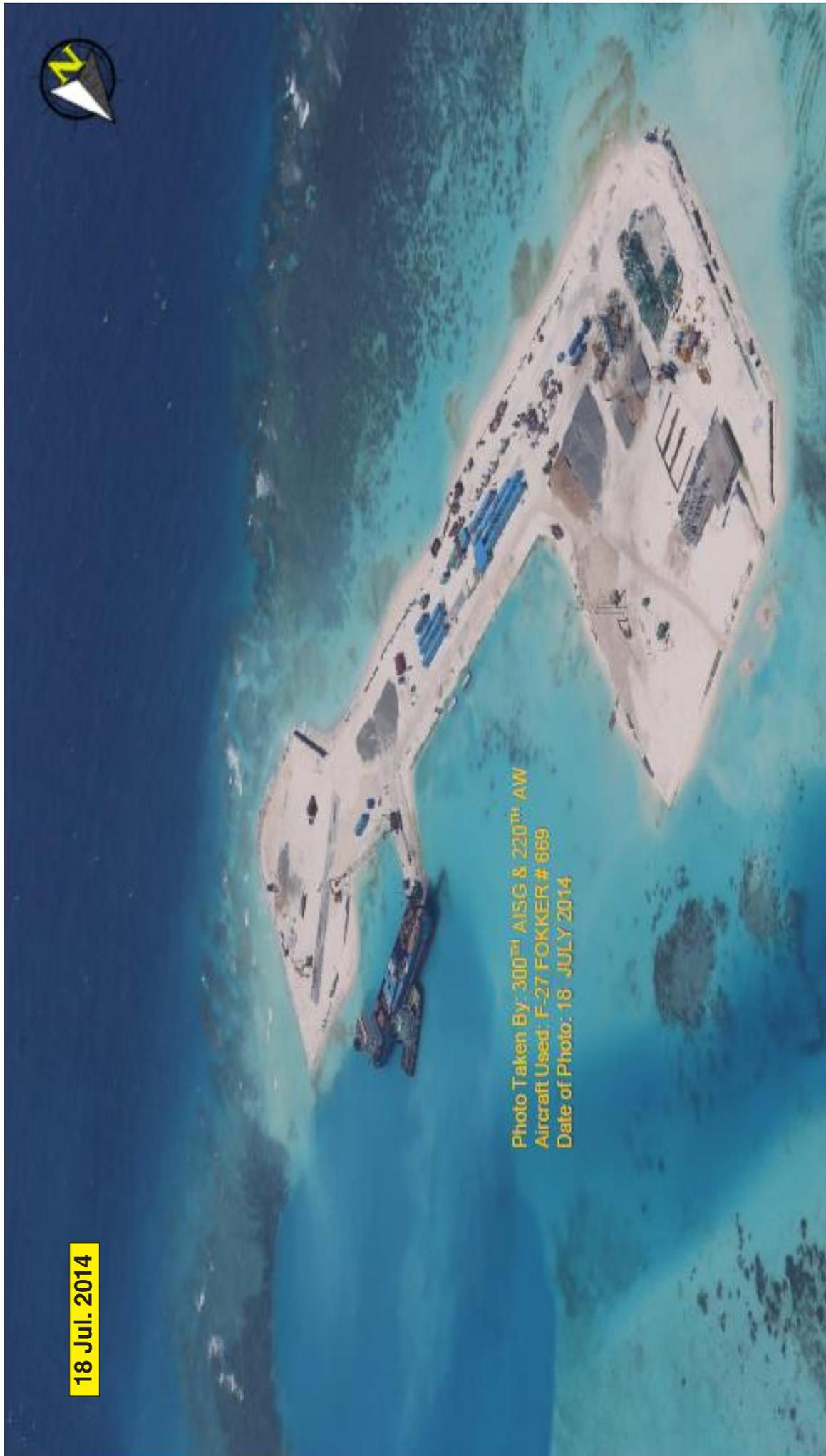
28 May 2014

Photo Taken BY: 300TH AMSG & 220TH AW
Aircraft Used: N-22 NOMAD # 12
Date of Photo: 28 MAY 2014



18 Jul. 2014

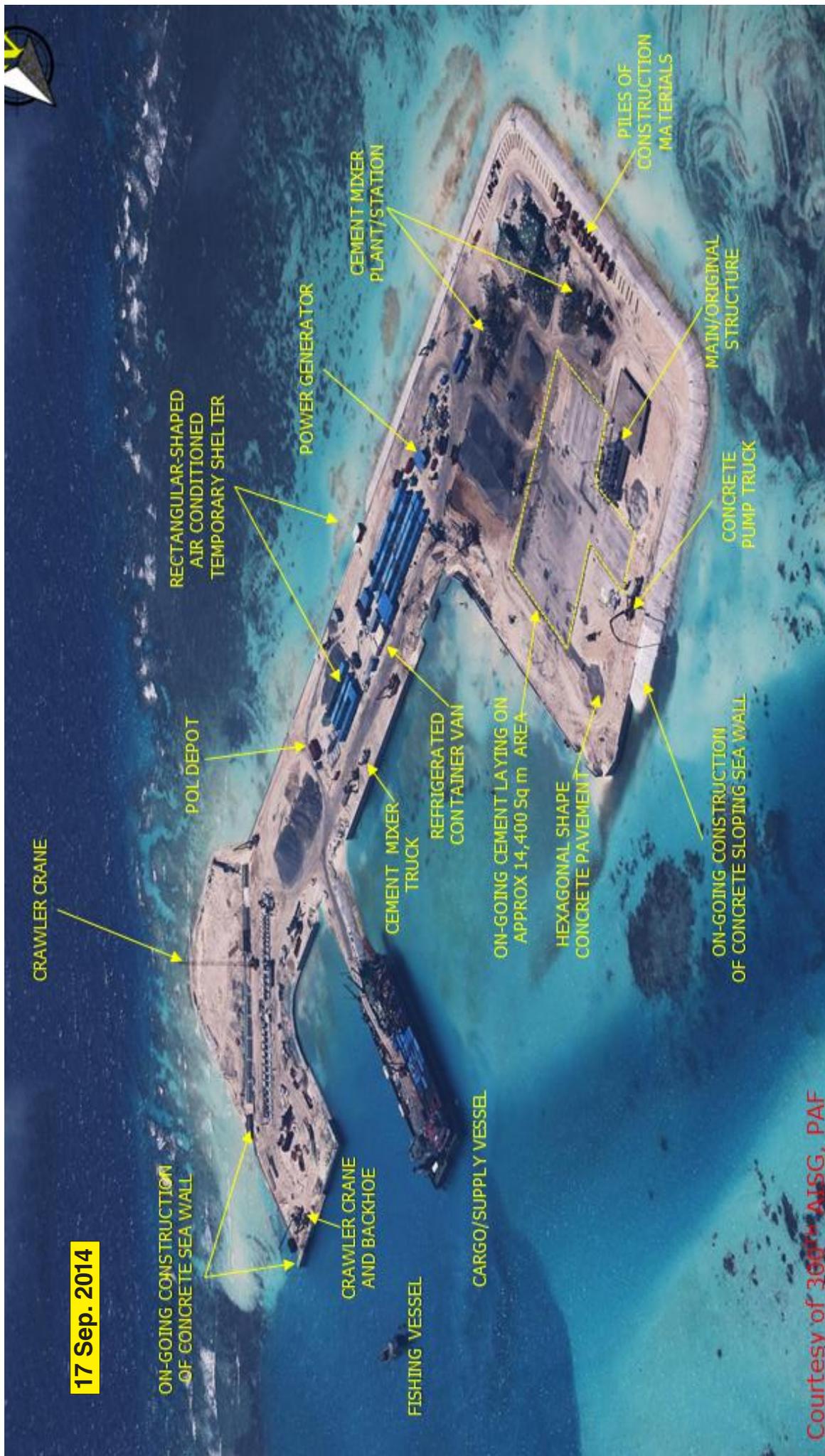
Photo Taken By: 300TH A1SG & 220TH AW
Aircraft Used: F-27 FOKKER # 669
Date of Photo: 18 JULY 2014



18 Jul. 2014

Photo Taken By: 300TH AMSG & 220TH AW
Aircraft Used: F-27 FOKKER # 689
Date of Photo: 18 JULY 2014







5 Oct. 2014





5 Oct. 2014



15 Nov. 2014

CSIS/AMTI

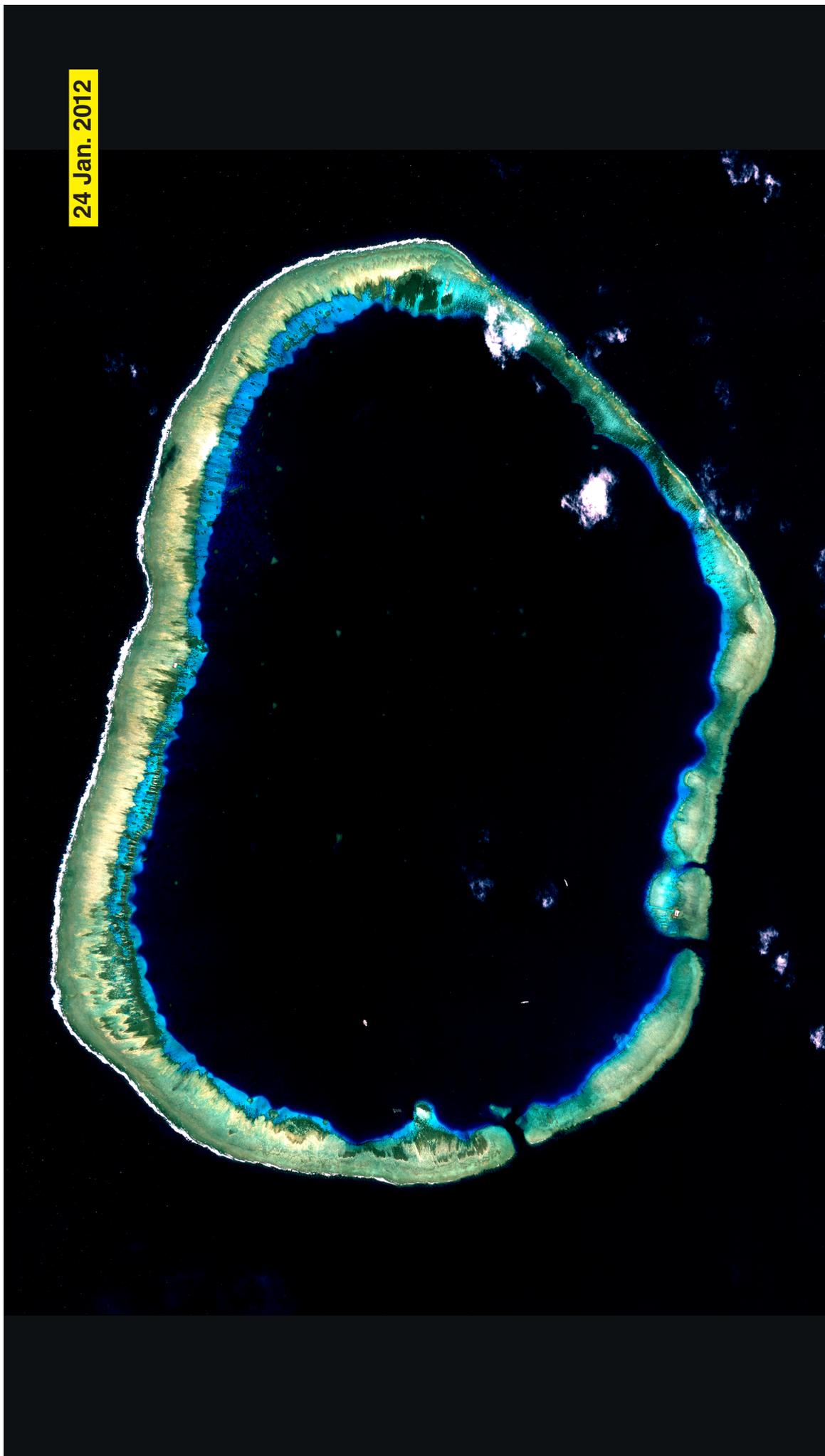


Annex 792

Compilation of Images of Mischief Reef (various sources) (compiled 13 Nov. 2015)

Mischief Reef

24 Jan. 2012



17 Feb. 2015



16 Mar. 2015



8 Sep. 2015



19 Oct. 2015



Enlargements of Satellite Images

24 Jan. 2012



1 Feb. 2015



17 Feb. 2015



16 Mar. 2015



16 Mar. 2015



16 Mar. 2015



16 Mar. 2015



16 Mar. 2015



16 Mar. 2015





10 Jun. 2015



10 Jun. 2015





10 Jun. 2015





8 Sep. 2015



8 Sep. 2015



8 Sep. 2015



8 Sep. 2015

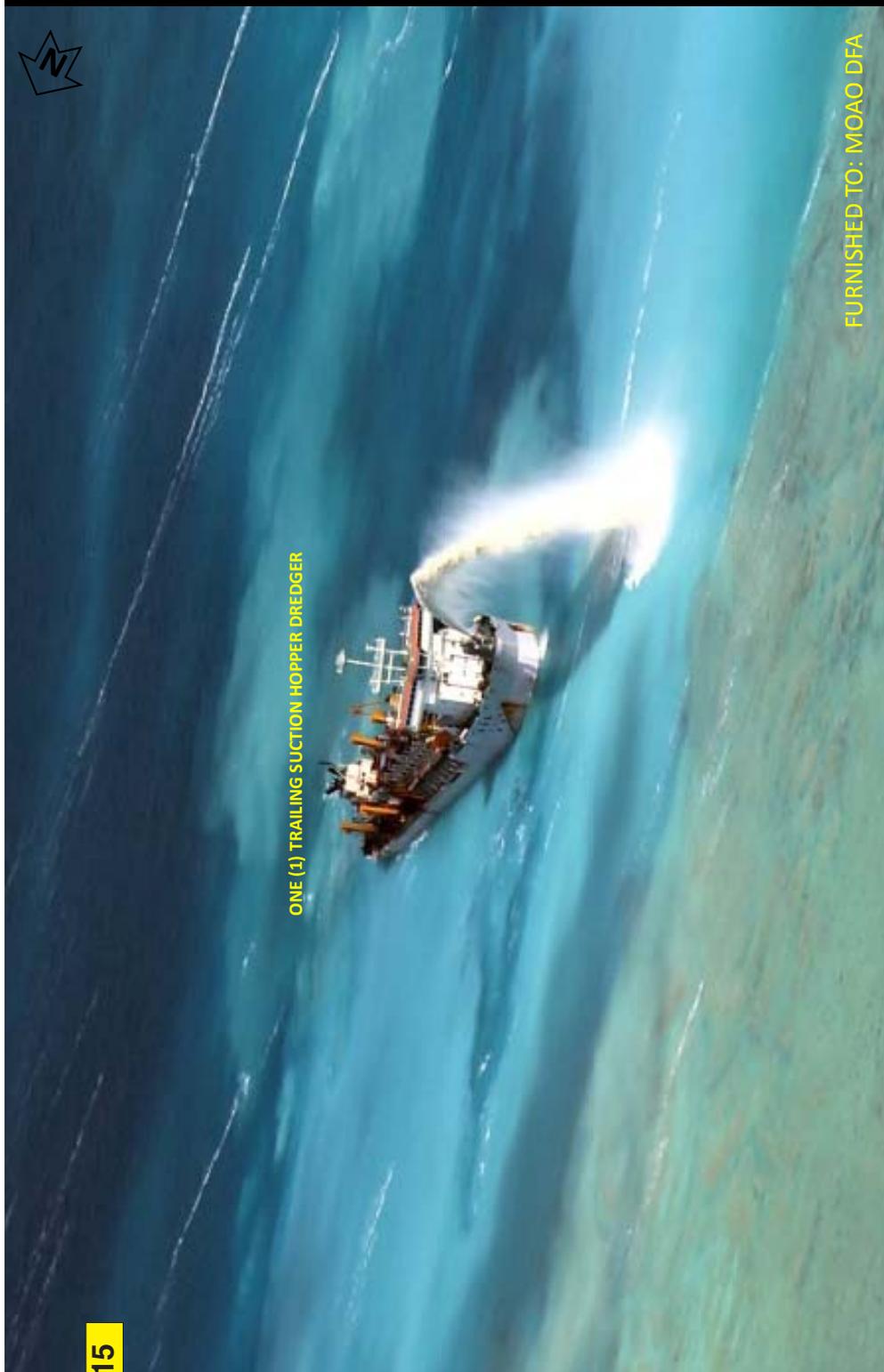


8 Sep. 2015



Oblique Photos

6 Mar. 2015



ONE (1) TRAILING SUCTION HOPPER DREDGER

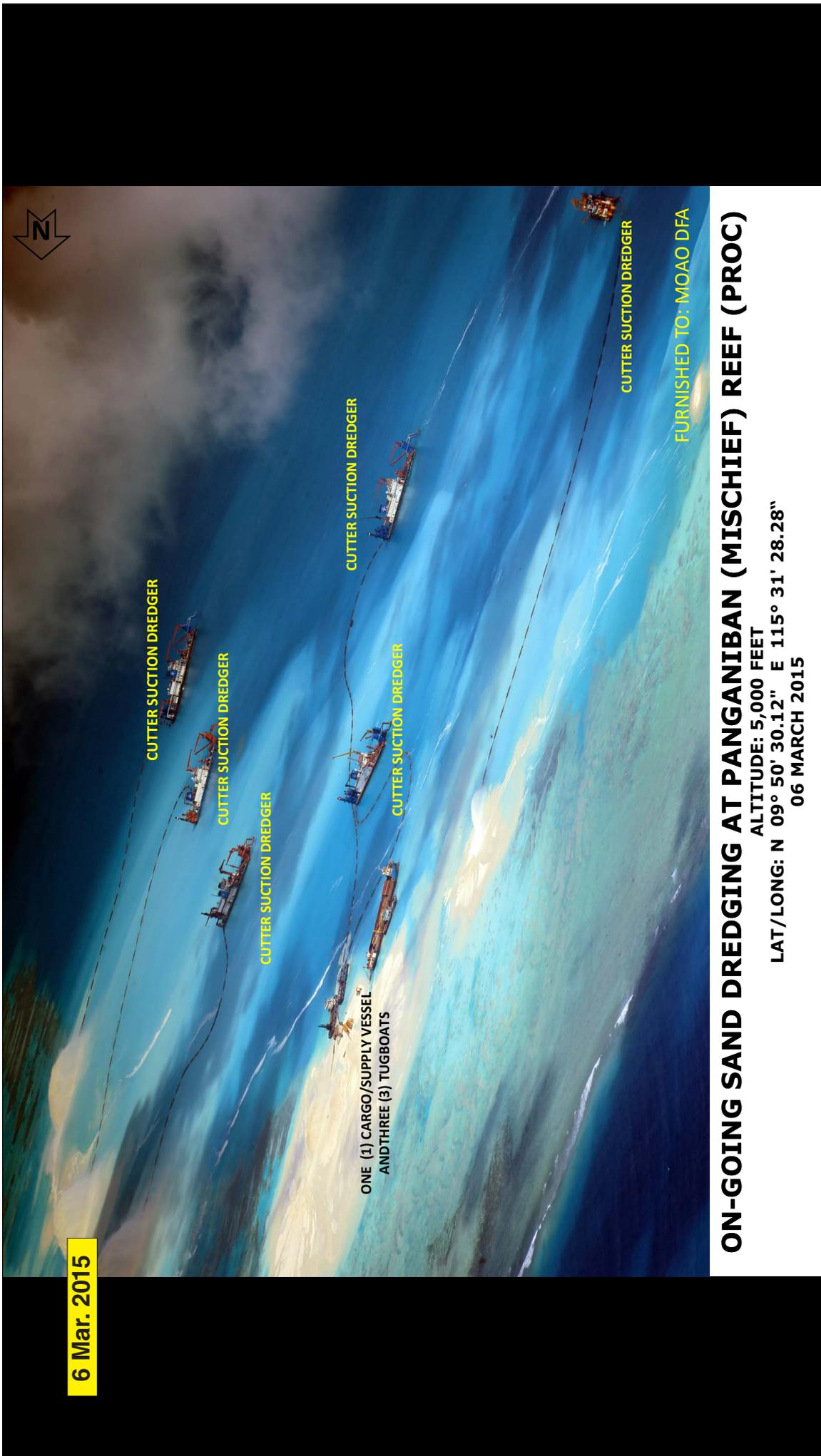
FURNISHED TO: MOAO DFA

ON-GOING SAND DREDGING AT PANGANIBAN (MISCHIEF) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 50' 30.12" E 115° 31' 28.28"

06 MARCH 2015



6 Mar. 2015



CUTTER SUCTION DREDGER

ONE (1) CARGO/SUPPLY VESSEL
AND THREE (3) TUGBOATS

CUTTER SUCTION DREDGER

FURNISHED TO: MOAO DFA

ON-GOING SAND DREDGING AT PANGANIBAN (MISCHIEF) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 50' 30.12" E 115° 31' 28.28"

06 MARCH 2015

6 Mar. 2015



FURNISHED TO: MOAO DFA

RECLAIMED AREA AT PANGANIBAN (MISCHIEF) (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 09° 50' 30.12" E 115° 31' 28.28"

06 MARCH 2015

Annex 793

Compilation of Images of Scarborough Shoal (various sources) (compiled 13 Nov. 2015)

Scarborough Shoal

12 Oct. 2012



Photos



May 1997



May 1997

Annex 794

Compilation of Images of Second Thomas Shoal (various sources) (compiled 13 Nov. 2015)

Second Thomas Shoal

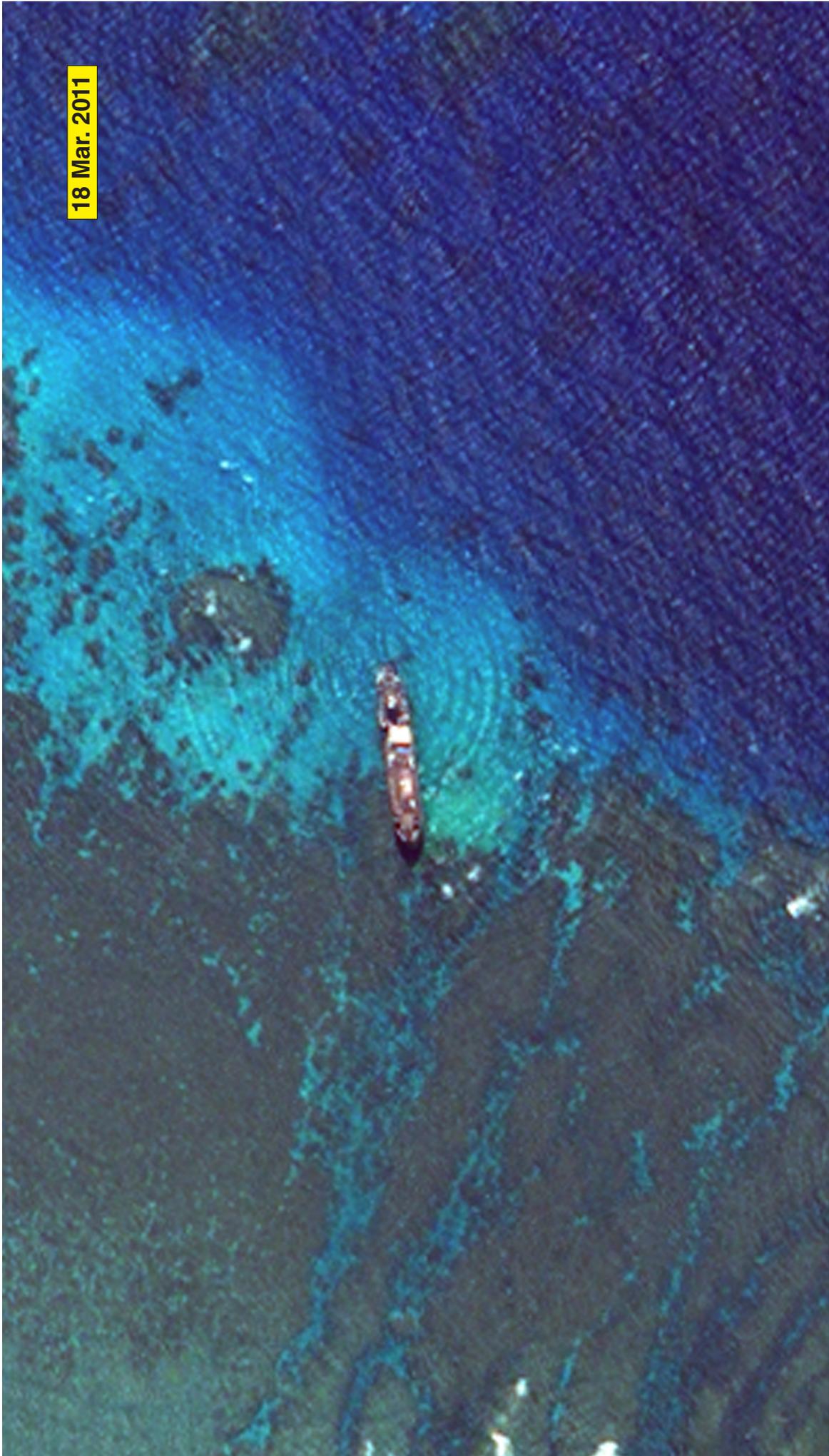
18 Mar. 2011



Enlargements of Satellite Images



18 Mar. 2011



Oblique Photos

29 Mar. 2014



Annex 795

Compilation of Images of Subi Reef (various sources) (compiled 13 Nov. 2015)

Subi Reef

27 Jul. 2012



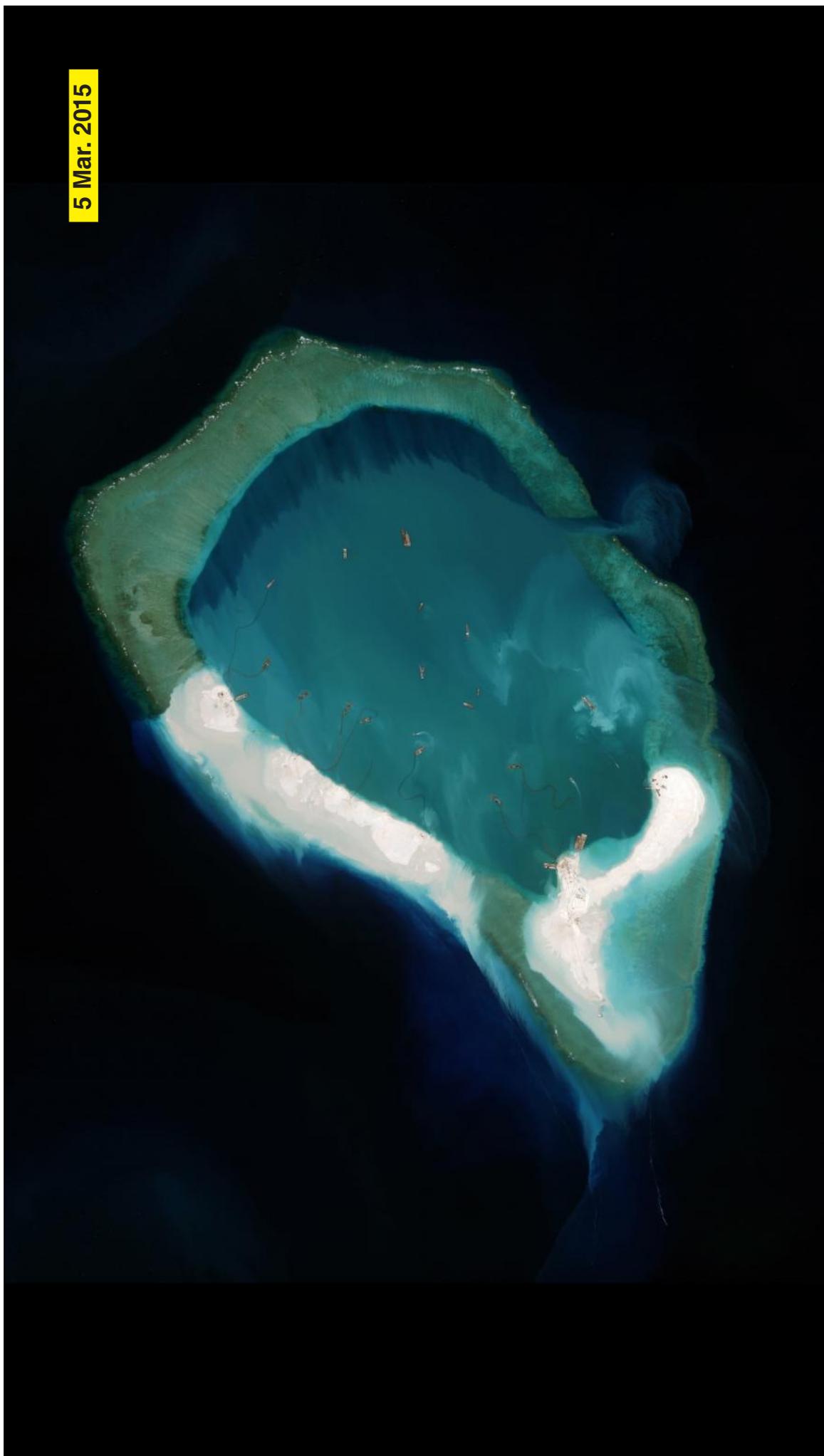
Aug. 2012



26 Jan. 2015



5 Mar. 2015



5 Jun. 2015



3 Sep. 2015



6 Nov. 2015

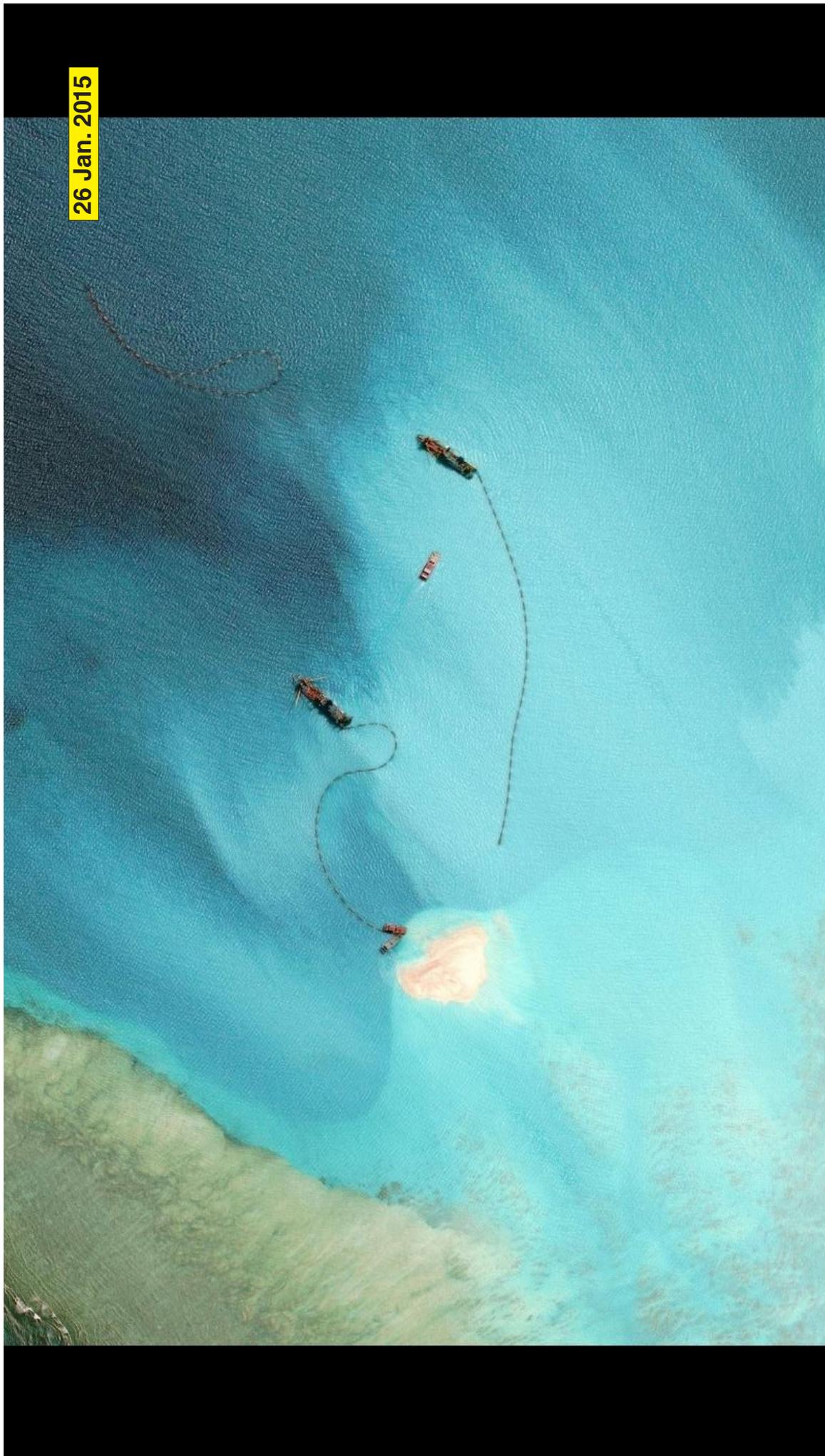


Enlargements of Satellite Images

8 Jan. 2014



26 Jan. 2015



5 Mar. 2015



5 Mar. 2015



17 Mar. 2015





3 Sep. 2015



3 Sep. 2015



Oblique Photos

18 Jul. 2012





TWO (2) CUTTER SUCTION DREDGERS
AND TWO (2) TUGBOATS

TWO (2) CARGO/SUPPLY VESSELS

MAIN STRUCTURE

19 Feb. 2015



FURNISHED TO: MOAO DFA

ON-GOING SAND DREDGING AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"

19 FEBRUARY 2015



19 Feb. 2015



FOUR (4) CUTTER SUCTION DREDGERS, TWO (2) TUGBOATS
AND ONE (1) CARGO/SUPPLY VESSEL

FURNISHED TO: MOAO DFA

ON-GOING SAND DREDGING AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"

19 FEBRUARY 2015



6 Mar. 2015

MAIN STRUCTURE

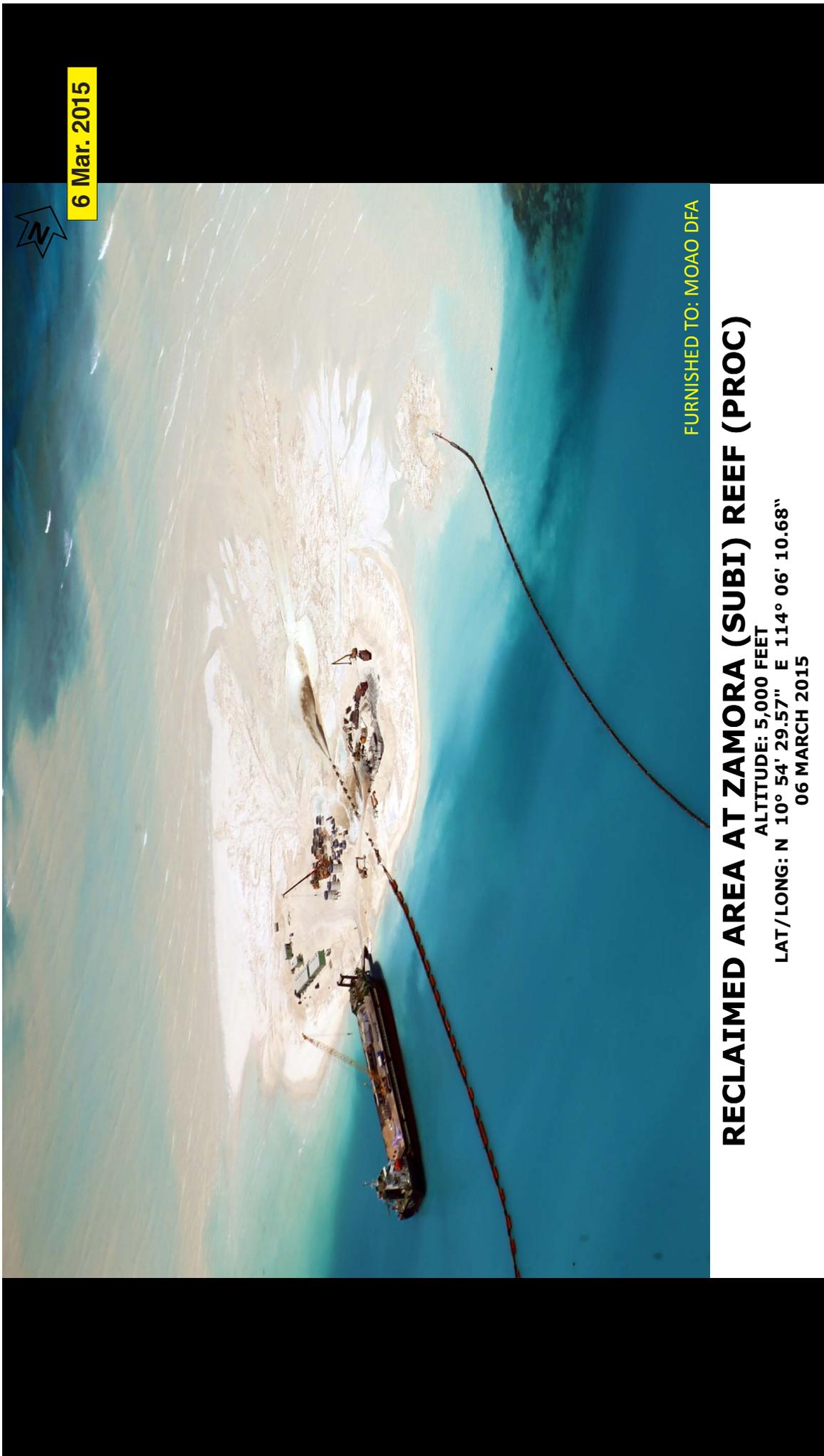
FURNISHED TO: MOAO DFA

RECLAIMED AREA AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"

06 MARCH 2015



6 Mar. 2015

FURNISHED TO: MOAO DFA

RECLAIMED AREA AT ZAMORA (SUBI) REEF (PROC)

ALTITUDE: 5,000 FEET

LAT/LONG: N 10° 54' 29.57" E 114° 06' 10.68"

06 MARCH 2015

Annex 796

Van Oord, “Cutter Suction Dredger Castor”, Video (2012), *available at* <http://www.vanoord.com/activities/cutter-suction-dredger> (accessed 5 Nov. 2015)

Annex 796 is a video produced by Van Oord, a company self-described as “a leading contractor for dredging, marine engineering and offshore energy projects ...”. The video was accessed and downloaded from Van Oord’s website at the following address on 5 Nov. 2015: <http://www.vanoord.com/activities/cutter-suction-dredger>.

The file is available as Annex 796 in the electronic submission.

Annex 797

International Maritime Organization, *IMO – the International Maritime Organization: What it is, What it does, How it works* (2014)



IMO – the International Maritime Organization

What it is, What it does, How it works



IMO mission: safe, secure and efficient shipping on clean oceans



IMO

- Specialised UN agency
- Headquarters in UK since 1958
- Annual budget £30+ million
- Secretariat – 300 staff, more than 50 nationalities



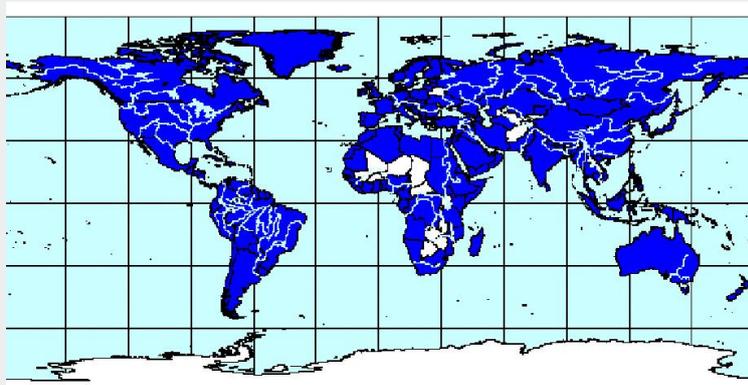
Ten largest contributors to IMO in 2014. Assessed contributions based on flat base rate with additional components based on ability to pay and merchant fleet tonnage.

Panama	£5.44m	18.08%
Liberia	£3.14m	10.42%
Marshall Is.	£2.16m	7.17%
Singapore	£1.62m	5.38%
UK	£1.37m	4.56%
Bahamas	£1.32m	4.39%
China	£1.19m	3.95%
Malta	£1.15m	3.81%
Greece	£1.04m	3.45%
Hong Kong	£1.01m	3.36%

IMO - global coverage

170 Member States, three associate members

IGOs and NGOs participate as observers



IMO at work

- Assembly
- Council – 40 Members

- Committees:
 - Maritime Safety Committee (MSC)
 - Marine Environment Protection Committee (MEPC)
 - Legal Committee (LEG)
 - Facilitation Committee (FAL)
 - Technical Cooperation Committee (TCC)

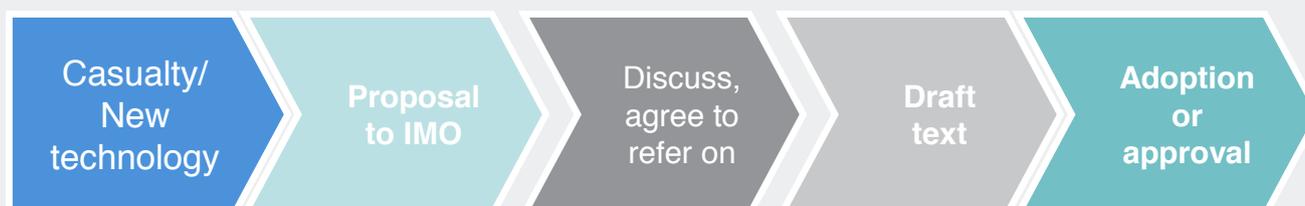


Sub-Committees

- **Sub-Committee on Ship Design and Construction (SDC)**
- **Sub-Committee on Pollution Prevention and and Response (PPR)**
- **Sub-Committee on Human Element, Training and Watchkeeping (HTW)**
- **Sub-Committee on Ship Systems and Equipment (SSE)**
- **Sub-Committee on Navigation, Communication and Search and Rescue (NCSR)**
- **Sub-Committee on Carriage of Cargoes and Containers (CCC)**
- **Sub-Committee on Implementation of IMO Instruments (III)**



Progress of measures at IMO



- **Proposals for new, or amendments to existing, mandatory instruments - a compelling need** for such amendments should be demonstrated by the proponent(s), and an analysis of the implications of such amendments, particularly those with far-reaching implications and consequential proposals for other amendments, having regard to the costs to the maritime industry, the legislative and administrative burdens involved and benefits which would accrue therefrom, should be provided.....

Application to real ships

• SOLAS	162 Parties	98.60% world tonnage
• Load Lines	161 Parties	98.59% world tonnage
• MARPOL	152 Parties	98.58% world tonnage
• COLREG	156 Parties	98.59% world tonnage
• STCW	158 Parties	98.62% world tonnage

IMO instruments



- Some 50 IMO Conventions and Protocols
- Hundreds of codes, guidelines and recommendations
- Almost every aspect of shipping covered:
 - Design
 - Construction
 - Equipment
 - Maintenance
 - Crew

Implementation – whose role?

- Flag States on own ship
 - classification societies
 - voluntary audit scheme
first audits 2006; 67 Audits made so far
 - now moving to mandatory scheme, in place in 2016
 - Future cycle of audits every 7 years
- Port State Control
- IMO – no “policing” mandate

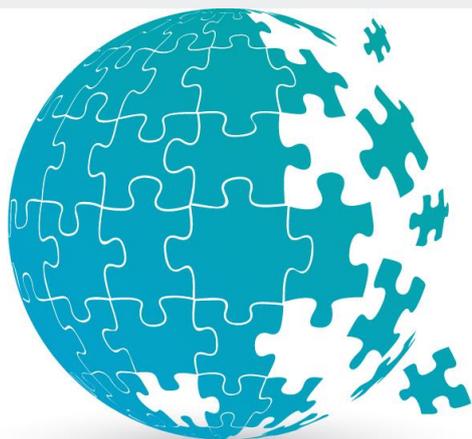


IMO Technical co-operation

- Resource imbalance
- Needs assessment
- Donors – expertise, funding, training
- World Maritime University, IMLI



IMO World Maritime Day theme 2014



IMO  **WORLD
MARITIME
DAY 2014**

CONVENTIONS

EFFECTIVE IMPLEMENTATION



Maritime security

- Maritime security measures (adopted 2002 – in force July 2004)
- ISPS Code
 - Risk assessment – level of threat
 - Ship and port security officers
 - Security plans
- Other SOLAS amendments
 - Ship security alerts, accelerated AIS introduction,
 - LRIT



Piracy

- Piracy off Somalia
- Originally - protecting WFP ships
- Various UN Security Council resolutions
- Piracy off west and central Africa is a growing problem



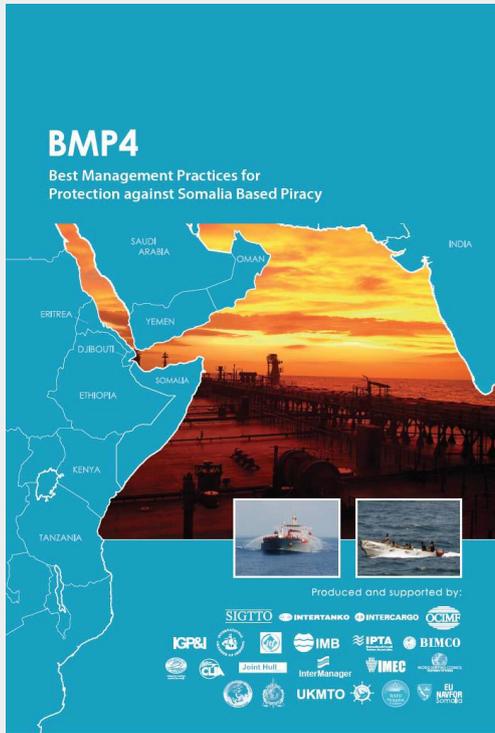
Djibouti Code of Conduct – 20 States, PIU at IMO HQ



2013 – new trust fund to support IMO projects to help implement Code of Conduct concerning the prevention of piracy, armed robbery against ships and illicit maritime activity in west and central Africa



IMO guidance



Best Management Practices (BMP) includes advice to shipmasters and crew

Guidance issued on Privately Contracted Armed Security Personnel (PCASP)

Passenger ship safety

- Titanic – first SOLAS adopted in 1914
- 1929, 1948, 1960
- 1974 version – introduced “tacit acceptance”

- Accidents have led to revisions, also revisions due to “what might happen”, 2006 passenger ship amendments

- Time for a new SOLAS? SOLAS 2024?



Fishing vessel safety

- Torremolinos Protocol 1993 - South Africa conference October 2012 adopted Cape Town 2012 agreement on implementation
- STCW-F 1995 enters into force 29 September 2012
- Thousands of lives lost annually in fishing sector worldwide
- IMO/ILO/FAO: joint work on IUU fishing and guidance e.g. Code of Safety for Fishermen and Fishing Vessels, 2005



Air pollution

- MARPOL Annex VI
 - adopted 1997, entered into force: May 2005
 - Revised Annex VI adopted 2008, entry into force 2010
 - Progressive reductions in SO_x and NO_x,
 - Stricter controls in ECAs



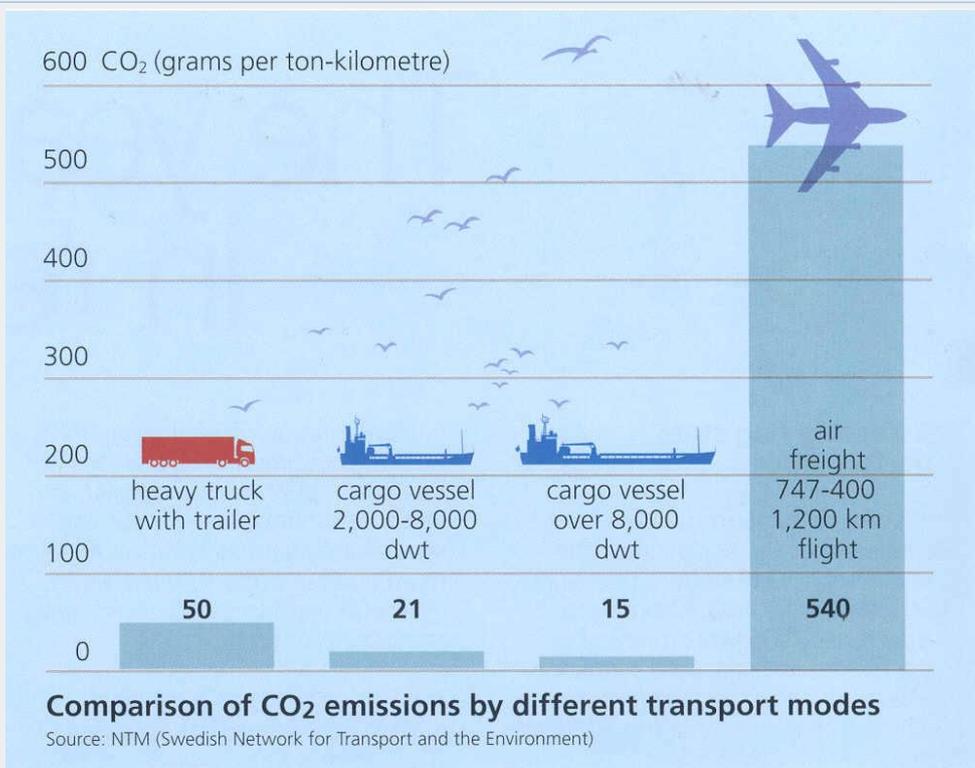
Greenhouse gas emissions

Energy efficiency measures for ships adopted under MARPOL Annex VI



- Technical and operational measures adopted 2011, entered into force 2013
- Energy Efficiency Design Index (EEDI) for new ships
- intended to stimulate innovation and technical development of all the elements influencing the energy efficiency of a ship from its design phase
- Ship Energy Efficiency Management Plan (SEEMP)
- mandatory for new and existing ships
- SEEMP should incorporate best practices for the fuel efficient operation of ships

Carbon footprint?



Alien invaders in ballast water

- Problem – brought to IMO in 1988
 - micro-organisms transported to alien eco-systems in ships' ballast water, no predators; environmental damage; enter food chain



- Solution
 - **International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004**

GloBallast programme - collaboration between IMO, GEF, UNDP, governments and industry to assist less-industrialised countries tackle ballast water problem

Ship recycling

- **Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009**
- Environmentally friendly disposal of old ships:
 - Most components and materials re-used
- But: safety issues for workers - hazardous materials
- Inter-agency co-operation ILO, Basel Convention

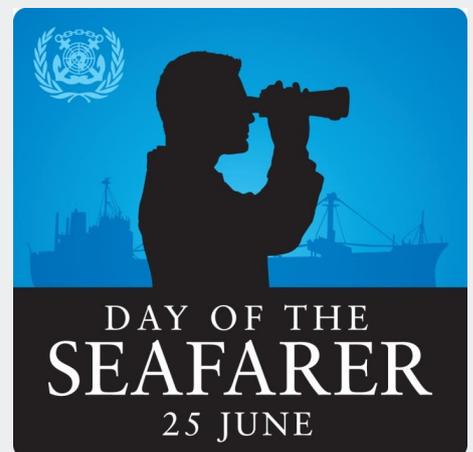


The human element

Complex, multi-dimensional issue

2010 – conference adopted revised STCW Convention

International Day of the Seafarer – 25 June social media campaigns



Does it work? Lives lost....

Definition: (a) Number of lives lost (seafarers, fishers and passengers) due to safety-related⁴¹ accidents and incidents on ships subject to IMC Conventions and other instruments.

i.e. **not** accidents and incidents which are due to security failures, acts of piracy and armed robbery or whose prevention is addressed by other international Conventions.

Source: IHS Fairplay (merchant vessels over 100 GT).

Note: The Secretariat has records of data on incidents involving fishing vessels but insufficient data provided via GISIS on fishermen's' lives lost

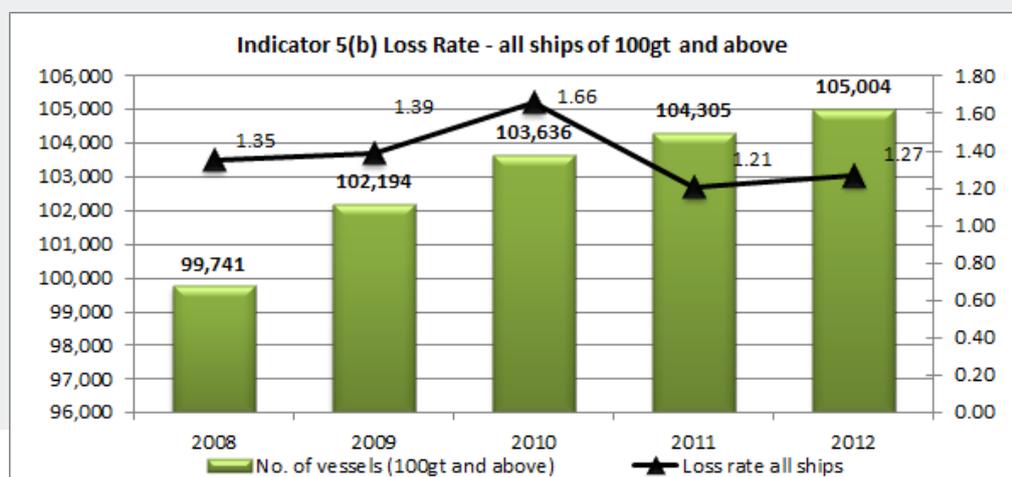
Total amount of passengers and crew 2012: 2,201,120,049

Ratio estimate per 1000 lives: 0.00028

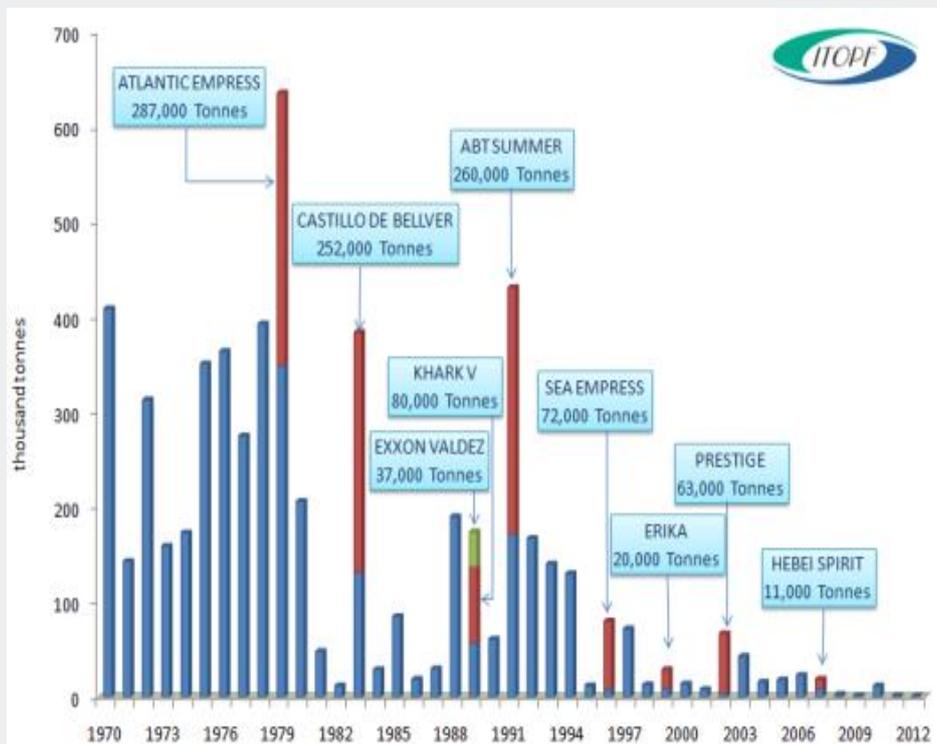
	2008	2009	2010	2011	2012
IHS Fairplay data	1,160	699	250	3,214	610
IMO	1,921	2,395	1,622	1,145	1,401

Ship losses over the years - declining

- 1966 to 1985: more than 300 ships lost annually.
- 1990: under 200; 2000: 167 lost.
- 2,596 shipping casualties reported in 2013, only 94 were considered total losses, according to Allianz.



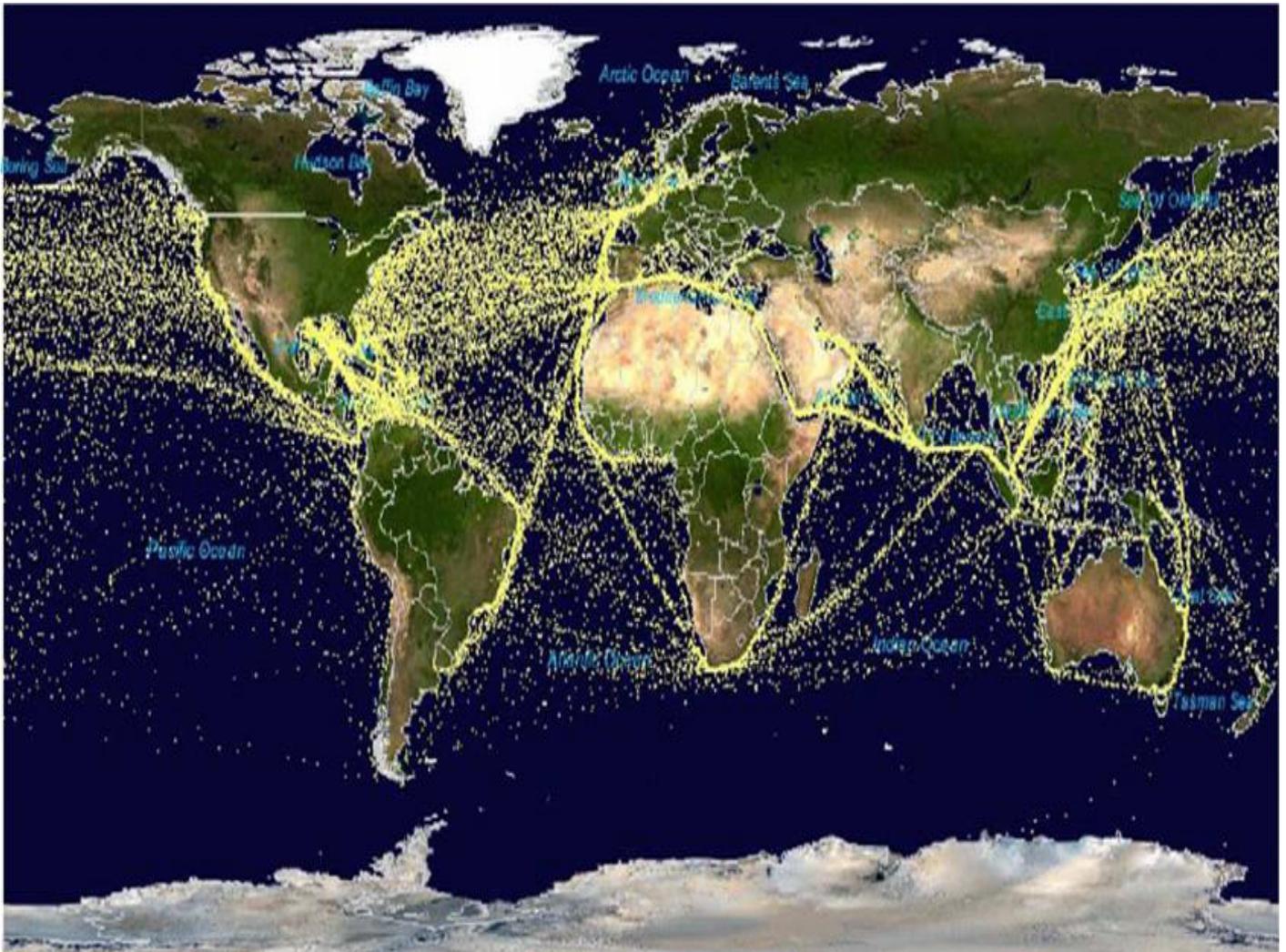
Statistics – oil spills declined



Shipping affects us all – sustainable development

- Nearly 90% of world trade carried by sea
 - Raw materials and commodities
 - Finished goods
 - Foodstuffs
 - Fuel
- Underpins global economy
- Safe, secure and environmentally friendly transport system





Any questions?

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[flickr.com/photos/
imo-un/collections](https://flickr.com/photos/imo-un/collections)



Annex 798

Russ Rowlett, "Lighthouses of Aves Island" (29 Nov. 2014), *available at* <http://www.unc.edu/~rowlett/lighthouse/ave.htm> (accessed 11 Nov. 2015)

Lighthouses of Aves Island

[Isla Aves](#) (Bird Island) is a small, isolated scrap of land in the eastern Caribbean, about 110 km (70 mi) west of Dominica and 550 km (340 mi) north of Venezuela. Having no supply of fresh water other than rainfall, the island has never been inhabited. From 1878 to 1912 it was occupied intermittently by a U.S. company under the U.S. Guano Islands Act. Venezuela asserted its claim to the island in 1895 (based on an 1865 arbitration agreement with the Netherlands), but it took no action on the claim until 1950, when a Venezuelan naval force took physical possession of the island. In 1978, a permanent scientific station was established, staffed by scientists and protected by naval personnel.



*Base Científico Naval Simón Bolívar, Isla Aves
(light is seen atop the left end of the station)
[photo](#) copyright Capt. Theo Hinrichs; used by permission*

Venezuelan ownership was confirmed in treaties with the U.S. in 1978, with France in 1980, and with Dominica, the closest nation of the Lesser Antilles, in 2006. However, erosion has claimed much of the island in recent decades, and there is a danger that rising sea levels will cause it to disappear completely.

ARLHS numbers are from the [ARLHS World List of Lights](#). Admiralty numbers are from volume J of the *Admiralty List of Lights & Fog Signals*. U.S. NGA List numbers are from Publication 110.

General Sources

[Online List of Lights - Isla Aves](#)

Photos posted by Alexander Trabas.

Lighthouse

Isla Aves (2)

2002 (station established 1981). Active; focal plane 19 m (62 ft); white flash every 5 s. Light mounted

atop a 3-story scientific station building, which stands on a platform supported by concrete piles. The current structure was built by a 2002 expedition and is occupied by rotating naval crews and visiting scientists. Trabas has a [photo](#) by Capt. Theo Hinrichs (a portion is seen at right), several German amateur radio operators have a [photo essay](#) from a 2006 DXpedition to this rarest of amateur radio jurisdictions, and Wikimedia has an [aerial view](#), but Bing has only a very distant [satellite view](#) of the island. Accessible only by boat; Venezuelan Navy permits are required to land on the island or visit the station. Site and tower closed. ARLHS AVE-001; Admiralty J5700; NGA 16851.

Adjoining pages: East: [Dominica](#) | South: [Venezuela Caribbean Islands](#)

[Return to the Lighthouse Directory index](#)

Posted January 11, 2008. Checked and revised November 29, 2014. Lighthouses: 1. Site copyright 2014 Russ Rowlett and the University of North Carolina at Chapel Hill.

Annex 799

Guangdong TV, “The Magic Dredge Pumping Artifact “Tianjing Hao”, a Great Meritorious Machine in China’s Land Reclamation in Nansha”, YouTube Video (10 Apr. 2015), *available at* <https://www.youtube.com/watch?v=wsnd56-5HiI> (accessed 5 Nov. 2015)

Annex 799 is a video produced and aired by Guangdong TV. The video was accessed and downloaded from youtube at the following address on 5 Nov. 2015: <https://www.youtube.com/watch?v=wsnd56-5HiI>.

The file is available as Annex 799 in the electronic submission. A transcript and translation thereof are produced as Annex 800.

Annex 800

Transcript of Guangdong TV, “The Magic Dredge Pumping Artifact “Tianjing Hao”, a Great Meritorious Machine in China’s Land Reclamation in Nansha”, YouTube Video (10 Apr. 2015), *available at* <https://www.youtube.com/watch?v=wsnd56-5HiI> (accessed 5 Nov. 2015)

The Magic Dredge Pumping Artifact “Tianjing Hao”, a Great Meritorious Machine in China’s Land Reclamation in Nansha

Reported by Guangdong TV

As the saying goes, “it is necessary to have effective tools to do good work.” China now reclaim land in the South China Sea in a fast speed. So what is the secret weapons? Let's look at the pictures. Here is China's Johnson South Reef, taken in February of last year. At the time, Johnson South Reef is just a concrete bunker. Just over a year, look at the picture below, the bunker was replaced by an artificial island with a side length of several hundred meters. How did China in such a short period of time build an island? Let us take a look. In 1988 the People's Liberation Army started to station in Nansha. At that time, the army just used bamboo sticks and plastic sheeting to build the camp. The living environment was really bad. While the stilted houses were soon be replaced by concrete barrier reef forts, the space was very limited. Even helicopters could not take off or land, the situation was unable to meet safety requirements.

Speaking of land reclamation, most people would first think of sending out cargo boats from the mainland loaded with sand and rocks to pile them around shallow beaches. However, this method would be at high costs. Moreover, cargo ferries with high tonnage in waters without docks would require using small boats to unload materials. A country lacks technology, such as Vietnam, would generally adopt such method in reclaiming land on reefs and islands.

“Dredge pumping” generally refers to using dredgers to dig mud, then pumping the mixture of mud in the mud hopper through pipes onto land near the sea to pile up the mud to reach a certain height so as to reclaim land. Huge shallow beaches around Nansha reefs have huge amount of sand. The most effective and economical way for land reclamation is to take advantage of the sand there, dig them out and use them right there. This requires efficient dredge pumping method. In this reclamation construction team, the most dazzling mafic artifacts is “Tianjing Hao”, the number one Asia's largest self-propelled cutter suction dredger.

When executing dredge pumping work, the vessel can move the mixture of sand and seawater at a rate of 4500 cubic meters per hour as far as 6000 meters away. This rate is equivalent to digging a 0.6 meter-deep pit of a football field-sized space within one hour. It shows a little bit of the efficiency of this “Invincible Giant”. Between September 2013 and June 2014, “Tianjing” has traveled back and forth among Cuarteron Reef, Fiery Cross Reef, Johnson South Reef, Hughes Reef and Gaven Reefs. Work was done in turns to elevate efficiency, for a total of 193 days. During this period, Tianjing” dredged and pumped over ten million cubic meters of sand and water at the five islands in Nansha; this is approximately equal to the amount of concrete used for three Hoover Dams.

“It's tonnage is relatively large, at least number three in the world. In addition, it also has relatively strong positioning capability, enabling precise positioning. After all, no matter you want to blow sand for reclamation or dredge, you must have a very strong positioning capability. In addition, it is equipped with a cutter on top which has great power. It can completely break granite rocks or such kind of strong rocks under the sea or river. The reason why Western countries pay particular attention to this vessel is its special role in the South China Sea. First, the terrain features of islands in the South China Sea is more small islands but less large islands. “Tianjin Hao” can change the terrain and its features and build a large reefs and islands. Second, the land reclamation in the South China Sea is not a military operation, but a civil action. As it is a civil action, then Western countries or other countries of the South China Sea cannot do anything about it from political, military or diplomatic perspectives. The idea is we do not use military power but civil power to resolve regional issues. This idea provides a very good example for resolving more conflicts in the future. “

中國南沙填海大功臣“天鯨號”吹填神器

(广东卫视)

俗话说“工欲善其事，必先利其器”。那么，中国如今在南海快速填海有什么秘密武器呢？我们先看看图片。这里是中国的赤瓜礁，拍摄于去年的2月份。那时的赤瓜礁只是一个混凝土碉堡。仅仅过了一年就是下面的图片，碉堡被一个边长数百米的人工岛屿所取代。在这么短的时间内中国是如何变成一个岛的呢？我们现在来看看。1988年解放军开始常驻南沙。当时只能拿竹竿和塑料布来搭建营地。居住环境非常恶劣。虽然这种高脚屋很快就被混凝土的礁堡取代了，但是礁堡上的空地非常有限。甚至无法起降直升机，无法满足安全需求。

说到填海一般人想到用货船运送沙土石料，在浅滩周围填海的景象。但是这样的方式不但成本高，大部分岛礁也没有合适的码头水域。大吨位货轮还要小船卸载，因此，效率很低。对于大规模的填海并不适用。不过，象越南这些缺乏技术的国家经常会选用这样的方式造岛。

“吹填”一般是指用挖泥船挖泥之后，通过管道将泥仓中的泥水混合物排放到近海陆地并堆到一定的高度，起到填海的效果。南沙礁盘周围巨大的浅滩拥有大量的海沙。而填海最有效最经济的方法就是将这些沙子利用起来，就地开采使用。这就需要吹填这种高效的作业方式。而在这只填海施工队伍中最耀眼的神器要数亚洲第一大自航绞吸挖泥船“天鲸”号。

在执行吹填作业时，该船能以每小时4500立方米的速度将海沙、海水的混合物排放到最远6000米外的海域。这个速度相当于一小时一个足球场大小的场地里挖一个0.6米深的坑。这个“巨无霸”的效率可见一斑。从2013年9月到2014年6月从2013年9月至2014年6月间，“天鲸”号多次往返于南沙华阳礁、永暑礁、赤瓜礁、东门礁和南薰礁之间，通过轮流作业提高效率，累计天数达193天。“天鲸”号在这五个岛礁吹填了超过1000万立方米的沙土和海水，大约相当于3个美国胡佛水坝消耗的混凝土。

“它的吨位也是比较大，至少是世界前三。另外，它的定位能力也比较强，能够实现精确的定位。毕竟要进行吹沙造地也好，包括疏浚也好，你必须要有很强的定位能力。另外，它上面配备的绞刀功率非常的大。比如在海底下或者河下面有花岗岩等等这种坚强的岩石，它也可以把它彻底地打碎。西方国家之所以对这艘船特别关注，觉得它在南海有特别大的作用，第一就是南海的地形特点是小岛较多，大型的岛屿少，而“天鲸”号可以改变地形，建立一个大型的岛礁。第二个特点是“天鲸”号在南海造岛不是军事行动，只是一个民事行为。民事行为的话，西方国家也好，南海其他国家也好，你在政治，军事和外交层面就拿我们没有办法。这种思路就是我们不用军事力量，而是

用民事力量去解决地区问题。这一思路对于今后更多问题冲突的解决提供了很好的范例”

Annex 801

Group of Seven, *G7 Foreign Ministers' Declaration on Maritime Security* (14 Apr. 2015)



G7 Foreign Ministers' Declaration on Maritime Security

Lübeck, 15 April 2015

The maritime domain is a cornerstone of the livelihood of humanity, habitat, resources and transport routes for up to 90 per cent of intercontinental trade. It connects states and regions and makes otherwise distant nations neighbours. Humankind depends on a safe, sound and secure maritime domain in order to preserve peace, enhance international security and stability, feed billions of people, foster human development, generate economic growth and prosperity, secure the energy supply and preserve ecological diversity and coastal livelihoods. As the world's population grows, our reliance on the oceans as a highway for commerce and a source of food and resources will increase even more. The free and unimpeded use of the world's oceans undergirds every nation's journey into the future.

We, the Foreign Ministers of Canada, France, Germany, Italy, Japan, the United Kingdom, the United States of America and the High Representative of the European Union, are convinced that we can comprehensively counter threats to maritime security only if we follow a cooperative, rules-based cross-sector approach and coordinate our actions nationally, regionally and globally. We are persuaded that lasting maritime security can only be achieved if we join forces in order to strengthen maritime governance in pursuit of rules-based, sustainable use of seas and oceans.

We reiterate our commitment to the freedoms of navigation and overflight and other internationally lawful uses of the high seas and the exclusive economic zones as well as to the related rights and freedoms in other maritime zones, including the rights of innocent passage, transit passage and archipelagic sea lanes passage consistent with international law. We further reiterate our commitment to unimpeded lawful commerce, the safety and security of seafarers and passengers, and the conservation and sustainable use of natural and marine resources including marine biodiversity.

We are committed to maintaining a maritime order based upon the principles of international law, in particular as reflected in the United Nations Convention on the Law of the Sea (UNCLOS). We continue to observe the situation in the East and South China Seas and are concerned by any unilateral actions, such as large scale land reclamation, which change the status quo and increase tensions. We strongly oppose any attempt to assert territorial or maritime claims through the use of intimidation, coercion or force. We call on all states to pursue the peaceful management or settlement of maritime disputes in accordance with international law, including through internationally recognised legal dispute settlement mechanisms, and to fully implement any decisions rendered by the relevant courts and tribunals which are binding on them. We underline the importance of coastal states refraining from unilateral actions that cause permanent physical change to the marine environment in areas pending final delimitation.

We firmly condemn acts of piracy and armed robbery at sea, transnational organised crime and terrorism in the maritime domain, contraband trade, trafficking of human beings, smuggling of migrants, trafficking of weapons and narcotics, illegal, unreported and unregulated (IUU) fishing, trafficking in protected species of wild fauna and flora, and other illegal maritime activities. These constitute serious and intolerable threats to the life and wellbeing of passengers and crews on board ships, to marine biodiversity and food security, to the rule of law and to freedom of navigation and lawful trade and transport. They pose major risks to the stability and development of coastal states in areas prone to piracy and other forms of maritime crime and maritime terrorist activity. We oppose the deliberate obstruction of sea lanes aimed at interrupting trade, traffic and tourism, as well as threats against critical sea-borne infrastructure and against energy supply security in the maritime domain.

The development of standards for safe navigation, protection of the marine environment, communication, and operation of maritime shipping has long been an area of international cooperation. We call upon governments, port authorities, shipping companies, ship owners, operators, shipmasters and crews to apply and implement existing law and guidance in order to increase maritime safety and security, such as the International Convention for the Safety of Life at Sea (SOLAS), the International Ship and Port Facility Security Code (ISPS), the International Convention for the Prevention of Pollution from Ships (MARPOL) and the International Maritime Organization's (IMO) Guidance to ship owners, ship operators, shipmasters and crews on preventing and suppressing acts of piracy and armed robbery against ships. We call on ship owners, ship operators, shipmasters and crews to report any criminal act at sea immediately in order to prevent future attacks and to improve data collection.

We reaffirm our commitment to further international cooperation on combating maritime security threats. We commend the United Nations and its specialised bodies, NATO's Operations Ocean Shield and Active Endeavour and the European Union Naval Force Operation Atalanta in close collaboration with their partners, the US-led Combined Maritime Force and national contributors, as well as other initiatives such as the Contact Group on Piracy off the Coast of Somalia (CGPCS) and the G7++ Friends of the Gulf of Guinea Group (FoGG) for their achievements as regards enhancing security in the maritime domain and strengthening rules-based maritime governance.

We welcome NATO's work to put its existing Alliance Maritime Strategy (AMS) into action, the EU Maritime Security Strategy (EUMSS) and the corresponding Action Plan, 2050 Africa's Integrated Maritime Strategy as well as the UK and US National Strategies for Maritime Security. These are all milestone documents towards a more secure global maritime domain.

We understand that the causes of maritime crime lie ashore and that crime can be exacerbated by the absence of effective, fair, accountable, and transparent governmental institutions, judicial systems and law enforcement. We reaffirm our commitment to assist in tackling existing shortcomings in this regard. In this light we salute the EU's comprehensive approach in the Horn of Africa and the EU Strategy and Action Plan on the Gulf of Guinea. We also take note of the Regional Fusion and

Law Enforcement Centre for Safety and Security at Sea (REFLECS3) multinational project in the Seychelles.

We welcome and encourage research activities aimed at providing scientific and technological support to enhance maritime security, fostering information sharing and collaboration and, thus, adding to the sustainable use of the global maritime domain. We support the incorporation of their findings into the development and implementation of maritime security policies, as appropriate.

Fostering regional cooperation, ownership and responsibility

1. We support the establishment of functioning regional mechanisms of cooperation on enhanced maritime security. National and regional ownership and responsibility are key to improving maritime security in critical areas. We particularly underline the importance of regional agreements and instruments such as the Asia-Pacific Code for Unplanned Encounters at Sea, the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP), the Code of Conduct concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden (“Djibouti Code of Conduct”) and the Code of Conduct concerning the Repression of Piracy, Armed Robbery against Ships and Illicit Maritime Activity in West and Central Africa (“Yaoundé Code of Conduct”). We call for the acceleration of work on a comprehensive Code of Conduct in the South China Sea and, in the interim, emphasise our support for the 2002 ASEAN Declaration on the Conduct of Parties in the South China Sea. We highlight the constructive role of practical confidence-building measures, such as the establishment of direct links of communication in cases of crisis and efforts to establish guiding principles and rules to govern activities, such as the ASEAN – China talks on a Code of Conduct on the South China Sea. We encourage States to do their utmost to implement their commitments, and we intend to assist them within the scope of our abilities and regional priorities. We furthermore welcome initiatives on maritime security in relevant fora, such as the East Asia Summit, the ASEAN Regional Forum, the EU-ASEAN cooperation, and regionally based Coast Guard Forums.

Enhancing capability development and capacity-building

2. We are committed to supporting comprehensive capability development and capacity-building in regions affected by piracy and other forms of maritime crime, including in ports and coastal waters, in order to enable and enhance the capacity of coastal states, regional and interregional maritime security regimes. We encourage third parties to contribute to the various multi-donor trust funds in this field, to which several G7 partners are major donors. We actively coordinate and assist capacity and capability-building measures in order to maximise their effect, as practised in the Horn of Africa through the CGPCS Working Group on Capacity Building, in Asia through ReCAAP, and in the Gulf of Guinea by the G7++ Friends of the Gulf of Guinea Group (FoGG).

Intensifying information-sharing and advancing maritime domain awareness

3. We support regional and international initiatives on information-sharing, maritime awareness and surveillance, such as the Maritime Safety and Security Information System (MSSIS) and the EU's Common Information Sharing Environment (CISE), as competent authorities' and seafarers' access to timely and accurate information about incidents and developments related to maritime security, including as regards ships' cargo, is essential for rapid and adequate response. We support regional organisations, coastal states and the shipping industry in their endeavours, such as the Maritime Trade and Information Sharing Centre – Gulf of Guinea project, to work together to collect and share information, in the pursuit of the best possible maritime situation awareness. In this regard, we encourage the creation of information-sharing and information fusion centres (ISCs and IFCs), following the ReCAAP Information Sharing Centre, the Singapore IFC and the Djibouti Code of Conduct ISCs models and welcome the July 2013 Indian Ocean Commission decision to establish an information fusion centre and an operations coordination centre for the Indian Ocean. We aim to extend maritime information-sharing and surveillance beyond existing formats, within the parameters of our respective national laws and policies, with the aim of eventually creating comprehensive situational awareness of the global maritime domain.

Fighting trafficking in human beings and smuggling of migrants,

4. We coordinate actions nationally and internationally ashore and at sea in order to fight human trafficking and the smuggling of migrants in the maritime domain – crimes that prey on the weakest members of society and cause unimaginable hardship. We support the work of international organisations in this field. We aim to combat these crimes and address the political and socio-economic drivers of irregular migration. We underline the responsibility of countries of origin, transit and destination to cooperate in order to prevent smuggling, human trafficking and forced labour, to disrupt organised criminal groups involved in these activities and to eliminate financing opportunities of such crimes. We call upon all states to ratify or accede to and implement the United Nations Convention against Transnational Organized Crime and its Protocols on trafficking in persons and smuggling of migrants and international instruments protecting the human rights of all persons, and support capacity building programmes to assist their implementation.

Securing the integrity of international lawful commerce

5. We encourage arrangements for information sharing and cooperation between authorities to effectively identify and address threats related to international lawful commerce. We support risk-based surveillance of goods movement in the maritime domain, consistent with international law, in the fight against terrorist and

organised crime activities such as smuggling of goods, trafficking of weapons and narcotics, along with cross-border movements of proceeds of this illegal trade.

Strengthening good governance and boosting economic development

6. We help to prevent piracy and other forms of maritime crime through our work on and active commitment to good governance, functioning, capable and fair governmental institutions, and the development of civil society and of legitimate and inclusive political processes in states prone to piracy and other forms of maritime crime. We support economic development, the creation of alternative employment opportunities and the provision of basic social services in coastal states in order to enhance social and political integration and to reduce structural factors inherent in instability or conflict. We strive to address these challenges within the parameters of our respective national priorities and programmes in areas prone to piracy and other forms of maritime crime.

Spreading the rule of law

7. With a view to ensuring that the fight against piracy and other forms of maritime crime is successful, we promote functioning and efficient national judicial systems, including transparency, protection of human rights, and the effectiveness and efficiency of state and non-state bodies involved in rule of law issues, including criminal law. Perpetrators of such crimes should be brought to trial. We are concerned about weak justice systems and the lack of resolve and/or capacity in the judicial sector in many coastal states, resulting in a limited number of perpetrators facing justice. We welcome the framework for prosecuting pirates in the Horn of Africa region developed through the Contact Group on Piracy off the Coast of Somalia, including the post-trial transfer system. We encourage efforts to follow this example in other regions as appropriate. Graft and corruption nurture illegal activities at sea. We encourage governments to address this problem more decisively and consistent with international conventions such as the United Nations Convention Against Corruption (UNCAC).

Enhancing the implementation of the existing regulatory framework for the employment of private maritime security companies on board ships

8. We acknowledge the increasing role of preventive measures taken by ship and cargo owners in combating piracy aimed at improving self-protection against threats to the security of crews and vessels, including the use of private maritime security companies (PMSC) providing privately contracted armed security personnel (PCASP) on board sea-going vessels. We welcome flag states' and international efforts to raise the standards of conduct for PMSCs based on the IMO guidance in this field. We encourage organisations representing the interests of ship and cargo owners and maritime insurers to apply this guidance. We also encourage efforts to develop and implement standards and codes of conduct for

private maritime security service providers to ensure respect for human rights in their operations in cases not covered by flag state legislation. We furthermore encourage exploring whether additional guidelines pertaining to the use of new technologies in these self-protection efforts, such as unmanned air- and seaborne vehicles, could be developed.

Promoting maritime governance to preserve coastal livelihoods and marine biodiversity

9. We intend to step up efforts to ensure the implementation of measures and regulations aimed at preventing illegal, unreported and unregulated (IUU) fishing and conserving and managing fish stocks, such as the United Nations Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks and the UN Food and Agriculture Organization (FAO) Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA). We call for a global record of fishing vessels and for the implementation of IMO Assembly resolution A.1078(28) to introduce unique identification numbers for all fishing vessels in order to improve accountability and traceability. We encourage third countries and regional and international organisations to adopt and implement policies in order to prevent, deter and eliminate IUU fishing.
10. We reiterate the importance of the conservation and sustainable use of marine biodiversity beyond areas of national jurisdiction and – following the recommendations of the ad hoc open ended informal working group on biodiversity in areas beyond national jurisdiction – expect the United Nations General Assembly to take a decision before the end of its 69th session on the development of an international instrument under UNCLOS to address this issue.

Outlook

11. We recognise that continued attention to the issue, further action at the international level, and strengthened national, regional and international political will are needed in order to enhance maritime security and the rules-based, sustainable use of the global maritime domain. In light of that, we welcome Germany's intention to host a G7 High-level Meeting on Maritime Security later this year.

Annex 802

United Nations Environment Programme, “Regional Seas Programmes: East Asian Seas”, *available at* <http://www.unep.org/regionalseas/programmes/unpro/eastasian/default.asp#> (accessed 11 Nov. 2015)



UNEP Programmes



East Asian Seas

◆ Governing Instruments ◆ Regional Profile ◆ Contacts ◆ Participating Countries ◆ Website



East Asia's astonishing variety of political, economic and social systems is matched by its environment: ship-crowded straits, island groups, wide gulfs, shallow estuaries and some of the most heavily populated countries in the world, where millions rely on fish for much of their protein.

The threats to the region are just as varied, including erosion and siltation from land development, logging and mining, blast fishing in coral reefs, conversion of mangroves, overfishing, unimpeded coastal development and disposal of untreated wastes. Seven areas of focus were identified for the region:

- Develop and maintain a regional database (later changed to a regional metadata base).
- Promote, improve, network and maintain marine protected areas in the region.
- Implement activities to restore marine habitats.
- Assist with State of Environment reporting for agencies preparing such reports and marine and coastal assessment.
- Implement activities to reduce land-based sources of pollution.
- Encourage monitoring and environmental assessment including mapping in the region.
- Encourage and implement projects to build capacity in the member countries to counter environmental degradation and to educate all members of the community in caring for the marine resources of the region.

The Action Plan for the Protection and development of the Marine and coastal areas of the East Asian Region was approved in 1981 and was initially sub-regional, involving only five countries of ASEAN with five more welcomed in 1994. The Action Plan is steered from Bangkok by its coordinating body, COBSEA.

There is no regional convention but instead the programme promotes compliance with existing environmental treaties and is based on member country goodwill.

Long term strategies (1987-96) for the EAS Action Plan adopted 1987

Long-term strategy of the Coordinating Body on the Sea of East Asia (1994-2009) adopted 1994

Long-term plan "Vision and Plan - A Systematic Approach" adopted 1999

After the tsunami

The December 2004 tsunami came as a great shock to the environment of this region, in addition to its toll in human lives and livelihoods. Many corals were affected, particularly in the intertidal zone, and rubbish from run off continues to damage them in spite of the best efforts of clean-up teams.

The enormous rebuilding effort now under way offers an opportunity to plan the placement of roads, walls, resorts, hotels, houses and aquaculture installations more wisely. The replanting of mangroves is essential: coastal mangrove forests proved their worth by protecting thousands of people from the tsunami. Fishing fleets, instead of being rebuilt to former unsustainable levels, can be regulated and restricted to save the region's endangered fish stocks.

The urgent need for an early warning system and improved disaster management to reduce the loss of human lives and property is now clear. But just as important to the long-term future of the region's coastal communities is the rehabilitation of their damaged marine ecosystems.

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Annex 803

United Nations Environment Programme, Coordinating Body on the Seas of East Asia, “About COBSEA”,
available at <http://www.cobsea.org/aboutcobsea/background.html> (accessed 11 Nov. 2015)



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About COBSEA

East Asia's astonishing variety of political, economic and social systems is matched by its environment: ship-crowded straits, island groups, wide gulfs, shallow estuaries - and some of the most heavily populated countries in the world where millions rely on seafood for much of their protein. The threats to the coastal and marine environment in the region seem just as varied, and include erosion and siltation from land development, logging and mining, blast fishing in coral reefs, cutting and conversion of mangroves, overfishing, unimpeded development and disposal of untreated wastes.

The Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region (the East Asian Seas Action Plan) was approved in 1981 stimulated by concerns on the effects and sources of marine pollution. Initially, the action plan involved five countries (Indonesia, Malaysia, Philippines, Singapore and Thailand). In 1994, it was revised to involve another five countries (Australia, Cambodia, People's Republic of China, Republic of Korea and Vietnam) and up to this date the action plan has nine participating countries (Australia is no longer a participating country). The main components of East Asian Seas Action Plan are assessment of the effects of human activities on the marine environment, control of coastal pollution, protection of mangroves, seagrasses and coral reefs, and waste management.

Among the Regional Seas Programmes, East Asia has steered a unique course. There is no regional convention; instead the programme promotes compliance with existing environmental treaties and is based on member country goodwill.

East Asian Seas Action Plan is steered by the Coordinating Body on the Seas of East Asia (COBSEA) that is consisting of the ten member countries. The COBSEA Secretariat is in fact the lead agency of the United Nations for marine environmental matters in East Asia, responsible for co-ordinating the activities of governments, NGOs, UN and donor agencies, and individuals in caring for the region's marine environment.

Read more...

Action Plan for the Protection and Sustainable Development of the Marine and Coastal Areas of the East Asian Region (1994). ([read...](#), pdf file, 244KB)

Action Plan for the Protection and Development of the Marine and Coastal Areas of the East Asian Region (1983). ([read...](#), pdf file, 1.47MB)

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Annex 804

“Form”, *Oxford English Dictionary* (accessed 9 Nov. 2015)

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FORM

umber formwork into which the concrete is poured. 1958 Engineering 31 Aug. 2071: A method of using precast-in-made steel formwork for the placing in situ of structural concrete in room width tunnel sections.

form (fɔ:m), v. Also 4-6 fourme(n), (4-5 fourme, fourme, fourym). (3. OF. fourme-r (Fr. former) = Pr. and Sp. former. ad. L. formare, f. forma FORM sb.)

1. a. trans. To give form or shape to; to put into or reduce to shape; to fashion, mould. 1340-70 Alt. & Dind. 600 Wc. No figure of 80 gold fourme yet done. 1667 Milton: P. L. viii. 470 The Red he form'd and fashon'd with his hands. 1738 Winstanley: All Glory to the dying Lamb v. Send down the Spirit of thy Son To form my Heart divine. 1800 ROLAND FENNING 64 Return to nearly the same position... but forming the parade with a firm, supple, and precise motion.

1800 WARD tr. Curtius' Hist. Greece II. ii. 11. 74 Here athenes had formed in clay from a very early date. †b. To express in formal shape; to formulate; to state formally. Also with up. Obs. 1330 R. BRUNNE Chron. (1810) 99 he bishop of Paris he was ben formed he. 1614 B. JOHNSON Barth. Fair iv. vi. He'll go near to force to her what a delus'd d' Rascal I am. 1675 BROOKS Gold. Key Wks. 1807 V. 266. Seven several pleas, that all sincere Christians may form up.

c. To give a specified form to; to mould or fashion into a certain shape, or after, by, from, upon a certain pattern or model; to conform to. 1297 R. GLouc. (Rolls) 1370 'Formed as a dragon see red see fur. 1303 R. BRUNNE Handl. Synes 3751 God ourp every creature pat he formed to his figure. 1330 King of Tars 528 Yf Mahoun and Jowan can Make his formed after mon. With hif and ymes arthe. 1340 MAUNDRE. (Roxb.) vi. 25 but worne cr lumed ad a fewle perfectly fourmed. 1544 Gata Rom. xviii. 328 (Add. MS.) The soles, sette about with vertues, when fourmed it to his manere. 1533 Lb. BRUNNE Hudson lexon. 263 By v' lorde that fourmyd me to his semblance. 1674 tr. Scheffer's Lapland & Charles. divided the Country into several parts, and formed it into better order. 1803 SALMON Doron Med. I. 107 Forme it into Lozenges of what Fashion you please. 1805 JOWETT Plato (ed. 2) V. 172 A state formed after the model of Cretes should... have a character for virtue.

d. intr. To shape itself into. Also, †to agree in form; fit with. 1703 MOXON Mech. Exerc. 181 In short time wears the outside of that Corner to comply and form with the hollow of the Gouge. 1871 L. STURGES Plover. Eur. w. (1894) 72 A ridge of rocky peaks, formed into two ridges about its centre.

e. trans. To express by form, to 'body forth'. 1590 SKEWES F.O. III. i. 1. 248 & (Christy) it shined in my Sovereignes breast. And form'd so wely in each perfect part. That [etc.]

f. To agree formally to do something. Obs. 1400 Orit. Troy 1046 There was fourmyt a fest... Seven dayes before daly to hold.

g. Electr. (i) [after F. former (G. Planté 1872, in Compt. Rend. LXXIV, 593).] To convert electrolytically the surface of (a positive or negative plate of a lead-acid accumulator) into its active form by passing a direct current through it in both directions alternately. 1884 S. P. THOMPSON Storage Electr. 11/2 M. Planté minutely describes the process of 'forming' the cell. The charges may last several hours, and by the end of several months, the cell will be 'formed'. 1893 ALCHOUX & TROUSSET Mod. Storage Battery Pract. no. 73 After the active materials have been pasted into the plates, the plates are formed by a series of charges and discharges. 1904 C. SKIFFIN Storage Batteries II. 23 Planté negatives have been insoluble for many years, and it is modern practice to form Planté positives against plain lead sheets, or 'dummies'.

(ii) To subject (a semiconductor device or some kinds of rectifier) to a relatively large current or voltage in order to produce or modify permanently certain electrical characteristics. 1926 (implied by FRANKLIN vol. 2b. b). 1908 BARDEN & BHATTAIN in Physikal. Rev. and Ser. LXXV, 1210/1 When the two points were connected as emitter and collector, and the collector was electrically formed, transistate action was obtained. 1953 R. A. HARVEY Battery Chargers iv. 92 Once the [selenium] rectifier is formed it remains reasonably stable. 1962 L. P. HUNTER Handbook. Semiconductor Electronics (ed. 2) 106. 15 A procedure similar to that of forming a point contact can be used to create small-area PN junctions under a metal contact.

2. a. To mould by discipline or education; to train, instruct. Now rare, exc. with the mind, a faculty, etc. as object. Also refl. to shape one's conduct, style, etc. on or upon (a model). 1540 HAMPOLE Piolier xviii. 29 baire maners etc formed of samen wyse. 1677 BYRON Lett. v. 105 Thus form'd for speed he [a horse] challenges the Wind. 1774 G. COLLINS Gr. Chr. Reliq. 140 It seems... natural for a body of slaves... to be form'd by their masters. 1746 Col. Records Pennsylv. V. 51 One of Your Royal Blood, form'd upon your Majesty's Example. 1749 SWOLLETT Col. Br. v. 3 On this hint I formed myself. 1770 LANGHORNE Pleasants (1879) II. 715/2 The reward he gave him for forming his son was... honourable. 1778 EARL PEMBROKE Equitation 87 There is a great deal of good sense in Xenophon's method of forming his horses for war. 1781 GIBSON Dict. of F. III. 2 The most skillful masters... had laboured to form the mind and body of the young prince. 1822 SIM H. DAVY Chem. Philos. 15 Van Helmont... was formed in the school of Alchemy. 1847 L. HUNT Rom. & Hom. & B. II. vii. 96 Formed under their auspices, our patriot soon equalled his instructors. 1889 JENNIFER Coming of Fransa iv. 127 Rudely fostered by some one whose hand is not yet foreworn.

1890 J. LANGL. P. Pl. B. xv. 371 But if gyle be mayster And flaterere his schawe vnder hym to fourmen.

b. To inform of; also, to instruct. Obs. 1390 LANGL. R. Reddes iv. 58 Somme... to be kyng wente. And formed him of foos, pat good breade weren. 13400 Apol. Loel. 71 What may sey do, but... ab.d. it tel pes be formed with holy writ, how hem is best to do?

†c. To instigate, persuade. Obs. 1390 LANGL. R. Reddes I. 107 he first pat you formed to pat the dede. He shold have hadde howyngre on hie an be forchis. 13400 Destr. Troy 827 How pat faire, by his fader, was fourmet to wende To the gretkes.

3. a. To place in order, arrange. Also, to embody, organize (persons or things) into (a society, system, etc.). Cf. 8a. 1362 LANGL. P. Pl. A. viii. 39 pat I n schal sende you sooules saaf in-to heuene. Ased bi-foren be Face of my Fader fourmen of seetes. 13400 Pallad. on Honk. I. 1101 But setus make ye fourmed at thee lute. 1867 Decay Chr. Ptey xv. 360 Our divisions with the Romanse... are thus form'd into an interest. 1790 S. L. tr. Fryke's Voy. E. Ind. 309 We were commended... to form ourselves into a Ring. 1772 SIMES Mt. Guide (1781) 12 The routes must be so formed, that no column cross another on the march. 1874 GOSWAM Short Hist. ii. 66. 93 The Clerks of the Royal Chapel were formed into a body of secretaries.

b. intr. for refl. (Cf. 8b.) 1821 CLARE Phil. Minstr. I. 44 The noisy rout... Form round the ring, the streets to show. 4. a. To construct, frame; to make, bring into existence, produce. Const. from, of, out of (the material or elements). Also, to articulate, pronounce (a word, etc.). 1390 Havelok 36 God... Formede hinc wimman to be born. 1382 WYCKE Gen. ii. 7 God thanne fourmede man of the yme of the erthe. 13400 Lanfranc's Curus. 139 He was wode me blybbenge as a childe pat bryngnyng to speke but he myte formen non woode. 13400 Gata Rom. xlviii. 224 (Harl. MS.) Adam, the wimbe was shapin and fourwede in the felde of Damask. 1544 BANCLAY Cyt. & Upwardyght. (Percy Socy.) 10 When the world was fourmed & create. 1557 Br. GARDINER Esqpe. Transmut. 107 Whanne God fourmed Adam of chere. 1777 HOLLOWAY Curians's Chron. 75 He made the Goddess Venus in Alabaster... and of woad did fourme the whole Island Cress. 1813 BIBLE 2 Ezech. vi. 39 The sound of man's voice was not yet formed. 1867 MILTON P. L. xi. 570 The liquid Ore he drewed into fit moulds prepar'd; from which he form'd First his own Toodle. 1800 tr. Laguerre's Chem. II. 151 The oxygen of the oxide of the gold seizes on the hydrogen and forms water. 1848 MACAULAY Hist. Eng. i. 229 It had recently been formed out of the cavalry who had returned from Tanquer. 1800 TYNDALL Glor. I. xxvii. 202 The snow had given way, forming a zigzag fissure across the slope. 1805 Antiquary Sept. 89/1 Henry VIII... was the first English king to form a gallery of pictures.

b. To frame in the mind, conceive (an idea, judgement, opinion, etc.). †Formerly also, to imagine; occas. to form to oneself (= Fr. se figurer), and with complement. 1585 SHAKS. John iv. 14. 5 Could thought, without this obiect, Forme such another? 1667 Decay Chr. Ptey xv. 357 The defect of the secular Design, is commonly the routing those Opinions which were formed for my form to himself. 1678 DAVDEN All for Love III. 183 V. 369 I formed the danger greater than it was, And now 'tis near, 'tis lessened. 1703 Rowe Fair Penit. II. i. 424 My soul has form'd a dismal melancholy Scene. 1721 STEWART Spect. No. 533 P. 2 Form to yourself what you must needs be, to be a virtuous and chaste mind. 1779 BURKE Corr. (1844) II. 270. I do not form an estimate of the ideas of the churches of Italy and France from the pulpits of Edinburgh. 1864 M. PATTERSON Exc. (1880) I. 44 The reader... may form to himself some notion of what [etc.] 1866 J. A. SPALDING Ellis. Domestic. 128 We form no judgements till we have got language.

c. Parliamentary use = CONSTITUTE 6b. 1825 T. JEFFERSON Autobiog. Wks. 1859 I. 11 Many members being assembled, but the House not yet formed. d. refl. and intr. for refl. 1804 SOUTHWELL Thales's Act. Three years no cloud had form'd. 1830 THOMPSON Soc. Fancies 25 The rainbow forms and lies on the land Over the islands free. 1864 BAYCE Holy Rom. Emp. vii. (1876) 113 Very early... had the hotel formed itself [etc.] 1880 J. A. SPALDING Ellis. Domestic. 128 Stop the butter from forming in the churn. 1803 Late Times XCV. 49/1 A sheet of ice had formed in front of Proctor's house.

5. To develop in oneself, acquire (habits); to enter into (a junction); to contract (an alliance, friendship, etc.). 1776 BUTLER Anal. I. v. Wks. 1874 I. 90 Active habits are to be formed by exercise. 1781 Hist. Jour. in Ann. Reg. 211 The French... formed a junction with the Spaniards. 1784 COPPER Task II. 634 Wc. ...form connexions, but acquire no friend. 1828 D'ISRAELI Chas. I. II. 200 With the FRENCH... our country had from the earliest times formed no unintermitted intercourse. 1823 LYTTON Zorob 22 He formed no friends. 1891 SPOKER 2 May 531/1 Those methodical readers, who have formed the useful habit of keeping commonplace books.

6. a. To be the components or material of; to go to make up, to compose. b. To serve for, constitute; to make one of part of. 1377 LANCEL. P. Pl. B. xvii. 169 The fynes fourmen a ful hande to purveye or pryncen. 1277 tr. Trezor's Voy. S. Sea 48 The Continent, with which it [the island] forms two Passages. 1781 COPPER Friendship 14 The requises that form a friend. 1817 COLERIDGE Sibyll. Lament, Pte. Famine & Slavery. Letters four do form his name. 1849 MACAULAY Hist. Eng. I. 204 The Life Guards... now form two regiments. 1823 Act 36 & 37 Vic. c. 77. 520 The soil forming such butt or target. 1874 GOSWAM Short Hist. vi. 52. 273 Yeomen and tradesmen formed the bulk of the insurgents. 1885 March. Snow. 5 July 5/2 A common mould fungus... forming a kind of black velvety mass.

b. 1821 CLARE Phil. Minstr. II. 35 Every molchill forms a seat. 1841 BREWSTER Mart. Sc. vi. (1856) 91 His eminent pupil Viviani formed one of his family. 1845 M. PATTERSON

Exc. (1849) I. 27 The volume of the canons which had formed the object of his study. 1866 FREEMAN Norm. Cong. (1876) III. ii. 39 A realm of which Northumberland constitutionally formed a part.

c. With mixture of sense 2: To render fit for. 1723 STRELL Spect. No. 49 P. 73 These are the Men formed for Society. 1777 ROBERTSON Hist. Amer. (1778) I. ii. 24 All these qualities formed him for command.

7. Gram. a. To construct (a new word) by derivation, composition, etc. b. Of a word or word-stem: To have (a case, tense, etc.) expressed by a specified inflexion. 1824 L. MURRAY Gram. I. 243 Disyllables, formed by prefixing a syllable to the radical word. 1872 MORRIS Exc. Accus. ten. 168 The verbs of the strong conjugation form the past tense by a change of the root-vowel.

8. Milit. and Naval. a. To draw up (troops, etc.) in order. Also with up. 15330 R. BRUNNE Chron. (1725) 116 Walter Speke rose on hand. he folk to forme & take. 1400 Destr. Troy 6334 The fourth battell in field, he fourmet to leng With Archiball. 1816 KEATINGE Trac. (1817) II. 4 The troops mount, and, the whole being formed, move off the ground. 1833 Regul. Instr. Cavalry II. 56 The left files to be formed up, and sit at ease. 1838-42 ANOLD Hist. Rome III. ii. 208. 28 Hannibal formed his men as fast as they landed, led them instantly to the charge. 1820 BAVANT Hud II. ii. 69 For there was none to form their ranks for fight. 1863 FORBES-MITCHELL Remin. Gr. Mutiny 41 We were then formed up and served with some success.

b. refl. and intr. Of troops, ships, etc.: To arrange themselves in or assume some particular disposition or formation according to prescribed rules. Also with up. to form on (some other body); see quot. 1802. 1722 Dr. Foe Col. Jack (1840) 236 Our army formed immediately. 1736 LEBLANC Life Marlborough II. 494 The first Squadrons... had much ado to form themselves. 1795 NELSON 10 Mar. in Nicolas Disp. II. 11 The Admiral made signal to form in the Order of Battle. 1796 Instr. & Reg. Cavalry (1813) 77 They will at once form up. 1799 HARRIS in Owen Welleley's Desp. 149 The right wing of the army under my command formed on the pickets of the night. 1802 C. JAMES Mass. Dict. To Form on, is to arrange forward, so as to connect yourself with any given object of formation, and to lengthen the line. 1803 LARK in Owen Welleley's Desp. 405 The infantry formed in two columns. 1834 H. MARYNEAU Hill of Valley vol. 120 The soldiers formed themselves round the waggon. 1858 THOMPSON Rifleman Form II. Form. Form. Rifleman Form; Ready, be ready to meet the storm. 1803 Army Corps Orders in Standard 22 Mar. 3/3 When the 'assembly' sounds both Forces will form up by Brigades.

c. trans. To arrange themselves in the form of (battalions, a line, etc.). Esp. in the orders forms formed and form two desep. 1772 SIMES Mt. Guide (1781) 12 The companies will... form battalions as they advance to the head of the line, and then halt. 1796 Instr. & Reg. Cavalry (1813) 152 The whole are ordered to halt, with an intention of forming here in the manner proposed. 1805 Form open columns of divisions behind the right. 1805 Infantry Drill 152 The companies that will form the side faces will form faces in the required direction. 1805 On the words Form Two-Deep, the original two-rank men will take one pace to the rear. 1915 Form Forward Throuse I. 1. 2000 - Edward Moore to the right vs fours. Form - lower! On the command 'form fours', odd numbers will stand fast... Form - two deep!

d. to form the siege (of a place) [Fr. former un siege]: to commence active siege-operations (against it). 1766 GOSWAM Dict. of F. I. vi. 218 The siege of that great city was immediately formed. 1802 C. JAMES Mt. Dict. v. 1. Siege. To form the Siege, or lay Siege to a place... there must be an army sufficient to furnish five or six siegels for the trenches, pioneers, guards, convoy, escorts, &c. and artillery with all the apparatus thereto belonging, magazines, etc. 1871 FRASERIAN Norm. Cong. (1876) IV. xviii. 155 The whole army now drew near: the siege was formed.

form (fɔ:m), v. [f. the sb.: see FORM sb. 2.] intr. Of a hare: To take to her form; to seat. 1575 THOMPSON Art. Vw. book. 302 To looke about hir, and to choose out a place to forme in. 1612 DRYDEN Fulv. old. ii. The melancholy hare is formed in brakes and briers. 1637 B. JONSON Sad Sheph. II. vi. First think which way thee fourmeth, on what woad: Or North, or South. 1725 COATES Dict. Herald. Scutell or Farsmeth are the Terms that note where the Hare has its resting Place. 1801 STURTT Sports & Past. I. i. 17 A hare [was said to be] formed, a rabbit set.

form (fɔ:m), in Chem., combining form of FORMIC or FORMYL, as in formal (Formel) sb., any of the acetals derived from formaldehyde, having the general formula CH(OR); spec. METHYLAL, CH(OCH₃); 'formamide', the amide of formic acid; for 'formidine', the postulated compound NH₂CH₂NH₂, which is known only as its salts; for 'formallide', a white crystalline compound, C₂H₅NH₂CO, used as an antipyretic, analgesic, and local anæsthetic. (Cf. the termination of chloroform.)

1900 DONALD M. Dict. Formed, mesquillo or methylene dimethylate... a clear, fragrant liquid. It is anæsthetic and hypnotic. 1952 E. H. RODD Chem. Carbon Compounds I. xvi. 1031 A mixture of the isomeric formals is obtained from glycerol, trimethylamine and caustic HCl at 100°. 1952 Formamide (see formamide). 1863 A. W. HOFMANN in Jyl. Chem. Soc. XVI. 72 Half-way between formate of ammonium and hydrocyanic acid, theory justifies us in searching for formamide. 1807 This substance, which is equally soluble in water, alcohol and ether is

Annex 805

Solmar V, “Roca Partida”, *available at* http://www.solmarv.com/roca_partida.html (accessed 11 Nov. 2015)



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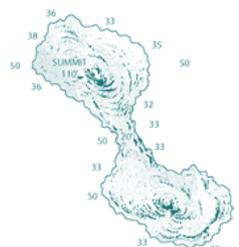
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Roca Partida is a small pinnacle located west of Socorro and San Benedicto, about 250 miles south of Cabo San Lucas.

It is only 115 feet high and 300 feet from end to end. Its the smallest island in the Revillagigedo Archipelago. This stony pillar attracts pelagics and large schools of jacks and tuna.

Beneath the surface the wall drops straight down to deep water. There are many shelves and ridges that give refuge to the animals that hide there. At about 40' there are large caves where groups of whitetip sharks can be found sleeping most of the time. Depending on the current, its possible to swim around the pinnacle several times in the course of one dive. Other times divers prefer to just hang out in one area and watch the pelagics swim by.



Guests have spotted schools of hammerheads, whitetip sharks, Galapagos sharks, silky sharks, giant manta rays, dolphins, an occasional whaleshark and even humpback whales enroute to Alaska.

[Click here to view Eric Hanauer's Humpback Whale video](#)

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Photo by Geronimo, Marty Snyderman, Bonnie Pelnar

Socorro Sample Itinerary

DAY 1: Departure from Cabo San Lucas about 4 p.m. to San Benedicto Island.

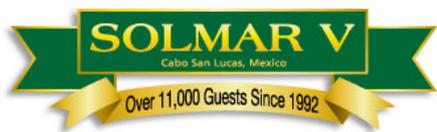
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Annex 806

Solmar V, "San Benedicto Island", *available at* http://www.solmarv.com/san_benedicto.html# (accessed 11 Nov. 2015)



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Home of the world-famous "Boiler" where very friendly Giant Pacific Mantas congregate

San Benedicto is usually the first island visited on a Solmar V trip. The island is the third largest in the Revillagigedo group at about 2.6 miles long. It has two prominent peaks, one that is very obviously a volcanic crater. The walls of the volcano are eroded, leaving vertical ridges from top to bottom. The crater is almost 1/2 a mile wide. At the base of this volcano is a lava delta that reaches out into the ocean. The north half of the island is green with vegetation.



One of our favorite dive sites here is "the Boiler", a large pinnacle that reaches from the depths to within several feet of the surface. Its small enough to swim around several times in one dive, but is large enough to be a favorite gathering point, attracting marine life from miles around. Humpback whales, whale sharks, and tiger sharks have been spotted here.

What makes this site so magical is the congregation of very friendly Giant Pacific Mantas. They often greet our divers even before we get into the water and swim with us all day. Divers may observe many mantas who come here to be cleaned. They don't seem to mind having the divers here. They often swim from one diver to the next posing for every photographer along the way.

On the other side of the island is "the Canyon". Here we commonly see mantas, dolphins, hammerhead sharks, Galapagos sharks and Silky sharks.

Socorro Seasons & Conditions



Socorro Sample Itinerary

DAY 1: Departure from Cabo San Lucas about 4 p.m. to San Benedicto Island.

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Photos by Norbert Wu, Michele Westmorland, NOAA



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