



MAKING WAVES

A maritime news brief covering:

- MARITIME SECURITY
- MARITIME FORCES
- SHIPPING, PORTS AND OCEAN ECONOMY
- MARINE ENVIRONMENT
- GEOPOLITICS

EDITED BY:

Capt Sarabjeet S Parmar

execdir.nmf@gmail.com

Mr. Oliver N Gonsalves

associatefellow1.nmf@gmail.com

CONTENTS

MARITIME SECURITY	3
US BLACKLISTS FOUR SHIP OWNERS, TANKERS OVER VENEZUELA TIES	3
TANKERS QUEUE OFF CHINA'S COAST AS DEMAND FOR OIL REBOUNDS	3
PHILIPPINES BOLSTERS POSTURE IN SOUTH CHINA SEA AFTER NAVY SHIP DOCKS AT NEW SPRATLY ISLANDS PORT	4
NAVY MAKES IMPORTANT NARCO SUBMARINE CAPTURE	7
US NAVY SENDS SUBMARINE FORCES TO SOUTH CHINA SEA IN SHOW OF STRENGTH TO CHINA	8
MARITIME FORCES.....	10
NAVY BUILDS 10 NEW HEAVILY ARMED FRIGATE WARSHIPS	10
USS MUSTIN CONDUCTS FONOP PAST PARACEL ISLANDS IN SOUTH CHINA SEA.....	11
INDIAN NAVY TO RECEIVE FIRST SIKORSKY MH-60R SEAHAWK HELICOPTERS IN 2020	13
THIRD AIRCRAFT CARRIER NOT REQUIRED AS MILITARY'S FOCUS IS ON LAND BORDERS: SOURCES	13
INDIAN NAVY COMMISSIONED ITS SEVENTH MK-IV LANDING CRAFT UTILITY SHIP	15
SHIPPING, PORTS AND OCEAN ECONOMY.....	16
MASSIVE ELECTRIC OIL TANKERS ARE COMING – OH THE IRONY	16
SAUDI ARAMCO'S BAHRI PUTS LNG TANKER PLAN ON HOLD - SOURCES	17
A HUGE FLEET OF 117 TANKERS IS BRINGING SUPER CHEAP CRUDE TO CHINA	18
WORLD'S BIGGEST LNG ENGINE APPROVED FOR CMA CGM MEGASHIPS.....	19
SMART SHIPPING BENEFITS COMPANIES AND THE ENVIRONMENT .	20
MODULAR FLOATING PLATFORM GENERATES ENERGY FROM WAVES, WIND, AND SOLAR ENERGY	22
MARINE ENVIRONMENT	24
'UPSIDE-DOWN COSMIC RAY SHOWER' DETECTED IN ANTARCTICA MAY BE PROOF OF A PARALLEL UNIVERSE - RESEARCHERS	24

GIANT TECTONIC PLATE UNDER INDIAN OCEAN IS BREAKING IN TWO	25
CLIMATE CHANGE IS TURNING PARTS OF ANTARCTICA GREEN, SAY SCIENTISTS.....	27
HARVESTING VEGETABLES WITH 'SAND-TO-EARTH' TECH ON S. CHINA SEA ISLAND BEACH	28
STUDY REVEALS SUBSTANTIAL QUANTITIES OF TYRE PARTICLES CONTAMINATING RIVERS AND OCEAN	30
THE LIMITS OF CHINA'S ECOLOGICAL REDLINE SYSTEM.....	32
GEOPOLITICS	36
US JOINS G7 ARTIFICIAL INTELLIGENCE GROUP TO COUNTER CHINA	36
CHINA DENIES USING CORONAVIRUS TO GROW PRESENCE IN SOUTH CHINA SEA.....	37
IRANIAN FUEL SHIPS STARTS ARRIVING IN VENEZUELAN WATERS DESPITE U.S. WARNING.....	38
US LAWMAKER INTRODUCES BILL TO RECOGNISE TIBET AS INDEPENDENT NATION	39
ASSESSING CHINA'S ASSERTIVENESS AT COMMODORE REEF	40
ACKNOWLEDGEMENTS.....	43

MARITIME SECURITY

US BLACKLISTS FOUR SHIP OWNERS, TANKERS OVER VENEZUELA TIES

- Jasmina Ovcina

The U.S. is sanctioning companies involved in the exploitation of Venezuela's oil assets to exert pressure on the government of Venezuelan president Nicolás Maduro, by limiting Maduro's use of the country's crude oil exports to bankroll his regime.

The companies in question are Marshall Islands-based Afranav Maritime Ltd, the registered owner of the Aframax tanker Athens Voyager, built in 2007; Greek Seacomber Ltd, which owns Chios I oil tanker, together with Adamant Maritime Ltd, a Marshall Islands-based company that owns the Seahero tanker.

The three ships continued to lift oil cargoes from Venezuelan ports as recently as mid-February 2020, OFAC said.

The fourth company has been identified as Marshall Islands-based Sanibel Shiptrade, the registered owner of Voyager I.

The ship is a Marshall Islands-flagged crude oil tanker (IMO 9233789) which OFAC alleged had continued to lift oil cargoes from Venezuelan ports as recently as late April 2020.

All property and interests in property of these entities that are in the United States or in the possession or control of U.S. persons are blocked and must be reported to OFAC.

In addition, any entities that are owned, directly or indirectly, 50 percent or more by the designated entities are also blocked.

"The illegitimate Maduro regime has enlisted the help of maritime companies and their vessels to continue the exploitation of Venezuela's natural resources for the regime's profit," said Treasury Secretary Steven T. Mnuchin.

"The United States will continue to target those who support this corrupt regime and contribute to the suffering of the Venezuelan people."

Source: offshore-energy.biz; 03 June 2020

TANKERS QUEUE OFF CHINA'S COAST AS DEMAND FOR OIL REBOUNDS

- Serene Cheong and Ann Koh

Queues of tankers have formed off China's busiest oil ports as the vessels wait to offload crude for refineries that are quickly ramping up production amid a rapid rebound in fuel demand.

Two dozen or more crude-laden tankers are waiting to discharge at terminals on China's east coast that supply state-owned and independent refiners in the region, according shipbrokers and vessel-tracking data. Asia's largest economy is leading a recovery in oil consumption, with demand in May almost back to levels seen before the coronavirus triggered stay-at-home orders.

Chinese refineries are increasing operations to convert more crude into gasoline and diesel after factories reopened and millions of people returned to work following the easing of restrictions. Government policy dictating that the retail price of fuels won't be cut in line with sub-\$40 a barrel oil has also boosted refining margins in the country.

"China's demand recovery and current low oil prices have prompted refiners, especially the independents, to ramp up crude runs," said Serena Huang, a Singapore-based analyst at analytics firm Vortexa Ltd. "This crude import momentum could be rolling over to June if refiners' appetite remain strong."

The fleet of tankers arrived in Chinese waters during the second half of May and the ships have been idling off ports in Shandong and Liaoning provinces, according to data compiled by Bloomberg. Most of the vessels are Suezmaxes and Very-Large Crude Carriers, which are estimated to be collectively carrying about 4 million tons or more of oil from countries including Russia, Colombia, Angola and Brazil.

Shandong is home to the Qingdao and Rizhao terminals and China's independent refiners -- known as teapots -- that have staged a v-shaped recovery. Run rates rose to a record high of about 76% at the end of May, compared with a low of 42% in February, according to industry consultant SCI99.

Meanwhile, the queues might get even longer, with the highest number of supertankers since at least the start of 2017 hauling crude to China from almost everywhere across the globe. Vortexa estimates 158 million to 180 million barrels will be discharged in China over the next 10 days.

"Low oil prices will also be supportive for strategic storage," said Anoop Singh, who heads East of Suez tanker research at Braemar ACM Shipbroking in Singapore. "This will surely worsen the state of congestion at China's ports."

Source: [Bloomberg](#); 02 June 2020

PHILIPPINES BOLSTERS POSTURE IN SOUTH CHINA SEA AFTER NAVY SHIP DOCKS AT NEW SPRATLY ISLANDS PORT

- Lucio Blanco Pitlo III

Two recent developments in the South China Sea are poised to enhance the Philippines' position in the increasingly tense flashpoint and allay criticism that President Rodrigo Duterte's administration is lacking resolve in defending the country's interests.

On May 13, Philippine Navy ship BRP Ivatan became the first vessel to dock at the nearly-completed port of Pag-asa (Thitu Island), Manila's largest occupied feature in the Spratly Islands in the disputed sea.

And last weekend, the country's first modern multirole frigate from South Korea, BRP Jose Rizal, arrived in Subic naval base.

The BRP Ivatan, a decommissioned Balikpapan-class heavy landing craft refurbished and donated by Australia to the Philippines in 2015, is fittingly named after the Ivatans, a hardy and resilient people living in the country's northernmost island group of Batanes which is constantly battered by strong typhoons and huge waves.

Its historic docking in Pag-Asa may well cause ripples too.

Pag-asa Island is the seat of the Philippines' smallest town, Kalayaan, which was established in 1978 and administers close to a dozen other islets, cays and reefs in the Spratly Islands.

Isolation and lack of infrastructure hindered the town's development, but a new port that is about 90 per cent built may change that.

Work on the port and upgrades to the island's airstrip progressed despite the alleged swarming of Chinese vessels for over a year. This shows Manila's resolve to boost its posture in a long-running regional flashpoint even as ties with Beijing have improved in recent years.

The long overdue infrastructure project is the biggest on Pag-asa since former strongman Ferdinand Marcos staked out the country's claims in the sea in the late 1970s.

The port will facilitate the delivery of construction materials and essential supplies to improve living conditions on the island, including the establishment of a proposed desalination plant, renewable energy power source, cold storage facility, and fish port. This would enable the town to support a larger population, provide greater economic opportunities to its inhabitants, and even welcome tourism.

With improved infrastructure, Pag-asa could house more provisions. This would allow it to improve routine resupply and troop rotation as well as replenish stocks of other islands, reducing the turnaround time and logistical costs from long voyages coming out of the mainland island of Palawan.

If construction in Pag-asa is a harbinger for similar works on other islands, it may reinforce the country's position in an increasingly tense backyard after decades of inaction, during which other claimants have long been improving facilities in their occupied features.

China's reclamation activities, turning sand into massive artificial islands from 2013, have been a game changer in the South China Sea.

Since then, Beijing has also ramped up its efforts to exert jurisdiction over the disputed sea, conducting more sustained patrols and challenging those of others, interfering in marine economic activities of other littoral states, and enforcing unilateral fishing bans.

Last April, China named 80 geographical features in the semi-enclosed sea. It also established two new administrative districts, including one that will govern the Spratlys – a move opposed by both the Philippines and Vietnam. It also established two new research stations in Fiery Cross Reef and nearby Subi Reef last March. There are also concerns that it may soon declare an Air Defence Identification Zone over the strategic waterway.

For a long time, the Philippines refrained from undertaking any significant construction work in the Kalayaan municipality. Concerns about the possible reaction of other claimants, including fellow Asean members Vietnam and Malaysia, and worries that it may trigger a build-up race frustrated previous plans.

Neglect, ascendancy of internal security and overemphasis on diplomatic and legal approaches contributed to the erosion of Manila's initial advantage.

As one of the few remaining Asean countries with pockets of active insurgencies, the present Philippine government is waging an intensified campaign against rebels. Defeating these domestic security challenges may enable it to focus more on territorial and maritime defence, a goal supported by sustained modernisation of its naval and air force capabilities.

The twin developments of the berthing of BRP Ivatan in Pag-asa and the arrival of BRP Jose Rizal in Subic – the first of two orders from Korean shipmaker Hyundai Heavy Industries, with the second, BRP Antonio Luna, due for delivery in September – show the Duterte administration is serious about defending the country's interests in the West Philippine Sea.

In hindsight, the soft landing Manila took after its sweeping arbitration victory in 2016 and a bilateral consultation mechanism established since then did more than just stave off possible conflict.

It also opened spaces for Manila to push the envelope and undertake major construction works in Pag-asa. While China expectedly applied pressure, it knows it cannot rock the boat too much for fear the brash Duterte may take an about-turn – an undesirable scenario.

Last year, in response to the presence of suspected Chinese maritime militias around Pag-asa, Duterte spoke strongly against any attempt to infringe on the island. In 2017, against Beijing's wishes, he sent his Defence Secretary, Delfin Lorenzana, along with the chief of staff of the Armed Forces of the Philippines and other officials on a landmark visit to Pag-asa to preside over a symbolic flag-raising ceremony.

Indeed, unprecedented infrastructure improvements in the Kalayaan municipality and a commitment to military modernisation may form part of Duterte's legacy.

Whether that will be enough to offset the costs of momentarily setting aside the arbitral award, only the future can tell.

Source: scmp.com; 27 May 2020

NAVY MAKES IMPORTANT NARCO SUBMARINE CAPTURE

- H I Sutton

The narco-submarine may not have been expecting a guided missile destroyer to be bearing down on it. Until April this year, U.S. Navy warships were less often involved in drug submarine busts on the high seas. But the Trump administration's new enhanced counter-narcotics operations has changed that, as a narco-sub found out on May 14. This may mark the start of a new age in narco-submarine interdiction.

Despite its inherent stealthiness the vessel was detected by a P-8 Poseidon from the VP-26 'Tridents' squadron of the U.S. Navy. A destroyer, USS Pinckney, with a U.S. Coast Guard team aboard, then moved into position to intercept it. The destroyer's SH-60 Sea Hawk helicopters and fast boats made the interdiction. This was the first reported narco-sub seizure since President Trump announced 'enhanced counter-narcotics operations' on April 1.

Aboard the narco sub were 1.5 tons of cocaine. This would be 1,400 individual bricks, each weighing 1 kilogram (2.2 lb), and bundled together in batches of 20 as bales. The load had an estimated wholesale value in excess of \$23 million. This size of cargo is typical although much larger have been known.

Like most so-called narco submarines the craft could not actually submerge. It was a low-profile vessel, meaning that it is barely visible above the surface. This makes it very hard to detect, especially by eye. The exact type is a Very Slender Vessel (VSV), which is one of four main categories of narco-sub. The full taxonomy is LPV-OM-VSV meaning Low Profile Vessel, Outboard Motors, Very Slender Vessel. By my count this is the 40th narco-VSV to have been reported since they first emerged in 2017.

The USS Pinckney (DDG 91) is one of several warships now operating as part of U.S. Southern Command's efforts to stem the flow of drugs from South America. A significant portion of it gets loaded aboard narco-submarines in the jungle estuaries of Colombia's western coast. They sail up to Mexico and from there it flows overland into the United States. The Coast Guard and partner nations have made many seizures up to this point, but it is many years since the the Navy was deployed in this way.

This may be the first narco-submarine reported since the beginning of the enhanced operations, but there have been other drug seizures. On April 26 a joint effort by U.S. Coast Guard and Panamanian forces seized 83 bales of cocaine from a go-fast boat in the Caribbean. And on May 20 the Coast Guard cutter Active (WMEC-618) seized 2,000lb of cocaine aboard a 'go-slow' Panga-type fishing boat in the Pacific.

Source: forbes.com; 22 May 2020

US NAVY SENDS SUBMARINE FORCES TO SOUTH CHINA SEA IN SHOW OF STRENGTH TO CHINA

- Simon Osborne

The sub force said the missions were mounted in support of the Pentagon's "free and open Indo-Pacific" policy aimed at countering China's operations in the South China Sea. At least seven submarines — including all four Guam-based attack submarines, the San Diego-based USS Alexandria and multiple Hawaii-based vessels — form part of the fleet.

Rear Admiral Blake Converse, Pacific sub force commander who is based at Pearl Harbor, said: "Our operations are a demonstration of our willingness to defend our interests and freedoms under international law."

The attack submarines are armed with torpedoes and Tomahawk cruise missiles and are also capable of conducting a covert surveillance.

The US Navy has maintained a flotilla of warships in the Western Pacific as a show of force in the region amid soaring tensions with China in the South China Sea and clashes over the coronavirus pandemic.

China has been accused of stepping up its occupation of man-made islands and bullying other nations while the rest of the world tackled the global COVID-19 crisis.

Intelligence platform Stratfor said the US and China have maintained a "robust operational pace in the South China Sea" amid heightening tensions and COVID-19.

US Defence Secretary Mark Esper said: "As the US military addresses COVID-19 at home, we remain focused on our national security missions around the world.

"Many countries have turned inward to recover from the pandemic, and in the meantime, our strategic competitors are attempting to exploit this crisis to their benefit at the expense of others."

Mr Esper accused Beijing of ramping up a "disinformation campaign" to shift blame for the virus and protect its image.

He said: "We continue to see aggressive behaviour by the People's Liberation Army in the South China Sea, from threatening a Philippine navy ship to sinking a Vietnamese fishing boat and intimidating other nations from engaging in offshore oil and gas development."

Mr Esper said two US vessels completed freedom of navigation operations in the South China Sea the week before "to send a clear message to Beijing that we continue to protect freedom of navigation and commerce for all nations large and small."

Guided-missile cruiser USS Bunker Hill conducted a "FONOP" in the Spratly Islands, and the destroyer USS Barry sailed twice through the Taiwan Strait and through the Paracel Islands in disputed territory that China claims as its own.

Beijing reacted with fury to the US Naval deployments.

A Chinese military command statement said: "These provocative acts by the US side have seriously violated China's sovereignty and security interests, deliberately increased regional security risks and could easily trigger an unexpected incident."

Source: [express.co.uk](https://www.express.co.uk); 18 May 2020

MARITIME FORCES

NAVY BUILDS 10 NEW HEAVILY ARMED FRIGATE WARSHIPS

- Kris Osborn

The Navy's vision and mission scope for its emerging new combat-capable frigate includes the ability to destroy swarming small boat attacks, operate undersea and aerial drones, support carrier strike groups, conduct disaggregated operations, attack enemies with an over-the-horizon missile and engage in advanced surface and anti-submarine warfare.

These plans for the ship are taking a large step forward, following the Navy's recent ship development award to Marinette Marine Corp. for up to 10 new Guided Missile Frigates (FFX(X)). Concepts for the ship include an advanced, heavily armed frigate with a stronger, reinforced hull, space armor, over-the-horizon missiles and a wider complement of additional high-tech weapons. Sure enough, according to Navy officials, the ship is now being designed as much more than a "toughened" Littoral Combat Ship, but a ship with an even wider combat scope to include additional air-defenses, AEGIS radar systems and major missile attack options with Mk 41 Vertical Launch Systems.

Following years of debate and deliberation regarding what particular weapons and technology configuration would ultimately take shape for the new vessel, the service appears to have identified a handful of specifics. In a Navy report, service officials identified some of the intended missions and weapons applications for the ship. Initial specs include Enterprise Air Surveillance Radar, a Baseline Ten AEGIS Combat System, a Mk 41 Vertical Launch System (VLS) and MK 57 Gun Weapon Systems, among other things. This kind of baseline configuration is of course engineered with the technical foundation necessary to integrate new weapons, computer technology, electronics and information warfare systems as they emerge. The Navy described it as having "countermeasures and added capability in the EW/IO (Electronic Warfare/Information Operations) area with design flexibility for future growth."

Upon initial conception, it was not instantly determined that the new ship would include VLS; clearly the service saw the need to more heavily arm the new ship, in keeping with its increased lethality and Distributed Maritime Operations strategic approach for aggressively arming its surface fleet for major warfare on the open seas.

Navy officials said that the new FFG (X) "will have multi-mission capability to conduct air warfare, anti-submarine warfare, surface warfare, electronic warfare, and information operations." As part of its attack strategy for the ship, Navy officials add the ship will "will incorporate Standard Navy systems across the radar; combat system; command, control, communications, computers and intelligence; and launcher

elements.” Along these lines, arming the ship with EASR radar is consistent with this plan, as the radar is also arming amphibs and some carriers as a Raytheon-built multi-mission air-defense system.

The deal, which is a contract for detailed design and construction, includes a measure of flexibility, meaning the Navy and its industry partners are likely to continue refining requirements and potential weapons and technology for the ship as it further comes to fruition.

Significantly, the Navy’s emerging weapons and technology structure for its frigate seem to align with some of the service’s initial requirements, mission scope and technology for the ship. A Navy statement several years ago said the platform will “employ unmanned systems to penetrate and dwell in contested environments, operating at greater risk to gain sensor and weapons advantages over the adversary.” A well-armed ship, which is what the emerging structure of the ship clearly seems to be, is consistent with the Navy’s previously articulated plan for the ship, which envisioned a platform that could travel in substantial aggregated combat scenarios such as Carrier Strike Groups and Expeditionary Strike Groups. In addition, it is clear that the service seeks a ship able to function autonomously, control undersea and aerial drones and perform disaggregated or more independent missions.

For instance, the Navy’s Request for Information for the Frigate released several years ago states: “concepts of employment for this type of ship will include integrated operations with area air defense capable destroyers and cruisers as well as independent operations while connected and contributing to the fleet tactical grid. Additionally, this platform must defend against raids of small boats.”

The ship will be manned with a crew of up to 200 sailors, Navy officials say. A follow-on deal is planned for 2026.

Source: foxnews.com; 29 May 2020

USS MUSTIN CONDUCTS FONOP PAST PARACEL ISLANDS IN SOUTH CHINA SEA

- Ben Werner

Arleigh Burke-class guided-missile destroyer USS Mustin (DDG-89) conducted a freedom of navigation operation past the Paracel Islands in the South China Sea Thursday, the Navy announced.

Mustin’s transit near the Paracel Islands “upheld the rights, freedoms, and lawful uses of the sea recognized in international law by challenging the restrictions on innocent passage imposed by China, Taiwan, and Vietnam and also by challenging China’s claim to straight baselines enclosing the Paracel Islands,” Lt. j.g. Rachel Maul told USNI News in an email.

Mustin’s FONOP is the latest in a series of operations this spring designed to counter Chinese encroachment into international or contested waters in the South China Sea.

“All of our operations are designed to be conducted in accordance with international law and demonstrate the United States will fly, sail, and operate wherever international law allows – regardless of the location of excessive maritime claims and regardless of current events,” Maul said.

Chinese military officials took a different view of Mustin’s operations near the Paracel Islands.

“A US guided-missile destroyer USS Mustin trespassed into Chinese territorial waters off the Xisha Islands without China’s permission on May 28, 2020,” was how Senior Col. Li Huamin, a spokesperson for China’s People’s Liberation Army, described Thursday’s transit.

China claims the Paracel Islands, which it calls the Xisha Islands, as part of its territorial waters and wants foreign ships to request permission before passing within 12 nautical miles of the chain. The U.S. does not recognize China’s claims over the Paracel Islands, which are also claimed by Vietnam and Taiwan, according to the CIA World Factbook.

The PLA’s Southern Theater Command reportedly scrambled air and naval forces to monitor Mustin’s transit and to warn-off the U.S. ship, according to Li’s statement.

“The U.S. provocative acts seriously violated the international law and China’s sovereignty and security interests, violated the relevant norms of international law, undermined the peace and stability in the South China Sea region, which were evident embodiment of navigational hegemony,” Li said in his statement.

However, China recently has sent its aircraft carrier Liaoning and accompanying strike group through the Miyako Strait between the Japanese islands of Okinawa and Miyako. The strike group then steamed past Taiwan, according to an account posted by the Japan Times.

“Unlawful and sweeping maritime claims in the South China Sea pose a serious threat to the freedom of the seas, including the freedom of navigation and overflight and the right of innocent passage of all ships,” Maul said. “The U.S. position on the South China Sea is no different than that of any other area around the world where the international law of the sea as reflected in the 1982 Law of the Sea Convention provides for certain rights and freedoms and other lawful uses of the sea to all nations. The international community has an enduring role in preserving the freedom of the seas, which is critical to global security, stability, and prosperity.”

In late April and early May, Chinese People’s Liberation Army Navy (PLAN) warships and Chinese Coast Guard vessels tailed Panamanian-flagged drillship West Capella. Malaysian state-owned oil company Petronas contracted West Capella to perform oil exploration in Malaysia’s South China Sea exclusive economic zone. The Navy sent ships to conduct presence operations near West Capella.

“The United States upholds freedom of navigation as a principle. The Freedom of Navigation Program’s missions are conducted peacefully and without bias for or against any particular country. These missions are based in the rule of law and demonstrate our commitment to upholding the rights, freedoms, and lawful uses of the sea and airspace guaranteed to all nations,” Maul said.

Source: usni.org; 28 May 2020

INDIAN NAVY TO RECEIVE FIRST SIKORSKY MH-60R SEAHAWK HELICOPTERS IN 2020

The Indian Navy is scheduled to receive its first three Sikorsky MH-60R Seahawk multi-mission maritime helicopters later this year, Livefist reported. India signed a contract on Feb. 25 with the U.S to procure 24 Sikorsky MH-60R Seahawk maritime multi-mission helicopters for the Indian Navy earlier this year.

Lockheed Martin, the parent company of Sikorsky, was recently awarded a USD 905 million contract to deliver 24 MH-60Rs to the Indian Navy. The contract, being executed under the U.S. Foreign Military Sales (FMS) program, was awarded by the U.S. Navy's Naval Air Systems Command (NAVAIR).

According to the Pentagon contract announcement released at the time, three MH-60Rs are for the U.S. Navy and 21 MH-60Rs are for the government of India. With this, three MH-60Rs which were fully built and originally earmarked for the U.S. Navy will be supplied to India. According to the new Livefist report, these three airframes will be diverted for delivery to India, which is expected later this year, after stipulated modifications. The report added that the first of the remaining 21 helicopters will be delivered in Spring 2021.

Indian Navy's MH-60R helicopters will be based on the existing Royal Saudi Naval Forces (RSNF) MH-60R baseline with some modifications. The helicopters will replace the Navy's aging fleet of Sikorsky UH-3H Sea King and Westland Sea King Mk.42B helicopters. The MH-60Rs will provide the Indian Navy the capability to perform anti-surface warfare (ASuW) and anti-submarine warfare (ASW) missions along with the ability to perform secondary missions including vertical replenishment (VERTREP), search-and-rescue (SAR), and communications relay.

Source: navyrecognition.com; 29 May 2020

THIRD AIRCRAFT CARRIER NOT REQUIRED AS MILITARY'S FOCUS IS ON LAND BORDERS: SOURCES

- Dinakar Peri

India's military engagements are focused on defending the Line of Actual Control (LAC) and dominate and prevent infiltration along the Line of Control (LoC), defence sources said questioning the need of a third aircraft carrier in the present circumstances and budgetary constraints.

“The immediate requirement is to have a strong Army duly supported by a capable Air Force,” sources said. “The Navy will require to project power in the Indian Ocean Region (IOR) and locate and degrade enemy ships. For this we may not require a large number of aircraft carriers. It can be accomplished by a combination of smaller ships, submarines, good information, Surveillance and Reconnaissance (ISR) and missile systems,” sources said.

With impending budget cuts, Chief of Defence Staff (CDS) Gen. Bipin Rawat had earlier questioned the priority of the third aircraft carrier and said naval aviation assets can be utilised on land borders when not utilised at sea.

Sources pointed that China too had decided to invest in an aircraft carrier after it developed overall military prowess. Its force modernisation, which began in 1978, focused on military and developed capabilities to strengthen it which could settle land borders, which they have done successfully except with two nations, sources said. “They are now focusing on generating sea power and air power as they are moving towards becoming a global power.”

With several big ticket acquisitions lined up, Navy sources had recently said they are undertaking a fleet optimisation measure with focus on adopting unmanned platforms. However, the Navy is firm on the need for both a third aircraft carrier and the next line of six advanced submarines under Project-75I.

With the Finance Minister announcing several measures to support domestic defence manufacturing and also reduce the import bill, sources said the military, heavily dependent on imports, has to “look inwards at indigenisation, only when the political leadership steps in”.

Do we have an immediate requirement of a large Navy to fulfil our geo-political aspirations like securing IOR, Sea Lanes of Communication (SLOCs) and counter China? the source asked stating this was done by the U.S. and the U.K. during the cold war era to protect far away territories and to keep military confrontation away from home soil. “This is not the case for India in the immediate future.”

India is grappling with two strong military powers with land borders and past military engagements have all been land centric.

Future war scenarios will be short and swift with limited objectives along limited axis, the source said adding the Navy has seen action only twice, 1965 and 1971, on the sidelines of the land operations and the aircraft carrier had minimum role. The Karachi harbour attack in 1971 was executed by missile boats, sources said.

The Navy envisages its force structure centred around three aircraft carriers with one carrier each on the East and West coasts while one is in refit and maintenance. The proposed third carrier or the Indigenous Aircraft Carrier (IAC)-II is envisaged to displace 65,000 tonnes, conventionally powered and a steam-launched catapult for launching and recovering aircraft.

Source: thehindu.com; 24 May 2020

INDIAN NAVY COMMISSIONED ITS SEVENTH MK-IV LANDING CRAFT UTILITY SHIP

- Martin Manaranche

INLCU L57 is the seventh Landing Craft Utility (LCU) MK-IV class to be inducted into the Indian Navy. The ship has been indigenously designed and built by M/s Garden Reach Shipbuilders and Engineers (GRSE), Kolkata. The commissioning of INLCU L57 is yet another manifestation of the country's indigenous design and ship building capability.

The LCU MK-IV ship, is an amphibious vessel with a designated primary role of transporting and deploying Main Battle Tanks, Armoured Vehicles, troops and equipment from ship to shore. Based at the Andaman and Nicobar Command, these ships can be deployed for multirole activities like beaching operations, search and rescue, disaster relief operations, supply and replenishment and evacuation from distant islands.

The ship, commanded by Lieutenant Commander Harshvardhan Venugopal, has a complement of five officers, 45 sailors and is capable of carrying 160 troops in addition. The ship, displacing 830 tonnes, is capable of transporting various kinds of combat equipment such as Main Battle Tanks Arjun, T72 and other vehicles. The ship is fitted with state-of-art equipment and advanced systems, like Integrated Bridge System (IBS) and Integrated Platform Management System (IPMS).

The last ship of the same class is at an advanced stage of construction at M/S GRSE, Kolkata, and is scheduled to be inducted by this year end. It is anticipated that induction of these ships will contribute to the nation's maritime security needs, in consonance with the Hon'ble Prime Minister's drive for 'Make in India'.

Source: navalnews.com; 27 May 2020

SHIPPING, PORTS AND OCEAN ECONOMY

MASSIVE ELECTRIC OIL TANKERS ARE COMING – OH THE IRONY

- Fred Lambert

A group of large Japanese companies has come together to launch a consortium that will build the infrastructure to develop and launch large electric vessels, like oil tankers.

Oil tankers and cargo ships are some of the biggest and most polluting vehicles on the planet.

Some of the world's largest cargo ships emit pollution comparable to millions of passenger cars put together. The heavy fuel oil that they burn has high sulfur content and therefore, it is an important part of the world's transportation industry that needs to transition to being battery-powered.

It's why 7 important Japanese companies have launched the "e5 Consortium", which has for goal to establish "new ocean shipping infrastructure services through various initiatives to develop, realize, and commercialize zero-emission electric vessels."

Here are the 7 companies involved:

Asahi Tanker Co.

Idemitsu Kosan Co.

Exeno Yamamizu Corporation

Mitsui O.S.K. Lines

Tokio Marine & Nichido Fire Insurance Co.

Tokyo Electric Power Company

Mitsubishi Corporation

They wrote in a press release yesterday:

"Coastal shipping in Japan faces structural issues such as a shortage of mariners due to the aging of the seagoing workforce, not to mention the aging of the vessels. In addition, the ocean shipping industry has urged the coastal shipping industry to reduce emissions of greenhouse gases (GHGs) as one of Japan's measures to address

climate change. The seven e5 Consortium corporate members are focusing their attention on fulfilling the potential of electric vessels to solve these urgent issues. The consortium aims to establish a platform that offers innovative ocean shipping infrastructure services based on electric vessels bringing to bear the strength, technological know-how, networks, and other advantages of each member company.”

The first part of the project will be to “launch the world’s first zero-emission electric tanker, powered by large-capacity lithium ion batteries, in March 2022.”

They released this concept of the all-electric tanker:

In another press release, Asahi Tanker released some of the specs of the vessel, which is going to be equipped with a massive 3.5 MWh battery pack:

- (1) Dimension: LOA 62M / Beam 10.30M / Draft 4.15M
- (2) Classification: NK
- (3) Cargo: heavy oil
- (4) Gross tonnage: Approx. 499 tons
- (5) Speed: about 11 knots
- (6) Tank capacity: about 1,300m³
- (7) Propulsion device: Azimuth thruster 300kW x 2
- (8) Side thrusters: 68kW x 2
- (9) Base battery capacity: 3,500kWh

They are already planning two vessels to be deployed between March 2022 to March 2023.

In recent years, we have seen several efforts to electrify maritime transport.

Electrification is taking hold in the ferry industry, but the transition is slower for cargo ships. Though we have seen a new all-electric cargo ship with a massive 2.4 MWh battery pack launch in China a few years ago.

Source: electric.co; 22 May 2020

SAUDI ARAMCO'S BAHRI PUTS LNG TANKER PLAN ON HOLD - SOURCES

- Jessica Jaganathan

SINGAPORE (Reuters) - Saudi Aramco's shipping division Bahri has put on hold plans to charter up to 12 liquefied natural gas (LNG) tankers after Sempra Energy delayed its decision on whether to proceed with an LNG export project in Texas, two sources said.

Bahri issued an expression of interest (EOI) last year to charter the vessels from 2025 in Saudi Aramco's first foray into LNG as part of the state oil giant's plan to become a major global player in the gas market.

In May last year, Aramco signed a 20-year agreement to buy LNG from Sempra Energy's planned Port Arthur export terminal and also agreed to buy a 25% equity stake in the first phase of the multi-billion dollar project.

However, Sempra said this month it was delaying its decision about whether to proceed with the project until 2021 following the slump in global demand for energy because of the coronavirus pandemic.

"The shipping requirement was meant for Port Arthur, so given the delay and also the current market, it makes sense to put the shipping on hold," one of the sources said.

Aramco declined to comment.

The Saudi state-owned company has been developing its own gas resources as well as eyeing assets in the United States, Russia, Australia and Africa, the company's chief executive officer and the Saudi energy minister have said.

The slump in LNG prices to record lows since the coronavirus struck may make financing more difficult and Aramco might be more cautious about its gas investments in the future, one industry source said.

Source: [reuters.com](#); 21 May 2020

A HUGE FLEET OF 117 TANKERS IS BRINGING SUPER CHEAP CRUDE TO CHINA

-Tsvetana Paraskova

While the rest of the world is tentatively coming out of lockdowns, China is taking advantage of the cheapest crude oil in years to stock up as demand is starting to return in the world's largest oil importer, Bloomberg reported on Friday, citing tanker-tracking data it has compiled. At present, a total of 117 very large crude carriers (VLCCs) – each capable of shipping 2 million barrels of oil – are traveling to China for unloading at its ports between the middle of May and the middle of August. If those supertankers transport standard-size crude oil cargoes, it could mean that China expects at least 230 million barrels of oil over the next three months, according to Bloomberg. The fleet en route to China could be the largest number of supertankers traveling to the world's top oil importer at one time, ever, Bloomberg News' Firat Kayakiran says.

Many of the crude oil cargoes are likely to have been bought in April, when prices were lower than the current price and when WTI Crude futures even dipped into negative territory for a day.

Last month, emerging from the coronavirus lockdown, China's oil refiners were already buying ultra-cheap spot cargoes from Alaska, Canada, and Brazil, taking advantage of the deep discounts at which many crude grades were being offered to China with non-existent demand elsewhere.

China was also estimated to have doubled the fill rate at its strategic and commercial inventories in Q1 2020, taking advantage of the low oil prices and somewhat supporting the oil market amid crashing demand by diverting more imports to storage, rather than outright slashing crude imports.

China's crude oil imports jumped in April to about 9.84 million bpd as demand for fuels began to rebound and local refiners started to ramp up crude processing, according to Chinese customs data cited by Reuters.

Source: oilprice.com; 16 May 2020

WORLD'S BIGGEST LNG ENGINE APPROVED FOR CMA CGM MEGASHIPS

- Mike Schuler

The biggest and most powerful LNG-fueled engine ever built has been approved for use on board the first vessel in a series nine 23,000 TEU containerships owned by French shipping giant CMA CGM.

The X92DF engine, developed by WinGD, is the most powerful two-stroke dual fuel engine ever built, delivering a whopping 63,840 kW of power.

The engine is fitted on board CMA CGM's future flagship, named CMA CGM Jacques Saadé, which is currently under construction by China State Shipbuilding Corp.

The engine recently received type approval from Class society Bureau Veritas following extensive full-load tests in diesel and gas mode.

"The certification process of WinGD's 12X92DF engine was a long process due to the size and complexity of the engine," said Olivier Cartier, Technical Vice President at Bureau Veritas. "We mobilized our worldwide teams of engine specialists, especially in China, in France and in Germany, at each of the critical phases of the certification process. Progressive Type Approval Tests were necessary where at each test significant progress and refinement were noted, so that we remained confident that final certification at 100% of the power using gas as fuel was an achievable objective – and this has now been achieved."

Cleaner burning liquefied natural gas has been viewed as a transitioning fuel in the shipping industry's efforts to decarbonize. It is also compliant with the IMO's .5% sulphur limit, reducing emissions of sulfur oxides and fine particles by 99%, and nitrogen oxides emissions by up to 85% compared to conventional fuels.

“WinGD’s X92DF engines offer the most sustainable emissions footprint currently available, outperforming expectations for NOx, SOx and PM emissions and with CO2 levels over 20% lower than typical diesel engines.” said Dominik Schneiter, Vice President for Research and Development at WinGD. “With its unique combination of Otto (lean burn) and Diesel cycle technology these engines can adapt for any of the potential sustainable fuels of the future making them a secure asset for a long time to come.”

CMA CGM signed shipbuilding contracts with CSSC for the nine LNG-powered ships in 2017. At 400 meters and 23,000 TEU capacity, the vessels are set to become the largest container ships powered by liquefied natural gas.

In the coming weeks, CMA CGM Jacques Saadé will undergo its LNG trials below for delivery later this year.

“CMA CGM’s ground-breaking choice in favour of LNG is a major step forward and a clear illustration of our resolute commitment to environmental protection and to the energy transition of the maritime industry. This certification is a major milestone as it marks the recognition of the technological efficiency of our dual-fuel engine project,” CMA CGM said in statement.

In December 2017, CMA CGM and Total had signed a 10-year strategic procurement contract for the supply of 300,000 metric tons of LNG fuel per year that will be used to power the behemoths. For its part, Total earlier this year launched its first LNG bunkering ship intended to bunker 23,000-TEU vessels in the Port of Rotterdam.

Source: gcccaptain.com; 27 May 2020

SMART SHIPPING BENEFITS COMPANIES AND THE ENVIRONMENT

- Balbhav Mishra

Like many industries, shipping and maritime logistics are increasingly digitized and data-driven. A report from SAFETY4SEA’s 2018 Technology Award winner, Immarsat, found that the maritime shipping industry is better poised to adopt Internet of Things (IoT) technologies than previously supposed.

The report focuses on understanding how critical industries — including the agriculture, energy, maritime, and transport sectors — are utilizing Industrial Internet of Things (IIoT) technologies. Properly implemented, smart IIoT solutions offer shipping companies capabilities to meet future challenges head-on, and minimize their environmental impact in the process.

As the report notes:

“IIoT is set to play a profound role in providing end-to-end transparency across supply chains and improving its efficiency. We are reaching a point where all events in a supply chain will be captured as data by nerve-like sensors, before being routed for analysis and actioned.”

Efficiency is the keyword here in more than one sense, smart shipping benefits both companies and the environment by minimizing waste, be it fuel or assets. There's never been a better time to adapt systems because as a key part of the global supply chain, maritime logistics is facing scrutiny at an unprecedented level.

Climate change coupled with a growing population is prompting this shift towards environmentally sustainable practices on-board and across the board. For industries, shipping and logistics, in particular, this translates to more demand all while imparting less damage on the world.

As set out by the comprehensive report, here are a few of the key factors driving the maritime industry's move to greater IIoT capabilities and the corresponding environmental benefits.

Cost efficiency and cleaner operations

According to Immarsat, 56 percent of the maritime respondents in their survey are currently using or testing the use of smart asset monitoring. Environmental regulation may be providing a helping hand here. In shipping, emissions restrictions are promoting the uptake of IIoT technology to monitor fuel use. Now, 47 percent of the companies surveyed are already using IIoT to manage fuel. This is expected to rise to 100 percent by 2023.

A knock-on benefit here is related to transparency. With full data sets that are easily shared, shipping companies can prove their commitment to emission reductions. In return, industry partners may be more willing to choose shipping companies who have proven environmental credentials.

Route optimization

This is inextricably linked to the points covered above. An estimated two-thirds of a ship's operating cost is fuel, so it makes sense that ships implement systems that optimize fuel use and route planning through IoT.

Where radio frequency communications were once the gold-standard in route planning and collision avoidance, this technology leaves a lot of potential for human error. With IoT-enabled route planning, a ship's position is live-tracked, and location info can be shared automatically with ships in the same vicinity or on the same network.

On land, offices can generate in-depth data about a ship's journey, weather patterns, water movements and more to plan the most efficient route possible, saving on fuel and ensuring emissions compliance.

Asset tracking and management

While smart sensors and monitoring systems are already in use at a larger scale tracking the real-time location of ships at sea, they can also be put to clever use tracking and managing the status of shipping containers on-board.

Perhaps the most pertinent use of this technology is refrigerated containers, these must sit at constant temperatures to make sure the perishable assets inside stay fresh. IIoT systems in this instance will consist of temperature sensors, processing units, and mobile transmitters. If temperatures diverge from the optimal, staff are notified immediately and can begin examining the container for issues.

Fewer asset losses mean two things: shipping partners are more inclined to continue working relationships and fewer waste results in a cleaner industry as a whole.

Unlocking the value of IIoT shipping systems will always be contingent on the company's ability to utilize the data provided. But if the transport sector decides to fully benefit from the tools now at its fingertips, the rewards are two-fold: greater cost efficiency and better environmental compliance and thus credentials.

Source: seanews.co.uk; 27 May 2020

MODULAR FLOATING PLATFORM GENERATES ENERGY FROM WAVES, WIND, AND SOLAR ENERGY

- Amit Malewar

The German startup SINN Power is working on a different technology for offshore alternative power plants. According to its own claims, the company has developed the world's first floating Ocean Hybrid Platform capable of generating power using three renewable sources – waves, wind, and solar energy.

Starting this summer, the company hopes to offer solar panel manufacturers the opportunity to test and demonstrate their products (photovoltaic modules) on an offshore floating platform in Iraklio, Greece, as part of an off-grid energy solution. The aim is to combine wave power plants with photovoltaics and small wind turbines in order to supply places near the coast with electricity.

The Bavarian manufacturer has been developing innovative wave energy systems for five years, and since 2019 the company has been selling generators, power electronics components, and energy storage for the wave energy systems and other renewable energy systems.

The result of years of development at the wave power plant is an extremely robust, modular, yet cost-efficient structure that has been optimized for use in tough, maritime environments, the company writes in a press release.

The conversion of offshore wave energy is nothing new. There are many new pioneering developments taking place in this field at all times. However, what makes this particular platform unique is that it has been designed to be modular and extremely easy to connect and expand, so different combinations are possible.

“Modularity has been a key aspect since we started developing maritime technologies which allow flexibility and a wide variety of applications,” says Dr. Philipp Sinn, CEO, SINN Power. “The floating platform can supply renewable energy, for example, to island resorts in the Caribbean and contribute to the worldwide implementation of offshore wind farms.”

When we come to the features of the floating platform, we come across a wide range of customization options. Each floating unit or module consists of four integrated wave energy converters that generate energy in relation to water conditions. For regions with low wave energy potential, the unit can also be equipped with a series of 20 kW photovoltaic cells. In the same way, up to four small 6 kWp wind turbines can be attached to each module designed as a square. If desired, it is possible to use these three methods in a module. In this case, a giant floating energy farm can be produced with the modules brought side by side.

Intensive long-term tests of the structure would have shown that they would withstand waves up to 6m high. This is based on SINN Power’s many years of experience in the maritime environment and opens doors for a global market. The idea, which went from the patent to the prototype in just two years, attracted a lot of attention from partners and investors.

Source: inceptivemind.com; 26 May 2020

MARINE ENVIRONMENT

'UPSIDE-DOWN COSMIC RAY SHOWER' DETECTED IN ANTARCTICA MAY BE PROOF OF A PARALLEL UNIVERSE - RESEARCHERS

- Matt Burrows

Researchers are dumbfounded after "a fountain of high-energy particles erupting from the ice" in Antarctica appears to have provided evidence of a parallel universe.

The phenomenon, which a lead researcher says is "in pretty strong tension with the standard model of physics", was recorded by NASA's Antarctic Impulsive Transient Antenna (ANITA).

ANITA, a stratospheric balloon payload flying over Antarctica, was designed by NASA to detect cosmic-ray air showers through radio-wave signals on their way down or back up after bouncing off the ice.

It detected the 'fountain' of high-energy particles during flights in 2006 and 2014 but initially, these were dismissed as background noise or glitches.

However a closer inspection of the data in 2016 revealed it as a phenomenon resembling an "upside-down cosmic-ray shower", according to lead researcher and University of Hawai'i Physics Professor Peter Gorham.

"What we saw is something that looked just like a cosmic ray, as seen in reflection off the ice sheet, but it wasn't reflected," said Prof Gorham.

"It was as if the cosmic ray had come out of the ice itself. A very strange thing."

While the discovery itself was made many years ago, it has risen to prominence more recently as other, more palatable explanations for such a phenomenon have been ruled out.

Now, researchers believe these particles may actually be travelling back through time, indicating there is a parallel universe close to ours in which the standard laws of physics operate in reverse.

"Not everyone was comfortable with the hypothesis," Prof Gorham admitted to New Scientist.

Speaking to the University of Hawai'i, he said the phenomenon "could be an indication of some new type of physics, what we call beyond the standard model of physics".

Prof Gorham says the only way such an event could happen is if the particle changed form, passing through the Earth, and then coming back again.

While the research team is still trying to comprehend the implications of the data, they still aren't 100 percent sure the results aren't just due to some unseen malfunction in ANITA.

"We're left with the most exciting or most boring possibilities," says researcher Ibrahim Safa.

Source: newshub.co.nz; 19 May 2020

GIANT TECTONIC PLATE UNDER INDIAN OCEAN IS BREAKING IN TWO

- Laura Geggel

The giant tectonic plate under the Indian Ocean is going through a rocky breakup ... with itself.

In a short time (geologically speaking) this plate will split in two, a new study finds.

To humans, however, this breakup will take an eternity. The plate, known as the India-Australia-Capricorn tectonic plate, is splitting at a snail's pace — about 0.06 inches (1.7 millimeters) a year. Put another way, in 1 million years, the plate's two pieces will be about 1 mile (1.7 kilometers) farther apart than they are now.

"It's not a structure that is moving fast, but it's still significant compared to other planet boundaries," said study co-researcher Aurélie Coudurier-Curveur, a senior research fellow of marine geosciences at the Institute of Earth Physics of Paris.

For instance, the Dead Sea Fault in the Middle East is moving at about double that rate, or 0.2 inches (0.4 centimeters) a year, while the San Andreas Fault in California is moving about 10 times faster, at about 0.7 inches (1.8 cm) a year.

The plate is splitting so slowly and it's so far underwater, researchers almost missed what they're calling the "nascent plate boundary." But two enormous clues — that is, two strong earthquakes originating in a strange spot in the Indian Ocean — suggested that Earth-changing forces were afoot.

On April 11, 2012, a magnitude-8.6 and magnitude-8.2 earthquake hit beneath the Indian Ocean, near Indonesia. The earthquakes didn't happen along a subduction zone, where one tectonic plate slides under another. Instead, these quakes originated in a weird place for earthquakes to happen — in the middle of the plate.

These earthquakes, as well as other geologic clues, indicated that some kind of deformation was taking place far underground, in an area known as the Wharton Basin. This deformation wasn't wholly unexpected; the India-Australia-Capricorn plate is not one cohesive unit.

"It's like a puzzle," Coudurier-Curveur told Live Science. "It's not one uniform plate. There are three plates that are, more or less, tied together and are moving in the same direction together," she said.

The team looked at a particular fracture zone in the Wharton Basin where the earthquakes had originated. Two datasets on this area, collected by other scientists on research vessels in 2015 and 2016, revealed the fracture zone's topography. By recording how long it took sound waves to bounce back from the sediment-lined seafloor and bedrock, the vessel's scientists were able to map the basin's geography. (Study co-author Satish Singh, a visiting professor of seismology at the Earth Observatory of Singapore, led the expedition for the 2015 dataset.)

When Coudurier-Curveur and her colleagues looked at the two datasets, they found evidence for pull-aparts, which are depressions that form at strike-slip faults. The most famous strike-slip fault is probably the San Andreas Fault. These types of faults cause earthquakes when two blocks of Earth slide past each other horizontally. A good way to visualize this is to put your fists together and then move one forward and the other backward.

Remarkably, the team found 62 of these pull-apart basins along the mapped fracture zone, which spanned nearly 217 miles (350 km) long, although it's likely longer, Coudurier-Curveur said. Some of these basins were huge — up to 1.8 miles (3 km) wide and 5 miles (8 km) long.

What's more, the depressions were deeper in the south — as deep as 394 feet (120 meters) — and shallower in the north — as shallow as 16 feet (5 m).

"It might mean that this strike-slip fault is more localized at its southern boundary," at least for now, Coudurier-Curveur said. The term "localized" means that the shaking is taking place at one main fault, versus "distributed," which is when shaking happens at several minor faults, she said.

These basins, which started forming about 2.3 million years ago, followed a line that passed close to the epicenters of the 2012 earthquakes.

"It doesn't seem like it's yet a fully formed plate boundary," William Hawley, a seismologist at the Lamont-Doherty Earth Observatory at Columbia University in New York, who wasn't involved in the study, told Live Science. "But the take-home message is that it's becoming one, and it probably accounts for much of the deformation that we know is occurring there."

Why is the fault there?

Coudurier-Curveur noted that the fracture zone, a weakness in the oceanic crust, didn't form because of earthquakes. Rather, these so-called passive cracks formed, in part, when new oceanic crust emerged from the mid-ocean ridge (the boundary between plates where magma comes out) and cracked due to the Earth's curvature.

Now, this fracture zone is being repurposed. "Nature likes using weaknesses, [it] likes using what's already in place," Coudurier-Curveur said.

Because different parts of the India-Australia-Capricorn are moving at different speeds, this fracture zone, once just a passive crack, is becoming the new boundary for the plate's split into two pieces, she said.

However, because the India-Australia-Capricorn split is happening so slowly, another strong earthquake along this particular fault likely won't occur for another 20,000 years, the researchers said. What's more, it will take tens of millions of years before the split is complete, Coudurier-Curveur said.

"It has long been postulated that these [fracture] zones of weakness could be the birthplace along which new plate boundaries, such as subduction zones or strike-slip boundaries, form," said Oliver Jagoutz, an associate professor of geology at the Massachusetts Institute of Technology, who was not involved with the study.

If anything, the study reminds us that plate tectonics are constantly moving.

"Plates are constantly formed and destroyed on Earth," Jagoutz told Live Science in an email. "It is detailed studies like these that will allow us to better understand how the jigsaw puzzle of plates that constitute the outermost solid layer of Earth formed and evolved."

The study was published online March 11 in the journal Geophysical Research Letters.

Source: [livescience.com](https://www.livescience.com/94335-new-plate-boundary.html); 22 May 2020

CLIMATE CHANGE IS TURNING PARTS OF ANTARCTICA GREEN, SAY SCIENTISTS

- Jonathan Watts

Scientists have created the first large-scale map of microscopic algae on the Antarctic peninsula as they bloom across the surface of the melting snow, tinting the surface green and potentially creating a source of nutrition for other species.

The British team behind the research believe these blooms will expand their range in the future because global heating is creating more of the slushy conditions they need to thrive.

In some areas, the single-cell life-forms are so dense they turn the snow bright green and can be seen from space, according to the study, published on Wednesday in the journal Nature Communications.

Biologists from the University of Cambridge and the British Antarctic Survey spent six years detecting and measuring the green snow algae using a combination of satellite data and ground observation.

The result is the first large-scale algae map of the peninsular, which will be used as a baseline to assess the speed at which the white continent is turning green due to the climate crisis and potentially offering sustenance to other species.

They have already found the algae have formed close bonds with tiny fungal spores and bacteria. “It’s a community. This could potentially form new habitats. In some place, it would be the beginning of a new ecosystem,” said Matt Davey of Cambridge University, one of the scientists who led the study.

He described the algae map as a missing piece of the carbon cycle jigsaw in the Antarctic.

It identifies 1,679 separate blooms of green snow algae, which together covered an area of 1.9 sq km, equating to a carbon sink of about 479 tonnes a year. This is equivalent to the emissions of about 875,000 car journeys in the UK, though in global terms it is too small to make much of a difference to the planet’s carbon budget.

Almost two-thirds of the green algal blooms were found on small, low-lying islands around the peninsula, which has experienced some of the most intense heating in the world, with new temperature records being set this summer. The snow algae were less conspicuous in colder, southern regions.

Scientists have previously observed a change in green lichen and moss, but these grow extremely slowly compared with algae. In future, they will also measure red and orange algae and calculate how the presence of such colourful forms might be affecting the heat-reflecting albedo quality of the snow.

“I think we will get more large blooms in the future. Before we know whether this has a significant impact on carbon budgets or bio albedo, we need to run the numbers,” said Andrew Gray, the lead author of the paper.

Source: [theguardian.com](https://www.theguardian.com); 20 May 2020

HARVESTING VEGETABLES WITH 'SAND-TO-EARTH' TECH ON S. CHINA SEA ISLAND BEACH

- Shan Jie

Chinese navy garrisoned on an island in the Xisha Islands of the South China Sea recently harvested 750 kilogram of vegetables on sandy beaches for the first time, using technology which experts said could support communities on islands.

Seven kinds of vegetables, including Pakchoi cabbage, lettuce and baby Chinese cabbage, were harvested on a "sand to earth" experimental field on Yongxing Island in Sansha city, South China's Hainan Province, on May 12, according to a report from the Chinese navy on Tuesday.

"The technology will be promoted on a large scale, which could solve the problem of military forces and civilians on islands lacking enough green vegetables," a navy officer said, according to the report.

The navy's garrisoned force in Xisha worked with the "sand to earth" research team from the Chongqing Jiaotong University in Southwest China for four months to achieve the "miracle."

According to the navy's report, naval officers and scientists mixed a botanical fiber adhesive powder material into the sand. After watering, the sand became soil. Seeds planted in a 0.5-mu field on April 4 grew into more than 750 kilograms of harvests after one month, which means vegetables could be harvested five or six times a year.

The team from Chongqing Jiaotong University had changed 4,000 mu of desert into farming land in North China's Inner Mongolia Autonomous Region in 2017.

The breakthrough also counters international theories, including those in a 2016 arbitration, that islands in the South China Sea could not support communities of their own, Chen Xiangmiao, an assistant research fellow at the National Institute for South China Sea Studies, told the Global Times on Tuesday.

"Now China's capability of being able to support civilians on these islands would allow more people to live on the islands," Chen noted.

The high temperatures, high humidity and high salt content had made farming extremely difficult on the South China Sea islands, Chen said.

"Being able to grow vegetables makes it possible to take the next step, such as raising pigs or chickens. An ecological cycle would make the islands more suitable for humans to live there for a longer time," Chen said. "In the future, each island could form a small independent community."

Since the 1970s, forces stationed in the islands have relied on green-leaf vegetables to be shipped to them. But sometimes boats could not reach the islands due to bad weather, and officers could only eat seaweed, pumpkins or beancurd sticks, causing nutritional issues, according to the navy report.

Navy officers tried bringing soil from the mainland, but they could only grow a small amount of vegetables. In 2007, the Ministry of Science and Technology built a vegetable demonstrative base on Yongxing island. Vegetable greenhouses were also built on some islands.

Sansha city was founded in 2012. With more and more navy officers and civilians moving onto the islands, the need for green-leaf vegetables has been increasing.

Source: globaltimes.cn; 19 May 2020

STUDY REVEALS SUBSTANTIAL QUANTITIES OF TYRE PARTICLES CONTAMINATING RIVERS AND OCEAN

- University of Plymouth

A major UK government-funded research study suggests particles released from vehicle tyres could be a significant and previously largely unrecorded source of microplastics in the marine environment.

The study is one of the first worldwide to identify tyre particles as a major and additional source of microplastics. Scientists have previously discovered microplastics, originating from microbeads in cosmetics and the degradation of larger items such as carrier bags and plastic bottles, in marine environments globally - from the deep seas to the Arctic.

Following the government's ban on rinse off microbeads, which is one of the toughest in the world, the Defra-funded study led by the University of Plymouth now reveals vital new information that will improve our scientific understanding of how tiny particles from tyres, synthetic fibres from clothing and maritime gear also enter the ocean.

This project will be used to guide future research already underway on marine plastic pollution and the impact of human activities on the marine environment, as the Government continues in its fight against the scourge of plastics. This includes the 5p plastic bag charge - which has led to 15 billion fewer bags distributed - and plans to end the sale of plastic straws and stirrers and plastic-stemmed cotton buds later this year.

The study shows the tyre particles can be transported directly to the ocean through the atmosphere, or carried by rainwater into rivers and sewers, where they can pass through the water treatment process. Researchers estimate this could place around 100million m² of the UK's river network - and more than 50million m² of estuarine and coastal waters - at risk of contamination by tyre particles.

Its findings also highlight some of the optimal places for intervention, for example, that fitting filters to washing machines could be less effective than changing fabric designs to reduce fibre loss, with another study at the University having recently shown that normal wear and tear when wearing clothes is just as significant a source of microplastic pollution as release from laundering.

Domestic Marine Minister, Rebecca Pow, said: "Reducing plastic pollution in the ocean is one of the greatest environmental challenges that we face. This study will help us face that challenge by identifying areas for future research, such as changes to

roadside drainage and textile design. The UK is at the forefront of a global fight against the scourge of plastics. In addition to the pioneering ban on microbeads and the 5p plastic bag charge, plans are also in place to end the sale of plastic straws, stirrers and plastic-stemmed cotton buds."

The study was directed by Professor Richard Thompson OBE, Head of the International Marine Litter Research Unit, and Plymouth researchers Dr Imogen Napper and Florence Parker-Jurd. It also involved Dr Geoff Abbott from the School of Natural and Environmental Sciences at Newcastle University (who developed a breakthrough method using mass spectrometry to detect tyre-derived microplastics in the environment), Dr Stephanie Wright from Kings College London, and Simon Hann from Eunomia Research & Consulting Ltd.

Professor Thompson oversaw Defra's first research project on microplastics and their impact on marine life nearly a decade ago. It was this, and some of his team's subsequent work, that led to the UK's pioneering ban on microbeads in rinse-off personal care products coming into force in 2018.

Professor Richard Thompson OBE, said: "Scientists have long suspected that tyre debris is posing a hidden threat to the marine environment. However, there have been few studies measuring abundance in aquatic environments. Now we have a clearer indication on quantities we need to gain a better understanding on transport in the environment and the potential impacts on marine life. This study gives us a real insight into the importance of tyre wear as a source of microplastics. However there are still many unknowns, and compared to other forms of microplastics we know relatively little about tyre wear particles. So it is important to continue to take steps to reduce emissions of better understood sources like fibres from textiles and the fragmentation of larger items.

"What this study also does is provide further evidence of the complex problems posed by microplastic pollution. We have looked at three pathways and shown that all of them are substantive pathways to the environment. As we work to understand their potential distribution and impacts it is important to also work together with industry and policy makers to identify potential solutions which may include changes in behaviour, changes in product design and waste management."

Defra is continuing to invest in research on waste management, ocean littering and microplastics to support the delivery of the government's 25 Year Environment Plan and the United Nations Sustainable Development Goals. This research will help identify evidence gaps and recommendations to tackle marine plastic pollution, both in the UK and globally.

Source: eurekalert.org; 26 May 2020

THE LIMITS OF CHINA'S ECOLOGICAL REDLINE SYSTEM

- Wang Chunhui

In late March, a case of plagiarism brought the chaotic state of China's environmental impact assessment system to public attention. But the debate largely overlooked a related and equally important matter: the questionable binding power of ecological redlines, a system the central government has hailed as "unbreachable" and as "fortifying the foundations for the sustainable development of the Chinese nation".

Plagiarism – and ignoring redlines

The environmental impact assessment (EIA) for a 110 million yuan (US\$16 million) dredging project in Shenzhen Bay, was commissioned by Shenzhen Shipping Channels Centre and carried out by the Chinese Academy of Sciences' South China Sea Institute of Oceanology. The report was published online for public consultation, but careful readers noted that some sections were identical to an earlier report on the dredging of another channel in Zhanjiang port, also in Guangdong province. Even the word "Zhanjiang" appeared repeatedly. This caused outrage. On 15 April, the Ministry of Ecology and Environment described the case as "particularly grave" and said an investigation had been ordered.

The northern half of Shenzhen Bay belongs to Shenzhen and the southern half to Hong Kong. The bay's extensive mangrove forests are a stopping-off point for northern migratory birds. Tens of thousands arrive in spring and winter. The Shenzhen side of the bay is home to the Futian mangrove national nature reserve, and most of the rest of the Shenzhen side is covered by Guangdong's marine ecological redlines. This means no environmentally destructive activities, such as land reclamation, sand mining or release of pollutants, should be permitted.

Yet the EIA in this case gave the green light to a dredging programme that would have cut through those redlines. As part of the "Shenzhen from the Sea" tourism initiative, a channel 17km long, 120m wide and 3.1m deep was to be cleared. Second phase plans would see the channel extended right across the bay, to within only 200m of Hong Kong's Mai Po and Inner Deep Bay wetlands.

This would bring irreversible changes to the seabed and represent a major threat to marine and coastal ecologies and food chains, including mangrove forests, migratory bird habitats, seabed organisms, fish and even the Indo-Pacific humpbacked dolphin.

Chu Jun of the Cross-border Environmental Concern Association (CECA) says that the issues reflect the chaotic state of the EIA sector and broader problems with the ecological redline system that are being overlooked.

On 25 March, Shenzhen's transportation authorities responded to the scandal via a Sina microblog: "The site of Phase 1 of the proposed Shenzhen dredging programme is not within Guangdong's marine redlines." But after consulting its database, CECA issued a public rebuttal: the project would cross "Guangdong marine redline zone 166" and approach both zones 167 and 168.

Even without CECA's pointed rebuttal, the EIA report itself marks out the 11 redlines and protected areas the project will cross, complete with measures for managing this process. In a chapter on the impact on marine redline zones, it states that these areas include Shenzhen Bay's important coastal wetlands (zone 166), the nearby Zhuhai Indo-Pacific Humpback Dolphin Reserve (zone 164) and Shenzhen Bay mangrove forests (zone 168).

But the report concludes the project will have "little" or "next to no impact" on these redline zones and meets the requirements of Guangdong's regulations on marine redline zones.

An advanced but awkward institution

The redline system sits awkwardly within China's environmental protection regime.

Trials started in the Yangtze basin in 2000 and the system was written into State Council environmental protection documents in 2011, with redlines to be drawn for ecologically sensitive and vulnerable areas both on land and at sea.

The State Oceanic Administration (SOA) was placed in charge of setting marine redlines. In 2012, it announced its first trial of the system, in the Bohai Sea. In 2013, Shandong became the first province to take part, designating 40% of the Bohai under its jurisdiction as falling within redline zones. All 11 of China's coastal provinces have now set marine redlines, covering 30% of coastal waters and 37% of the coastline.

In official documentation marine ecological redline zones are defined as "areas with particularly important marine ecological functions, requiring strict management and mandatory protection." They are akin to an easily erected cordon that can protect the most important and vulnerable sea areas and coastlines, and the rare animals and habitats within, setting a clear geographical scope for more targeted management and reinstatement in the future.

But like most innovations, they are a work in progress.

China has long managed land and sea separately – causing problems for managing coastal waters. Many environmental conflicts occur along the coast, but prior to a ministerial restructuring in 2018 both the SOA and the Ministry of Land and Resources (MLR) could claim jurisdiction here. This made setting and implementing marine redlines problematic.

Chu Jun is well aware of this: "It's often hard to decide where the line between the land and coastal waters is. For example, if we want to exercise oversight or run a project, it can be hard to find authorities to deal with. The two sides (marine and land) either pass the buck, or both claim jurisdiction."

In 2018, the SOA and the MLR merged to become the Ministry of Natural Resources, helping resolve those issues to some degree. But further improvements are needed for genuinely integrated management, clarification of rights and responsibilities, and coordinated planning across land and sea.

There are two types of marine redline zone – those where development is banned outright, and those where it is restricted. But there is no operable law to rely on when enforcing those protections. The closest mention was a principle included in the 2017

revision of the Marine Environmental Protection Law: “Establish marine ecological redlines in zones of key ecological functions and ecologically sensitive and vulnerable zones, and implement strict protections.”

Wang Canfa, a professor at the China University of Politics and Law and an expert on environmental law, told China Dialogue the existing policy framework provides a technical basis for creating marine redlines but not for resolving implementation issues. Implementation is made difficult by a lack of clarity over both responsibilities and punitive provisions.

“What do you do in the long term once you’ve drawn your redlines?” asked Wang. “What can you actually do and not do within those areas? Most central and local government measures and guidelines aren’t clear enough and lack a unified standard.”

The plight of the bahaba

The marine redline system is struggling. As the Shenzhen scandal was breaking, another Guangdong project – a railway line from Shenzhen to Maoming – was set to cross four redline zones including one covering the Donghuang Chinese Bahaba Reserve.

The Chinese bahaba is a Schedule II protected animal, listed as critically endangered by the IUCN, and the Donghuang reserve protects its only known spawning ground. The noise and vibration from the proposed tunnel under the Pearl River would inevitably cause irreparable damage to that spawning ground and those habitats.

The location is protected both as a nature reserve and as an ecological redline zone. But in the final EIA the tunnel was still set to cross the redline zone, although there had been an alternative route avoiding the zone, at an extra cost of 170 million yuan (US\$24 million).

Chu Jun says such cases of encroachment on redline zones are common, and often go unchecked and unpunished. Infrastructure such as high-speed rail lines, high-voltage power lines and mobile network base stations are the most common culprits. It can also be hard to determine if some activities, such as fishing, breach regulations. Fishing on a small scale is important for local livelihoods and permitted, but there is debate over permitting aquaculture.

The redline system has provided only limited guidance for marine environmental protection. According to Chu Jun, it has been less effective than a 2018 State Council order protecting coastal wetlands by cracking down on land reclamation. She recalls how that order resulted in an immediate halt to land reclamation around the country.

“And not every case gets the debate and public attention Shenzhen Bay did. If the redline system is going to provide effective restrictions, we need to start by improving policy,” Chu said.

All status and no legislation

In fact, the government has been consolidating the redline system since 2017, alongside giving it higher status.

In January 2017, the offices of the State Council and the Party Central Committee published views on drawing and guarding ecological redlines, including marine redlines, and calling for the drawing up of ecological redlines to be completed nationwide by the end of 2020. That the document was issued by these two high-ranking bodies was seen as an attempt to break through ministerial borders.

So far, 15 provinces have had their proposed redlines approved by the State Council. CECA understands that the coastal provinces within those 15 have incorporated their original marine ecological redlines into their new redline zones.

In November 2019, the offices of the State Council and the Party Central Committee issued guidance on three controlling mechanisms in nationwide spatial planning, called “three control lines”, the first of which is ecological redlines, alongside limits to farmland loss and boundaries to urban expansion. They are deemed as “unbreachable redlines” to adjust the economic structure, plan industrial development and promote urbanisation, “fortifying the foundations for the sustainable development of the Chinese nation”. As well as making coordinated management across land and ocean a basic principle, it also made “protection first, ecology first” an overarching principle of the redlines, ensuring the integrity of ecological functions.

At an MLR press conference on the above, an official from the ministry’s planning bureau admitted “there has been no national management system for the ecological redlines or clarification on what activities are permissible within redlines, leading to differences in understanding on how redlines are set and managed.” The official also pointed out the new document listed eight activities permissible with restrictions within redlines, and said this would help reduce disagreements. Worth noting is that “appropriate tourism which does not damage ecological functions, and construction of necessary public infrastructure” is listed as permitted. If the Shenzhen Bay dredging project hadn’t been halted due to the plagiarism, would this have allowed it to go ahead, given the “little” or “next to no impact” the report concluded it would have? There has been no official answer.

Wang Canfa thinks that despite being the focus of environmental protection work in recent years, the redline system still needs to be toughened up. “Initially we understood these redlines would be like those for arable land – a line you absolutely cannot cross. That doesn’t seem to be the case,” he said. “It looks like development is banned in principle, rather than completely, with a strict ban on development not in line with the area’s ecological functions. These principles will be hard to apply in practice.”

Wang would like to see appropriate laws passed, telling China Dialogue: “Any redline needs specific legislation. There needs to be specific consequences for breaching the redlines, and I think that’s the next improvement we need.”

Source: maritime-executive.com; 26 May 2020

GEOPOLITICS

US JOINS G7 ARTIFICIAL INTELLIGENCE GROUP TO COUNTER CHINA

- Matt O'Brien

The U.S. has joined an international panel for setting ethical guidelines for the use of artificial intelligence, a move previously dismissed by the Trump administration.

The White House's chief technology officer, Michael Kratsios, told The Associated Press on Thursday it is important to establish shared democratic principles as a counter to China's record of "twisting technology" in ways that threaten civil liberties.

"Chinese technology companies are attempting to shape international standards on facial recognition and surveillance at the United Nations," he said.

The Trump administration had been the lone holdout among leaders of the Group of Seven — the world's wealthiest democracies — in setting up the Global Partnership on AI.

The partnership launched Thursday after a virtual meeting between national technology ministers. It was nearly two years after the leaders of Canada and France announced they were forming a group to guide the responsible adoption of AI based on shared principles of "human rights, inclusion, diversity, innovation and economic growth."

The Trump administration objected to that approach, arguing that too much focus on regulation would hamper U.S. innovation. But negotiations over the past year and changes to the group's scope led the U.S. to join, Kratsios said.

"We worked very hard to make it clear that it would not be a standard-setting or policy-making body," he said.

U.S. involvement is important because of the large role that American tech firms play globally and its historic advocacy for human rights, said Kay Mathiesen, an associate professor focused on computer ethics at Northeastern University in Boston.

"U.S. tech companies such as Microsoft, Google and Apple are all concerned about what guidelines they should be following to use AI responsibly," she said. "Given their global presence, the fact that the U.S. wasn't involved does not mean that they would not end up having to follow any regulations developed by the rest of the G7."

The U.S. push to scrutinize AI-assisted surveillance tools built by China also fits into a broader trade war in which both countries are vying for technological dominance.

Beijing on Monday demanded that Washington withdraw the latest round of export sanctions imposed on Chinese tech companies accused of playing roles in a crackdown in its Muslim northwestern region of Xinjiang.

Source: defensenews.com; 31 May 2020

CHINA DENIES USING CORONAVIRUS TO GROW PRESENCE IN SOUTH CHINA SEA

- Harshit Sabarwal

A look at recent developments in the South China Sea, where China is pitted against smaller neighbours in multiple territorial disputes over islands, coral reefs and lagoons. The waters are a major shipping route for global commerce and are rich in fish and possible oil and gas reserves.

China's foreign minister is dismissing claims that the country is exploiting the coronavirus outbreak to expand its footprint in the South China Sea, labelling such accusations as "sheer nonsense."

State Councillor and Foreign Minister Wang Yi told reporters at a news conference on Sunday that China was cooperating closely on anti-virus efforts with South-east Asian countries, several of whom have overlapping territorial claims with China in the strategically vital waterway.

While China has long been stepping up its presence in the region, Wang said other countries, implying the United States and its allies, have been creating instability with military flights and sea patrols.

"Their ill-intentioned and despicable moves are meant to sow discord between China and (South-east Asian countries) and undermine the hard-won stability in the region," Wang said.

China says it will increase its defence spending by 6.6% in 2020, despite a major downturn in the country's economic growth due to the coronavirus outbreak.

The increase is the lowest in years, but will still allow China to expand its ability to enforce its territorial claims in the South China Sea and grow its military presence in the Western Pacific and Indian Ocean. Another key priority is maintaining a credible threat against Taiwan, the self-governing island democracy China considers its own territory to be brought under its control by military force if necessary.

Double-digit percentage increases of just a few years ago that have given China the second biggest defense budget in the world behind the U.S. Spending this year will total 1.3 trillion yuan (\$180 billion), according to the website of the National People's Congress, the ceremonial parliament that opened its annual session Friday.

A study says South-east Asian countries are cutting defence spending as a result of the economic crisis brought on by the coronavirus outbreak, potentially opening up room for China to further assert its claims in the region.

Aristyo Rizka Darmawan, a maritime security expert at the University of Indonesia, writes that slashing defence spending is seen as a relatively easy way to cut costs when countries are facing pressure on their budgets.

“Indonesia, for example, has announced it will slash its defense budget this year by nearly US\$588 million. Thailand has likewise reduced its defence allocation by \$555 million. Malaysia, Vietnam, and the Philippines all face similar pressure,” Darmawan wrote in the online journal of the Lowy Institute, an Australian think tank. “Less defence spending will invariably mean less patrols at sea.”

China has maintained its presence in the South China Sea throughout the virus outbreak. Recent frictions include Chinese ships shadowing Malaysian mineral exploration operations and the sinking of a Vietnamese fishing boat by a Chinese maritime security vessel.

Source: [hindustantimes.com](https://www.hindustantimes.com); 25 May 2020

IRANIAN FUEL STARTS ARRIVING IN VENEZUELAN WATERS DESPITE U.S. WARNING

- Deisy Buitrago and Luc Cohen

CARACAS (Reuters) - The first of five Iranian tankers carrying fuel for gasoline-starved Venezuela entered the South American country's exclusive economic zone on Saturday, despite a U.S. official's warning that Washington was considering a response to the shipment.

The tanker, named Fortune, reached the country's waters at around 7:40 p.m. local time (1140 GMT) after passing north of the neighboring dual-island Caribbean nation of Trinidad and Tobago, according to vessel tracking data from Refinitiv Eikon.

“The ships from the fraternal Islamic Republic of Iran are now in our exclusive economic zone,” tweeted Tareck El Aissami, Venezuela's economy vice president and recently named oil minister.

Venezuelan state television showed images of a navy ship and aircraft preparing to meet it. The defense minister had pledged that the military would escort the tankers once they reached Venezuela's Exclusive Economic Zone (EEZ) due to what authorities described as threats from the United States.

The tanker flotilla is carrying a total of 1.53 million barrels of gasoline and alkylate to Venezuela, according to both governments, sources and calculations by TankerTrackers.com.

The desperately needed shipments have caused a diplomatic standoff between the United States and Iran and Venezuela, which are under U.S. sanctions. Gasoline is scarce in Venezuela due to a near-complete breakdown of the OPEC nation's 1.3 million barrel-per-day refining network.

Washington is considering measures in response, a senior U.S. official said without elaborating.

The United States recently beefed up its naval presence in the Caribbean for what it called an expanded antidrug operation. A Pentagon spokesman said on Thursday he was unaware of any operations related to the Iranian cargoes.

The shipment has drawn condemnation from Venezuela's opposition, which is concerned about growing ties between Iran and socialist President Nicolas Maduro, who has overseen a six-year economic crisis. The shipments are bringing enough fuel for just a month of consumption at current rates in the nation, once a prominent fuel exporter.

"(The ruling party) is trying to turn an embarrassment into an epic victory," said Oscar Ronderos, a lawmaker on the opposition-controlled National Assembly's energy commission.

Earlier on Saturday, Iranian President Hassan Rouhani warned of retaliation if Washington caused problems for tankers carrying Iranian fuel to Venezuela, the semi-official news agency Mehr reported.

"If our tankers in the Caribbean or anywhere in the world face trouble caused by the Americans, they (the U.S.) will also be in trouble," Rouhani said in a telephone conversation with Qatar's Emir, Mehr reported.

The two OPEC nations have previously helped each other in the face of U.S. sanctions. In 2010-2011, state-run oil company PDVSA [PDVSA.UL] sent fuel to Iran, which was under sanctions aimed at stifling its nuclear weapons program.

Source: [reuters.com](https://www.reuters.com); 23 May 2020

US LAWMAKER INTRODUCES BILL TO RECOGNISE TIBET AS INDEPENDENT NATION

Amid ongoing turbulence in the US-China relations, a lawmaker has tabled a bill in Congress to allow the American President to recognise Tibet as an independent nation. The region is currently under China's control. The move comes as both US and China have entered a tussle on coronavirus and trade related issues. The bill seeks to "authorise the President to recognise Tibet the Autonomous Region of the Republic of China as a separate, independent country". The US Representative Scott Perry has also introduced a similar bill for Hong Kong. The two bills introduced by the Republican from Pennsylvania have been referred to the House Committee Committee on Foreign Affairs.

"Good News: US Representative Scott Perry has introduced a bill to recognize Tibet Autonomous Region as a separate, independent country," Tenzin Tsundue, an India-based Tibetan activist who is very vocal on the issue wrote on his Facebook post.

Tibet is situated in the south-west of China. It also borders India, Nepal, Myanmar and

Bhutan. China began its invasion of Tibet in 1949 and completed occupation of the territory in 1959. Since then, Tibetans have accused China of carrying out large scale human right violations.

Tenzin Dorjee, a Tibetan writer and activist, wrote: "In what is sure to be a historic initiative, US Congressman Scott Perry (of Pennsylvania) has introduced a bill to authorise the president to recognise the 'Tibet Autonomous Region' as an independent country."

Earlier, the US Senate gave nod to a legislation that may block Chinese firms from getting listed on the American stock exchanges. The bill, introduced by Senator John Kennedy, a Republican from Louisiana, and Chris Van Hollen, a Democrat from Maryland, seeks to delist companies not abiding by the US accounting laws. This bill has to pass the House of Representatives. It also has to be signed by President Donald Trump to become law.

Source: [businesstoday.in](https://www.businesstoday.in); 27 May 2020

ASSESSING CHINA'S ASSERTIVENESS AT COMMODORE REEF

- Christian Vicedo

The incident earlier this year between Philippine and Chinese naval vessels near Commodore Reef foreshadows dynamics that might characterize regional maritime security in the face of an increasingly assertive China. In this regard, it is essential to reexamine the incident through the lens of international law and good order at sea to understand its implications.

Revisiting the Commodore Reef Incident

On February 17, 2020, the Philippine Navy corvette BRP Conrado Yap (PS-39) conducted a patrol mission near the Philippine-occupied Commodore Reef in the South China Sea (SCS). During the mission, it encountered a PLA Navy (PLAN) corvette with hull number 514. PS-39 radioed the Chinese Navy Ship (CNS)-514, which responded with the following statement: "The Chinese government has indisputable sovereignty over the SCS, its islands and its adjacent waters." Subsequently, PS-39 instructed the CNS-514 to proceed directly to its next destination but the Chinese vessel simply repeated its earlier response and maintained its course and speed.

In an interview, an official of the Armed Forces of the Philippines Western Command (AFP-WESCOM) noted that PS-39's crew visually observed that the gun control director of the CNS-514 was being aimed at their ship. The AFP-WESCOM official explained that the "gun control director can be used to designate and track targets and make all the main guns ready to fire in under a second." He also argued that the visual identification confirmed the "hostile intent" of the Chinese vessel.

In international reports regarding the incident, the gun control director has been referred to as a fire control radar. This makes sense since in modern fire control systems, the gun director, which performs trigonometric solutions for firing on the

target, and the radar, which provides information on the location of the target, are often combined as one component of the fire control system, as in the case of SAAB's Ceros 200 and Thales' LIROD Mk2. If the CNS-514 in question is the Chinese Navy Ship Liupanshui, which bears the same hull number, then it is a Type 056A Jiangdao class corvette equipped with a Type LR66 fire control radar and Type IR 17 optronics to guide its weapons system.

The Commodore Reef Incident and International Law

It must be noted that Commodore Reef may legally be considered a rock following the 2016 Arbitral Award on the Philippine case versus China. In this regard, Commodore Reef is only capable of generating territorial waters. At the same time, Commodore Reef is also situated within the Philippine Exclusive Economic Zone (EEZ). In this regard, depending on the distance of the exact location of the incident from Commodore Reef, one of two possible navigational regimes may apply. In the territorial sea-scenario, the CNS-514 is only legally entitled to exercise its right to innocent passage guaranteed by the Law of the Sea Convention (LOSC). Under the law, PS-39 may take necessary steps to "prevent passage which is not innocent," one that is prejudicial to the country's "peace, good order, or security." In this regard, PS-39's instruction to the CNS-514 to "proceed to its next destination" is within its rights as a coastal state. As per the LOSC, CNS-514 should have also proceeded in a "continuous and expeditious" manner and refrained from employing the threat of use of force.

In the EEZ-scenario, CNS-514 should have simply asserted its exercise of freedom of navigation rather than China's "indisputably sovereignty." In this scenario, the freedom of navigation cannot be suspended by PS-39 since the EEZ is likewise considered to be part of international waters in which a flag state exercises "high seas freedoms." However, it must be underscored that as per LOSC, the high seas and EEZs are to be reserved for peaceful purposes. This means that the use of force or threat of use of force is still discouraged. Consequently, the next relevant question is whether CNS-514's aiming of its fire control radar on PS-39 constituted a threat of use of force or manifested hostile intent.

Under the 2009 San Remo Handbook on Rules of Engagement (ROE), "aiming or directing weapons" and "illuminating with radar or laser designators" are considered to be indicators of hostile intent. The act of energizing a ship's fire control radar in the form of a warning is only considered acceptable as a proactive measure in ascertaining the hostile intent of another ship if the latter has displayed indications of hostile intent. Since a radio warning is not an indication of hostile intent under the San Remo Handbook, the PS-39's actions should not be interpreted as indicative of hostile intent, therefore making the CNS-514's act of aiming its fire control radar incompatible with generally accepted ROE.

The Commodore Reef Incident and Good Order at Sea

The actions of CNS-514 also contradicted principles set forth in multilateral arrangements for good order and peaceful management of disputes in the SCS which China has proclaimed to support. It must be recalled that under the 2002 ASEAN-China Declaration on the Conduct of Parties in the SCS, the parties undertook to "resolve their territorial and jurisdictional disputes by peaceful means, without resorting to the threat or use of force" and in accordance with LOSC. Relatedly, the

parties undertook to “exercise self-restraint in the conduct of activities that would complicate or escalate disputes and affect peace and stability.”

In addition to expressing its intention to apply the Code for Unplanned Encounters at Sea (CUES) in the SCS during the 19th China-ASEAN Summit in 2016, China also agreed with other ASEAN-Plus countries in subscribing to CUES during the 5th ASEAN Defence Ministers’ Meeting (ADMM)-Plus in 2018. It must be understood that as a standardized protocol, CUES carries both operational and political significance as it was adopted during the Western Pacific Naval Symposium (WPNS) organized by China in 2014. Interestingly, however, the actions of the CNS-514 contradicted CUES with respect to the use of fire control radar. Under CUES, as an “assurance measure for naval ships,” the commanding officers need to “consider the potential ramifications before engaging in actions that could be misinterpreted.” It specifies that the “actions the prudent commander might generally avoid” include “simulation of attacks by aiming guns, missiles, fire control radars, torpedo tubes or other weapons in the direction of vessels or aircraft encountered.” Clearly, the actions of CNS-514 are incompatible with CUES.

Conclusion

The future of international law and good order at sea arguably holds dim prospects when the most powerful and influential coastal state of the SCS complies with neither international law nor the rules set forth by multilateral maritime security arrangements to which it is a party. In the absence of a multilateral security arrangement that can proactively protect the rules-based order and deter assertiveness in the SCS, China might continue to proclaim respect for international law and express support for good order at sea while behaving within a completely different paradigm during unplanned encounters. Likewise, China might expand its gray zone coercion activities and push the envelope of near-armed attack scenarios to impose its territorial and maritime claims on its small power neighbors. Moreover, China might continue to intimidate its small power neighbors while dismissing diplomatic protests and other legal remedies as false accusations, provocations, and unacceptable international judgments as it previously did with respect to the aforementioned Commodore Reef incident, the Scarborough Shoal Stand-Off of 2012, and with the 2016 Arbitral Award on the Philippine case versus China.

Source: thediplomat.com; 18 May 2020

ACKNOWLEDGEMENTS

‘Making Waves’ is a compilation of maritime news and news analyses drawn from national and international online sources. Drawn directly from original sources, minor editorial amendments are made by specialists on maritime affairs. It is intended for academic research, and not for commercial use. NMF expresses its gratitude to all sources of information, which are cited in this publication.

Cover Designed by Gayathri Rajesh, NMF Intern.