

Maritime Summary Note n°231 – May 2021

« Current overview of maritime channels and straits »

The event of the Ever Given obstructing the Suez Canal for a few days was as much a severe disruption for the maritime industry as it was an opportunity to focus global media attention on the role of oceans in globalization. Accumulating vessels and delays in the supply chain reminded everyone, particularly in Europe, of the dependence of industries and consumers on production that is now operating on a planetary scale—a question that had already been raised during the Chinese lockdown at the beginning of 2020. As for maritime transport, it truly mirrors the development of our world and the incredible intensity of its trade. The Suez event was merely an opportunity to collectively discover the sensitivity of strategic passages, as the media naturally questioned alternatives and other shipping lanes. These routes also raise questions regarding vessel dimensions and tie back to the issue of gigantism, providing an ideal opportunity to conduct a status report on the maritime routes of our globalized world.

The Suez Canal

The grounding and blocking of a 20,000 TEU ultra-large container ship just a few kilometers north of Suez on March 24, 2021, was enough to plunge a portion of global shipping into a state of slight anxiety, amid the uncertainty of a simple delay or a heavy operational and commercial constraint. The accident also highlighted the canal's role in international maritime trade. Statistics from the canal authority indicate a transit of 18,800 vessels in 2019, representing 1.1 billion tonnes. Accepting this evaluation means it corresponds to 10% of international maritime freight transport. However, the canal is primarily useful to Europe for its trade with the eastern part of the Old World (Indian Ocean, Pacific Ocean).

In terms of energy, figures from BP indicate that 40% of crude oil (920 Mt) and 20% of refined products (230 Mt) originate from the Middle East, alongside 26% for LNG (85 Mt), almost entirely from Qatar. Canal statistics from 2019 indicate 48 Mt flowing from South to North, because a portion of the oil rounds Africa via the Cape of Good Hope and another utilizes the capacity of the SUMED pipeline (around 75 Mt). In the North-to-South direction, canal authorities report 49 Mt. The same applies to refined products, with around 65 Mt in each direction. LNG is naturally more oriented toward the North (23 Mt), though 8 Mt is directed toward the South. The canal accounts for only 8% of the global gas market, but the context of trade is increasingly globalized, and "Atlantic" LNG will increasingly be routed toward the East.

The Suez Canal sees the transit of all kinds of bulk and conventional cargo, but it is not truly a route for industrial ores. The volume of grain is substantial, as it must supply the Persian Gulf countries and Pakistan in particular. Container accounting is highly significant, with 250 Mt per direction according to the canal authority. This figure poses a problem, as it would represent around 50 million laden TEUs. Yet, in 2015, Container Trades Statistics (CTS), which compiles carrier figures, quantified different numbers: 9.3 million laden TEUs from Europe to Asia and Oceania, and 14 million TEUs in the opposite direction. Since then, traffic has grown by another 3 to 4 million TEUs.

The Suez Canal is fundamental for Europe, for its energy supplies and its trade with Asia. The Ever Given incident highlighted the dependence of commerce and industry on Asian—and notably Chinese—manufactured production¹. This overlooks the fact that Europe also exports heavily toward Asia with industrial and food products. The ghost of a canal closed even for a few weeks caused a part of the world to react to the vulnerability of this narrow passage. For Egypt, this will accelerate the necessity to proceed, as in 2016², with the doubling of sections that are still single-lane. The country does not intend

¹ Somali piracy had already demonstrated the vulnerability of the East–West axis for all commercial partners in the Old World.

² The 191-kilometer canal is now transited in 14 hours since 2016, thanks to a \$7 billion investment (88% of which was funded by Egypt) to improve traffic flow, including 35 kilometers of bypassing lanes.

to be just a place of transit; beyond port projects in the Mediterranean, Egypt has relaunched the promotion of the Suez Canal Economic Zone (SCZONE).

The accident was an opportunity to envision a prolonged closure. The canal has already experienced two: a short one in 1956 and a long one between 1967 and 1975. Vessels then bypassed Africa via the Cape of Good Hope, accelerating the oil tanker gigantism already underway and giving birth to the first large container ships, then of 3,000 TEUs. Once reopened, the canal was enlarged several times to reach its current format, accessible to vessels with a maximum draft of 20 meters, which allows the transit of all container ships (16 m) but excludes ultra-large crude carriers (ULCCs) and bulkers of more than 160,000 dwt. The air draft is limited to 68 meters due to a bridge over the canal.

Bypassing Africa is therefore a solution that raises purely economic questions. From Singapore to Rotterdam, the passage via the Cape of Good Hope represents 6,500 additional kilometers, or seven to ten days of navigation. Fuel consumption for a giant container ship, based on 150 tonnes per day at \$500/tonne, represents \$0.5 million, which is roughly equivalent to the canal transit fees (which Egypt can always adjust to face this competition). There would be increased operational costs with more sea time, and vessels would need to be added to liner services. Bypassing is an alternative solution that would consequently have effects on the shipping economy (freight rates, fleet utilization).

The Cape Route is the oldest interoceanic route. Opened by the Portuguese, it was the key to Asia for four centuries. The Suez Canal rendered it peripheral, even though it represents a fallback route in the event of a closure. Naturally, it is not a restricted passage since it is in the open sea. The geopolitical context carries no risk. From an economic standpoint, it is an important route for Asia with iron ore and soy from Brazil, and West African bauxite, oil, and gas.

The Straits of Hormuz and Bab el-Mandeb

The emergence of Shia political Islam in Iran in 1979 altered the context of the Persian Gulf and its access point, the Strait of Hormuz. The conflict with Iraq (1980–1988) directly affected maritime activities, and subsequently, regular tensions between Iran and the United States cause incidents involving vessels in the Hormuz zone (2008, 2012, 2018, 2019). The threat to maritime traffic is a card played by Tehran, with a very large-scale effect on energy flows. Given the massive production of oil and gas in the deserts and subsea fields of the Persian Gulf, exiting through the Strait of Hormuz is inherently strategic, accounting for 900 Mt of crude oil (40% of the global market), 233 Mt of refined products (20%), and 83 Mt of LNG (23%), according to 2019 BP figures.

The strategic value of Bab el-Mandeb is virtually the same as that of the Suez Canal, with the current political risk primarily linked to the Houthi rebellion in Yemen, which represents a proxy battleground for Iran's rivalries with Saudi Arabia and Israel. The risk of attacks on vessels has less of an impact on the shipping economy than an environmental accident in the Red Sea would.

Djibouti is a micro-state resulting from France's strategic position on the strait at the time Great Britain held Yemen. The commercial port has passed partly under Chinese control via the conglomerate China Merchants. The New Silk Roads (Belt and Road Initiative) find one of their well-known facets here, along with the modernization of the Ethiopian railway from Addis Ababa. The Chinese naval base in Djibouti adds a new geopolitical touch to the regional situation.

The Strait of Malacca

At the other end of the Indian Ocean, there is a point of convergence for several routes, including the Suez Canal, the Strait of Hormuz, and the Cape of Good Hope. In fact, the Strait of Malacca is a long maritime passage between the Malaysian Peninsula and the Indonesian island of Sumatra. The narrowest segment is the Phillips Channel, stretching over one hundred kilometers between the territory of Singapore and the Riau Islands (Indonesia). The depth there is limited to 25 meters, establishing a *Malaccamax* standard restricted to a maximum draft of 20 meters.

Consequently, around 2 billion tonnes of cargo transit through Malacca, representing 20% of global maritime trade, including 800 Mt of oil. It stands as the most acute flashpoint of globalization. Local piracy is merely a minor phenomenon, and geopolitical friction lies further north in the East and South China Seas. The highest risk perhaps relates to maritime safety, with around 85,000 vessels per year (up from 56,000 in 2000), meaning ten vessels transit the channel every hour in both directions. Beyond this, the immediate local threat would be a logistical thrombosis of the passage, estimated to occur at a threshold of 100,000 vessels per year.

China's vulnerability to the strait was famously encapsulated by Chinese leader Hu Jintao in 2003 as the "Malacca Dilemma." Indeed, a staggering share of the Chinese economy's imports transits through the strait—including oil (80%), gas (22%), bauxite (50%), iron ore (21%), and soy (68%)—alongside its massive containerized exports. Nevertheless, by developing the New Silk Roads (*Belt and Road Initiative*), China now pursues an approach more centered on development partnerships. The geopolitical analysis of Malacca does not point to disruptions caused by a neighboring state or terrorism, but rather to China's complicated relations with its numerous neighbors, and beyond that, with the United States and Japan. This transcends the geo-economic analysis of shipping to sit within the politico-military geostrategy of East Asia.

Can we bypass Malacca? The only viable option for modern commercial shipping is the Lombok Strait, followed by the Makassar Strait (between Borneo and Sulawesi). This is already the standard route for capesize bulkers carrying iron ore from Northwest Australia to the Far East. Conversely, the Sunda Strait between Sumatra and Java cannot be reliably used, as it is deemed hazardous due to fierce currents, sandbanks, and offshore oil platforms.

Cutting through the narrow strip of land in Southern Thailand by constructing a canal remains an ambition that fails to materialize. A canal through the Kra Isthmus would provide a major shortcut of 1,200 kilometers and 3 days at sea between the Indian Ocean and the Gulf of Thailand. This project for a 50-kilometer waterway has little chance of seeing the light of day, and is under no circumstances integrated into the infrastructure diplomacy of the New Silk Roads. A rail-landbridge alternative has been proposed, but it would require building deepwater ports at both termini. Within the region, Beijing relies more heavily on corridors through Myanmar leading directly into Southern China.

Russian alternatives

The Suez event allowed Russia to highlight the opportunities presented by the Northern Sea Route (NSR). Global warming favors Arctic navigation over increasingly longer periods, and Moscow has decided to transform the long bypass of Siberia into a commercial shipping lane between Europe and Asia. The route is indeed the shortest path between the northern Far East and Western Europe.

For the past ten years, the utilization of this corridor has been widely debated. The economic relevance of the Indian Ocean route remains uncontested, with its ultra-large container ships and massive transshipment hubs. Liner shipping companies do not require, for the time being, a fast northern connection, especially since operational conditions remain challenging. Vessels must maintain an "ice-class" rating and rely on specialized, trained crews, while insurers will watch for reasonable risk thresholds.

Furthermore, the Northern Route resembles a long corridor under strict Russian surveillance, with emergency management resources located far from the rest of the world. Finally, shipowners—highly sensitive to the media image of the struggling Arctic polar bear—can distance themselves from the Northern Route at no cost by playing the card of corporate environmental responsibility. The Northern Sea Route nevertheless remains an option for faster voyages, such as for heavy-lift cargo, while allowing Russia to export its own resources (oil, gas, and minerals) eastward.

Nevertheless, Russia possesses another asset in Eurasian trade: its railway network. It represents a genuine alternative to the maritime axis—certainly not in terms of volume (about 40 containers per train) or price (three times more expensive), but in terms of time. Taking only about ten days, these container trains can connect the inland regions of China to all European areas. Rail freight allows operators to meet fast-transit imperatives for commodities like automotive parts, electronics, or fashion textile collections. In 2019, crossing through Kazakhstan, Russia, and Belarus via 6,000 convoys, 400,000 TEUs made the journey from China to Europe, with 170,000 TEUs flowing in the opposite direction. Major logistics corporations, as well as ocean carriers (Maersk, MSC, CMA CGM), are positioning themselves strategically within this niche market. European rail logistics hubs (Liège, Duisburg, Dourges, Milan, etc.) all now feature a dedicated Chinese service offering.

With this rail axis, the New Silk Road (*Belt and Road Initiative*) echoes its historical heritage. The presence of a COSCO terminal in Kazakhstan is highly symbolic, while Eastern European countries are developing their landward interfaces to act as strategic links. Nonetheless, the primary infrastructure effort must come from Russia, through the modernization of its rail networks connecting with China (via Siberia or Kazakhstan).

Mediterranean passages

Since 1869 and the opening of the Suez Canal, the Mediterranean Sea is no longer a landlocked basin. Consequently, beyond the ports of both shores, the basin functions as a transit corridor between Asia and Europe. The western gateway at the Strait of Gibraltar has lost its acute political sensitivity after nearly two millennia of military history. While the territorial situations of Morocco, Spain, and Great Britain remain complex, none risk seeing a disruption to the passage.

Economically, at Tanger Med, Morocco has transformed the strait into another major port complex for transshipment, complementing Algeciras. Nearby, in southern Portugal, the energy port of Sines has also emerged as a hub for MSC. The port authority wishes to initiate a new expansion project featuring another terminal named Vasco da Gama. The international call for expressions of interest triggered a diplomatic reaction from Washington, preoccupied by a potential Chinese corporate presence within a European energy gateway located in close proximity to Gibraltar.

The Mediterranean features a third access point through the Turkish Straits, comprising the Dardanelles and the Bosphorus. This forms the vital link to the Black Sea, anchoring a substantial economic region handling around 520 Mt. It serves as the primary export gateway for Romanian, Russian, and Ukrainian grain, alongside a portion of Russian and Kazakh crude oil routed through Novorossiysk and a few neighboring outports. To this must be added refined products generated by Russian refineries, totaling 140 Mt of hydrocarbons. In the opposite direction, the flows consist primarily of container traffic. For comparison, the other half of Russian crude and refined exports (130 Mt) transits through the Danish Straits.

The Bosphorus Strait experiences intense maritime traffic, recording 41,000 deep-sea vessels in 2019, compounded by constant cross-strait local transits. The risk of collision or casualty is exceptionally high—with 700 incidents recorded over the last decade—due to the narrowness of the waterway and its treacherous navigation channels. In response, the Turkish authorities officially launched the Istanbul Canal (*Kanal İstanbul*) bypass project in April 2021 within the European territory. This €11 billion undertaking aims to carve out a 50-kilometer artificial waterway tailored for extra-large vessels of up to 300,000 dwt.

While safety benefits are notable, questions persist regarding its economic viability. Black Sea littoral states are not requesting it. Although the canal would accommodate larger container ships, bulk carriers, and tankers, current vessel sizes are already perfectly optimized for existing markets (predominantly intra-Mediterranean oil and grain trades), and the regional container market remains secondary. Furthermore, it remains highly uncertain whether shipping lines will be willing to pay transit fees for an artificial canal when a natural, free-passage route is guaranteed nearby under the 1936 Montreux Convention.

The Panama Canal

The opening of the isthmus waterway in 1914 was primarily a major breakthrough for American trade, finally linking the North and South American Pacific coasts to both the US East Coast and Europe. While the *Panamax* standard guided maximum ship dimensions for decades, it became obsolete by the 1980s. The canal's relevance to the global economy subsequently shifted as trade gravitated toward Asia, a phenomenon that triggered structural adaptations in Panama. The country transformed itself into a major transshipment hub for containers within the wider Western Caribbean maritime cluster, acting as a crossroads for oceans and continents.

The canal carries no real geopolitical risk today. One merely recalls Washington's anxieties in 1999 regarding the operational involvement of the Hong Kong-based port operator Hutchison Whampoa, which fueled a (fantasized) narrative of a Chinese presence in Panama. This occurred well before the launch of the New Silk Roads (*Belt and Road Initiative*); since then, Hutchison has risen to become the world's second-largest port operator without its corporate strategies raising geopolitical alarms.

Panama subsequently implemented the expansion of its canal, inaugurating two massive new sets of locks in 2016 at a cost of \$9 billion in infrastructure works. Over the 2019–2020 fiscal year, the canal recorded the transit of 12,245 vessels and 252 Mt of cargo. This represents a very small fraction of global trade, as Panama remains a minor chokepoint in maritime globalization, accounting for **only 2%**

of global traffic³. Economically, Panama heavily depends on the canal, which generated \$3.365 billion in revenues in 2019. The objective of the expansion was to offer a redesigned direct route between Asia and the US East Coast for container flows, and a reverse corridor for grain, liquefied gas, and oil from the Gulf of Mexico utilizing larger vessels.

In practice, the results have not met expectations. Ocean carriers frequently prefer routing cargo through US West Coast ports coupled with the domestic rail *landbridge* system. Concurrently, US exports have been severely thwarted by the US-China trade war. Consequently, the Neopanamax format failed to boost transit frequencies. Furthermore, a critical new challenge has emerged for Panama: an acute water shortage, with only 3 billion m³ available out of the 5.2 billion m³ required for optimal operations. Climate change is severely disrupting regional rainfall patterns and lowering the water levels of Gatun Lake. Managing the canal's freshwater supply has become a major economic hurdle, driving up transit costs by \$370 million per year according to shipowners' estimates.

Geography and human engineering have turned a handful of territories into critical flashpoints for global maritime circulation. Driven by economic globalization, the scale of shipping lane traffic has become colossal, rendering each canal and strait a constrained and sensitive passage. From simple maritime safety issues—organized through traffic separation schemes—to highly acute political dilemmas, canals and straits stand out as contemporary nodes with major economic and geopolitical stakes.

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³ It goes without saying that the world does not need another canal in Nicaragua, a project completely lacking in economic substance.