International Transport Forum

The Red Sea Crisis

Impacts on global shipping and the case for international co-operation

Background Paper

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Commercial navigation in the Red Sea under attack

The Red Sea – connected to the Suez Canal in the north and the Bab-el-Mandeb Strait in the south – forms one of the main global maritime chokepoints (Figure 1). Approximately 14% of global maritime trade and 30% of global containerised trade transits through the Red Sea. Hence, blocking access to the Red Sea can have significant impacts on global maritime trade.

Since mid-November 2023, Houthis stationed in Yemen have intensified attacks on commercial shipping, substantially complicating navigation through the Red Sea. This background paper assesses the situation with regards Red Sea navigation and the impacts on global maritime trade. Drawing lessons from similar blockades in the past it concludes with a brief set of policy considerations.

Between mid-November 2023 and 18 March 2024, a total of 45 Houthi attacks specifically targeted commercial ships in the Red Sea and the Gulf of Aden, according to the ITF's database (see Table 1). These data are based on a combination of several public sources, including CENTCOM, Haaretz and Lloyd's List.

The ITF database only takes account of attacks that specifically target commercial ships. Therefore, it does not cover attacks on fishing vessels, navy vessels or non-targeted attacks. It also excludes interactions between Houthis and commercial ships that cannot be considered attacks – that is, the exercise of (or attempt to exercise) violence with the intent to harm a commercial vessel.

As a result, the number of attacks on commercial ships listed in Table 1 is somewhat lower than numbers that have been circulated in the media. Around one-third of the specific attacks on commercial ships listed in Table 1 were on container vessels, with 31% on tankers and 24% on bulk carriers, reflecting the predominance of these ship types in the regular Red Sea transits. A further 12% of attacks were on other ship types.

Most of these attacks were carried out using drones, missiles or a combination of both. There were four attacks during which assailants attempted to board the ship, either by skiffs or small boats, and in one case by helicopter. In this last case, Houthis managed to hijack the vessel (the *Galaxy Leader*) and its crew. In another attack that did not specifically target a vessel, a one-way unmanned surface vessel, a drone boat, was used (Raanan, 2024). In most of the attacks the ship was hit by a missile. The ships that were hit in many cases suffered only minor damages and no injuries.

Table 1. Overview of Houthi attacks on commercial ships

Date	Vessel name	Vessel type	Type of attack	Impact
14/03/2024	*Pacific 01*	Crude oil tanker	Missile	No impact, no damage/injuries
11/03/2024	*Pinocchio*	Containership	Missile	Explosion near ship, no injuries
08/03/2024	*Propel Fortune*	Bulk carrier	Missile	Explosions near ship, no injuries
06/03/2024	*True Confidence*	Bulk carrier	Missile	Three crew killed; several others seriously injured; vessel abandoned
04/03/2024	*MSC Sky II*	Containership	Missile	One hit, small fire; no injuries
24/02/2024	*Torm Thor*	Oil & chemical tanker	Missile	Impact in water; no damage/injuries
22/02/2024	*Islander*	General cargo ship	Missile	Fire onboard, minor damage; no injuries
19/02/2024	*Navis Fortuna*	Bulk carrier	Drone	Superficial damage; no injuries
19/02/2024	*Sea Champion*	Bulk carrier	Missile/drone	Minor damage; no injuries
18/02/2024	*Rubymar*	General cargo ship	Missile	Crew evacuated; vessel sunk two weeks after attack
16/02/2024	*Pollux*	Crude oil tanker	Missile	No injuries
15/02/2024	*Lycavitos*	Bulk carrier	Missile	Very minor damage, no injuries
12/02/2024	*Star Iris*	Container ship	Missile	Minor damage
06/02/2024	*Morning Tide*	Cargo ship	Missile/drone	Minor damage
06/02/2024	*Star Nasia*	Bulk carrier	Missile/other projectile	Minor damage
02/02/2024	*Daffodil*	Product tanker	Drone	Missed
01/02/2024	*Koi*	Container ship	Missile	Hit water; no damage/injuries
26/01/2024	*Marlin Luanda*	Tanker	Missile	Major fire, damage
24/01/2024	*Maersk Detroit*	Container ship	Missile	No impact on vessel; no injuries/damage
24/01/2024	*Tomahawk*	Bulk carrier	Drone	Missed
18/01/2024	*Chem Ranger*	Tanker	Missile	Hit water near the ship
17/01/2024	*Genco Picardy*	Bulk carrier	Missile	Some damage
16/01/2024	*Zografia*	Bulk carrier	Missile	Hit; ship seaworthy, no injuries
15/01/2024	*Gibraltar Eagle*	Container ship	Missile	Hit, no injuries or significant damage
12/01/2024	*Khalissa*	Tanker	Missile	Near miss
03/01/2024	*CMA CGM Tage*	Container ship	Missile/drone	No hit
31/12/2023	*Maersk Hangzhou*	Container ship	Missile and boats	Hit, ship seaworthy, no injuries
26/12/2023	*MSC United VIII*	Container ship	Missile	No injuries
23/12/2023	*Blaamanen*	Tanker	Drone	Near miss
23/12/2023	*Saibaba*	Tanker	Drone	Hit, no injuries
23/12/2023	*Chem Pluto*	Tanker	Drone	Fire on board

18/12/2023	*Swan Atlantic*	Tanker	Missile/drone	Impact on vessel
18/12/2023	*MSC Clara*	Container ship	Missile/drone	Near miss
15/12/2023	*Hapag Lloyd Al Jasrah*	Container ship	Missile/drone	Impact, fire
15/12/2023	*MSC Palatium III*	Container ship	Missile	Impact, fire
14/12/2023	*Maersk Gibraltar*	Container ship	Missile	Hailed
13/12/2023	*Ardmore Encounter*	Tanker	UAV and skiffs	No injuries or damage
11/12/2023	*Strinda*	Tanker	Missile	Fire, no casualties
10/12/2023	*Centaurus Leader*	Vehicle carrier	Drone	Misses
03/12/2023	*Unity Explorer*	Bulk carrier	Missile/drone	Hit, minor damage
03/12/2023	*Number 9*	Container ship	Missile	Damage, no casualties
03/12/2023	*AOM Sophie II*	Bulk carrier	Missile	No significant damage
26/11/2023	*Central Park*	Tanker	Missile and boarding	
25/11/2023	*CMA CGM Symi*	Container ship	Drone	Minor damage
19/11/2023	*Galaxy Leader*	Vehicle carrier	Hijack	Vessel and crew hijacked

Notes: UAV: Unmanned aerial vehicle.
Sources: CENTCOM, Haaretz, Lloyd's List.

Four phases can so far be distinguished with regards to the attacks on commercial vessels. In the first phase, from mid-November to mid-December 2023, almost all the ships attacked had some link with Israel, mostly via the beneficial ownership of the ship. In the second phase, from mid-December 2023 to mid-January 2024, there was no clear pattern with regards links to any nationality. In the third phase, from mid-January to mid-February 2024, most commercial ships attacked had a link with the United States or the United Kingdom, essentially related to ownership and operation.

The fourth and current phase, which began in mid-February 2024, is again characterised by the lack of a clear pattern. This becomes clear from an analysis of the nationality of ownership, operation, management and flags of the ships attacked, as far as it can be deduced from publicly available data (see Table 2). When available, the ITF database provides the nationality of the beneficial owner of the ship, rather than the place where the ship or shipping company is operated.

Table 2. Nationality of flags, ownership and operation of the ships attacked

Date	Vessel name	Flag	Ownership	Operation
14/03/2024	*Pacific 01*	Panama	Vietnam	
11/03/2024	*Pinocchio*	Liberia	Singapore	
08/03/2024	*Propel Fortune*	Singapore		
06/03/2024	*True Confidence*	Barbados	Liberia	Greece
04/03/2024	*MSC Sky II*	Liberia		
24/02/2024	*Torm Thor*	United States		
22/02/2024	*Islander*	Palau	Romania	
19/02/2024	*Navis Fortuna*	Marshall Islands		
19/02/2024	*Sea Champion*	Greece		Greece
18/02/2024	*Rubymar*	Belize	Lebanon	
16/02/2024	*Pollux*	Panama		
15/02/2024	*Lycavitos*	Barbados		United Kingdom
12/02/2024	*Star Iris*	Marshall Islands	Greece/United States	
06/02/2024	*Morning Tide*	Barbados	United Kingdom	
06/02/2024	*Star Nasia*	Marshall Islands	Greece/United States	
02/02/2024	*Daffodil*	Saudi Arabia		
01/02/2024	*Koi*	Liberia		
26/01/2024	*Marlin Luanda*	Marshall Islands	Bermuda	
24/01/2024	*Maersk Detroit*	United States	United States	United States
24/01/2024	*Tomahawk*	Liberia		
18/01/2024	*Chem Ranger*	Marshall Islands	United States	Greece
17/01/2024	*Genco Picardy*	Marshall Islands	United States	United States
16/01/2024	*Zografia*	Malta	Greece	
15/01/2024	*Gibraltar Eagle*	Marshall Islands	United States	United States
12/01/2024	*Khalissa*	Panama	Russia	
03/01/2024	*CMA CGM Tage*	Malta		
31/12/2023	*Maersk Hangzhou*	Singapore		
26/12/2023	*MSC United VII*	Liberia		
23/12/2023	*Blaamanen*	Norway	Norway	Norway
23/12/2023	*Saibaba*	Gabon	India	
23/12/2023	*Chem Pluto*	Liberia	Japan	
18/12/2023	*Swan Atlantic*	Cayman Islands	Norway	

18/12/2023	*MSC Clara*	Panama		
15/12/2023	*Hapag Lloyd Al Jasrah*	Liberia		
15/12/2023	*MSC Palatium III*	Liberia		
14/12/2023	*Maersk Gibraltar*	Hong Kong		
13/12/2023	*Ardmore Encounter*	Marshall Islands		
11/12/2023	*Strinda*	Norway	Norway	
10/12/2023	*Centaurus Leader*	Singapore		
03/12/2023	*Unity Explorer*	Bahamas	United Kingdom/Israel	United Kingdom
03/12/2023	*Number 9*	Panama	Bermuda/ United Kingdom	Bermuda/ United Kingdom
03/12/2023	*AOM Sophie II*	Panama	Japan	
26/11/2023	*Central Park*	Liberia	Israel	
25/11/2023	*CMA CGM Symi*	Malta		
19/11/2023	*Galaxy Leader*	Bahamas	Israel	

Sources: CENTCOM, Haaretz, Lloyd's List.

Attacks by Houthis on commercial shipping are not new. Between 2016 and 2022, there were 14 attacks on commercial shipping along the coast of Yemen, five of which related to the Houthis (Diakun, 2023). Some of these attacks were aimed at Israeli-linked ships. In parallel with the attacks from Yemen, piracy operations along the coast of Somalia have also increased in recent months (see Table 3), adding to the insecurity in the region.

Table 3. Piracy incidents in the gulf of Somalia

Date	Vessel name	Vessel type	Flag	Incident type	Description
29/01/2024	Panta Rei	Tanker	Panama	Unconfirmed	Suspicious approach
28/01/2024	MSC Clementina	Container ship	Liberia	Unconfirmed	Suspicious approach
27/01/2024	Walmea	Bulk carrier	Liberia	Confirmed attempted piracy	Attempted boarding
04/01/2024	Lila Norfolk	Bulk carrier	Liberia	Confirmed piracy	Boarded by pirates, liberated by Indian navy
14/12/2023	Ruen	Bulk carrier	Malta	Confirmed piracy	Boarded by pirates, still in Somalia
26/11/2023	Central Park	Tanker	Liberia	Confirmed piracy	Boarded by pirates, liberated by US forces

Source: Bush et al. (2024).

Naval and diplomatic responses

On 18 December 2023, the United States announced Operation Prosperity Guardian, which consists of the creation of a naval task force with a group of countries to stop Houthi attacks on ships in the Red Sea. The taskforce works under the Combined Maritime Forces, an existing counterpiracy operation based in Bahrain. Countries that form part of Operation Prosperity Guardian include Australia, Bahrain, Canada, Denmark, Greece, Netherlands, New Zealand, Norway, Singapore, Sri Lanka the United Kingdom and the United States, supported by the Seychelles.

Under the umbrella of Operation Prosperity Guardian, several actions to protect commercial shipping have been carried out. These include naval convoys to protect commercial shipping and the shooting down of drones and missiles aimed at ships. In addition, a series of air strikes was carried out against Houthi facilities in Yemen in January, February and March 2024.

Complementary to Operation Prosperity Guardian, several countries have carried out naval actions to protect their commercial fleets. For example, the French navy carries out convoy operations to escort French-flagged ships or with French interests, such as the container carrier CMA CGM. These operations take place in co-ordination with Operation Prosperity Guardian but are carried out under national command (Irish and Saul, 2024; Baker, 2024). Some Chinese shipping companies claim that they are escorted through the Red Sea by the Chinese navy (Wright, 2024).

The European Union has since 19 February 2024 established a naval mission in the Red Sea, Aspides, to protect commercial shipping from Houthi attacks, but without mandate to take part in strikes against Houthis (EEAS, 2024). Naval action was also accompanied by diplomatic initiatives. In a press statement on 1 December 2023, the members of the United Nations Security Council condemned in the strongest terms recent Houthi attacks against a commercial vessel in the Red Sea (UN Security Council, 2023).

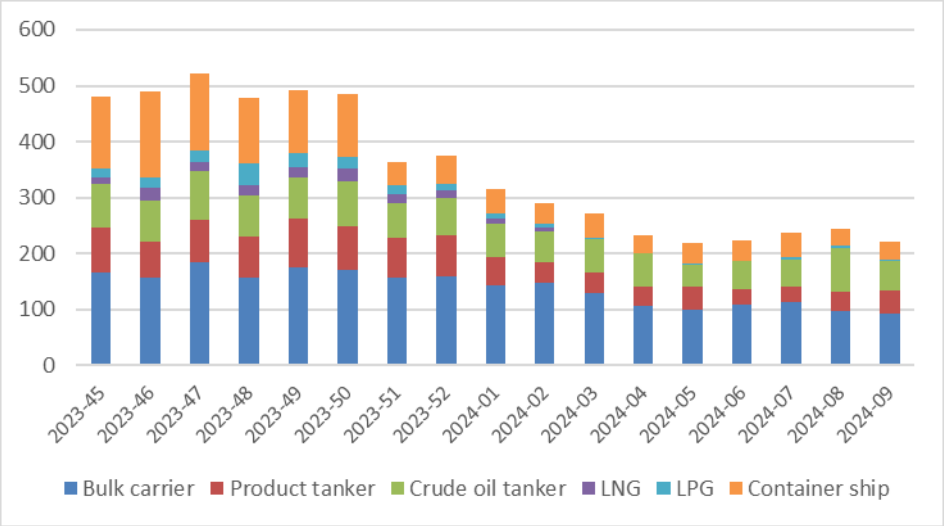
On 10 January 2024, the Security Council condemned in the strongest terms the Houthi attacks on commercial shipping in Resolution 2722 (UN Security Council 2024). The Houthi attacks against commercial shipping have also changed government perceptions of the group. On 17 January 2024, the United States redesignated Yemen's Houthis as a global terrorist organisation, a measure that came into effect on 16 February 2024 (The White House, 2024).

Declining transit numbers

Between 1 November 2023 and 28 February 2024, the number of ships transiting the Bab-el-Mandeb Strait decreased by c 55%, but there are large differences by vessel type (Figure 1). The smallest decreases in transit numbers can be observed for bulk carriers (-12%) and crude oil tankers (-32%), bulk carriers (-45%) and product tankers (-46%), whereas the largest declines take place in liquefied natural gas (LNG) carriers (-100%), liquefied petroleum gas (LPG) carriers (-88%) and container shipping (-75%).

The reduction of transits through the Bab-el-Mandeb Strait translates into a similar decrease of 55% in transits through the Suez Canal. There is a remarkable contrast between carriers: the Israeli carrier ZIM decreased its Suez Canal transits by 100%, against only 33% for CMA CGM over the same period, according to data from MDS Transmodal. Even CMA CGM has most recently decided to halt its Suez Canal transits.

Figure 1. Number of ships transiting the Bab-el-Mandeb Strait, week 45 2023-week 9 2024



Source: Lloyd's List.

The ships that avoid the Suez Canal have instead taken the maritime route around southern Africa (via the Cape of Good Hope); the number of ships travelling via this route increased by 130% between the beginning of November 2023 and the end of February 2024. Ultra-large container vessels in particular seem to take the Cape of Good Hope route instead of the Suez Canal route: the average size of the container ships transiting through the Suez Canal has decreased for most top 10 container carriers.

At the same time, there is nothing new about container ships taking the route via southern Africa. Circumnavigating Africa was the sole alternative in the Asia–Europe trades during the Suez Crisis of 1956; the Six-Day war of 1967 and the Yom Kippur war of 1973 (Notteboom et al., 2024). In the recent past, container carriers regularly re-routed their ships to put pressure on the Suez Canal authority to lower its canal fees.

Shift to land routes

Some carriers have offered land transport options to serve regional markets usually accessed via the Red Sea, to avoid the Bab-el-Mandeb Strait and the Houthi presence. Hapag Lloyd has offered a land-routing to connect Saudi Arabia's Red Sea hub Jeddah with ports in the north of Saudi Arabia (Dammam and Jubail), as well as the Jebel Ali port in Dubai (Nightingale and Diakun, 2024).

Another option is the recently announced India–Middle East–Europe Corridor (IMEC). This project, introduced by Group of 20 (G20) leaders at their September 2023 summit in India, would shorten distances by 40%. The concept involves a sea leg, connecting West India to the UAE; a railway line traversing Saudi Arabia and Jordan to the Israeli ports; and a second maritime link to the southern European ports of Piraeus, Genova and Marseilles (Notteboom et al., 2024).

Short-term impacts of disrupted navigation in the Red Sea

Seafarers and damage to ships

The hijacked car carrier *Galaxy Leader* and its crew have not been released by the Houthis. The attack on the *True Confidence* resulted in the death of at least three seafarers. As for the other commercial ships, based on the public information available, no seafarers seem to have been injured due to the attacks. Yet, the attacks add stress to a working environment that is already stressful and that came under huge pressure during the Covid-19 pandemic. Although research on seafarers' mental health could be improved (Carrera-Arce et al., 2023), there are worrying trends for seafarers' working conditions, in particular the increase in the abandonment of seafarers without pay (ITF, 2023; ITF Seafarers, 2024).

Damage to most commercial ships due to the Houthi attacks has so far been limited, thanks to interventions from naval forces stationed in the area. Various attacks have missed their targets, and when missiles hit ships, the damage has often been minor, allowing the ship to continue on its course. Yet, there have also been more serious incidents. The attack on the *True Confidence* resulted in the death of three seafarers, very serious injuries to several others and the abandonment of the ship. The *Rubymar* sunk due to damage from a Houthi attack.

Transit time and reliability

The attacks on navigation in the Red Sea have caused an increase in transit times. Taking the Cape of Good Hope route instead of the Suez Canal route adds around 8 500 nautical miles to a round trip from the Far East to Europe. Shipping companies could increase their speeds to make up for shipping delays, but there are no indications that they have done so. In cases where container shipping companies continue sailing at the same average speed as in 2023 (around 15-16 knots), the diversion via southern Africa would add around 10 days to the Far East-Europe voyage, meaning 20 days for a round trip.

As these additions to transit time were not planned for, they will show up as ship delays. The average delays of container ships have worsened from 5.1 days in November 2023 to 6.0 days in January 2024 (Figure 2). It is difficult to predict whether delays related to diversions via the Cape of Good Hope route will result in figures similar to the peak delays of eight days recorded in 2021. Container shipping companies have recently updated their planned schedules, which means that longer transit times are now planned for and will not necessarily show up as ship delays in future data.

Figure 2. Global average delays per month for late vessel arrivals, 2018-24

Source: Sea Intelligence.

The situation in the Red Sea has also negatively impacted the reliability of ship schedules. The unplanned re-routing of vessels via southern Africa also shows up in data on ship schedule reliability, which decreased by ten percentage points, from 62% in November 2023 to 52% in January 2024. This means that 52% of container ships arrive at the pre-announced time in each port with a delay of less than one day. Schedule reliability is still far above the very low levels (around 30%) in 2021 (see Figure 3).

Figure 3. Container shipping schedule reliability, 2018-24

Source: Sea Intelligence.

In 2021, the very low reliability implied equally low predictability on vessel arrivals for port terminal operators, which contributed to sub-optimal berth planning, and thus contributing to port congestion. Currently, no port congestion due to diversion of container ships via southern Africa has been reported.

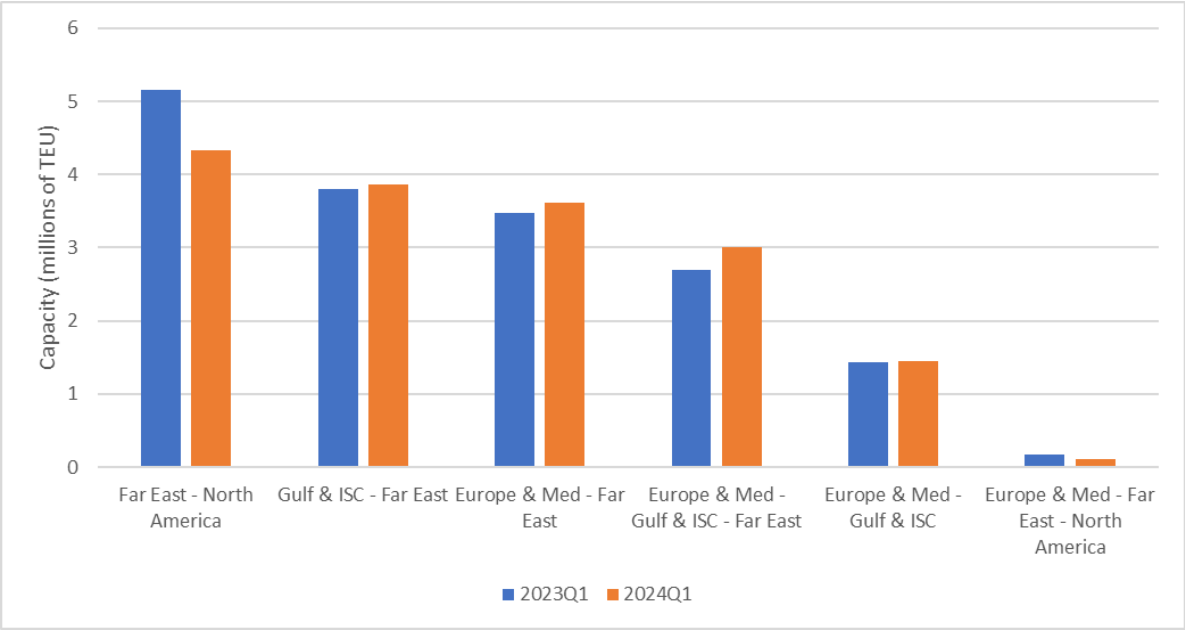
Maritime connectivity and capacity shifts

Container shipping companies offer weekly services to their customers. With the shipping distance increased because of the re-routing via southern Africa, shipping companies would need to deploy 15 instead of 12 ships to be able to offer a weekly Far East-Europe service. In other words, they require more ship capacity to be able to offer the same service level, if they do not change ship speed. The extra capacity needed for the Far East-Europe services appears to be coming from the Pacific services (Asia to US West Coast): the scheduled capacity for the first quarter of 2024 on Asia-Europe routes is 5% higher than for the first quarter of 2023, and on Far East-America it is 16% lower (see Figure 4).

This shows that regional disturbances that disrupt one shipping route (Far East-Europe) quickly cascade to other shipping routes, since the main container shipping companies are global operators that can shift their ship capacity from one to another shipping route, depending on the circumstances.

If the Red Sea disruption and the related re-routing via southern Africa continues, global shipping lines might also restructure their shipping networks. For example, instead of relying on Eastern Mediterranean ports as transhipment hubs (used to load cargo from one ship to another) they might rely more on ports in the Western Mediterranean, as they would be better situated in a new constellation of trade routes via southern Africa. As such, this might change the maritime connectivity of countries.

Figure 4. Shifts in global container shipping capacity, 2023-24



Source: MDS Transmodal.

Cost impacts of disrupted navigation in the Red Sea

The continued Houthi attacks in the Red Sea, and the consequent naval and maritime responses, also impose costs on shipping companies, shippers and states.

Costs for shipping companies

The situation in the Red Sea has increased costs for shipping companies: both those with ships that continue to transit the Red Sea and Suez Canal, and those with ships that sail around the Cape of Good Hope instead. When comparing costs in the current situation with those prior to the disruption in the Red Sea, both scenarios (using the Suez Canal-route or using the Cape of Good Hope-route) need to be assessed. This assessment considers various cost components: fuel costs, crew costs, canal fees, insurance costs, maritime security costs and other operating costs.

Fuel costs

When ships sail around southern Africa, they add around 10 sailing days if they sail at 15-16 knots, resulting 20 additional sailing days for the Far East-Europe roundtrip. This mean that they will consume substantially more ship fuel, in the order of 100 tonnes of fuel per day for a container ship with mean ship capacity (12 500 twenty-foot equivalent units, or TEU) loaded at 80%. For a ship with these characteristics, this will result in USD 1 million in additional fuel costs for the extra 20 sailing days at similar speed. This represents an increase in fuel costs of 33% for container ships on a Far East-Europe round trip.

Charter costs and container hire

Twenty additional days at sea also means an increase of 33% in charter costs, assumed at USD 50 000 per day for a container ship with 12 500 TEU capacity. Charter costs include average manning costs (approximately USD 3 000 per day) and other operating costs, such as maintenance, insurance, stores, spares, management and administration amounting to USD 5 500 per day (Drewry, 2022). In total, the additional 20 days of an Asia-Europe round trip would result in additional charter costs in the order of USD 1 million. The longer round trip also requires 20 additional days of container hire, estimated at USD 3 per day per 40-ft (FEU) container. Assuming the 12 500 TEU ship has a utilisation rate of 80% (a load factor of 80%) implies that it carries 10 000 TEUs or 5 000 40-ft containers (FEUs). Total additional costs for container hire represent USD 300 000.

Canal fees

When ships do not transit the Suez Canal, they avoid paying canal fees. For a container ship with mean ship capacity this amounts to around USD 300 000, or USD 600 000 for a round trip.

Insurance costs

A large part of the Red Sea has long been designated a “listed area” by the Joint War Committee of Lloyd’s and London companies market insurers. This makes it possible to levy additional premiums above the basic

annual rate for war risk cover. In practice, insurers used to waive additional premiums or levy these additional premiums at a nominal 0.l% or 0.05%. The current tensions in the Red Sea have changed this situation. In early January 2024, war-risk cover rates were generally around 0.3-0.35%. In mid-January these rates increased to 1% of the hull value of a ship. This would represent an additional USD 1.3 million on the cost of a single trip for a brand new very large crude carrier booked to load a consignment of crude from a Saudi west-coast port (Osler, 2024). For a median capacity container ship, this could mean up to USD 1 million.

However, in practice there are large differences in rates. Some ship owners get much better deals, depending on no-claim bonuses and volume discounts. Owners of vessels perceived to have Israeli links find it hard to buy cover at all, considering the Houthi targeting of Israel-linked ships (Osler, 2023). There are reportedly indications that US and British owners have experienced similar difficulties since the airstrikes by UK and US forces on Yemen in mid-January 2024 (Osler, 2024).

Maritime security costs

The situation in the Red Sea has renewed the interest of ship owners in private armed guards. Deployment of such guards contributed to deter boarding by Somali pirates in the 2010s but seems less appropriate against the missile attacks of the Houthis. Nevertheless, it is reported that ship owners with ships at high risk have increased the number of guards onboard from teams of 3 to teams of 6-8, and that ship owners also take on such guards for longer periods than before. Deploying more armed guards can help reduce the additional premiums imposed by insurers on war risk cover. The costs of a three-man team for one month stand currently at around USD 30 000 (Bush, 2024).

Total costs for shipping companies

When these different cost components are added up, the additional costs for an Asia-Europe roundtrip by a median sized container ship are up to USD 1 million if the ship continues to take the Suez Canal route and USD 1.7 million if the ship takes the Cape of Good Hope route. This represents an additional cost per 40-ft equivalent unit (FEU) container into Europe of up to USD 160 via the Suez Canal or USD 272 via the Cape of Good Hope (see Table 4).

Table 4. Shipping cost increases due to Red Sea situation for median size container ships

Cost item	Via Suez Canal (USD)	Via Cape of Good Hope (USD)
Fuel costs		1 million
Charter costs		1 million
Container hire		0.3 million
Canal fees		–0.6 million
Insurance costs	Up to 1 million	
Maritime security	0.03 million	
Total additional costs per ship	**Up to 1 million**	**1.7 million**
Additional costs per 40-foot container	**Up to 160**	**272**

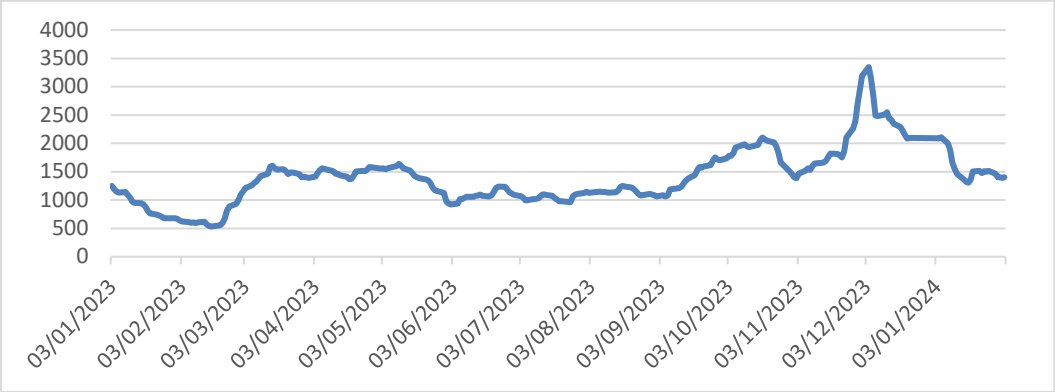
Notes: The data in this table assumes a load factor of 80%; therefore, a 12 500 TEU ship would carry 5 000 40-foot equivalent units (FEUs). A total of 80% of the costs of the round trip are assigned to the westbound trip.
Sources: Personal communication with MDS Transmodal for calculation of Cape Good Hope scenario; Bush (2024); Osler (2024); Drewry (2022) for data on Suez Canal scenario.

Costs for shippers

Shipping freight rates

Bulk shipping rates at the beginning of February 2023 are resemble those recorded at the beginning of November 2023. A spike in December 2023 saw rates triple but they then quickly declined (see Figure 5).

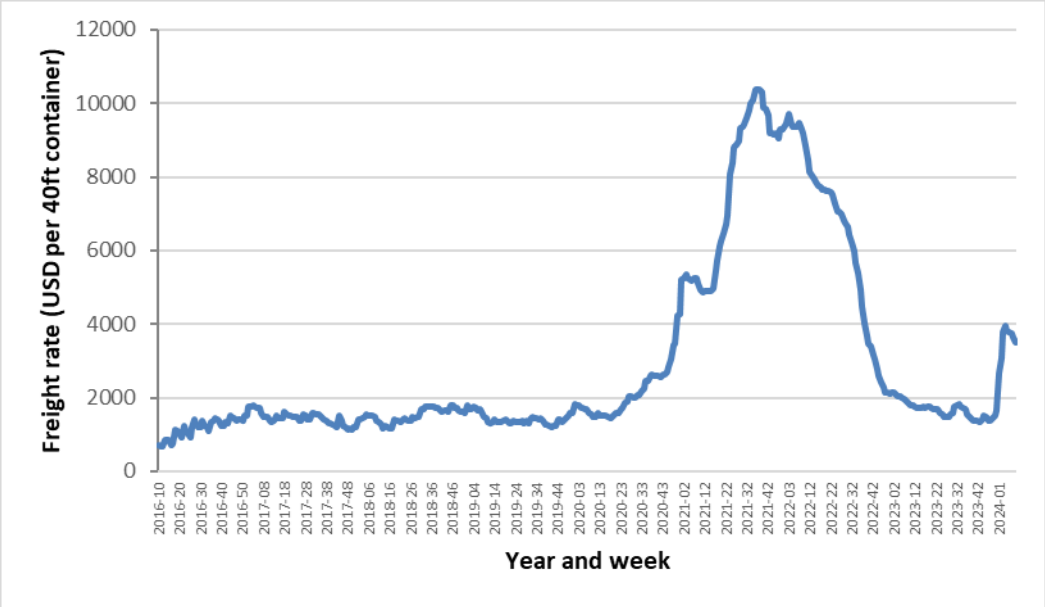
Figure 5. Daily bulk shipping rates (Baltic Dry Index), 2023-24



Source: Baltic Dry Index.

Global container shipping freight rates increased by around 130% between the beginning of November 2023 and the beginning of March 2024, reaching a peak of USD 3 964 per 40-ft container on the Drewry Global Container Index by the end of January 2024. This represents a very significant increase in container shipping freight rates, but freight levels remain well below the peak rates that were realised in 2021 – exceeding USD 10,000 - following the supply chain disruptions related to Covid-19 (see Figure 6).

Figure 6. Global container freight rates, 2016-24



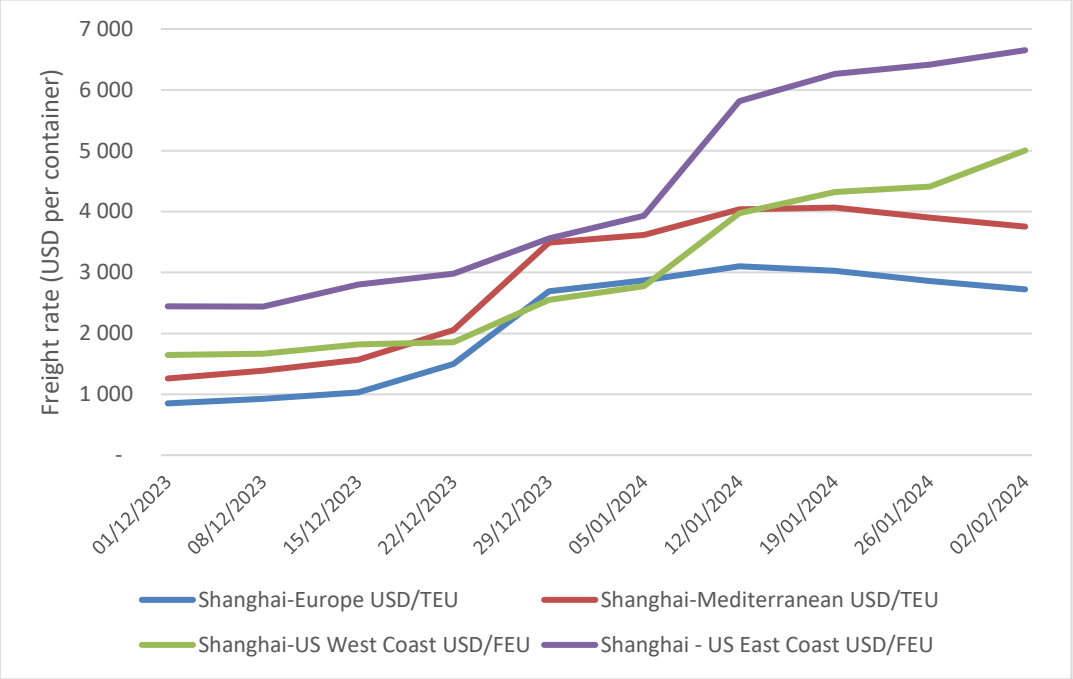
Source: Drewry.

The container freight rate for the Far-East Europe route increased by USD 1 872 (representing an increase of 220%) between 1 December 2023 and the end of January 2024, while the rate for Far East-Mediterranean route increased by USD 2 493 (or 198%), resulting in rates for transporting a 20ft container of USD 2 723 between Far East and Europe, and USD 3 753 between the Far East and the Mediterranean, according to the Shanghai Containerised Freight Index.

It is not only on these routes that rates have risen substantially. Rates for container transport between the Far East and US West Coast stood at USD 5 005 on 2 February 2024, an increase of USD 3 359 (or 204%). Rates for container transport between the Far East and US East Coast stood at USD 6 652, an increase of USD 4 206 (or 172%). As Figure 7 shows, the rate increases on these Far East-US routes have accelerated since mid-January 2024, in comparison with rates for Far East-Europe and Far East-Mediterranean routes, which have slightly declined since that date. This could be related to the shift in ship capacity from Far East-US routes to Far East-Europe routes that created more scarcity on the former and less scarcity on the latter.

Container carriers have started to impose surcharges on the regular freight rates. For example, Maersk has imposed a transit disruption surcharge (TDS) ranging from USD 200 to USD 450 per container on cargo originating from Far East Asia. Additionally, a peak season surcharge of USD 300 to USD 2 000 per container is applied for vessel sailing dates from 1 January 2024. For cargo from other regions, Maersk charges similar levels of TDS and an emergency contingency surcharge ranging from USD 100 to USD 2 100 per container (Shen, 2024). Similar surcharges are imposed by other carriers. However, there is a lack of transparency in terms of which cost increases are covered by freight rates and specific surcharges. Consequently, container transport pricing has become increasingly opaque and hard to predict for shippers and logistics services providers (Baker, 2024c).

Figure 7. Container freight rates on selected trade routes



Source: Shanghai Containerised Freight Index.

There is also a significant divergence between development of cost for shipping companies and freight rates. As indicated above, the cost increases of rerouting a median size container ship around the Cape of Good Hope amount to around USD 300 per 40ft import container, whereas the container freight rates on the Asia-Europe and Asia-North America routes have increased by around USD 1 800-4 200 per container.

Impacts on supply chains

Various manufacturing industries use sourcing models based on just-in-time management. Sudden increases in shipping times and shipping delays make just-in-time management unfeasible. Related to this, several car manufacturers, including Tesla and Volvo Car, have temporarily stopped production. Tesla suspended most car production at its factory near Berlin from 29 January to 11 February 2024, due to a lack of components after ships were re-routed around the Cape of Good Hope. Volvo Car announced in mid-January 2024 that it would pause production at its plant in Ghent, Belgium, for three days due to a delayed delivery of gearboxes (Waldersee et al., 2024).

The supply chain effects could be considerably larger in the long term if the conflict in the region escalates. The Red Sea route secures the supply of energy materials including crude oil, gasoline, LNG, coal and coke as well as metal products, both northbound and southbound. These products are used in the early stages of global value chains, including in manufacturing. An increase in costs or delays in the supply of raw materials could severely disrupt manufacturing supply chains. The rise in shipping costs could be passed on to consumers and contribute to inflation. As seen during the Covid-19 pandemic and its immediate aftermath, higher shipping charges will raise costs for traded goods. According to the OECD's Economic Outlook Interim Report for February 2024, a 100% increase in freight rates due to the Red Sea crisis, if persistent, could raise annual OECD import price inflation by close to 5 percentage points, adding 0.4 percentage points to consumer price inflation after about a year (OECD, 2024).

Costs to states

Costs of naval operations

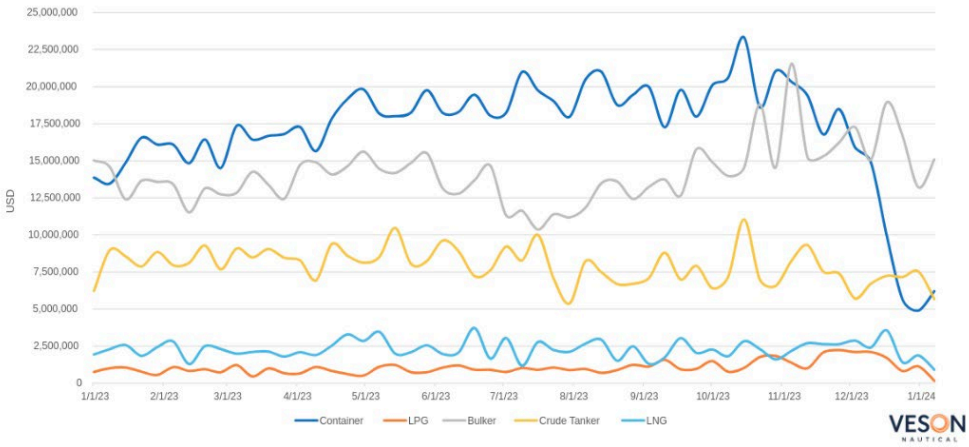
The tensions in the Red Sea have resulted in more naval ship deployment in Red Sea. Naval ships active in the region have been repositioned in or close to the Red Sea, while other countries, such as Denmark, have promised to send naval ships to the regions. Estimates of the costs of naval protection operations are rare, but existing sources suggest that these costs are substantial.

For example, an estimation of costs of naval protection against piracy in Somalia in the 2010s amounted to USD 2 billion per year (Jones, 2014). While protection of freedom of navigation seems currently to be considered a public good, it should be noted that the most concerned parties – shipping companies – hardly pay for this public service as they are practically exempt from taxation via mechanisms such as open shipping registries and tonnage tax schemes. International shipping has also been excluded from

Suez Canal revenue loss

The decrease in vessel transits in the Red Sea also has an impact on Suez Canal toll revenue, an important source of state revenue and foreign currency for Egypt. Canal fee revenues have decreased by 40%, from USD 47 million in late November 2023 to USD 28 million in the first week of January 2024. As Figure 8 shows, fee revenue notably dropped from container ships (-66%) and LPG carriers (-93%), while the canal fee revenue from bulk carriers only decreased by 7% (Rahman, 2024).

Figure 8. Weekly Suez Canal toll fees by ship type, 2023-24



Source: Veson Nautical.

Costs to the environment

The diversion of ships via southern Africa will increase greenhouse gas (GHG) emissions from shipping. How much depends on choices that shipping companies make with respect to ship speed, changes in networks and size of ships deployed. What is clear is that adding 8 500 nautical miles to the Far East-Europe round trip increases the fuel consumption by 33% (and hence GHG emissions) if speeds remain the same.

In cases where ship speed increases by 1%, fuel consumption (and therefore emissions) increases by 2.2%. Therefore, for example, if the speed on Far East-Europe container services is 16 knots, an increase to 17 knots (a 6.3% speed increase) would mean a further increase in emissions of 14%. Further increases in emissions might take place if carriers decide to use smaller container ships for part of the voyage, for example via transhipment of containers to feeder vessels in hub ports in the West Mediterranean (Baker, 2024b).

There will also be environmental impacts from ships sinking due to illegal attacks in the Gulf of Aden and the Red Sea. The *Rubymar* sank two weeks after it was attacked, with the risk that thousands of tonnes of fertiliser threaten to spill into the Red Sea, which could harm marine life, including coral reefs, and affect coastal communities that rely on fishing for their livelihoods (*The Guardian*, 2024).

Policy considerations

The current crisis in the Red Sea takes place in the context of geopolitical tensions, increased occurrence of extreme weather events and the aftermath of the Covid-19 pandemic. Considering the high degree of interconnectedness of global freight transport systems, crises in one region quickly spread to other regions in the world.

For example, to compensate for the additional shipping days caused by the rerouting via southern Africa, shipping companies have shifted ship capacity from other trade routes to the Asia-Europe route. As a result, freight rates have not only risen significantly on Asia-Europe routes, but also on other routes, such as Asia-North America.

The increased occurrence of crises and interconnectedness of transport systems calls for increased global co-ordination to ensure that freight transport systems continue to be a backbone of global supply chains.

There is limited international collaboration on shipping capacities. However, regulators' interventions can have domino effects on different jurisdictions. For example, the Chinese Ministry of Transport convoked carriers to a meeting in September 2020, demanding they normalise pricing and deploy more capacity in the trade routes to North America. In the wake of the discussion with Chinese regulators, several carriers cancelled their announced general rate increases and shifted capacity from the Asia-Europe routes to the trans-Pacific trade route. This resulted in reduced capacity on the Asia-Europe trade route and rapid increases in freight rates on that route (ITF, 2022).

Considering this interconnectedness, international co-operation between the relevant authorities should be enhanced. There are some initiatives. The US Federal Maritime Commission, the Directorate-General for Competition of the European Commission and the Chinese Ministry of Transportation meet once every two years to discuss competition in the shipping sector. There should also be wider international monitoring of competition in liner shipping. In fact, competition authorities in Australia, Canada, New Zealand, the United Kingdom and the United States have established collaboration on monitoring container shipping: a working group comprised of specialists from these countries will monitor shipowners worldwide and share intelligence to identify behaviour that restricts or distorts competition (ITF, 2022).

Transparency with respect to surcharges could be increased if governments established lists of accepted surcharges. Surcharges would seem less arbitrary if they were applied to costs incurred, if their calculation was transparent and if the carrier wore the burden of proof for the need (currently in many countries, it falls on shippers to refute the need for charges). In addition, a surcharge assessment tool could be considered that could help transport users to assess the fairness of surcharges imposed by carriers.

While protection of freedom of navigation seems currently to be considered as a public good, the most concerned parties, shipping companies, hardly pay for this public service as they are practically exempt from taxation via mechanisms such as open shipping registries, tonnage tax scheme and the exclusion of international shipping from the OECD's recent global minimum tax proposals (ITF, 2019). Increasing geopolitical tensions with spillover effects raises the question of cost recovery of naval protection of maritime shipping.

Maritime connectivity in the context of the Red Sea crisis was discussed in an extraordinary Group of Seven (G7) Transport Ministerial Meeting that took place on 20 February 2024. The ministerial declaration

released after the meeting strongly condemned the Houthi attacks and reiterated support for countries that exercise the right to defend their vessels from attacks (G7 Italia, 2024). The declaration welcomed the Aspides and Prosperity Guardian naval operations. It called for the Houthis to immediately cease their attacks, and to release the *Galaxy Leader* and its crew, which they seized on 19 November 2023.

The ministerial declaration also contained a commitment to promote safety and security of seafarers and vessels as part of government-wide responses to the Red Sea situation. It underscored the benefits of transparency for transport users on rate increases and to understand the drivers of cost and rate increases. It highlighted the role that the G7 can play in global co-ordination of policies and measures that accommodate smooth freight transport flows, including via the establishment of a G7 Working Group on Transport Supply Chains.

References

Baker, J. (2024a), "CMA CGM continues to run Red Sea gauntlet", Lloyd's List, 22 January 2024, www.lloydslist.com/LL1148021/CMA-CGM-continues-to-run-Red-Sea-gauntlet

Baker, J. (2024b), "Red Sea diversions increase box ship emissions", Lloyd's List, 22 January 2024, www.lloydslist.com/LL1148016/Red-Sea-diversions-increase-boxship-emissions

Baker, J. (2024c), "Diversion surcharges come under spotlight", Lloyd's List, 15 January 2024, www.lloydslist.com/LL1147939/Diversion-surcharges-come-under-spotlight

Bush, D. (2024), "Red Sea crisis renews interest in armed guards", Lloyd's List, 12 January, www.lloydslist.com/LL1147920/Red-Sea-crisis-renews-interest-in-armed-guards

Bush, D., Diakun, B., Raanan, T. (2024), "Somali pirate attacks add to Red Sea confusion", Lloyd's List, 31 January, www.lloydslist.com/LL1148125/Somali-pirate-attacks-add-to-Red-Sea-confusion

Carrera-Arce, M., R. Baumier and J. Hollander (2023), "A Systematic Review of Assessment Methods for Seafarers' Mental Health and Well-Being during the COVID-19 Pandemic", *Inquiry: The Journal of Health Care Organization, Provision, and Financing*, Vol. 60, November 2023, https://journals.sagepub.com/doi/10.1177/00469580231212218

Diakun, B. (2023), Yemen risk assessment: Direct threat to shipping remains low but collateral damage hazards remain, Lloyd's List, 27 January 2023, www.lloydslist.com/LL1143786/Yemen-risk-assessment-Direct-threat-to-shipping-remains-low-but-collateral-damage-hazards-remain

Diakun, B. and R. Meade (2024), "Red Sea shipping is now divided down lines of risk appetite and national security", Lloyd's List, 19 January 2024, www.lloydslist.com/LL1147985/Red-Sea-shipping-is-now-divided-down-lines-of-risk-appetite-and-national-security

G7 Italia (2024), "Declaration issued by the G7 Transport Ministers on the Red Sea escalating crisis", 20 February 2024, www.g7italy.it/wp-content/uploads/DECLARATION-G7-RED-SEA-TMM-DEF.pdf

Gray, A. (2024), "EU aiming to launch Red Sea naval mission by mid-Feb", Reuters, 31 January 2024, www.reuters.com/world/europe/eus-borrell-hopes-lead-eu-red-sea-mission-will-be-known-soon-2024-01-31/

Irish, J. and J. Saul (2024), "France patrolling with US-led Red Sea mission, focused on own ships", 11 January 2024, Reuters, www.reuters.com/world/french-military-escorting-french-ships-through-red-sea-naval-commander-2024-01-11/

ITF (2023), "Water transport employment: The role of governance", International Transport Forum Policy Papers, No. 119, OECD Publishing, Paris, https://doi.org/10.1787/e9f90e70-en

ITF (2019), "Maritime Subsidies: Do They Provide Value for Money?", International Transport Forum Policy Papers, No. 70, OECD Publishing, Paris, https://doi.org/10.1787/919d4222-en

ITF (2022), "Performance of Maritime Logistics", International Transport Forum Policy Papers, No. 106, OECD Publishing, Paris, https://doi.org/10.1787/8e06fcd1-en

ITF Seafarers (2024), "Seafarer abandonment figures for 2023 a cause for concern; press release", https://www.itfseafarers.org/en/news/seafarer-abandonment-figures-2023-cause-concern

Jones, S (2014), "Maritime piracy and the cost of world trade", *Competitiveness Review*, Vol. 24/3, www.emerald.com/insight/content/doi/10.1108/CR-02-2013-0008/full/html

Nightingale, L. and B. Diakun (2024), "Almost all ultra large box tonnage sailing round Cape of Good Hope", Lloyd's List, 23 January 2023, www.lloydslist.com/LL1148034/Almost-all-ultra-large-box-tonnage-sailing-round-Cape-of-Good-Hope

Notteboom, T., H. Haralambides and K. Cullinane (2024), "The Red Sea Crisis: Ramifications for vessel operations, shipping networks, and maritime supply chains", *Maritime Economics & Logistics,* https://doi.org/10.1057/s41278-024-00287-z

OECD (2024), *OECD Economic Outlook, Interim Report February 2024: Strengthening the Foundations for Growth*, OECD Publishing, Paris, https://doi.org/10.1787/0fd73462-en

Osler, D. (2023), "Some London underwriters not quoting Israeli shipowners", Insurance Day, 12 December 2023, www.insuranceday.com/ID1147459/Some-London-underwriters-not-quoting-Israeli-shipowners-for-Red-Sea-transits

Osler, D. (2024), "Red Sea war risk rates see huge jump in wake of Yemen airstrikes", Insurance Day, 18 January 2024, www.insuranceday.com/ID1147788/Red-Sea-war-risk-rates-see-huge-jump-in-wake-of-Yemen-airstrikes

Raanan, T. (2024), "Houthis answer US-led coalition threat with first launch of drone vessel in Red Sea", Lloyd's List, 4 January 2024, www.lloydslist.com/LL1147826/Houthis-answer-US-led-coalition-threat-with-first-launch-of-drone-vessel-in-Red-Sea

Rahman, R. (2024), "Suez Canal toll revenues decline amid Red Sea tensions", Port Technology International, 7 February 2024, www.porttechnology.org/news/suez-canal-toll-revenues-decline-amid-red-sea-tensions/

Reuters (2024), "Italy to supply admiral for EU Red Sea naval mission", 2 February 2024, www.reuters.com/world/europe/italy-supply-admiral-eu-red-sea-naval-mission-2024-02-02/

Shen, C. (2024), "Maersk Red Sea avoidance drives new fees on shippers", Lloyd's List, 5 January 2024, www.lloydslist.com/LL1147827/Maersk-Red-Sea-avoidance-drives-new-fees-on-shippers

The Guardian (5 March 2024), "Sinking of Rubymar in Red Sea poses grave environmental risks, experts warn", www.theguardian.com/world/2024/mar/05/sinking-of-rubymar-in-red-sea-poses-grave-environmental-risks-experts-warn

The White House (2024), "Statement from National Security Advisor Jake Sullivan on the Terrorist Designation of the Houthis", 17 January 2024, www.whitehouse.gov/briefing-room/statements-releases/2024/01/17/statement-from-national-security-advisor-jake-sullivan-on-the-terrorist-designation-of-the-houthis/

UN Security Council (2023), "Security Council Press Statement on Houthi Threats to Security at Sea", 1 December 2023, United Nations Security Council, SC/15513, https://press.un.org/en/2023/sc15513.doc.htm

UN Security Council (2024), "Resolution 2722 (2024), Adopted by the Security Council at its 9527th meeting, on 10 January 2024", United Nations Security Council, S/RES/2722(2024), https://documents.un.org/symbol-explorer?s=S/RES/2722%20(2024)&i=S/RES/2722_(2024)_2732614

Waldersee, V., A. Ringstrom and M. Mannes (2024), "Tesla, Volvo Car pause output as Red Sea shipping crisis deepens", Reuters, 13 January 2024, www.reuters.com/business/autos-transportation/tesla-berlin-suspend-most-production-two-weeks-over-red-sea-supply-gap-2024-01-11/

Wright, R. (2024), "'Opportunistic' Chinese lines send ships to serve Red Sea ports", *Financial Times*, 25 January 2024, www.ft.com/content/41b3491c-d6b3-4da0-a272-239e51cfd7c6