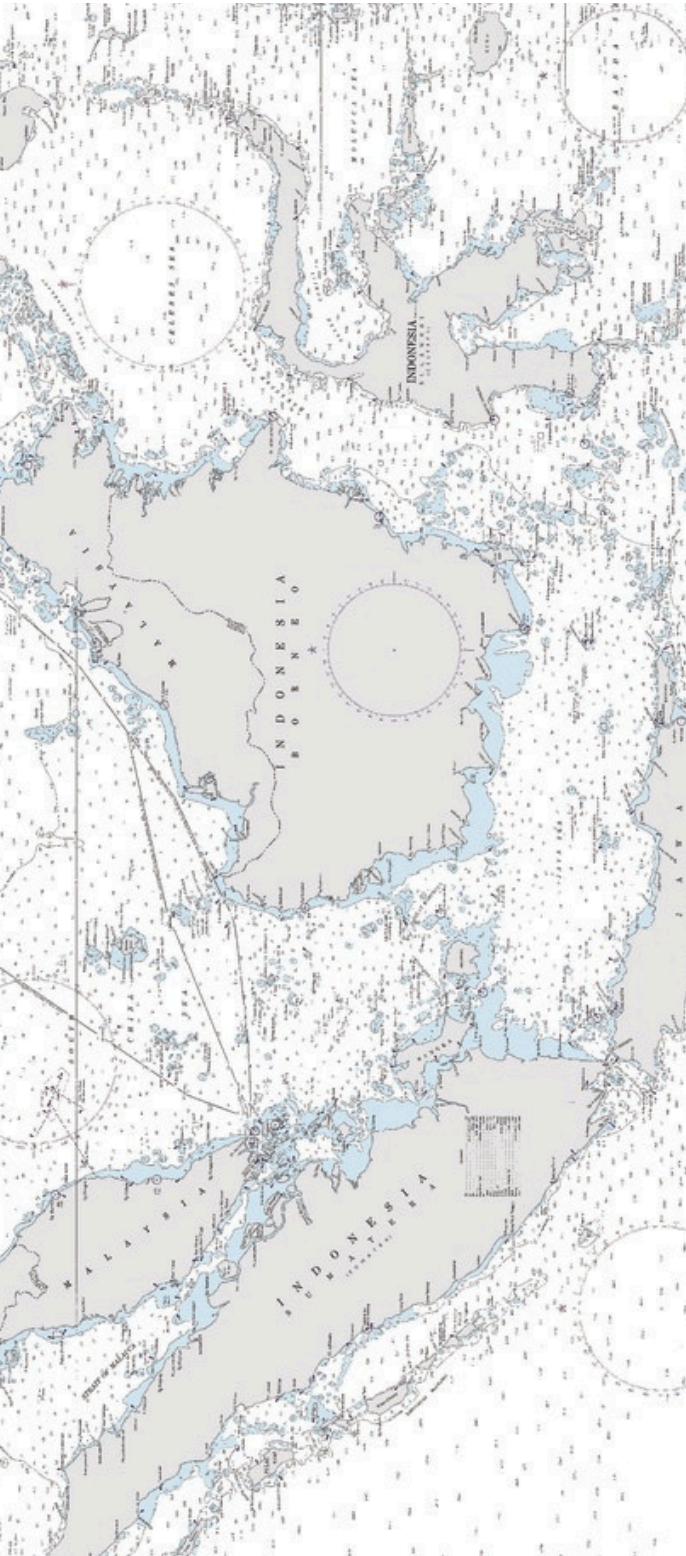# CIL GUIDE TO TRACKING SHIPS IN THE DARK FLEET

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CONTENTS

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Executive Summary

Purpose

Unsafe and uninsured tankers in the 'dark fleet' which facilitate the transfer of Western-sanctioned oil from Russia, Iran, and Venezuela pose increasingly grave threats to coastal States. These oil tankers frequently engage in unsafe and illegal practices including ship-to-ship (STS) transfers which significantly increase the risks of oil spills or collisions with other vessels. In addition, the owners of tankers in the dark fleet often have no liability insurance for oil pollution damage to coastal States.

Hence, the authors sought to research whether the currently available computer platforms could be used by the maritime administration of a coastal State to enhance its maritime domain awareness in order to identify tankers in the 'dark fleet' that pose a threat to the marine environment and the safety of shipping in its maritime zones.

In drafting this Guide, the authors considered various ways in which an administration could collect information on such tankers to boost their maritime domain awareness, including the use of six open access platforms, and one paid subscription-based platform, *Seasearcher* by Lloyd's List Intelligence (LLI).

To test the viability of employing subscription-based platforms, the one paid subscription-based platform which the authors analysed was the *Seasearcher* platform in combination with *Lloyd's List's Dark Fleet Watchlist*. *Seasearcher* was highly useful and provided substantial time savings. The authors were able to analyse the issues using *Seasearcher* because LLI was kind enough to grant CIL a trial subscription.

Summary of Findings

None of the platforms examined by the authors, including *Seasearcher*, are designed for the specific purpose of aiding maritime administrations in identifying the dark fleet's threat to their marine environment and to navigational safety.

While there are many widely available open access platforms, they have generally limited advanced searching or filtering functions and tend to report unfiltered, raw data which do not discern situations of deceptive practices such as AIS signal manipulation. Furthermore, information such as the identity of a ship's beneficial owner(s), or whether a ship has valid Protection and Indemnity (P&I) insurance cover outside of the major Clubs, is unavailable. Therefore, the authors concluded that open access platforms suffer from severe limitations that would make it very difficult for them to be used by maritime administrations to locate tankers In the dark fleet.

Conversely, the authors concluded that *Seasearcher,* a subscription-based platform, could be utilised by maritime administrations in coastal States to enhance their maritime domain awareness with regard to tankers in the dark fleet. This is the case even though *Seasearcher* was designed for other purposes, namely for "maritime professionals…to offer actionable insights that help manage risks, ensure compliance, and capitalise on global trade opportunities".[2] Coastal States might also find it useful to employ other subscription-based platforms such as *TankerTrackers*, S&P Global's *IHS Maritime*, or *Windward AI* as they may yield similar results. However, the only subscription based platform that the authors have tested was *Seasearcher.*

As far as the authors are aware, there are no paid subscription platforms specifically designed to identify the threats posed to maritime administrations from dark ships and STS transfers. In the absence of such a dedicated platform, the authors attempted to devise four methods that could be employed by a maritime administration to adapt the functionalities of *Seasearcher* for the purposes of identifying ships in the dark fleet: i) geographical and time-based filtering; ii) compliance risk indicator; iii) Lloyd's List Intelligence's Dark Fleet Watchlist; and iv) STS Pairings. These functions allow for easy identification of non-compliant, risky tankers, and they have data processing tools which identify AIS gaps and correlate data in order to identify possible areas where a ship is likely to do a ship-to-ship transfer of sanctioned oil, and in some cases, they can even identify the location of STS transfers.

However, one limitation of *Seasearcher* is that it does not incorporate satellite imagery. Therefore, it cannot be used to detect the location of tankers that switch off their AIS entirely. Unfortunately, this practice by tankers in the dark is prevalent in some regions.

Finally, the authors believe that it would be in the interests of the States imposing sanctions to work with companies to develop software that will enable maritime administrations in coastal States to enhance their maritime awareness by tracking tankers in the dark fleet.

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[2] See, https://www.lloydslistintelligence.com/products/seasearcher.

Introduction

What is the dark fleet

Since the imposition of trade sanctions on Russia, Iran, and Venezuela by the United States and the European Union, a number of oil tankers have joined the dark fleet. These dark tankers tend to be a popular option for facilitating the evasion of these sanctions because they often engage in STS transfers while having their AIS signals turned off or spoofed, making them difficult to detect; and are flagged in States that are either incapable or uninterested in enforcing them. They also tend to be ships which do not comply with international safety and environmental regulations of the IMO. This fleet comprises some 600 to 1400 ships[3] which the IMO has described as ships "engaged in illegal operations for the purposes of circumventing sanctions, evading compliance with safety or environmental regulations, avoiding insurance costs or engaging in other illegal activities".[4]

Examples of these include (**a**) carrying out "unsafe operations which do not adhere to international regulations and […] industry standards", (**b**) "intentionally avoiding flag State and port State control inspections", (**c**) "not maintaining adequate liability insurance" as required under the 1992 Civil Liability Convention (CLC), and (**d**) "intentionally taking measures to avoid ship detection" by improperly switching off or spoofing AIS or LRIT transmissions.[5]

Additionally, these vessels utilise STS transfers to obscure the origins of their cargo. In doing so, they often fail to comply with requirements under the IMO's International Convention for the Prevention of Pollution from Ships (MARPOL). MARPOL requires ships engaging in STS operations within a coastal State's exclusive economic zone (EEZ) to provide prior notice to that State at least 48 hours in advance. [6] These unsafe and illegal practices pose serious risks in terms of pollution (from spills) and safety of navigation (from collisions) to coastal States and their maritime zones. The collision between the tankers, *Ceres I* and *Hafnia Nile*,[7]

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[3] E Braw, 'Russia's Growing Dark Fleet: Risks for the Global Maritime Order' Atlantic Council (11 January 2024), available at https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/russias-growing-dark-fleet-risks-for-the-global-maritime-order/.

[4] IMO Assembly, Resolution A.1192(33), Urging Member States and all Relevant Stakeholders to Promote Actions to Prevent Illegal Operations in the Maritime Sector by the Dark Fleet or Shadow Fleet, adopted on 6 December 2023 at the 33rd Session.

[5] *Ibid*; Regulation 19 and 19-1, Chapter V SOLAS 1974; Chapter 8 of Annex I MARPOL 73/78.

[6] Regulation 42, Annex I MARPOL 73/78.

[7] 'Investigators Start to Examine Collision That Sparked Fires on Hafnia Tanker and Sanctions-Busting VLCC' Lloyd's List (19 July 2024) https://www.lloydslist.com/LL1149957/Investigators-start-to-examine-collision-that-sparked-fires-on-Hafnia-tanker-and-sanctions-busting-VLCC accessed 9 September 2024.

which was reported in the press to have involved a dark tanker,[8] as well as the explosion of the *Pablo*,[9] are stark illustrations of these risks.

Why track the dark fleet

Given the threat of the dark fleet, it is likely to be in the national interests of coastal States to obtain an awareness of the presence of any dark fleet tankers operating in their maritime zones; and if so, to collect details about these vessels and their operations. This can aid Administrations as they explore options to address this threat,[10] especially via bilateral cooperation or multilateral solutions at the IMO.

As maritime administrations vary in their capacities, this Guide will examine the suitability of both open access and subscription-based platforms to track the dark fleet and outline the differences between them, allowing coastal States to decide what approach to opt for, depending on their needs. This Guide neither aims to provide an exhaustive list of platforms nor a review of one platform against another; the authors are platform-agnostic and no criticism is intended towards any specific platform. The authors also do not intend to endorse any particular platform by featuring them as illustrations in this Guide.

States, particularly those situated in subregions which share a common interest in cooperation, can then consider information sharing to fuse information from various sources. An example is a dedicated database which has been developed by several flag States to exchange information on vessels engaging in flag-hopping or sanctioned activities.[11] The information contained in this Guide could also complement the creation of such State-to-State databases. This Guide also highlights gaps in vessel information provided by these platforms which can be

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[8] 'Malaysia Coast Guard intercepts 'dark fleet' tanker Ceres I involved in collision off Singapore' Lloyd's List (22 July 2024) https://www.lloydslist.com/LL1149974/Malaysia-Coast-Guard-intercepts-dark-fleet-tanker-Ceres-I-involved-in-collision-off-Singapore accessed 14 January 2025; 'CNA Explains: What we know about a hit-and-run off Pedra Branca involving an alleged 'dark ship'' CNA (29 July 2024) https://www.channelnewsasia.com/singapore/cna-explains-hit-and-run-sea-and-role-alleged-dark-ship-4506391 accessed 14 January 2025; 'Dark fleet oil tanker caught in recent collision heads to China' The Business Times (24 October 2024) https://www.businesstimes.com.sg/companies-markets/transport-logistics/dark-fleet-oil-tanker-caught-recent-collision-heads-china accessed 14 January 2025; 'Malaysian Coast Guard Intercepts Dark Fleet Tanker CERES I After severe Collision' MariTimes Crimes (23 July 2024) https://maritimescrimes.com/2024/07/23/malaysian-coast-guard-intercepts-dark-fleet-tanker-ceres-i-after-severe-collision/ accessed 14 January 2025.
[9] 'Three Crew Missing after Fire Breaks out on Tanker off Southeast Malaysia' Lloyd's List (1 May 2023) https://www.lloydslist.com/LL1144931/Three-crew-missing-after-fire-breaks-out-on-tanker-off-southeast-Malaysia accessed 9 September 2024.
[10] For more information on these potential options, *see* this blog post published previously by CIL: https://cil.nus.edu.sg/blogs/the-2023-imo-assembly-resolution-enables-states-to-challenge-the-dark-fleet-that-threatens-the-marine-environment/
[11] Named the Registry Information Sharing Compact (RISC), the system is an open access online platform. The Liberian Registry has worked with flag states Panama and the Marshall Islands as well as the US Department of State to develop and launch this database: https://www.rivieramm.com/news-content-hub/news-content-hub/liberian-registry-launches-risc-database-on-problem-ships-81910#msdynttrid=DAW_w1PNj6ESChcE3uRDfhS36Qo8AGGK7zPvHYFaFkU

filled through government collaboration with various industry actors (e.g. insurers or trade groups) and pooling together available resources and expertise.

At this juncture, it is vital to note that there are two concerning aspects with respect to the 'dark fleet': (**i**) safety and environmental risks posed by these old and un(der)regulated vessels, and (**ii**) their role in facilitating sanctions evasion. While the former is of concern to all coastal States given the collision and pollution risks, not all States agree with the latter aspect.

This Guide is concerned with aiding all States in identifying <u>unsafe and uninsured oil tankers</u> (thereafter termed as 'target vessels') because they pose a universal risk. It will focus on their compliance with international regulations, especially those identified earlier. Insurance cover is repeatedly prioritised in this Guide because the risks of pollution from unsafe vessels might translate into a spill or collision; and the first recourse for affected States, if they are a State Party, is a claim from mandatory insurance required under the 1992 Civil Liability Convention (CLC).

This Guide is *not* concerned with identifying sanctioned vessels or the origins of their cargos. This delimitation of scope reflects a recurrent theme throughout this Guide — there is, in fact, substantial heterogeneity in what a 'dark ship' is, thus the criteria for determining which vessels are monitored must be tailored to the specific needs of Administrations.

To illustrate, this Guide will focus primarily on the area around Singapore and Malaysia's maritime zones given the authors' familiarity (thereafter termed as the 'target area').

Open Access Platforms

There are a large number of open access platforms available, although many also provide a premium subscription plan with additional functions behind a paywall. Open access platforms are understandably limited in their functions; however, a preliminary idea of tanker traffic in a coastal State's maritime zones and some basic information on the tankers' profiles may be formed from utilising a combination of various open access platforms. Some platforms which we have examined include:

a. _VesselFinder_: A web-based application where vessels can be searched by ship type and flag. Basic information is available, including vessel name, age, IMO number, the latest ports of origin and destination, and a 1-day AIS transmission history.

b. _MarineTraffic_: A web-based application providing information similar to the above.

c. _Equasis_: This website contains information on the vessels' inspection records, prior flags and names, as well as the classification societies with whom the vessels are registered.

d. _IGP&I_: This website provides information on whether valid insurance certificates have been issued to vessels by Protection and Indemnity (P&I) Clubs which are members of the International Group (IG).[12] Aside from P&I cover, this website also provides information on whether a 'Blue Card' has been issued to vessels — a certificate issued by a P&I Club proving that the vessel owner has adequate insurance or financial security covering its potential liability in event of a spill under various pollution conventions such as the CLC.[13]

e. _SENTINEL_ Satellite Imagery: _SENTINEL_ provides satellite imagery available once every 2-5 days for a given area. This can be used to ascertain the presence of STS operations.

f. IMO Global Integrated Shipping Information System (_GISIS_): The _GISIS_ portal allows vessel details to be viewed as long as the vessel is issued with an IMO number. This is a useful feature because the IMO number stays with the vessel even if it is re-registered under multiple flags or names. Member States and the public are able to access this platform with an IMO web account.[14]

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[12] At time of writing in September 2024, this is the link to search for vessel insurance: https://www.igpandi.org/vessel-search/

[13] For an explanation of the Blue Card: https://www.shipownersclub.com/latest-updates/publications/blue-cards-issuance-registered-owners-only/

[14] Note that the IMO numbers for vessels and companies are administered by IHS Maritime, which is a product of S&P Global — a platform that some maritime administrations might already be subscribed to which provides the same data.

Methodology

VesselFinder and *MarineTraffic* offer the ability to search for vessels by their flag. In a limited survey conducted previously by NUS student researchers,[15] tankers from seven high-risk flags that have either been fraudulently used (i.e. the vessel was not properly registered and authorised to fly its flag) or are known to be commonly used by the dark fleet were examined over a given time period. Vessels that were not in service or that were not in the target area (i.e. maritime zones around Singapore and Malaysia) in the given time period were excluded.

The *IGP&I* portal was then used to verify that the target tankers hold valid insurance cover with one of the 12 International Group (IG) P&I Clubs. For vessels which did not display any insurance cover on the *IGP&I* portal, *Equasis* was then used to (i) verify that the tankers were validly classed, and (ii) obtain their Port State Control inspection records (i.e. to understand whether the tankers have been previously detained and what were the deficiencies observed during the inspections).

That said, since the open access versions of the platforms (*VesselFinder* and *MarineTraffic*) do not offer historical AIS data beyond one day, it was only possible to search for vessels on a real-time basis when conducting this survey.

Subsequently, the authors verified the data from the initial survey by the student researchers against the IMO *GISIS* platform and Lloyd's List Intelligence's (thereafter, 'LLI') *Seasearcher* application (a subscription-based platform; *see [the section on subscription-based platforms](#)*).

Findings

When the above methodology was implemented by student researchers in June 2024, this method yielded a search result of around 20 tankers in the target area with no insurance cover provided by IG's member clubs (*see* [Appendix](#)). Most of these tankers also did not have any known class certification; in fact, many of them had their class certificates withdrawn by classification societies (class societies). Many of these vessels showed behaviours of frequent re-flagging, often hopping between more and less reputable registries. These vessels were also either coming to or from ports in Russia, India, Iran, and China.

When data from the initial survey by student researchers were subsequently verified against the IMO *GISIS* platform, several discrepancies between *GISIS* and the various platforms from the student survey were discovered, including outdated information about vessel names and flags. For instance, the vessel *Four Plus* (IMO: 9203930) was correctly named by *VesselFinder*, but was still registered as *Yong Xin* in *Equasis* — despite having already undergone two name changes.

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[15] The authors wish to thank Mr. Jainthan s/o Jayaretnam and Mr. Kenneth He Zhi Jing for conducting a most thorough initial survey.

In addition, data provided by *Equasis* on registration with classification societies appeared to be somewhat inconsistent. When checked against LLI's *Seasearcher* application, several vessels were noted to have outdated or inaccurate class records. The vessel *Mars* (IMO: 9040235) was noted to have been previously classed by the Singapore Bureau of Shipping until December 2023; but this was contradicted by *Seasearcher*, which indicated that no such record exists. Furthermore, it is unclear whether the Singapore Bureau of Shipping is even a class society that is still in existence.

Similarly, information on whether a vessel is still in operation is difficult to come by. IMO's *GISIS* and *Seasearcher* both listed the *EM Longevity* (IMO: 9212864) as 'scrapped' in 2021 (as confirmed by ship breaker reports), but *VesselFinder* and *MarineTraffic* are still tracking the vessel (*see* Fig. 1). It was only possible to get a definitive answer via *Seasearcher*'s 'Ask the Analyst' service,[16] which confirmed that a secondary vessel, *Full Wood* (purportedly registered in Eswatini), is fraudulently transmitting its AIS signal using the IMO number formerly assigned to the *EM Longevity*.

This demonstrates the vulnerability of open access AIS-based platforms to spoofing and Maritime Mobile Service Identity (MMSI)[17] manipulation; unlike the data available on the IMO *GISIS* platform (which is received from the relevant flag State), both *VesselFinder* and *MarineTraffic* were not alerted to the vessel's latest registry updates.

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[16] The 'Ask the Analyst' service procures the assistance of Lloyd's List Intelligence staff in answering queries requested by users of the *Seasearcher* platform.
[17] For more information on MMSI and deceptive shipping practices, *see* https://windward.ai/glossary/what-is-maritime-mobile-service-identity-mmsi/.

Fig. 1: Screenshot of *VesselFinder* taken on 2 September 2024

Limitations of Open Access Platforms

Admittedly, some of these platforms also have more advanced functions behind a paywall. Predictably, significant limitations exist when relying solely on open access platforms without purchasing their premium features. In this regard, these platforms are best used as a preliminary filter by starting from identifying the most likely registries for the dark fleet to be registered under, and subsequently screening for various factors such as lack of valid class and insurance further elevate the vessel's risk profile.

However, this is not representative of whether vessels are definitively unsafe or uninsured as the authors were unable to obtain information on whether the vessels have engaged in any deceptive shipping practices (e.g. AIS signal manipulation or STS transfers to sanctioned vessels) from any of the open access platforms. In fact, several vessels which we identified did not seem to be performing anything illegal — such as the *Lotus River* (IMO: 9005194) which appears to be docked permanently at a shipyard in Batam, Indonesia.

When cross-checked against a subscription-based platform, *Seasearcher*, only 17 of the 22 vessels identified through the open access platforms had a red risk indicator.[18] 5 of the 22 were on the dark fleet watchlist maintained manually by the Lloyd's List's editorial team.[19] That said, merely utilising open access platforms runs the risk of returning false positives. It must be noted that some vessels appeared to fit the Lloyd's List criteria but were not yet included in the watchlist because they had only been recently acquired by a new owner and were still in the process of being monitored (e.g. the *Xing Chen*; IMO: 9686440). Lloyd's List Intelligence, via the Ask the Analyst function on *Seasearcher*, had advised that it was awaiting further indication of the *Xing Chen* engaging in sanctioned oil trades. Contrastingly, on the paid subscription platform *Seasearcher,* the vessel had a red risk indicator due to several port calls in Russia.

Additionally, 'hunting' for vessels based on indicators such as flag and insurance cover (e.g. screening for certain disreputable flags) is an exceedingly laborious process which requires reviewing thousands of vessels that fit the initial filter. The authors' search for dark ships using this method was manpower intensive, required several days to complete, and had likely missed some suspect vessels (e.g. those registered with better flags). Therefore, this search method is unlikely to be a sustainable or comprehensive solution for engaging in real-time monitoring of interested vessel tankers that are within a coastal State's maritime zones.

Consequently, for further information on STS transfers, the use of other platforms beyond those which provide vessel information is necessary.

Satellite Sources

Satellite sources are separated from the previous analyses because they do not, in isolation, provide any vessel information — they merely indicate that certain vessels physically exist at a geographical location and might be engaging in STS operations. However, satellite sources can be pivotal to identifying STS operations in near-real-time.

While there are many sources of satellite imagery, one free platform is the Copernicus Browser[20] that extracts images from the EU's Copernicus *SENTINEL* satellites. These satellites pass over the same area minimally once every five days, typically with a higher frequency (2-3 days).

The importance of satellite data can be seen in the following comparison between *SENTINEL*-2's satellite image (*see* Fig. 2) and *Seasearcher*'s AIS data (*see* Fig. 3) from 3 September 2024 at around 03:00 UTC. As a point of reference, the vessel *FT Island* (IMO: 9166675) transmitted the same AIS location as the fourth vessel from

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[18] *See* the section on Seasearcher's compliance risk indicator feature below.
[19] For more information on the list, *see* https://www.lloydslist.com/LL1144787/Shifty-shades-of-grey-The-different-risk-profiles-of-the-dark-fleet-explained.
[20] *See*, https://browser.dataspace.copernicus.eu/

the bottom in the satellite image (*see* yellow arrow in Fig. 4). At least two possible STS operations can be identified in the satellite image (at the very bottom and top of the image) given that there were two pairs of vessels which appeared to be moored to each other. At times, however, this information is difficult to obtain using AIS signals alone.
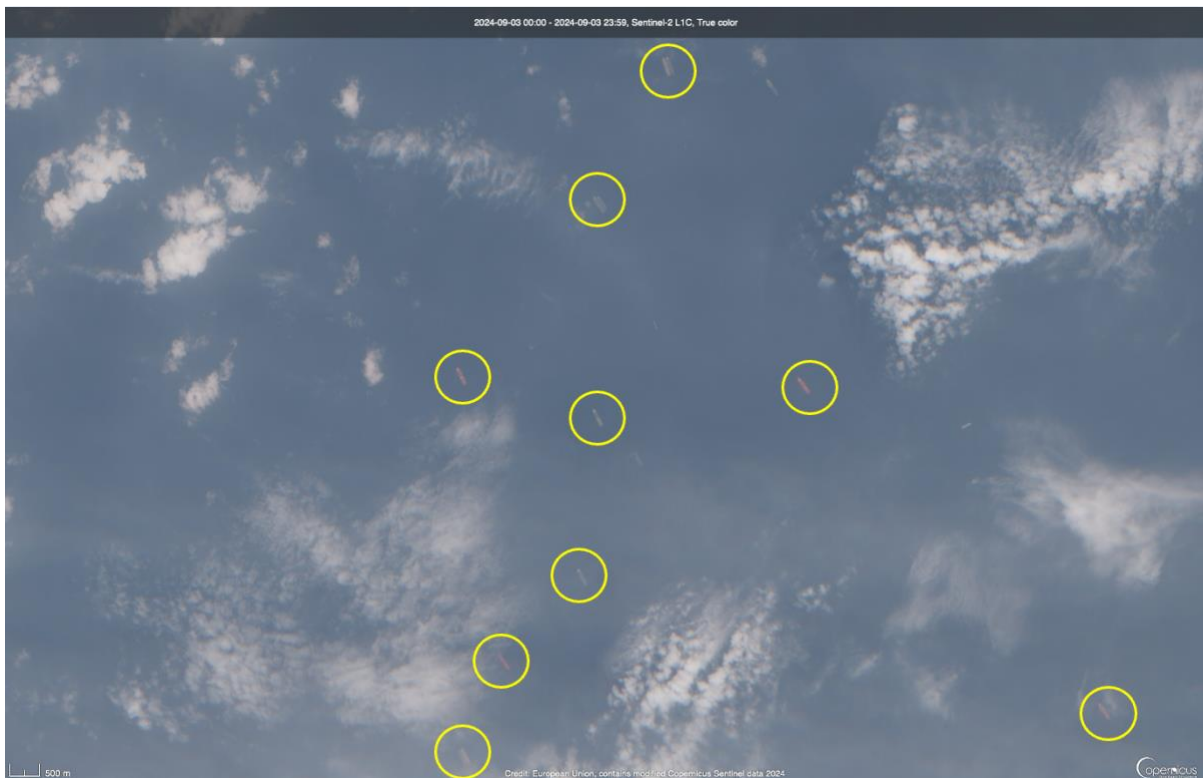
Fig. 2: *SENTINEL*-2 satellite imagery on 3 September 2024 with vessels circled
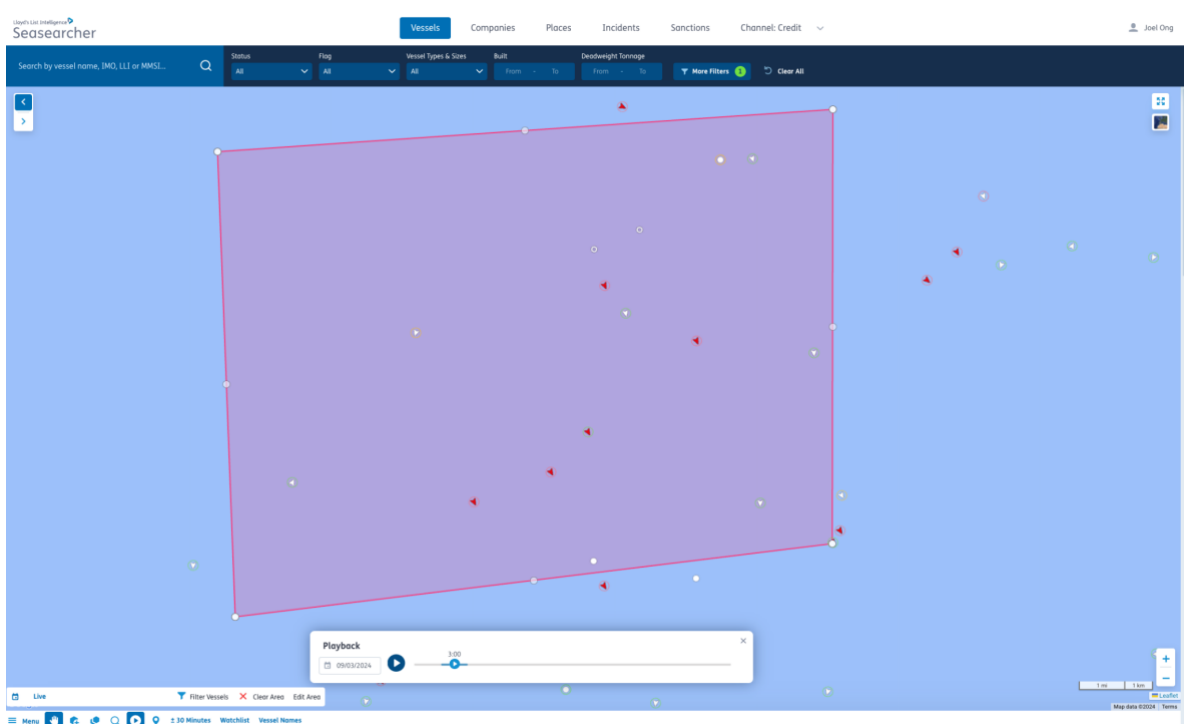
Fig. 3: *Seasearcher* geographic search of the same location on 3 September 2024
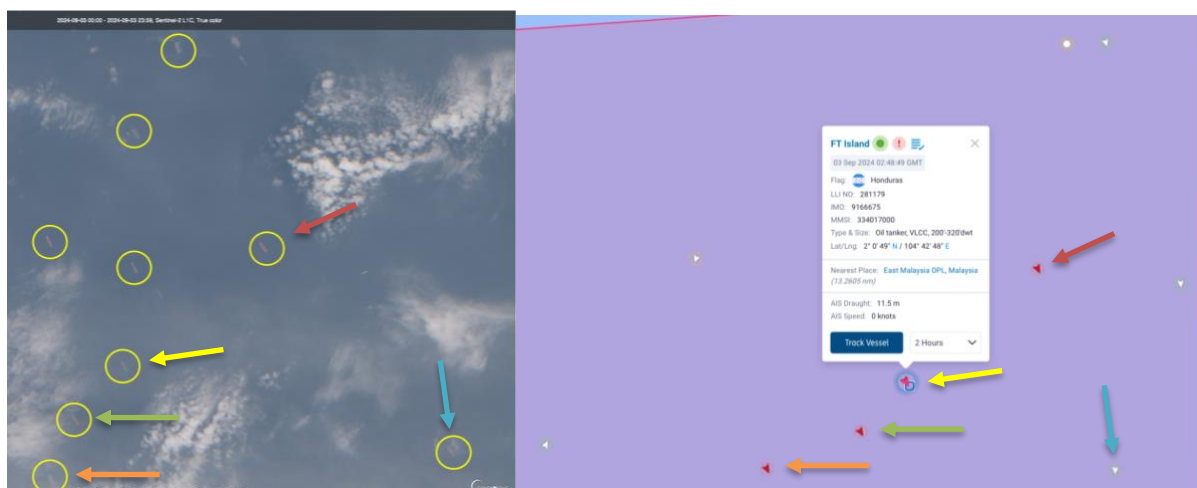
Fig. 4: Location of the *FT Island on satellite imagery and Seasearcher's AIS-based snapshot. Different coloured arrows visually indicate the possible matches of vessels (only FT Island was definitively identified)*

Limitations of Satellite Imagery

Satellites, however, possess some constraints — namely obscure images due to cloud cover or bad weather and infrequent overflight (a satellite passes over an area of interest between every 2-5 days). Additionally, as illustrated by Figure 4, human analysis is often required to accurately and comprehensively identify vessels from satellite imagery which have their AIS turned off and/or are engaging in STS operations. Although the use of Artificial Intelligence (AI) can assist in this process, it was noted in discussions with a satellite analyst tracking STS transfers that AI tools would identify, on average, fewer sightings than a trained human eye could. This means that, on its own, the use of AI is less comprehensive in detecting dark ships from satellite imagery.

Most importantly, additional resources are required to correlate a STS sighting with the suspect vessels' details and identities; even then, there are interoperability challenges – it is often difficult to find a good correlation in terms of their relative geographic positions given the difference in scale of maps across different resources. This 'vessel-matching' functionality is something that the open access platforms examined, and most subscription-based platforms, do not offer.

Subscription-based Platforms

Seasearcher by Lloyd's List Intelligence

Lloyd's List Intelligence had kindly offered CIL a trial of their *Seasearcher* platform, which is used in this Guide as an example of a subscription-based platform. There are other platforms (e.g. S&P Global's *IHS Maritime, Windward AI*[21]), but this Guide merely seeks to illustrate the dearth of data between open access and subscription-based data by using *Seasearcher* as an industry benchmark.

Seasearcher is a vessel tracking platform by Lloyd's List Intelligence which provides compliance tools, vessel data, and the ability to detect suspicious shipping practices. In addition, it offers the Lloyd's List's dark fleet watchlist, which is compiled using human intelligence and other sources of qualitative information to provide insights on vessels of interest that may not fall within the machine-learning based criteria for suspicious activities. When utilising *Seasearcher*, a significantly more sophisticated understanding of tanker activities can be developed. The granularity of data collected was much greater, which would enable a more calibrated response based on a vessel's specific risk profile.

This Guide aims to illustrate how a maritime administration might leverage *Seasearcher* or other subscription-based platforms to increase its maritime domain awareness — and in doing so, identify some potential limitations of such platforms.

Methodology for Initial Vessel List
Geographical and Time-based Filtering

A leading feature of *Seasearcher* is the ability to filter for vessel traffic by geographic region and time period, including historical vessel traffic data. The target area was defined via a user-drawn polygon area marked in red (*see* Fig. 5). The vessel search function was then utilised to filter for **oil tankers** (excluding product tankers of less than 10 deadweight tonnage (DWT)) over **13 years of age** that have passed through the **target area between 1 Jun 2024 and 31 Aug 2024** (*see* Fig. 6). Product tankers have been excluded as these vessels typically transport refined products instead of crude oil, and are, in any case, too small to be economical as a part of the dark fleet.

When the search was run, 825 tankers were found. This included the infamous *Ceres I* (IMO: 9229439) that was involved in a collision off the coast of Pedra Branca.

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[21] See, https://windward.ai/.
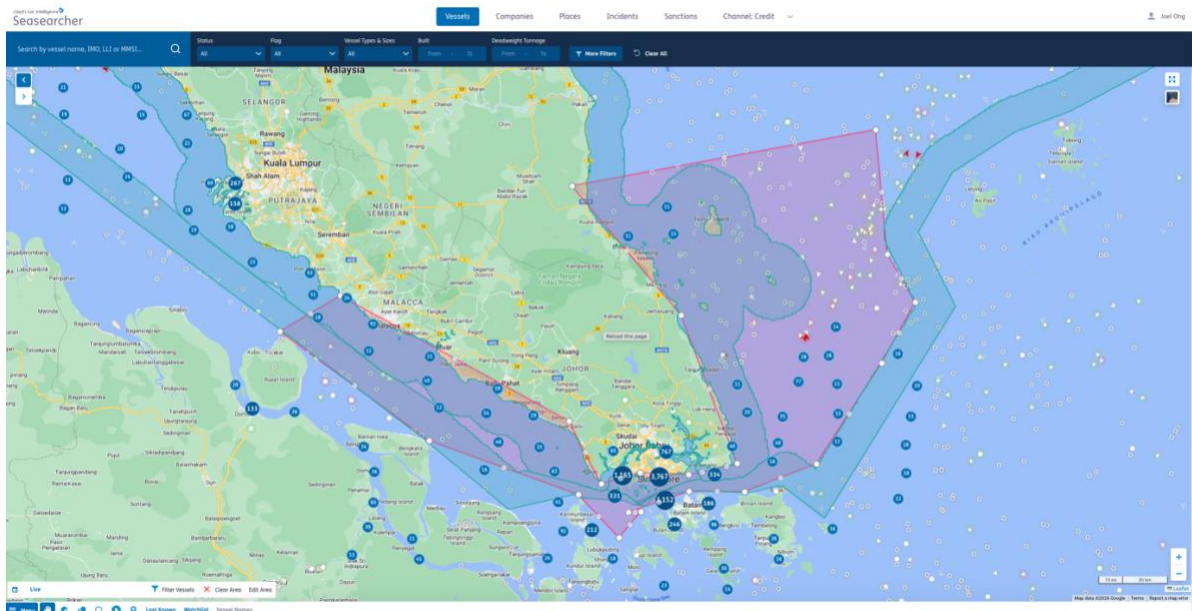
Fig. 5: Defining area of interest via user-drawn polygon
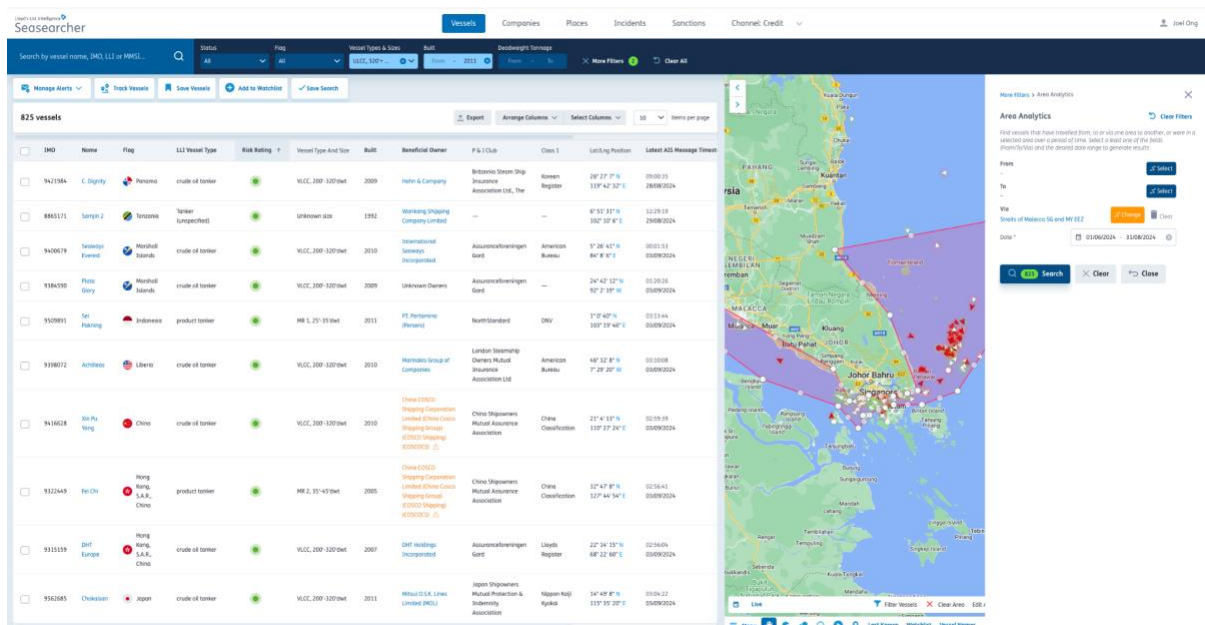
Fig. 6: Filtering by vessel specifications, area, and time period

The search results could then be exported into a spreadsheet for more efficient analysis. Out of the 825 tankers identified, some notable statistics included:

- **295 tankers** did not possess any known P&I cover (Note: this does not automatically mean that the tanker is uninsured; only that *Seasearcher* does not have further information on the matter. However, *Seasearcher* includes most reputable P&I Clubs);
- **216 tankers** had unknown beneficial owners;
- **161 tankers** had no known P&I cover *and* an unknown beneficial owner;
- **49 tankers** were under US Office of Foreign Assets Control (OFAC) sanctions;

- **30 tankers** were flagged by Iran, Venezuela, and Russia;
- **5 tankers** had unknown flags.

When the 5 vessels with unknown flags were searched on the IMO *GISIS* platform: two vessels were marked as unknown, while the *Star Line* (IMO: 9237618) was marked as having a false flag, the *Ohar* (IMO: 9150365) as falsely flying the Guyana flag, and the *Pictor* (IMO: 9322827) as falsely flying the Eswatini flag.

An extract of the profiles of the first 10 vessels with no known P&I cover **and** unknown beneficial owner(s) is shown in Table 1.

IMO Number	Name	Vessel Sanction	Flag	Vessel Type and Size	Built	Class	Registered Owner
9271573	Adebomi		Panama	Suezmax, 120'-200'dwt	2004	Lloyds Register	Adebomi SA
9240407	Adeline I		Panama	Aframax (LR 2), 80'-120'dwt	2003	—	Zhejiang Maritime Incorporated
9213313	Albedo		Gabon	Aframax (LR 2), 80'-120'dwt	2001	Lloyds Register	Albedo Shipping Limited
9273052	Alissa		Gabon	Aframax (LR 2), 80'-120'dwt	2003	Bureau Veritas	Phoenix Shipping Incorporated
9321304	Alma		Djibouti	VLCC, 200'-320'dwt	2007	Lloyds Register	Trident Dexterity Limited
9244635	Amak		Eswatini	VLCC, 200'-320'dwt	2002	—	Unknown Owners
9182291	Amor		Cameroon	VLCC, 200'-320'dwt	2000	—	Unknown Owners
9253117	An Shun II		Panama	VLCC, 200'-320'dwt	2003	Bureau Veritas	Laurel Shipping Limited
9402471	Andromeda Star	Sanctioned vessel	Panama	Aframax (LR 2), 80'-120'dwt	2009	—	Algae Marine Incorporated
9203253	Anita		Sudan	VLCC, 200'-320'dwt	2000	—	Unknown Owners

Table 1: Extract of first 10 vessels with no known P&I cover and unknown beneficial owner(s)

While the number of target vessels was large, this is perhaps unsurprising given the density of traffic in the target area. Furthermore, when a vessel merely exercises its transit passage rights through a strait used for international navigation[22] such as in the Straits of Malacca and Singapore, the littoral States have no right to interdict the vessel. In fact, such vessels may avoid entering port limits altogether, precluding them from being subjected to Port State Control

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[22] Article 38, 1982 UN Convention on the Law of the Sea.

inspections. It is precisely for this reason that enhancing maritime domain awareness is required to understand the risks which these vessels pose when operating outside of a coastal State's territorial sea limits.

Compliance Risk Indicator

Additionally, *Seasearcher* provides another pivotal tool for assessing the risk profile of a vessel — a compliance risk 'traffic light' indicator. This indicator monitors several practices including AIS gaps, AIS signal manipulation, loitering in areas which are linked to sanctions (e.g. Russian ports), STS transfer risk,[23] as well as vessel characteristics such as its flag and ownership origin (*see* Fig. 7).

Of particular interest are the indicators pertaining to improper interference with the vessel's AIS (i.e. gaps, signal manipulation, or spoofing). For such cases of AIS signal discrepancies, *Seasearcher* will provide additional information, such as the duration of the AIS gap, or the ship's draft/draught and its positions before and after the AIS gap had occurred (*see* Fig. 8).

Fig. 7: *Seasearcher*'s Risk Rating 'traffic light' system

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[23] The model captures confirmed STS pairings, STS with sanctioned vessel; probable one-way dark STS (with either of the vessels being the dark party — both vessels marked); and probable two-way dark STS.

Fig. 8: Further information available on the vessel page to examine suspicious activity

Fig. 9: Investigating an AIS gap identified by *Seasearcher*

Once again, however, this is only a preliminary tool to narrow down the search for target vessels. Out of the full list of tankers in the region, 440 had a red/amber indication, including 246 that had no known P&I cover. When the indicators were narrowed down to only those pertaining to AIS signal discrepancies, a more manageable list of 171 vessels emerged.

That said, such a list nonetheless require further examinations into each individual vessel's details. For instance, when examining a vessel in the list flagged red for AIS gaps, it was found that the last AIS gap had occurred in Jan 2024 as the vessel was transiting the Red Sea, with a significant draft change indicating a suspected STS transfer (*see* [Fig. 9](#)).

However, *Seasearcher*'s compliance model tends towards being overinclusive in terms of flagging low-risk AIS gaps including gaps arising from the legitimate practice of ships turning off their AIS in conflict-prone areas (in this case, to avoid Houthi attacks). Some degree of manual review, taking into account the practices of the vessel, is still required to ensure that the vessel is indeed engaging in deceptive practices.

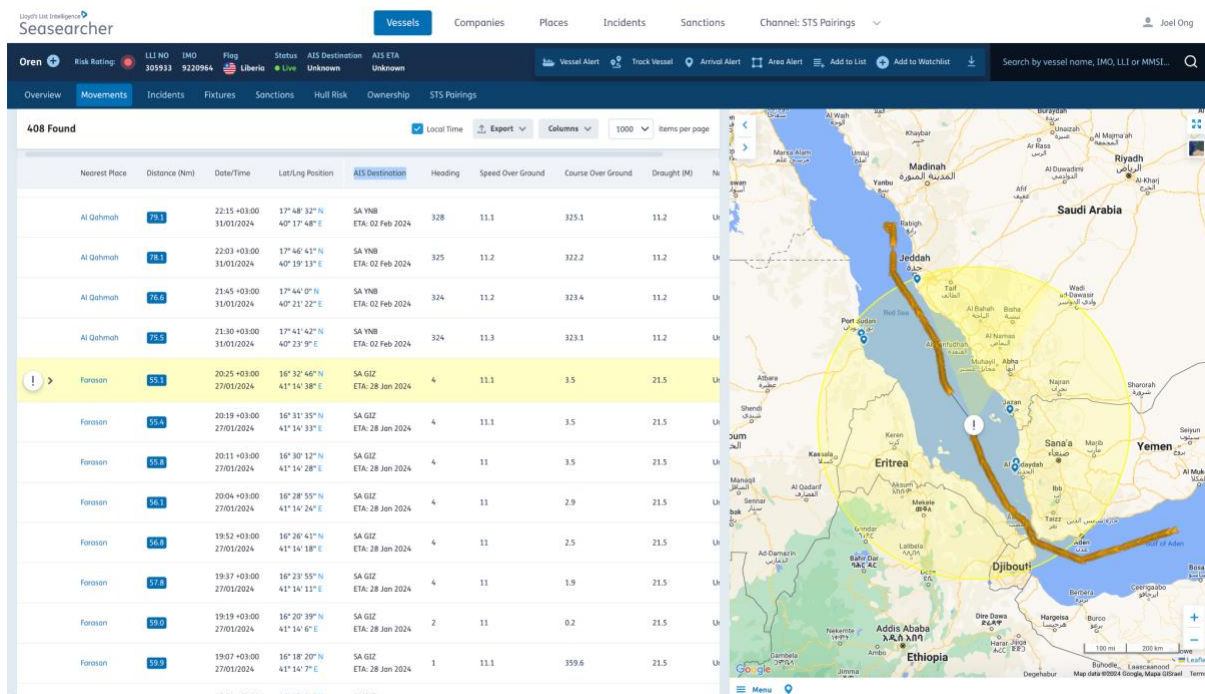*Lloyd's List Intelligence's Dark Fleet Watchlist and Seasearcher Notification Alerts*
The aforementioned approach manually examines the tankers transiting the target area, with a view to painting the risk picture via proxy indicators of risk (e.g. insurance, deceptive AIS practices etc.). This approach generated lists of potentially riskier vessels, but still nevertheless require individual assessments of each vessel.

However, access to *Seasearcher* includes access to Lloyd's List's dark fleet watchlist, and *Seasearcher* users can opt-in to the dark fleet watchlist. Alerts can be set up based on this list to notify an Administration whenever a dark tanker on the watchlist sails into a predefined area.

It should be noted that the dark fleet watchlist may differ marginally from *Seasearcher*'s vessel risk assessments as the former watchlist uses human intelligence from both qualitative and quantitative sources to identify vessels that meet certain criteria related to dark fleet activities, while the latter relies upon machine learning models.

The following methodology is used by Lloyd's List to determine if a vessel is dark and to curate the watchlist from time to time:

"(i) Tankers aged 15 years or over and
(ii) Anonymously owned and/or has a corporate structure designed to obfuscate beneficial ownership discovery and
(iii) solely deployed in sanctioned oil trades and
(iv) engaged in one or more of the deceptive shipping practices outlined by US State Department guidance issued in May 2020 and
(v) is not already sanctioned or government-controlled*

*is not already sanctioned or government-owned: The methodology does not include tankers tracked to government-controlled shipping entities such as Russia's Sovcomflot, or Iran's National Iranian Tanker Co, and those already sanctioned."[24]

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[24] *See* https://lloyds-list-intelligence.gitbook.io/lloyds-list-dark-fleet-list#what-is-the-methodology.

The Lloyd's List's dark fleet watchlist comprises some 664 vessels (as of Sep 2024). A large proportion are Aframaxes (230 vessels), followed by Very Large Crude Carriers (VLCCs) (133), and Medium Range chemical/product tankers (100). The top 5 flags in this list include: Panama (228), Cook Islands (87), Gabon (67), Liberia (52), and Palau (28). When this dark fleet watchlist is compared against the list of vessels transiting the target area, nearly a third (214 'dark' vessels) of Lloyd's List's dark fleet watchlist have passed through the target area from Jun-Aug 2024.

However, it must be cautioned that the dark fleet watchlist might be underinclusive when seeking to identify target vessels, given that its methodology excludes sanctioned vessels. Amongst the 246 tankers which the authors' have identified as having no known P&I cover and were labelled with an amber or red risk indication on the *Seasearcher* platform, 177 were identified in the Lloyd's List's dark fleet watchlist. As the watchlist is a manually curated one, Administrations might wish to consider developing their own screening criteria based on their needs.

For the purposes of this Guide, it appears that the most comprehensive approach towards identifying target tankers is combining Lloyd's List's dark fleet watchlist with the search for the lack of P&I cover. There were, however, two tankers which have transited the target area that are on Lloyd's List's dark fleet watchlist, but possess known P&I cover *and* have no compliance risk indicators (i.e. completely 'green') on *Seasearcher*.[25] While such vessels may be involved in sanctions avoidance, vessels such as these two are not the focus of this examination insofar as Administrations are concerned about unsafe and uninsured tankers. This further illustrates the authors' observation that there is no platform specifically fit-for-purpose for maritime administrations, especially given the heterogeneity in defining what the 'dark fleet' consists of.

Tracking STS operations through 'STS Pairings'
Seasearcher's 'STS Pairings' search function is significantly more useful as compared to the open access platforms examined in this Guide as it allows for much deeper insights into the activities of 'dark' tankers. STS operations are of particular concern as they significantly increase the risk of spills.

Vessels seeking to obscure their STS transfers would frequently deploy other deceptive practices such as turning off their AIS, which in turn increases the risks for other nearby vessels in terms of collision avoidance. This *Seasearcher* 'STS Pairings' tool allows for the detection of STS operations when both vessels have

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[25] The *Aurora Riley* (IMO: 9181649) and the *Tyche I* (IMO: 9247390). Note: the Tyche I has now been indicated as 'red' on Seasearcher's compliance risk rating since it was later sanctioned after this Guide was first written. This goes to show the dynamic nature of the dark fleet issue.

their AIS turned on, or detection of probable STS operations even if both vessels have their AIS turned off during the STS transfer.[26]

Although STS operations cannot be wholly identified due to vessels going dark for extended periods of time, *Seasearcher* is able to identify popular STS transfer hotspots. There is admittedly tremendous difficulty in ascertaining whether any of the vessels identified by *Seasearcher* have indeed breached the relevant regulations — or whether they were in fact engaging in an STS operation. The algorithm can only detect likely STS transfers based on AIS data. That said, maritime administrations can gather a small pool of technologically proficient personnel to track vessels and deploy other assets (e.g. radar and patrol vessels) to detect vessels in these hotspots that are evading AIS signal detection.

Seasearcher's 'STS Pairings' function allows all tracked STS operations to be filtered by vessel type, time period, and area (*see* Fig. 10). While this function does not allow for searches of a customised geographical search area (i.e. the user-drawn polygon highlighted in an earlier approach which was used to delimit the initial vessel list), this limitation can be mitigated by searching for a wider area (i.e. ASEAN) before matching the resultant IMO numbers with vessels that have transited the target area in the initial vessel list. A total of 236 tankers (from the initial list of 825) have engaged in STS operations in the target area from 1 Jun – 31 Aug 2024, including 65 tankers that have also appeared in the Lloyd's List's dark fleet watchlist.

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[26] Probable 2-way dark STS is flagged when the following conditions are met: Vessels have an overlapping AIS gap, where the start and end positions of the AIS gap are within 500nm of each other, where there has been a draught change before the next port call (one increasing, another decreasing), and where both vessels have had enough time to travel to the mid-point of the overlapping AIS gap, time for an STS, and time to travel to the end of its AIS gap. *See* https://lloyds-list-intelligence.gitbook.io/risk-and-compliance-methodology/risk-and-compliance/definitions/ship-to-ship-transfers#cargo-sts.
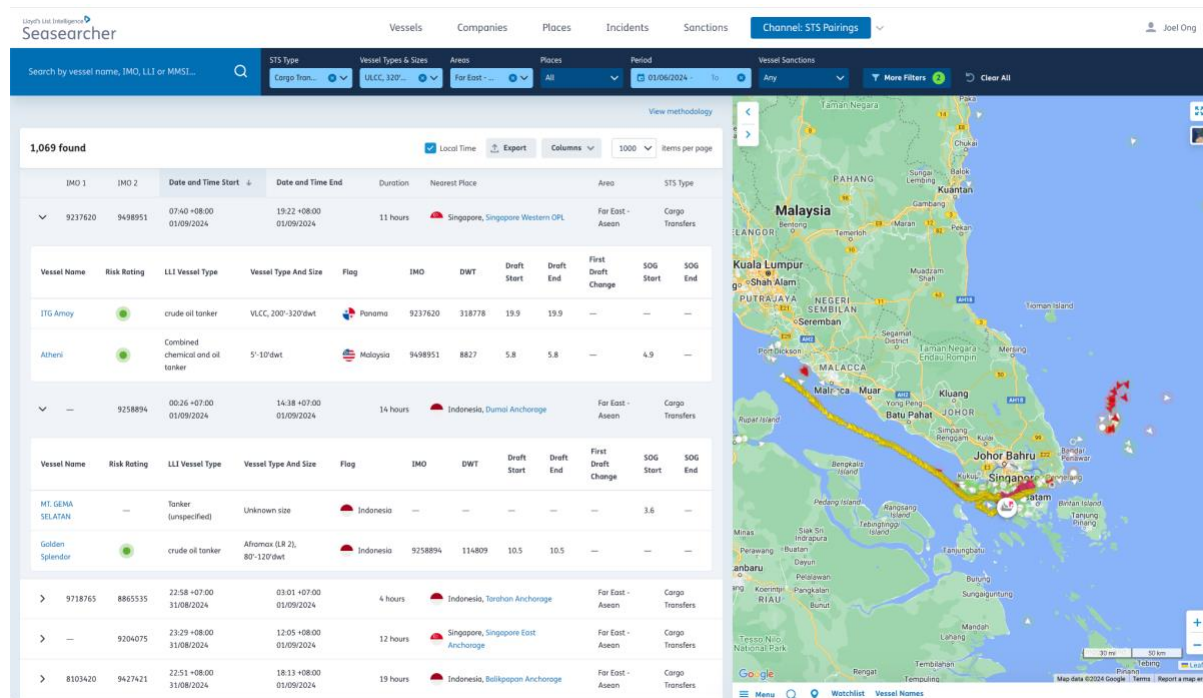
Fig. 10: STS Pairings around ASEAN from Jun-Aug 2024

While some of these STS operations — especially those in the designated STS areas at the Port of Sungai Linggi — are likely authorised, others off the eastern coast of Johor (*see* Fig. 11) that fall outside of Malaysian territorial waters were likely required to give prior notification to the coastal State per MARPOL requirements.[27] If these tankers have engaged in STS operations without providing the requisite advance notice, they would be in breach of IMO regulations and potentially coastal State EEZ laws (if IMO rules have been incorporated into that State's domestic laws).

It could not be ascertained whether STS operations close to Singapore's Tuas Port (*see* Fig. 12) are in Singapore or Malaysian port limits, or whether the requisite approvals have been sought; but in any case, both tankers were on Lloyd's List's dark fleet watchlist and have indicators of AIS spoofing and gaps.

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[27] See footnote 5.
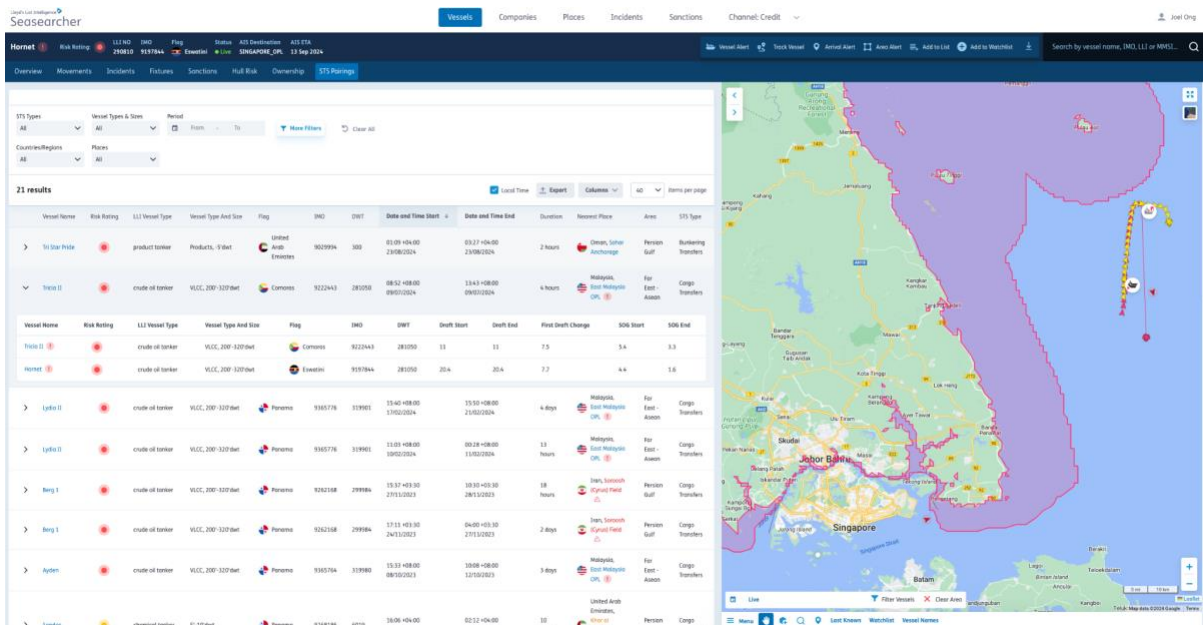
Fig. 11: The *Hornet* (IMO: 9197844)[28] and the *Tricia II* (IMO: 9365764) in an STS operation on 9 Jul 2024
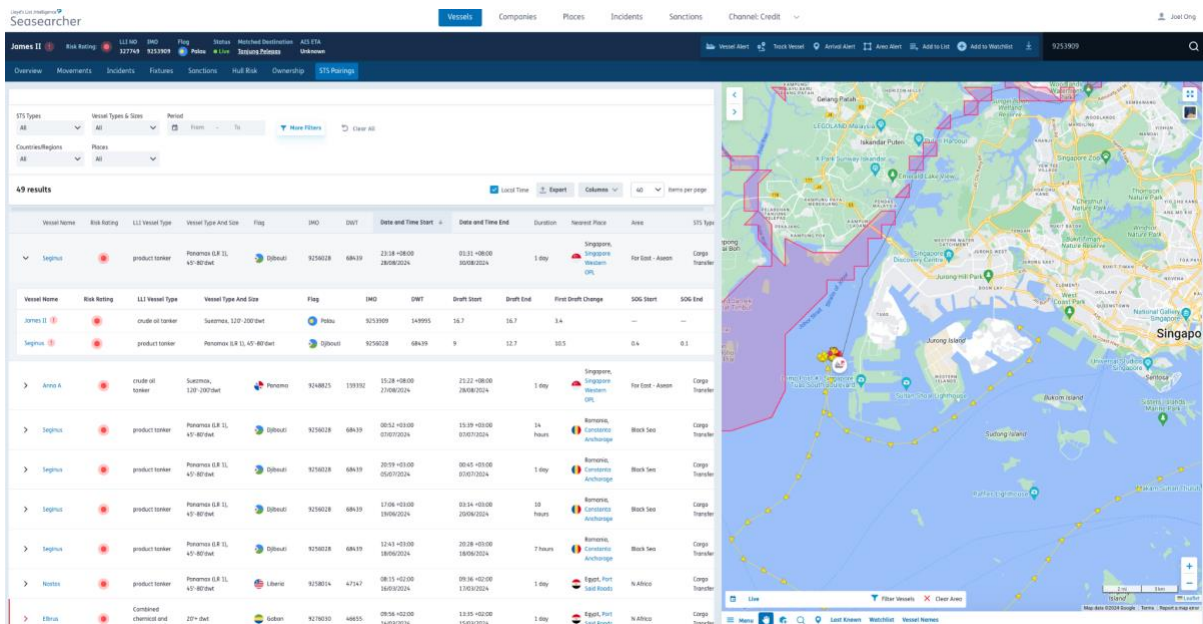
Fig. 12: The *James II* (IMO: 9253909) and the *Seginus* (IMO: 9256028) in an STS operation on 30 Aug 2024

The number of STS pairings identified using *Seasearcher* should give cause for concern. Most worryingly, 79 tankers without known P&I cover took part in STS operations in the target area (53 belonging to Lloyd's List's dark fleet watchlist), leading to the obvious concern of potential pollution in the maritime zones of the neighbouring coastal States. Furthermore, the number of STS operations is likely much higher in reality, warranting more significant investigations by interested States.

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[28] The *Hornet* was subsequently added to the OFAC sanctions list on 10 October 2024.

Assessing *Seasearcher*

Seasearcher, being an industry-standard platform, offers reliable data and is methodologically sound.

Its largest potential limitation is the suitability of its data for enhancing Administrations' maritime domain awareness, since the platform's main interface is designed to highlight whether a sanctioned oil transfer has *in fact* occurred instead of *where* it has occurred. Each suspected STS operation flagged in the *Seasearcher* database would have to be manually examined by the user to determine the geographical location of the STS transfer and therefore its relevance to a maritime administration. In other words, a STS transfer in the Mediterranean is likely largely irrelevant for an Administration in Asia even if a vessel's compliance risk rating is marked as 'red' — despite being useful for a maritime professional monitoring sanctions compliance globally (the intended audience of *Seasearcher*). A specific investigation by an Administration seeking to monitor its respective maritime zones into each of the red/amber risk indicators provided by *Seasearcher* is further required to ascertain whether the information provided by the risk indicators are relevant.

Understandably, the compliance risk indicators were designed for users such as financial institutions, insurers, or vessel owners and managers. As such, while *Seasearcher*'s advanced filtering functions offer some insights into potentially unsafe and uninsured tankers, it is not as user-friendly for an Administration seeking to track vessel compliance with STS regulations in a certain geographical area. However, *Seasearcher* does offer a suite of data APIs and bespoke datasets for Administrations, which might be customised to their needs.

Many of *Seasearcher*'s functions also become more useful *after* an Administration has decided on a customised set of risk criteria that it wishes to scrutinise in further detail according to its needs. This Guide has largely been a broad desktop survey to gain a deeper understanding into the types of tankers in operation and what their practices are, rather than filtering for vessels which fit an exact criteria in a given context — which would be the ideal approach of an Administration operationalising this Guide to track ships in the dark fleet.

Finally, *Seasearcher* is predominantly premised on AIS information. While valuable, it is somewhat constrained by the inability to capture real-time information on vessel locations and their STS activities while their AIS are disabled. Apart from information which are only available to States (e.g. LRIT and land-based radar), satellite imagery seems to be the only other means of detecting these dark vessels.

TankerTrackers

There is an online platform that tracks such STS operations and provides the alleged identities of tankers which turn off their AIS transmissions — *TankerTrackers*.[29] Under its corporate subscription, this platform will identify vessels identified in satellite imagery, as well as notify its subscribers when AIS signal manipulation occurs. A senior maritime consultant[30] has recommended the platform as the most comprehensive tool for tracking vessels seeking to evade detection. However, the authors are unable to evaluate this platform because it was not included in the scope of this study.

Note: Development of the LNG Dark Fleet

While this Guide focuses on the 'dark' or unsafe and uninsured tankers, it is appurtenant to also call attention to the rising incidence of a "shadow/dark" liquefied natural gas (LNG) fleet. Like oil, tankers specially designed for the carriage of LNG are facilitating the transport and transfer of sanctioned Russian-LNG as part of the dark fleet.

This is precipitated by the operationalisation of the Russian Arctic LNG facilities (i.e. Arctic LNG 2) in recent times. Several LNG tankers have been identified as 'going dark'.[31] Unlike the routine STS transfer of oil, LNG STS transfers are significantly more challenging due to LNG's physical properties, and such cargo falls outside of the existing pollution, liability and compensation regimes of the IMO.[32] The risks posed by LNG to human safety and the environment[33] should be examined, and coastal States should monitor and watch this development closely.

[29] *See* https://tankertrackers.com/
[30] The authors wish to thank Charlie Brown, Maritime Security Advisor at Booz Allen Hamilton.
[31] *See* for instance Malte Humpert, 'Russia Expands Shadow Fleet with First Ship-to-Ship LNG Transfer' gCaptain (26 August 2024) https://gcaptain.com/breaking-russia-expands-shadow-fleet-with-first-ship-to-ship-lng-transfer/ accessed 9 September 2024; Paul Bartlett, 'Russian LNG Carrier "Spoofing" Likely, Says Rystad Energy' Seatrade Maritime News (9 August 2024) https://www.seatrade-maritime.com/tankers/russian-lng-carrier-spoofing-likely-says-rystad-energy accessed 9 September 2024; Malte Humpert, '"Shadow Fleet" LNG Carrier Reemerges Off Norway After Calling at Sanctioned Arctic LNG 2' gCaptain (7 August 2024) https://gcaptain.com/shadow-fleet-lng-carrier-reemerges-off-norway-after-calling-at-sanctioned-arctic-lng-2/ accessed 9 September 2024.
[32] Given that at the time of writing, the Hazardous and Noxious Substances (HNS) Convention applicable to LNG cargo has not entered into force.
[33] Note that, as compared to oil, LNG has significantly less risks to the marine environment, but has Greenhouse Gas emissions risks to the broader environment more generally and global warming.

Conclusion

While the global community might not reach a consensus on the 'dark fleet', unsafe practices and uninsured vessels should certainly be of keen interest to all coastal States, especially those bordering busy shipping lanes or STS hotspots.

While this Guide is limited by the authors' resources, it is hoped that the Guide would aid maritime administrations, regardless of capacity, to better maintain awareness of their waters. When combined with State-level resources, an impressive picture of a State's maritime zones can be built up which could serve as the basis for deciding the appropriate regulatory and enforcement actions to take against these vessels — whether at the domestic or IMO level.

Administrations can also consider leveraging their convening power to bring together data providers with industry players who have first-hand data (e.g. insurers and vessel managers) to collaborate in sharing information to effectively distinguish compliant and safe vessels from the dark fleet, or even develop a similar data platform which is fit-for-purpose for their needs. It is in the interest of both governments and the private sector to collaborate to avoid any further dark fleet incidents, which tarnishes the maritime industry as a whole.

Appendix: Student researchers' compilation of suspected dark ships via open access platforms

Appendix: Student researchers' compilation of suspected dark ships, referenced against subscription-based LLI *Seasearcher* data

No.	Vessel Name	IMO Number	Age	Insurance (per *IGP&I*)	Current Flag, Prior Flags, and Prior Names	Latest Port of Origin	Latest Destination	Last Known Position	Other Port Calls	Last Reported Date and Location of Inspection (per *Equasis*)	Classification (per *Equasis* (open access version))	*Seasearcher* Data[34] (as of 18 Oct 24)
1	MT. Sumber Cahaya 68	9083641	30 years (built in 1994)	None	Tuvulu\n\nNo prior flags.	Balikpappan Anch, Indonesia (4 May 2024)	Unknown	Off the coast of Pulau Sebuku, Indonesia.	None	30 April 2009 (Under Tokyo MOU – No port is indicated) (*Equasis*).	The status indicates "Not applicable" since 1994 (*Equasis*).	Green risk indicator, however the vessel has not transmitted AIS signals for over 24 has not performed any port calls since February 2022
2	Four Plus (*VesselFinder*)\n\nYong Xin (*Equasis*)	9203930	24 years (built in 2000)	None	Guyana\n\nPrior Flags:\nFeb 2018 – Dominica\n\nNov 2018 – Hong Kong (Yong Xin)\n\nJune 2023 – Unknown (presumably Guyana)	Singapore (9 June 2024)	Sohar, Oman	Off the Strait of Malacca.	(i) Ningbo, China.\n\n(ii) Point Lisas, Trinidad & Tobago.	18 March 2024 at Lianyungang, People's Republic of China (Tokyo MOU) (3 deficiencies).	DNV (IACS) – Withdrawn and transfer of class to a non-IACS society (since 29 Apr 2023).	Red risk indicator as it is a sanctioned tanker and sails under "unknown flag" and "unknown owners"
3	Moonbay\n\nEternal Fortune (according to *MarineTraffic*)	9230907	22 years (built in 2002)	None	Guyana\n\n(Listed as False under *Equasis*).\n\nPrior Flags:\nOct 2002 – Oriental Topz (unknown flag)\n\nJan 2005 – Greece (Crude Topaz)\n\nApr 2005 – Belgium (Ti Topaz)	Singapore (8 June 2024)	Khor al Fakkan, UAE	Off Strait of Malacca.\n\nOff the coast of Cambodia (Labelled as Eternal Fortune - possible spoofing of AIS).	(i) Dongjiakou, China.\n\n(ii) Dalian, China.	No records found.	Bureau Veritas (IACS) – Withdrawn by society for other reasons (since 7 March 2024).	Red risk indicator as it is a sanctioned tanker

[34] Source of data is graciously provided by the team at Lloyd's List Intelligence who conducted a manual search of these vessels.

					Jun 2017 – Liberia (Good News) Aug 2023 – Panama (Eternal Fortune)							
4	Full Wood Status: Not in service since 2021 (*VesselFinder*) EM Longevity Status: Broken up since 22 Dec 2021 (*Equasis*)	9212864	24 years (Built in 2000)	None	Swaziland (*VesselFinder*) Singapore (Since 1 Oct 2020) (*Equasis*) Prior Flags: St Vincent and Grenadines (Since 1 Apr 2020) (*Equasis*) Singapore (Since 1 Jul 2015) (*Equasis*) Panama (Since 1 May 2015) (*Equasis*) Marshall Islands (Since 1 Aug 2000) (*Equasis*)	Bayuquan, China (3 Jun 2024)	Singapore (Estimated date of arrival: 13 Jun 2024)	Off the coast of Ho Chi Minh City. Malacca Strait, Singapore Strait and South China Sea. (March 2024) (*Equasis*)	(i) Kukup, Malaysia (20 Jun 2021); (ii) Kukup, Malaysia (22 Dec 2020); and (iii) Tanjung Pelapas, Malaysia (16 Dec 2020).	21 Sept 2021 at Port Tanjung Pelapas, Malaysia (Under Tokyo MOU).	Lloyd's Register (IACS) – Withdrawn by society (Since 17 Dec 2021).	Status is "dead". No trade transactions should be possible.
5	SCF Baikal	9422457	14 years (Built in 2010)	None	Gabon Prior Flags: Liberia (Since 1 March 2010, Name: SCF Vankor)	Port Said, Egypt (15 May 2024)	Qinzhou, China (7 June 2024)	Off the coast of Bandar Penawar, Malaysia (on 3 June 2024) (*VesselFinder*).	(i) Paradip Garh, India; and (ii) Changxindao, China.	19 May 2022 at Taman, Russia (Number of deficiencies: 4).	Indian Register of Shipping (IACS) – Delivered (Since 15 Apr 2022).	Red risk indicator due to voyage risks and sanctioned ownership risks (vessel itself not sanctioned).
6	Yangtze	9274800	20 years (Built in 2000)	None	Gabon (since 1 Apr 2023) Prior Flags: St Kitts and Nevis (Since 1 Dec 2022) Malta (Since 1 Sept 2018) Cyprus (during 2004) (*Equasis*)	Singapore (11 June 2024)	Zhoushan China (20 June 2024)	Off the coast of Kluang, Malaysia (on 12 June 2024) (*MarineTraffic*).	(i) Primorsk, Russia; and (ii) Vadinar, India.	21 Dec 2022 at Skodvik, Finland (Paris MOU).	Russian Maritime Register of Shipping – Delivered (Since August 2023). Prior Classification: Lloyd's Register (IACS) – Withdrawn since 3 June 2023 by society for other reasons.	Red risk indicator due to calling at sanctioned ports and engaged in STS transfer with sanctioned vessel.

7	Olympiysky Prospect	9511387	14 years (Built in 2010)	None	Gabon	Singapore (11 June 2024)	As Suways / Suez Port (29 June 2024)	Off the coast of Singapore (on 12 June 2024) (*VesselFinder*).	(i) Tianjin Xingang, China; and (ii) Primorsk, Russia.	20 Sept 2023 at Tianjin, China (Tokyo MOU) (Number of deficiencies: 4).	DNV (IACS) – Withdrawn since 12 May 2022 by society for other reasons.	Red risk indicator as it is a sanctioned tanker with multiple voyage risks.
8	NS Arctic	9413547	15 years (Built in 2009)	None	Gabon (Since 1 Jan 2024) Prior Flags: Liberia (Since 1 May 2009) (*Equasis*)	Huizhou, China (15 June 2024)	As Suways / Suez Port (8 July 2024)	Off the Strait of Malacca (20 June 2024) (*MarineTraffic*).	(i) Primorsk, Russia; (ii) Kozmino, Russia.	6 Oct 2021 at Cartegena, Colombia (Vina Del Mar MOU).	Indian Register of Shipping (IACS) – since 29 April 2022. Prior Classification: DNV (IACS) – Withdrawn since 29 April 2022 due to transfer of class to another IACS member.	Red risk indicator as it has a sanctioned owner (Sovcomflot), and multiple voyage risks in the past 24 months.
9	Olia	9268112	21 years (Built in 2003)	None	Gabon (Since 1 Feb 2024) Prior Flags: Bahamas (Since 1 Sept 2009) Liberia (Since 1 March 2016) Panama (1 March 2022)	Nakhodka Anch, Russia (15 June 2024)	Paradip Garh, India (2 July 2024)	Off the coast of Philippines (21 June 2024).	(i) Singapore; and (ii) Longkau, China.	24 May 2022 at Omisalj, Croatia (Paris MOU) (5 deficiencies).	Nippon Kaiji Kyokai (IACS) – Withdrawn since 13 Dec 2006 due to transfer of class to another IACS member.	Red risk indicator due to multiple voyage risks, including high risk port calls, probable 1-way dark STS (as dark party), and probable 1 way dark STS (as non-dark party).
10	Xing Chen	9550682	15 years (Built in 2009)	None	Gabon (Since 1 May 2024) Prior Flags: Cyprus (Since 1 May 2009) Marshall Islands (1 Dec 2010)	Nakhodka, Russia (5 June 2024)	Tanjung Pelepas Anch, Malaysia (19 June 2024)	Currently in port in Tanjung Pelepas, Malaysia (21 June 2024).	(i) Sika, India; (ii) Jebel Ali, UAE.	19 Apr 2024 at Yokohama, Japan (Tokyo MOU) (1 deficiency).	Registro Italiano Navale (IACS) – Since 28 May 2024. Prior Classification: Lloyd's Register (IACS) – Withdrawn since 28 May 2024 by society for other reasons.	Red risk indicator due to high risk port calls.
11	Mastic	9428358	15 years (Built in 2009)	None	Gabon (Since 1 May 2023) Prior Flags: Portugal (Since 1 March 2009) Liberia (Since 1 April 2011)	Nakhodka, Russia (22 May 2024)	Singapore (21 June 2024)	Currently in port in Singapore (21 June 2024).	(i) Nakhodka, Russia; and (ii) Singapore.	21 May 2024 at Nakhodka, Russia (Tokyo MOU). 20 May 2024 at Nakhodka,	Indian Register of Shipping (IACS) – Since 11 March 2023. Prior Classification: Lloyd's Register (IACS) – Withdrawn since 11 March 2023	Red risk indicator due to high risk port calls and unknown owners.

					Marshall Islands (1 May 2013) St Kitts and Nevis (Since 1 March 2023)					Russia (Tokyo MOU) (7 deficiencies).	by society for other reasons.	
12	Ever Feng	9102813	29 years (Built in 1995)	None	Tanzania	Kaohsiung, Taiwan (14 May 2024)	Unknown	Off the coast of Kluang, Malaysia (9 June 2024).	(i) Kaohsiung, Taiwan.	8 Sept 2016 at Busan, South Korea (Tokyo MOU) (14 deficiencies).	Russian Maritime Register of Shipping – Withdrawn since December 2016.	Red risk indicator due to high risk port calls and sailing under a blacklisted flag per the Paris MoU.
13	Nana Satu	9109897	30 years (Built in 1994)	None	Mongolia Prior Flags: Dominica (Since 2020) Cook Islands (Since 2015)	Port Klang (10 May 2023)	Pasir Gudang (14 May 2024)	Riau Archipelago (23 June 2024)	Pengerang Anch., Malaysia	17 July 2023 at Pasir Gudang, Malaysia (Tokyo MOU) (14 deficiencies)	Ji Tai Maritime – Delivered (During 03/2022) Prior Classification: Nippon Kaiji Kyokai (IACS) – Withdrawn since 08/04/2022 (Owner's request for other reasons)	Green risk indicator.
14	Super	9180982	25 years old (Built in 1999)	None	Mongolia Prior Flags: Panama (Since 2018) Singapore (Since 2016)	Taiwan Keelung (22 April 2022)	Pasir Gudang (14 March 2024)	Riau Archipelago (23 June 2024)	None	28 December 2016 at Xiamen, China (Tokyo MOU) (8 deficiencies)	Lloyd's Register (IACS) – Delivered (Since 26/06/1999)	Red risk indicator due to suspicious AIS gap.
15	Straits Dignity	9306859	21 years old (Built in 2003)	None	Mongolia	Tanjung Pelepas Anch (15 June 2024)	Singapore (16 June 2024)	Riau Archipelago (23 June 2024)	(i) Pasir Gudang, Malaysia (ii) Singapore	26 March 2024 at Batam, Indonesia (Tokyo MOU) (2 deficiencies) 17 November 2023 at Singapore (Tokyo MOU) (Detained) (16 Deficiencies)	Bureau Veritas (IACS) – Withdrawn since 09/08/2022 (By society for other reasons) Prior Classification: China Classification Society (IACS) – Withdrawn since 30/08/2013 (Transfer of class to another IACS Member)	Red risk indicator due to probable 1-way dark STS.
16	Victoria Strike	8810982	36 years old (Built in 1988)	Shipowners Club (Ocean Eight Marine Pte Ltd)	Mongolia Prior Flags: Sierra Leone (Since 2018) Singapore (Since 2001)	Pasir Gudang, Malaysia (4 October 2023)	Pasir Gudang, Malaysia (20 October 2024)	Off the Coast of Bandar Penawar (23 June 2024)	Pasir Gudang, Malaysia	08 March 2017 at Pasir Gudang, Malaysia (Tokyo MOU)	Sing Lloyd – Withdrawn during 03/2022 Prior Classification: Nippon Kaiji Kyokai (IACS) – Withdrawn since 18/09/2018 (Owner's request for other reasons)	Green risk indicator.

| 17 | Straits Fortitude | 9282596 | 21 years old (Built in 2003) | None | Mongolia

Prior Flags:
Singapore (Since 2003) | Tanjung Pelepas Anch (10 June 2024) | WJB Malaysia | Off the Coast of Teluk Ramunia (23 June 2024) | (i) Pasir Gudang, Malaysia

(ii) Singapore | No Inspections | Korean Register (IACS) – Withdrawn since 02/07/2023 (Survey overdue)

Prior Classification:
China Classification Society (IACS) – Withdrawn since 27/01/2011 (Transfer of class to another IACS Member) | Green risk indicator. |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 18 | Straits Pride | 9066447 | 31 years old (Built in 1993) | None | Mongolia

Prior Flags:
Malaysia (Since 2018)

Singapore (Since 2002) | Tanjung Pelepas Malaysia (3 August 2020) | Singapore (13 January 2024) | Off the Coast of Bandar Penawar (23 June 2024) | (i) Tanjung Pelepas, Malaysia

(ii) Singapore | No Inspections | United Maritime Classification – Delivered during 02/2021

Prior Classification:
Bureau Veritas (IACS) – Withdrawn since 26/01/2021 (Survey overdue) | Red risk due to voyage risks. |
| 19 | Straits Courageous | 8704262 | 37 years old (Built in 1987) | None | Mongolia

Prior Flags:
Malaysia (Since 2017)

Singapore (Since 2000)

Belize (Since 2000) | Batu Ampar Indonesia (29 May 2022) | TJ BIN | Off the Coast of Bandar Penawar (23 June 2024) | None | No Inspections | DNV (IACS) – Withdrawn since 14/08/2017 (Transfer of class to a non-IACS society)

Prior Classification:
DNV-GL (ex GL) (IACS) – Reinstated since 05/09/2013 | Red risk due to voyage risks. |
| 20 | General | 9017185 | 33 years old (Built in 1991) | None | Sierra Leone
Prior Flags:
Tanzania (Since 2022)

Mongolia (Since 2016)

Niue (Since 2014)

Malaysia (Since 2003) | Telok Ramunia Malaysia (31 October 2023) | Pasir Gudang Malaysia (19 June 2016) | Off the Coast of Sungai Rengit (23 June 2024) | (i) Telok Ramunia, Malaysia

(ii) Khor al Fakkan, UAE | 17 October 2015 March at Pasir Gudang, Malaysia (Tokyo MOU) | Sing Lloyd – Delivered during 09/2023

Prior Classification:
International Ship Class – Delivered before 2015

Korean Register (IACS) – Suspended since 20/05/2014 (Survey overdue)

Nippon Kaiji Kyokai (IACS) – Withdrawn since 12/08/2012 (Transfer of class to another IACS member) | Red risk due to registration and voyage risks. |
| 21 | Lotus River | 9005194 | 33 years old (Built in 1991) | None | Sierra Leone
Prior Flags:
Panama (Since 2012) | Batu Ampar Indonesia (23 April 2024) | Singapore (24 April 2024) | Singapore | Singapore | 26 July 2013 at Ningde, China (Tokyo MOU) (16 Deficiencies) | International Register of Shipping – Withdrawn during 04/2022 | Green risk, but vessel has not performed any port calls since |

No	Name	Number	Age		Flag					Port State Control	Classification	Risk
					South Korea (Since 2005) Malaysia (Since 2000)					15 July 2013 at Ningde, China (Tokyo MOU) (Detained)	Prior Classification: Korean Register (IACS) – Withdrawn since 26/02/2013 (Survey overdue)	December 2023, which is suspicious.
22	Mars	9040235 gr	34 years old (Built in 1990)	None	Palau Prior Flags: Cook Islands (Since 2019) Mongolia (Since 2013)	Singapore (3 November 2023)	Tanjung Pelepas (17 June 2024)	Off the Coast of Tanjung Pengelih (23 June 2024)	Singapore	31 March 2022 at Pasir Gudang, Malaysia (Tokyo MOU)	Singapore Bureau of Shipping – Withdrawn during 12/2023 Prior Classification: Nippon Kaiji Kyokai (IACS) – Withdrawn since 24/10/2023 (Owner's request for other reasons)	Green risk overall, but captured that the vessel is 'amber' as the flag is on the Paris MOU black list.
23	Everest Energy	9243148	21 years old (Built in 2003)	None	Palau Prior Flags: Liberia (Since April 2024) Singapore (Since Sep 2023) Norway (Since 2003)	Sungai Linggi (18 June 2024)	Singapore (19 June 2024)	Off the Coast of Jurong Island (23 June 2024)	(i) Qalhat, Oman (ii) Mab Tapud, Thailand (iii) China	30 September 2023 at Nantes, France (Paris MOU) (2 Deficiencies)	DNV (IACS) – Last Renewal Survey (27/04/2023) / Next Renewal Survey (16/06/2028)	Red risk, vessel is sanctioned.