

Russian Piracy in 2022:

Looting of Ukrainian Industrial and Agricultural Products

Preliminary Report by the Initiative for the Study of Russian Piracy

Executive Summary

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Since its unlawful invasion of Ukraine in February, Russia has systematically stolen vast amounts of Ukrainian resources, primarily steel and grain, as well as the industrial tools used in the manufacturing and harvesting processes.

Investigators with the Initiative for the Study of Russian Piracy (ISRP) have identified nearly 50 discrete incidents in which significant evidence indicates that specific ships were used to transport Ukrainian grain stolen by Russia. This is believed to be only a small fraction of the true number of such incidents.

An estimate of more than **500,000 metric tons** of grain, mostly wheat, but also including corn and barley, has been illegally taken from Ukrainian ports in a continuing operation.¹ Based on U.S. commodity prices of \$330/metric ton for wheat and \$6/bushel (\$236.40/ton) for corn,² the wheat and corn stolen from Ukraine in incidents that occurred and were identified prior to July 15 alone have a combined market value of nearly \$154 million.

The investigators also found that Russia has taken as much as **11,000 metric tons** of Ukrainian metal products from the Azovstal Iron and Steel Works and Ilyich Iron and Steel Works plants in Mariupol, mostly hot-rolled steel. A minimum of another 28,000 metric tons has been loaded onto ships that are currently moored in the port of Mariupol. Based on prices for hot-rolled steel in Europe since Russia's invasion,³ the 11,000 metric tons are worth between \$9.5 million and \$17 million. The 28,000 metric tons that Russia could ship at any moment are worth an additional \$24.2 million – \$43.4 million for a combined total of \$33.7 million - \$60.4 million. Another 195,000 metric tons of metal products produced by Azovstal and Ilyich Iron and Steel Works also remain in the port, inaccessible to the producers or legal buyers.

The human cost of Russia's invasion of Ukraine is tragic. At the time of writing, the United Nations has recorded over 5,000 civilian deaths in Ukraine, including those of more than 300 children, since the Russian invasion began.⁴ The Armed Conflict Location and Event Data Project (ACLED), a U.S.-based

¹ Based on the deadweight tonnage, rounded down, of the ships believed to be involved.

² Based on commodity prices listed by Business Insider at <https://markets.businessinsider.com/commodities>.

³ See SteelBenchmarker, Price History: Tables and Charts (July 11, 2022), available at <http://steelbenchmarker.com/history.pdf>.

⁴ United Nations Office of the High Commissioner for Human Rights, Ukraine: civilian casualty update 18 July 2022 (July 18, 2022), <https://www.ohchr.org/en/news/2022/07/ukraine-civilian-casualty-update-18-july-2022>.

non-profit group, reports nearly 12,000 fatalities.⁵ The theft and destruction of hundreds of thousands of tons of grain and other agricultural products will only add to the casualties of this war and spill over to the many countries that rely on Ukrainian grain. The theft of Ukrainian metal products will help provide Russia with the means to maintain its troops, weapons and supplies and prolong the war either directly or through the sale, along with the stolen grain, to other states or private actors.

In addition to other documented atrocities committed by Russia, the looting of Ukraine clearly violates international law. Article 33 of the Geneva Convention Relative to the Protection of Civilian Persons in Time of War prohibits pillaging. Article 53 prohibits the destruction of private property except where “rendered absolutely necessary by military operations.” Article 55 declares that an occupying force “may not requisition foodstuffs ... except for the use by the occupation forces and administrative personnel, and then only if the requirements of the civilian population have been taken into account.” Further, Article 55 requires that, subject to other international agreements, the occupying force must “make arrangements to ensure fair value is paid for any requisitioned goods.”

The brazen nature of its crimes makes it clear that Russia has no intent to make the owners of the stolen resources whole and showcases the characteristic depravity of Russia’s aggression toward Ukraine.

The incidents of Russian looting discussed in this report are just the tip of an immense but currently immeasurable iceberg. It is impossible to know at this time just how much Russia has looted from Ukraine. ISRP investigators continue to gather and analyze more information and will provide updates on instances of Russian piracy as new information and more data become available for ISRP analysis.

In further reports, the ISRP will offer recommendations for mitigation of the theft of Ukrainian assets, including sanctions against individuals and companies who have willingly cooperated in the looting of Ukraine, and requiring Russia to pay reparations, beyond mere compensation, for the theft. For example, approximately \$300 billion worth of Russian assets has been frozen, including \$38 billion in the United States. Public officials in Europe and the U.S. have recommended confiscating those assets to pay for losses in the war.⁶ There are many options to explore in holding Russia responsible for the damage it has caused. The ISRP’s work will aid in that process.

This ISRP report was developed using a combination of open-source intelligence tools, including AIS (automatic identification system) maritime traffic information provided by MarineTraffic.com, ShippingExplorer Live Vessel Tracking, VesselFinder.com, and BalticShipping.com; reports from individuals in Ukraine and Turkey who closely monitor ship movements via AIS data, satellite imagery, and personal or verified eyewitness reports; Ukrainian- and Russian-language news sources; international media; Ukrainian Telegram channels; and interviews with confidential sources in the U.S. and Eastern Europe.

The investigators responsible for this report do not have access to real-time satellite imagery or any non-public information or classified intelligence developed by the Ukrainian state. Accordingly, the information in this report cannot be considered comprehensive or fully contemporary. Reasonable effort has been made to confirm the accuracy of reports via primary sources where possible.

⁵ Armed Conflict Location & Event Data Project, Data Dashboard, <https://acleddata.com/dashboard/#/dashboard> (last accessed July 21, 2022).

⁶ <https://www.marketplace.org/2022/06/17/western-countries-may-have-a-hard-time-confiscating-russian-assets-theyve-frozen/>

This report is neither evidence nor accusation that the owners and crews of the ships identified are willingly and knowingly engaging in illegal activity, and draws no conclusions, legal or otherwise, as to the criminal or civil liability of any parties implicated by the acts described herein -- with the exception of the Russian state.

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A History of Piracy

Since the Russian invasion of Ukraine began in February, Russia has organized and conducted a systemic program of theft that targets Ukrainian national assets, primarily steel and wheat, as well as the industrial tools used in the production and processing of both. While theft of national assets has been a key component of Russian military strategy for nearly a century,⁷ the looting of Ukraine is unique in its breadth and tactics.

The Russian military is deploying procedures adapted from organized crime syndicates that fall within its sphere of influence, core tactics employed since the Soviet invasion of Afghanistan in 1979, most commonly in the modern Russian wars against Chechnya in the 1990s. Chechnya's oil reserves were a prime target for the Russian military during both those wars. The Russian army confiscated national and privately owned oil-refinement operations, diverting the product to their own stockpiles. Once under Russian control, the oil was then diverted to the Russian state, the military, and then to organized crime syndicates, most commonly the Solnetsevskaya Bratva, a worldwide criminal syndicate.⁸ That practice continues in the current diversion of grain and steel by Russian forces in Ukraine.

The Russian military's relationship to organized crime was not just limited to the strategic theft of national resources. In yet another pattern repeated in the current war against Ukraine, this relationship percolated downward to the tactical level, where individual Russian units would loot and destroy entire towns in Chechnya, fill vehicles with personal property and the municipal assets of towns, and divert those to criminal syndicates for sale.

Perhaps the most egregious example of this practice is the Russian destruction of Alkhan-Yurt in 1999. After a skirmish against Chechen fighters involving indiscriminate shelling of the village by the Russian military, Russian soldiers took over the small village. Over the course of two weeks, those soldiers completely burned up to eighty percent of the village, summarily executing men and raping women and girls.⁹ These horrors are echoed in the destruction of the Ukrainian town of Bucha.¹⁰ As documented by Human Rights Watch and the British Broadcasting Company at the time, the atrocities at Alkhan-Yurt were accompanied by looting using official military vehicles.¹¹ The sale of those stolen goods was handled by Kremlin-loyalist Chechen and Russian organized crime syndicates who exported at least

⁷ See Roman Ponomarenko, *Army of marauders: the long history of Russian military looting, pillaging, and stealing*, *Euromaidan Press* (June 28, 2022), <https://euromaidanpress.com/2022/06/28/army-of-marauders-the-long-history-of-russian-military-looting-pillaging-and-stealing>.

⁸ See Robert Friedman, *Red Mafiya* (2000).

⁹ Human Rights Watch, "No Happiness Remains": Civilian Killings, Pillage, and Rape in Alkhan-yurt, Chechnya (April 1, 2000), available at <https://www.hrw.org/report/2000/04/01/no-happiness-remains/civilian-killings-pillage-and-rape-alkhan-yurt-chechnya>; Paul Wood, *New evidence of Chechen massacre*, *BBC News* (Dec. 22, 1999), <http://news.bbc.co.uk/2/hi/europe/575091.stm>.

¹⁰ Yousur Al-Hlou, et al, *New evidence shows how Russian soldiers executed men in Bucha*, *NY Times* (May 19, 2022), <https://www.nytimes.com/2022/05/19/world/europe/russia-bucha-ukraine-executions.html>.

¹¹ Interview with survivor of Alkhan-Yurt, Brooklyn NY, July 9, 2022; Colin McMahon and Tribune Foreign Correspondent, *Chechen war spurs claims of Russian excesses*, *Chicago Tribune* (Dec. 25, 1999), <https://www.chicagotribune.com/news/ct-xpm-1999-12-25-9912250079-story.html>

some of the stolen goods to Dagestan, Turkey, and Georgia¹² – much as Russia appears to be allowing private actors to export stolen grain and steal today.¹³

This relationship between organized crime and the state is a core element of Russian military strategy, and one that is being executed in Ukraine on a scale not seen before. The ability for private actors to profit from the theft does not exist without the tacit approval of the Russian state and the assistance of state-sanctioned organized crime. The ISRP is currently investigating the possible involvement of organized crime syndicates in the ongoing looting of Ukraine.

How Russia Moves Looted Cargo

Russian Movement Over Land

Currently, the Russian army is using both its own logistics trucks as well as civilian trucks pressed into service, to shuttle stolen goods from the temporarily occupied regions of Kherson, Mykolaiv, and especially the city of Kamyanka Dniprovska, the home of a large grain processing facility.¹⁴

Using this facility as an example, the trucks involved are covered with tarps and military markings are obscured while the stolen goods are loaded. Once loaded, the vehicles are marked with the Russian military's identifying symbol for their war in Ukraine (the letter "Z").¹⁵ Despite attempts to obscure their routes by turning off GPS tracking systems or removing them entirely from vehicles, the trucks are easily discernible on commercial satellite imagery, as they travel in standard convoy patterns and the route appears not to deviate from previous routes.¹⁶

The trucks' drivers are also not practicing operational security in any standard form. Their mobile phones are not confiscated or even turned off in most instances. This is a key data point that can be captured through commercial technology if applied correctly.¹⁷ As the drivers' individual devices connect to radio towers or search for signals, they can be tracked nearly in real time along their route. Additionally, organizations involved in the looting are recruiting for drivers through Telegram and WhatsApp.¹⁸

These sources show that the looted goods are brought to militarily important areas, including the town of Enerhodar, for further processing or directly to occupied Crimean ports for export.

¹² Interview with survivor of Alkhan-Yurt, Brooklyn NY, July 9, 2022.

¹³ Katie Balevic, Russian troops are trying to sell looted Ukrainian goods in Belarus, Ukrainian defense ministry says, *Insider* (April 2, 2022), <https://www.businessinsider.com/russians-sell-stolen-ukrainian-goods-in-belarus-officials-2022-4>.

¹⁴ See, Wall Street Journal, *Russia Is Using a Secret Network to Steal Ukrainian Grain* (July 7, 2022), <https://www.youtube.com/watch?v=dLQilhrutmA>.

¹⁵ Confirmed via interview with serving Defense Intelligence Agency official.

¹⁶ See, Tristan Bove, 'This is criminal activity': Russia is selling stolen Ukrainian grain in Syrian ports as Putin holds world hostage over food, *Fortune* (June 17, 2022), <https://fortune.com/2022/06/17/russia-selling-stolen-ukrainian-grain-syria/>.

¹⁷ Interview with U.S. Customs and Border Patrol official, July 2022.

¹⁸ This social media activity has been a rich source of open-source intelligence. While the Russian military is practicing a limited form of communication and operational security in this effort, their contractors are not and allowing observers to gather and sift through several streams of detailed data.

Russian Movement Over Water

While the theft of Ukrainian resources over water is even more significant than over land. Given the challenges of hiding this effort, the vessels involved are using a variety of tactics to obscure their activities, including:

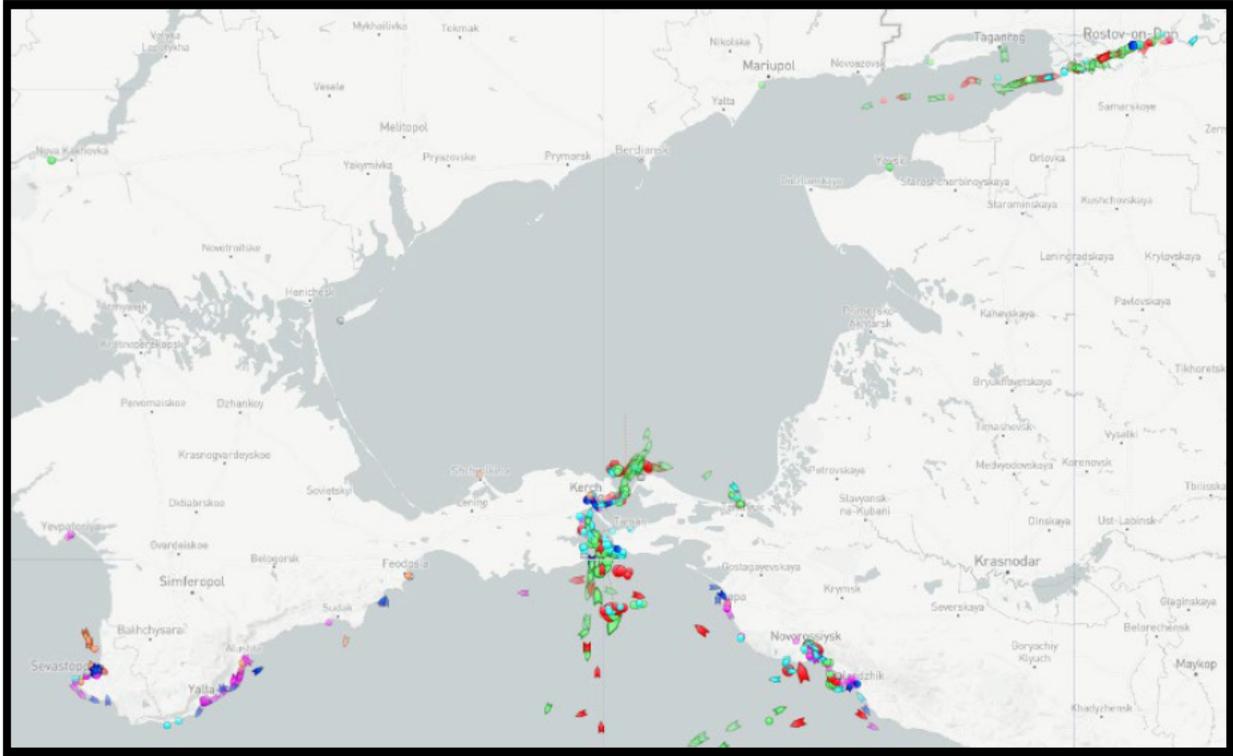
- Changing the intended port of destination during a flight or stopping or diverting to another destination before reaching the indicated port;
- Turning off vessels' AIS transponders when entering or leaving a port where they may load or unload stolen product;
- Turning off vessels' AIS transponders during a flight ("going dark") to obscure their actual destination, departure point, and route;
- Keeping AIS transponders off after entering a port, creating the appearance that a ship is moored in a port for a much longer period than it actually is;
- Paralleling other vessels, including pleasure craft as well as other cargo ships, to transfer stolen product to a second vessel for transshipment.

These tactics match those used by ships making illegal entries into ports in occupied Crimea for several years, as described by the Center for Research of Signs of Crimes against the National Security of Ukraine (Myrotvorets). Indeed, some of the same ships that were involved in the smuggling of goods from Crimean ports before the war appear to be continuing that activity. The SeaCrime team of Myrotvorets has documented the Syrian bulk carrier *Finikia*, IMO 9385233, smuggling scrap metal, grain, and flour from Ukrainian ports to Turkey and Egypt since at least 2019, turning off its AIS transponder at strategic points in its flights to mask its destination.¹⁹

This practice is being heavily utilized by vessels traveling across the Sea of Azov, as shown in the screen capture below. Ships traveling westward from the Russian port of Azov turn off their AIS transponders shortly before or after passing Taganrog and only turn them back on upon arriving at the northern entrance to the Kerch Strait.

Similarly, ships passing through the Kerch Strait turn their AIS transponders off upon reaching the more open waters of the Sea of Azov. During the period between turning their transponders off and on, these ships have the opportunity to enter the ports of Mariupol or Berdiansk, or parallel and load or unload cargo to another ship without the activity being visible in real-time.

¹⁹ E.g., Kateryna Yaresko, *Finikia* has loaded grain and flour in occupied Feodosia and is going to Egypt, *Myrotvorets News* (March 2, 2021), <https://myrotvorets.news/finikia-perevozyt-zerno-z-okupovanoho-seva/>; Kateryna Yaresko, *Finikia*: Loading of scrap metal in Kamyshova Bay, *Myrotvorets News* (Jan. 27, 2021), <https://myrotvorets.news/finikia-vyishla-z-okupovanoho-sevastopolia-z-v/>; Kateryna Yaresko, *Finikia*: Grain from occupied Feodosia goes to the port of Alexandria (Egypt), *Myrotvorets News*, (Aug. 10, 2020), <https://myrotvorets.news/finikia-zerno-z-okupovanoi-feodosii-yde-v-po/>; Kateryna Yaresko, *Finikia*: Grain transportation between the occupied Crimea and Syria, *Myrotvorets News* (Dec. 19, 2019), <https://myrotvorets.news/finikia-zernovi-perevezennia-mizh-okupovanyam/>; Kateryna Yaresko, The *Finikia* ship with 17,000 tons of wheat from the occupied Crimea is going to Alexandria, Egypt, *Myrotvorets News* (Oct. 13, 2019), <https://myrotvorets.news/finikia-z-17-tysiach-tonn-pshenytsi-z-okupovanoho-k/>.



MarineTraffic Live Map, July 22, 2022, 18:00 EEST

Another method being used is transshipment, in which a bulk carrier anchors near a port – often the anchorage points north and south of the Kerch Strait – and is met by a general cargo ship that has made an illegal entry at a Ukrainian port for purposes of loading looted grain.²⁰ Transshipment can make it harder to track the stolen goods using ship data, as the ship that loaded the stolen cargo does not bring that cargo to another port for unloading. This method can also allow smaller, faster ships that may be able to enter and exit shallower ports or ports partially blocked by debris or mines to carry out multiple, smaller loads that can then be transferred to larger ships, which can also receive stolen cargo from multiple ships and even multiple ports.

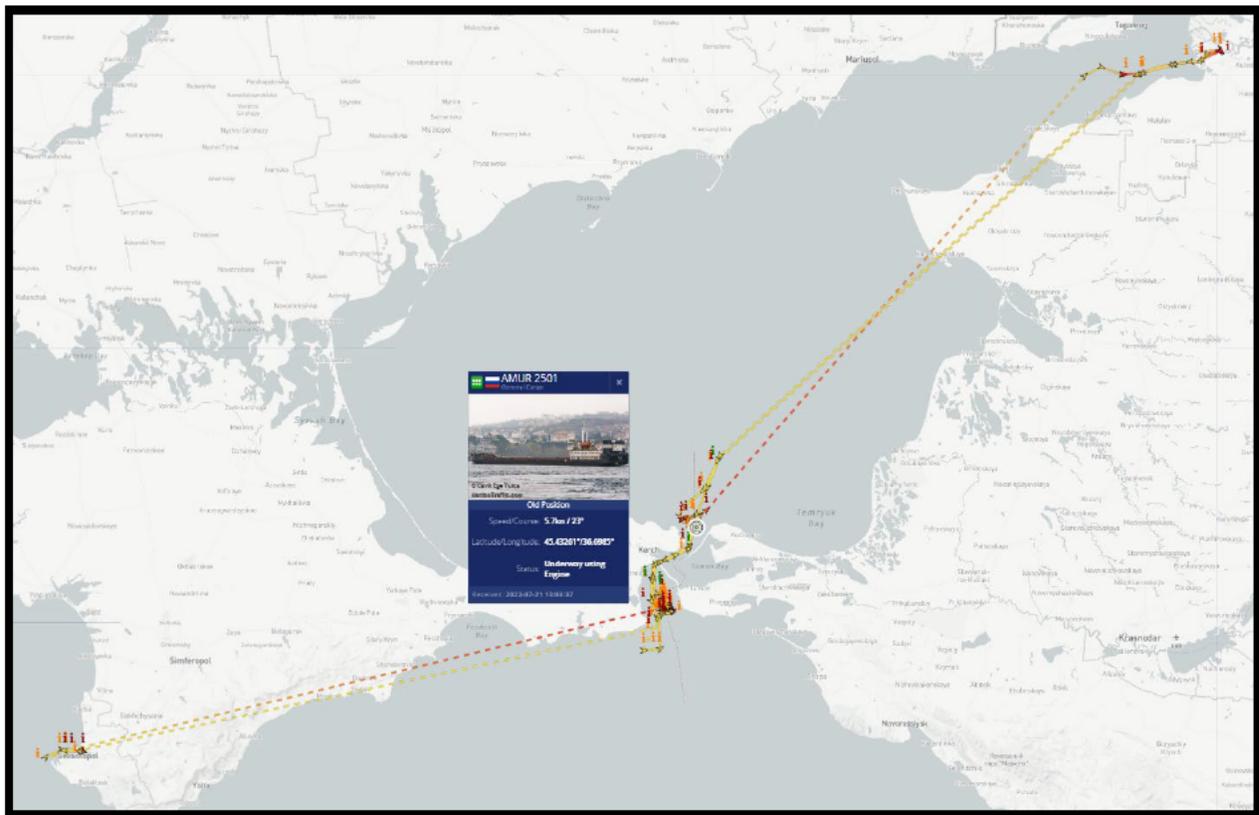
The SeaCrime team of Myrotvorets has shown evidence that at least some of the smaller ships used for transshipment will begin a series of transshipment-related flights by leaving a Russian port with a cargo of grain. Grain leaving a Russian port, regardless of its initial provenance, may be labeled as of Russian origin. That grain is first delivered to the larger ship before the general cargo ship enters a Ukrainian port to take on a cargo of stolen grain.²¹ Mixing the stolen grain with grain shipped from a Russian port allows for the grain to be re-labeled as of Russian origin for purposes of avoiding trade sanctions against

²⁰ See Kateryna Yaresko, Looted Volumes: In June, 183,000 tons of grain were exported from the grain terminal in occupied Sevastopol, *Myrotvorets News* (July 2, 2022), <https://myrotvorets.news/obsiahy-nahrabovanoho-v-chervni-z-zerno/>.

²¹ See Kateryna Yaresko, “Ozerny-207” and “Shilaynyay”: Transshipment of grain from the occupied Crimea in the Kerch Strait, *Myrotvorets News* (July 20, 2022), <https://myrotvorets.news/ozernyi-207i-shilaynyay-perevalka-zerna-z-okupo/>.

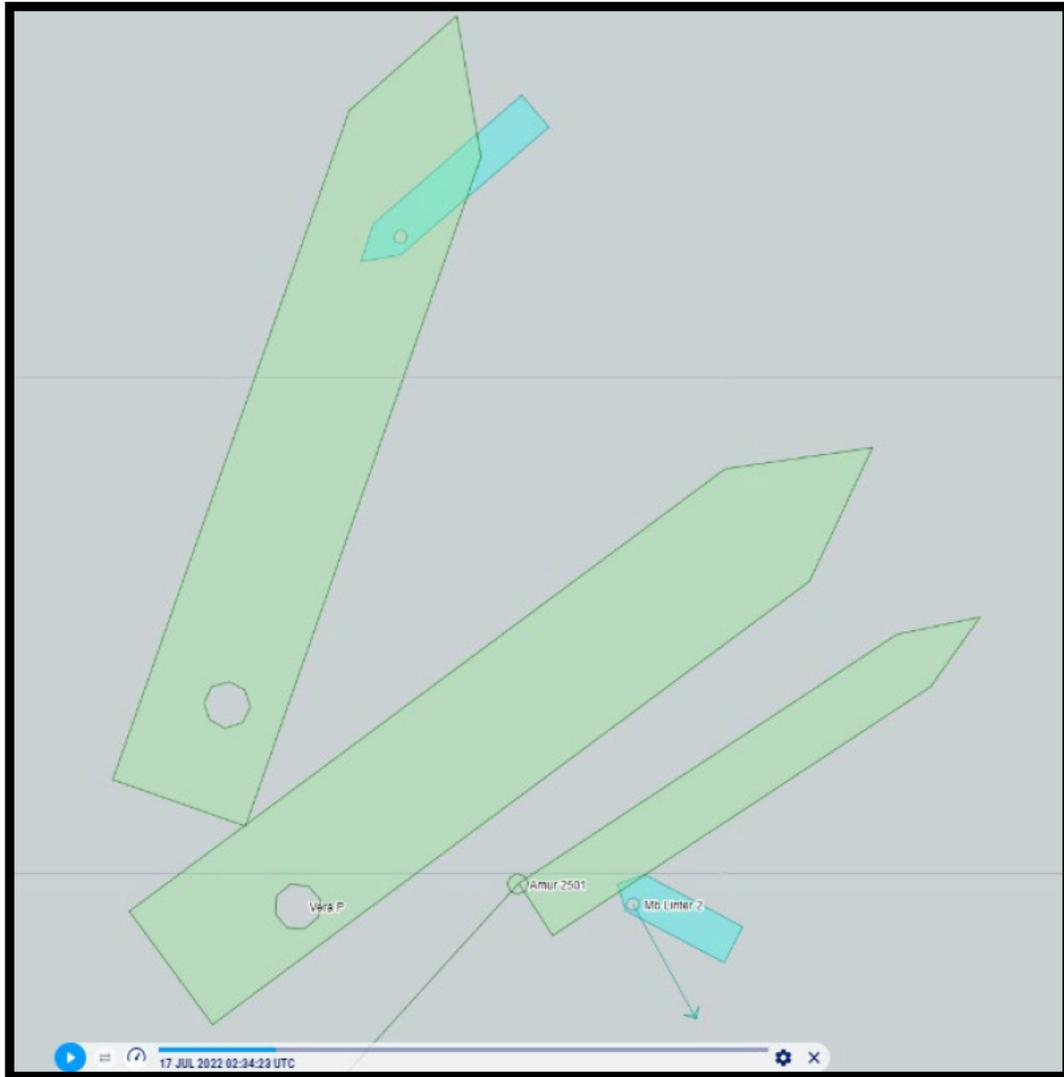
stolen Ukrainian grain.²² The AIS port history of several of the ships observed entering and/or loading stolen grain at Ukrainian ports indicates that such transshipment is common.

Amur 2501, IMO 8721272, provides examples of the practices of “going dark” to obscure movement and anchoring to allow for transshipment. The ship left the Russian port of Azov on June 25. The ship turned off its AIS transponder in the early morning hours on June 26 as it traveled west, obscuring its route across the Sea of Azov as indicated by a dashed line on the screenshot of the MarineTraffic below. Late that night, as the ship approached the Kerch Strait, it turned its AIS transponder back on before anchoring and loitering north of the Kavkaz anchorage point between June 27 and July 1, an indication of transshipment activity. The ship then passed south through the strait before turning its AIS transponder off again, reappearing at Sevastopol where it is believed to have taken on a load of grain.



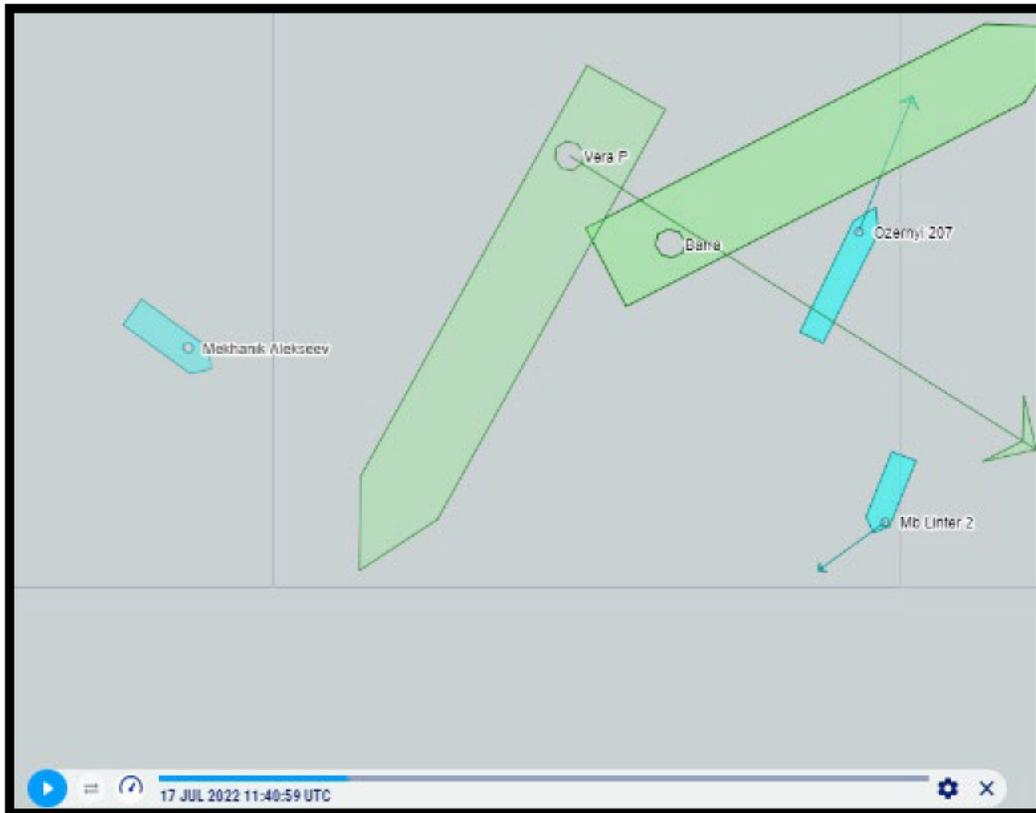
MarineTraffic, Past Track: *Amur 2501*, July 4, 2022 – July 22, 2022 showing the ship “going dark” as it traversed the Sea of Azov toward Kavkaz on June 26; the Black Sea toward Sevastopol on July 3–4; from Sevastopol toward the Kerch Strait on July 5–7; from Kavkaz to Azov on July 8–9; again from Azov toward Kavkaz on July 15–16; while in the Black Sea south of the Kerch Strait from July 17–20; and after emerging at the north end of the Kerch Strait on July 21.

²² See Nick Beake, Maria Korenyuk, and Reality Check team, Tracking where Russia is taking Ukraine’s stolen grain, *BBC News* (June 27, 2022), https://www.bbc.com/news/61790625?fbclid=IwAR0u4akL4LUxH_dUdixva6swQLLZUrV2H17QIP2EclRuH_szbby9MQVroWc.



MarineTraffic Past Track: *Amur 2501*, July 17, 2022, 02:24 UTC.

A bulk carrier by the name of *Barra*, IMO 9142992, and the tug *Ozernyi 207*, MMSI 273444450, which had been documented removing grain from Sevastopol in June and from Kerch on July 10-11 and July 17, were also identified via AIS at the same location and may have been transferring or taking on cargo from *Vera P* or *Barra*.



MarineTraffic, Past Track: *Amur 2501*, July 17, 2022, 11:40 UTC.

After apparently delivering its cargo from Azov to *Vera P*, *Amur 2501* exited the Kerch Strait, southbound, and turned off its AIS transponder yet again and remained dark until July 20. It briefly loitered near *Petra 1* again before passing north through the strait. Before entering the Sea of Azov again on July 21, *Amur 2501* turned its AIS transponder off, “going dark” again until it arrived back at Azov on July 22.

Even when ships broadcast less AIS data, they are still vulnerable to several tracking methodologies. As with the land traffic, the seamen on some of these vessels are not practicing basic operational and technical security procedures, even posting photos from occupied ports. According to a serving intelligence official at the National Security Agency, some of these ships are “alive” with personal device data that can be tracked in some cases with commercially available technology.²³ According to confidential sources, the crews of some of the ships being used to smuggle looted agricultural products and industrial materials have been pressed into service unwillingly.²⁴

²³ Interview, U.S. National Security Agency/Central Security Service, July 2022.

²⁴ Such individuals may be more likely to make social media posts detailing locations and cargo or otherwise provide open-source information useful in the tracking of these ships.

How Much Has Been Stolen and Where Is It Going?

Steel

Based on reports from Mariupol (and thus not accounting for any steel that may be smuggled out via other ports), as much as 11,000 tons of steel appears to have been stolen from Mariupol as of the time of writing, with at least another 28,000 tons likely to be taken from the port in the near future.

Metinvest, which owns the Azovstal and Ilyich Iron and Steel Works plants, reported in June that there more than 234,000 tons of product at the port.²⁵ Until Russia is evicted from Ukraine, that metal is also vulnerable to Russian piracy.

According to Russian state-owned media, an empty Russian cargo ship arrived in Mariupol on May 28 and departed on May 30 with 2,500 to 2,700 metric tons of metal products.²⁶ Despite the incident being reported by Russian state media, AIS port history data for that ship, *RM-3*, IMO 8877241, does not reflect a call at Mariupol. However, the ship's port data shows a one-week gap between calls at the port of Azov between May 27 and June 3. This is consistent with the practice of ships "going dark" when seeking to hide their movements.

| Port History | Port History | Port History |
|--|---|--|
| Rostov-Na-Donu 16h Jun 11, 19:42 - Jun 12, 12:16 > Rostov-Na-Donu | Azov 36m Jun 3, 3:48 - 4:24 > Rostov-Na-Donu | Rostov-Na-Donu 1h Feb 23, 10:31 - 12:00 > Rostov-Na-Donu |
| Azov 19m Jun 11, 16:58 - 17:17 > Rostov-Na-Donu | Azov 20m May 27, 3:28 - 3:48 > Rostov-Na-Donu | Azov 21m Feb 22, 22:40 - 23:00 > Rostov-Na-Donu |
| Azov 20m Jun 7, 5:39 - 5:59 > Rostov-Na-Donu | Rostov-Na-Donu 1h May 27, 0:07 - 1:22 > Rostov-Na-Donu | Kerch Strait Feb 20, 21:47 > Rostov-Na-Donu |
| Rostov-Na-Donu 3d 20h Jun 3, 7:01 - Jun 7, 3:31 > Rostov-Na-Donu | Rostov-Na-Donu 1h May 25, 16:59 - 18:34 > Rostov-Na-Donu | Kamyshova Bay 1w 5d 4h Feb 6, 7:06 - Feb 18, 10:53 > Sevastopol |
| Azov 36m Jun 3, 3:48 - 4:24 > Rostov-Na-Donu | Rostov-Na-Donu 1h Feb 23, 10:31 - 12:00 > Rostov-Na-Donu | Kamyshova Bay 1d 9h Feb 2, 11:06 - Feb 3, 20:15 > Sevastopol |
| Azov 20m May 27, 3:28 - 3:48 > Rostov-Na-Donu | Azov 21m Feb 22, 22:40 - 23:00 > Rostov-Na-Donu | Kamyshova Bay Jan 23, 13:30 > Sevastopol |

ShippingExplorer.net, Ship: Rm 3, IMO 8877241 (last accessed July 21, 2022).

In addition to *RM 3*, Russian actors may have appropriated privately owned ships that had been in the port of Mariupol when Russia invaded in order to ship metal products to Russia. According to Metinvest and an April report from *Black Sea News*, there were six cargo ships in the port of Mariupol to receive cargo when Russia invaded:

- *Azburg*, IMO 9102899

²⁵ Press Release, Metinvest, Metinvest warns consumers against buying Ukrainian metal stolen by the Russians (June 21, 2022), available at <https://metinvestholding.com/ua/media/news/metinvest-zasterga-spozivachv-vd-kupvl-vikradenogo-rosyanami-ukranksjkogo-metalu>.

²⁶ Maxim Tishchenko, The first ship that entered the port after the liberation of Mariupol completed loading, *TASS* (May 30, 2022), <https://tass.ru/mezhdunarodnaya-panorama/14765809>; See also, Pro-Russian separatists to form merchant fleet from ships seized in occupied Mariupol, *i24 News* (May 31, 2022), <https://www.i24news.tv/en/news/ukraine-conflict/1653993075-pro-russian-separatists-to-form-merchant-fleet-from-ships-seized-in-occupied-mariupol>.

- *Azov Concord*, IMO 9387748
- *Blue Star 1*, IMO 9375159
- *Lady Augusta*, IMO 9163568
- *Smarta*, IMO 9396567
- *Tzarevna*, IMO 9145231²⁷

The deadweight tonnage (a measure of the total weight, in metric tons, a ship can carry including cargo plus fuel, water, crew, and other supplies) for these ships is:

- *Azburg*: 9,085
- *Azov Concord*: 8,975
- *Blue Star 1*: 5,245
- *Lady Augusta*: 6,830
- *Smarta*: 15,968
- *Tzarevna*: 21,470

In addition to damaging *Azburg* with explosives, Russian forces have reportedly kidnapped the crews of that ship as well as the crews of two of the three ships that have been “nationalized” by Russian forces. These hijacked ships could easily be used for the transport of stolen steel.

Shortly after *RM 3* left Mariupol, Denis Pushilin, head of the Donetsk People’s Republic, declared that the Russia-backed group would be seizing and “nationalizing” the ships trapped at Mariupol.²⁸ According to a statement from Ukraine’s Commissioner for Human Rights, a total of 42 civilian crew members from three of those ships, *Azburg*, *Blue Star*, and *Smarta*, were taken hostage and transferred to occupied Donetsk.²⁹ The owners of *Smarta* and *Blue Star 1* have since received notices that their ships were being “forced back into state service.”³⁰ Additionally, the owner of *Tzarevna* reported that a man representing the Donetsk Republic made an offer to buy the ship, “but at a ridiculous value. They made a blackmail, an offer that we have not even taken into consideration.”³¹

Metinvest reported that 28,000 tons of metal products had been loaded onto ships that were in the port.³² *Maritime Executive* reported that *Tzarevna* was loaded with 15,000 tons of steel slab.³³ Without

²⁷ Ships in the ports of Ukraine during the war: Mariupol port, *Black Sea News* (April 7, 2022), <https://www.blackseanews.net/read/187257>.

²⁸ See, Pro-Russian separatists to form merchant fleet from ships seized in occupied Mariupol, *i24 News* (May 31, 2022), <https://www.i24news.tv/en/news/ukraine-conflict/1653993075-pro-russian-separatists-to-form-merchant-fleet-from-ships-seized-in-occupied-mariupol>.

²⁹ Press Release, Ukrainian Parliament Commissioner for Human Rights, Commissioner: The crews of three cargo ships are being held captive by the occupiers (April 18, 2022), available at https://www.ombudsman.gov.ua/en/news_details/upovnovazhenij-ekipazhi-troh-vantazhnih-suden-perebuwayut-u-poloni-okupantiv.

³⁰ See, Occupiers seized two foreign commercial ships in Mariupol – Reuters / Photo, *Black Sea News* (July 7, 2022), <https://www.blackseanews.net/read/191469>.

³¹ Italian owner protest’s Russia’s seizure of freighter at Mariupol, *Maritime Executive* (June 1, 2022), <https://maritime-executive.com/article/italian-shipowner-protests-russian-seizure-of-freighter-at-mariupol>.

³² Press Release, Metinvest, Metinvest reports on piracy by the Russian Federation (May 27, 2022), available at <https://metinvestholding.com/ua/media/news/metinvest-povdomlyya-pro-pratstvo-z-boku-rosijsiko-federac>.

³³ Italian owner protest’s Russia’s seizure of freighter at Mariupol, *Maritime Executive* (June 1, 2022), <https://maritime-executive.com/article/italian-shipowner-protests-russian-seizure-of-freighter-at-mariupol>

access to the port's or ships' loading information, ISRP investigators find it difficult to know which other ship or ships held the other 13,000 tons that had already been loaded when Russia invaded. However, it has been reported that *Smarta* was at Mariupol to take on a cargo of steel.³⁴

On May 25, *Radio Svoboda* reported that satellite images from May 24 show the *Azburg*, *Azov Concord*, and *Blue Star 1* at the metal-loading berths. *Smarta* had not moved from its pre-invasion location in the port according to the report,³⁵ suggesting that it was already loaded with valuable steel.

Petr Andryushchenko, advisor to the mayor of Mariupol, is quoted in a July 15 report published by *Perild* saying that three ships have left the port loaded with cargos of rolled metal while no "loaded vessel" had entered the port.³⁶ From this statement, ISRP investigators assume that at least two of the six ships in addition to *RM 3* have been used to transport stolen metal products out of Mariupol. Determining which of the six ships have left the port is difficult without real-time satellite imagery, particularly given the practice of ships' turning off AIS transponders during flights. However, attempting to identify the ships helps with the calculation of an estimate of the total amount of metal products that has been taken from the port to date.

Examining port history information from ShippingExplorer.net shows that *Azov Concord* left Mariupol June 21 and arrived at Novorossiysk, Russia, on June 25, where it remained until the following day. With a deadweight tonnage of 8,975 metric tons, the *Azov Concord* could have carried 8,000 metric tons of metal or more when it returned to Russia.

| <input type="checkbox"/> | Vessel Name | Port Call Type | Port Type | Port At Call | Port At Call Country | Ata/atd | Time At Port | Destination Port |
|--------------------------|---------------|----------------|-----------|-------------------|----------------------|----------------------|--------------|------------------|
| <input type="checkbox"/> | AZOV CONCO... | DEPARTURE | Port | NOVOROSSIYSK | RU | 2022-06-26 17:18 UTC | 1d 9h 20m | ZONGULDAK ANCH |
| <input type="checkbox"/> | AZOV CONCO... | ARRIVAL | Port | NOVOROSSIYSK | RU | 2022-06-25 07:58 UTC | - | - |
| <input type="checkbox"/> | AZOV CONCO... | DEPARTURE | Port | MARIUPOL | UA | 2022-06-21 13:32 UTC | - | NOVOROSSIYSK |
| <input type="checkbox"/> | AZOV CONCO... | ARRIVAL | Port | MARIUPOL | UA | 2022-02-21 10:28 UTC | - | - |
| <input type="checkbox"/> | AZOV CONCO... | DEPARTURE | Anchorage | MARIUPOL ANCH | UA | 2022-02-21 10:12 UTC | 11h 23m | MARIUPOL |
| <input type="checkbox"/> | AZOV CONCO... | ARRIVAL | Anchorage | MARIUPOL ANCH | UA | 2022-02-20 22:49 UTC | - | - |
| <input type="checkbox"/> | AZOV CONCO... | DEPARTURE | Anchorage | KAVKAZ SOUTH ANCH | RU | 2022-02-20 10:14 UTC | 1d 6h 51m | MARIUPOL ANCH |
| <input type="checkbox"/> | AZOV CONCO... | ARRIVAL | Anchorage | KAVKAZ SOUTH ANCH | RU | 2022-02-19 03:23 UTC | - | - |

MarineTraffic.com, *Azov Concord* Port Calls.

³⁴ Jonathon Saul, Russian separatists seize two foreign ships in Mariupol, *Reuters* (July 5, 2022), <https://www.reuters.com/world/europe/russian-separatists-seize-two-foreign-ships-mariupol-letters-2022-07-05/>.

³⁵ Kyrlyo Ovsyanyi, The satellite detected the vessels that the Russian occupiers can use to metal and grain from the port of Mariupol, *Radio Svoboda* (May 25, 2022), <https://www.radiosvoboda.org/a/skhemy-mariupol-zerno-metal/31867261.html>.

³⁶ Russia has turned the port of Mariupol into a military transport hub, *Perild* (July 15, 2022), <https://www.perild.com/2022/07/15/russia-has-turned-the-port-of-mariupol-into-a-military-transport-hub-mayors-office/>.

Lloyd's List noted that at the time *Azov Concord* left Mariupol, the other five cargo ships were still in the port.³⁷ Assuming at least one additional ship has left Mariupol, it would have had to leave between June 22, after *Azov Concord* left the port, and July 15, when Andryushchenko reported that three ships had left the port.

MarineTraffic, however, shows a single, unidentified cargo vessel and lists only the *Tzarevna* as being in the port as of July 21, 2022. The *Tzarevna* was loaded with a reported 15,000 tons of steel prior to the Russian invasion. The ship's owner has stated that Russian actors have attempted to "buy" the *Tzarevna*, giving reason to believe they may attempt to steal it and its valuable cargo from the port soon.



MarineTraffic, Port: Mariupol (July 18, 2022, 2041 EEST).

The other two ships that have been seized by Russian forces, *Smarta* (deadweight tonnage of 15,968 tons) and *Blue Star 1* (deadweight tonnage of 5,245 tons), make the most likely candidates for the third ship that has reportedly left Mariupol. While reports state that the kidnapped crew of the *Smarta* has been released,³⁸ it appears the crew of the *Blue Star 1* is still being held captive. However, without more information, the investigators are unable reach a conclusion regarding the identity of the third ship with an acceptable degree of confidence at the time of writing.

³⁷ David Osler and Bridget Diakun, Cargoship allowed to leave Mariupol after four months, *Lloyd's List Maritime Intelligence* (June 28, 2022), <https://lloydslist.maritimeintelligence.informa.com/LL1141372/Cargoship-allowed-to-leave-Mariupol-after-four-months>.

³⁸ Jonathon Saul, Russian separatists seize two foreign ships in Mariupol, *Reuters* (July 5, 2022), <https://www.reuters.com/world/europe/russian-separatists-seize-two-foreign-ships-mariupol-letters-2022-07-05/>.

Grain

Based only on the incidents identified prior to the writing of this report, the investigators estimate that more than half a million metric tons of wheat, corn, and barley had been looted from Ukrainian ports and transported to Turkey, Russia, Syria, and possibly Lebanon.

This figure is based on the deadweight tonnage of the ships identified in each of the identified apparent smuggling flights, reduced to allow for fuel, water, and crew. This methodology may not be precisely accurate because it uses estimated cargo weights reported by respected groups like Myrotvoretz (where available) and assumes that each ship took on its estimated maximum cargo weight on each flight and that all grain in an identified instance of transshipment is stolen.

However, the figure is likely an underestimate. Some of the identified ships have made additional flights that had not been confirmed at the time of writing as involving possible smuggling activity.

Additionally, during the writing of this report, the investigators have identified more ships engaged in suspicious behaviors and possible incidents of theft, including multiple apparent transshipments in the Kerch Strait that could involve aggregated cargo loads of 30,000 tons or more in each bulk carrier identified. *Myrotvoretz News* has documented additional incidents as well. Our estimate also does not include any of the grain taken via rail or over-the-road convoys.

Identified Instances of Suspected Illegal Exports of Ukrainian Resources: Ships, Routes, and Estimated Quantities

| Date of Arrival/Delivery | Ship | Port or Transshipment Point | Cargo Source Port | Ship DWT | Estimated Cargo |
|---------------------------------|------------------|---|--------------------------|-----------------|------------------------|
| 10-Mar | Sormovskiy 48 | Samsun, Turkey | Kerch | 3346 | 3000 |
| 10-Mar | Alexander Grin | Samsun, Turkey | Kerch | 3180 | 2700 |
| 10-Mar | Vera | Samsun, Turkey | Kerch | 2871 | 2500 |
| 10-Mar | Nadezhda | Samsun, Turkey | Sevastopol | 3632 | 3200 |
| 22-Apr | Mikhail Nenashev | Derince, Turkey | Sevastopol | 28419 | 27000 |
| 29-Apr | Finikia | Nemrut, Turkey | Sevastopol | 18908 | 17000 |
| 5-May | Nadezhda | Samsun, Turkey | Kerch | 3632 | 3000 |
| 12-May | Sormovskiy 48 | Samsun, Turkey | Kerch | 3346 | 3000 |
| 6-May | Matros Koshka | Stated intended destination: Beirut. Turned off AIS May 3 while approaching Lebanon and Syria. Never recorded port call at Beirut. Turned AIS back on May 13. Suspected as actual destination: Latakia or Tartus, Syria | Sevastopol | 28434 | 27000 |
| 10-May | Mikhail Nenashev | Stated intended destination: Beirut. Turned off AIS May 8 north of Cyprus while approaching Syria. Never recorded port call at Beirut. Turned AIS back on May 17 while on return. | Sevastopol | 28419 | 27000 |

| | | | | | |
|--------------|---------------------|---|------------|-------|-------|
| | | Suspected actual destination: Latakia, Syria | | | |
| 13-May | Matros Posynich | Latakia, Syria | Sevastopol | 28351 | 27000 |
| 14-May | Vera | Samsun, Turkey | Sevastopol | 2871 | 2500 |
| 21-May | Sormovskiy 48 | Samsun, Turkey | Kerch | 3346 | 3000 |
| 26-May | Matros Posynich | Stated intended destination: Beirut. Turned off AIS May 25 approximately 50 kilometers from Latakia. Never recorded call at Beirut. Turned AIS back on June 1 on return, approximately 30 kilometers from Latakia. Suspected actual destination: Latakia, Syria | Sevastopol | 28351 | 27000 |
| 24-May | Finikia | Iskenderun, Turkey | Sevastopol | 18908 | 17000 |
| 30-May | Mikhail Nenashev | Iskenderun, Turkey | Sevastopol | 28419 | 27000 |
| 31-May | Matros Koshka | Stated intended destination: Beirut. Turned off AIS May 31 south of Cyprus. Never recorded call at Beirut. Turned AIS back on June 8 while on return. Suspected actual destination: Latakia or Tartus, Syria | Sevastopol | 28434 | 27000 |
| 5-Jun | Volgo Don 205 | Kerch Strait; transferred cargo to Prince Amin | Sevastopol | 4019 | 3500 |
| 6-Jun | Volgo Don 5043 | Kerch Strait; transferred cargo to Prince Amin | Sevastopol | 3650 | 3200 |
| After June 7 | Volgo-Balt 106 | Turned off AIS while in the Kerch Strait on May 5. Was observed in Sevastopol May 6 to June 6 before leaving with stolen wheat. Has not turned AIS transponder on again. | Sevastopol | 2907 | 2500 |
| 8-Jun | Capitan Korchin | Kerch Strait; transferred cargo to Prince Amin | Sevastopol | 5659 | 5000 |
| 9-Jun | Amur 2501 | Kerch Strait; transferred cargo to Petra II or Peter S | Sevastopol | 3340 | 3000 |
| 10-Jun | Lavrion | Azov, Russia | Sevastopol | 3332 | 3000 |
| 11-Jun | Volgo Don 205 | Kerch Strait; transferred cargo to Emmakris II | Sevastopol | 4019 | 3700 |
| 13-Jun | SV.Konstantin | Bandirma, Turkey | Sevastopol | 5376 | 5000 |
| 17-Jun | M.Andreev | Kerch Strait; transferred cargo to Miranda | Sevastopol | 4038 | 3700 |
| 17-Jun | Matros Posynich | Stated intended destination: Beirut. Turned off AIS June 17 while approximately 25 kilometers from Tartus. Never recorded call at Beirut. Turned AIS back on June 26 at same position. Suspected actual destination: Tartus, Syria | Sevastopol | 28351 | 27000 |
| 17-Jun | Ozernyi 207 + barge | Rostov-on-Don, Russia | Sevastopol | | 3600 |

| | | | | | |
|-------------|---------------------------------|--|--------------|-------|--------|
| 18-Jun | Fedor | Bandirma, Turkey | Sevastopol | 9517 | 9000 |
| 21-Jun | Kapitan Skachkov | Kerch Strait; transferred cargo to Emmakris II | Sevastopol | 5223 | 5000 |
| 23-Jun | Souria | Latakia, Syria | Sevastopol | 12716 | 10000 |
| 25-Jun | M.Andreev | Kerch Strait; transferred cargo to Emmakris II | Sevastopol | 4038 | 3700 |
| 26-Jun | Mikhail Nenashev | Iskenderun, Turkey (MMK private port) | Sevastopol | 28419 | 2700 |
| 26-Jun | Nadezhda | Samsun, Turkey | Sevastopol | 3632 | 3200 |
| 26-Jun | Sv. Nikolay | Izmir, Turkey | Sevastopol | 7152 | 6800 |
| 25-Jun | Capitan Korchin | Kerch Strait; transferred cargo to Emmakris II | Sevastopol | 5659 | 5000 |
| 29-Jun | Finikia | Latakia, Syria | Sevastopol | 18908 | 17000 |
| 30-Jun | Volgo-Don 205 | Rostov-on-Don, Russia | Sevastopol | 4019 | 3700 |
| 4-Jul | Laodicea | Izmir, Turkey | Feodosia | 12744 | 10000 |
| 6-Jul | Zhibek Zholy | Carasu, Turkey? Detained, then released. Last AIS transmission July 6 | Sevastopol | 7146 | 6500 |
| 8-Jul | Amur 2501 | Kerch Strait; transferred cargo to Vera P | Sevastopol | 3340 | 3000 |
| 10-Jul | Ozernyi 207 + barge Shillaynyay | Kavkaz South Anchorage; transferred barge cargo to Petra I | Kerch | | 3000 |
| 13-Jul | Matros Koshka | Stated intended destination: Beirut. Turned off AIS July 13 and had not turned it back on as of July 22. Suspected actual destination: Latakia or Tartus, Syria | Sevastopol | 28434 | 27000 |
| 13-Jul | Matros Posynich | Stated intended destination: Beirut. Turned off AIS July 13 near Latakia. Never records call at Beirut. Turned AIS back on July 21 while on return. Suspected actual destination: Latakia, Syria | Sevastopol | 28351 | 27000 |
| 17-Jul | Ozernyi 207 + barge Shillaynyay | Kerch Strait; transferred barge cargo to Ruby or Petra I | Sevastopol | | 3000 |
| 21-Jul | Amur 2501 | Kerch Strait; transfers grain to Petra I | Sevastopol | 3340 | 3000 |
| 23-Jul | Pawell | Izmir, Turkey | Sevastopol | 3042 | 2700 |
| 23-Jul | Nadezhda | Samsun, Turkey | Kerch | 3632 | 3000 |
| 23-Jul | SV.Konstantin | Izmir, Turkey | Sevastopol | 5376 | 5000 |
| ETA July 25 | Laodicea | Tartus, Syria | Feodosia | 12744 | 10000 |
| ETA July 28 | Barra | Iskenderen, Turkey | Kerch Strait | 42648 | 35000 |
| | | | | | 513400 |
| | | | | | |
| | Turkish ports | | | | 199800 |
| | Russian ports | | | | 10300 |

| | | |
|--|----------------------|--------|
| | Syrian ports | 253000 |
| | Transshipment points | 50300 |
| | | 513400 |

Syria. The Syrian government appears to have been engaged in smuggling of goods from Ukraine for years and owns and manages at least three ships that are currently suspected of participating in the looting of Ukraine: *Finikia*, *Laodicea*, and *Souria*. As mentioned above, the SeaKrime team of Myrotvorets has documented the Syrian bulk carrier *Finikia*, IMO 9385233, smuggling scrap metal, grain, and flour from Ukrainian ports to Turkey and Egypt since at least 2019.³⁹

Multiple ships owned by the Syrian General Authority have been identified as engaging in smuggling activities from Ukrainian ports. The Russian bulk carrier *Matros Pozynich*, IMO 9573816, was reportedly turned away at the ports of Alexandria, Egypt and Beirut, Lebanon while transporting grain stolen from Sevastopol before being accepted at Latakia, Syria in May.⁴⁰

Turkey. Turkey is a major importer of smuggled cargo taken from Ukrainian ports. While Syria appears to have received the largest quantity of grain via direct shipment (assuming the grain that was allegedly shipped to Lebanon did go to Syria), Turkey appears to be the destination for a substantial portion of the transshipped grain.

Prior to Russia's February invasion and subsequent occupation of parts of Ukraine, large quantities of grain and scrap metal were taken from Ukrainian ports to Turkey by ships that entered the ports illegally. The Russian cargo ship *Zhibek Zholy*, IMO 9598880, was recently detained by Turkish authorities after Ukrainian officials notified them that the ship's cargo had been stolen from Ukrainian grain stores.⁴¹ However, Turkey released the ship days later.⁴² At the time of writing, AIS data for the ship still shows it anchored off the coast of Karasu; however, the ship has not transmitted new location data since July 6.

³⁹ E.g., Kateryna Yaresko, *Finikia* has loaded grain and flour in occupied Feodosia and is going to Egypt, *Myrotvorets News* (March 2, 2021), <https://myrotvorets.news/finikia-perevozyt-zerno-z-okupovanoho-seva/>; Kateryna Yaresko, *Finikia*: Loading of scrap metal in Kamyshova Bay, *Myrotvorets News* (Jan. 27, 2021), <https://myrotvorets.news/finikia-vyishla-z-okupovanoho-sevastopolia-z-v/>; Kateryna Yaresko, *Finikia*: Grain from occupied Feodosia goes to the port of Alexandria (Egypt), *Myrotvorets News*, (Aug. 10, 2020), <https://myrotvorets.news/finikia-zerno-z-okupovanoi-feodosii-yde-v-po/>; Kateryna Yaresko, *Finikia*: Grain transportation between the occupied Crimea and Syria, *Myrotvorets News* (Dec. 19, 2019), <https://myrotvorets.news/finikia-zernovi-perevezennia-mizh-okupovanyam/>; Kateryna Yaresko, The *Finikia* ship with 17,000 tons of wheat from the occupied Crimea is going to Alexandria, Egypt, *Myrotvorets News* (Oct. 13, 2019), <https://myrotvorets.news/finikia-z-17-tysiach-tonn-pshenytsi-z-okupovanoho-k/>.

⁴⁰ See, Satellite images showed the loading of grain in the port of occupied Sevastopol – photo, *Radio Svoboda* (May 24, 2022), <https://www.radiosvoboda.org/a/news-suputnyk-zerno-sevastopol/31865881.html>.

⁴¹ See, Reuters, Ukraine says Russian ship carrying Ukrainian grain detained by Turkey, *CNBC* (July 3, 2022), <https://www.cnbc.com/2022/07/03/ukraine-says-russian-ship-carrying-ukrainian-grain-detained-by-turkey.html>.

⁴² Interfax-Ukraine, Turkey releases Russian ship with stolen Ukrainian grain; MFA summons Turkish ambassador, *Kyiv Post* (July 7, 2022), <https://www.kyivpost.com/world/turkey-releases-russian-ship-with-stolen-ukrainian-grain-mfa-summons-turkish-ambassador.html>.

Of note, the Russian bulk carrier *Mikhail Nenashev*, IMO 9515539, was identified at a private port owned by MMK Metalurji in Iskenderun, Turkey.⁴³ MMK Metalurji, established as a joint project between Russian Magnitogorsk Iron and Steel Works (MMK) and the Turkish Atakaş Group of Companies, had been fully owned by MMK since 2011.⁴⁴ MMK Metalurji announced that it expected to begin production of hot-rolled steel starting in August or September of 2021.⁴⁵

While the ship that unloaded at MMK Metalurji's private port is believed to have been loaded with as much as 27,000 tons of wheat loaded at Sevastopol,⁴⁶ but it is possible that instead of grain, the *Mikhail Nenashev* could have been carrying hot-rolled steel from Mariupol; such steel could then be resold as Turkish.

Russia. Only a small portion of the stolen grain has been taken to Russian ports other than transshipment points. The investigators believe that the grain being imported at Azov and Rostov-on-Don is most likely being taken to transshipment points to be mixed with grain taken directly from Ukrainian ports to transshipment points at a later date.

It should be noted that Russia has positive trade relations with China, which have increased since 2014, the year Russia invaded Crimea. Since the beginning of Russia's current invasion of Ukraine, China and Russia have entered into a "strategic partnership" that has been described as "know[ing] no limits."⁴⁷ While the investigators responsible for this report are not currently aware of any evidence that China is receiving looted Ukrainian industrial or agricultural products either directly or via transshipment (indeed, China stands to gain from lowered tariffs as buyers seek alternatives to Ukrainian steel), Russian state media has reported that China's Foreign Minister Wang Yi called for "creating a 'green corridor' for grain exports from Russia and Ukraine."⁴⁸

⁴³ Satellite images prove that Russia regularly exports Ukrainian grain through Crimea to Turkey – "Schemes", *Crimea.Realities* (July 5, 2022), <https://ru.krymr.com/a/news-sputnik-snimki-skhemy/31929574.html>.

⁴⁴ MMK Atakas becomes MMK Metalurji, *SteelOrbis* (Sept. 15, 2011), <https://www.steelorbis.com/steel-news/latest-news/mmk-atakas-becomes-mmk-metalurji-627790.htm>.

⁴⁵ Julia Bolotova, MMK Metalurji to start producing its own HRC again in Q3, *Fastmarkets* (April 22, 2021), <https://www.fastmarkets.com/insights/mmk-metalurji-to-start-producing-its-own-hrc-again-in-q3>.

⁴⁶ See Satellite images prove that Russia regularly exports Ukrainian grain through Crimea to Turkey – "Schemes", *Crimea.Realities* (July 5, 2022), <https://ru.krymr.com/a/news-sputnik-snimki-skhemy/31929574.html>

⁴⁷ Congressional Research Service, In Focus: China's Economic and Trade Ties with Russia (May 24, 2022), available at [https://crsreports.congress.gov/product/pdf/IF/IF12120#:~:text=After%20Russia's%202022%20invasion%20of,and%20aircraft%20\(%245.0%20billion\)](https://crsreports.congress.gov/product/pdf/IF/IF12120#:~:text=After%20Russia's%202022%20invasion%20of,and%20aircraft%20(%245.0%20billion)).

⁴⁸ Chinese top diplomat calls for 'green corridor' for grain exports from Russia, Ukraine, TASS (May 25, 2022), <https://tass.com/world/1455429>.