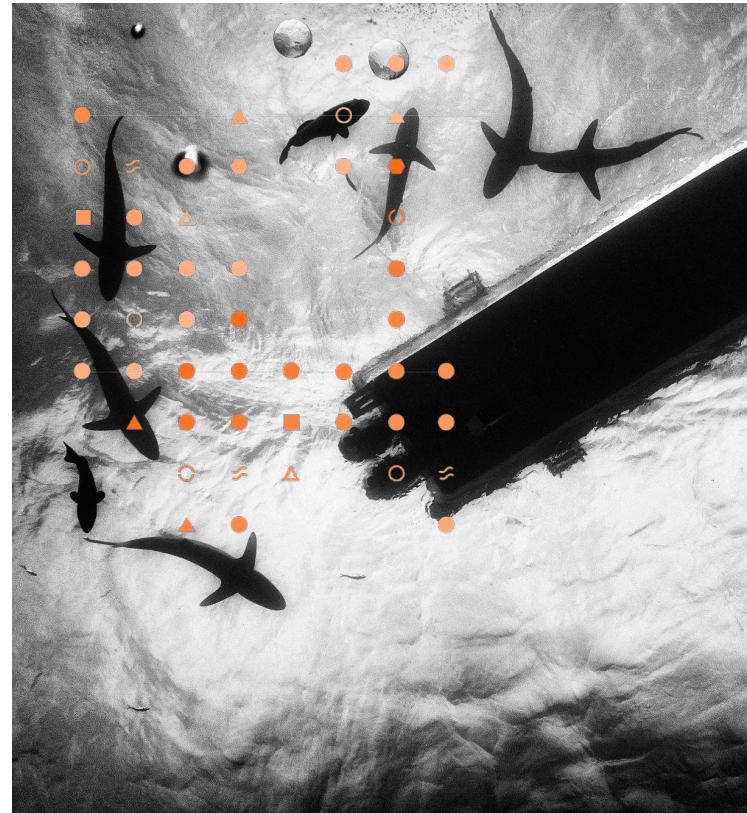


The Evolution of Deceptive Shipping

AIS - from good to bad (usage)

Benny Keinan / VP R&D @ Windward

WINDWARD R&D TEAM / April 2022



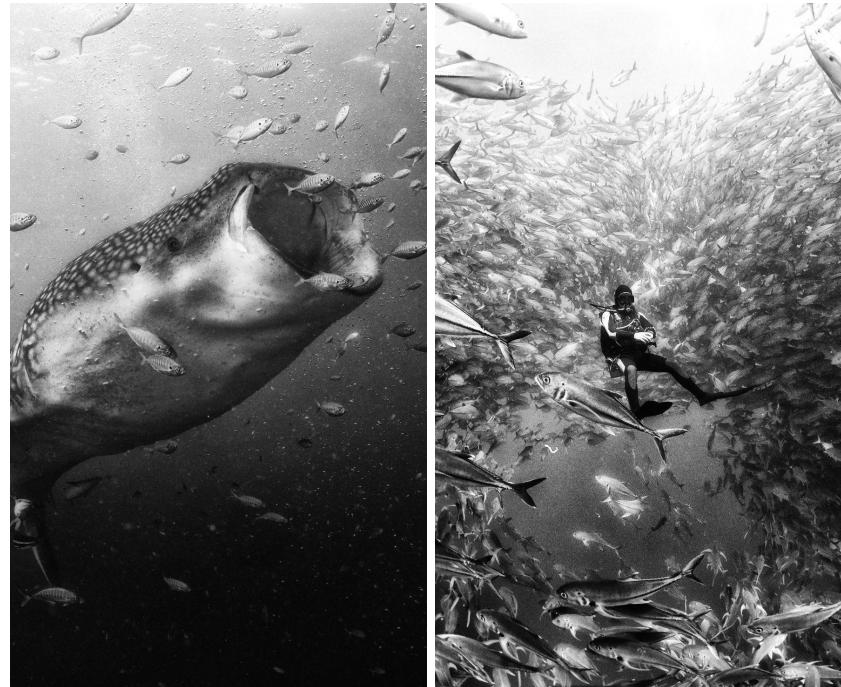
Windward

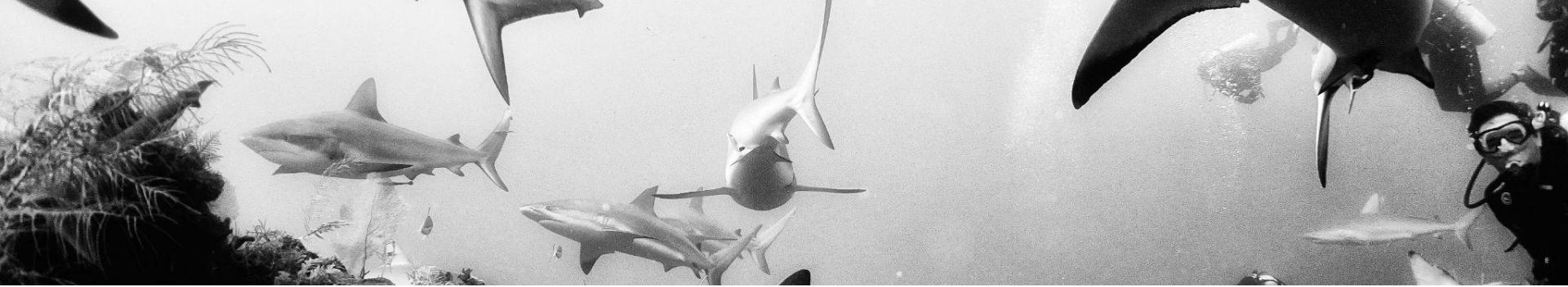
The maritime AI company

One platform delivering actionable predictive intelligence for your risk management and maritime domain awareness needs

Assessing 360 risk - border security, safety, compliance, environment, supply chain prediction, and more

Windward (LON:WNWD)





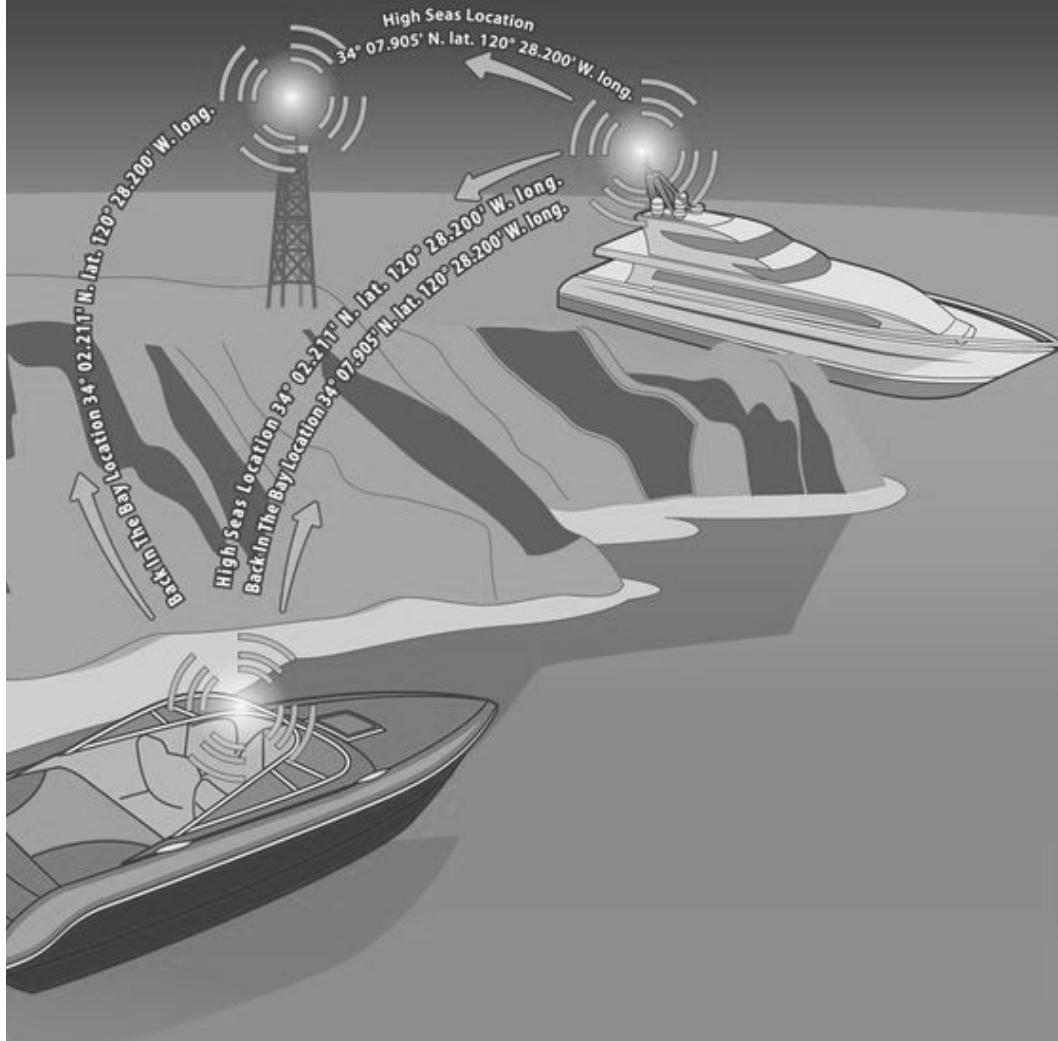
But before we start...

AIS 101

Why AIS?

Vessel safety

Each vessel transmits where it is and where it is going. Nearby vessels can know about it and avoid collisions as well as provide help when needed.



AIS - How it all began

International Convention for the Safety of Life at Sea (SOLAS)

Chapter V mandates the use of AIS as the ship's identification system in for all vessels of 300 gross tonnage and upwards

1980

Civilian GPS

Achieving global coverage in the early 1990s. It was then the integration of GPS time and position data with long-standing VHF radio technology enabled the development of AIS.

90's

AIS for Everyone

Various domain stakeholders understand how valuable this data can be for other applications such as search and rescue, operational planning, trade analysis, accident investigation, fishing fleet monitoring, and maritime security.

Early 00's

Maritime Analytics

Satellite and terrestrial AIS data is publicly traded allowing for commercial tracking and development of AI based algorithms and insights.

2010

2020

Flag Hopping

Vessels use multiple flags over a short period of time, in many cases not officially registering to throw off maritime investigators.

2018

Identity "Spoofing"

Vessels commence transmitting invalid IMO's and assuming identities of innocent vessels to confuse regulators and tracking systems.

2016

Dark Activity

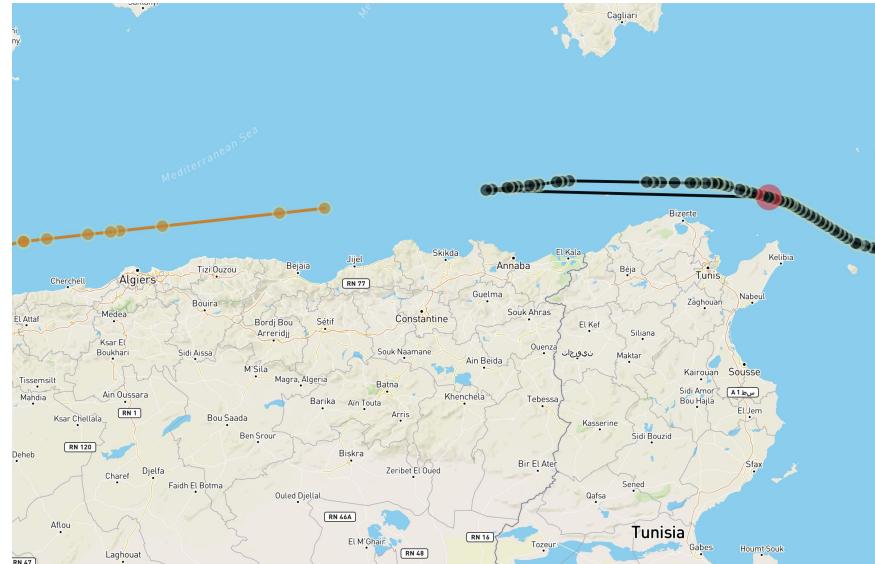
The development in MDA systems triggers a typology of deliberate AIS transmission turn-offs by bad actors disguising their location and activity.

2014

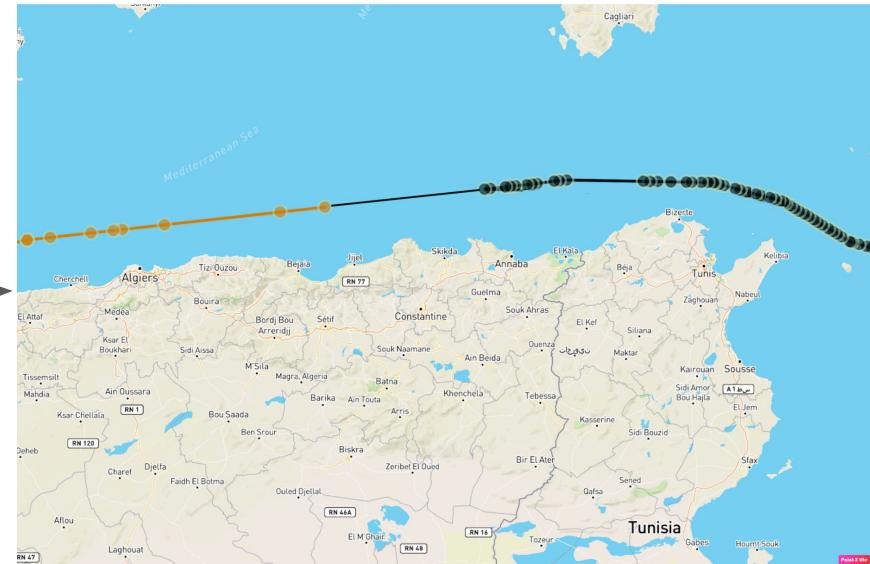
Identity Changes

To create a sense of obscurity, vessels involved in illicit activities begin changing flags/names/ownership. Flag registries are called to deflag known offenders.

Some AIS fun

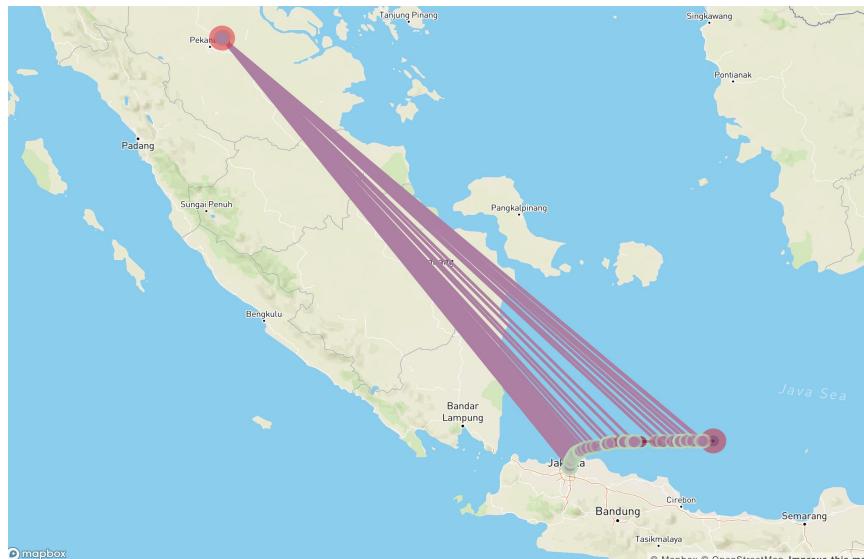


Before

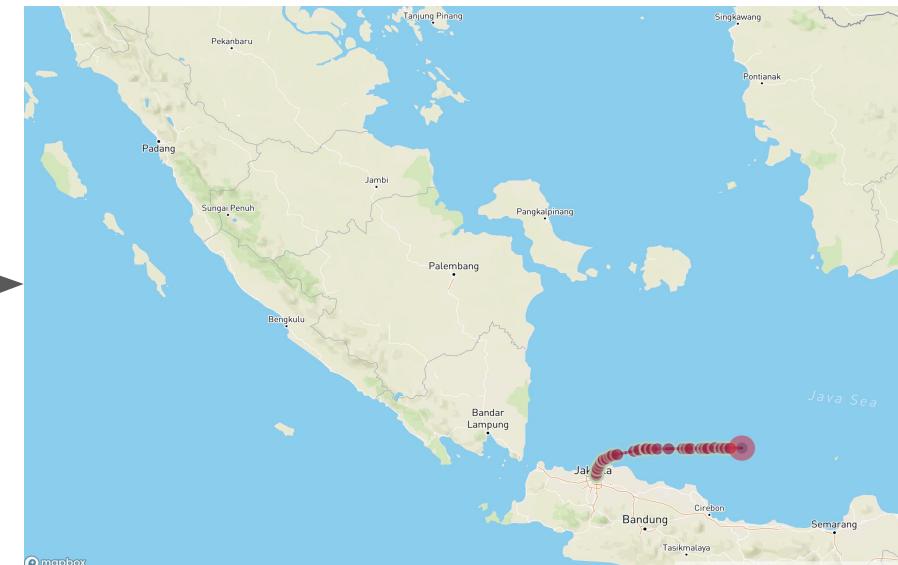


After

Some AIS fun

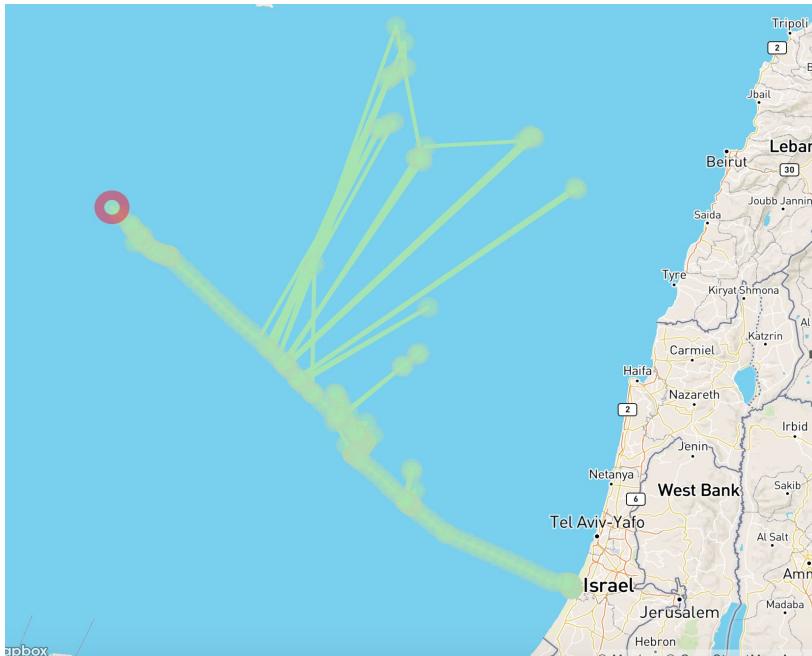


Before

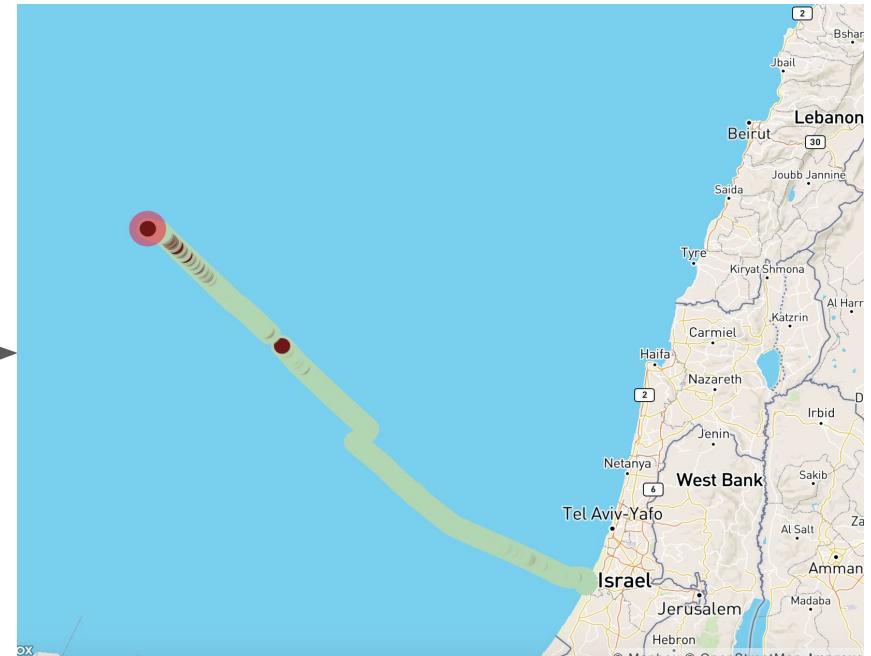


After

Some AIS fun



Before

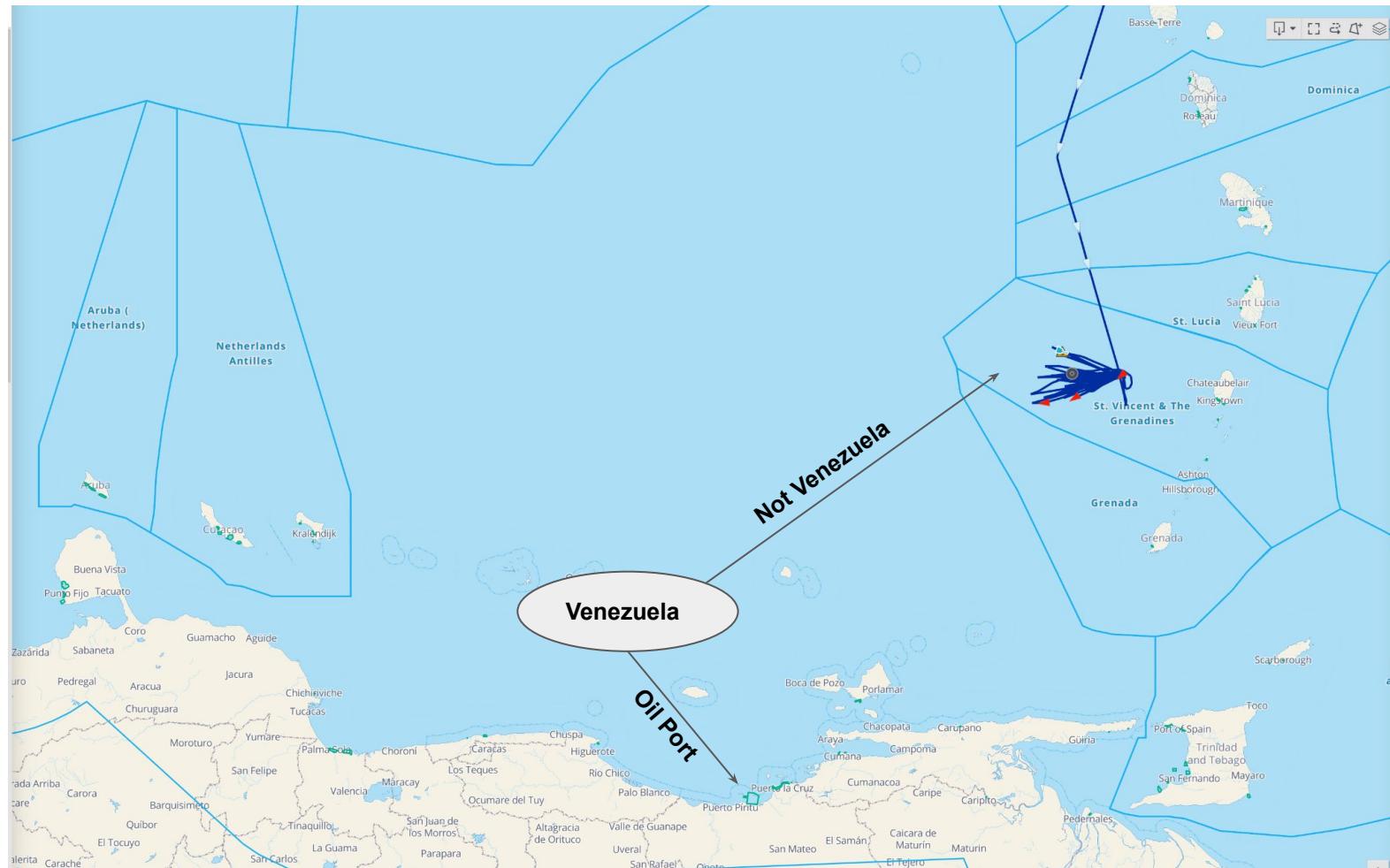


After

GNS Manipulation

The BERLINA





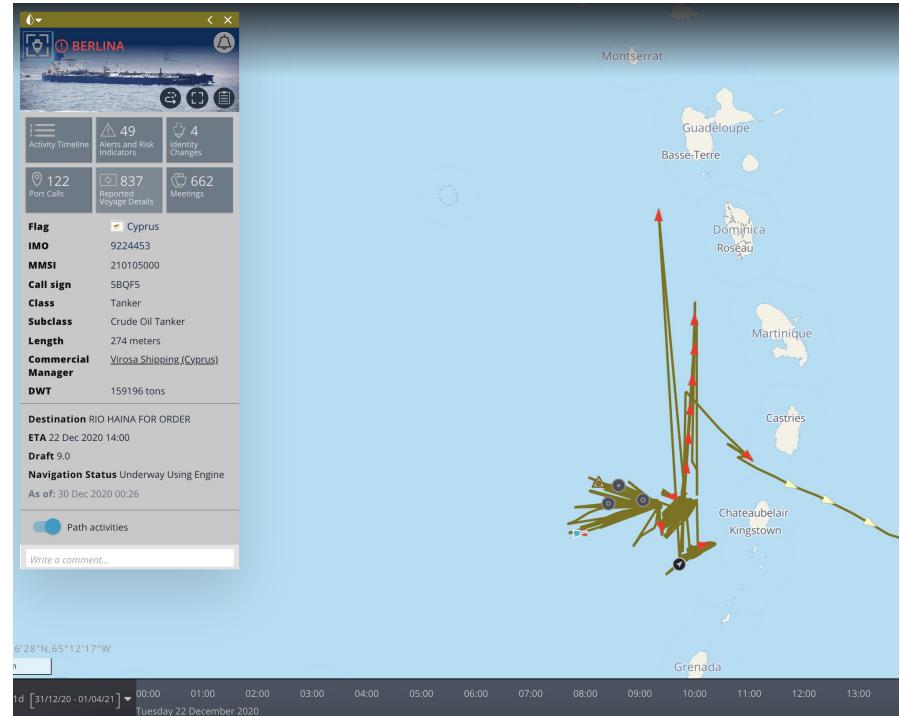
GNS Manipulation

The BERLINA

Confirmed to have visited Jose Oil Terminal by Vortexa

Physical confirmation of it loading sanctioned crude oil in Venezuela

The vessel appeared to show steady AIS transmissions indicating that it arrived in the area empty, drifted for an extended period of time just outside of Venezuelan waters, and left the area reporting to be full.

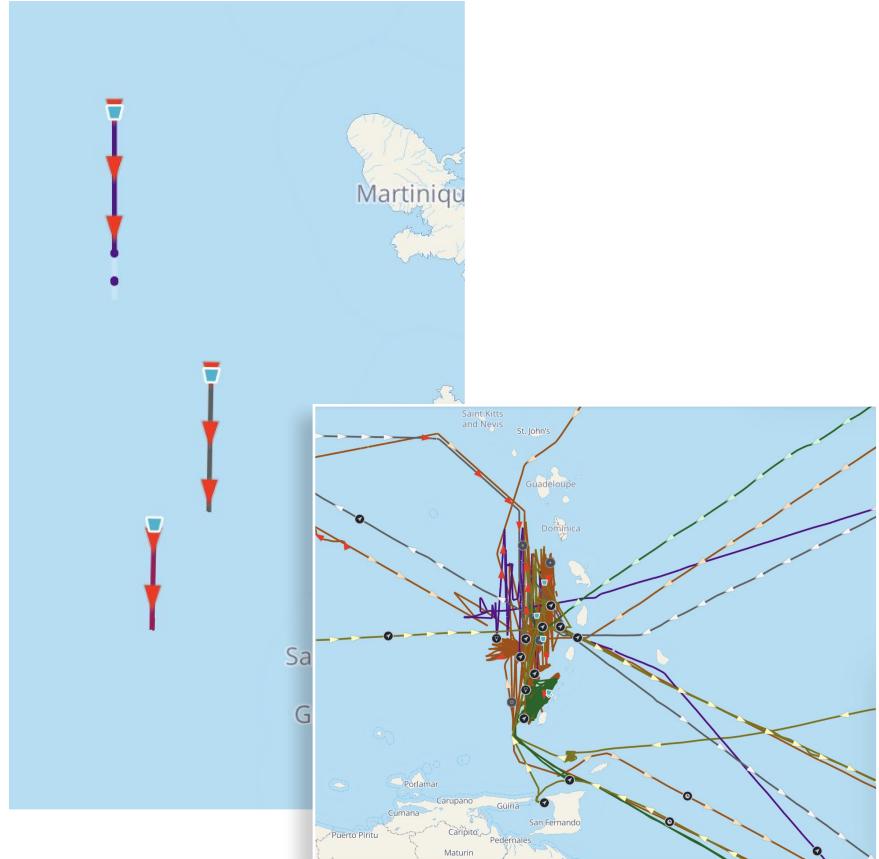


GNS Manipulation

Behavioral connection

A fleet of 10 crude oil tankers performed a very peculiar drifting pattern offshore these caribbean island nations.

All vessels drifted in the exact same area with the exact same pattern transmitting the same destinations which are irrelevant for vessels of this class and size.



GNS Manipulation

Ownership connection

According to the Windward ownership repository, these vessels are heavily connected through at least one of the 7 levels of ownership.

At least 5 of the vessels are connected to the same shipping company based in Greece.

The rest of the companies are all owned and managed by sketchy companies with no addresses or obscure information based in either Greece or Cyprus.

Vessel Name	Sanctions Compliance Risk ↓	IMO	MMSI	Flag	Class	Subclass	Length	Year of Build
①	High Risk				Tanker	Crude Oil Tanker	274	2003
① BERLINA	High Risk	9224453	210105000		Tanker	Crude Oil Tanker	274	2002
①	High Risk				Tanker	Crude Oil Tanker	274	2001
①	High Risk				Tanker	Crude Oil Tanker	274	2003
①	High Risk				Tanker	Crude Oil Tanker	274	2003
①	High Risk				Tanker	Crude Oil Tanker	274	2003
①	High Risk				Tanker	Crude Oil Tanker	334	2000
①	High Risk				Tanker	Crude Oil Tanker	332	2000
①	High Risk				Tanker	Crude Oil Tanker	333	2000
①	High Risk				Tanker	Crude Oil Tanker	274	2002



Greece's Big Maritime picks up fifth
suezmax unit this year

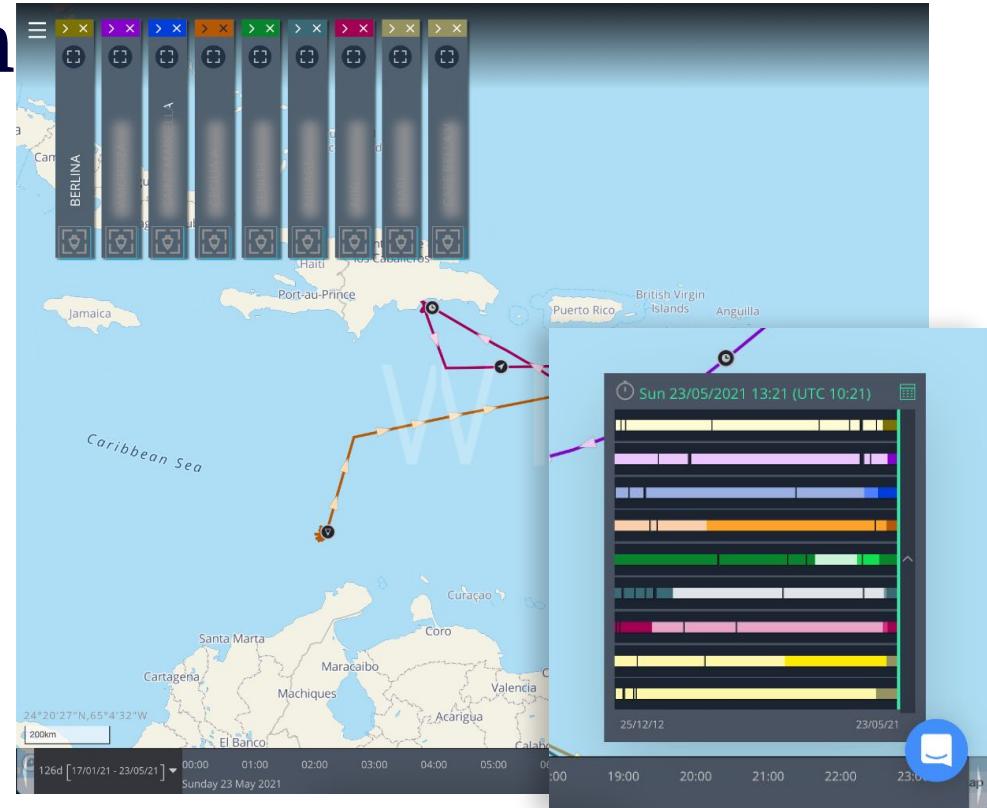
Little-known Piraeus player seen behind acquisition of 17-year-old tanker

GNS Manipulation

Identity connection

All 10 vessels are sailing under the flag of Cyprus.

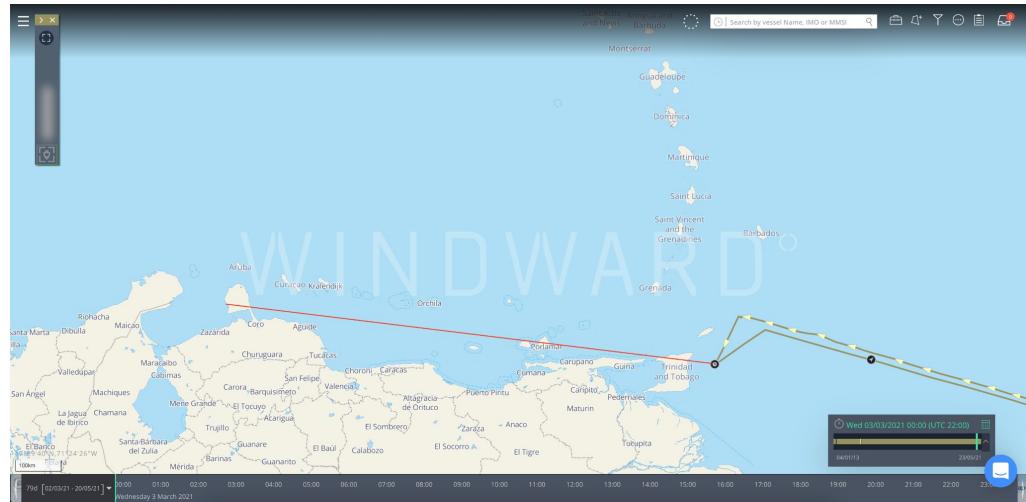
The registration change took place prior to the described behavior showing a correlation between the Cyprus flag and the GNS manipulation.



It's a global trend

Trinidad & Tobago

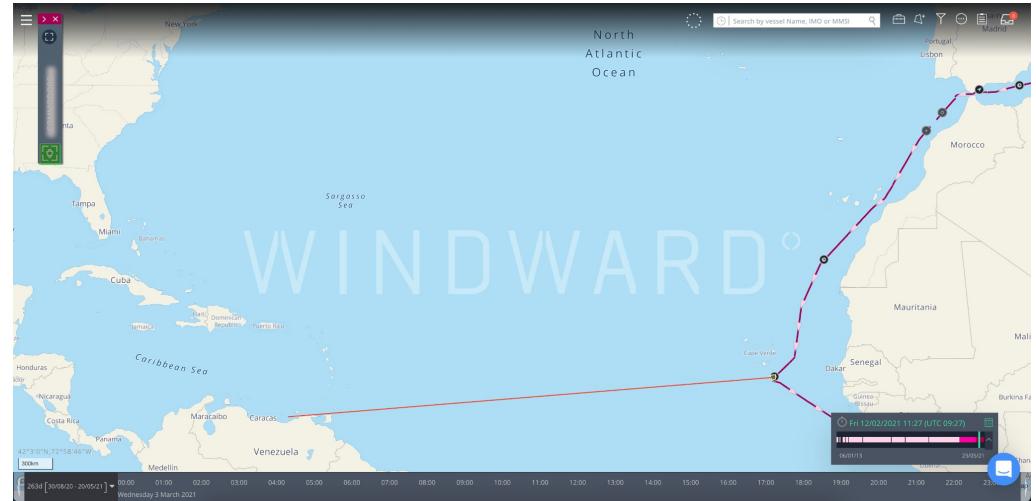
Sources confirm the vessel was spotted in Punto Fijo loading sanctioned crude while every tracking system shows it is still offshore T&T.



It's a global trend

West Africa

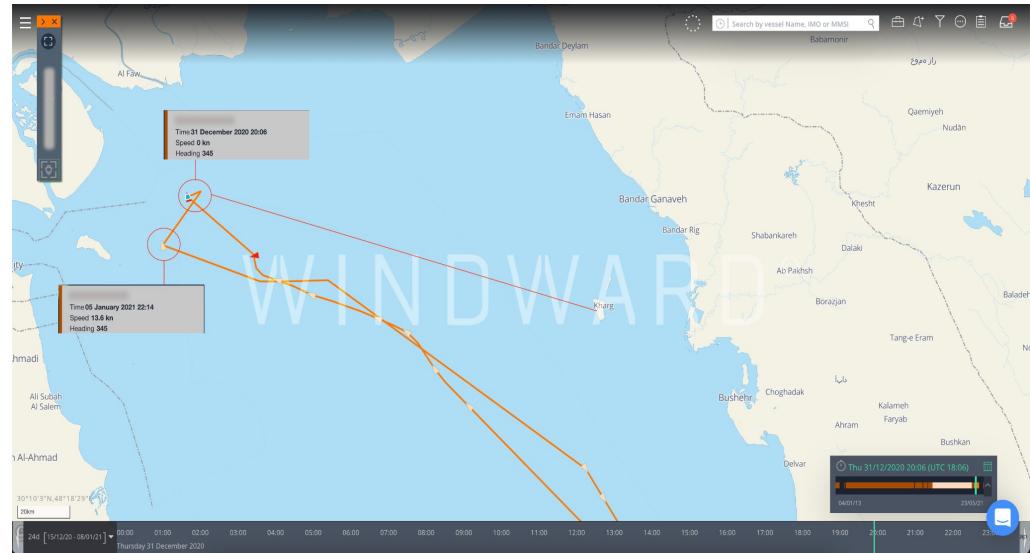
Sources confirm the vessel was spotted offshore the island nation of Grenada during this time frame.



It's a global trend

Arabian Gulf

Sources confirm the vessel was spotted in Kharg island loading Iranian crude



Location tempering

Maritime AI to the rescue

CLEARANCE RECOMMENDATION

① SANCTIONS COMPLIANCE RISK: HIGH | Since 23/04/21

② Sanctioned Entities

- Sanctions List**: Vessel does not appear on sanctions list
- Sanctioned Country Flag**: Flag is not sanctioned country flag
- Sanctioned Company**: Company does not appear on sanctions list

③ Behavioral Risk Indicators

- Port Calls Profile**: No visits to sanctioned ports detected
- Loitering Activity**: No anchoring or drifting in sanctioned areas detected
- Dark Activity**: No Dark Activities in sanctioned areas detected
- Ship to Ship Activity**: No suspicious STS activities detected
- Flag Hopping**: No suspicious flag changes in the past year detected

④ ID & Location Tampering: Identity and Location tampering detected

④ Location Tampering (Cargo)
High probability of location manipulations

Related Country [View on Map](#)

Start	End	Duration
22.12.20 18:57 UTC	14.02.2021 19:03 UTC	22d 1h 54m

Cargo details

Type	Category	Operation	Volume	Origin	Destination
Crude oil	Category	Loading	690.3k (bbl)	Iran, Lavan	Venezuela

Additional Information
During this time frame, the vessel manipulated its GPS system, transmitting a false location and possibly was engaged in a transhipment in Venezuela.

[Details ^](#)

**Thank you for listening
(And we are hiring!)**

benny@windward.ai

<https://www.linkedin.com/in/bkeinan/>