VLCC Fleet Utilisation Analysis — Q1–Q2 2025

Prepared by Sam Chung

July 2025

Objective & Dataset

Fleet utilisation is a key cost and revenue driver.

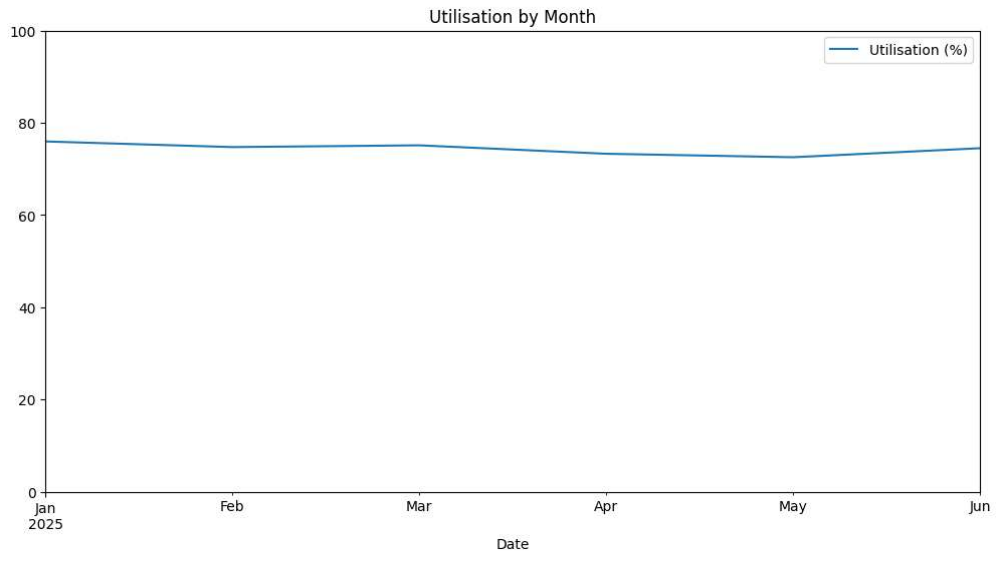
Objective:

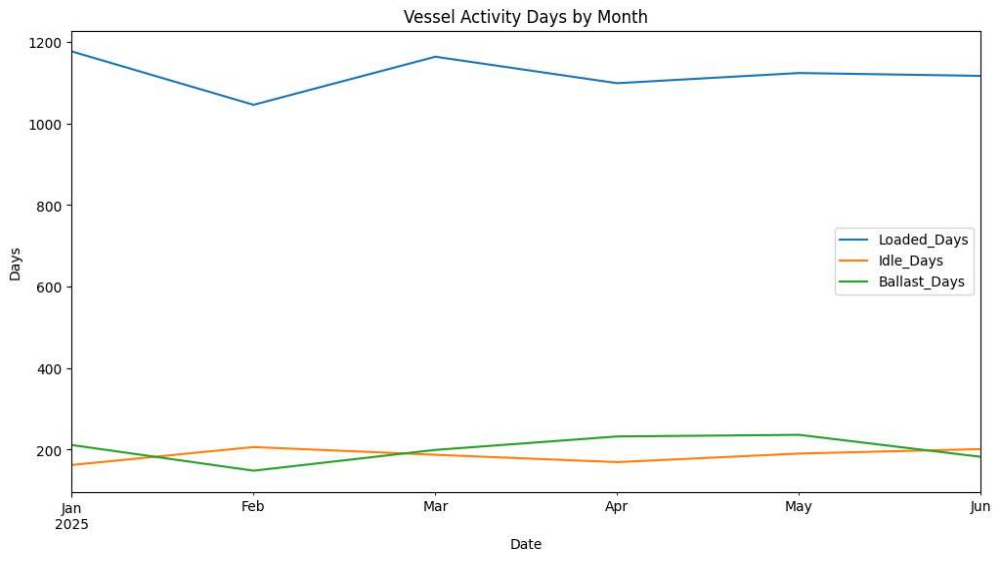
- Understand VLCC fleet utilisation (Jan-Jun 2025)
- Identify vessels and routes significantly below fleet average
- Limits: No operational logs or port data — root causes assumed only where supported.

Dataset:

- 50 vessels, 300 monthly records
- Key fields: Vessel_ID, Date, Region, Route, Loaded Days, Ballast Days, Idle Days.

Fleet-Level Trends





Trends:

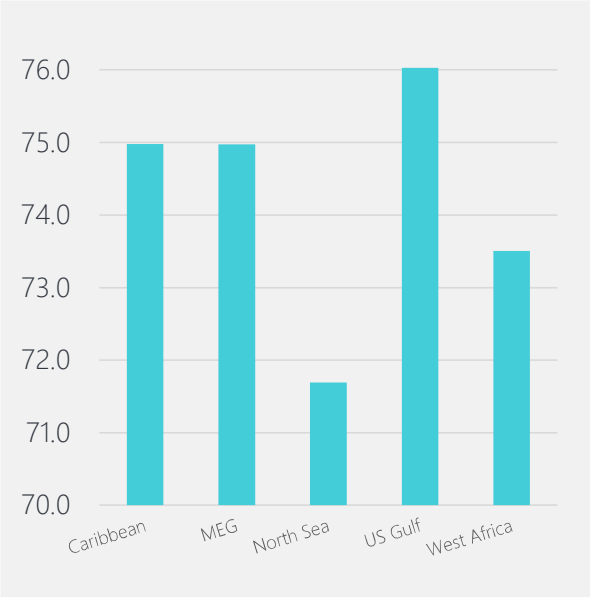
- Stable Utilisation: Consistently high at ~73-76%.
- Variation within ~3% range, consistent performance.
- Loaded Days: Majority of time spent on loaded voyages.
- Idle & Ballast Days: Low but with slight increases in ballast days in Apr-May.

Insights:

- Fleet is stable – no major seasonality. Higher ballast in Apr-May suggests suboptimal voyage planning or routing. Further operation data needed to confirm.

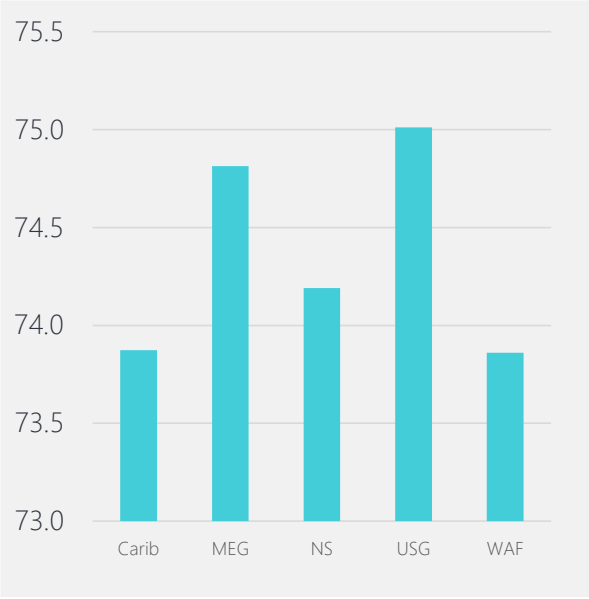
Region & Route Comparison

Utilisation (%) by Region



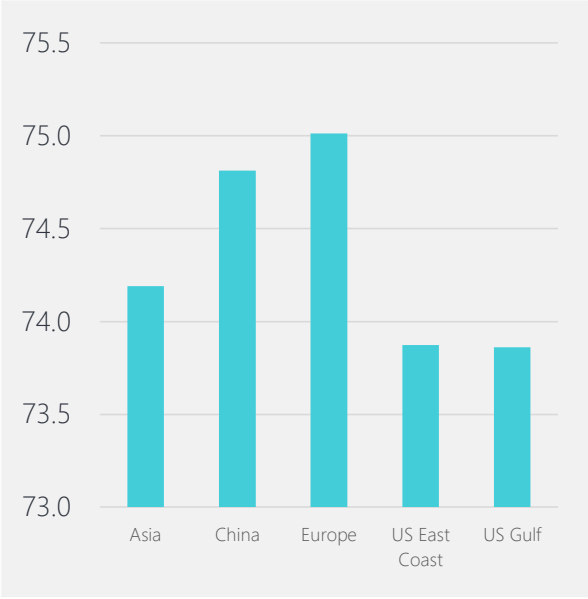
North Sea is noticeably lower (~71.5%) vs. other regions; indicates scope to investigate causes.

Utilisation (%) by Origin



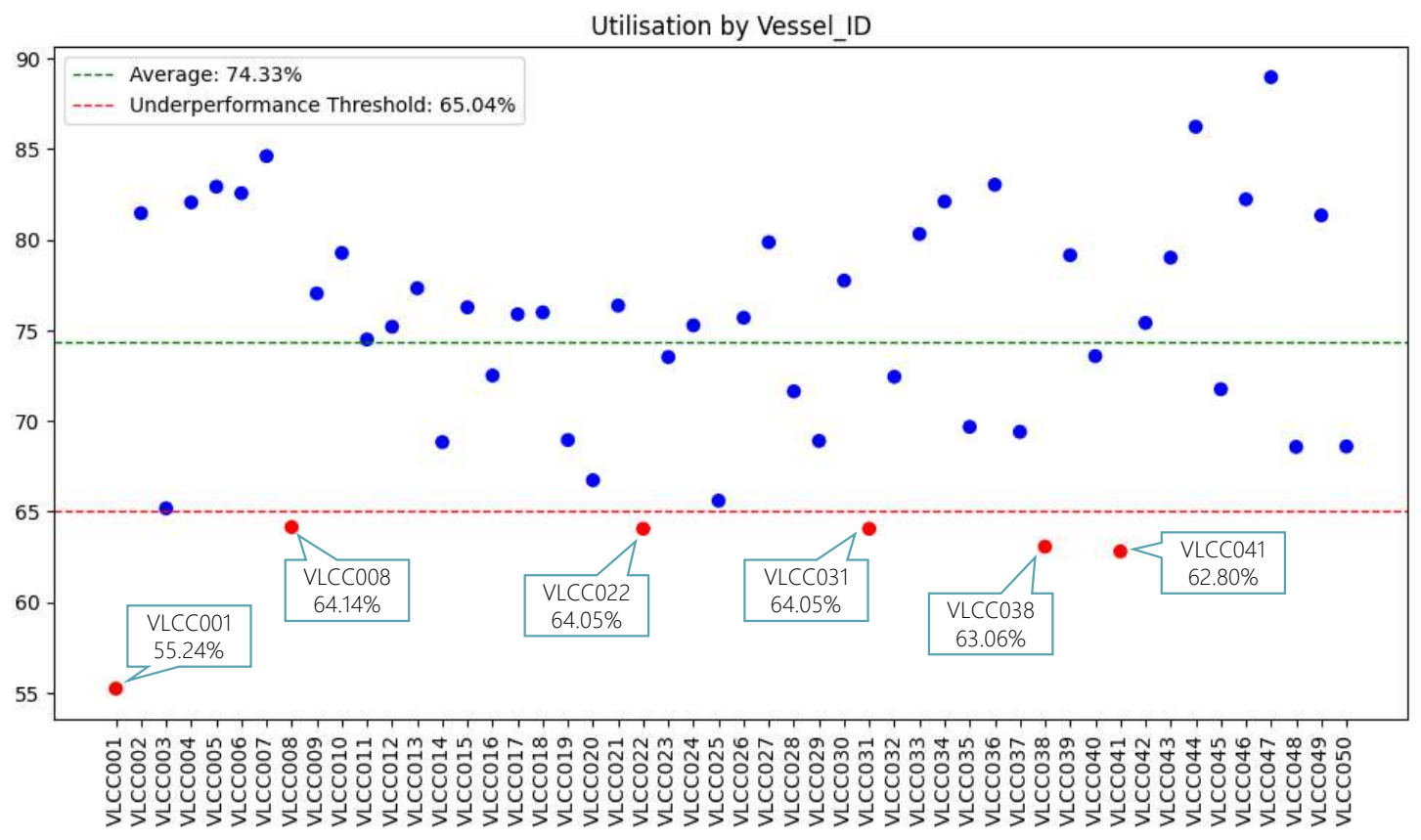
Caribbean & WAF routes show 1-2% lower average utilisation than fleet mean. This suggests room to review voyage patterns or scheduling.

Utilisation (%) by Destination



Both US destinations have lowest utilisation – worth investigating reasons (Port logs and scheduling data needed for deeper insight).

Vessel-Level Outliers



- Most vessels cluster around 70–85% utilisation, showing good operational consistency across the fleet.
- 6 vessels average significantly below fleet mean (more than 12.5% under the mean).

Action Points:

- Next step: verify if recurring routing patterns or scheduling gaps explain underperformance.
- Recommend monitoring these vessels more closely with daily tracking to spot persistent idle or ballast days.
- Investigate top performers and implement strategies to help bring low performers closer to the mean.

Recommendations & Next Steps

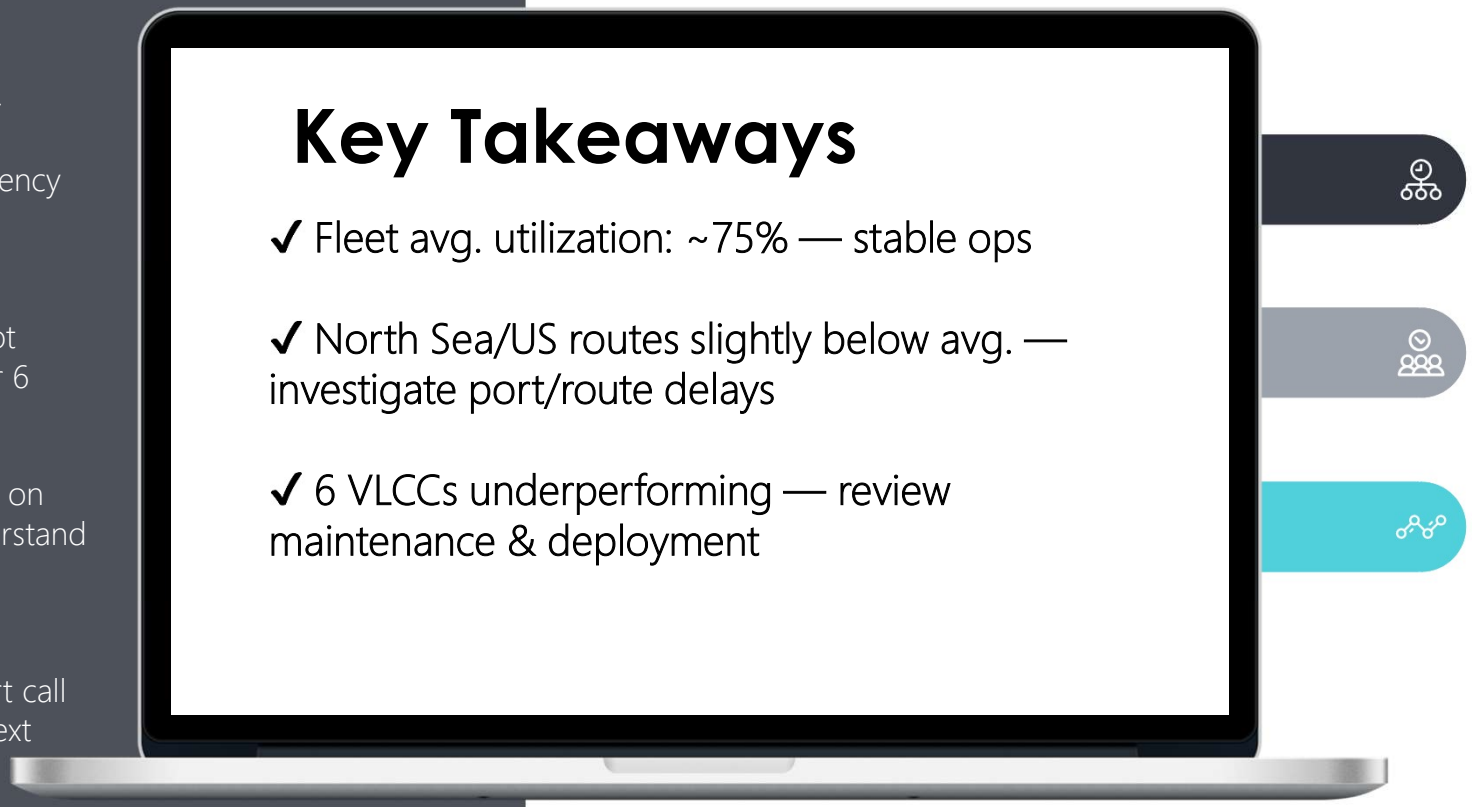
Maintain strong overall fleet efficiency while targeting pockets of underperformance.

Action 1: Use daily tracking to spot prolonged idle/ballast periods for 6 lowest-performing vessels.

Action 2: Review routing patterns on Caribbean & WAF routes to understand if voyage lengths or turnarounds contribute to lower utilisation.

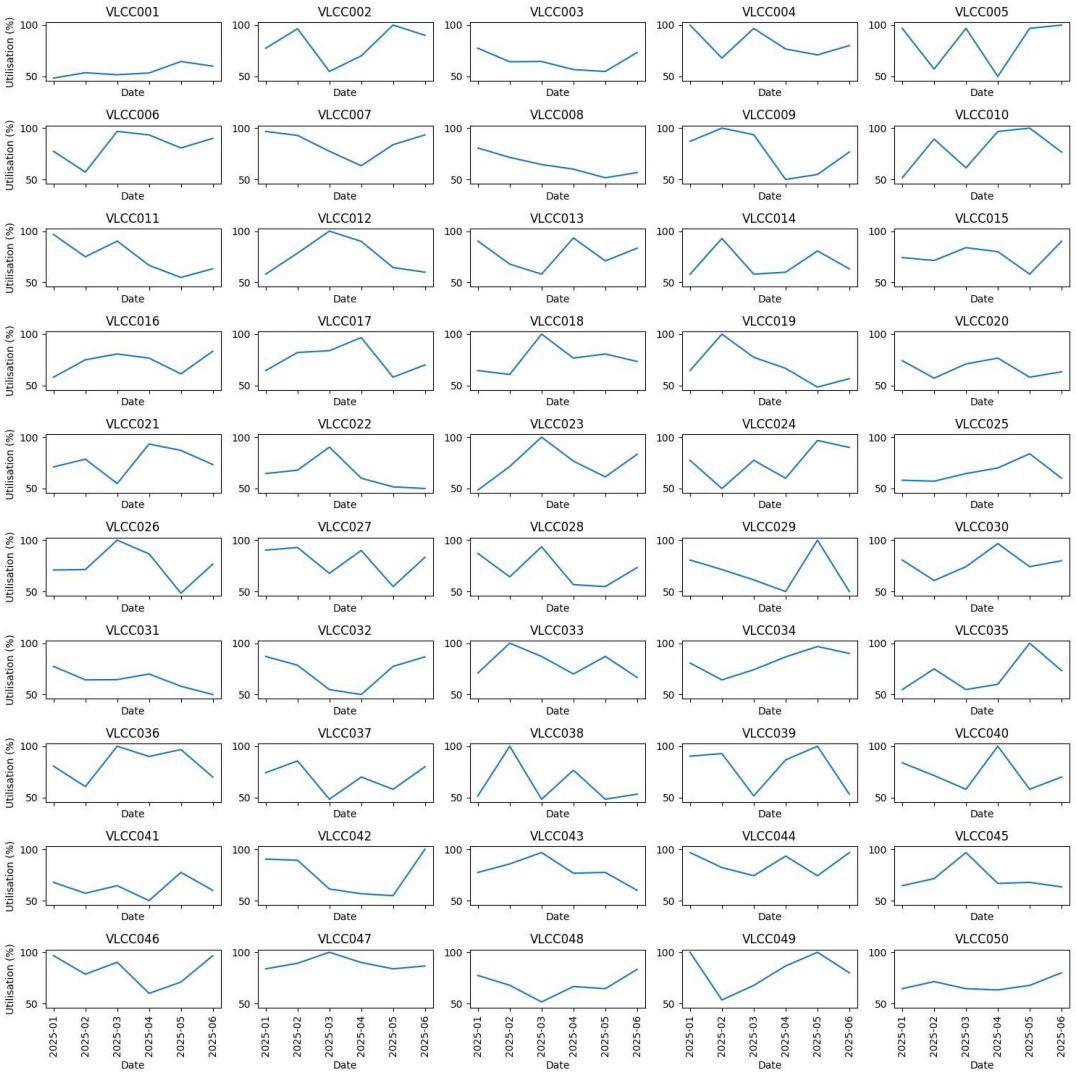
Action 3: Propose integrating port call logs and maintenance data for next analysis to confirm root causes.

N.B. Root cause analysis requires additional data (port logs, maintenance).




THANK YOU

Appendix




```
df.info()
```
✓ 0.0s

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 300 entries, 0 to 299
Data columns (total 10 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   Vessel_ID      300 non-null    object
 1   Vessel_Name    300 non-null    object
 2   Date           300 non-null    datetime64[ns]
 3   Region         300 non-null    object
 4   Route          300 non-null    object
 5   DWT            300 non-null    int64
 6   Status         300 non-null    object
 7   Idle_Days      300 non-null    int64
 8   Loaded_Days    300 non-null    int64
 9   Ballast_Days   300 non-null    int64
dtypes: datetime64[ns](1), int64(4), object(5)
memory usage: 23.6+ KB
```

```
print("Number of null values:")
df.isna().sum()
```
✓ 0.0s

```
Number of null values:

Vessel_ID       0
Vessel_Name     0
Date            0
Region          0
Route           0
DWT             0
Status          0
Idle_Days       0
Loaded_Days     0
Ballast_Days    0
dtype: int64
```

```
print(f"Number of duplicate rows: {df.duplicated().sum()}")
```
✓ 0.0s

```
Number of duplicate rows: 0
```

```
df.describe()
```
✓ 0.0s

	DWT	Idle_Days	Loaded_Days	Ballast_Days	Total_Days	Utilisation (%)
count	300.00	300.00	300.00	300.00	300.00	300.00
mean	304,346.19	3.72	22.42	4.03	30.17	74.33
std	8,394.46	3.43	4.71	3.77	1.07	15.33
min	290,037.00	0.00	14.00	0.00	28.00	48.39
25%	297,449.25	1.00	18.00	1.00	30.00	60.71
50%	303,341.50	3.00	22.00	3.00	30.50	74.19
75%	311,430.75	6.00	26.00	6.00	31.00	87.10
max	319,582.00	14.00	31.00	15.00	31.00	100.00

```
df.describe(include=['object'])
```
✓ 0.0s

	Vessel_ID	Vessel_Name	Region	Route	Origin	Destination	Status
count	300	300	300	300	300	300	300
unique	50	50	5	5	5	5	1
top	VLCC001	Vessel_1	MEG	NS-Asia	NS	Asia	Loaded
freq	6	6	76	63	63	63	300