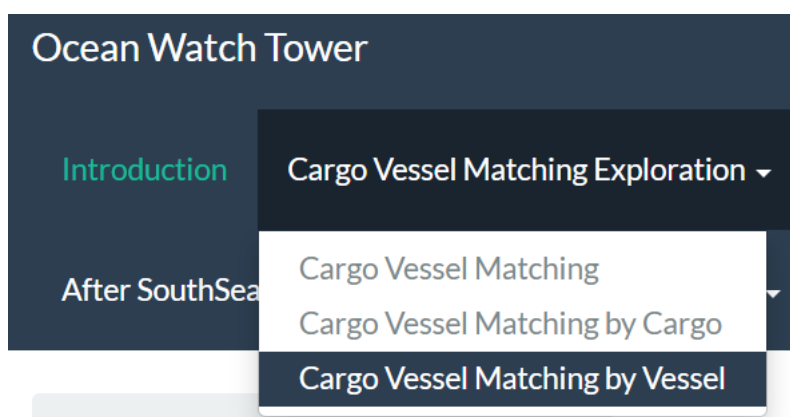


# User Guide on “Ocean Watch Tower” App

Our R Shiny app comprises of the following sections which showcase various visualisations and illegal fishing detection capabilities. Users can perform cargo search, analyse cargo arrival patterns, look for anomalies, plot vessel paths and visualize the major vessel companies bringing in different types of fishes etc. This document serves as user guide for users to navigate the app

## 1. Cargo Vessel Matching Exploration

This section focusses on searching for cargos, matching cargoes to possible vessels and listing cargo details like the fish in the cargo, qty in tons etc.



### a) Cargo Vessel Matching

This is the first screen under ‘Cargo Vessel Matching Exploration’. This screen gives stakeholders the capability to list out cargos arriving in selected cities on selected dates (select from dropdowns).



Ocean Watch Tower

Introduction Cargo Vessel Matching Exploration Cargo Offload Fishing Vessel Movements After SouthSeaFood Caught Suspicious Vessels

Select City of Arrival:  
City of Himark

Select Date of Arrival:  
2035-04-07

Possible Cargo Vessel Matches based on City of Arrival and Time of Arrival

Show 10 entries Search:

	date_of_arrival	cargo_id	city_of_arrival	vessel_id	fish_in_cargo	qty_tons
1	2035-04-07	cargo_2035_29517afb	City of Himark	cargocatalystb02	habeaspiscis4eb	8.25

Showing 1 to 1 of 1 entries Previous 1 Next

## b) Cargo Vessel Matching by Cargo

This is the second screen under 'Cargo Vessel Matching Exploration'. This screen gives users the capability to search for a particular cargo from the dropdown and see the cargo details.

[Introduction](#) [Cargo Vessel Matching Exploration](#) [Cargo Offload](#) [Fishing Vessel Movements](#) [Comparing SouthSeaFood with others](#)

[After SouthSeaFood Caught](#) [Suspicious Vessels](#)

Select Cargo:  
cargo\_2035\_23956ba0

Identify possible vessel cargo matching based on Cargo

Show 10 entries

Search:

	date_of_arrival	cargo_id	city_of_arrival	vessel_id	fish_in_cargo	qty_tons
1	2035-08-16	cargo_2035_23956ba0	City of South Paackland	oceanicoasid3f	gadusnspecificatae4ba	18.125

Showing 1 to 1 of 1 entries

Previous 1 Next

## c) Cargo Vessel Matching by Vessel

This is the third screen under 'Cargo Vessel Matching Exploration'. This screen gives users the capability to search for a vessel company (select from dropdown) and see details of all cargos belonging to the vessel company.

[Introduction](#) [Cargo Vessel Matching Exploration](#) [Cargo Offload](#) [Fishing Vessel Movements](#) [Comparing SouthSeaFood with others](#)

[After SouthSeaFood Caught](#) [Suspicious Vessels](#)

Select Vessel Company:  
Smith, Davis and Acosta

Possible Cargo Vessel Matches based on Vessel Company

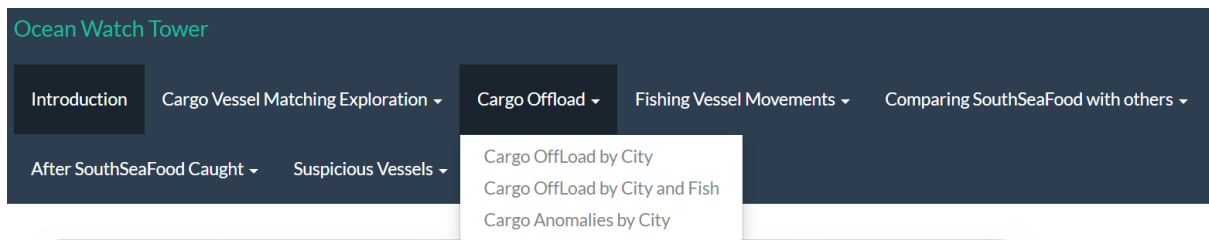
Show 10 entries

Search:

	date_of_arrival	cargo_id	city_of_arrival	vessel_id	fish_in_cargo	qty_tons
1	2035-09-13	cargo_2035_23965a72	City of South Paackland	arcticgraylingangler094	gadusnspecificatae4ba	10.625
2	2035-09-17	cargo_2035_23966ec6	City of South Paackland	arcticgraylingangler094	gadusnspecificatae4ba	19.375
3	2035-10-12	cargo_2035_241693b6	City of Himark	arcticgraylingangler094	piscesfrigus900	25
4	2035-09-13	cargo_2035_2426886d	City of South Paackland	arcticgraylingangler094	piscesfrigus900	13.5

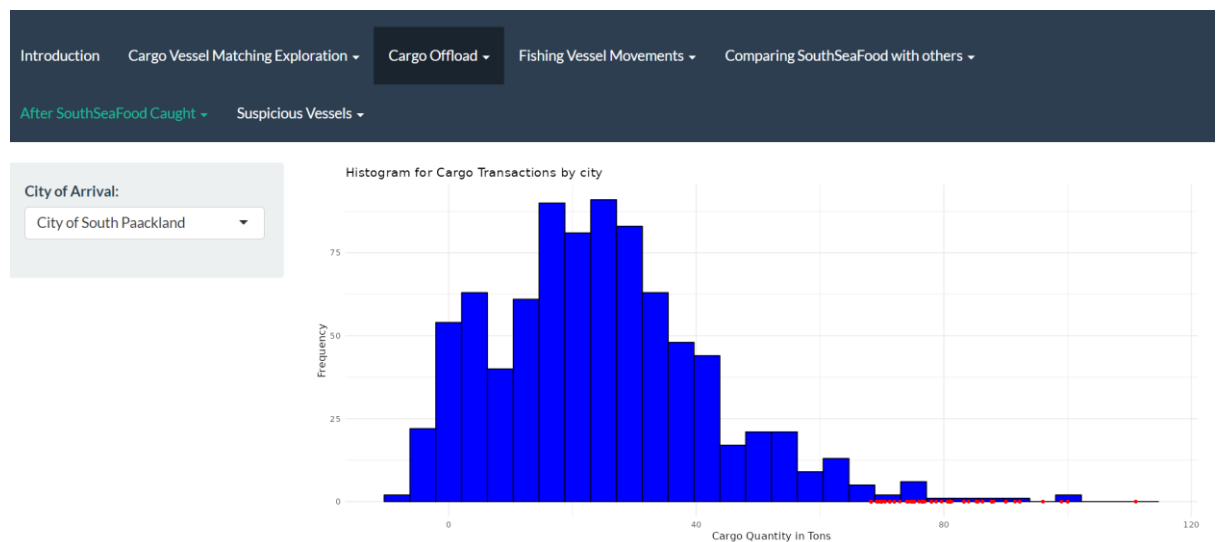
## 2. Cargo Offload

This section focusses on analysing the patterns and anomalies in the cargo offloads



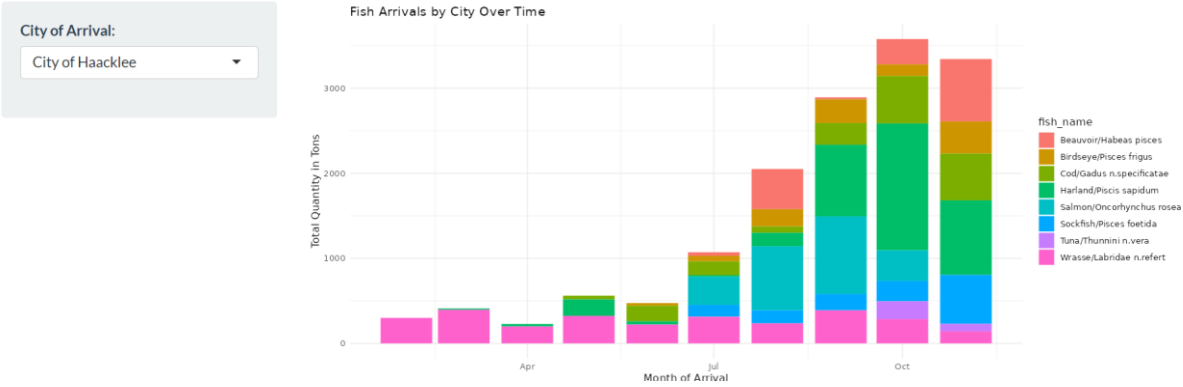
### a) Cargo Offload by City

This is the first section under 'Cargo Offload'. This screen allows users to analyse the quantity in tons of the arriving cargos in each city (select city from dropdown). This shows a histogram which helps to understand the patterns and the outlier values.

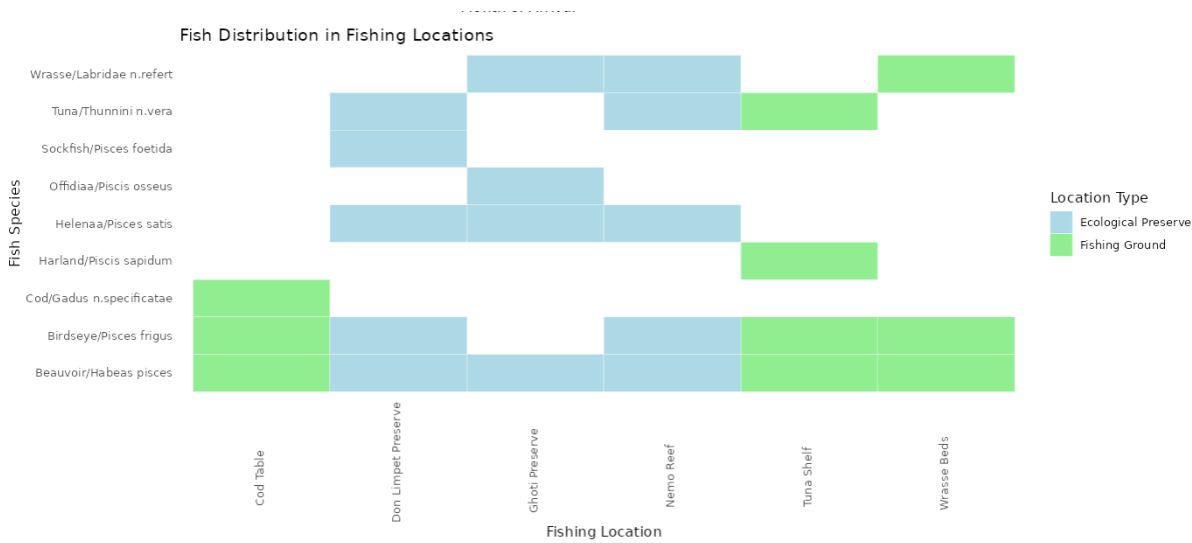


b) Cargo Offload by City and Fish

This is the second section under ‘Cargo Offload’. This screen allows users to visualize the cargo quantities arriving in each city (Select city from dropdown) over the different months. The stacked bar chart also helps to show the split between the different fish types



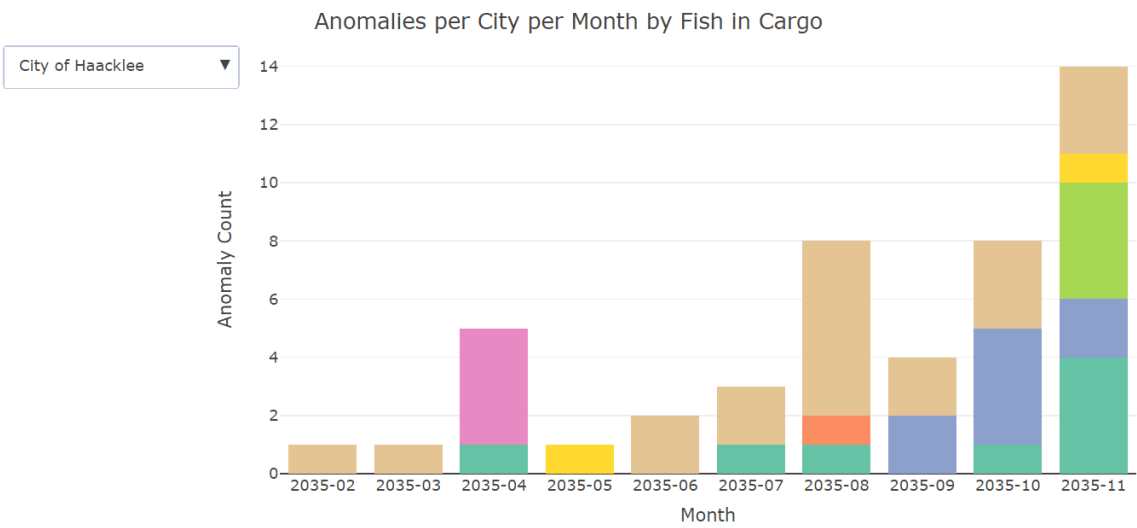
This chart below helps the users to identify the fishes found in various locations and differentiates between ecological preserves and fishing grounds.



### c) Cargo Anomalies by City

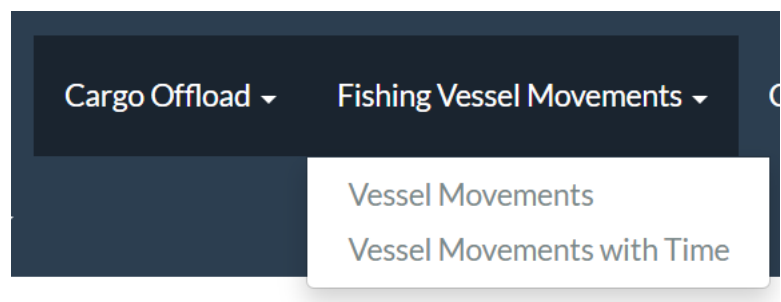
This is the third section under ‘Cargo Offload’. This screen allows users to search for anomaly transactions (cargos with outlier quantities in tons) in each city (select city from dropdown).

The stacked chart shows the split between the counts of each type of fish.



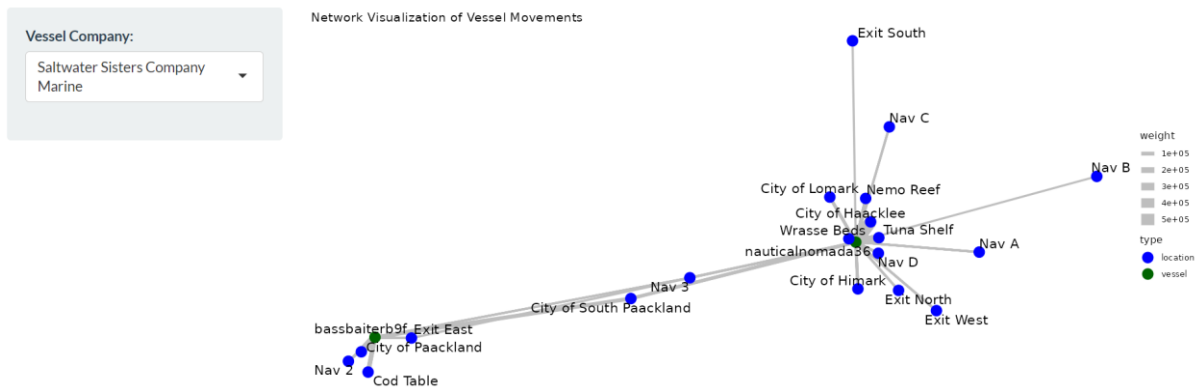
### 3. Fishing Vessel Movements

This section focusses on analysing the movement patterns of vessels.



## a) Vessel Movements

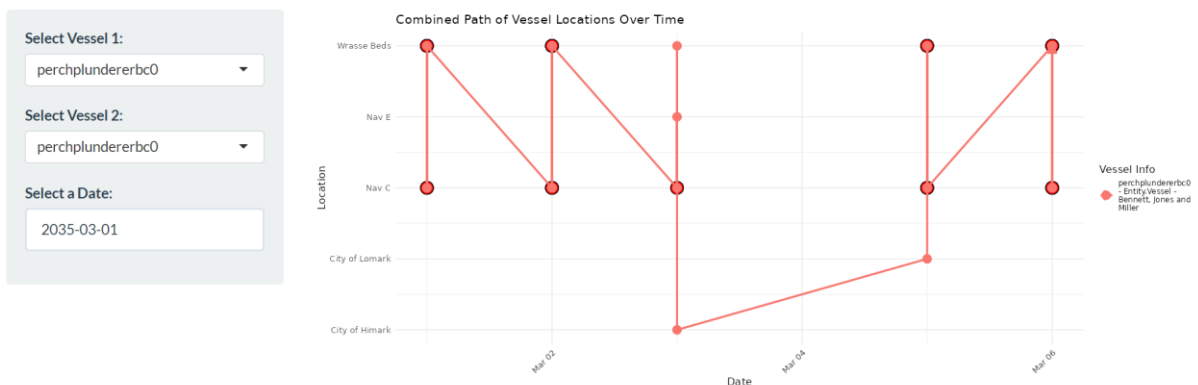
This is the first section under 'Fishing Vessel Movements'.



This network graph helps to visualize the locations visited by vessels of the selected vessel company(select from dropdown). This shows how the locations are connected as well.

## b) Vessel Movements with Time

This is the second section under 'Fishing Vessel Movements' and this screen allows users to plot the path of vessels.



The user can select 2 vessels and an end date to plot the path of those 2 vessels from few days back to the end date. The plot also highlights the co-occurrence of vessels at locations which might help to prove transshipment possibilities

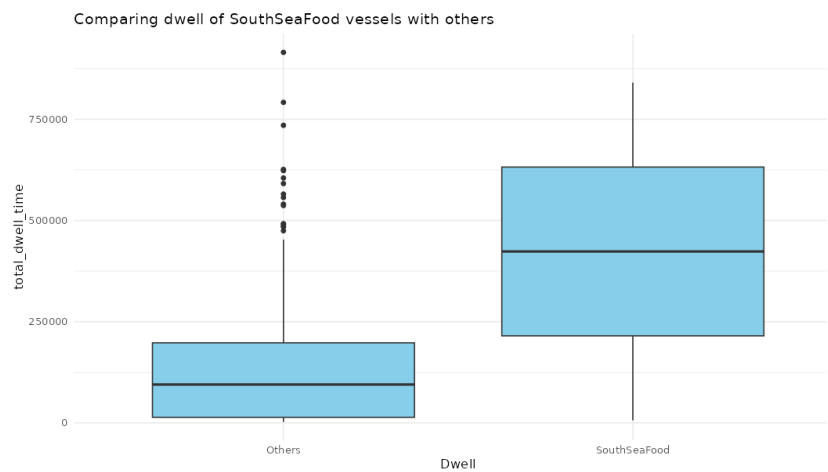
## 4. Comparing SouthSeaFood with others

### a) Comparing SouthSeaFood vessels with other vessels

This section focusses on comparing the dwell times of the vessels of south sea food with the vessels belonging to another companies.

Location:  
Ghoti Preserve ▼

#### Comparing SouthSeaFood Vessels with Others



## 5. After SouthSeaFood Caught

This section focusses on analysing behaviour after SouthSeaFood was caught.

After SouthSeaFood Caught ▼

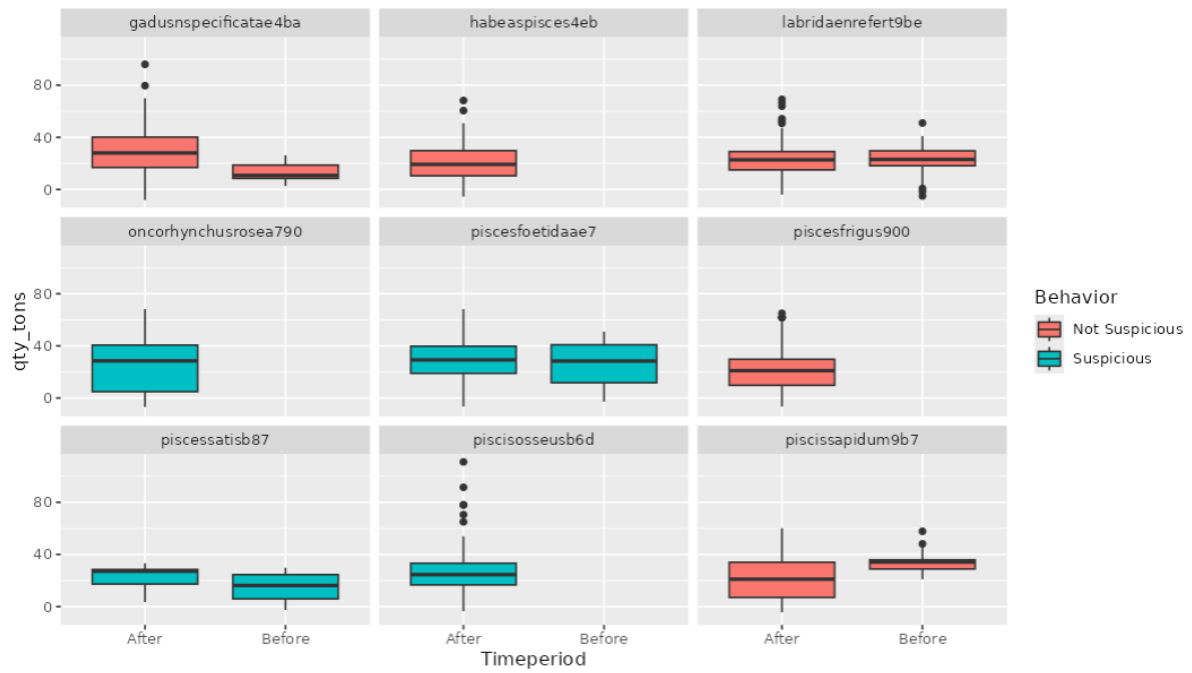
- Comparing Cargo Off Load
- Comparing Dwell

## a) Comparing Cargo Off Load

This is the first section under 'After SouthSeaFood Caught'

This screen compares transaction count of different type of fish before and after SouthSeaFood was caught and highlights suspicious behaviours.

### Comparing Cargo Transactions before and after SouthSeaFood was caught

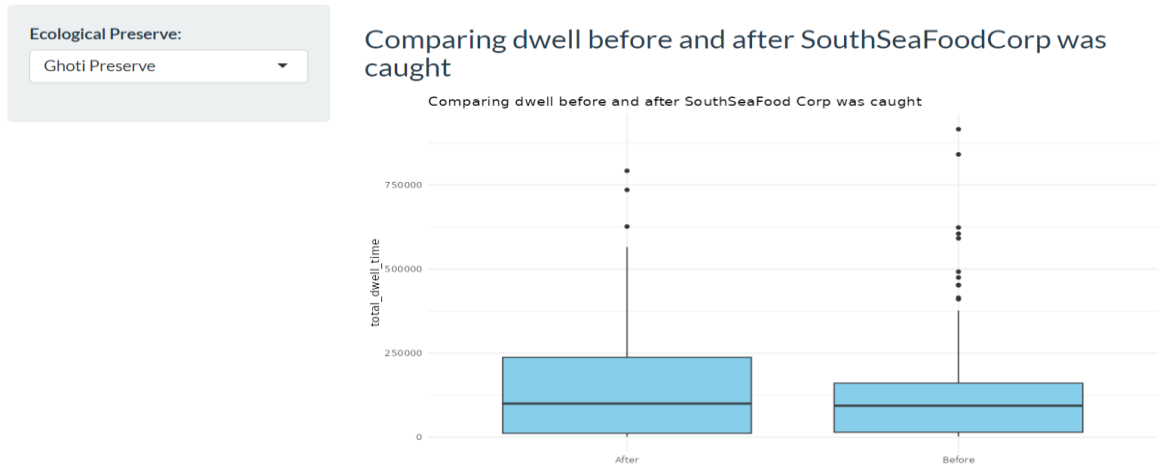




## b) Comparing dwell

This is the second section under 'After SouthSeaFood Caught'

This screen compares dwell times of all vessels in selected location (select location from dropdown) before and after SouthSeaFood was caught.



## 6. Suspicious Vessels

### a) Identifying based on dwell

This section focusses on identifying the top 10 vessels based on dwell time in selected location and selected month(select from dropdown).

