International Maritime Risk Rating Agency's 2022 Vessel Port State Control Results Review

20 124 Wet cargo vessels (Chemical/Oil, Gas, and Oil Product Tankers) risk assessed during 2022, equating to 1 144 794 160 DWT.

All recorded wet cargo deficiencies.

Port State Control Deficiencies Breakdown by Rank & Type

Monthly Port State Control Vessel Detentions Trends Table

Vessel Type PSC Deficiencies Tables and Commentary

IMRRA's 2022 Port State Control Deficiencies Trends

Summary

A quick introduction into importance and relevance of Port State Control (PSC) for safely operating and Chartering Wet Cargo Vessels.

Data collated from **908** vessels and **8 313** PSC deficiencies listed for

- Chemical/Oil Product Tankers
- Oil Tankers
- Gas Carriers
- Ore-Bulk-Oil carriers (OBO)

Introduction: Why PSC vessel data is important for Charterers: A brief synopsis of Port State Control Regulations, Port State Control Deficiencies, IMRRA's deficiencies risk stratification and data commentary.

As defined by the International Maritime Organisation '*Port State Control (PSC) is the inspection of foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with these instruments and ensure maritime safety and security and prevent pollution.*'

When the Port State Control Officer (PSCO) boards the vessel, four types of PSC inspections are available.

1. Initial Inspection
2. More detailed inspection
3. Expanded inspection
4. Concentrated inspection campaign

After the first initial PSCO inspection, what is the risk of a more detailed inspection being enforced? Industry wide, it is accepted that some deficiencies have a dependent relationship. The relationship deepens, with the implication that other deficiencies will follow. A quick preliminary inspection will give the PSCO an understanding how well operated is.

Charterers are always asking the question what is the potential risk and detention profile of their vessel of interest? IMRRA always recommends charterers should always be aware of a vessel's PSC history and have any potential challenges identified pre-charter for contract negotiation and sign-off.

IMRRA's vessel risk analysts have uniquely ranked **8 313** PSC deficiencies into the top-18 PSC deficiencies from **908** vessels risk assessed with five-or-more PSC observations in 2022.
PSC detained vessels totalled **185** during the same period.

Section One Why Vessel Port State Control Data is important for Charterers and their decision making risk analysis.

Port State Control provides a "safety net" to catch substandard ships. Charterers need to be aware if their vessel of interest is to be targeted for inspection.

All PSC Authorities allocated a vessel's risk profile based on the following criteria:

- Type of ship
- Age of the ship
- Flag of the ship
- Classification society of the ship
- Performance of the Ship's ISM company
- History of the ship
- Ship-risk-calculator-PSC

But, for the Oil & Gas Industry, its vessels are considered to be higher risk and sub-standard vessels are more likely. More stringent profiling is applied.

The following vessel types are considered higher risk by the Paris MoU, and are subject to an expanded inspection compared to Dry Bulk vessels:

1. Gas & Chemical tankers over ten-years old
2. Oil tankers over 15-years old and over 3,000GT

It is critically important to understand a vessel's PSC inspection history, as the past can be a significant clue to the future operation and commercial risk of a chartered vessel.

Section Two Where does IMRRA's Expertise and Knowledge come from?

It is important for Charterers of Wet Cargo vessels to understand that the vessel is both safely managed & operated. It is extremely helpful to know if there is a fleet history of failing the basic PSC requirements when entering port.

It is generally accepted there is a direct relationship between ship type, the PSC inspection type and the structural condition of the vessel. The combination of these factors provides Charterers and others with the most valuable information for the true state of a vessels operating risk. IMRRA's assists Charterers in navigating their vessel risk.

How IMRRA's expertise and speed in collating PSC information assists Charterers in their decision making

At the end of the deal, just before signing the contract of affreightment, the Charterer needs to fully understand the vessel's safety and operating risk for cargo transport. IMRRA's vessel risk rating reports data enables Charterers and Terminal Operators to risk assess a vessel's potential PSC inspection profile and avoid potential detentions.

The types of deficiencies inspected by PSCOs have a potential impact and risk for increasing port call times, and slowing supply chains. In more extreme cases, the correlation of PSC Deficiencies and involvement of maritime traffic accidents and incidents is closely linked.

IMRRA's Big data analysis enables Charterers & Terminal Operators to model potential PSC screening difficulties for vessels, and the possibility of ships being detained, and navigate their risk.

Section Three: 908 Wet cargo vessels Risk Rated and all Recorded Monthly PSC Deficiencies

Rank	Name	PSC Code	J	F	M	A	M	J	J	A	S	O	N	D	Total
1	Fire Safety	071	74	89	89	74	96	102	70	101	101	118	134	120	**1168**
2	Certificates & Documentation - Ships Certificates	011	82	77	87	68	103	106	61	55	93	138	119	101	**1090**
3	Labour Conditions	181	46	77	91	58	64	103	84	71	69	84	102	65	**914**
4	Safety of Navigation	101	54	60	58	52	61	85	49	71	70	84	104	62	**810**
5	Life Saving Appliances	111	45	66	76	56	50	81	55	51	56	72	85	41	**734**
6	Pollution Prevention	141	46	43	46	40	63	70	29	52	66	72	91	63	**681**
7	Emergency Systems	041	25	41	46	38	45	37	29	28	42	46	63	46	**486**
8	Propulsion and Auxiliary Machinery	131	30	36	30	20	44	33	20	37	40	45	50	57	**442**
9	Structural Conditions	021	20	17	30	34	30	40	33	28	46	50	56	45	**429**
10	International Ship Management Code	151	22	27	34	31	44	38	29	32	38	43	48	30	**416**
11	Water/Weathertight Conditions	031	24	20	36	28	31	40	20	38	41	39	48	34	**399**
12	Living & Working Conditions	091	17	16	14	11	9	12	9	19	11	30	18	16	**182**
13	Other	171	6	7	9	6	13	11	6	7	13	31	28	23	**160**
14	Radio Communications	051	6	16	13	10	22	21	10	13	6	11	19	10	**157**
15	Cargo Operations including Equipment	061	6	15	8	5	14	9	3	7	1	11	8	8	**95**
16	Alarms	081	12	13	6	6	9	9	7	4	5	6	7	8	**92**
17	Dangerous Goods	121	7	3	7	2	2	4	3	4	0	2	3	3	**40**
18	Maritime Labour Convention	018	1	0	0	0	0	0	2	2	7	3	0	3	**18**
	Total														**8313**

3.1 Wet Cargo PSC Deficiencies Breakdown by Rank & Type

Rank	Name	Deficiency Code	Total	Percent
1	Fire Safety	**071**	1168	14%
2	Certificates & Documentation - Ships Certificates	**011**	1090	13%
3	Labour Conditions	**181**	914	11%
4	Life Saving Appliances	**101**	810	10%
5	Safety of Navigation	**111**	734	9%
6	Pollution Prevention	**141**	681	8%
7	International Ship Management Code	**041**	486	6%
8	Emergency Systems	**131**	442	5%
9	Propulsion and Auxiliary Machinery	**021**	429	5%
10	Structural Conditions	**151**	416	5%
11	Water/Weathertight Conditions	**031**	399	5%
12	Living & Working Conditions	**091**	182	2%
13	Radio Communications	**171**	160	2%
14	Other	**051**	157	2%
15	Alarms	**061**	95	1%
16	Cargo Operations including Equipment	**081**	92	1%
17	Maritime Labour Convention	**121**	40	<1%
18	Dangerous Goods	**018**	18	<1%
	Total		**8313**	

Analysis:

1. Top-5 deficiencies account for **57%** of all recorded deficiencies.
2. Top-5 deficiencies recorded by the PSCO will also lead to a more detailed inspection, as the PSC inspector may have 'clear grounds' that point out non-compliance with certain PSC regulations.

3.2 Vessel Type 2022 PSC Summary

1. Chemical/Oil Product Tankers share the following top-5 deficiencies:

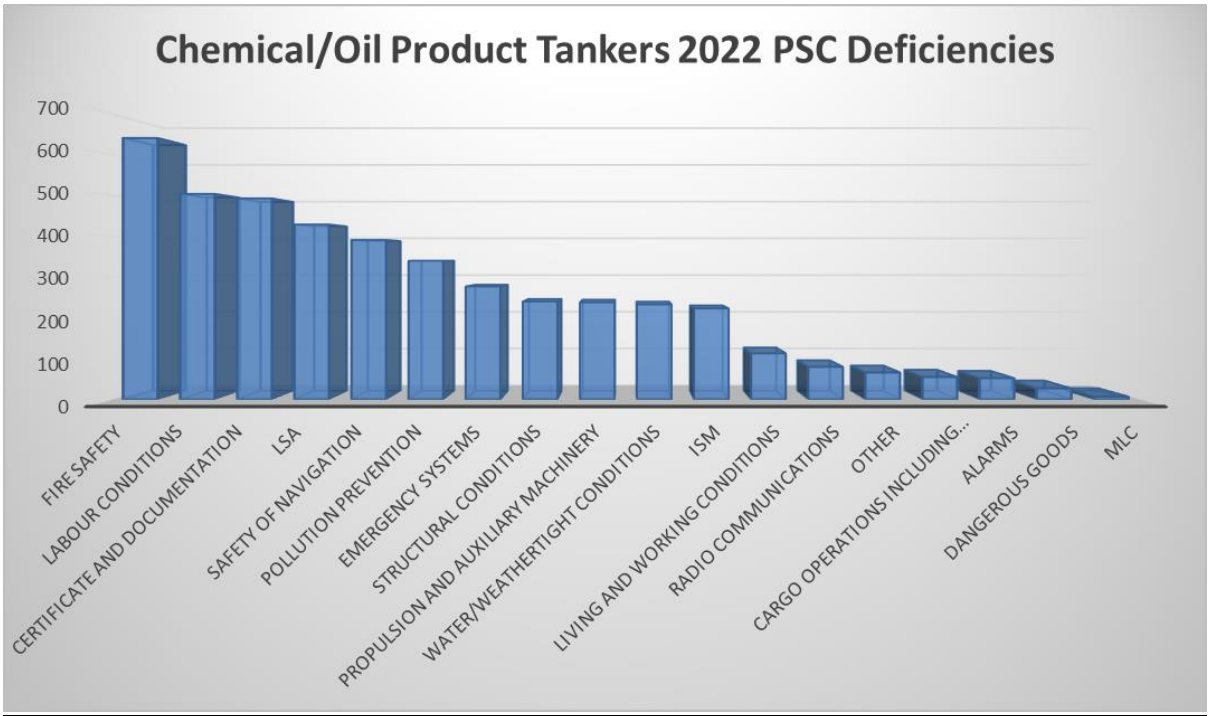
1 Fire Safety
2 Labour Conditions
3 Certificates & Documentation - Ships Certificates
4 Life Saving Appliances
5 Safety of Navigation

Rank	Deficiency	Percentage
1	Fire Safety	15%
2	Labour Conditions	11%
3	Certificates & Documentation - Ships Certificates	11%
4	Life Saving Appliances	10%
5	Safety of Navigation	9%

Chemical/Oil Product Tankers share - 103

Fire Safety related deficiencies were the most frequent observations for Chemical/Oil tankers and Oil tankers vessel type with five-or-more deficiencies exposed by PSC authorities worldwide.

There is a strong correlation between the PSC deficiencies table above and the probability of detention. From a PSCO perspective, if the vessel is unable to comply with the basics of PSC compliance this could be indicative of more serious PSC non-compliance and defects. For the Charterer, a more detailed and consequently time consuming vessel inspection involving a detention will follow.
In consequence of PSC inspections, 103 and 58 Chemical/Oil tankers and Oil tankers respectively were detained.

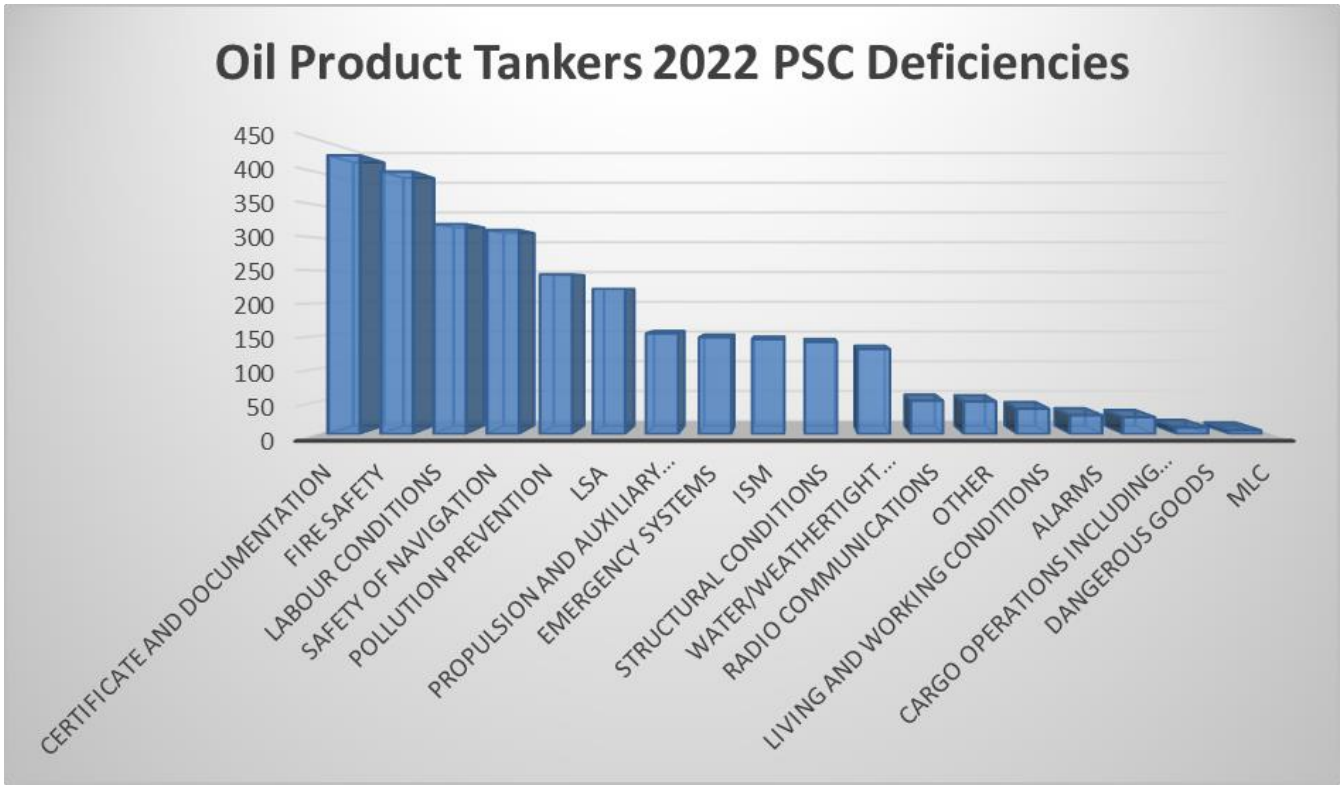


2. Oil Product Tankers share the following top-5 deficiencies:

1 Certificates & Documentation - Ships Certificates
2 Fire Safety
3 Labour Condition
4 Safety of Navigation
5 Pollution Prevention

Rank	Deficiency	Percentage
1	Certificates & Documentation - Ships Certificates	15%
2	Fire Safety	14%
3	Labour Condition	11%
4	Safety of Navigation	11%
5	Pollution Prevention	9%

Oil Tankers Detained = 58



3. Gas Carriers the order changes, with the **top** deficiency being Certificates & Documentation/Ships Certificates, followed by Fire Safety and Labour Conditions.

1 Certificates & Documentation - Ships Certificates
2 Fire Safety
3 Labour Conditions

Rank	Deficiency	Percentage
1	Certificates & Documentation - Ships Certificates	18%
2	Fire Safety	12%
3	Labour Conditions	10%

Vessels detained - 13

Gas carriers are special types of ships with pressurised compartments to store different types of gases under pressure and controlled temperature.

Most liquefied gases are hydrocarbons and the key property that makes hydrocarbons the world's primary energy source – combustibility – also makes them inherently hazardous.

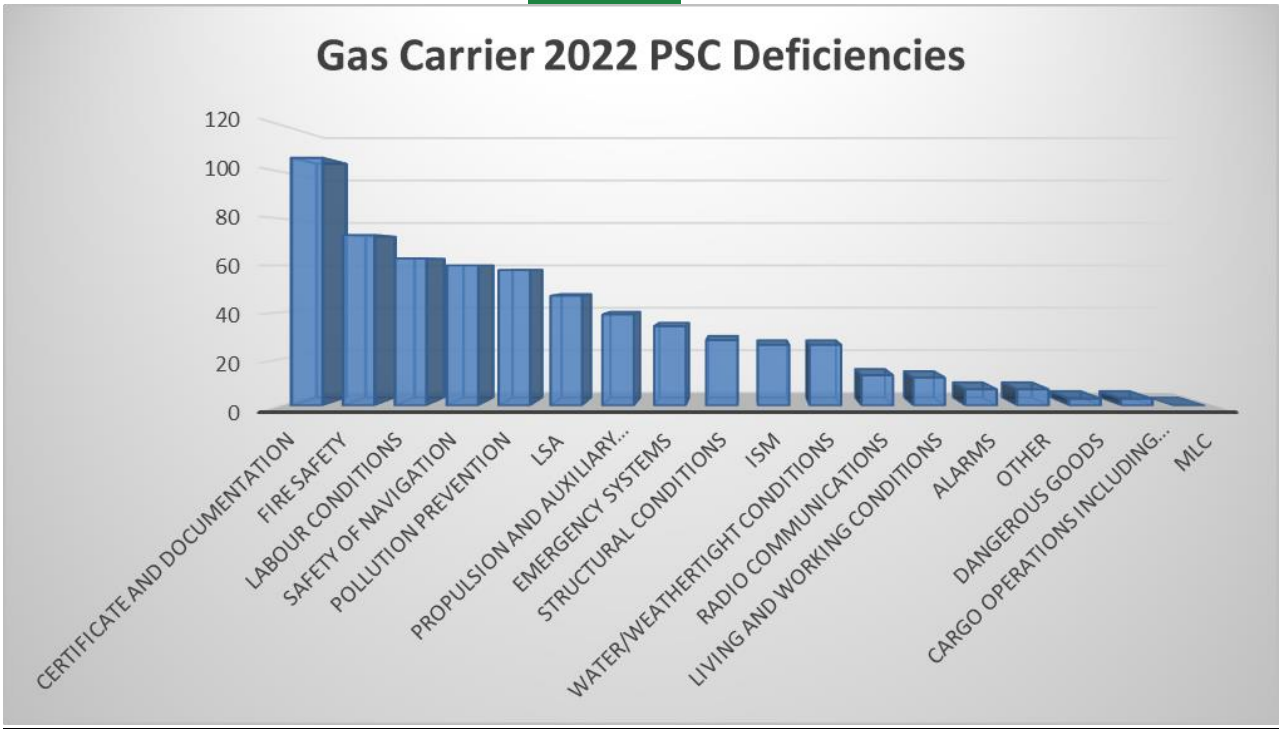
The single most hazardous aspect of liquefied gases is the flammable nature of their vapours.
Much effort is put into tanker design to ensure effective cargo containment to avoid vapours escaping to atmosphere.
Because of the very rapid vaporisation of spilled liquefied gases, the spread of flammable vapour will be far more extensive than in the case of a similar spillage of oil. The chances of ignition following a spill of liquefied gas is, therefore, much greater.

Because these gases are handled in large quantities, it is imperative that all practical steps are taken to minimise leakage and to limit all sources of ignition.

Cargo handling equipment, testing instruments, automatic and other alarm systems should be maintained to a very high standard of efficiency at all times.
Where electrical equipment is to be used in the cargo area it should be of approved design and `certified safe'. The safety of this equipment depends on maintenance of a high order which should be carried out only by competent persons. Any faults observed, such as loose or missing fastenings or covers, severe corrosion, cracked or broken lamp glasses etc should be reported immediately.

Work about the ship which might cause sparking or which involves heat should not be undertaken unless authorised after the work area has been tested and found gas-free, or its safety is otherwise assured.

Where any enclosed space has to be entered, appropriate precautions should be strictly observed. Dangerous gases may be released or leak from adjoining spaces while work is in progress and frequent testing of the atmosphere should be undertaken. `Permit-to-work' procedures should generally be adopted.



4. Ore-Bulk-Oil carriers (OBO)

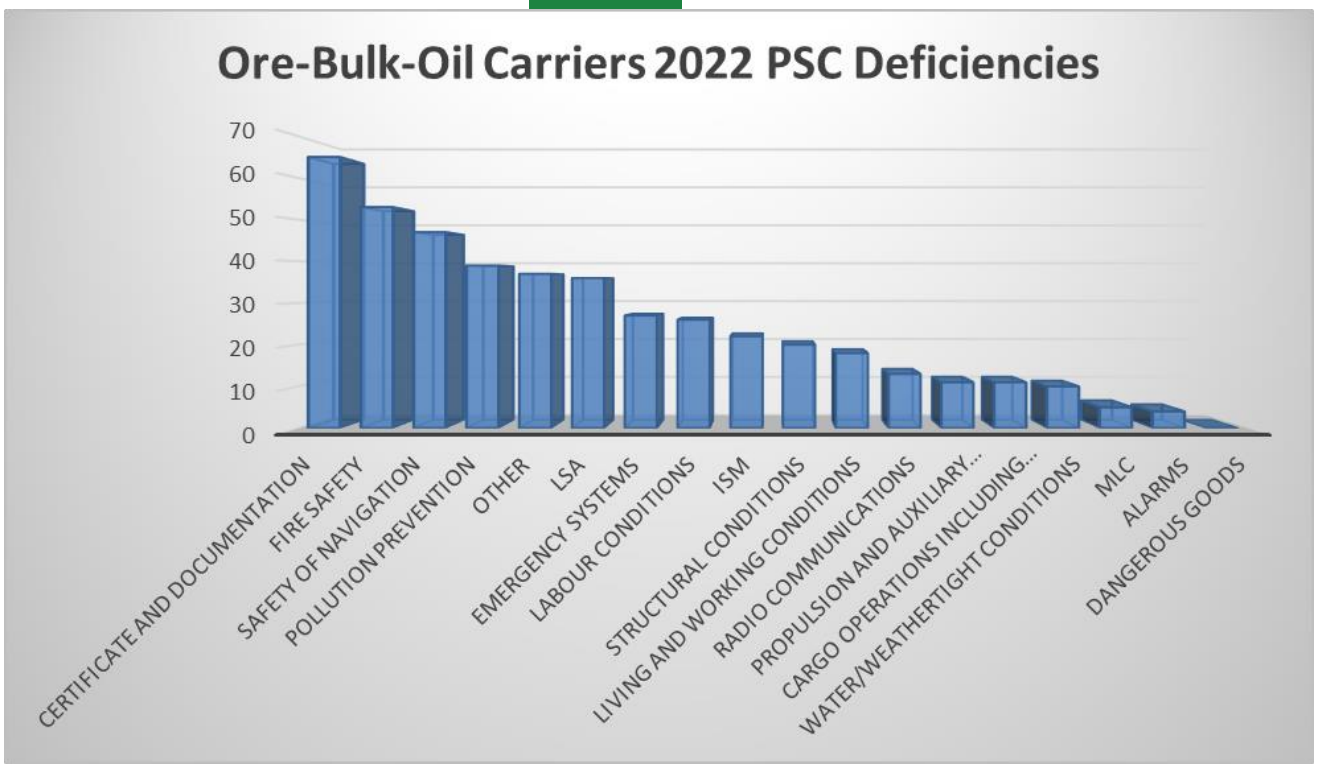
OBO vessels designed to be capable of carrying wet or dry cargoes. The idea is to reduce the number of empty (ballast) voyages, in which large ships only carry a cargo one way and return empty for another.

OBO vessels are expensive to build but because of their capability of carrying wet and dry cargo together, they provide a more economical option as this feature reduces the number of empty voyages or ballast voyages.

The **top-3** deficiencies are based on 35 risk-assessed vessels in 2022 with five-or-more PSC observations (444 deficiencies in total incl. 11 PSC detentions).

1 Certificates & Documentation - Ships Certificates
2 Fire Safety
3 Safety of Navigation

Rank	Deficiency	Percentage
1	Certificates & Documentation - Ships Certificates	15%
2	Fire Safety	12%
3	Safety of Navigation	11%



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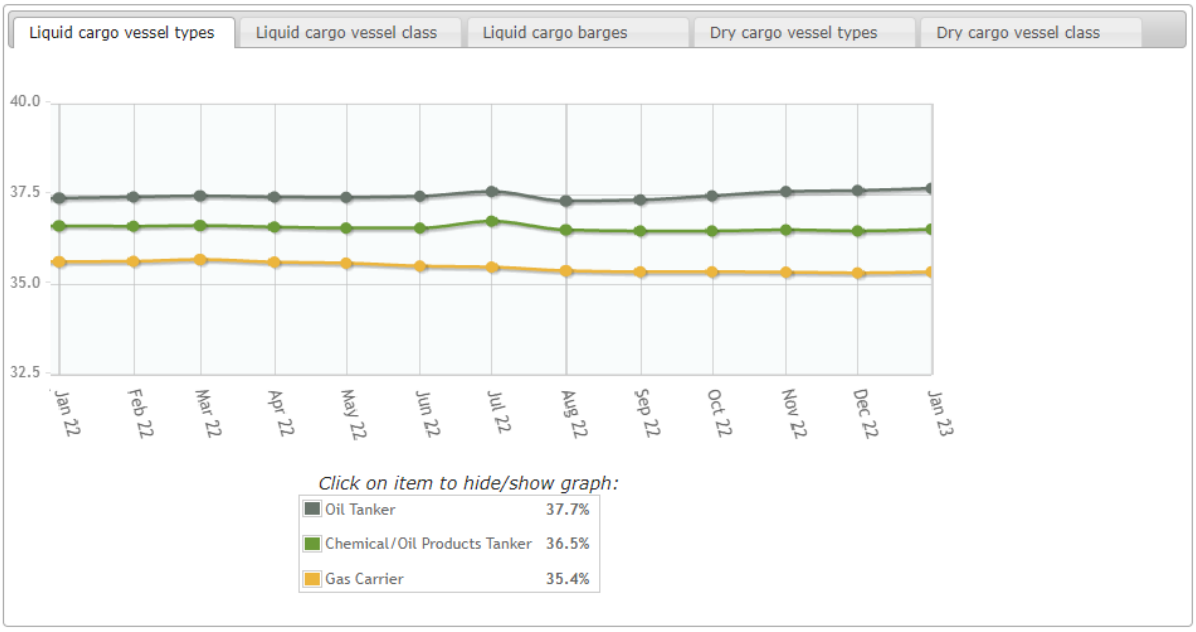
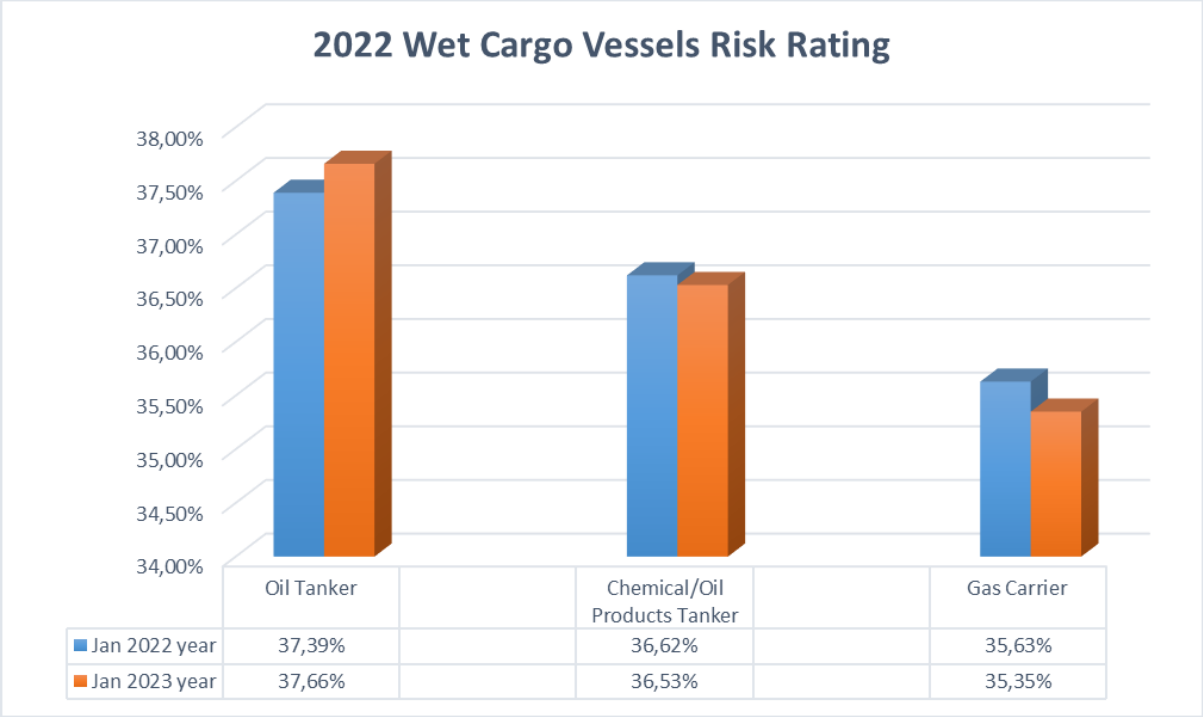
5.1 Table: 2022s Average Wet Vessel Type Risk Ratings



Source: marinerating.com

5.2 Wet Cargo Vessels Risk Rating 2022



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Conclusion:

The PSC inspection data aggregated and accumulated by IMRRA represents a broad sample data to identify significant trends in PSC deficiencies by vessels offered for trade. There are interesting correlations between the deficiencies. The data can provide interesting insight to ensure the vessel gets through PSC inspections by ensuring the basics are fit for purpose, denoting that if the basics in ship operation are being observed during the initial inspection, there is no requirement for a more detailed/expanded or concentrated inspection.

PSC inspections can vary their focus according to the geographical of the port being called.

IMRRA's Big data collection techniques enables Charterers, managers and operators to predict potential PSC screening difficulties and manage their marine risk management strategies.

If you have any questions regarding the data in this document, you are welcome to contact me for more information.

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