2022

Port Industry Incident Statistics Report

Collated by F3L Health/Safety/Environment for Port Skills and Safety (PSS)

PORT SKILLS & SAFETY
IMPROVING STANDARDS THROUGH COLLABORATION

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2022 Findings Summary

Key

▲XX% = poorer EHS — Arrow indicates increase vs previous year with % change, red denotes performance

▼XX% = — Arrow indicates decrease vs previous year with % change, greed denotes improved EHS performance

— = ... **NO CHANGE OR COMPARISON NOT APPROPRIATE**

Main Findings	Change from previous year	Figure
Data coverage: Data supplied from 23 contributing members. There was an average of 14,279 workers (direct and indirect) across the contributing members (2021: average 12,425 direct employees)	▲13%	—
0 fatalities reported across the port sector	▼100%	—
233 Lost Time Incidents (LTI) in 2022 (169 in 2021) *Note higher average headcount reported, more contributors*	▲38%	1
91 RIDDOR reportable incidents in 2022 (70 in 2021) *Note higher average headcount reported, more contributors*	▲23%	2
52 High Potential Incidents (HiPo) Incidents in 2022 (25 in 2021)	▲53%	14
LTI Incidence Rate per 100 workers = 1.63 (1.36 in 2021)	▲20%	3
Only 1 contributing member declared zero Lost Time Injuries in 2022 (3 in 2021)	—	—
Combined Lost Time Injury Frequency Rate (Direct + Indirect Employees) was 7.29 / million workhours (6.43 in 2021)	▲13%	3,4

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Top five incident locations for reported lost time incidents were: *Note higher average headcount reported, more contributors*	—	6,7,8

2022	**2021**
○ Berth/quayside - alongside vessel. ○ Container ships. ○ Roadway areas with public access. ○ Roadway areas without public access. ○ Other location.	○ Berth/quayside - alongside vessel. ○ Container ships. ○ Roadway areas without public access. ○ On cargo handling equipment. ○ Other location.

Top five immediate cause categories for lost time incidents were: Note higher average headcount reported, more contributors	—	9,10,11

2022	**2021**
○ Slipped, tripped or fell on same level. ○ Hit by moving, flying or falling object. ○ Injured whilst handling, lifting or carrying. ○ Driving related incidents. ○ Another type of incident (non-specific).	○ Slipped, tripped or fell on same level. ○ Another type of incident (non-specific). ○ Injured whilst handling, lifting or carrying. ○ Hit by a moving, flying, falling object. ○ Driving related incidents

Top five body parts reported as injured were: *Note higher average headcount reported, more contributors*	—	12,13

2022	**2021**
○ Legs ○ Torso ○ Fingers ○ Feet ○ Head	○ Back ○ Fingers ○ Ankle ○ Legs ○ Knees

Fatalities

There were no fatalities reported in 2022.

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Summary and Look Ahead

2022 Summary

Data was collected from 23 contributing members in 2022, an increase of five members contributing compared to 2021. There was an annual average of 14,279 direct employees across all contributing members. The number of Lost Time Injuries (LTI) reported in 2022 was 38% higher than in 2021, with May 2022 having the highest number of LTIs in any one month. Additionally, RIDDOR reported incidents were 11% higher in 2022 compared to 2021. The overall trend of increased incidents was observed across most individual contributing members, however, the increase in total contributing members and workers may account for some of these increases.

The combined (direct and indirect employees) Lost Time Injury Frequency Rate (LTIFR) increased by 13% in 2022, from 6.43 per million work hours in 2021 to 7.29 per million work hours in 2022. Berth, quayside, alongside a vessel were the most common locations of injuries, accounting for 45% of injury locations. Container vessels remain the most likely vessel type to have an incident on.

The top immediate causes of reported LTIs in 2022 were slipping, tripping, and falling on the same level, being hit by moving, flying or falling objects; and being injured while handling, lifting, or carrying items. The number of manual handling injuries and non-specific incidents decreased slightly from 2021, though there was a significant increase in slip, trip, and falls on the same level in 2022.

There were 52 High Potential incidents (HiPo) reported in 2022, a 53% increase from the 25 reported in 2021. HiPo incidents are useful for spotting trends in severity and potential severity and can be used to improve incident analysis, investigation, and lessons learned.

These data indicate that safety performance has been negatively impacted in 2022, versus the gains made in 2020 and particularly from 2021. There are always many interconnected factors which can drive improvements or reductions in health and safety performance. It is not within the scope of this document to determine those factors as many are specific to contributing members operations and currently insufficient detail is collected to trend common root causes.

However, as a sector, there are some key areas which can be critically reviewed as part of overall health and safety management on site. These include:

- **Open reporting and Investigation of Incidents**: Timely reporting and investigation of incidents to identify root causes, communicate to teams and target interventions to prevent repeat incidents. Focusing on immediate causes will not prevent future repeat incidents.
- **Proactive engagement on site**: Regular engagement by site leadership and health and safety professionals to interact with work teams. Reinforcing positive behaviours and addressing unsafe behaviours.
- **Proactive maintenance of equipment**: All equipment used in port operations should be regularly maintained to prevent incidents related to equipment failure, access/egress hazards, ergonomics etc.
- **Clear communication**: Effective communication is critical in ensuring safety in port operations. Clear and concise communication between operators, workers, and management should be encouraged to prevent miscommunication and misunderstanding. Encourage repeat back methods and active engagement by teams during team briefings.
- **Health and Safety training**: Regular, specific, practical health and safety training for personnel working in port operations. Refresh expected behaviours and actions, prevent skill fade.
- **Emergency preparedness**: Effective emergency response ensures timely, appropriate care and response and can prevent escalation of incidents and injury.

Future development

Benchmarking data metrics have been consistently collected from 2018-2022, using the same parameters. The 2023 data will be significantly different due to changes in the data collection process, agreed metrics and common terminology and definitions. Additional changes are likely in 2024 to further improve data analysis capabilities and obtain the best value from information sharing. There are three key considerations to develop the dashboard in the future:

- Root cause analysis and incident summaries.
- Productivity metrics of ports to potentially correlate to incident frequency.
- Enhanced use of artificial intelligence and natural language processing of incident data.

Root Cause Analysis

As highlighted in the 2021 annual review, the development of the benchmarking program will consider analysis of root causes of incidents. Root causes are important in incident investigation because they help to identify the underlying factors that contributed to the incident and provide a more comprehensive understanding of the incident. This enables members to implement effective corrective actions that prevent similar incidents from happening in the future.

Productivity Metrics

Some of the key port productivity measures that will be useful to compare to incident data include:

1. **Cargo throughput**: The amount of cargo that is handled at the port within a given time period. This can be a valuable measure to track in relation to incident data, as it can help identify any potential correlations between cargo volume and incident rates.
2. **Turnaround time**: The time it takes for a vessel to arrive at the port, unload cargo, load new cargo, and depart. This can be an important productivity measure to track in relation to incident data, as delays in turnaround times can impact the ability of the port to handle additional vessels, potentially leading to incidents.
3. **Port capacity utilisation**: A measure of how efficiently the port is utilising its available resources. This can include factors such as berth availability, quay crane availability, and storage capacity. By tracking port capacity utilisation in relation to incident data, it may be possible to identify any potential correlations between resource utilisation and incident rates.

Artificial Intelligence and Natural Language Processing

Artificial Intelligence (AI) and Natural Language Processing (NLP) can be used to analyse incident investigation text summaries to identify trends, patterns, relationships, and insights that can help organisations improve their safety performance and prevent future incidents. This can include steps to gather and process data, apply NLP algorithms and train an AI model to identify trends. An AI model can use machine learning algorithms, such as neural networks or decision trees, to learn from the data and identify patterns and relationships between the incident investigation summaries.

Next PSS Data Workshop

Annual data workshops will take place to consult with contributing members to develop continuous improvements in data collection and analysis, the benchmarking dashboard and visualisation of the data and use of new technologies.

Appendix 1 – Lost Time Injuries and Rate

The figures below show the total number of Lost Time Injuries and RIDDOR reported incidents from 2022 in comparison to previous years from the PSS benchmarking dashboard.

Figure 1: Lost Time Injuries and Incidence Rate per 100 Workers

Headcount is average across all contributors.

	2019	2020	2021	2022	Change 2021/22
Average Headcount (Direct and Indirect)	12739	12328	12425	14279	
Total LTIs Reported	289	216	169	233	▲38%
LTI Incidence per 100 Workers	**2.26**	**1.75**	**1.36**	**1.63**	▲20%

Figure 2: RIDDOR Reported Incidents and Incidence Rate per 100 Workers

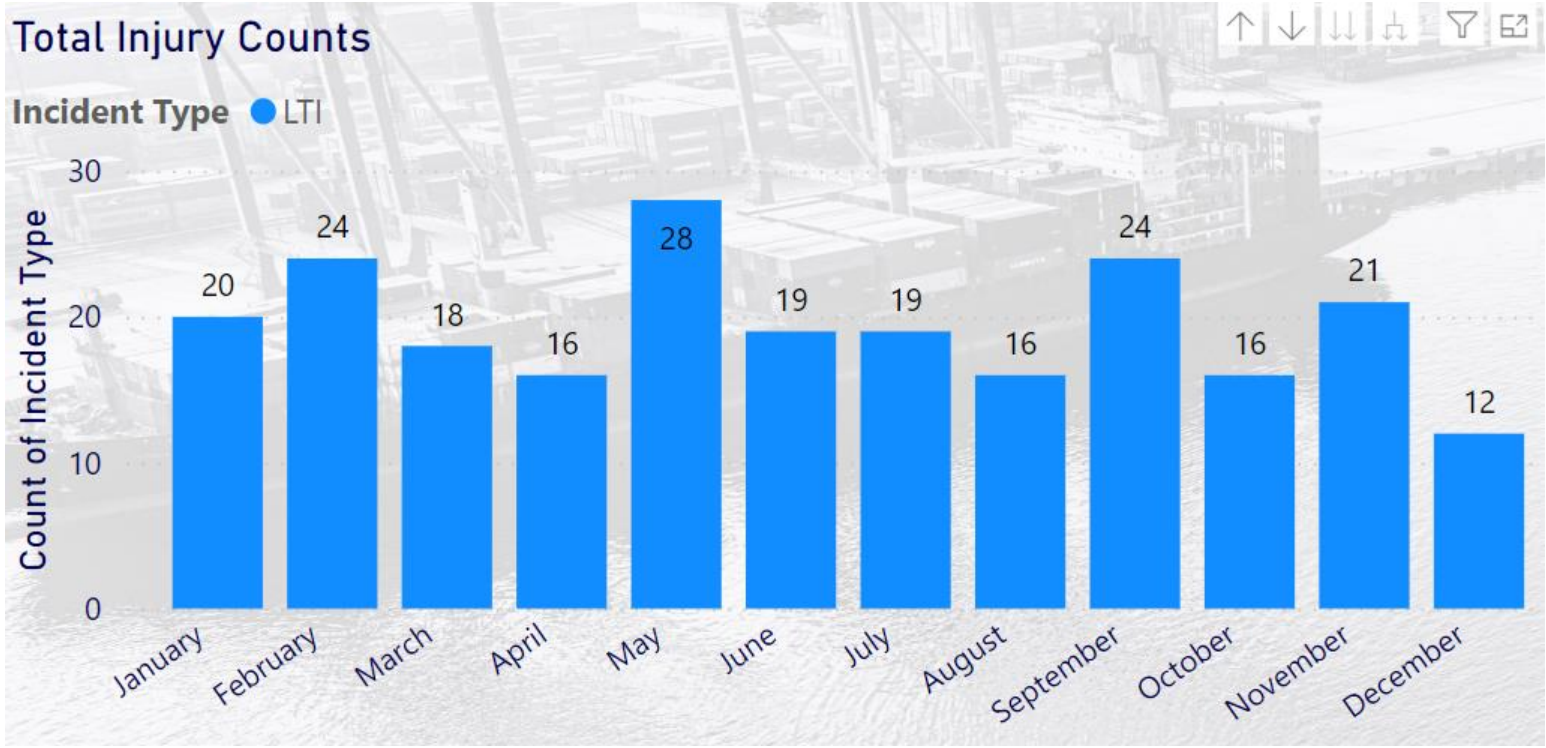
	2019	2020	2021	2022	Change 2021/22
Average Headcount (Direct and Indirect)	12739	12328	12425	14279	+1,854
Total RIDDOR Reported	21	91	70	91	▲23%
RIDDOR Incidence per 100 Workers	0.16	0.73	0.56	0.63	▲11%

The number of Lost Time Injuries reported in 2022 (233) were 38% higher than 2020 (169). May 2022 reported the highest number of LTIs in one month across all contributing members (28). However, the rate LTI rate per 100 workers increased by 11% due to the larger number of contributors and higher average headcount in 2022. Analysis of the data found no single or common cause for the increase.

RIDDOR reported incidents were also 11% higher in 2022 (91) than 2021 (70).

There were five new contributing members compared to data reported in 2021 and this added 1854 workers on the average headcount across all contributing members. This may account for some of the observed increase in Lost Time Injuries and RIDDOR reported incidents, but not all. The overall trend of increased incidents was observed across most individual contributing members.

Figure 3: Lost Time Injury Spread (2022)



Appendix 3 – Lost Time Injury Frequency

The HSE identify two formulas for injury rates: *incidence* and *frequency*.

An **INCIDENCE** rate gives injuries per set number of employees, normally 100,000.

In our case we use 'per 100 employees' because of the relatively small population size.

A **FREQUENCY** rate gives injuries per million hours worked.

This is a common figure used for benchmarking across industries.

Lost Time Injury **FREQUENCY** rate per million hours worked

$$\frac{\text{Number of reported LTIs per year}}{\text{Total hours worked during year}} \times 1{,}000{,}000$$

Figure 4: Lost Time Injury Frequency Rate (LTIFR) (2018-2022)

All LTI Reported	**Combined Data (Direct + Indirect Employees)**				
	2018	2019	2020	2021	2022
Total Hours Worked (million)	26m	26m	26m	26m	31.5m
Total Lost Time Injuries (LTI)	242	290	216	169	233
LTIFR per million work hours	**9.48**	**10.99**	**8.36**	**6.43**	**7.29**
	▼3%	▲21 %	▼24 %	▼23 %	▲13 %

Note 1: Work hours were not collected for the dashboard before 2022. Where work hours were not provided, a standardised work hours calculation has been made using a working week of 40 hours multiplied by number of personnel (direct and indirect).

Note 2: These data now represent the combined LTIFR i.e. combined work hours and LTI numbers for both direct and indirect employees on site. Previous annual reports were based only on direct employees.

In 2022 the Lost Time Injury Frequency Rate (LTIFR) data has been presented as total work hours. Previous years data was an overestimate as this was calculated based on LTI totals from direct and indirect personnel but only calculated against direct employee workhours. Indirect work hours were not included in the calculation. The combined LTIFR has increased by 13% from 6.43 per million work hours in 2021, after a sustained decrease in previous years, to 7.29 per million work hours in 2022. This was lower than 2019 LTIFR, when stats started to be collected. It remains to be seen if 2023 performance across the sector will improve on this and continue the overall downward trend in LTIFR over the last 5 years.

Appendix 4 – Lost Time Injury Locations

The most common incident locations continue to be berth/quayside/alongside a vessel and on container ships and represent 45% of injury locations in 2022. The second most common incident locations are roadways/parking area – with public access, roadways/parking area – no public access and the non-specific 'other location.'

The number of injuries in all location categories increased in 2022 compared to 2021. Container vessels continue to be the most likely vessel type on which to have an incident, a trend repeated year on year.

Figure 5: Lost Time Injuries by Location in 2021 vs 2022

	2021	2022
Berth/Quay – alongside vessel	31	53
Catering and amenity blocks	1	1
Engineering works and stores	7	26
Marine (afloat)	6	12
Offices – no general public access	0	9
On cargo handling equipment	15	24
Open storage area	8	19
Other location	12	28
Railways	2	6
Roadways/parking area – no public access	17	33
Roadways/parking area – with public access	11	36
Shed or warehouse	4	16
Ship – Bulk	3	9
Ship – Container	27	52
Ship – Other	9	21
Ship – RoRo	2	10
Terminal Building (public access)	1	3
Lock Operations	0	1

Figure 6: Top Lost Time Injury Locations from 2022 (ranked)

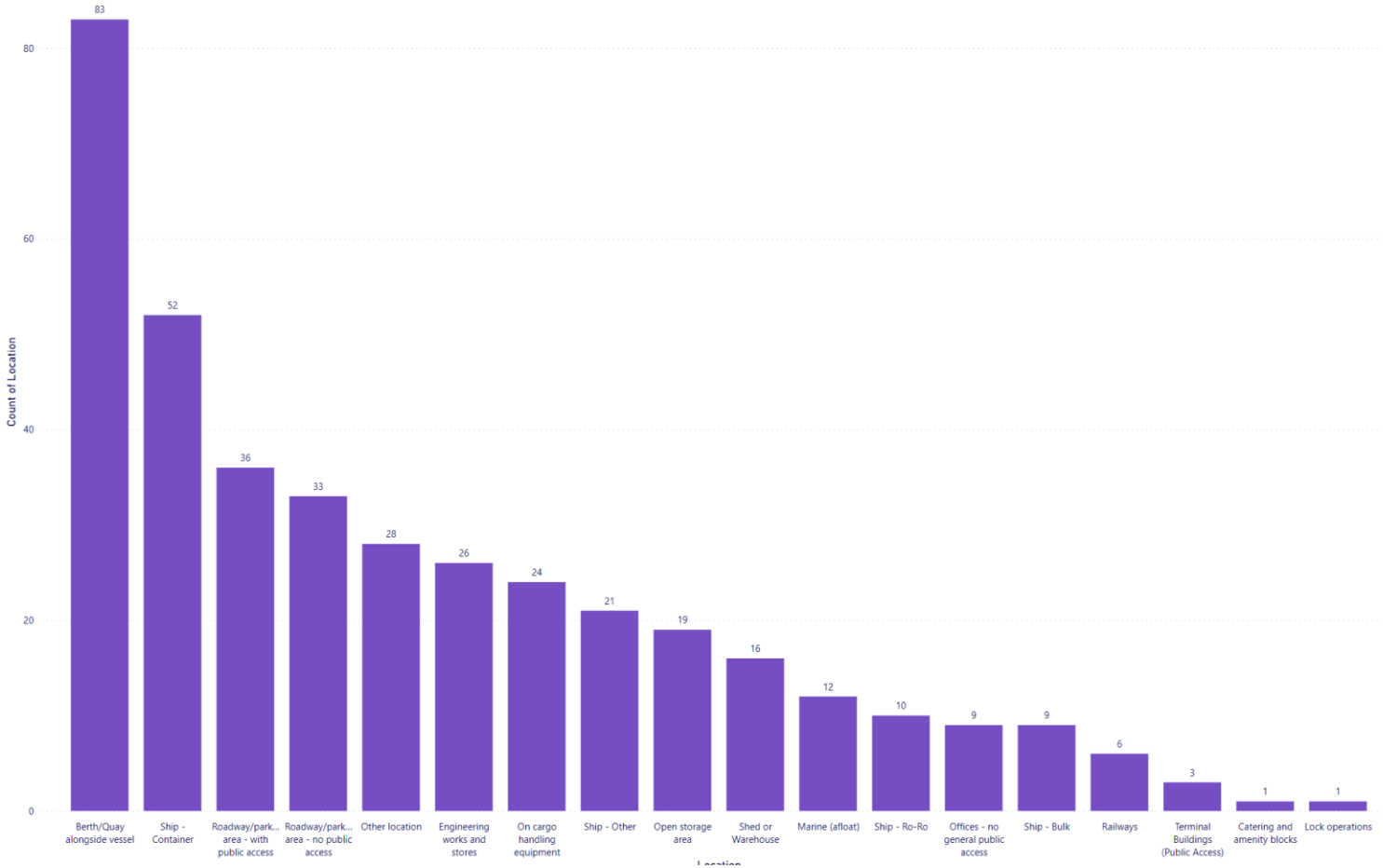
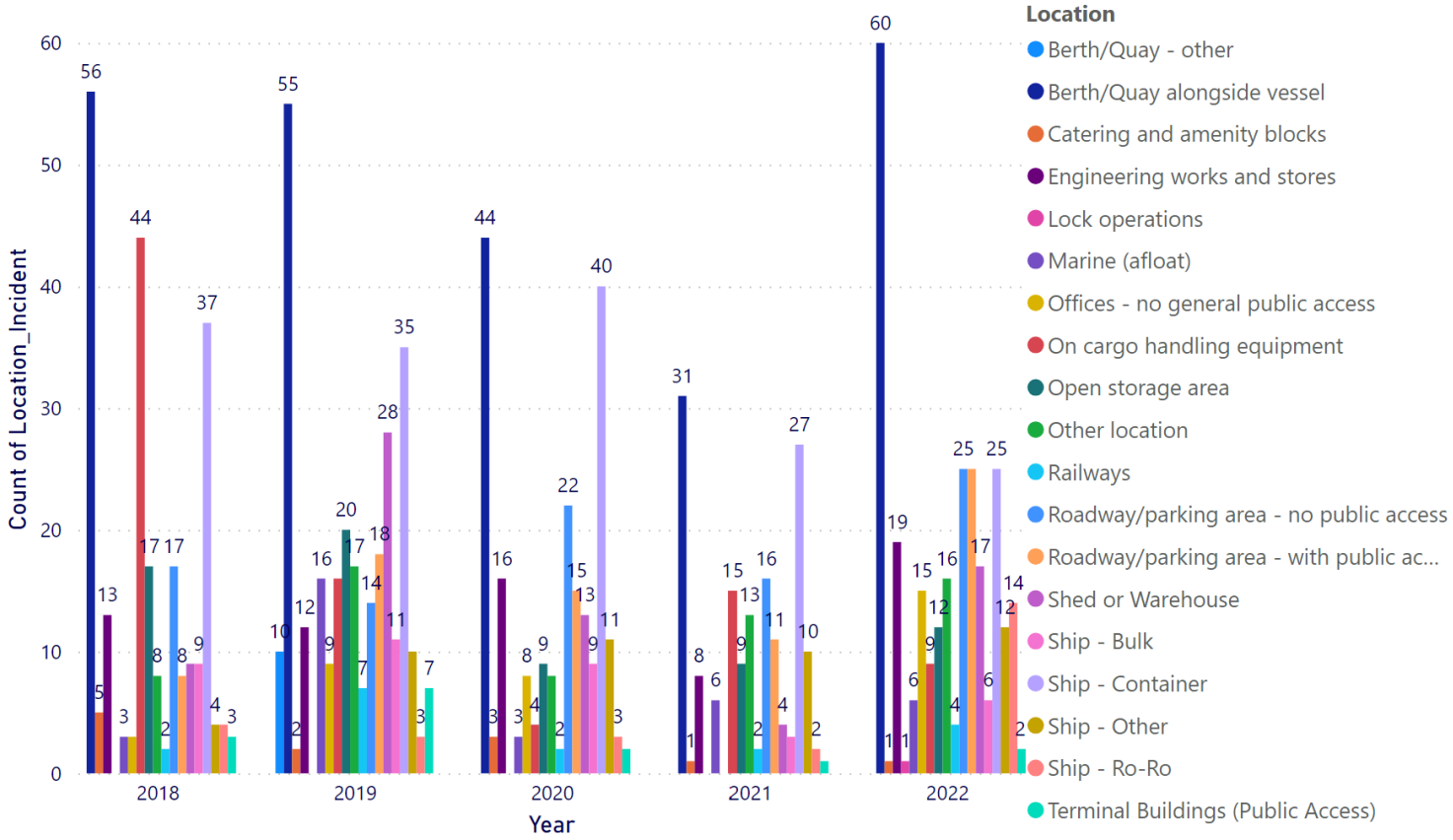


Figure 7: Top Lost Time Injuries by Location (combined 2018 – 2022)



Appendix 5 – Immediate Cause Categories

The top five immediate causes of reported lost time incidents in 2022 were:

- Slipping, tripping and falling on the same level
- Hit by moving, flying or falling object
- Injured whilst handling, lifting or carrying,
- Driving related incidents, and
- Another type of incident (non-specific).

There was a significant increase in slip, trip and falls on the same level in 2022, an increase of 32% from 2021. Incidents involving being hit by moving, flying or falling objects increased by 7% from 2021 and driving related incidents were also up slightly by 1%. Manual handling-related injuries were down slightly from 2021 and those in the 'another type of incident', non-specific category also dropped by 6% from 2021.

Figure 8: Number of LTI by Immediate Cause Category (2021 vs 2022)

Category	2021	2022
Another type of accident	27	25
Caught between objects (nips of fingers, hands)	6	9
Contact with electricity, electrical discharge	0	1
Contact with moving machinery or materials	2	7
Driving related incidents, collisions etc.	15	26
Exposed to fire	0	0
Exposed to or contact with harmful substance	1	3
Fell from height (great than 1m)	4	4
Fell from height (less than 1m)	12	11
Hit by moving vehicle	1	3
Hit by moving, flying or falling object	18	41
Hit something fixed or stationary	4	7
Injured whilst handling, lifting or carrying	24	32
Mooring related	4	5
Physically assaulted by a person	1	1
Slipped, tripped or fell on same level	37	56
Trapped by something collapsing	0	1

Figure 9: Top Incident Immediate Causes 2022

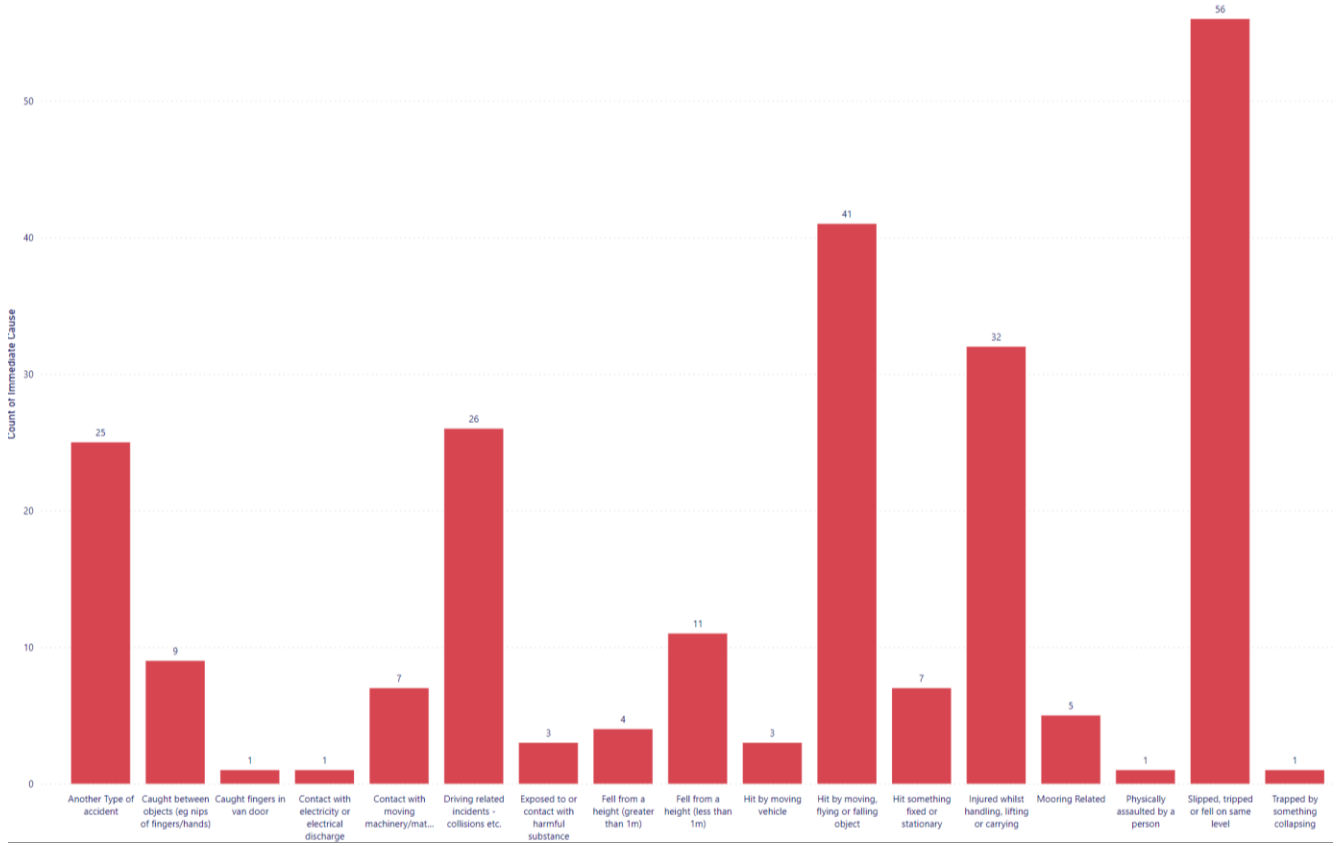
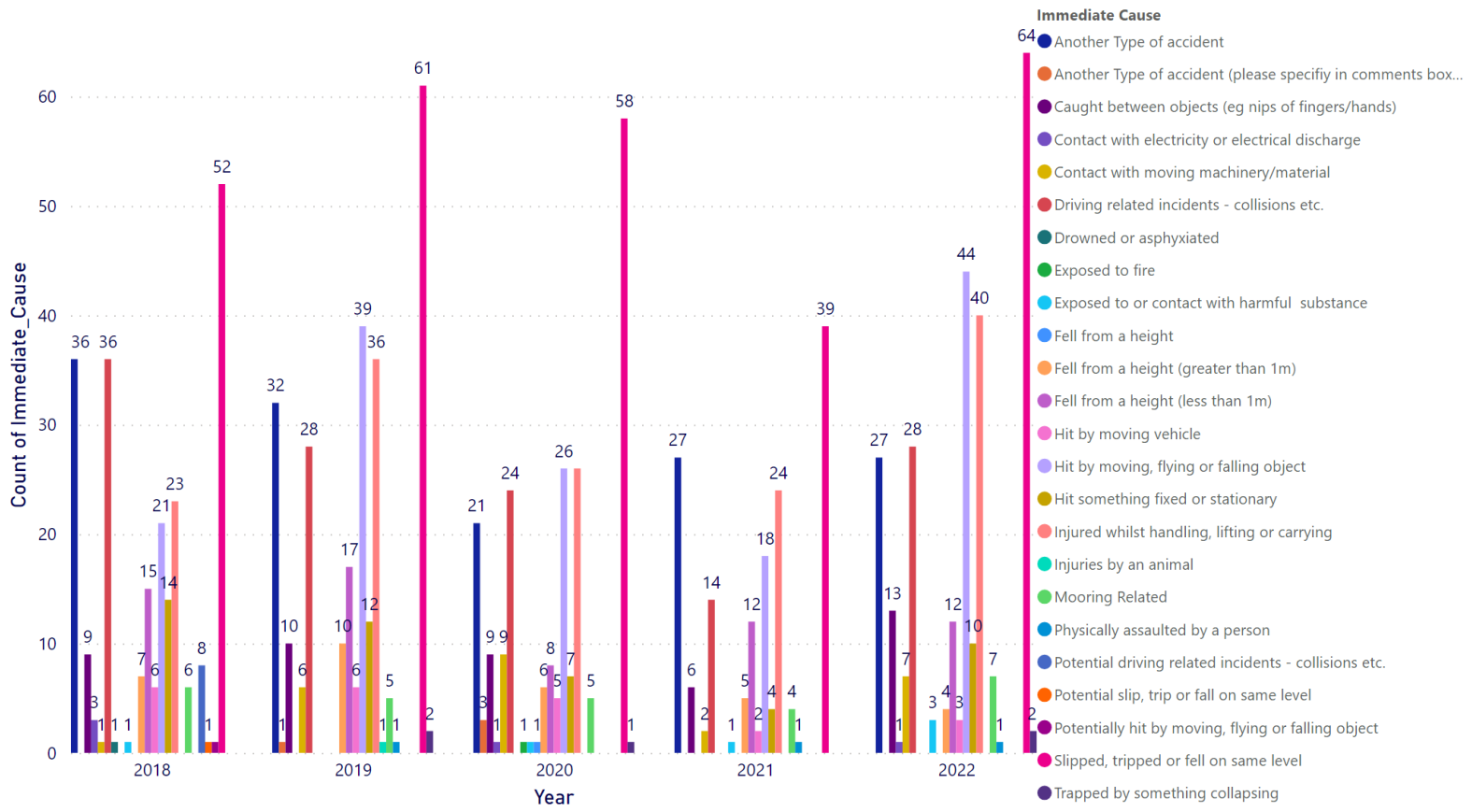


Figure 10: Top Incident Locations 2018 to 2022



Appendix 6 – Body Part Analysis

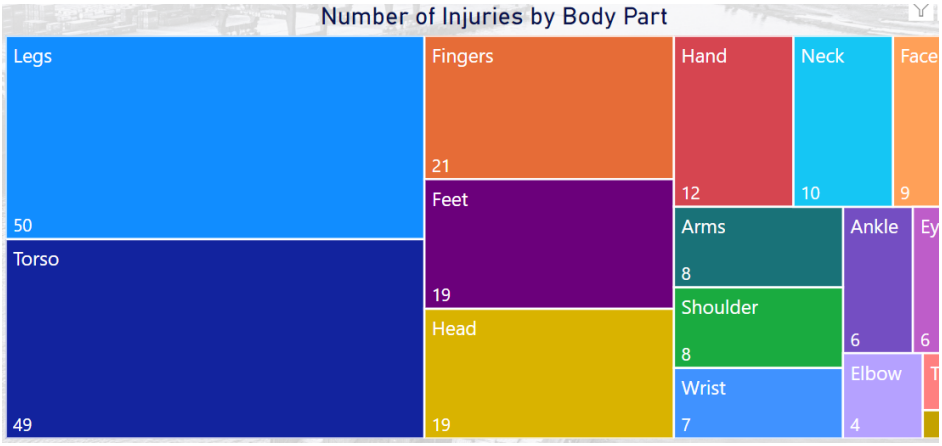
The top five body parts injured within the port industry in 2022 were:

- Legs
- Torso
- Fingers
- Feet
- Head

In 2022, the most common body parts reported as injured were the legs and torso, each representing 21% of reported incidents. This is an increase from the 2021 rates of 14% and 17%, respectively. Other commonly reported injuries included fingers (9%), feet (8%) and head (8%), however, back injuries did not feature in the top five reported incidents in 2022, unlike in 2021.

A second chart (figure 12) combines data from 2018 to 2022, inclusive, and shows the trend for all years reported since 2018. The top five injuries reported across all recorded years are back injuries, fingers, legs, torso and ankle.

Figure 11: Body parts injured (2022)



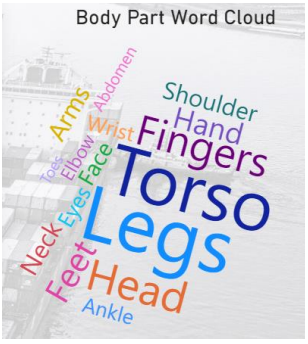
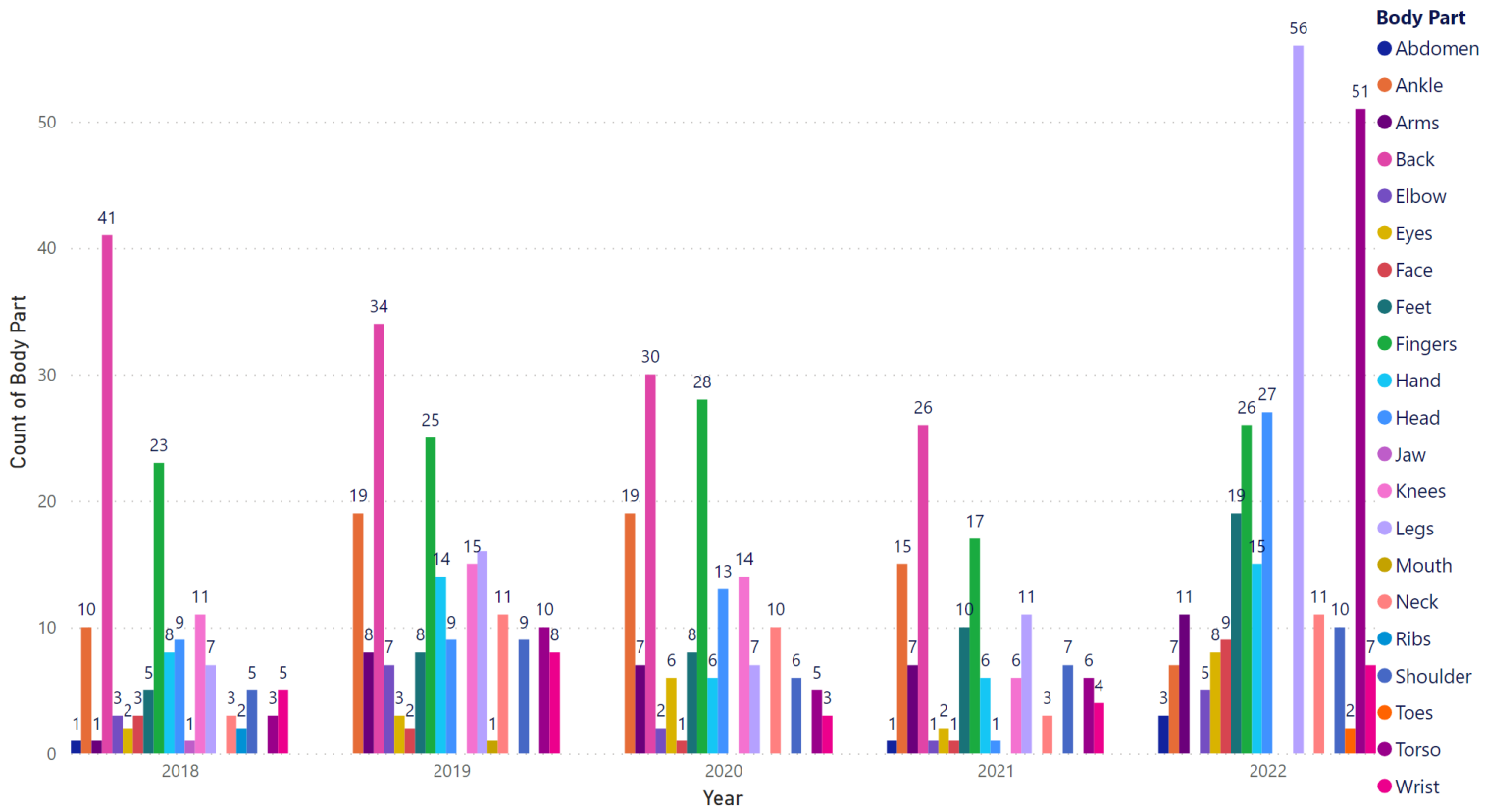


Figure 12: Body parts injured, combined trend (2018-2022)



Note: These injuries were extracted from incident descriptions as body part data was not specifically collected before 2022

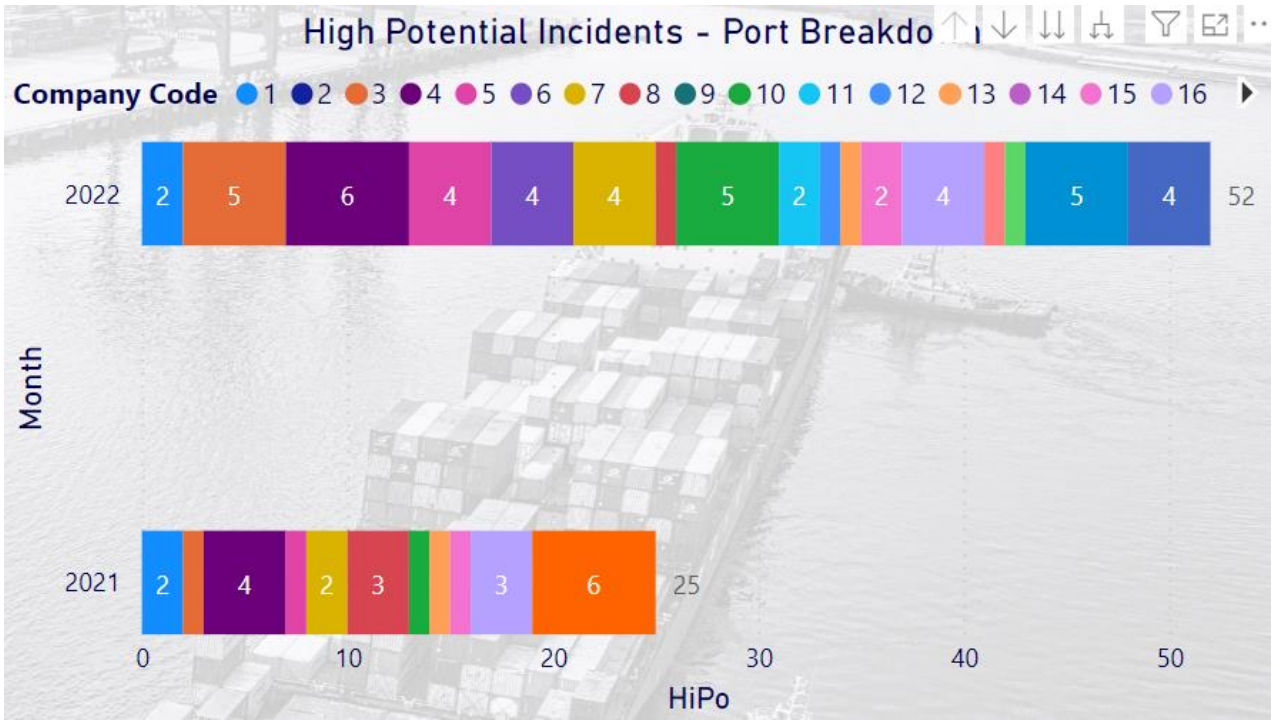
Appendix 7 – High Potential Injury (HiPo)

Contributing members can annotate incidents as high potential incidents (HiPo). This is determined by PSS members when reporting and these incidents are generally classed as high potential when the outcome of the incident could have been more severe under slightly different circumstances.

HiPo incidents are useful for spotting trends in severity and potential severity, and can be used to improve incident analysis, investigation, and lessons learned. The objective is to prevent such incidents and avoid a more severe iteration of that incident type in future.

In 2022 there were 52 HiPo incidents, a 53% increase from 2021 when there were 25 reported HiPo incidents.

Figure 13: Incidents reported as High Potential (2022)



Appendix 8 – Data Collection

Source Population

Data was collected from 23 contributing members in 2022, an increase of five members contributing compared to 2021. There was an annual average of 14,279 direct employees across all contributing members.

Method of Collation

- Figures were collated for January to December 2022
- Ports completed and submitted a data collection sheet, either monthly or quarterly, to PSS
- Lost Time Injuries (LTIs) were recorded where the injured party has lost a minimum of 1-day (or shift) of work, plus other RIDDOR reportable incidents. This includes over 7-day absences and specific injury types.
- The definition of 'employee' includes any direct hire person for whom an incident report would be completed and submitted to the HSE by the company if that person were to be injured at work
- 'Incidents' include incidents to non-employees that the port employer has a responsibility to report e.g., if a member of the public is injured, and incidents to indirect employees (contractors) under the management control of the port/member

Comparison with data from other sources

Data submitted to PSS includes all major UK ports and a number of smaller ports, port associations and operating companies. These are therefore considered to be representative of the UK port industry.

Industry incident statistics are also collated by the Department for Transport (DfT) and Health and Safety Executive (HSE), although the basis and definitions for inclusion in each of the schemes and metrics used can vary considerably.

Except where stated, PSS statistics were calculated on a 'per 100 average employees' basis.

Direct comparison with previous annual PSS statistical reports and other industry sectors should be treated with caution. This is primarily due to slight differences in terminology, categories, and data collection methods at respective ports, and during collation and analysis.