



Marine Safety Management System (SMS) performance and incident statistics 2017

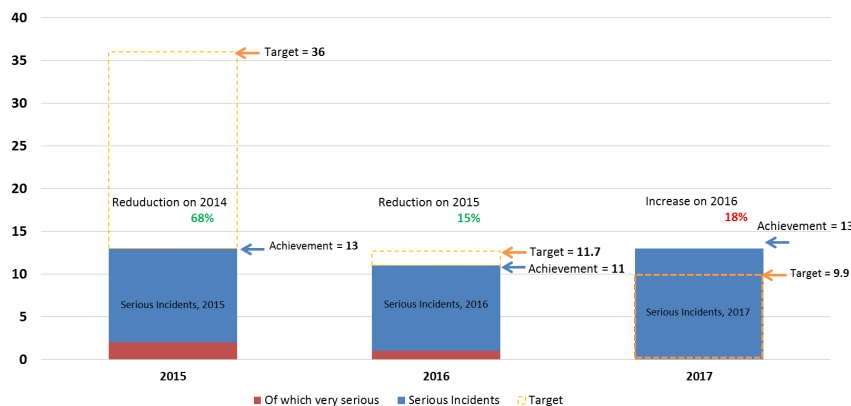
Review of the Marine Safety Plan objectives (2015-2017)

Objective 1: Serious and very serious marine incidents

There were **13** serious incidents in 2017 - **up 18%** compared to 2016, which failed to meet our 10% year-on-year reduction target — However we had **zero** very serious incidents.

Over the life of the Marine Safety Plan, the annual number of serious and very serious incidents has **decreased by 28**, which is a **68% reduction**

Our Marine Safety Plan Target of a 10% Year-on-Year Reduction in Serious and Very Serious Incidents

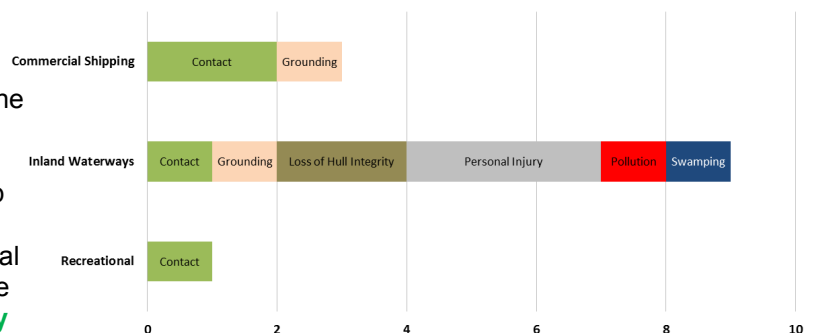


Definitions

- Minor Incident:** Incidents, which do not affect persons and/or have a negligible cost implication (<£5K)
- Serious Incident:** Incidents which may involve slight/significant injury to persons and/or have a moderate cost implication (<£500K)
- Very Serious Incident:** Incidents reported to the Board, which involve serious injury or fatality and/or have a serious/major cost implication (>£500K)

- There were **zero** very serious incidents, major injuries or Tier 2 level pollution as a result of a failure of the port's Marine SMS.
- Zero** serious incidents in 2017 were subject to MAIB investigations, however over the period of the Marine Safety Plan, there have been 2 (in 2016).
- Contacts remain the prominent serious / very serious incident type at 31%. This proportion is up from 27% in 2016.
- The number of serious incidents under Commercial Shipping has **halved** compared to 2016, whilst the number of shipping movements has **increased by 1.7%**.

2017 serious incidents Type / Vessel category



Definitions

- Commercial Shipping:** Incidents involving sea-going commercial ships.
- Inland Waterways:** Incidents involving intra-port / 'categorised waters' commercial vessels, both passenger and freight
- Recreational:** Incidents involving non-commercial vessels

Inland Waterways

- 9 out of the 13 serious incidents in 2017 were Inland Waterways, almost double the amount compared to 2016.
- 3 tug/barge incidents, 1 passenger vessel, 1 motor barge, 1 survey vessel and 3 injuries on-board vessels.

Thames Tideway Tunnel and other Infrastructure Projects

- Safety of navigation has been maintained around marine sites and there has been no serious incidents concerning vessels involved in the project. In addition, there were 2 serious incidents on other projects in 2017—a barge and workboat sinking.
- Extensive Navigation Risk Assessments and Contractor's Applications for works continue to be reviewed and assessed by the PLA.
- Marine sites for the Tideway Tunnel are established at Chambers Wharf, King Edward Memorial Park, Blackfriars, Victoria Embankment, Kirtling Street and Hurlingham Wharf. Northern Line extension works have now largely been completed.

The target in our next Marine Safety Plan is to reduce the number of serious and very serious marine incidents by 10% every year, based on the number at the start of this plan. To view our new Plan, visit: <http://www.pla.co.uk/Safety/Marine-Safety-Plan>

Objective 2: Vessel Traffic Services (VTS) – Operational capability and delivery

VTS achieved the 99.9% infrastructure availability through the life of the Marine Safety Plan. There was no reduction in advertised service throughout either district for 2017

- London VTS continues to provide an effective VTS in accordance with IMO, IALA and MCA standards.
- This objective in the 2018—2020 Marine Safety Plan will refer to service level, rather than infrastructure availability, which is easier to quantify and is the key factor in determining the operational capability of VTS.
- A new objective has been developed for the 2018—2020 Marine Safety Plan—to develop a means of recording and reporting positive interventions by VTS staff.

Objective 3: Pilot Incidents

Unfortunately there were 2 serious incidents directly involving PLA Piloted vessels in 2017, plus 1 grounding following a breakdown, failing to meet our target of 0

- The number of minor incidents involving a PLA Pilot in 2017 has decreased 32% compared to 2016 and there has been over double the number of near miss reports by PLA Pilots—up 146%
- Through the life of the Marine Safety Plan, there were 7 serious or very incidents involving vessels with a PLA Pilot onboard.
- We will continue the target of 0 serious incidents resulting from errors made by PLA Pilots in the next Marine Safety Plan.

Objective 4: Conservancy and Hydrographic Survey delivery

72% of Navigation Safety Surveys in 2017 completed within 3 days of schedule. This compares to 60% in 2016 and 62% in 2015 so a marked improvement. Significant navigational data always promulgated within 24 hours.

- 4 post-incident surveys were undertaken in 2017, which were surveyed at the earliest opportunity
- Following an ambitious programme to make up on an historical backlog, 6 out of 12 main surveys were published. 5 surveys in the Estuary are overdue, but all river main surveys are on schedule.

Objective 5: Licensing of commercial Inland Waterways vessels

Outstanding Vessel Licensing inspections remain at a similar percentage to last year—around 10%

- The Vessel Licensing team continues to improve on carrying out inspections on schedule, without delays or unnecessary disruption, with an ongoing objective to maintain outstanding inspections at under 10%.
- The next Marine Safety Plan includes an objective to continue efforts for the MCA to recognise the Thames Freight Standard as a National equivalent standard for Class IX (A)(T) vessel (Tankers) through MGN469.

Objective 6: Support for, approval and facilitation of river events

The Thames supported around 400 events during 2017, including gun salutes, filming and fireworks

- Both harbour master districts continue to work with event organisers to improve risk assessments and safety plans. River closures in 2017 and over the life of the Marine Safety Plan were predominately for regular, long-standing upriver rowing events, continuing to meet our objectives.

Objective 7: Liaison and consultation with River Users

2 River User Consultative Forums per district in 2017

- We continue to host River Users' Consultative Forums every 6 months in both districts, as well as regular liaison with recreational and commercial stakeholders.
- 2 informal public consultations took place in 2017, including a consultation on the revised Regulations to the Pilotage Directions which covers the new Class B PEC for tugs and tows, and a consultation on the future of Stoneness Light.

Our 2015—2017 Temporary Objectives**Thames Tideway Tunnel**

- As shown on the previous page, there has been 0 serious incidents concerning vessels involved in the project.
- There has been a total of 9 minor incidents—4 breaches of regulation, 2 near misses, 1 pollution incident, 1 grounding and 1 'other' incident involving craft working on the project.

Incidents at Riverside Berths

- In 2017, there were 4 serious incidents, involving a overloaded barge, a sinking tug, an injury to a crewman during mooring and contact with a dolphin during departure of a tanker. Therefore the PLA has not achieved the 10% reduction target.

The Thames/Medway Port Recovery Group

- The Thames/Medway Port Recovery Group has not been developed, however the next Marine Safety Plan aims to establish a Thames Resilience Forum to liaise more effectively with stakeholders with regard to resilience.
- The PLA will also be establishing a more detailed and robust schedule of regular training and exercises .

Drink-drive and drugs legislation for recreational users

- The new Byelaws containing a revised anti-drink/drugs Byelaw are with the DfT for approval with an aim to be in force in 2018
- Random drink and drug testing is in place for PLA employees and we continue to encourage operators to follow suit.

Passenger Vessels—Supporting the Mayor's River Action Plan and improving safety standards

- Passenger numbers have remained similar to last year—down from 10.6 Million in 2016 to an estimated less than 10 Million in 2017, although freight movements continue to grow.
- The PLA has seen a 17% decrease in passenger vessel reports and have therefore achieved the 10% reduction target.
- London River Services are delivering improved timetables in 2018, to ease congestion.

Evolve our incident investigation procedure

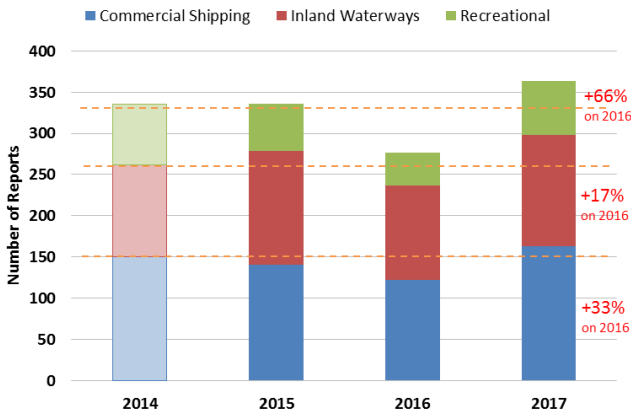
- In 2017, we have developed a KPI for incident closeouts—4 weeks for minor and 10 weeks for serious incidents to be closed.
- See page 4 for analysis of our performance against this KPI.
- Causal factors have been identified for all incidents in 2017, however 13 incidents through the period of the plan have not identified a causal factor, largely due to recreational vessels being unidentified, or breakdowns having an unknown cause.



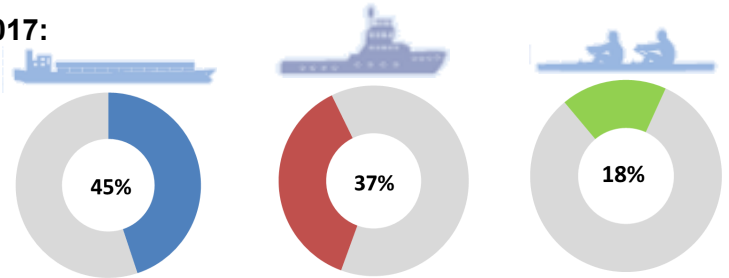
Incident Statistics

A closer look at our marine incident reports in 2017 and the last 3 years

There were 364 reports in 2017, an increase of 87 on 2016 - up 31%
 22% of the 364 reports were near misses, the number of which is **84% up** on last year



2017:



• These are the proportions of reports in 2017 from Commercial Shipping, Inland Waterways and Recreational Vessels, which have remained similar over the last 3 years.

Inland Waterways

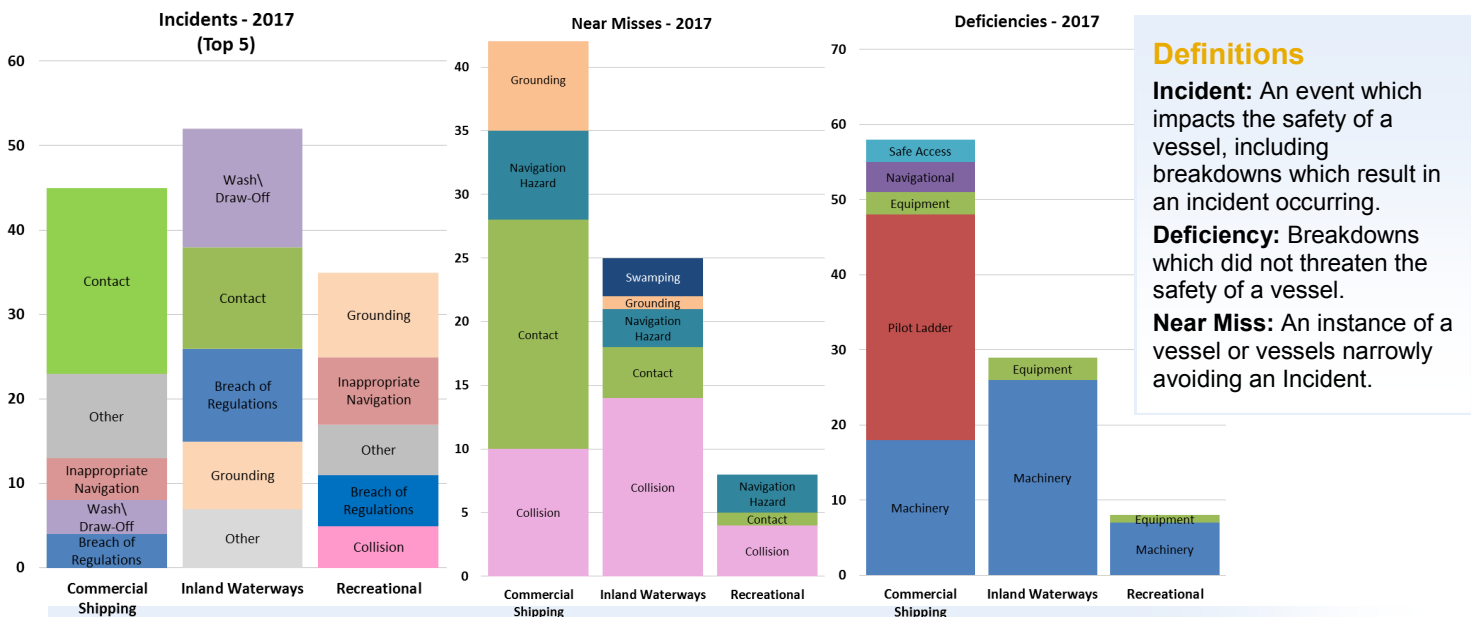
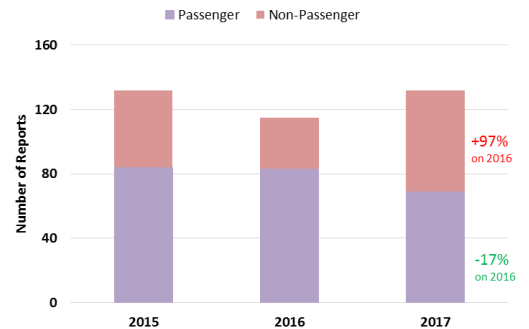
- In 2017 there was around a 50/50 proportion of occurrences caused by passenger and non-passenger vessels, however this ratio has changed compared to previous years, with non-passenger occurrences **doubled**.
- Passenger journeys are **down 5%**, which may account for the reduction in passenger vessel incidents.

All Incidents

- 'Contact' was the top incident type in 2017, as well as across the period of the Marine Safety Plan.
- 'Inappropriate Navigation' incidents have reduced, almost by half, however 'Breach of Regulations' has **doubled**. The PLA have carried out an increased level of enforcement action in 2017. See page 4.

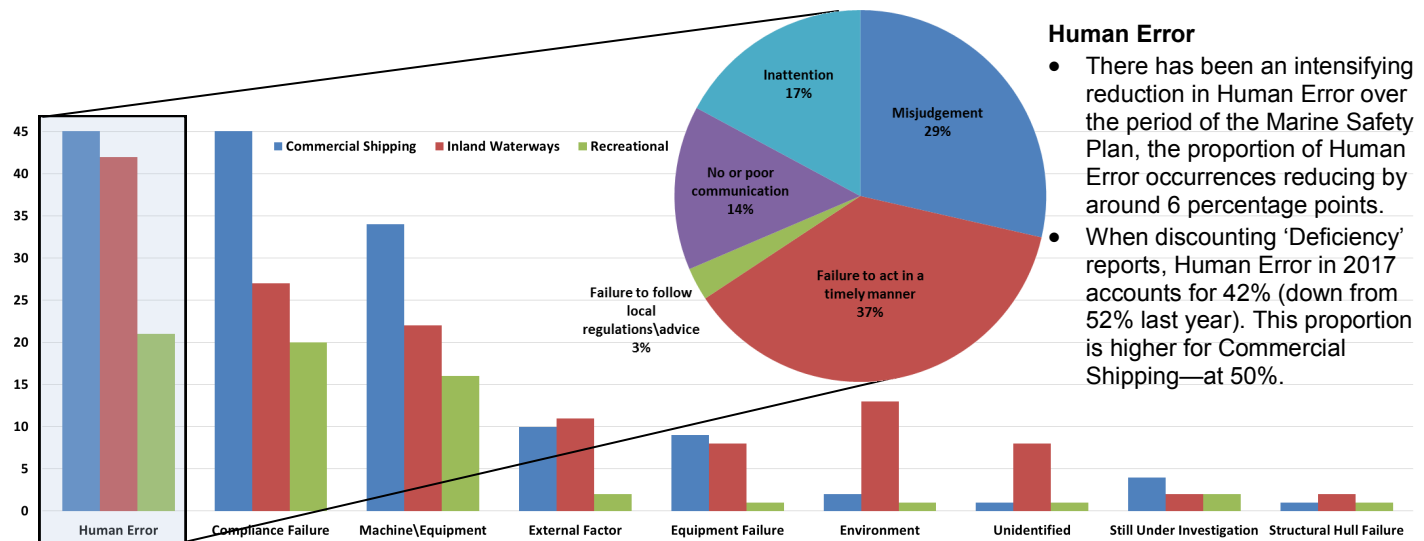
Near Misses

- The number of near misses in 2017 is almost double that in 2016, which may be indicative of an improving reporting culture. 60% of these were Commercial Shipping, which shows the best improvement over previous years.



Causal analysis—Incidents, Near Misses and Deficiencies

Over 30% of the occurrences in 2017 were Human Error, which is **down** on last year's 40%



Compliance Failure

- 26% of all occurrences in 2017 were attributed to Compliance Failure. This has increased dramatically through the period of the Plan, around 2.5 times the number in 2014.
- This is likely due to a recent change in the way incidents are investigated and the root cause identified.

Machine / Equipment

- 20% of all occurrences in 2017 are labelled as Machine / Equipment failures (failures of a vessel's engine, generators or manoeuvring aids.) This is **down** from 24% in 2016.
- The overall proportion is fairly consistent through the period of the Plan, however the proportion has increased for recreational vessels and decreased for inland waterway vessels.

Incident Investigation Performance

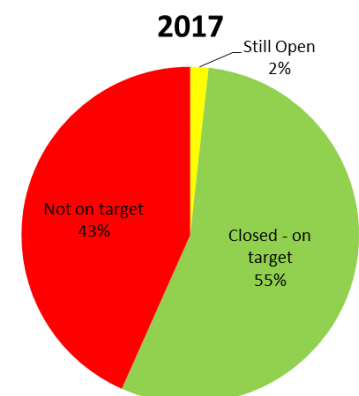
Minor Incidents

- Our target for completing minor incident investigations is 4 weeks, which we achieved for **55%** of incidents in 2017. However, the average investigation period for minor incidents was 5 weeks.

Serious / Very Serious Incidents and Prosecutions

- We aim to complete Investigation Reports for serious and very serious incidents within 6 weeks and close the incident after 10 weeks. Where prosecutions are involved, we also aim to pass the appropriate documentation to our lawyers within 10 weeks.
- Of the **13** serious incidents in 2017, 3 met the 10-week closeout target, 6 have missed the target, 3 remain open beyond the 10 week target and 1 is still under investigation.
- However, of the serious incidents that have been closed in 2017, the average investigation period is 11^{1/2} weeks. This compares to the average of 15 weeks for the 11 serious / very serious incidents in 2016.
- There were 5 incidents in 2017 which involved a prosecution - 2 have been closed out after the 10 week target, 2 remain open beyond the 10 week target and 1 is still under investigation.

4 Week Incident Closeout Target



Enforcement undertaken in 2017¹

A summary of the enforcement carried out in 2017, which can be from education and advice, to informal verbal warnings, through formal written warnings to action in the Courts.

- Various educational letters and discussions have taken place, for creating excessive wash, failing to report an incident and inappropriate navigation.
- 13** Verbal Warnings have been issued for contravention of the ColRegs, PLA Act, Byelaws, General and Pilotage Directions.
- 14** Harbour Master's Warnings have been issued—8 for breach of Section 108 of the PLA Act, navigating inappropriately or exceeding the speed limit, and another 6 for contravention of the COLREGs.
- 8** Harbour Master's Reprimands have been issued—5 for breach of Section 108 of the PLA Act, 1 for contravening River Byelaw 9 (Drink & Drugs) and another 2 for exceeding their vessel's passenger capacity,
- 2** prosecutions have taken place in 2017, both for contravention of Section 108 of the PLA Act and contravening the COLREGs.



The Port-Wide Risk Assessment

The Upper District

Above Putney Bridge there are 21 hazards—the top 3 being:

1. Collision—Small Unpowered Recreational Vessel
2. Fire/Explosion—Commercial Vessel
3. Collision—Passenger Vessel

This is a different top 3 to the end to 2016, due to the hazards being rationalised during the reviews in 2017—with contacts being deemed to be of a lower hazard than collisions, particularly those involving vulnerable man-powered craft.

In central London, there are 36 hazards—the top 3 being:

1. Contact - Standard vessel during transit
2. Collision - Vessel at High Speed
3. Collision - Passenger Vessel

This top 3 is unchanged. However there will be additional focus put onto these hazards during 2018.

Lower District

Above Sea Reach, there are 50 hazards—the top 3 being:

1. Contact—Standard vessel during transit
2. Swamping—Below Gravesend
3. Grounding—Standard Vessel During Transit

The top 5 hazards in this register require additional monitoring in 2018.

In the Estuary, there are 32 hazards—the top 3 being:

1. Swamping
2. Collision—Warp/Ooze Area
3. Collision—Standard Vessel

The top 4 hazards in this register are not ALARP and so will be closely monitored.

The top 5 overall hazards in the Port-wide Risk Database

1. Contact - Standard Vessel during Transit (Lower District)
2. Contact - Standard vessel during transit (Middle District)
3. Swamping—Below Gravesend (Lower District)
4. Grounding—Standard Vessel During Transit (Lower District)
5. Collision - Vessel at High Speed (Middle District)

An overview of the Hazard Reviews so far in 2017

Recent reviews of the Port-wide Risk Assessment have aimed at improving the consistency across all hazards.

Currently, we have separate specific assessments, such as London Gateway, Cruise Ships Navigating through the Thames Barrier. We will be investigating the feasibility of integrating these into our 'Hazman' system during upcoming reviews.

Navigational Risk Assessment Working Groups (NRAWGs)

There have been no NRAWGs initiated this quarter

Progress on previous NRAWGs:

NRAWG 57 – Pilotage Limits

The new Pilotage Directions 2017 have come into force as of 1st October. The 'Class B' PEC regime for tugs and tows exceeding Pilotage limits (80m) between Sea Reach 1 and Margaretness has seen 65 masters and mates receive PEC Bs through Grandfather Rights.

NRAWG 58 - Navigation around Broadness and Similar River Bends

"Introduce trial one-way working zone for any vessels over 180m with any reporting vessel around Broadness".
Traffic management trials are underway.

Our port-wide risk assessment

The Port Marine Safety Code requires that all ports must base their management of marine operations (i.e. their powers, policies, plans and procedures) on a formal assessment of the hazards and risks to navigation within the port. Furthermore, port authorities must maintain a formal Safety Management System (SMS) developed from that risk assessment.

Our risk assessment is split into 4 'registers':

- Upper (Tedding ton to Putney)
- Middle (Putney to Dagenham)
- Lower (Dagenham to Sea Reach 1)
- Estuary (Sea Reach 1 to Outer Limits)

so that river topography, traffic and local conditions can be taken into account when assessing risks.

NRAWG—Navigational Risk Assessment Working Group

In meeting its obligations under the Port Marine Safety Code, the Port of London Authority (PLA) maintains a marine Safety Management System (SMS) based on formal risk assessment. The Navigational Risk Assessment Working Group (NRAWG) is the vehicle for that involvement.

In addition to PLA staff, this process involves using the knowledge and experience of practising river users, stakeholders and other interested parties when relevant.