

Annual report of the Marine Safety Management System (SMS) performance and incident statistics 2016

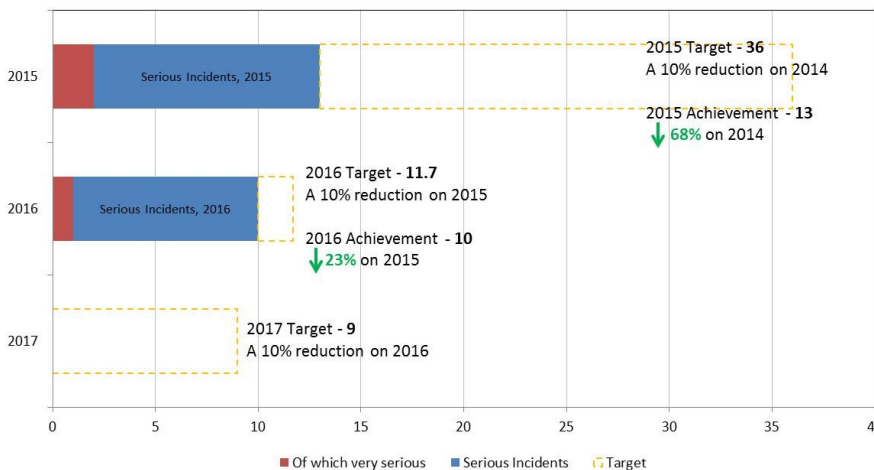
Year 2 of the Marine Safety Plan (2015-2017)

Objective 1: Navigational Incidents ✓

There were 9 serious and 1 very serious incident in 2016 - a **reduction of 23%** compared to 2015, accomplishing our 10% year-on-year reduction target

Although on the face of it we had a successful year, the very serious incident was unfortunately a fatality

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



Definitions

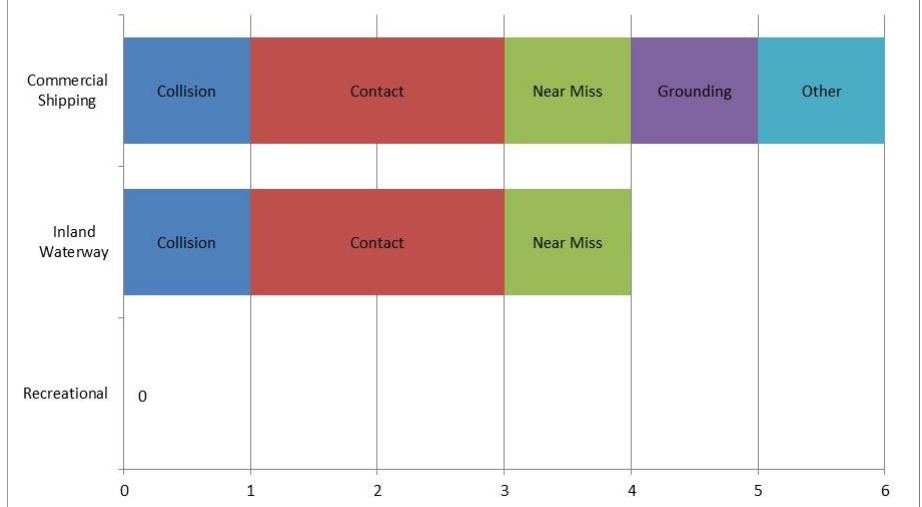
Minor Incident: Incidents, which do not affect persons and/or have a negligible cost implication (<£5K)

Serious Incident: Incidents which may involve slight/significant injury to persons and/or have a moderate cost implication (>£50K)

Very Serious Incident: Incidents reported to the Board, which involve serious injury or fatality and/or have a serious/major cost implication (>£2M)

- Serious / very serious incidents **↓23%** on 2015.
- Contacts remain the prominent serious / very serious incident type, **doubled** compared to 2015.
- The last quarter of 2016 saw 1 serious collision and 1 very serious incident (fatality).
- POLARIS shipping movements have **increased 6% in 2016** since last year with passenger numbers remained similar to last year.
- We achieved our objective of no serious incidents, major injuries or Tier 2 level pollution as a result of a failure of the port's Marine Safety Management System.
- Over the last 2 years (2015-16), there has been a total of 23 Serious/Very Serious incidents, a **decrease of 70%** compared to the previous 2 year period (2013-14).

2016 Serious / Very Serious Navigational Incidents by Category



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

Our VTS infrastructure operated at **99.9886% availability** in 2016, meeting our 99.9% target

- VTS operational procedures continue to develop, improve and become more streamlined in response to lessons identified from safety of navigation incidents and near misses during 2016.
- London VTS continues to provide an effective VTS in accordance with IMO, IALA and MCA standards.

Objective 3: Pilot Incidents

Unfortunately we had 2 serious navigational incidents involving vessels with a PLA Pilot onboard, failing to meet our target of 0

- The number of minor incidents in 2016 has remained similar to 2015 and there has been a reduction in near miss reports.
- A new Pilotage Management Committee was established at the end of 2016.

Objective 4: Conservancy and Hydrographic Survey delivery

Upriver conservancy surveys are ahead of schedule and the majority of navigation safety surveys have been completed within the 3 day target

- All incidents of sunken boats / barges (2) and vehicles (3) were responded to within 2 hours.
- A new management structure of 2 senior surveyors to organise scheduling and survey delivery has streamlined the survey work, along with the delivery of a new boat early in the year.
- Although Estuary conservancy surveys are a little behind owing to a combination of manning, weather and commercial work, new crewing agreements are hoped to keep surveys on schedule.

Objective 5: Licensing of commercial Inland Waterways vessels

Outstanding Vessel Licensing inspections **down from 13% to 8%**

- The Vessel Licensing team continue to make progress in this area, with an ongoing objective to maintain outstanding inspections at under 10%.
- A target for 2017 is to reduce the number of vessels with outstanding remedials by adopting a much firmer approach to operators that continue to operate beyond the licence extensions.

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

The river saw over 100 events during 2016, a similar number to last year

- Both harbour master districts continue to work with event organisers to improve risk assessments and safety plans. River closures in 2015 were predominately for regular, long-standing upriver rowing events.

Objective 7: Liaison and consultation with River Users

2 River User Consultative Forums per district in 2016

- We continue to host our River Users' Consultative Forums, as well as regular liaison with recreational and commercial stakeholders.
- 7 public consultations on regulatory framework took place this year, including a formal consultation on the revision to the 2012 Byelaws.

Our Temporary Objectives**Thames Tideway Tunnel (TTT) and other infrastructure projects**

- Safety of navigation has been maintained around marine activities, with 2016 seeing a reduction in non-passenger Inland Waterway incidents by around **35%**.
- Extensive Navigation Risk Assessments and Contractor's Applications continue to be heavily scrutinised and challenged by the PLA with the intention for this to continue.
- Marine sites for the Tideway Tunnel are established at Chambers Wharf and Putney Embankment. Blackfriars Pier has been relocated. Northern Line and Battersea Power Station projects are working in harmony and the Garden Bridge project is currently on hold.

Incidents at Riverside Berths

- We had 1 serious incident when a departing vessel collided with an adjacent moored vessel. Therefore we have not achieved a 10% reduction target in this area.

The Thames/Medway Port Recovery Group

- The Thames/Medway Port Recovery Group and the Thames/Medway Ports Recovery Plan have not been developed—A Thames Resilience Forum is intended to be setup during 2017

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

- Passenger numbers have remained similar to last year—up from 10.3 Million in 2015 to 10.6 Million in 2016, and freight movements continue to grow.
- We have seen a **2.4% decrease** in passenger vessel incidents, largely being inappropriate navigation and pollution incidents and have therefore not achieved our 10% reduction target. However we have seen a greater number of near miss reports, **up 67%**
- London River Services to install pier extensions at Westminster and Embankment Piers and deliver improved timetables in 2017.

Evolve our incident investigation procedure

- Causal factors have been identified for all navigational incidents, with the average investigation period being less than our 6 week target.
- The average investigation period for serious / very serious incidents is 7^{1/2} weeks—only 10% of serious / very serious incidents were completed within the 6 week target.

Drink-drive and drugs legislation for recreational users

- The new Byelaws containing the new anti-drink/drugs Byelaw 58 are with the DfT for approval and expected to be in force in 2017
- Random drink and drug testing is in place for PLA employees and we continue to encourage operators to follow suit.

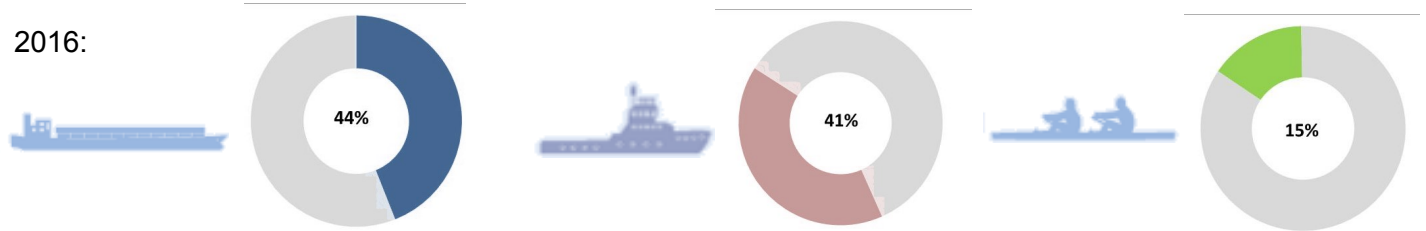
Incident Statistics

A closer look at our navigational incident performance in 2016 and the last 2 years

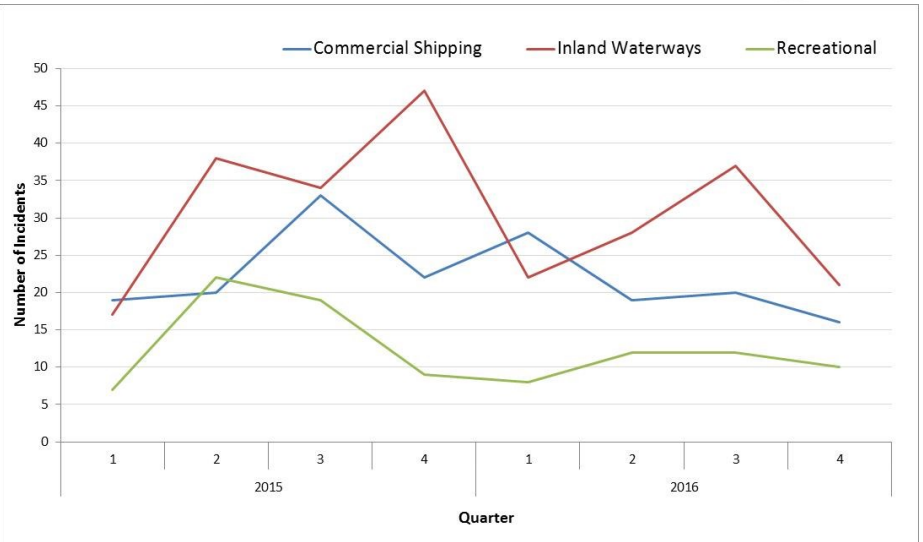
There were 276 incidents (of any severity) in 2016, a decrease of 60 compared to 2015 - **down 18%**

2 incidents in 2016 were subject to MAIB investigations—the full reports are pending

2016:

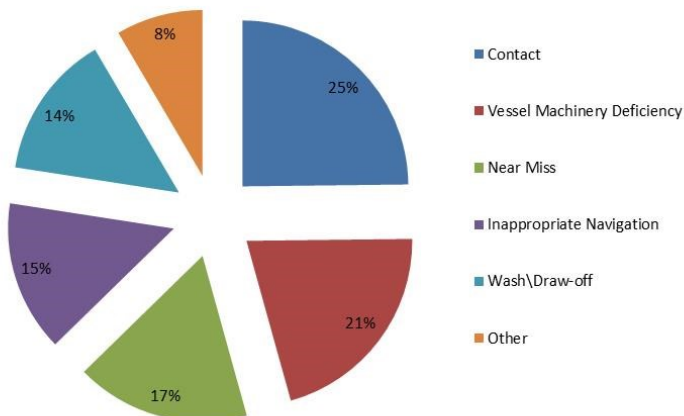


% change on 2015 incidents



- Commercial Shipping makes up the majority of incidents—46%
- Over 65% of the Inland Waterway incidents involve passenger vessels

Top 6 incident categories for all incidents over the last 2 years



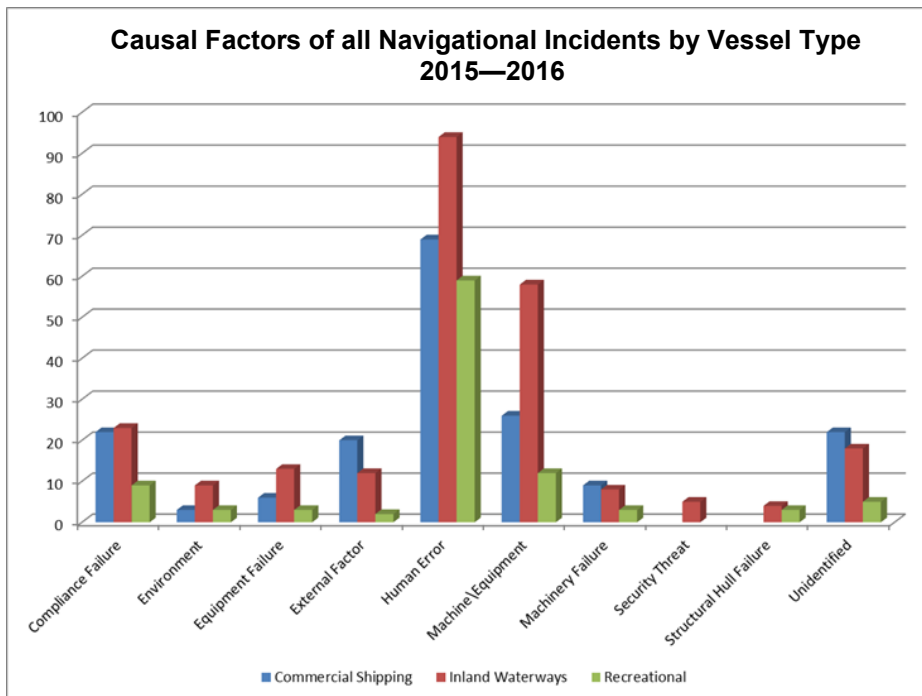
Definitions

Commercial Shipping: Incidents involving intra-port, sea-going commercial vessels

Inland Waterways: Incidents involving intra-port / 'categorised waters' commercial vessels, both passenger and freight

Recreational: Incidents involving non-commercial vessels

Causal Analysis—Navigational Incidents



Definitions

Navigational Incident: All navigational incidents, including breakdowns which result in an incident or near miss occurring.

Port State Deficiencies: These are deficiencies reported to the Maritime & Coastguard Agency (MCA) when the condition of the ship and/or its equipment fail to comply with the requirements of international conventions (i.e. SOLAS, MARPOL, STCW, etc.), however this does not include deficiencies which have led to a navigational incident or near miss.

This graph does not include Port State Deficiencies.

Human Error

- The cause of over 42% of all navigational incidents in the last 2 years are labelled as Human Error.
- In 2016 the number of Human Error incidents **reduced by 25%** compared to 2015—the biggest improvement being in the recreational sector.

Machine / Equipment

- The cause of over 18% of all navigational incidents in the last 2 years are labelled as Machine / Equipment failures.
- In 2016 the number of Machine / Equipment failures **reduced by 11.8%** compared to 2015.

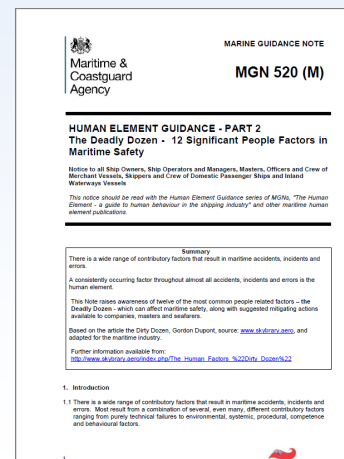
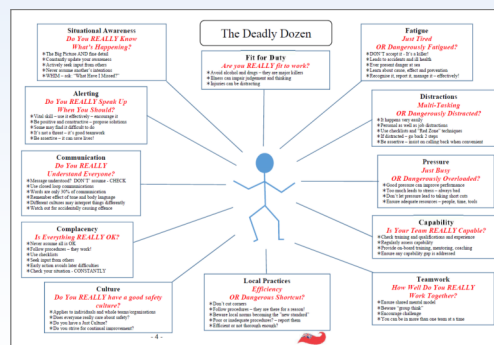
MGN 520 (M) - The Deadly Dozen - 12 Significant People Factors in Maritime Safety

The MCA has recently published an MGN on twelve of the most common people related factors which can affect maritime safety – the Deadly Dozen, along with suggested mitigating actions available to companies, masters and seafarers. We will be producing a safety campaign based on these 12 factors over the next year.

Follow the link below to view the MGN.

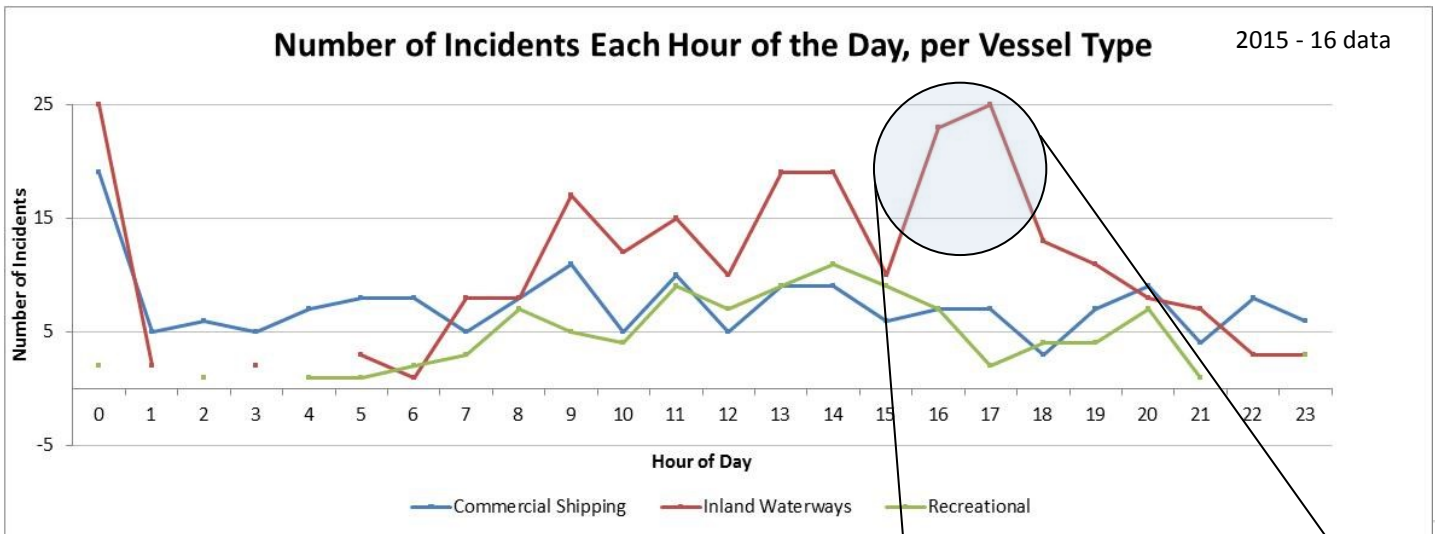
The 'Deadly Dozen' is:

- Situational Awareness
- Alerting
- Communication
- Complacency
- Culture
- Local Practices
- Team Work
- Capability
- Pressure
- Distractions
- Fatigue
- Fit for Duty



https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/579069/MGN_520_Final.pdf

Trend Analysis - Time of Day



Inland Waterways

- There is a marked spike in Inland Waterways incidents between 16:00 and 18:00, possibly due to the commuter period coinciding with the density of cruising tours in London.
- These incidents are equally passenger and non-passenger—the density of passenger vessels at ‘rush hour’ may be a factor.
- **Over 47%** of Inland Waterway incidents between 16:00 and 19:00 are caused by Human Error. A further analysis is needed to identify possible causes of this.

Recreational

- Recreation doesn't feature in the early hours, with the number peaking in the afternoon, and slowing reducing by 22:00.
- The vast majority of recreational incidents - **over 32%** - occur on a Sunday lunchtime.

Commercial Shipping

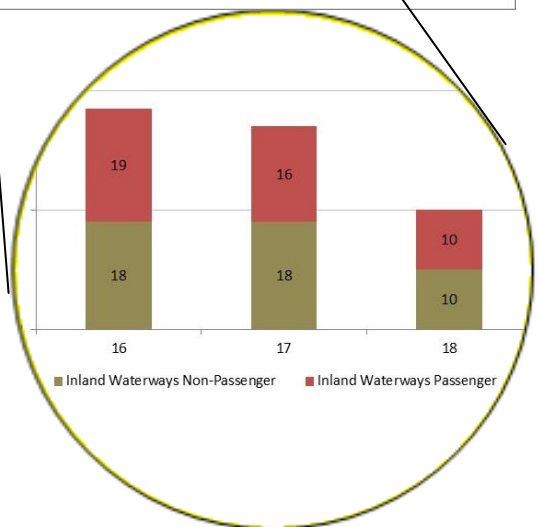
- There doesn't appear to be a trend across the day for Commercial Shipping incidents.

What are we doing?

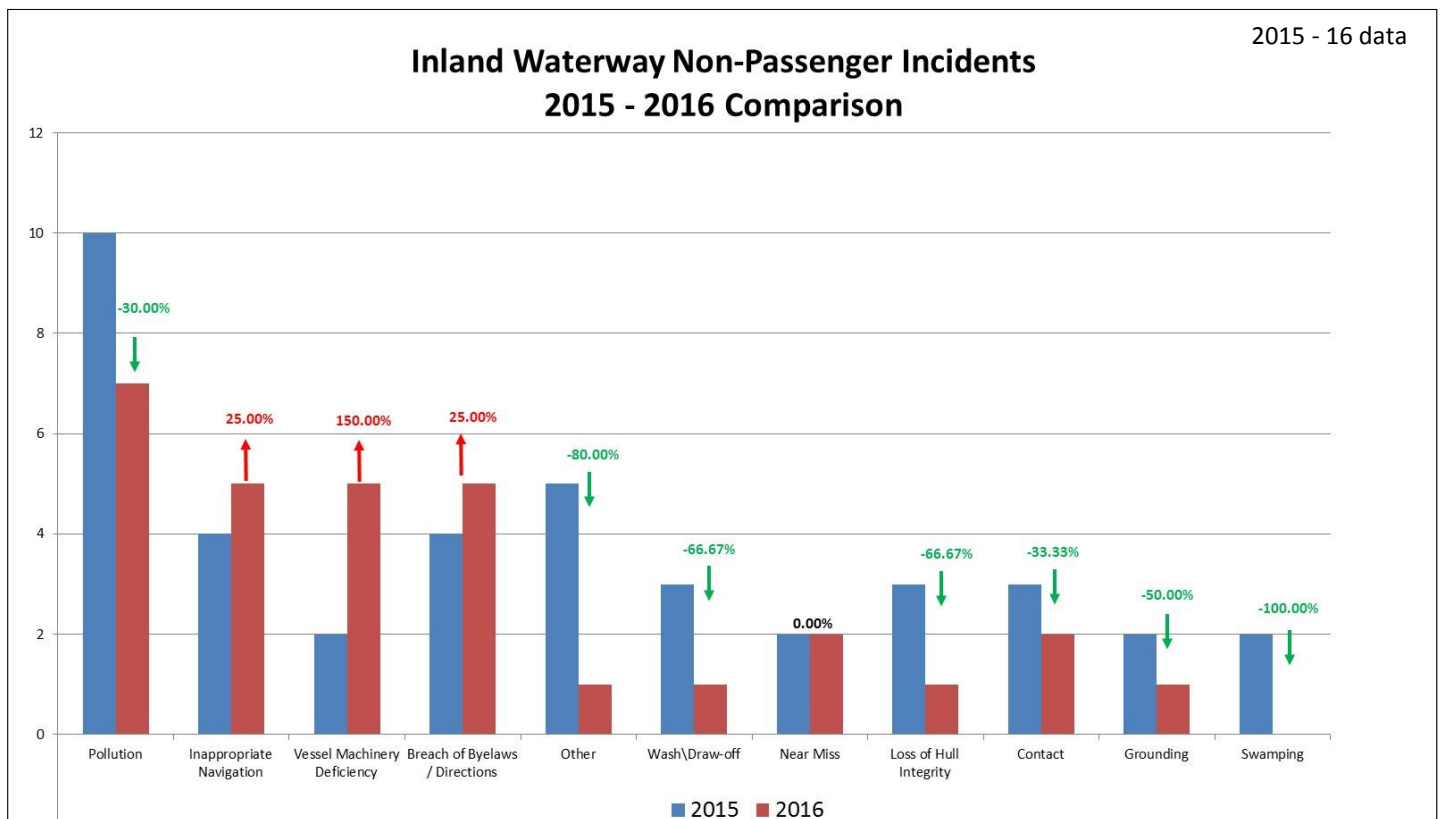
- The outcomes of the Capacity Study, such as timetabling, are being implemented over the coming months. As an example, the cumulative risk assessment for the Tideway Tunnel Project lays down risk controls limiting the amount of project traffic by day, transferring the remainder to night time transits.
- The Middle District Harbour Launch has been monitoring the Upper Pool during busy times.
- Pre-season passenger forums occur in the Spring, ahead of the Summer season, to discuss the previous year and any changes coming up in the summer. Recently, the PLA have held joint workshops with London River Services for passenger vessel crews.
- There are various time restrictions for central London in the Rowing and (soon to be published) Paddling Code of Practices, which also restricts Standup Paddleboarding during the busy summer months through central London, and the Ebb Tide Flag Warning System was introduced in 2014 to highlight and warn of the hazards of strong ebb tides due to fluvial flow from the non-tidal Thames.

What could we do?

- A further assessment of traffic patterns and density in central London, in conjunction with our trend analysis findings should be carried out to attempt to identify the causes of the spikes in incident numbers at certain times.
- Encourage more near miss reporting—near miss reports across the port in 2016 was **26% less than last year**. Easily accessible incident reporting, such as via the new PLA app could encourage more near miss reports.



Trend Analysis - Inland Waterway Non-Passenger Vessels



- Overall, non-Passenger Inland Waterway incidents **reduced by 35%** in 2016, compared to 2015.
- The incident types which show the biggest reductions are Other, Wash, Loss of Hull Integrity and Swamping.

2015 'Other' incidents

- 2x mooring breakouts, a drone flying over the river, a protest on the cable car, suspect packages on a bridge and a vessel, and a person navigating without the correct qualifications.

2016 'Other' incidents

- In 2016, the 'Other' incident was a vessel being hung up on it's moorings during an ebb tide.
- We have seen slight increases in some incident types—Vessel Machinery Deficiency, Breach of Byelaws and Directions, and Inappropriate Navigation. It should be noted that VTS intervened on around half the occasions in order to correct the inappropriate navigation – the other half being contacts with buoys or wash incidents that weren't apparent to VTS at the time
- Recent work by the Harbour Master teams such as the Working Groups on 'High Speed Rib Operations', 'Navigation in the North East Spit Area' and 'Navigation around River Bends' are working towards reducing the number of Collisions, Contacts and Inappropriate Navigation across all vessel types.
- In other vessel categories there has been a decrease in Breach of Byelaws / Directions over the last 2 years—which may be the result of the PLA's increase in enforcements and prosecutions and making these public. It is unclear why non-passenger vessel incidents of this type remains high.



The Port-Wide Risk Assessment and the Hazard Review Panel

A new hazard review process

The process of reviewing the hazards in our port-wide database is changing for 2017.

All hazards will be reviewed electronically throughout the year, rather than at dedicated meetings. However, a meeting will be convened if there are items to be discussed, if there is indecision with a change to a hazard, or if an incident investigation or a working group identifies the need to review a hazard.

At the end of the year, a Hazard Review Panel meeting (both an upper and a lower) will convene for an SMS overview of the previous year, where they will look at:

- The serious/very serious incidents during the year
- A trend analysis, carried out by the SMS team and presented for discussion.
- A detailed scrutiny of the top 5 hazards
- Hazards which are relevant to working groups convened in the past year
- Assess any changes to the control measures

An overview of the changes to the Port-Wide Risk Assessment in 2016

The Port-Wide Risk Assessment remains split into 4 registers—Upper, Middle, Lower and Estuary. This is primarily because the type and size of traffic and therefore the severity of incidents varies across the port.

The Upper District

Above Putney Bridge there are 21 hazards—the top 3 remaining as 1. Contact - Moored Vessel/Structure, 2. Contact - Bridge, and 3. Wash/Draw off - Passing Traffic, largely due to the high volume of small, vulnerable man-powered craft in this area. Of these top 3 only wash/Draw off has changed—the frequency of a worst credible incident increased slightly and the environment consequence was deemed to be less than previously assessed.

In central London, there are 37 hazards—the top 3 remaining as 1. Contact - Jetties, Berths, Piers during Transit, 2. Collision - Vessel at High Speed, and 3. Collision - Passenger Vessel. The likelihood of collision in this area was deemed to be higher than previously assessed, due to a large number of near miss collisions and minor collisions over the past few years and the increase in traffic volume. 2 hazards have been removed from this register—'Grounding during abort procedure' and 'Difficulty mooring/unmooring' as other hazards are deemed to cover these in sufficient detail.

Lower District

Above Sea Reach, there are 48 hazards—the top 3 remaining as 1. Contact - Jetties, Berths, Piers during Transit, 2. Grounding - Ultra Large Container Ship (ULCS) swinging / manoeuvring at London Gateway and 3. Swamping - Below Gravesend. The only change to these top 3 is for swamping, where the likelihood of a worst credible event was deemed more than previously assessed.

In the Estuary, there are 32 hazards—the top 3 remaining as 1. Collision - Commercial Vessel in the Sunk Precautionary Area, 2. Grounding - ULCS at and/or on passage to/from Sunk and 3. Swamping. The frequency of a minor swamping was deemed to be slightly more than previously assessed but a worst credible incident was deemed less frequent. In the Sunk Precautionary Area, the environmental consequence of a minor collision was deemed to be less than previously assessed, to bring this in line with other collision hazards in the Estuary.

3 hazards have been removed from this register—'Loss of Hull Integrity - Small Vessel', 'Loss of Hull Integrity - Large Vessel' and 'Grounding - During abort procedure' as other hazards are deemed to cover these in sufficient detail.

Risk Control Measures

The controls on the Port-Wide Risk Assessment will change in 2017 to mirror closely the list of generic risk controls within our Safety Management Systems Manual—this will streamline the assessment and review process as these generic controls can be reviewed during the hazard review process.

Changes to the VTS and Safety Management Team

A re-structure of the VTS and SMS management took place at the end of 2016, with a new Harbour Master (SMS & VTS) being appointed which oversees both VTS and SMS departments, as well as a SMS Manager which has replaced the Deputy harbour Master (Safety Management) position. The Emergency Planning function now sits within the Harbour Master (Lower) department.

Navigational Risk Assessment Working Groups (NRAWGs)

There has been 3 NRAWGs during 2016 and 1 NRAWG from 2015 with outstanding actions

NRAWG 56 – High Speed RIB Operations

The new Passenger Vessel Code of Practice was published in June 2016, which included many of the recommendations from this NRAWG, such as minimum passing distances when overtaking other vessels, a minimum separation between RIBs following each other and restricted manoeuvre zones established at locations east of Tower Bridge.

PLA Harbour Service Launches closely monitor activity during Bank Holidays, Weekends etc. when there are expected high levels of recreational activity and future Local Knowledge Endorsement renewals and new assessments to include knowledge of wash issues.

Modifications to Byelaw 10 – ‘Small, fast vessels’, specifically the requirement for an engine cut out system will be examined at the next Thames Byelaws review.

NRAWG 57 – Pilotage Limits

The Pilotage Directions 2013 have recently been reviewed and the changes have been through public consultation. The new Directions are expected to be published by Q1 2017 which contain the majority of the recommendations from this NRAWG.

In summary, the proposed changes are an increase draught limit for vessels up to 90m to east of SR1 in restricted visibility from 4m to 5m, the addition of a 3m draught limit for vessels to west of Margaretness and the direction giving PLA licensed tugs excepted vessel status has been removed—discussions are ongoing with affected tug operators.

Various minor changes have also been made to our PEC regulations.

NRAWG 58 - Navigation around Broadness and Similar River Bends

This NRAWG has made recommendations on the management of traffic and the promulgation of tidal flow information—a project is being taken up in 2017 to make this information publically available, in order to reduce the number of incidents related to the river topography and flow.

A trial for one-way working for any vessels over 180m with any reporting vessel around Broadness (from Tilbury Grain Terminal to West Thurrock Jetty) will be put into place in early 2017.

Closer-linked Pilot / VTS training is also being investigated.

Outstanding actions from previous NRAWGs

NRAWG 55 - Safety of Navigation in the North East Spit area was convened in September 2015 to examine potential risk control measures at the North East Spit.

The proposed measures have been put on hold due to the fact that steps already taken have improved safety in this area.

Routine liaison meetings with Estuary Services Limited will continue in 2017 to ensure the lines of communication remain open and any new concerns can be addressed.

NRAWG—Navigational Risk Assessment Working Group

In meeting its obligations under the Port Marine Safety Code, the Port of London Authority (PLA) maintains a navigational 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.

Lessons Identified

When an incident investigation or a near miss report reveals learning outcomes that are relevant to Pilots and VTS Officers, these are published onto the River Information System ‘POLARIS’ which Pilots and VTS staff can access.

During 2017, we will look to promulgate incident investigations and lessons learned on our main PLA website for all river users to read.

We also encourage river users to read the safety bulletins and safety digests published by the MAIB.

<http://www.maib.gov.uk/>

Enforcement

During 2016, the PLA carried out 5 successful prosecutions for offences such as navigating without due care and attention, speeding, breaching a Special Direction and contravention of the International Regulations for Preventing Collisions at Sea..

<https://www.pla.co.uk/Safety/Regulations-and-Guidance/Enforcement-Action>