



10 July 2018

Dear BSSTC member,

Agenda Item 9 – Quarterly report of incidents and accidents recorded from 1 Jan – 10 July 2018 [Doc G1, BSSTC #52]

This is a report of incidents and accidents for the period 1 Jan – 10 July 2018 as recorded by the BSS Office. Note that this report is slightly different in format from previous reports and the intention is to simplify it and allow focus on the key incident trends in determining BSS activity. Some of the preamble is now placed in Annex B.

1.0 Introduction

1.1 - The inferences drawn from reviewing incident reports are key to the effective planning of BSS activity to help address the risks presented by boats that have been inadequately constructed or maintained or inappropriately used.

Incident reports are used to help identify patterns in trends of risk and any new risks not previously envisaged. The process employed relies on the receiving-of, or the gathering-in of, details of boating incidents including fire, carbon monoxide (CO) poisoning, capsize, collision sinking, man-overboard and other incidents linked to boat use causing, or capable of causing injury.

1.2 – The role of the BSSTC is key in determining the precise activity of the BSS Office by helping prioritise the activity and helping determine any appropriate risk-management measures based upon input at BSSTC meetings. Members are requested to come to the forthcoming BSSTC meeting willing to comment on any need to plan activity or on planned activities and help identify priorities.

2.0 The Incident and Accident Data

2.1 - The incident data used to populate this report is recorded by the BSS Office. We use a wide variety of sources, but we have constraints. There are more details in Annex B at the end of this report.

2.2 – The information includes incidents from all inland waterways in the UK including Northern Ireland, the Channel Isles and the Isle of Man. It also includes mainly boat fire or CO incident information from boats on UK coastal waters if it appears to be helpful or relevant to inform the consideration of risks associated with boats on inland waterways

2.3 – This quarterly review is based reports recorded by 10 July 2018

Total reports obtained - 57

Total incidents (counting the further affected boats) - 62

Total incidents on inland waterways only - 50

There is a further break down in Annex A attached.

Generally, incidents from the coast are included unless specifically excluded. This is on the basis that the risk assessment and judgements should take account of relevant risk information if it can be associated with boats and systems in use on inland waterways.

3.0 Key Points

3.1 Fatalities & serious injuries – all victims in the fatal reports are liveaboards.

3.1.1 MOB: January – rented liveaboard.

Two men fell from the craft into the river. One was rescued, one was recorded as missing presumed drowned. We have still to record any official decision as to whether the events were accidental or deliberate and the full circumstances of the incident. – No risk information can be taken from this so far and we will maintain a watching brief.

3.1.2 MOB: March – owner occupied liveaboard. He was the only person aboard.

We were informed by the MAIB that there was a report of fatal MOB incident on a canal several weeks previously.

From the CRTrust's incident system we learnt that a man was knocked into a canal when the tiller swung sharply as he was navigating. Speculation is that the rudder may have struck something underwater. The man was unresponsive when recovered

- Members may note that it was decided for hire boaters that the tiller arc was an area of risk. This incident again confirms that there is significant risk – even on 'shallow' canals with little flow.
- Recovery, it is also a reminder that recovering a comatose or even tired person, especially when fully clothed can be a considerable task. This incident should be captured if/when any consideration is given to 're-boarding' matters.

3.1.3 Fire: February – An owner occupier liveaboard narrowboater died in fire started when embers fell from stove through its open door and onto combustible floor surfaces.

We do not yet know why the stove door was open or why the fire was lit and the door open. We do not yet know if this person died in their sleep, attempting escape or trying to fight the fire.

This is not a unique cause, fires have started in this way in previous years.

- BSS check 8.10.5A is an advice check on private boats. Non-compliance comments by examiners include reports of broken catches, sealing rope preventing proper door closure and the absence of stove glass. A stove in this condition could result in the accidental running of the stove with the fire chamber exposed, although it would be knowing and a lack of maintenance. Consideration should also be given to missing back/side blanking plates (also covered by 8.10.5A), When these are missing on some stoves, the stove chamber fire can have direct exposure to external surfaces resulting in increased heat. It can hasten pyrolysis or even cause ready combustion.
- Stove hearths – when BS 8511:2010 (stove installation in boats) was introduced in 2011 no BSS check followed for compliance to the standard for hearths detailed in the Code. Any requirement would have been retrospective. According to stove working group experts it is reasonable to assume that stoves have a working life of six to eight years on a boat as it is a more challenging environment for the components (albeit there many examples of longer lived appliances).
- Smoke alarms – it is not yet known if a smoke alarm was present or activated on this boat. Nor do we know if this person would have been woken by a smoke alarm had it activated. However, we have recorded circumstances where other boaters have been alerted to incidents on neighbouring boats when alarms have sounded.

3.1.4 Fire/Explosion: March – An owner-occupier liveaboard died in his cruiser

We were alerted to this incident by an insurance assessor. The man died when a small cruiser caught fire and was involved in an explosion or explosions.

Three other boats were damaged in the resulting fire, one completely destroyed.

There are few details revealed yet. A watching brief will be maintained by the BSS Office for later reports.

3.1.5 Fatal fire and possibly explosion: May – An owner occupier was living aboard a small grp motor sail yacht on a marina mooring.

The man had over two decades of naval experience.

Details of any investigation are yet to be announced.

The mooring pontoon and an adjacent kayak were also damaged.

Note that in view of the worrying trend of three fire fatalities in the first five months of the year involving owner-occupier liveaboard boaters, it is intended to issue a media release with the message that those who live aboard should closely follow best practice safety tips to help prevent fire accidents.

3.1.6 Fire: January - Major Injury, rental liveboards on a narrowboat.

A solid fuel stove surround built of wood ignited at 11pm. There were two occupiers. A man woke his neighbour asking for help with extinguishers. A woman was aboard attempting to rescue their cats. She evacuated, and three extinguishers were used to control the fire until the fire service arrived and successfully tackled the fire. One occupant was taken to hospital for treatment. The tenants moved back onto the boat once they had cleaned up the extinguisher powder and fire damage

The boat was unofficially let on a private boat with private boat certification issued three years ago.

Pyrolysis was the suspected cause. We were unable to confirm whether the occupiers were protected by smoke alarms.

Most of the information has been drawn from social media reports and interactions.

3.1.7 Explosion: April – major injury two adults and one child including serious burns

A cruiser exploded. The fuel for the explosion is not yet confirmed as gas or petrol. There are reports of it being a gas explosion although there are also anecdotes of a smell of petrol.

There is an ongoing investigation by the navigation authority.

The boat is in private use. It had a BSS certification issued three years ago

3.1.8 Explosion: June – An explosion occurred causing burns to the owner's face arms and hands.

The boat is an intensive use barge moored on private online moorings.

The owner was painting the bilge area he could smell the build-up of paint vapor but decided to continue after a short while the vapours found an ignition source.

3.1.9 Explosion: June – The owner suffered burns to his chest and arms.

The owner was refuelling his petrol outboard engine on the lock landing stage an ignition source ignited the petrol vapor.

The boat then still alight drifted toward the weir boom heat from the boat melted one of the weir boom chain floats and required replacement.

3.1.10 CO: June – Six crew members of a grp sports cruiser [260hp petrol-engined] suffered the effects of CO poisoning during a cruise along an E Anglian river, four of the crew were taken to hospital and released after treatment.

The boat made a there-&-back transit at a steady speed of 5 to 6 mph throughout. On the return leg, approximately 1 mile from the home mooring, people on board began to feel ill.

The skipper took the boat back to its home moorings and called an ambulance.

The following day the boat was examined by a marine engineer and no faults were found on the exhaust systems of the engine, generator and other appliances. No CO source on the day in use could be identified other than the exhaust outlet from the main propulsion engine.

There was little to no wind and rain showers were present throughout the day. So the boat had its close cockpit canopy over the helm position and back deck.

There was no active ventilation present as all windows and lights were closed in the cabin and the canopy fitted closely to the boat superstructure. The entry gate from the swimming platform to the back deck/ helm area was closed and it had a 100mm gap on the bottom of the solid gate for the entire width of the gate, the awning fitted tight to the top of the gate.

All people were in the helm and back deck area.

The boat did have a carbon monoxide alarm fitted in the cabin but this did not work and had not been tested by the boat owner.

3.1.11 Capsize: March – three men rescued from a Scottish loch.

Two boats were travelling in a convoy on a Scottish loch. One capsized and emergency services rescued the men who were treated by ambulance, then taken to hospital for further observation.

We are yet to ascertain the size and type of craft and whether they are private or hire craft.

3.1.12 Sinking: April - Two crew of a dredger on an inland Northern Irish lough suffering from cold-water shock and hypothermia were rescued and taken to hospital.

The lifeboat arrived on scene where one person had made it on-board another sand dredger that was nearby.

With the other person still in the water alongside the sand dredger), the lifeboat crew boarded the dredger and along with those on board retrieved the person from the water.

3.2 – Hire Craft Incidents

Currently we have recorded knowledge of one official hire boat incident concerning a day-boat capsized in a lock. We are aware of the general location, but no further details currently.

3.3 – Solid Fuel Stoves – equipment failure

One key incident related to solid fuel stoves concerns a CO event. A rotating cowl lost its wind vane when rivets and a weld failed, and the cowl remained in one position and facing the wind.

The wind was strong enough to create a back-draught. CO escaped into the cabin and was dense enough to set off the CO alarm

The BSS Office is investigating this matter with regard to it being a one-off or whether other similar units could fail. Competent advice has been received in respect to construction materials and any relevant standards and UK law. Trading Standards has been engaged with to help ensure the products complied with product safety rules. The product has been taken off the market prior to the involvement of Trading Standards. It is understood that around 350 units were previously sold.

3.4 – Incident Data

There are still gaps in in some cases, but there has been improvement and the BSS Office is getting more help and input into the data gathering process.

Compiled and drafted by Rob McLean and Graham Watts from investigative work by Dave Washer
– 10 July 2018

Annex A – Total - 1 January to 10 July 2018

Table A1 Basic statistics from the records	<u>All incidents</u>
Number of incidents recorded	62
Fire/explosion (inc immediate risk of)*	41
CO (including near incidents)	3
Pollution	-
Man Overboard	2
Personal Injury	-
Capsize 2, collision 1, grounding 1, stranding 1, sinking including lock hang-up 11,	16

*vessels included in multi-vessel incidents

Table A2 Serious incidents [Note: Major injury = person treated at hospital]	<u>Fatalities</u>	<u>Major injuries</u>
<u>Totals of boaters harmed</u>	5	18
Explosion/fire, petrol, gas, fume ignition	3	9
Carbon Monoxide	-	4
MOB / Capsize/ collision / sinking	2	5
Other personal injuries	-	-

Table A3 Boat classification - Inland waterways only [Note: Navigation = all other inc Capsize, Sinking, Grounding etc]	<u>Fire, CO & Pollution</u> (30)	<u>'MOB & Navigation'</u> (16)
Pleasure and leisure	9	4
Not recorded/not known	6	7
Intensive [residential and extended use]	13	2
Hire and passenger boat	-	1
Workboats / other commercial	1	2
Brokerage / renovation / under repair	-	-
Abandoned	1	-

Table A4 Trends in systems & causes, Inland waterways only [Note - All fire & CO events only]	2018	2017	2016	2015	2014	2013	2012
Totals	31	69	65	63	69	91	80
Deliberate Fire setting	1	11	5	11	12	11	11
Conflagration	3	4	5	11	3	3	5
Totals of accidental and original incidents	27	54	55	41	54	75	64
Bullseyes	-	1	0	0	0	0	0
Electrical [system / appliances]	5	7	11	7	8	15	15
Engine / engine room / exhaust	1	2	7	2	5	6	4
Flammable vapours (not yet identified)	1	7	5	4	3	3	2
Other domestic, galley, smoking, candles, etc	-	2	4	1	0	0	3
Gas escape / installed gas appliance	-	3	3	2	0	4	3
Not known [inconclusive / tbc to BSS]	12	21	10	15	27	28	21
Oil fired stoves and heaters [installed]	2	3	-	1	0	1	2
Other [inc machinery, welding, DIY, etc]	-	0	-	-	2	1	2
Petrol related – leaks, refuelling, etc	1	2	2	2	2	2	2
Portable engines / outboards / generators	-	1	-	-	2	2	0
Portable items [lpg, oil, BBQ, electric, etc]	-	0	1	-	0	2	0
Solid fuel stoves	5	6	12	7	5	13	10

Table A5 fires related to electrical systems

Boat Type	Incident Type	Use	Brief details
Narrowboat	Battery explosion	Intensive	A battery on a two-year old boat exploded when a cell overheated under charge whilst idling the engine. Shards of casing and battery acid were scattered.
Unrecorded	Fire	Intensive	Owner reported a phone charger plug became extremely hot during charging. Owner was alerted by the smell of burning.
Steel Narrowboat	Fire	Intensive	Incident linked to a suspected electrical fault linked to an inverter issue
GRP Yacht	Fire	Pleasure	It was reported that a fan heater was left running on the boat as the owner had been on the boat during the day
Sports Cruiser	Fire	Intensive	A suspected electrical fault fire started in the engine compartment.
Large cruiser	Fire	Build	A faulty electrical component on a new build boat in the factory became hot and started to smoke company policy is to call the FRS as a precaution.
Cruiser	Fire	Pleasure	It is suggested that a cable shorted out on the engine block causing a spark and igniting combustible materials. The engine had been replaced in the last 12 months.
Cruiser	Fire	Pleasure	It appears that the smoke (no flame) emanated from the "Diode Splitter". The damage is confined to this unit, which appears to have also failed. It has holes and burn marks on its plastic casing.

Table A6 incidents related to Solid Fuel Stoves

Boat Type	Risk	Use	Brief Details
Small cruiser	Fire	Intensive	The boat went under a bridge and the stove hit the structure. The chimney and stove collapsed and set fire the whole boat. The BSS had long expired
Steel narrowboat	Fire	Intensive	The stove was running with the door open and an ember fell out onto a combustible surface
Steel narrowboat	CO	Intensive	Constant CO alarm activation prompted the owner to check and discover a cracked stove body
Steel narrowboat	Fire	Intensive rented	Wooden stove surround caught fire
Steel narrowboat	CO	Not recorded	Vane separated from rotating cowl. Cowl was facing wind creating a back-draught. CO escaped stove and activated a CO alarm

Table A7 additional information on hire, tenanted and passenger boat incidents

Month	Region	Risk	Brief description of events
2018-01	S. West	Fire	Wooden stove surround caught fire on unofficial rental boat
2018-04	N. East	Sinking	Day hire narrowboat sunk in lock

Annex B

B1.0 The Incident and Accident Data Collection

B1.1 - The incident data used to populate this report is recorded by the BSS Office. The data includes incidents relating mostly to boats used on inland waterways. However, incidents of fire, explosion and CO on coastal boats are recorded where the craft may be of the type that could be used inland or where the systems aboard may be common to those on inland boats.

B1.2 - The data cannot be considered as a complete record of incidents on any waters. Many minor incidents are not reported to any agency, let alone published. Where agencies, typically fire, ambulance or other health organisations have records of a boat related incidents, there are still likely to be only a minority of such records made public.

B1.3 – In the BSS records, where fire has spread from one boat to another each boat affected is counted as one record and cause is recorded as conflagration. This is a reference to one of the purposes of the Scheme to help prevent the spread of fire from happening. It is an indicator of the potential for such events.

B1.4 – Where two or more boats collide in one event, it is counted as one incident.

B1.5 – The tidal R. Thames from Grays to Richmond i.e. an area under Port of London Authority (PLA) control, commonly used by inland waterways craft, is for the purposes of BSS incident reports included in Non-BSS Inland waterways. Likewise, incidents happening in the Cardiff Harbour Authority waters.

B2.0 - The Role of the BSS Concerning Accident and Incident Data Collection

B2.1 - The BSS Office collects reports of UK recreational boat-related accidents and incidents from any source.

B2.2 - We are interested to establish causes and circumstances to help establish trends and inform BSS Office activity aimed at helping prevent re-occurrences. Our job is to react to trends, or identify new risks or predict potential risks, in an appropriate way. This involves working with stakeholder groups through the BSS Advisory and Technical Committees. The data collected feeds into current and future BSS activities associated with the key risk areas through the application of the BSS Risk Management Process [BSSQA020]. The data is also used to support navigation authority input concerning their other activities.

B2.3 - We are not responsible for, and do not conduct investigations into accidents/incidents, but we may view fire reports or coroner's verdicts in order to inform our assessment. We may help the investigation of incidents by facilitating the return for testing of suspected faulty equipment to the manufacturer/ supplier. We also assist Navigation Authorities in their responsibilities in investigating incidents.

B2.4 - We may also test the experience of the BSS examiners by way of targeted surveys. Through partnerships, we may seek to influence relevant British and European standards-making activities.

B2.5 - In the event any accident or incident casts doubts about the issue of a BSS Certificate, the BSS Office will seek to view the vessel in order to ascertain the reasons why a certificate was issued and take forward actions based on the findings.

B2.6 - This report has been generated with information from navigation authority reports directly made to the BSS or indirectly found by the Scheme. The BSS offices also sources from social media, blue light service web sites, news sites as well the use of search engines and RSS alerts. Information from the Maritime and Coastguard Agency, RNLI and the Marine Accident Investigation Branch and dealings with Coroners' Officers is also included. Other people from the marine trade have been helpful in reporting incidents or supplying greater detail. We also review key stakeholder statistics.