

**The Port Marine Safety Code  
Safety Management System: Stakeholder Hazard Review 2019**  
Report by Head of Safety Management

**Purpose:** This report details the outcome of the Safety Management System Stakeholder Hazard Review.

The Committee is invited to note the report and Members' views are sought on the recommendations in Section 7.

## **1 Introduction**

- 1.1 The Broads Authority, as a Competent Harbour Authority under the Pilotage Act 1987, is required to comply with the duties and responsibilities set out in the Port Marine Safety Code (PMSC)<sup>1</sup>.
- 1.2 The Code requires that all harbour authorities base their powers, policies, plans and procedures on a Formal Safety Assessment (FSA) and that they maintain a Safety Management System to ensure that risks are reduced to a level which is as low as reasonably practicable (ALARP).

## **2 Background**

- 2.1 In May 2003, the Broads Authority undertook a detailed Formal Safety Assessment<sup>2</sup> which identified 28 hazards and proposed risk reduction measures. The outcome of the Assessment was documented in a Hazard Log.
- 2.2 In 2007, the Authority published a Safety Management System (SMS)<sup>3</sup> to meet the needs of the PMSC. There have been a number of updates over the years, the current version is Issue 7. The SMS recommended that the Hazard Log be reviewed by a stakeholder group every three years and for the log to kept under constant review by officers and the Boat Safety Management Group.

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<sup>1</sup> Port Marine Safety Code, DETR, ISBN 1 85112 365 2, dated November 2016

<sup>2</sup> Broads Authority Navigational Formal Safety Assessment, 328S116, Issue 1.2, dated May 2003

<sup>3</sup> Broads Authority Port Marine Safety Code Safety Management System, Issue 7, dated March 2018

- 2.3 The previous stakeholder review was in February 2016, the Hazard Log was reviewed and amended. A report was brought to this committee in April 2016 and an update on the actions from that review are set out in appendix 1.
- 2.4 The objective of this report is to document the process by which the hazards were reviewed and updated, and to present a summary of significant changes to the hazards.

### **3 PMSC Update to the Risk Assessment Process**

- 3.1 A recent change to the PMSC guide to good practice has introduced an additional category which must be considered with reviewing hazards and their impact.
- 3.2 The new guidance recommends that each scenario (hazard) be assessed against the likelihood and impact on four categories rather than the three previously identified. The four categories are:

People, Property (assets), Environment and Port Business (reputation).
- 3.3 The newly identified categories are set out in Appendix 2, and the Safety Management System will be updated to reflect this change.
- 3.4 This change in process meant that all of the previously identified hazards to be re-assessed to include the new categories. To facilitate this change new software has been purchased to manage this process and the data, therefore the reporting output looks somewhat different from the method previously used, however the risk management principles are the same.
- 3.5 The stakeholder group reviewed the scenario for each hazard; both for the worst-case outcome and the most likely outcome and are scored against each of the four categories in terms of the likelihood of any scenario occurring and the severity of any such an event. Following this assessment an overall numerical score was generated for the hazard as a whole.
- 3.6 The method by which this assessment is carried out, and the definitions of probability, severity and risk classification, are set out in appendix 2.

### **4 Review Meeting**

- 4.1 A Stakeholder Hazard Review was held on 13 March 2019 at Broads Authority Dockyard, Norwich.
- 4.2 The meeting brought together a group of suitably qualified and experienced people to discuss and update the hazards. The invitees are listed in Table 1 below.

**Table 1 – Attendees at Hazard Review Meeting**

<b>Name</b>	<b>Representing</b>	<b>Attended (Y/N)</b>
Nicky Talbot	Broads Authority member Navigation Committee Chair, Boat Safety Management Group Chair	Y
John Tibbenham	Norfolk and Suffolk Boating Association	Y
Colin Dye	Broads Hire Boat Federation	Y
	Potter Heigham Bridge Pilots	N
	ABP Lowestoft Port	N
	East Port Company	N
Julian Barnwell	Eastern Rivers Ski Club	Y
	River Cruiser Class	N
Jim Miller	Representative from Rowing interests	Y
	Broads Angling Services Group	N
Paul Mitchelmore	Environment Agency	Y
Annika Richardson	Broadland Environmental Services Ltd	Y
Barry Tyrell	Lowestoft and Oulton Broads Motor Boat Club	Y
Keith Bacon	Broads Local Access Forum	Y
	Broads Canoe Hire Network	N
Rob Rogers	Director of Operations, BA	Y
Steve Birtles	Head of Safety Management, BA and PMSC Designated Person	Y
Lucy Burchnall	Head of Ranger Services, BA	Y
Dan Hoare	Head of Construction, Maintenance and Environment BA	Y
Monty Smedley	ABPmer	Y
Adrian Clarke	Senior Waterways and Recreation Officer, BA	Y
Sonja Edgar	Administrative Officer, BA	Y

4.3 The objective of the meeting was to review all the hazards, capture updates, re-categorise against new requirements and to identify any new hazards or omissions. The attendance of a cross-section of interested parties allowed the hazard assessment and mitigating action to be agreed.

## 5 Summary of Changes

5.1 Table 2 below provides an overview listing of all 58 hazards, new hazards are marked with **yellow** shading. Hazards which have been declared dormant are **greyed** out. All hazards are considered to be managed to an “as low as reasonably practicable” level.

**Table 2 – Hazards**











	ID	Scenario Name	Risk Score	
✓	CM0014	Members of public: Swimming	2.19	●
✓	CM0022	Other crisis management: Medical emergencies	2.88	●
✓	CM0023	Other crisis management: Water borne diseases	3.81	●
✓	<b>CM0041</b>	Other crisis management: Mass Fish Kill	3.25	●
✓	CM0045	Shoreside infrastructure: Power Lines	2.75	●
✓	CM0046	Shoreside Infrastructure: Countryside furniture and structures	2.13	●
✓	CM0047	Shoreside environmental: Livestock in Fields	1.56	●
✓	CM0048	Shoreside user activity: Angling	0.75	●
✓	CM0049	Shoreside environmental: Fire	3.38	●
✓	CM0050	Shoreside environmental: Litter and fly tipping	2	●
✓	CM0051	Shoreside environmental: Giant Hog Weed and other hazardous species	3.75	●
✓	CM0052	Shoreside user activity: Motorised Vehicles and Bicycles	2.44	●
✓	CM0053	Shoreside environmental: Trees and Vegetation	3.38	●
✓	CM0054	Shoreside user activity: Fall from height	2.13	●
✓	CM0055	Shoreside environmental: Ground conditions	2.19	●
✓	CM0056	Shoreside environmental: Adverse Weather	2	●
✓	CM0057	Shoreside infrastructure: Slips trips and falls	3.06	●

✓	EP0006	Boat wash: Powered craft speeding creating excess wash	3.88	●
✓	EP0037	Other environmental: Carbon Monoxide poisoning	4.88	●
✓	EP0038	Impacts on Wildlife / Habitats: Non-Native invasive species	3.75	●
✓	EP0039	Water pollution: Cargo	3.75	●
✓	NS0003	Collision: Commercial vessel and a recreational vessel	3.31	●
✓	NS0004	Collision: Commercial ferry and a recreational vessel	3.5	●
✓	NS0005	Collision: Powered craft	4.13	●
✓	NS0007	Collision: Collision with recreational craft and hire vessel	4.81	●
✓	NS0008	Grounding/Stranding: Recreation vessel grounding	1	●
✓	NS0009	Contact with structure: Recreational vessel contact with mooring or infrastructure	4.19	●
✓	NS0010	Other nautical safety: Event Management of Sailing Racing Event	4	●
✓	NS0011	Other nautical safety: Event management of unpowered vessel racing event, rowing/paddling	2.94	●
✓	NS0012	Other nautical safety: Angling	2.75	●
✓	NS0013	Contact with structure: Potter Heigham and Wroxham low bridges	2.25	●
✓	NS0015	Other nautical safety: Event management open water swimming events	2.5	●
✓	NS0016	Contact with structure: Other bridges & layby moorings	4.25	●
✓	NS0017	Other nautical safety: Powerboat Racing	3.88	●
✓	NS0018	Collision: Water skiing and Wakeboarding	3.13	●
✓	NS0019	Other nautical safety: Boat embarkation and disembarkation	4	●
✓	NS0020	Collision: Sailing Yachts/Dinghies	3.75	●
✓	NS0021	Capsizing/Listing: Capsizing of unpowered recreational craft	3.19	●
✓	NS0024	Collision: Boat testing / demonstrating at high speed	3.56	●
✓	NS0025	Contact with structure: Natural obstructions to navigation - vegetation	2.13	●
✓	NS0026	Other nautical safety: Passage of Gt. Yarmouth & Breydon Water	4.25	●

✓	NS0027	Collision: Collision with Dredging and River Maintenance Works	2.25	●
✓	NS0029	Other nautical safety: Extreme Weather	4.88	●
✓	NS0033	Other nautical safety: Wild Fowling (Gun Punting)	1.94	●
✓	NS0034	Collision: Rowing coaching vessels	2.81	●
✓	NS0036	Fire/Explosion: Any vessel	5.56	●
✓	NS0040	Other nautical safety: Water plants, Hickling Broad	2.25	●
✓	NS0042	Contact with floating object: Large volume of floating debris	3	●
✓	NS0043	Collision: non-powered vessel - paddleboard, canoe, rowing skiff	3.13	●
✓	PE0044	Port Infrastructure Delay: Mutford Lock	3.56	●
✓	NS0030	Collision: Kite Surfing	1.75	●
✓	NS0032	Other nautical safety: Punting (Skipped)	1.75	●
✓	NS0031	Collision: Ringo's and inflatable equipment capable of carrying persons towed at speed	1.25	●
✓	NS0035	Collision: Trawling on Breydon Water	1.81	●

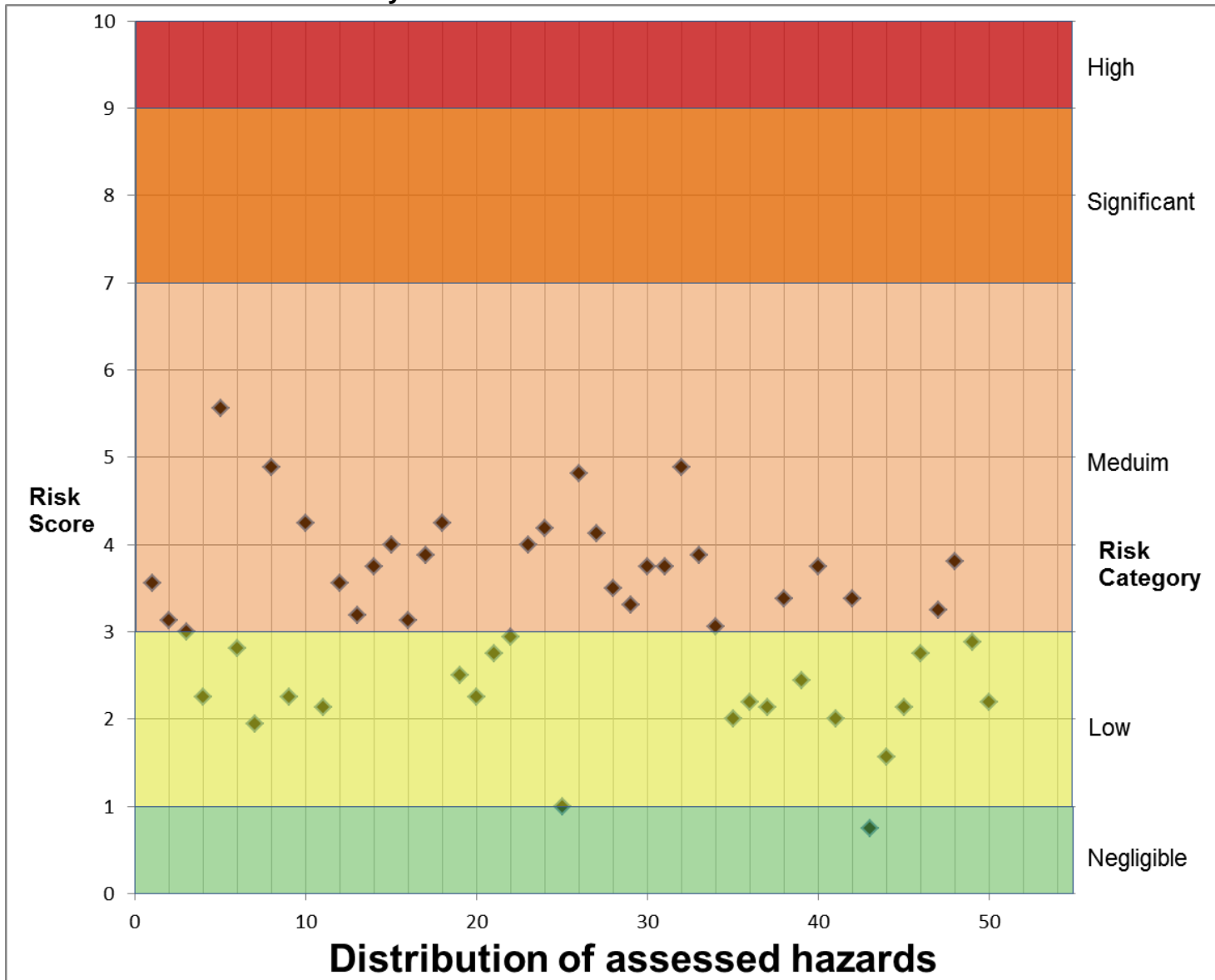
Number of Scenarios listed = 50

Average Risk Assessment Score = 3.14

Key	
Symbol showing the status of the hazard scenario:	Symbol showing the level of each hazard scenario:
 - Incomplete assessment	 - High Risk
 - Review needed	 - Significant Risk
 - Review within 28 days	 - Medium Risk
 - Complete in-date	 - Low Risk
	 - Negligible Risk
	 - Un-assessed

5.2 Of the fifty-four recorded hazards, none are in the significant and high risk category, twenty nine are medium risk category, twenty one are in the low and negligible risk category and four are retired. The hazards are distributed by Risk Classification as shown in **Error! Reference source not found.**3 below.

**Table 3 – Hazard distribution by assessment**



## **6 Updated Hazard Log**

- 6.1 The discussions and decisions of the meeting were recorded and documented in a database, a summary of which is set out in Table 3. A full copy of the Hazard Log is available on request.
- 6.2 The Hazard Review Action Plan is set out in Appendix 1.
- 6.3 The Boat Safety Management Group will monitor progress of the hazard Review Action plan and updates will be brought to this committee.
- 6.4 The updated Hazard Log will be rolled into a formal update of the Broads Authority Safety Management System (SMS) later in the summer of 2019. Other changes to the SMS include:
- Updates to Hazard identification and risk assessment
  - Reference to Diving Policy and permits
  - Other minor editorial corrections

## **7 Recommendations and Conclusions**

- 7.1 It is concluded that of the fifty active Hazards fifty have been declared ALARP.
- 7.2 It is proposed to recommend to the Broads Authority that the Hazard Review Action Plan 2019 (Appendix 3) is implemented.

Background papers:	Nil
Author:	Steve Birtles
Date of report:	22 May 2019
Broads Plan Objectives:	C 4.3
Appendices:	APPENDIX 1 – 2015/16 Hazard Review Action Plan – Update APPENDIX 2 – Risk Categories and Criteria APPENDIX 3 – 2019 Hazard Review Action Plan








Issue 1		Date		March 2016		APPENDIX 1	
2015/16 Hazard Review Action Plan - Update							
Hazard		Description	Action	Action	Target Compl Date	Progress to Date	Completed
Cat	No.						
B	002	Powered Craft Speeding	Fines and prosecutions need to be publicised more to deter.	LB	Oct 2016	Prosecutions are highlighted in the Broadsheet magazine issued twice yearly	Yes
B	003	Inexperienced Helmsmen	Additional signage to be considered on the Lower Yare to warn of shelving near to bank	SB/LB	Aug 2016	Additional signage installed on the River Yare on the approach to Breydon Water	Yes
B	033	Man Made Obstructions	River Chet channel markers recommendation from the group to remove the channel markers as now vegetation is established on the bankside the marker posts are now a greater hazard than the bank.  BA to approach Environment agency to remove	SB/MW	May 2016	Following negotiations with BESL and the Environment Agency, the Broads Authority removed all of the Channel Markers from the River Chet in 2017.	Yes
B	010	Bridges	Consideration to be given to additional advance warning signage on the approach to some bridges due to reduced visibility/ sight line	SB/LB	June 2016	Additional signage installed at Ludham bridge	Yes
B	026	Obstructions to Navigation	Due to the increase in weeded areas on some Broads it was recommended to contact Canoe England for guidance	AC	June 2016	Contact made with Canoe England but no advice offered.	Yes




Risk Categories and Criteria

	People	Environment	Property	Business/Reputation
5	Multiple fatalities	Major (Has the potential to cause catastrophic and/or widespread damage - Tier 3, requires major external assistance)	Major (> £10 million)	Major (National media coverage, Significant change in stakeholder confidence, Impact lasting more than three months, attracts regulators attention /comment, Major Business disruption and impact)
4	Single fatality	Significant (Has the potential to cause significant damage and impact - Tier 2, pollution control measures from external organisations required)	Serious (£1m - £10m)	Serious (Local, regional media coverage, Moderate change in stakeholder confidence, Impact lasting between one and three months, Moderate business disruption)
3	Serious injury(s) (MAIB/RIDDOR reportable injury)	Minor (An incident that results in pollution with limited/local impact - Tier 1, Harbour Authority pollution controls measures deployed)	Moderate (£100,000 - £1m)	Moderate (Negative local publicity. Moderate damage to reputation. Moderate loss of revenue, £750,000 - £4m)
2	Minor injury(s)	No Measurable Impact (An incident or event occurred, but no discernible environmental impact - Tier 1 but no pollution control measures needed)	Minor (£0-£100,000)	Minor (Local complaint/recognition, Minimal change in stakeholders 'confidence, impact lasting less than 1 week. Minor business disruption)
1	No injury	None (No incident - or a potential incident/near miss)	None	None

Likelihood	
Very Unlikely	1:50 years
Unlikely	1:25 years
Occasionally	1:10 years
Probably	1:5 years
Likely	> 1 per year

Risk Categories and Criteria

Risk Category	Risk Banding	Meaning
High and Significant Risk Score 6.00 to 10  	Intolerable Region	These risks require urgent attention and should be the focus of regular reviews. Any suitable risk control measures that are identified should be seriously considered for implementation. Such risks cannot be declared ALARP, a means of reducing or avoiding the risk must be found and implemented.
Medium Risk Score 3.00 to 5.99 	ALARP Region	These risks require review to ensure that they can be satisfactorily weighed against the time, trouble, cost and physical difficulty in taking further measures to reduce them. <b>Important Note:</b> It is incorrect to say that a risk in this region “is ALARP”. In fact, it means the risk <i>has the potential to be declared ALARP</i> , on the basis of the level of risk and the mitigations identified and implemented.
Low and Negligible Risk Score 0 to 2.99  	Broadly Acceptable Region	These risks require occasional review (e.g. annually) to ensure that they remain under control and that they remain within the Broadly Acceptable region. They do not require demonstration of ALARP.

Issue 1		Date		May 2019					
<b>2019 Hazard Review Action Plan</b>									
Hazard		Description	Action	Resp	Target Compl Date	Progress to Date	Completed		
Cat	No.								
Med 	NS0003	Collision: Commercial vessel and a recreational vessel	Develop General Direction to all commercial vessels over a certain size to require notification, escort and pilot	LB	Dec 2019				
Med 	NS0007 and NS0043	Collision: Collision with recreational craft and hire vessel and Collision: non-powered vessel - paddleboard, canoe, rowing skiff	Update Hire boat licensing to include unpowered boats including sail following release of the national hire boat code	SB	April 2020				
Med 	CM0050	Shore side environmental: Litter and fly tipping	Develop and publish a port waste management plan for the Broads area.	SB	May 2020				