



accidents don't have to happen

# Managing... Safety at Inland Waters



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With the support of the following organisations:







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Second Edition.





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# Introduction

## Background

Site managers have a pivotal role in ensuring that the 250 accidental inland drowning deaths a year in UK waters are reduced. However, they are not the sole responsible party, and they have to balance their decisions and potential safety gains with other demands from visitors and the wider community.

Since the first edition of this guide much has changed in the way these sites are managed, what visitors demand and what the law deems reasonable.

Many inland waters have been transformed from predominately working environments to mixed use leisure, retail and residential locations. The use of green spaces and waterway corridors as a way of getting people moving for health or work has gathered pace, best seen in the increasing use of canal towpaths for cycling and active travel routes. Mass participation sports such as triathlon and open water swimming have grown in popularity, along with increasing demands to use inland sites as informal swimming and bathing spots.

The impact of flooding on communities is now considered a national, strategic issue, while loss of life has been limited by improved resilience through good community planning and emergency response. Changes to planning and design, to address this, has introduced standing water within communities, requiring a thoughtful approach.

Judgements, particularly in the higher civil courts, have signalled a rejection of overly paternalistic approaches, demonstrating an increasingly tolerant attitude towards public risk.

Our inland waters remain a recreational asset to millions; these changes have brought new opportunities, additional risks and new challenges.

## Scope and purpose

This edition provides advice primarily for those in effective control of all sites where visitors have access to inland waters (the “manager”). We offer limited guidance herein with respect to formal watersports or events operating within National Governing Bodies (NGB) guidelines or Adventure Activities Licensing Authority Regulations. In these instances we direct the reader to

the existing advice and discuss how these could fit into a site-specific approach.

We exclude coastal waters, those within private domestic premises, and areas of water solely for industrial use.

We offer limited commentary on formal occupational or risk management frameworks. Companies with staff working in or near to water, such as construction and maintenance personnel, will need to seek more specific advice to their circumstances.

Due to the unique nature of many water bodies and the activities that occur on, in and around them, this document cannot provide prescriptive answers to specific issues such as the need to provide rescue equipment, which are best answered with the insight derived from a risk assessment. This guide provides a framework around which these tasks can be carried out and an effective management system established.

## Status

This advice has been developed primarily by The Royal Society for the Prevention of Accidents (RoSPA) and the Royal Life Saving Society UK (RLSS UK), with support from members of the National Water Safety Forum (NWSF). The use of the terms ‘must’, ‘should’, ‘could’, ‘good’ and ‘best practice’ are the opinions of the authors only. Where existing UK law, regulation or code exists we highlight these. The guidelines and examples herein should not be regarded as a definitive interpretation of the law.

This second edition is a complete rewrite. It reflects the deeper insights afforded by the Water Incident Database (WAID) and the development of collective principles and approaches for managing water safety risks. As such, this document supersedes previous editions and should be considered current advice at the time of publication. This guide aligns with the objectives set out within the *UK Drowning Prevention Strategy 2016 to 2026*.<sup>1</sup> Readers may also find useful the principles outlined within the Visitor Safety in the Countryside (VSCG) document: *Managing visitor safety in the countryside* <sup>2</sup>, and the World Health Organization (WHO) document, *Guidelines for safe recreational waters*.<sup>3</sup>













# Part One:

## Principles

**Chapter 1:**      **Water-related risks**

**Chapter 2:**      **Legal drivers and case law**  
Criminal law (including case law)  
Civil law  
Discussion and limitations

**Chapter 3:**      **Guiding principles for managing drowning  
and water safety risks**

**Chapter 4:**      **Planning for water safety**

**Case studies  
and campaigns**







# Chapter 1

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Water-related risks



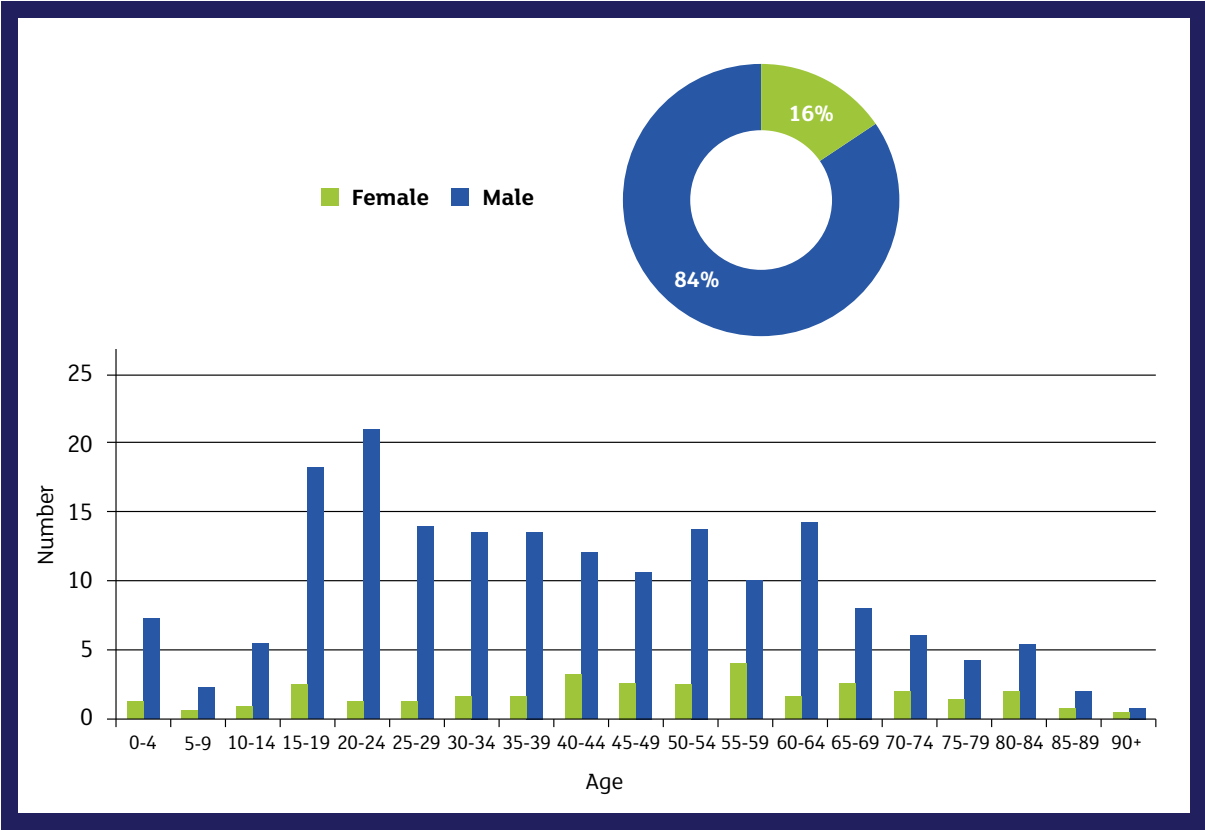
Inland water locations consistently account for more than half of all accidental drowning deaths in the UK, on average 250 each year. In almost half of all known incidents the person had no intention of being in the water. In this section, we consider in detail the fatal injury trends and causal factors linked to inland water accidental and natural-cause fatalities, termed ‘drownings’.

Demography

Despite visits to waterways reflecting the wider UK population, fatal drowning mainly affects adult males, accounting for 8 in 10 of all casualties. It is thought that males may adopt higher-risk behaviours, for example swimming after drinking alcohol, not wearing buoyancy aids or being alone in or near to water. Across all activities and ages, teenage and middle-aged males are consistently the most frequent casualties. Among females those aged 55-59 are the most frequent casualties. Child drowning, among those aged 0-14 years, results in an average of 17 casualties a year.

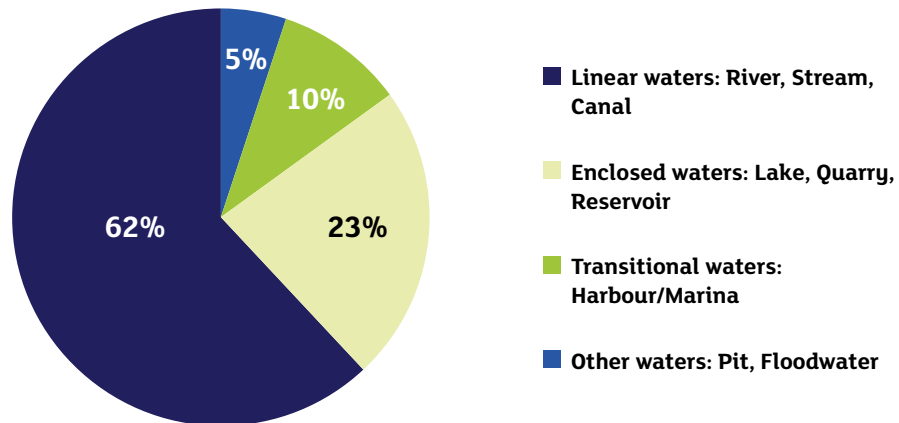
Two-thirds of all accidental drownings happen along linear waterways, such as rivers/streams and canals (62%). A quarter (23%) happen at enclosed features, such as lakes, reservoirs or quarries. Communities with the largest population in proximity to the greatest amount of water have a fatality rate up to three times higher than those communities with the least.

Average annual accidental and natural-cause drowning deaths (2009-2013)

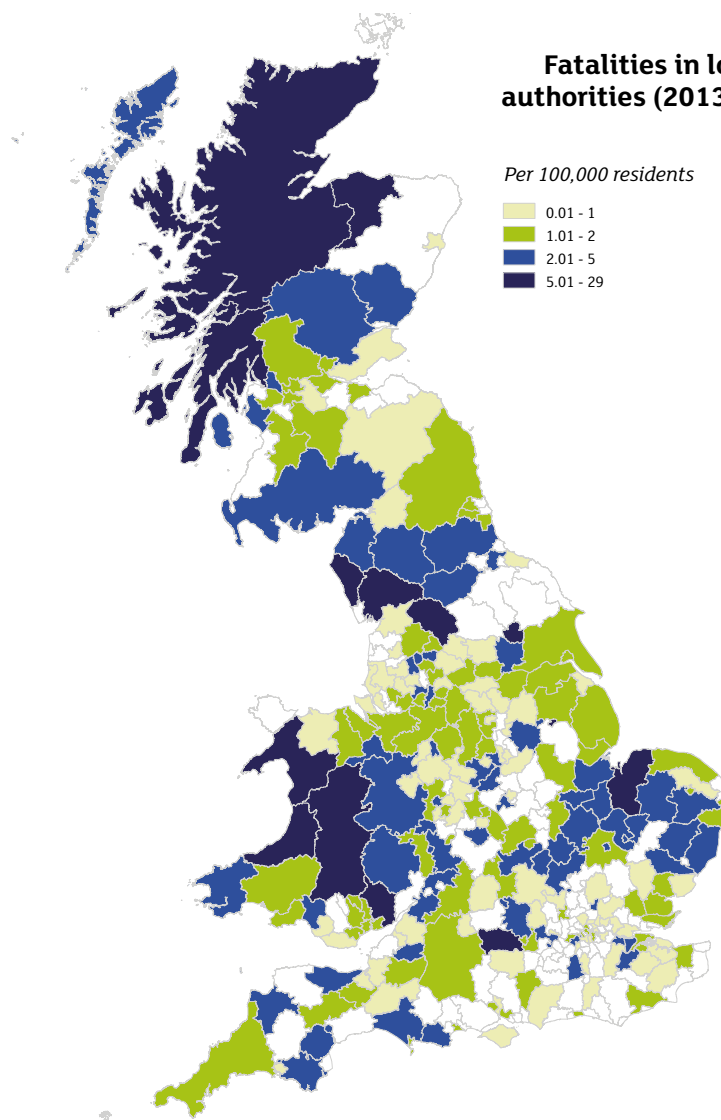




Accidental fatalities (%) by type of location (2009-2013)



Fatalities in local authorities (2013-2015)



On average there are **21 drowning deaths every month** but the number of drownings varies markedly with the seasons. Visitor numbers, activities and water temperature are factors which are thought to contribute to this variation.



Activities and behaviours

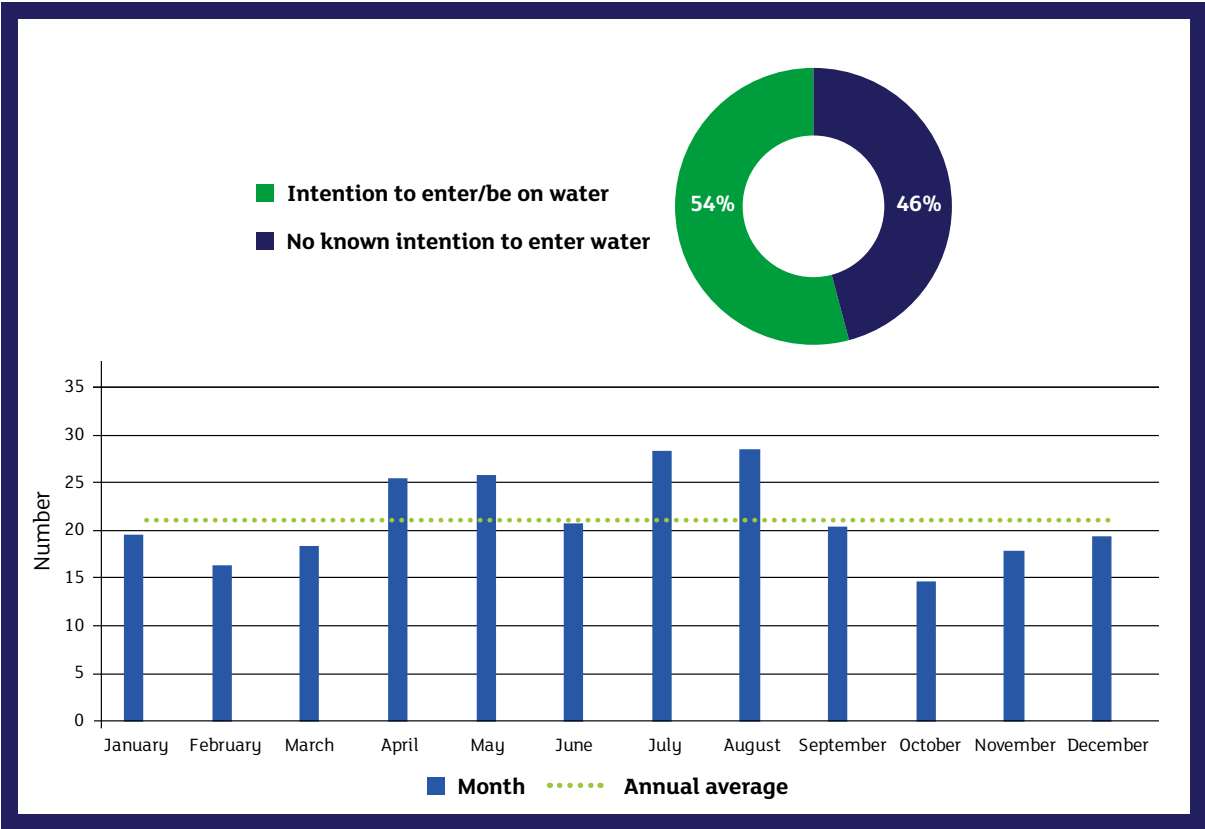
In more than half of all drowning fatalities, the person intended to go onto, or in the water, with informal swimming, jumping or in-water play (wading) being the most common activities. Very few of the swimmers were taking part in organised events such as triathlons, or participating in a structured manner such as a planned trip. Angling, boating and sub-aqua consistently account for the majority of the remaining fatalities.

It is rare but not unknown for rescuers to become victims while responding to emergencies involving pets or people. Multiple fatalities are very rare events, often

associated with poor swimmers and/or with hazardous locations such as weirs and fast-flowing rivers. Overall, the rate of fatal drowning associated with water-based activity is comparable to everyday road travel. These rates are lower in a managed water sports facility or coaching scenarios with active supervision and rescue on-hand.

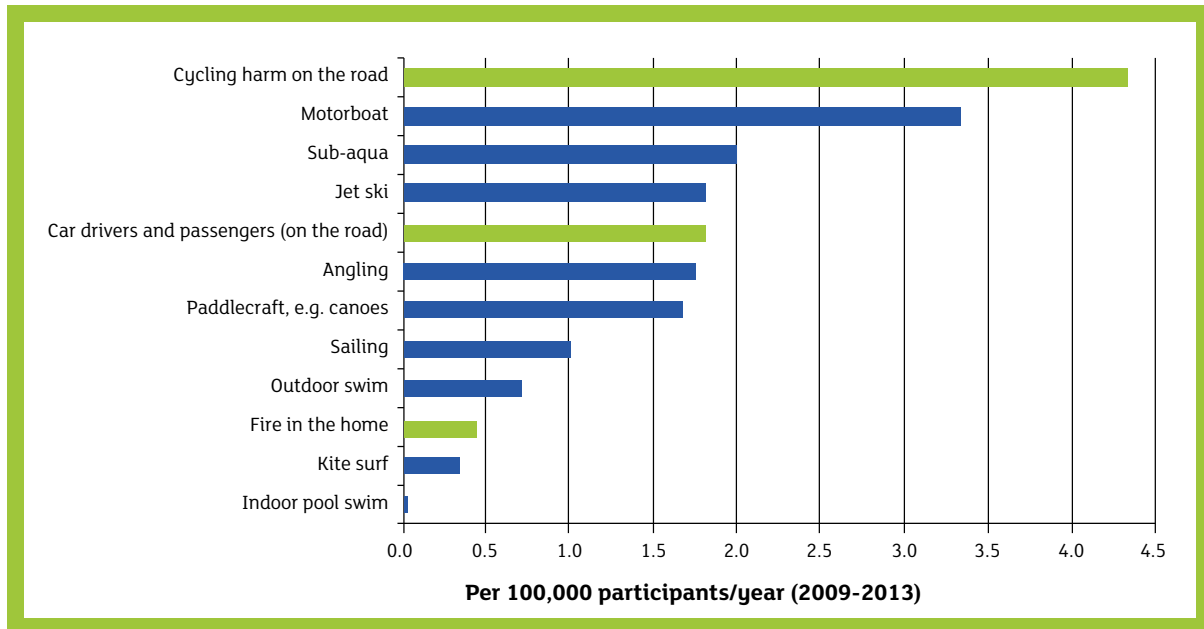
People walking form the majority of the remaining fatalities, with a small number of cyclists and vehicles also among those who had no intention to enter the water.

Fatal accidental drownings by month (Average 2019-2013)





## Annual fatality rates for water-related fatalities and everyday activity risks



### Medical and physical factors

Immersion in cold waters below 16°C can be particularly hazardous, especially for those who do not wear wetsuits/drysuits, and those who jump or fully enter the water quickly. A key adverse effect of this is “cold water shock”, which is the body’s physiological response following immersion in cold water.<sup>4</sup> In summary, a person can temporarily lose the ability to control breathing, suffer a spike in heart rate and blood pressure. These responses can be a precursor to sudden heart attack, loss of swimming capacity and drowning through inhalation of small amounts of water. Cold water shock is considered to be a principal causal factor in many fatal drowning, especially where the person accidentally falls, or quickly enters into the water. Otherwise healthy individuals can become incapacitated, making it extremely difficult for them to reach safety.

Where a casualty has stopped breathing, submersion for more than 10 minutes results in a very low likelihood of a positive outcome.<sup>5,6</sup> Among survivors, a submersion time of less than six minutes is the only factor that correlates with positive clinical outcomes. Non-fatal drowning regularly results in life-changing injuries such as brain damage.

The presence of alcohol or drugs is a contributory factor in at least 1 in 5 of all adult drowning deaths, and as high as 1 in 2 for certain activities and ages. The effects on motor skills, perception and behaviours are well known. One study found that boaters with a blood alcohol level of 100mg/dl (.01) had a 16 times greater risk of drowning than those with none.<sup>7</sup>

Pre-existing medical conditions, particularly coronary heart disease, is thought to be an important but hard to

quantify factor affecting people who are middle-aged and older. This is due to post-mortem difficulties in determining if cardiac arrest led to entry into the water or vice-versa. Expert medical opinion suggests this could be a prime factor in up to a quarter of all drowning incidents.

Adults with dementia, mobility or visual limitations are particularly vulnerable around water. People with epilepsy have a drowning rate up to 13 times greater than the general population; fatalities happen in everyday situations among this group, such as during bathing at home.

### Data sources, uncertainty and excluded events

Data in this section is sourced from the WAID, a shared project between members of the NWSF.<sup>8</sup> Detailed and localised datasets are available to managers and communities. Excluded from this analysis are the 40 drownings per year classified as ‘uncertain activity’ drowning events, due to a lack of evidence, such as witness statements. Our focus here is on accidental/unintentional drowning and includes only these events. It is worth noting that, at all locations including the coastline, another 130 fatal drownings per year are due to suicide or criminal activity.

Non-fatal drowning data on a national scale is not routinely available. Operational reports show that for each fatal drowning recorded in WAID, there are between 5 and 8 serious events requiring an emergency response or hospitalisation.





# Chapter 2

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Legal drivers and case law



**This section outlines the key duties and selected case law relating to water safety risks. We have simplified a number of concepts and terms, and have highlighted selected case law. As such this chapter should be viewed as a tour of the key principles rather than the definitive position.**

### Sources of law

Criminal law is created by Acts of Parliament (statutes) with the aim of governing the relationship between the individual and the state. Breaches of the duties created by these acts are taken very seriously, treated as offenses against the state. Punishment can include, for the most serious breaches, significant fines, public notices and imprisonment. These can be brought both against companies and employed persons. The Health and Safety at Work etc Act 1974 and Corporate Manslaughter Act 2007 are the principal statutes that we are concerned with in this context.

*Civil law* exists primarily to govern conduct between individuals, but it can also include the state, through a series of duties and rights. It is created primarily through precedents set down by the courts, or by Acts of Parliament. A breach of duty is usually remedied by payment or an act to make good the loss suffered. This aspect of civil law is underpinned by the common law ‘duty of care’ and ‘negligence’ concepts. The Occupiers’ Liability Acts 1957 and 1984 create duties upon landowners in which breaches can lead to civil liabilities. The Occupiers Liability Act (Scotland) 1960 gives rise to similar duties.

It is important to note the differing standards of evidence to prove breach, civil law requiring a ‘balance of probability’ versus a ‘beyond reasonable doubt’ standard in the criminal courts. Although the law has changed in recent years, it is possible to face proceedings for the same event in both courts and, as such, cases can take several years to be resolved.

### Criminal law

**The Health and Safety at Work etc Act 1974** (HSWA) applies to employers in the UK. It sets out a broad range of duties, primarily upon employers, to secure the health, safety and wellbeing of employees and others such as contractors and visitors.

The main aim of the HSWA is to make those with duties manage the risk in their operation effectively and so far as is reasonably practicable. It is not necessary for harm to have happened for a duty holder to be found in breach.

### Duties of the undertaking to visitors

Specific duties towards visitors and others affected by work, such as water and visitor-related risks, are covered in Section 3.1 of the HSWA. This establishes a duty upon employers to:

*“conduct his undertaking in such a way, so far as is reasonably practicable, that person not in his employment who may be affected thereby are not thereby exposed to risk to their health or safety.”<sup>9</sup>*

A narrow interpretation of “conduct” includes the maintenance and cleaning of the plant and equipment required to run the business.<sup>10</sup> This could extend to features and structures which are integral to managing visitors such as footbridges, jetties, headwalls, fences or key built paths, along with defined activity areas. “Undertaking” is an ordinary English word meaning business.

### Case law

A national utility company was prosecuted under Section 3.1 of the HSWA and fined £2 million when a young boy died from drowning and head injury after falling from the utility company’s raised gas pipe above a canal.

The boy was able to climb upon the structure as there were no access control measures, such as fan railings. The company had not put an inspection regime in place due to records indicating the pipe was buried within the structure of the bridge. After the incident, the utility company installed fan railings at the location, reviewed and took steps at other locations and shared findings with other companies.<sup>11,12</sup>

In the above case, the existence, location and condition of the pipe is central to the company’s “undertaking”, while the young boy was clearly within the meaning of “who may be affected thereby are not thereby exposed to risk”; the risk being death or significant injury associated with a fall from the pipe, onto land or water. The attraction of the pipe as an unsuitable bridge is foreseeable and protection measures, such as a fan railing, are provided in similar locations across the UK.



## Managing the risks in the undertaking

The nature of the risk in question has narrowed over time from one that 'contains an element of danger' to a material risk or 'real risks'.

### Case law

While descending a set of "well-constructed external steps" in a school playground, a three-year-old child jumped and lost his footing resulting in a head injury. An appeal court rejected the charge of failure to manage "risk of death and personal injury from falling during break time".

Lord Justice Moses made comment on the nature of the risk:

*"[What] is important is that the risk which the prosecution must prove should be real as opposed to a fanciful or hypothetical. There is no obligation under the statute to alleviate those risks which are merely fanciful... The fact that a young child might slip or trip or choose to jump from one height to a lower level is part of the ordinary incidence of everyday life. That*

*again is not determinative but is highly relevant..."*

*"Under Section 3 the statutory question is whether the child was exposed to risk 'thereby', in other words, by reason of the conduct of the appellant's undertaking, of which, without doubt, playground activity was part... In sum, there were many considerations demonstrated by the evidence, suggesting that there was no real risk of the kind which the statute contemplates, and very little, if anything, other than the fact of this tragic incident, to suggest to the contrary."*

On the steps taken to manage the risk:

*"Unless it can be said that this child was exposed to a real risk by the conduct of the school, no question of the reasonable practicability of measures designed to avoid that risk arises."*<sup>13</sup>

In very rare circumstances, the question of how foreseeable a specific a risk is can arise.

### Case law

In November 2005 a 14-year-old pupil fatally drowned while potholing under the direction of a local outdoor centre. The drowning was caused by a rapid rise in levels in the cave system, forcing a prolonged swim underwater for the pupils and centre instructors. A prosecution was brought under HSWA Sections 3 and 2 against the local authority running the centre. Arguments centred around the validity of the risk assessment, checks on the

reservoir water levels by the outdoor centre prior to the event, and if the event scenario that occurred that day was foreseeable.

Expert evidence noted that the levels and the particular wave overtopping scenario preceding the rapid rise had not been seen before. On the facts of the case a jury returned a not guilty verdict.<sup>15</sup>

When risks are taken willingly does the common law principle of 'a willing man cannot be injured'<sup>16</sup> apply within the Section 3 of the HSWA? In a judgement that followed the principles set out in the civil law case of Tomlinson v Congleton (p27) a scenario whereby an 'informed adult swims at a location with no hidden dangers', it was concluded that the risk lies with the person not the duty holder.



### Case law

The Corporation of London manages the ponds on Hampstead Heath. The ponds in question are manmade, but natural-looking pools that are well established. A members' swimming club used a pond during set hours while a lifeguard was provided. There was agreement from both sides that the pond in question held no hidden dangers, nor was particularly unsafe, yet four people had drowned accidentally in the pond in unsupervised circumstances in the previous decade.

Members of the club wished to swim outside of these lifeguarded hours, including early winter mornings. There was agreement that this carried some risks; members would formally acknowledge these in addition to a number of conditions such as no solo swimming. The Corporation was content that, post 'Tomlinson', this would cover the civil liabilities and insurance requirements. However, the Corporation was concerned that by regulating admission to the pond, this constituted an "undertaking" within the meaning of Section 3 of the HSWA; therefore by allowing unsupervised use, the swimmers would be exposed to risk, leading to subsequent exposure to criminal liability for the Corporation.

The judge in this case agreed that the regulation of swimming should be considered part of the undertaking, but not that the permission exposed the swimmer to the risk:

*"The [club swimmers] rightly concede that if the Corporation were to permit the swimmers to swim in the Mixed Pond unsupervised in the winter season, and they were to do so, they would be exposed to risk. The Corporation submits that this establishes that the swimmers would be exposed to risk by the permission. But the swimmers would also be exposed to risk as they drive or walk or run to the Pond, and as they travel from the Pond to their work or homes. No one would suggest that the Corporation should be responsible for*

*an accident resulting from the risks of a traffic accident, or a heart attack while walking or running to or from the Pond. Risk is inherent in life, and some risk is unavoidable."*<sup>17</sup>

On discriminating between duty holder and individual responsibilities:

*"In my judgment, the requirement in Section 3 that the exposure to risk should be by the conduct of the employer's undertaking is subject to the same considerations as those referred to by the House of Lords in Tomlinson: If an adult swimmer is given permission to swim unsupervised in a pond that has no hidden dangers, and the swimmer decides to swim in it, the risks he incurs in doing so are in a sense the result of both the permission and his decision.*

*"But if the law is to protect individual freedom of action, and to avoid imposing 'a grey and dull safety regime on everyone', it must discriminate between these causes. In my judgment, for the purposes of Section 3 of [HSWA], if an adult swimmer with knowledge of the risks of swimming chooses to swim unsupervised, the risks he incurs are the result of his decision and not of the permission given to him to swim.*

*"And it follows that those risks are not the result of the conduct by the employer of his undertaking, and the employer is not liable to be convicted of an offence under that provision."*

In conclusion:

*"The swimmers will be under no compulsion or pressure to incur the risks involved in self-regulated swimming. They will do so of their own free will. The criminal law respects the individual freedom upheld by the House of Lords in Tomlinson."*

The club swimmers in the above scenario are informed adults who willingly took on the risk at a location, which all agreed held no hidden dangers. The formal agreement between the club and adult swimmers reinforced the nature of the informed consent.

If "thereby exposed to risk" is agreed, then questions will follow as to which steps could and should be taken to reasonably avoid the risk.



## So far as is reasonably practicable

The statement “*so far as is reasonably practicable*” establishes the extent of the duty owed and is central to the proportionate approach within Section 3.<sup>18</sup> The duty holder is required to make a judgement that balances the risk on one side and the time, money and effort (sacrifice) required to avert the risk.<sup>19</sup> The presumption is weighted toward taking measures unless the sacrifice is grossly disproportionate. This means a company must have assessed the risk and made a judgement that the risks are broadly acceptable, or take measures to make them so.

As mentioned earlier, the HSWA is essentially protective: it is the failure to manage the risk which leads to breach of duty. In situations where informed adults willingly accept a risk, which the duty holder has taken reasonably practicable steps to reduce, death or serious injury does not necessarily mean a breach has occurred.

In situations where the visitor’s ability to recognise and accept a risk, or the risk assessment and measures to physically control and/or inform are debatable, there still remains scope for challenge.

### Case law

A 15-year-old boy fatally drowned while swimming in a Norfolk broad (a lake) with a friend. The broad is close to Norwich and is a regular visitor spot. An adjacent broad was used for water sports and boating activity, at which swimming was prohibited. The boy, who did not live in the vicinity, had arrived with his family for a picnic one early evening in August. While swimming outside of the designated swim zone with a friend, he possibly became tangled in underwater weeds. Nearby visitors and friends successfully rescued one of the boys, but could not help the 15-year-old.<sup>20</sup>

Formerly a gravel pit, the broad was originally managed by a charitable trust and was subsequently adopted by the county council in 2004. A beach amenity area and designated swim zone had been introduced, indicated by buoys-and-line in the water and signage in the vicinity. The underwater profile of the lake was variable, with a steeply shelving slope several metres out. The buoys were set back approximately a few metres before the shelf. Weeds grew outside of the marked zone, which were not cut.

A prosecution was brought under Section 3.1 of the HSWA. Points made by the prosecution included: that an initial ‘adoption’ review had not taken place and the risk assessment was inadequate; hazard warnings and maintenance of weeds and vegetation was inadequate; and there was knowledge that people regularly swam outside of the marked zone with insufficient measures to address this. In essence, the prosecution argument was that the location was unsafe to swim, and that the measures in place were ineffective.

The defence argued that the ‘scope of the undertaking’ was the designated swimming zone; that this was managed reasonably and that visitors could appreciate that a lake is different to a swimming pool. Further, they argued that the risk of drowning was not due to the council’s conduct of its undertaking, rather from the decision to swim outside of the designated zone. The council was acquitted by a jury.

In the above case, the adequacy or otherwise of the measures *in situ* were debated, compounded possibly by the lack of clearly-applicable standards for the situation. Irrespective of this, the jury agreed with the defence’s narrow interpretation that the ‘undertaking’ was limited to the buoyed area.

Application of collectively-agreed guidance, or more compelling regulation will shape whether reasonably practicable measures were taken to reduce the risk. In court, expert opinion and peer performance will also inform. The role of risk assessment is central in demonstrating appropriate steps were taken.



### Gross breach of duties

Where the duty holder's performance was so poor, or far away from accepted practice or legal standards, regulators can bring additional charges under the Corporate Manslaughter and Corporate Homicide Act 2007 through the "*any statutory provision dealing with health and safety matters*" provision.<sup>21</sup>

This can mean an investigation with one or more regulators involved, and multiple charges against directors and individuals.

#### Case law

An 11-year-old girl was killed when she fell from a paid-for banana boat ride. The driver of the ski boat that was towing the banana boat was not aware that she had fallen into the water, and did not see her as he continued on a tight circular route. The ski boat ran over the girl and its propeller caused severe injuries. She was pronounced dead soon after arriving at the hospital.

Criminal negligence charges under Section 1.1 of the Corporate Manslaughter and Corporate Homicide Act 2007 and Section 3.1 of the HSWA were brought against the company.

Prior to the criminal prosecution, an investigation by the Marine Accident Investigation Branch (MAIB) into the incident found several failings: the ski boat was operating without an observer; the helmet issued to the victim was a grey colour that was difficult to see in the lake water; the tight circuit taken by the driver and the limited forward visibility from the boat reduced the opportunity to see the victim in the water; there was no oversight of operators that provided towed inflatable rides on a commercial basis and no assurance that their operating standards controlled the risks effectively; and licensing requirements for ski boat drivers and ski boats operating on a commercial basis were unclear.

The MAIB also noted that the external consultants used to review the safety management system had no prior experience in the management of the activity, nor did they take any specialist advice. Further, there were no specific observations relating to the core on-water activities, and "*the consulting firm did not bring to the attention of senior management that the safety management system was not being used correctly*".

Ultimately the MAIB investigation found that: "*The implementation and execution of the safety management system used at the club was flawed at every level and had not identified or controlled the risks to children taking part in banana boat rides effectively.*"<sup>22</sup>

Following the case the Crown Prosecution Service stated: "*A gross breach of the duty of care owed...which could have been avoided by having a competent adult in the towing boat acting as an observer and we are pleased this company has been held criminally accountable for this significant failing.*"

The club was fined £134,459, effectively its entire annual turnover, and the company subsequently closed. The consulting firm changed name and was taken over by another organisation in August 2013.

The above case involved a clear undertaking within a defined service and reasonable expectations that appropriate staffing would be on hand. There was existing technical guidance available to assist in identifying and managing the specific risks.

In the following case the judge highlighted 'systematic failings' resulting in breaches of duty towards visitors under the HSWA, where the organisation failed to adequately risk assess, organise for, and oversee managed activities.



## Case law

In July 2010, a young girl drowned while playing in the water with an inflatable dinghy, at a dedicated swimming spot in a lake. A non-swimmer, she followed the inflatable boat deeper into the water while playing. At some point it is thought that she lost her footing and slipped under the water. The location, a well-used water park, was no different from many other spots in the UK, with a shallow beach leading to deeper water with an irregular shelving bed. There was a defined and lifeguarded swim spot, with signage and visitor amenities to support the activity. A prosecution under Section 3 and Section 33 of the HSWA was brought.<sup>23</sup>

The judge highlighted the following points: on the day there was inadequate staffing levels to supervise the open water, with two young and inexperienced lifeguards on duty; there was no restriction on the number of visitors entering the water; evidence suggested that inadequate staffing numbers had been raised before, and that managers had inadequacies in training and qualifications for undertaking a risk assessment; and the responsibility and management structure was ill defined. The judge commended first responder staff for their actions once the girl had been discovered, stressing that they bore no responsibility for the event.

Following the verdict a fine of £90,000 and costs of £150,000 were levied. The judge highlighted the nature of the organisational failure:

*"The defendant's breach of duty was a significant cause of what occurred; not simply on what has been called the 'last chance' [to spot] but because of the systematic failures... The circumstances that applied on the [day] was not an isolated failure but a systematic one that had persisted for a conservable period."*<sup>24</sup>

## Individual liabilities

Although individual directors and senior managers cannot be prosecuted under CM there remains the possibility for individual liability under Sections 36 and 37 HSWA for those with authority and responsibility in the organisation. Where a breach of duty under Section 2 to Section 7 of the HSWA is proven, Section 33 can give rise personal liability. All staff have responsibilities under Section 7, while Section 8 also has responsibilities shared by all staff.

## Financial corporate liability

Under the revised Sentencing Council guidelines, fines levied for breaches are regularly above £1 million and into several million.<sup>25</sup>

## Reporting, coordination of regulation and enforcement

The principal regulator is the Health and Safety Executive (HSE), while local authorities can also inspect, and both can take direct enforcement steps. In cases following a death the police will hold primacy until they are satisfied that a crime has not taken place.<sup>26</sup> As can be seen above, in certain situations, particularly where a gross breach is suspected,<sup>27</sup> the police may become involved via powers within the Corporate Manslaughter and Corporate Homicide Act (2007). These regulators are able to commence criminal proceedings.

Under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) companies are obliged to report incidents and dangerous occurrences involving staff and visitors.<sup>28,29</sup>

The Marine Accident Investigation Branch, under regulations via the Merchant Shipping Act, can undertake investigations with the following remit: *"The sole objective of the investigation of an accident... shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame."*<sup>30</sup>

In England and Wales, a coroner has the powers to investigate a death in a prescribed set of circumstances including unknown or unnatural cause events and fatal drowning.<sup>31</sup> The role of the coroner is to determine the facts surrounding the event and determine a legal and medical verdict. The role does not extend to determining blame, but they do have powers to make wider recommendations to other organisations, if this may help prevent future deaths.



Multiple regulators have published a series of memorandums of understanding that capture how regulation, investigation and enforcement activity is coordinated. Some regulators will also set out enforcement stances. Of particular note are those developed by HSE to inform enforcement decisions to investigate deaths or injuries to the public in open water.



**Death or serious injury to a member of the public in open water: The Health and Safety Executive guidance note to inspectors considering enforcement of duties under Section 3 of the HSWA.**

The examples are written as a series of issues that tend towards or tend away from investigation. Using the examples should not simply be a matter of adding up the number of factors on each side and seeing which side has the greater number. It is quite possible that one factor alone may outweigh a number of other factors which tend in the opposite direction. Each decision will need to be made on a case-by-case basis and turn on its own facts.

Throughout the examples, the words ‘serious injury’ are used – for the purposes of this guidance – this means injuries that are so serious that death might have resulted.

**Some factors tending towards investigation**

- a) There was a clear undertaking or employer with duties under the HSWA; and
- b) Swimming and/or water activity was actively encouraged; or
- c) The affected person was a child or other vulnerable person cared for as part of a work activity; or
- d) There was evidence of hazards that are uncontrolled or unmanaged (this includes hazards the duty holder was aware of and those they should have been aware of had they carried out a suitable and sufficient risk assessment); or
- e) The activity and the competence of the affected person required a level of training and/or supervision and that training/supervision was either not provided, or was inadequate.

**Some factors tending away from investigation**

- a) There was no duty holder or undertaking (or it is difficult to define duties) for example a beach or other natural feature where the public have open access; or
- b) Swimming and/or water access was either not encouraged or was actively discouraged; or
- c) The affected person was not involved in a supervised activity under the control of a duty holder such as a school or club; or
- d) Evidence suggests that the affected person (or their parent or guardian) was able to make a risk-based decision and took a risk they were made aware of or should have been aware of and causation was due to individual choice or error; or
- e) The nature of water and underwater hazards was made clear through unambiguous signage; or
- f) Supervision and training provided to the affected person were appropriate.

**Reader note:** You are advised to check the source link for updates, and particularly the comments on page one of the document. HSE version 10, March 2015.<sup>32</sup>



## Civil law

The principal laws that create duties in England and Wales for landowners are the Occupiers' Liability Act 1957 (The 1957 Act), which creates duties towards visitors, while the Occupier Liability Act 1984. The 1984 Act creates duties towards trespassers. In specific circumstances amendments and exclusions under the Countryside and Rights of Way Act 2000 (CRoW) and National Park Act 1949 apply.

### Duty of care under the common law

Responsibilities between individuals have developed through judgements under common law, and it is these implicit arrangements that lay the foundation for personal injury action within the civil courts. The common law 'duty of care' is subject to a three-point test that:

- There is sufficient proximity between the injured and those owing the duty
- It was foreseeable that harm may occur
- The court considers it fair, reasonable and just to impose a duty of care.<sup>33</sup>

Proximity can be considered both in geographic and contractual terms. The standard of care is that 'what a reasonable man would, or would not do'; failure to meet this standard is termed 'negligence'.

The actions of both parties can reduce or remove the liability: the concept of '*to a willing man, no injury is done*' (*volenti non fit injuria*) means that individuals harmed while participating on an informed basis might result in no duty being owed; to a lesser extent a defence of 'contributory negligence' can result in a reduction of the amount of damages recoverable.

These concepts have been further refined and have implications for visitor and water safety risks where statutory duties exist.

### Occupiers' Liability Acts 1957 and 1984

Under these statutes, occupiers owe a 'duty of care' to anyone who might be on their land or premises. The extent of this duty varies.

## Duty of care to visitors

The 1957 Act says occupiers of premises owe a 'common duty of care' to all visitors who come onto land by invitation of the occupier or who are permitted to be there. The duty is to take care over the state of the premises so that visitors will be reasonably safe in using it for the intended or permitted purposes. Under Section 2.2 of The 1957 Act, the duty is:

*"To take such care as in all the circumstances of the case is reasonable to see that the visitor will be reasonably safe in using the premises for the purposes for which he is invited or permitted by the occupier to be there."*

However, Section 2.5 of The 1957 Act provides that this duty does not impose any obligation on an owner or occupier to a visitor who willingly accepts risks:

*"The common duty of care does not impose on an occupier any obligation to a visitor in respect of risks willingly accepted as his by the visitor (the question whether a risk was so accepted to be decided on the same principles as in other cases in which one person owes a duty of care to another)."*

There could, however, be an obligation on the occupier to warn of any concealed hazards or dangers not evident to visitors which the occupier knows about.



### Duty of care to people other than visitors, including trespassers

The 1984 Act extends the duty of care to people other than visitors, including trespassers, but only when all of these three conditions are met:

- The owner or occupier knows, or ought to know, of the danger on his or her premises
- He or she knows or suspects people might come near that danger
- The risk is one against which he or she might reasonably be expected to offer some protection.

Again, the duty of care does not apply to a person who willingly accepts an obvious risk.

In addition, an owner or occupier may discharge the duty by drawing attention to the potential danger and by discouraging people from taking risks. In some cases, actions such as the erection of fencing may be appropriate. This is especially important for risks that are known about but which might not be obvious.

### Duties towards children

The 1957 Act requires the occupier to take account of the fact that children are less careful than adults. In Section 2.3a:

*“an occupier must be prepared for children to be less careful than adults.”*

The occupier is entitled to assume that parents will take responsible care for children's safety, and that these duties will be discharged if the dangers are obvious to a parent, or if given a warning comprehensible by a parent.<sup>35</sup> Furthermore that parents would warn their children of the dangers.<sup>36</sup>

Even though it is reasonable to expect an occupier to foresee that a visitor's child may escape supervision, it is not necessarily the occupier's or parent's fault if they are subsequently harmed.<sup>37</sup>



### Warnings and exclusions of liability notices

Occupiers under The 1957 Act may wish to inform visitors of particular hazards or dangers on sites (“warnings”). Within Section 2.4a:

*“Where damage is caused to a visitor by a danger of which he had been warned by the occupier, the warning is not to be treated without more, as absolving the occupier from liability, unless in all the circumstances, it was enough to enable the visitor to be reasonably safe.”*

In circumstances where extreme or unusual danger exists, a warning alone may not be sufficient to discharge the duty.<sup>38</sup> Measures such as a barrier or further notices might be required.

However, in circumstances where the danger is obvious or ‘self-evident’ a warning may not be required.<sup>39</sup> Information and signs may be used by the occupier in an attempt to reduce or exclude liability, e.g. “No responsibility is accepted for loss.” These approaches will be within scope of the Unfair Contract Terms Act 1977, which limits exclusion of liability for death, personal injury or negligence.<sup>40</sup>

### Exclusions via statute

Across England and Wales, 1.25 million hectares have been mapped as open access land under The the Countryside and Rights of Way Act (CROW).<sup>41</sup> This gives the right of access on foot to areas of mountain, moor, heath, down and common land for the purpose of open-air recreation.

Those exercising their rights under the CROW are expected to take primary responsibility for their own safety. Section 13 of CROW states that an occupier of land owes no duty to any person lawfully exercising his or her access rights with respect to risks from:

*“Any natural feature of the landscape (including natural crags and cliffs), or any river, stream, ditch or pond, whether natural or not, or; people passing over, under or through any wall, fence or gate, except by proper use of the gate or a stile.”*

An occupier cannot be found liable for damage or injury from such hazards to people taking access under CROW. However, the occupier will remain liable for injury arising from an accident caused by defective structures on access land or for any deliberate or reckless act or omission.

Those accessing land under the National Parks and Access to the Countryside Act 1949 are not classed as visitors under The 1957 Act; they are still covered by The 1984 Act.





## The Occupiers' Liability Act (Scotland) 1960

Imposes a duty of care to any visitor for the purpose of which they are visiting. At water sites, the operator may be relieved of liability if a hazard is brought to the visitor's attention.<sup>42</sup>

## Civil case law

The leading civil law case touches upon the extent and nature of the duties owed by occupiers to those partaking in risky activities; in particular, the duty to warn of the known dangers of swimming in lakes under The 1957 Act and The 1984 Act. The principles stated below can be seen in many subsequent civil and criminal cases.

### Case law

#### Tomlinson v Congleton

Bereton Heath Country Park is a former sand quarry acquired by the local authority. The park, like many others, was created as a public amenity with a lake and woodland, and was a popular visitor attraction. Some chose to swim in the lake, against the council's clearly-stated policy.

An 18-year-old man who was a regular visitor to the lake entered the water and plunged from a standing height, striking his head on the sandy bottom. The resulting injuries left him unable to walk.

The council was aware of swimmers in the lake, and displayed notices and gave warnings in line with its policy. Prior to the incident the council had discussed introducing marginal planting to act as deterrence, but the scheme had not been implemented at the time.

A civil claim for damages was brought via Section 1.1 of the Occupiers' Liability Act 1984. accepting that upon choosing to swim he became a trespasser, with the claim for a breach of duty to persons other than visitors because of the council's failure to take reasonable care to prevent him from the known danger of swimming in the lake.

The case ultimately went to appeal in the House of Lords, which made comment on both The 1957 Act and The 1984 Act. The court accepted that there was nothing unusual about the stretch of beach and open water; it varied in depth and could be cold and unclear at various times of the year. Other water sports were permitted on the site, but no powerboats or jet skis which threatened the safety of other water users.

At appeal it was held that the injury had not been caused by the state of the premises or from anything done or omitted to be done on them.

In his summing up, Lord Hoffmann commented upon the premises:

*"[He] was a person of full capacity who voluntarily and without any inducement engaged in an activity which had inherent risk. The risk was that he might not execute his dive properly and so sustain injury. Likewise, a*

*person who goes mountaineering incurs the risk that he might stumble or misjudge where to put his weight. In neither case can the risk be attributed to the state of the premises. Otherwise any premise can be said to be dangerous to someone who choose to use them for some dangerous activity... [He] knew the lake well and even if not, the judges finding was that it contained no dangers which one would have not expected. So the only risk arose out of what he chose to do and not out of the state of the premises.*

On the obvious nature of the risk and the role of warnings:

*"The fact that such people take no notice of warnings cannot create a duty to take other steps to protect them... A duty to protect against obvious risks or self-inflicted harm exists only in cases in which there is no genuine and informed choice as in the case of employees, or some lack of capacity, such as the inability of children to recognise danger...[or prisoners]."*

On the stance taken by occupiers towards inherently risky activities:

*"... it will be extremely rare for an occupier of land to be under a duty to prevent people from taking risks which are inherent in the activities they freely choose to undertake upon the land. If people want to climb mountains, go hang-gliding or swim or dive in ponds or lakes, that is their affair. Of course the landowner may for his own reasons wish to prohibit such activities. He may be think that they are a danger or inconvenience to himself or others. Or he may take a paternalist view and prefer people not to undertake risky activities on his land. He is entitled to impose such conditions, as the Council did by prohibiting swimming. But the law does not require him to do so.*

*"...there is an important question of freedom at stake. It is unjust that the harmless recreation of responsible parents and children with buckets and spades on the beaches should be prohibited in order to comply with what is thought to be a legal duty to safeguard irresponsible visitors against dangers which are perfectly obvious."<sup>43</sup>*

On the duties and precautions towards children under The 1957 Act.

### Case law

A two-and-a-half-year-old boy fatally drowned in a holiday park pond after he escaped supervision while playing near to his parents. After a few minutes of searching the young boy was found in a small pond. The pond was surrounded by wooden rails, approximately two-feet high, with wire mesh at the lower level. Less than a year earlier a four-year-old was rescued from the same location, resulting in a new safety policy and the wire fence being installed.

Brought under The 1957 Act, the case argued on two principal points: first, that an effective barrier should have been placed on site; second, that in the absence of a fence more ought to have been done to warn guests of the dangers nearby.

Guidance for fencing water features in schools and domestic locations was provided to the court, with the argument that this should apply to holiday parks. This was rejected by the court.

The parents had received an information pack upon arrival with a plan of the site, which included roads, lakes, ponds, the river and beach. The parents were responsible, attentive and caring. They were aware of the presence of lakes on the site, but not the presence of that particular pond.

In rejecting the claim Lord Justice Moses said:  
*"Of course the defendant ought reasonably to have anticipated that small children may escape the supervision of parents and wander into danger. But it by no means follows that the occupier is under a duty to take precautions against such dangers.*

*"If the danger is not obvious and the occupier ought to have foreseen that children may play in the area of the danger he may have to take precautions. But the situation is quite different from circumstances in which the source of the danger is obvious should a small child stray away from the control of even the most attentive and conscientious parents.*

*"Sometimes these cases are bedevilled with the quest for attaching blame either to the parent or to the occupier... But liability is not to be attributed on the basis that one or other must be to blame.*

*"It is absurd and offensive to suggest [the parents] were in any way at fault. A child may be gone in an instant. But it does not follow from that fact they were not at fault that the defendant [the park] was in breach of its duty. The danger of the lake to a small child, should that child in fact stray, was obvious."<sup>49</sup>*

On the need not to warn against obvious or 'self-evident risks' under The 1957 Act.

### Case law

A visitor to the Cobb, an historic harbour wall at Lyme Regis, slipped and fell off the wall, sustaining injury. The weather was fine but a strong wind and spray were affecting its surface. His original claim was upheld, the judge finding that the council was at fault for failing to erect a warning sign to tell users of the particular danger of the surface being slippery. The Court of Appeal overturned this judgement, concluding that the risk of the wall being slippery when wet was so obvious that no duty existed. They also concluded that even if a warning sign had been in place it was unlikely that the claimant would have acted differently. A warning sign was not therefore necessary.<sup>45</sup>



In the following case the judge made comment on the difficulties of resolving non-obvious dangers under The 1957 Act, and cautioned of extrapolating this to wider principles:

### Case law

A visitor to Carisbrooke Castle suffered serious head injuries after falling down an 'informal grass pathway' over a sheer drop into a moat. The visitor was a fit adult aged 60. There was visitor information on site and signs warning of the drop from the moat at other positions, but not at the location where he fell. It was not possible to see the drop from the area where he left the formal path.

The appeal court noted but rejected the argument that unsightly signs would need to be placed, and that an unduly defensive approach to managing locations would follow. It agreed that a finding of contributory negligence should stand, citing the initial court's comments that the *"defendant's fault was of longstanding, whereas the claimant's was momentary"*.

On the question of the need to warn of obvious dangers:

*"I accept that questions of whether a danger is obvious may not always be easy to resolve. In some cases this may present an occupier of land with some difficulty."*

*But this is understood by the courts and is taken into account when deciding negligence or if a breach of [Section 2 The 1957 Act] has been established.*

*"The court is required to consider all the circumstances...[including] how obvious the danger is and, in appropriate cases, aesthetic matters. If the occupier is in doubt as to whether a danger is obvious, it may well be advised to take reasonable measures... But the steps need be no more than reasonable steps."*

On the specific facts and wider implications of the case:

*"The [lower court] found the existence of a breach of the common duty of care on a very specific basis, namely the failure to provide a sign warning of a sheer drop that was not obvious."*

*"I have added these comments because it is important that the significance of this decision should not be misunderstood."*

On the need not to fence hazards if they present an obvious danger under the Occupiers' Liability (Scotland) Act 1960:

### Case law

A natural, physical feature of the land, the dangers of which are plain, does not require to be guarded by protective measures, despite being capable of causing danger to careless persons. It is reasonable to expect the visitor to be aware of sudden drops.

*"To hold that this embankment (in the village of Milton of Campsie in East Dunbartonshire) constitutes a concealed danger which ought to have been fenced would in my view defy common sense. The logical extension of such a finding would be that every path along an embankment or cliff edge would require to be fenced in order to guard against a fall by a person going too near the edge and losing his footing."*<sup>47</sup>



### Discussion and limitations

As with any interpretation and analysis, caution is advised when seeking wider lessons. This selection of cases has been informed by leading academics, legal and safety specialists. The majority of cases cover the mid-1990's to 2016, when public policy focused upon perceptions of a compensation culture, and overly risk-averse practice.

It is clear that informed adults taking part in risky activities, on premises with no hidden or unusual hazards, are owed no duties if they are harmed, following the principles stated in the *Tomlinson v Congleton* civil law decision, and developing later into other criminal cases. Where arrangements are lacking, such as missing or unclear warnings, inadequate or no physical protection, or where active or specialist supervision is to be expected and not provided, the courts clearly will explore breach of duty, and apply the higher criminal standards, including gross breach.

Landowners and activity providers should be reassured that the scope for liability has narrowed in recent years. However, the role of specialist and collective advice has become more prominent in both determining both what 'reasonably practicable' measures are, and the subsequent level of fines in criminal cases.

Determining what are non-obvious hazards, and their subsequent mitigation remains a sensitive and sometimes problematic aspect for open spaces that are, by definition, natural and 'non-standard'. Whilst the courts consider whether 'benefits' are outweighed when imposing a duty, they continue to look for appropriate risk assessment approaches as key evidence of process and judgement.

A central point for operators is that while the scope for liability from both criminal and civil duties has narrowed and refined, the consequences of failure for both companies and individual duty holders have increased considerably.

Managers need robust approaches that can justify and demonstrate decision making, most commonly through risk assessment and management frameworks. In the following sections we look at practical approaches to help achieve this goal.











# Chapter 3

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Guiding principles for managing  
drowning and water safety risks

**There are a number of agreed principles which can be used to help frame your approach to establishing a well-run site. Developed by members of the National Water Safety Forum, and designed to help the forum make decisions on water safety issues, they complement the principles promoted by members of the Visitor Safety in the Countryside Group.<sup>48</sup> They reflect aspects in case law along with well-established risk and safety management decision-making practices.**

There are occasions where the application of a control measure (such as a barrier, sign, enforcement policy) will be in conflict with some of the users' desires. The assessment undertaken will therefore need to consider the benefits of the location/activity as well as balancing the potential impact in terms of safety gains and possible negative impact of changing the site or activity. In application, it is vital to approach each site on a risk-led basis, and consider those groups particularly at risk.

As highlighted later, different groups will have different risks; the level of voluntarily-accepted risk will also be different, in addition to the perception of that risk. When considering the level and extent of responsibility a duty holder owes, there is a clear difference to be acknowledged in respect to people that are employed by the duty holder, and those people who are visiting or using the premises lawfully.

These principles are particularly useful in developing consistent and balanced safety policies.

### Fundamentals

No activity can be made completely risk-free. Risks imposed on non-participants and over which they have little or no awareness or control, can only be accepted if they are very low. This is the principle of the voluntary acceptance of risk – no nasty surprises.

The benefits of water-related activities will be taken into account when making a balanced judgement of whether risks are acceptable or further risk control measures are necessary. These benefits will include, among others, health and fitness, access to the countryside and coast, social inclusion, economic development, disability access, sporting objectives and building life skill and resilience.

As above, all the disbenefits and costs of water-related activity will similarly be taken into account. These

include provision of rescue services, access restrictions, and transfer to riskier activities e.g. swimming in docks when pools close.

As far as possible, avoid restricting access to water spaces or facilities.

Look ahead by assessing the risks that can be foreseen.

### Learn from the past

Records of accidents, near misses and ill health, together with reports from the participants, inform present-day decision-making.

As far as possible, avoid additional regulatory controls. These should only be considered where accident rates are high, multiple casualties occur, children, elderly or disabled persons are involved, or the risk is unclear to participants or affects non-participants i.e. an involuntary risk.

### Responsibility

It is important to strike a balance between the self-reliance of the individual participant and management interventions. The greater the competence and risk-awareness of the participant, the greater the scope for managing organisations not to intervene. Many benefits of water-based activities can be realised by encouraging self-reliance, not dependency on a managing organisation.

Everyone involved in a water-related activity has some responsibility for ensuring their own safety. Includes participants complying with best practice as set down by sports governing bodies, and ensuring they are not impaired by drink or drugs.

Recognise that statutory bodies and organisations with management responsibilities may have only limited powers to require or enforce.

Avoid as far as possible the use of risk controls which discourage people from participating in the organisation or management of an activity. Many activities rely on the active support of non-participants, often given voluntarily. Excessive or insensitively-applied risk controls can discourage this support and even threaten the continuation of the activity.

Recognise that children's risk perception skills will not be fully developed. This must be taken into account in the design of facilities and activities, and by parents/guardians in the supervision of children.



## Partnership

Recognise that people taking part in similar activities will accept different levels of risk. Take this into account when planning facilities or activities. Higher levels of participant competence may offset the need for other types of risk control. Recognise that risk control measures for one participant group may create risks to others. For example, fences erected to prevent people falling into water may impede rescues of people from the water.

Work with groups that are representative of participants to promote understanding and resolve conflict.

Collect incident data in partnership with others wherever possible. This will increase greatly the value of the collected data.

## Awareness

Ensuring that participants are aware of and understand potential hazards and risks is the key element in ensuring that risks are undertaken voluntarily. There should be no nasty surprises awaiting participants.

Information for and education of participants about the nature and extent of hazards, the risk control measures

in place, and the precautions which the participants should take are crucial elements of risk control. Wherever possible, align safety information with other information provided to the public. This could include leaflets, interpretation boards and websites.

## Competence

Recognise that some participants overestimate their skills and abilities to a large degree; for example, young men jumping into open water.

Recognise that participants will have a range of abilities to recognise any given hazard. Some will overestimate while others will underestimate and sometimes fail to recognise a hazard exists.

## Communications

Managing organisations, sports governing bodies and user-representative groups need to effectively communicate the results of risk assessments and risk awareness material to the participants.

When communicating to actual or potential participants, take account of the language, literacy and cultural needs of the target audience.





### Case study

### Developing water-safe communities in Durham City

Durham is a market town in the north east of England, shaped by the River Wear. The older parts of the city follow an incised valley, leaving a peninsula that has been central to the city's development. The fabric of the river, its banks and bridges vary considerably in terms of design and age, changing from modern canalised structures to semi-urban and green spaces all within a short walk. Set among this are spectacular heritage locations and a designated UNESCO action area. The river – and access to it – is a central part of Durham's heritage and a significant tourist attraction, generating constant visitor and resident footfall with some locations along the river being important routes both day and night. City centre shopping, eating and drinking venues are in proximity and overlooking the river. Just under 4 million tourists visit the city annually, while a significant university population equates to approximately 20 per cent of the city's residents.

In Durham, from January 2010 to March 2015, there were 56 water-related incidents, of which five resulted in drowning fatalities. Common factors included being male, being alone at night, being under the influence of alcohol and being a student. The incidents happened close to the high footfall areas and the heritage locations.

A team led by the Durham City Centre Safety Group worked with RoSPA to undertake a strategic review of the water safety risks within the city. The team included representatives from the local authority, police and fire services, public health teams and various city centre riparian landowners including the cathedral, council and Durham University.



*Durham City*

#### Key outcomes to date include:

- Improved lighting and safe routing information around the city
- Engineered improvements to key sections of the riverside, considerate of the heritage needs for the location
- Increased provision of public rescue equipment at strategic positions along the riverside
- Improved inspection and monitoring systems and regimes for the key risk areas
- Awareness campaign to highlight new transport and route safety information, as well as alcohol safety awareness messaging and initiatives
- New policy to ensure that all new builds are planned with water safety in mind.



#### Example risk assessment: Riverside walk, Durham

**Location:**  
Mill House Weir  
(River Left).

**Hazard:** Fall or slip from path.  
**People at risk:** Young adult visitors,  
particularly at night or in low light conditions  
(incident profile analysis provided separately).

**Outcome:** Impact injury,  
immersion and drowning injury.  
Serious to fatal.

**Key risks:** Fall into water, with impact injury.

**Other site factors:** Location is within 'dark zone' of UNESCO world heritage centre on opposite bank. Central tourist site, concentrated footfall during daytime hours. Pontoon above Mill House Weir is limit of navigation and mandatory portage point for rowing club and all river-based users (refer to visitor profile analysis provided separately).

Findings & Options	Decision	Actions	Who/When/ Status
<p>Approximately 100m of riverside walk with varying edges. At points, falls into moving and variable depth/flow water of one metre.</p> <p>Eroded bank side. Low light levels at night, hazard obvious to most visitors during daytime. Condition and hydraulic effects of weir unknown during assessment. Downstream, hazard of drops and hydraulics within 100m, and canalised section of river. Levels can vary by metres during spate/flood events from base flow.</p> <p><b>Options:</b></p> <ol style="list-style-type: none"><li>1. Improve condition and fabric of section</li><li>2. Re-instate traditional style (pre-war) balustrade along raised section</li><li>3. Provide temporary fencing for areas adjacent to weir and raised section</li><li>4. Provide improved routing at entry to path</li><li>5. Warning immediately upstream and downstream of weir</li><li>6. Improve Public Rescue Equipment (PRE) above weir.</li></ol>	<p>To apply a consistent approach along this section by:</p> <ol style="list-style-type: none"><li>(a) Joining existing balustrade with a new sensitive design</li><li>(b) Upgrading footpaths</li><li>(c) Installing temporary fencing in immediate vicinity of weir and falls</li><li>(d) Reviewing options for way-marking visitors and route choice at night</li><li>(e) Closer monitoring of section during peak night-time tourism windows</li><li>(f) Upgrading warnings/PRE as soon as practicable near to weir (items 5-6)</li></ol> <p><b>Rationale:</b> Consequence of entry could be un-witnessed fall into moving water, during night-time hours. Additional lighting could risk UNESCO status.</p>	<p>(a/b) Conservation and design team to submit proposals for consultation. Clarify capital monies impact</p> <p>(c/f) Immediate installation</p> <p>(d/e) Further monitoring of footfall patterns. Proposal by next group meeting</p> <p>(g) Route choice awareness to be aligned with safety campaign theme, when insight available. Target next meeting.</p>	







# Chapter 4

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Planning for water safety

### Planning for water safety

Water safety management must complement the other risk management issues that organisations deal with. To this end, the Plan-Do-Check-Act model (PDCA) is suitable for organisations to adopt. It is widely used within occupational safety, environmental and quality management settings and is the basis for the Health and Safety Executive guide, *Managing for health and safety*.

### The Plan-Do-Check-Act cycle

It is critical that the organisation recognises that the PDCA approach is an ongoing process. Early on, you may need to go through the cycle a number of times in order to reach a position where your organisation is confident that the risks are managed effectively.

The ultimate aim is to encourage leaders to have a system in place that, should an incident occur, all the workforce concerned are able to return home with a clear conscience, having confidence that:

- The event was indeed an unforeseen accident
- The event wasn't caused or allowed to happen due to a failure to plan or to manage the inherent risks
- The cycle can be broken down into a number of subsections, as indicated in the figure to the right.



# Plan...

## Policy

Policy should be specific to your organisation. Aim to make it easy to implement to ensure that your risks are not significantly under or overprotected and that your activities do not create unacceptable risks for others.

- Clearly outline the aims of your organisation. Coordinate these with the aims of others
- Be clear on your organisation's context, stakeholder expectations, your values and risk appetite
- Provide sufficient resources to enable the aims to be achieved
- Agree how performance will be tracked and measured, avoiding reliance on reactive accident data.

## Planning

Plan how you will allocate your resources, making sure that everyone is involved at the right level and that you maintain the capacity to react to changing demands.

- Identify and understand exactly what you are responsible for and your legal obligations
- Ensure that your plan sits within the NWSF strategy and principles
- Consider how change will be managed – consider emergencies, changes to your organisation, standards and stakeholder operations.



# Do...

## Risk profiling

Use the available information and expertise to identify risks and proportionate controls consistently.

- Gather the required information about the hazards and risks across your site or portfolio, identify what you don't yet know. Check with WAID and benchmark your results
- Don't 'guess' or neglect risks that may be complicated or new to your organisation
- Give due consideration to obscure but high-severity events.
- Conduct assessments of the risks and apply a balanced judgement to best manage the significant risks consistently.

## Organising

Organise advice and individuals to understand and deal with the important issues.

- Decide who and how the plan will be implemented and resources allocated
- Obtain and follow competent advice in a timely manner
- Train the workforce on the risks and controls, don't forget volunteers
- Support customers and visitors to allow them to make informed decisions on risks.

## Implementing your plan

Do what you say needs to be done to control the risk. This is, of course, the most important stage. Recognise that paperwork is much less effective than practical actions.

- Allocate the available resources effectively and consistently
- Provide the right equipment, the right people, at the right time
- Use a proportionate amount of effort to supervise your activities.

# Check...

## Measuring performance

Ensure that you know your risks are controlled and you can demonstrate that your systems are working the way you expect.

- Deliver a scheme which includes reviews, inspections, audits and consultation by people who understand the risks
- Check that physical conditions, equipment and behaviours are as expected. The frequency and detail of the checks should be proportionate to the consequence of failure.

Compare and benchmark your results across your portfolio and with others in similar situations, to ensure your controls are proportionate.

## Investigate accidents/incidents and near misses

Find out why incidents happened and what needs to be done to stop similar incidents resulting in unacceptable injuries in the future.

- Create and record information which identifies issues that need correcting or that show that controls are as expected
- Make recording and reporting mechanisms as easy as possible to use and encourage people to report, this includes the public
- Recognise that incidents and injuries occurring doesn't necessarily mean that there has been a failure on your part
- Provide records to those that need the information in good time and in an easy-to-understand format
- Share learning with other affected organisations, including WAID.

# Act...

## Reviewing performance

Use the data collected to check your performance formally and informally at different levels of your organisation.

- Review the results at the right level and in a timely manner
- Resolve unsafe situations and identify ineffective controls in good time
- Discuss results and plans with workers and stakeholders.

## Learning lessons

Use the results to identify what policy changes are needed, if any.

- Identify what the organisation has learnt about its risks and where it needs to improve
- Take action to revisit plans and systems, and improve and refine them as necessary.



### Case study: Managing the risks in active and former quarries

**Hidden dangers:** Many active and former quarries have lakes or water-filled voids. Hazards associated with these often include very deep and cold water, sudden changes in depth, rocks and machinery concealed beneath the surface, pumps or unexpected currents, weeds and, in some cases, high alkalinity. Quarry lakes may also be difficult to exit due to high and unstable sides.

**Key groups at risk:** Circa 80% of quarry fatalities involving members of the public are males between 11 to 30. Most fatalities are water related and occur in disused quarries, the majority of which are no longer owned or managed by quarrying companies.

**Physical and design measures:** Measures used to help protect the public include different types of fencing as appropriate for the local environment and risk, a wide range of warning and information signs, planting to help deter entry into hazardous areas and, in the planning process, consideration of the potential after-use of the site.

**Policies and standards:** The Mineral Products Association (MPA) supports the UK Drowning Prevention

Strategy. Since 2014, it has developed its relationships with safety organisations, the emergency services, water utilities and sporting organisations to both learn from them and to share best practice. MPA's strategy includes public safety risk assessments for all member sites, identifying and prioritising activity around high risk sites, sharing information on incidents and fatalities, issuing a range of member guidelines on the management of public safety, regular communications with members about public safety, working with others to ensure consistent messaging, encouraging its members to educate the public through their schools and community engagement programmes, and working with parents whose children have died in quarries who want to help prevent others from putting their lives at risk.

**Campaigns and key messaging:** MPA runs an ongoing campaign 'Stay Safe' to help raise awareness about the dangers of entering quarries and related sites uninvited and unsupervised. MPA's resources and media activity help support its members' engagement with their local communities and other relevant stakeholders.



Malvern Hills Trust





# Case studies and campaigns

## Context, Harm and Drivers

## Guiding safety tactic

### Plan

#### Policy & Planning

#### Risk profile

### Do

#### Organise

#### Implement

### Check

#### Measure performance

#### Reviewing performance

### Act

#### Learning lessons

#### Page 36



Tourism driven by historic, built listed environments. River is a key visitor attraction, which can be very hazardous at certain water levels/times.

Multiple incidents, often at night and alcohol as a factor, while walking home or alongside river as the direct route.

Consistently applied low visual and heritage impact interventions. Reroute, deflect or exclude at night. Licensing and active landside patrolling.

Corporate water safety policy that aligns with tourism, night-time economy and heritage designations policies. Funded and clearly owned action plan.

Comprehensive site assessment process. Incident and hazard hotspot profiling.

Understand land ownership and/or navigations. Coordination with and support for search and rescue (SAR) responders.

Engineering and design interventions. Targeted information and campaigns. Community 'learn to swim' education programme.

Named staff responsible for monitoring.

Board-level scrutiny for policy.

Access national systems (WAID) for learning and review.

#### Page 42



Mostly daytime visitors, with divers accessing under contract. Known play spot. Can be a play spot for nearby children and informal swimming. CWS and steep underwater gradient are factors in incidents. Access is difficult to manage; active quarries maintain security fencing.

Exclusion and warning from most hazardous zone such as cliff or underwater obstructions. Inform and promote safety information. Reduce hazard (re-profile) before handover.

National design and public safety principles applied before handover to community.

Comprehensive site assessment process. Incident and hazard hotspot profiling.

Coordination to understand working or former quarries for incidents. Coordination with SAR agencies.

Warning notices and public rescue equipment. National campaign windows utilised to inform of local risks.

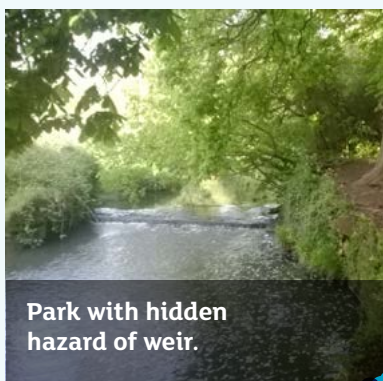
Review to understand the extent to which principles applied.

National summit to peer review and board-level scrutiny of programme.

National summit to peer review and board-level scrutiny of programme.



## Page 58



**Park with hidden hazard of weir.**

Most daytime visitors walk past the location, a known play spot for schoolchildren. Weir contains hidden hazards which can be very dangerous in certain water levels. Recent significant harm and near-miss events.

Exclusion and warning from most hazardous zone, this may extend to waterway users if part of navigation. Consideration of medium term design interventions to reduce or remove hazard if feasible.

National design standard and policies seeking to reduce public risk from weirs, while mitigating environmental impacts.

Tiered plan includes options for modifying location up to eliminating hazard.

Comprehensive site assessment process; model and understand the implications and options for engineering interventions. Observe behaviours at location.

Warning notices and/or physical barriers. Elimination of hazard where feasible. Cautious application of public rescue equipment (in case it increases risk).

Projects to create a baseline behaviours profile at location and understand if similar risk scenarios are held elsewhere. Comparison and benchmark across organisation/peer networks.

National summit to review risk and peer review approaches. Organisation/peer networks.

Shared learning for review.

## Page 67



**City centre canal with high use.**

Canal is a historic structure interspersed with modern section and locks. Few incidents, associated with conflict between user groups. Consistently applied interventions to inform and educate visitors of expected norms.

Consistently applied low visual and heritage impact interventions. Inform and educate visitors of expected norms.

National design standards and public safety principles in place. Corporate water safety policy that aligns with tourism, night-time economy and heritage designations policies.

Comprehensive site assessment process. Observe behaviours at location prior to campaigns.

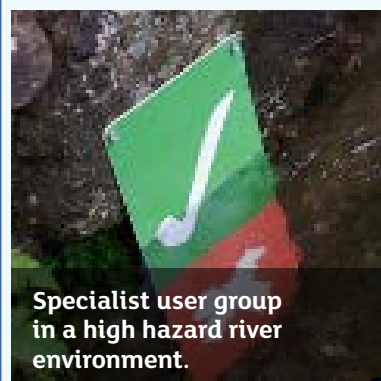
Reduction of risk or elimination of hazard where feasible.

Understand behaviour baseline and points of conflict.

External review and validation.

Shared learning for review.

## Page 68



**Specialist user group in a high hazard river environment.**

Mountain rivers offer challenge to kayakers in a dynamic and hazardous setting. Repeated fatalities nationally, during higher water. Information to support decision-making. Approaches that do not detract from natural environment setting.

Information to support decision making. Approaches that do not detract from natural environment setting.

Policies operate within a 'rights and responsibility' framework for waterway use.

Funded plan.

National risk analysis and hotspot profiling. Research to underpin causation and human factors.

Understand land ownership and local sensitive; partner with key communication channel and networks. Coordination with SAR agencies.

Deploy timely and sensitive information on hazards.

Named staff responsible for monitoring.

Peer reviews.





# Part Two:

## Practice

### Chapter 5:

#### **Assessing and managing risk**

- (1) Identify the hazards
- (2) Who might be harmed and how
- (3) Evaluate risks and decide if existing precautions are adequate
- (4) Record your significant findings and act upon them
- (5) Review

### Chapter 6:

#### **Visitor information and campaigns**





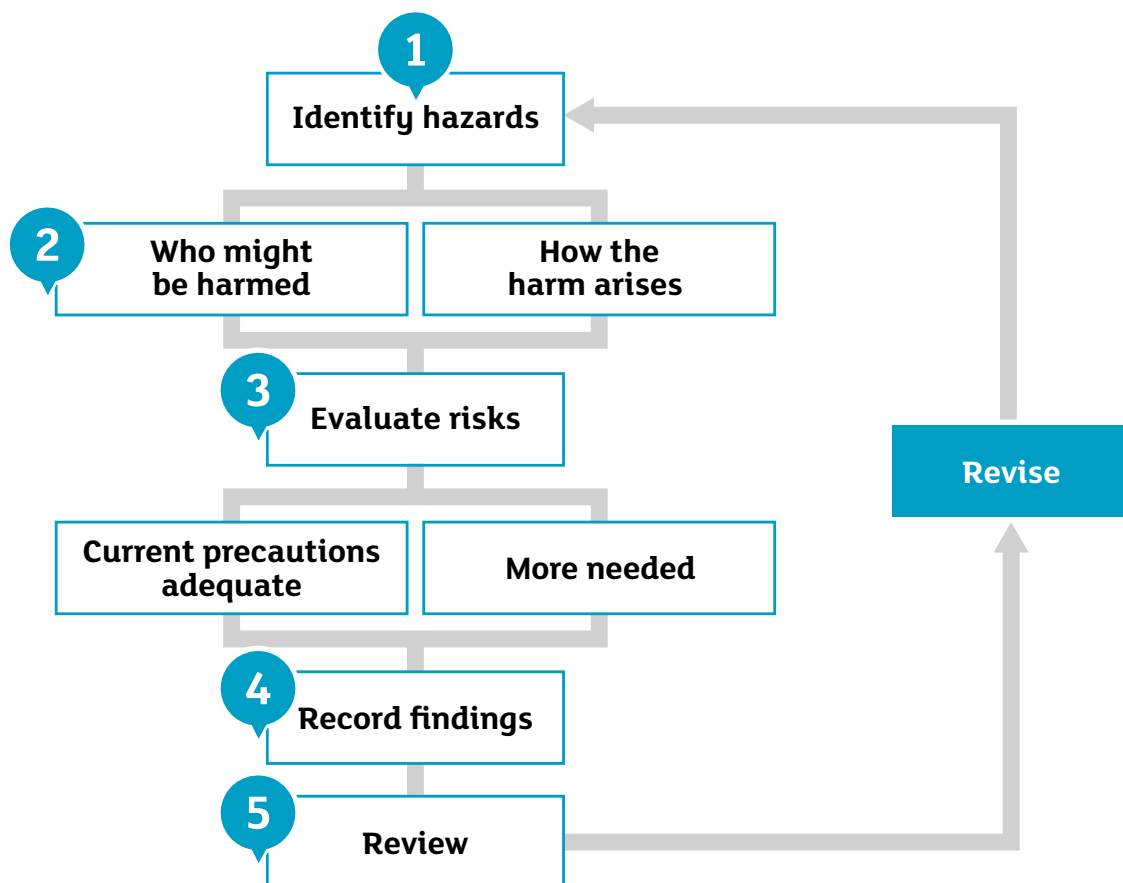
# Chapter 5

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Assessing and managing risk

There are a number of recognised methodologies used to conduct a risk assessment. In this section we highlight the Health and Safety Executive methodology for controlling risks in the workplace.

Irrespective of the method you employ, it should be understood, particularly with natural and dynamic risks, that you may have to go through these steps and observations more than once, revisit earlier steps to clarify, and refine understanding.



**Hazards** are anything that may cause harm.

**Risk** is the likelihood, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.





## 1 Identify the hazards

There are several structured approaches that can be adopted to help systematically identify and classify hazards. Water-related hazards can be thought of in three main groups: built, nature of the water, and people or activity.

A critical aspect to consider when identifying natural and activity-based hazards is their inherent dynamic nature. For example, a river in its lowest and highest state will offer a varying degree of hazard. The methods applied to identify these hazards and their variability will need to be flexible enough to allow for these dynamic factors.

The presence of multiple hazards in a single location – e.g. a deep fast-flowing river with a weir and hydraulic, in addition to exposure factors such as regular footfall – will have a greater significance in any assessment.

### Example: Water-related hazards

#### Built

- Footpaths and key transition points such as steps or changes in direction/level
- Unsighted or hidden corners, changes in direction/level
- Bridges, jetties and pontoons
- Quarries and reservoirs, drainage schemes
- Spillways and drainage features leading to unseen currents
- Unprotected drops from walkways, stairs or headwalls
- Weirs and hidden hydraulic features
- Unprotected drops such as outcrops or river edges, boulders
- Adjacent features such as overhead power lines
- Slippery and worn paths including icy conditions.

#### Nature of the water

- Temperature, both at the surface and below
- Depth
- Underwater objects and unclear features such as rock shelves
- Flow state, current, flood and spate conditions
- White water and hydraulic features – stoppers and strainers
- Visibility
- Erosion features such as undercuts, river banks or siphons
- Water quality factors.

#### Activity and people

- Footfall and crowding features, pressure, crush and falls
- Powered and fast boats
- Sporting activities
- Commuting and transit activities, walking, running and cycling
- Adjacent activities, i.e. night-time economy spill over from bars and clubs
- Vandalism and other signs of negative activity.

### 2 Who might be harmed and how

The principal objective is to identify the significant hazards, the key groups and likely scenario(s) that may present to cause harm. When assessing for water safety risks, understanding the visitor and other people on site is the key to a good risk assessment outcome. A range of methods, sources of data and insights will be required in order to gain a complete and balanced picture:

- Observing visitor behaviours, footfall patterns and hotspots. Do all the groups use the site in a similar manner? Are all the visits during the day?
- Visitor and staff insights, surveys and structured discussions. For example, what is the difference between the manager's and volunteers' experience?
- What does the injury and near-miss profile look like? Accident reports from both within and outside the organisation may not tally, especially for sites that are not actively staffed. A number of groups and injury and drowning scenarios repeat: those walking alongside water, at night, sometimes alone or in small groups; informal jumping into and swimming in open water; children who can break away from parental supervision.

### 3 Evaluate risks and decide if existing precautions are adequate

#### What is the level of risk?

The ultimate purpose of this exercise is to assist in prioritising action towards mitigating risks that are deemed unacceptable. There will always be an element of debate as to how acceptable a given risk is, more so when this risk may be taken on voluntarily by the visitor, or it is unclear as to what extent they understand the hazard.

Methods to evaluate vary from simplistic 5x5 estimators to formulae which require a probability to be calculated. Both methods have advantages and limitations. Irrespective, at this point a few aspects are critical:

- Being clear on those risks that are, or might be, unacceptable
- Applying a proportionate but 'precautionary' approach to risks that are deemed marginal
- Transparency with regard to judgements being made. It is important to note that the law does not require a 'zero-risk' approach be adopted. Further, the risks in question are 'real' and 'foreseeable' (see case law). Comparison within the organisation and against external benchmarks can help determine relative performance. Benchmarking both practical indicators and rates can help bring clarity to marginal scenarios.



**Discussion point:** It is in this aspect of the risk assessment process that most of the concerns about 'risk averse' decision-making stem. Ensuring that decisions are made in a transparent fashion and that motivations behind the decisions are clear, and subject to review, can offset issues further on. These safeguards enable the organisation to consider decisions which could unduly 'ratchet-up' safety measures, or equally allow unacceptable risks to be addressed.



## Evaluation and use of controls

In providing the following examples of control, we have focused upon the desired outcome of the control measure. The examples follow a specific assessment, installed as one of several controls. Comments with regard to cost of intervention are noted in either capital or revenue terms; further, they are relative to the other controls, rather than any one organisation's capacity.

Our focus is on managing the risk to visitors from accidental injury events, primarily drowning. As such, some approaches may transfer risk to other groups. These factors will need to be considered in your specific evaluation.

## 4 Record your significant findings and act upon them

### Are the current precautions adequate or is more needed?

If risks are deemed unacceptable, then current precautions will need review. These decisions will be framed by the water safety policy and factors such as the recognised benefits and other drivers, e.g. heritage designations.

Making a record of your findings is important to ensure a coordinated approach, and it can also be used to evidence decision-making. If you have fewer than five employees, as a duty holder you are not obliged to write anything down under the HSWA, but it will help.

A risk assessment must be 'suitable and sufficient,' i.e. it should show that:

- A proper check was made
- You asked who might be affected
- You dealt with all the obvious significant hazards, taking into account the number of people who could be involved
- The precautions are reasonable, and the remaining risk is low
- You involved your employees or their representatives in the process.

## 5 Review

All assessments should be reviewed on a regular basis to take account of changes in work practice and technological advances. Under the HSWA duty holders with five or more employees are required to keep assessments in writing.

A number of factors may trigger an early review:

- An incident or near-miss
- Change in or new activities
- Change in visitor profile.

Learning and insights from networks and peers may also prompt a review. These changes should be documented.

The remainder of this chapter considers the effect of a range of control measures that aim to improve the physical environment, alongside a number of case studies for illustration.



# Design and information based control measures...

## Removal by engineering out or removing hazard

## Reduction by re-profiling hazard



If feasible, the source of the danger to the visitor is permanently removed. For example, removing a weir, or introducing culverts under roads liable to flooding, or storage of water in underground reservoirs.

Adjusting factors such as the water's edge gradient or features can provide a robust and sometimes significant reduction in the risk. A hazard remains.

### Positives

- Often a permanent solution requiring no extra maintenance regime
- Passive and collective measure that protects all visitors.

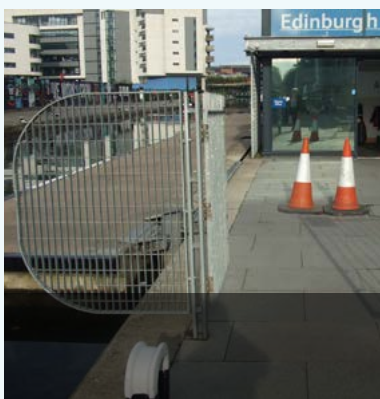
- Once established can retain a natural, not engineered, look
- Permanent solution.

### Negatives

- Can require significant capital funds to achieve
- May result in risk being transferred to other groups, e.g. workers in underground culvert
- Secondary impact from engineering works, e.g. removal of a weir may release contaminated materials into watercourse.

- Can require significant capital funds to achieve
- Some residual risk.

## Exclusion by use of security fencing and grills



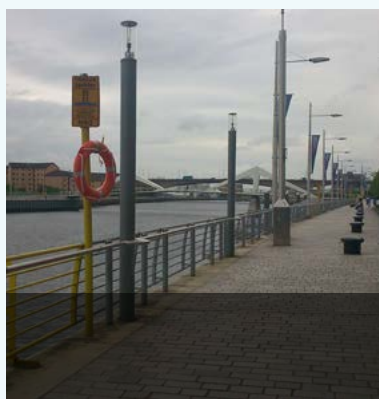
This approach can be effective at limiting access to particularly hazardous stretches of water, or locations whereby a fall or entry would be severe or fatal.

Pipes and shafts can be rendered difficult or impossible to access by use of grills and or isolation fencing.

- Isolates visitor from hazardous feature
- Once installed, low maintenance
- Passive measure that protects most visitors
- Useful in situations where a significant hazard cannot be identified easily by visitor.

- Significant visual impact
- May increase flood risk in some settings, i.e. debris build up creating a dam
- Expensive solution.

## Reduce likelihood of entry by using deflection fencing



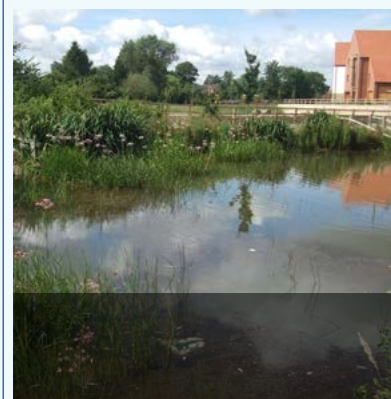
Where the consequences of a fall are serious or egress is difficult fencing may help to deflect or isolate.

Consideration as to how to exit or provide access for specialist groups will be required, e.g. boaters and emergency services.

- Permanent passive solution
- 1100mm design will deflect the majority of landside pedestrian trips/falls towards water
- Limited use at junction/bottleneck or change in level can act as catching feature against falls.

- Misunderstanding of expected outcome can provide false security, e.g. a 1100mm balustrade vs knee-height rail are not equivalent interventions, yet both can be described as 'fences'
- May increase risks for some users, e.g. boaters hitting head
- Placement may be a perceived inducement to unwanted behaviours, e.g. creation of a jumping spot/platform
- Poor execution may introduce additional hazards, e.g. low chain trip hazard.

## Deflect entry through use of marginal planting

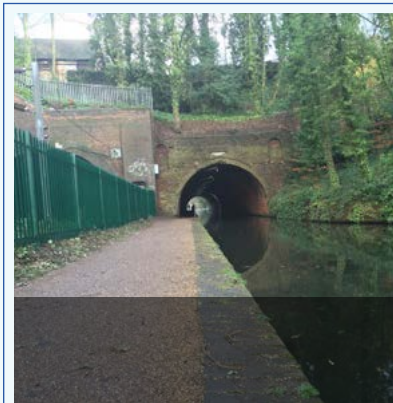


Natural features can be used to demark and discourage entry into areas. This is a deflection strategy which provides a lower visual and cost impact.

- Lower cost, natural approach
- Visually positive approach.

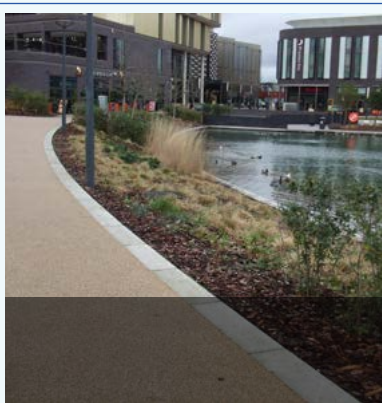
- Risk reduction can be much less than barriers
- Requires time to become established, and ongoing maintenance
- Can create risk for workers during maintenance.

Reduce likelihood of falls with flat, level footpaths and edge delineation



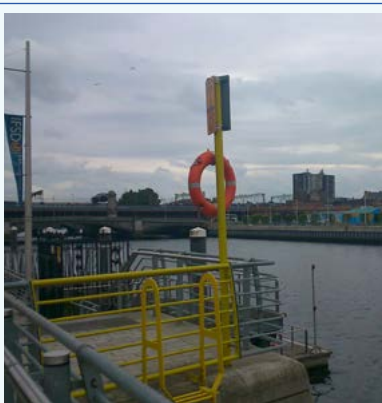
Defined and good quality footpaths, with little or no trip hazards, can reduce the likelihood of a fall for the majority of visitors. A combination of materials such as demarcate stones or tactile paving can demark the edges.

Highlight safe routes or hazards through ambient or artificial light



Selected lighting can help to highlight a hazard, or guide visitors onto a preferred route. General lighting to raise ambient levels near to water or hazards can help shape a visitor's choice of route, especially when combined with other information.

Aid egress with grab chains and ladders



Provides the person in water with an opportunity to escape steep or vertical edges. A mitigation measure that does not alter the hazard or likelihood of entry. Most commonly applied canal-side and an aspect of canalised rivers and harbour edges.

Ladders and chains are most effective when visible at water level in low light conditions.

The person in water should be able to reach the chain at most water levels, when floating, without other support. Tiers of chains may be required to enable escape.

Positives

- Removes a key hazard contributing to drowning.

- Can be used to direct towards preferred/ safer route option
- Highlight waterline/edge and or hazard, e.g. to avoid trip.

- Can be deployed along whole sections of waterway
- Does not require intensive maintenance regime
- Time-buying strategy.

Negatives

- Often difficult to achieve in historic locations
- Natural process along rivers makes upkeep difficult
- Expensive.

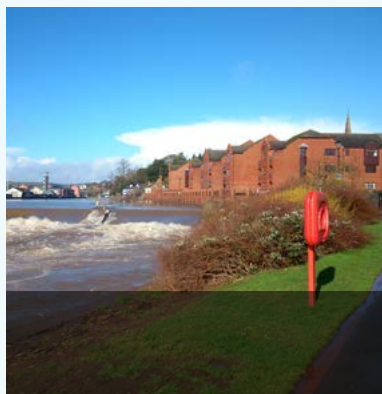
- Can create shadows, possibly further obscuring the hazard
- Requires regular inspection and occasional maintenance
- Does not reduce or affect the hazard.

- Post-entry into water intervention.





## Aid recovery from water with public rescue equipment



An additional mitigation, one that in limited circumstances may afford the victim extra time or support to enable rescue. Blanket placement may have unintended effects. Requires a high degree of maintenance and very susceptible to theft or vandalism.

- Highly visible water safety information point
- Recovery/mitigation aid in addition to other steps.

- Post-entry into water intervention
- Incorrectly perceived as only/best management option
- Requires regular inspection regime
- Easily vandalised, lost or stolen
- Design intention for rings are to be 'dropped' to casualty rather than thrown horizontally
- Placement may be seen as creating a permitted swim spot or inducement to swim, i.e. the belief that "this is a safe space to enter".

## Inform visitors through signage



Use to inform visitors and staff of key risks, rules and actions to take. Warnings need to relate to the risk in question, and on their own may not be a sufficient single measure with a non-obvious or significant hazard. It is important to be clear on the purpose of messages, e.g. warning versus notice of exclusion or disclaimer (see case law).

A nationally-agreed standard outlines use of the symbols. These include hazard warnings, prohibition and mandatory action, in addition to safe condition information.

- Clear, unambiguous and standardised information
- Widely understood and tested/evidenced for many communities.

- Overuse can lead to 'blindness' to information
- 'Illogical placement' or too many signs can lead to an unwanted or negative response
- Warnings and liability exclusion notices have different purposes.

## In-water buoys and roped-off markers to inform



Physical in-water objects to indicate changes in depth or limits of zoned areas such as swim/boat barriers.

Can hold repeat warning information for specialist groups such as swimmers or canoeists.

- Indicate change in feature such as depth or limit of permitted area, e.g. swim zone.

- Not a physical barrier
- Requires regular inspection and maintenance
- Can be perceived as inducement to enter water.

### Case study: Hidden hazards within a busy park

A location in a country park with adjacent footpath was part of a water-mill system, with a series of weirs to power machinery. This had fallen into a gradual state of disrepair before being adopted within the park boundary. The location, although not on a main path had become an informal play spot. There was no designation or particular visitor attraction associated with the location, unlike other aspects of the park.

The river in the park was mostly shallow and slow flowing, gradually becoming canalised in sections – to generate a drop for the weir head. Adjacent to the weir were mill ruins, which presented largely obvious trip and slip hazards. The site was a scene of a number of incidents including a fatal drowning in the vicinity.

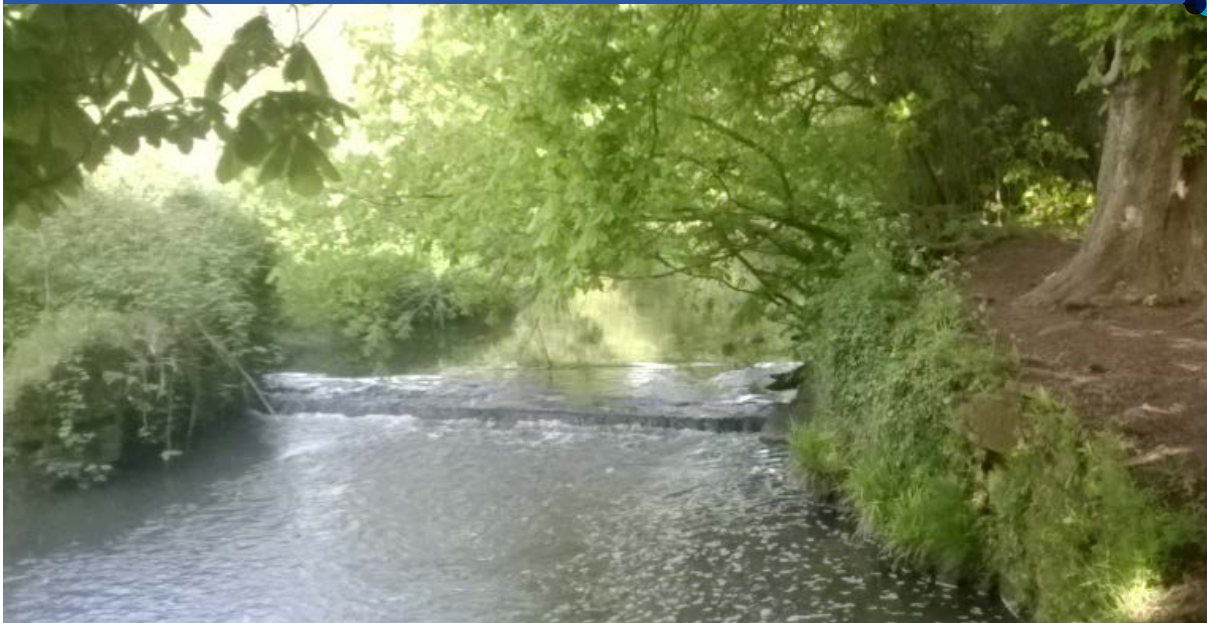
The location was assessed, with the hazards reviewed. On first consideration it became clear that the hydraulics associated with the weir had probably caused the pool below to deepen and undercut the bank. While on the surface the water looked still, there was a recirculating and possibly scouring effect below. These hazards were not obvious upon initial inspection. The water was obvious from the path, but the drop was not. There was no loud noise or surface water movement that might indicate the danger of the currents to the visitor. Visitors included adult dog walkers, families with

children walking through the park, and there were some indications that the location was used as a play feature and transit or cut-through route for teenagers.

Temporary measures were implemented, including limited fencing and improved visitor safety information. Very quickly afterwards a second inspection was undertaken, including data from a hydrographic report. Insight from observations of visitor patterns and use was also collated.

Following the additional data collection it was decided that the most pragmatic control steps were to provide 'deflection' fencing for the entire mill ruin location and provide information on the hazards associated with the weir and deep/moving water, through clear signage. Public rescue equipment was also provided. Frequent reviews of the measures and location were maintained for an initial period to ensure the implemented controls were effective. A phased approach was later introduced, in line with the rest of the park.






Wider steps included targeted education sessions for local schools and residential areas, and improved information at the main visitor hubs.





In circumstances whereby the hazard is not obvious an approach which considers engineering measures and provision of information is critical. To aid the duty holder there are number standard symbols which can warn of danger and inform choices.

## Signage examples

 <p><b>Safe condition</b> denotes a positive action/space such as first aid, help</p>	 <p><b>Mandatory</b> demands a specific action</p>
 <p><b>Hazard warning</b> informs visitor of non-obvious danger</p>	 <p><b>Information</b> gives information</p>
 <p><b>Prohibition</b> seeks to stop a defined behaviour likely to cause harm, or reflects a site rule</p>	





### Case study: Designing out the hazard

In July 2005 an adult fatally drowned in the Tryweryn River in north Wales while attempting to rescue her dog, which had become held in the recirculating waters of the weir. Such incidents are not rare and every year people will drown in weirs in the UK. On the day, four other people entered the weir, so the scale of the tragedy could have been much worse.

Following an incident review, it became apparent that the key issue rested in a lack of appreciation of the risk presented by weirs to members of the public, operational staff, rescue personnel and professional river users. namely that:

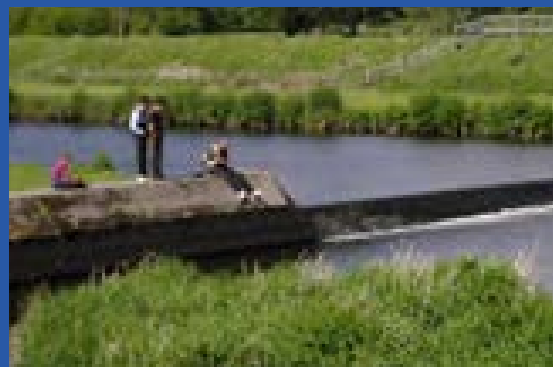
- **Moving and cold water present a constant risk to people in the water**
- **Recirculation currents at weirs can trap people and objects in the water**
- **These currents are not obvious, often hidden from sight/sound, while the power and extent can vary in minutes.**

Initial control measures taken included improvements to safety information, particularly around the nature of the hidden hazard of retaining currents and cold water, improved physical barriers to limit access to the most dangerous location immediately around the weir face (this had an additional benefit of providing a good anchor for rescue personnel), training and assessment for staff, and improved community information.

A medium-term approach of closely monitoring the location and impact of the controls was implemented. Observations built up over a series of months identified an additional risk factor: at certain water levels the weir created a very hazardous recirculation current, and, when aligned with warm days and more visitors, a 'peak risk' window could be present.



A decision was taken to re-engineer aspects of the weir, with the objective of reducing the recirculation and holding effects. This involved a judgement to offset the risk of future single or multiple drowning events against significant capital and time investment, potential impacts upon the health of the river, and impairment of the weir's prime design function to manage and monitor water flows. While some recirculation remained after the engineering works had been completed, at the time of writing no further fatal incidents have occurred.<sup>50</sup>





*Example of a weir in high water, Exeter*

### Case study: Taking difficult decisions on public rescue equipment

Landowners, particularly local authorities, often choose to install public rescue equipment (PRE) as an early or preferred intervention.

The low cost, ease of installation and the tangible, highly visible presence of units can provide a sense that 'water safety is managed'. However the medium-term impacts of a strategy which is not logical or consistent in application, or did not consider sustainability as a key question at the outset, can lead to considerable direct safety and local public concerns.

Vandalism, theft, or intended use without quick replacement can all render the PRE useless. The cost to replace the 'buoys/lines' or complete units ranges from £30 to £300, not allowing for staff time. A number of management approaches have been taken:

**Rationalise and update safety policy:** In effect, reducing the scope and number of buoys to install through a risk assessment approach. This requires a good understanding of the hazards and visitor profiles. Establishing trigger levels for removal or

change can be a difficult, but essential, aspect of the policy.

**Adapting type of housing and locations:** A small number of authorities are trialling remote-monitored systems, which alert if the unit has been opened. In one pilot study a PRE unit can only be opened following an emergency call.

**Community owned equipment:** It is feasible in busy urban and city environments for waterside venues, particularly bars, to house additional PRE. This has the dual benefit of providing support for venue staff or guests as they are often the first responder or eyewitness, and coverage in locations that may have suffered loss or theft of traditionally placed PRE units.

**Removal of PRE:** Upon reaching a trigger level, typically three to four replacements of a buoy or unit in any one calendar year, authorities start a formal process to alert the public of this impact and ultimately remove the PRE from the location.





## Factors to consider when deciding to install PRE

The effectiveness of PRE is dependent on a number of factors and circumstances. It must be part of a whole strategy for drowning prevention and is not a solution in itself. For PRE to be useful the following must occur:

- The victim has to be seen
- They must be recognised as being in difficulty
- They must remain afloat until rescue arrives
- Appropriate rescue equipment must be to hand, and in operational condition
- The rescuer must have the ability, judgement and skill to use the equipment, and to effect a rescue
- The weather conditions must be favourable
- The victim must be able to cooperate, i.e. grasp a rescue device.

An assessment of the area and its users should provide the basis for the use of PRE at any given site.



## Equipment design

Factors that should be considered include:

- Ability to provide positive buoyancy to the casualty
- Rescue line must be buoyant
- Equipment must be visible with reflective tape to aid night time location
- Equipment must be resistant to UV and environmental degradation
- Simple visual instructions allow PRE to be easily and quickly dispatched
- Ability to be re-thrown quickly, if the first and subsequent efforts fail
- Sufficient weight to facilitate ease of throw without damaging the casualty (outer soft covering/skin will limit potential to damage casualty)
- Can easily be housed.

## Selection and placement of equipment

There are no specific design standards for PRE at inland waters. When considering placement, a test of the most likely rescue scenario will inform selection greatly. This will help to highlight performance deficiencies in the specific circumstance, and clarify the equipment's primary purpose, i.e. to give buoyancy if a long time in water is expected or to aid quick egress from water.







# Chapter 6

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Visitor information and campaigns



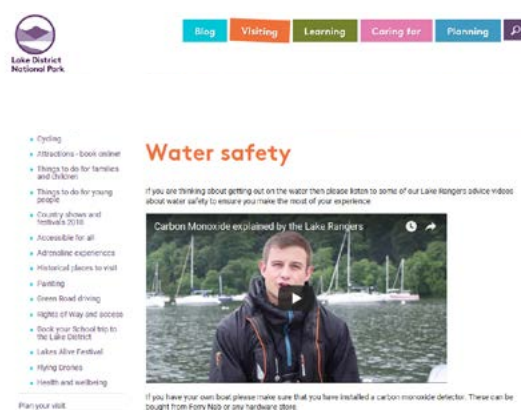
**Providing safety information to the visitor as part of the wider discovery and customer journey is a useful, and often more desirable, method of ensuring visitors are well catered for.**

Safety and the perception of danger can limit activity and affect visitors' subsequent choices. There are a wide range of approaches and channels that can be utilised to promote information, while the subject of risk communication is a specialist area. This section highlights the opportunities to impart messages and offers a number of case studies.

## Opportunities to provide safety information

### Tourism and organisation websites

Can be very effective at reinforcing expected behaviours. Seasonal risks can be communicated in an engaging manner and within organisational on-brand language. Can convey a wider set of messages to the visitor.



### Visitor centres and hubs

Cafés and entrance kiosks provide the opportunity to ensure time-critical information is available. Leaflets explaining locations and emergency information can be combined with wider location advice to good effect.

#### What are locks and weirs?

For many hundreds of years, people have used rivers like the Thames to move around the country. Before proper roads, rivers were often the easiest way to get around.

The river hasn't always looked like it does today. Before locks and weirs were built it meandered along many channels and through marshlands. In summer it would have been too shallow to use. In winter or after heavy rains there were raging floods. The early dug out canoes or trail rafts were no match for these fast flowing streams and people were often thrown into the water.

The river flows very quickly. During higher flows the speed can be 5 miles an hour. Even the strongest swimmer would find this difficult to swim in!

But it was even more dangerous travelling by land, where there were no roads and often the risk of attack. So people stuck to the water and started to try and tame it.

We do not know when the first simple weirs were built – or by whom. We know that millers built weirs to hold back water to power their mill wheels, and that fish traps were built out into the river. But that raised another problem – how to get boats past the dam-like obstructions?

A miller, for example, would not have been happy to open up sections of his weir to allow boats

The river is surprisingly cold. Sometimes as low as 6 degrees Celsius – almost as cold as your fridge!

#### An electro-hydraulic lock on the River Thames

Always remember to stay **SAFE** near the water – Stay Away From the Edge!

The water is very deep in some places. The deepest areas can reach 30ft – higher than a double decker bus.

People then had the idea of putting a section in the weirs that could be removed to allow boats through. These were known as 'flash locks'. They were difficult and dangerous to use although the last of these was not removed from the Thames, at Easton Hastings, until 1937.

The first proper locks appeared in the 1630s. Known originally as pound locks, a lock is a large chamber, built right across the stream, with large gates at either end that hold back the water. It works on the principle that water always finds its own level, so that boats could enter the lock at one level, the gates would shut behind them and then the lock would be filled or emptied of water and the boat would reach the next level on the river.

Today there are 45 locks along the non-tidal Thames, each one manned by a lock keeper. Alongside the locks, the weirs continue to control the water levels, calming raging torrents and, in the summer, raising the water levels to keep boats moving.

Some nasty objects are hidden at the bottom of the river. Bicycles, shopping trolleys or broken glass may have been thrown in by thoughtless people.

The gates rely on water pressure to force them firmly closed. The pivoting edges sit in grooves in the lockwall to make them watertight.

Not all of the locks on the river are the same. Some have wooden beams that have to be pushed open by hand. The others, like the picture, are opened mechanically.

The river is 180 miles long from its source in Gloucestershire to the Thames Barrier in London.

### Social media feeds

The use of platforms such as Facebook and Twitter can offer a quick and inexpensive way to provide information, and can also be used to gather further insights as to the range of activities onsite.

## Campaigns

Targeted campaigns can address peak risk windows and address behaviour or underlying causes in a manner which complements other interventions. These need not be resource intensive or expensive, but do require adequate scale to be reached in order for them to have an effect.

A good example is that used by Canal and River Trust to bring about safer behaviours in a space in London among a diverse range of visitors.

### Campaign: **#sharethespace: A campaign to nudge behaviours**

Regents Canal in central London is one of the busiest sections within the Canal and River Trust (CRT) network, with hundreds of thousands of people in the vicinity every day. Residents and tourists use the site both day and night, while the section is popular with cyclists and commuters, especially near to Paddington Station.

Visitor risks include the potential for impacts between cyclists and walkers, with trips and falls into the water along any section. Locks and bridges are features in which space and sometimes visibility can often be reduced. Towpaths can change from a uniform, modern stone, to a mixture of surfaces and levels. Tall buildings and enclosed spaces can create variable lighting levels at any time.

Cycling within the canal network is considered to be safer than on the road, and as such commuting along the network has grown considerably. This can lead to conflict between user groups and injury to visitors.

A comprehensive risk assessment process led to specific measures such as policies and expected norms being set out on the section, warnings and actions to take at key points, and ensuring hazards

such as the transition between older parts of the network are clear to users.

The campaign used positive language (e.g. share) and a conversational tone. A programme of awareness events at peak times sought to make visitors aware of their responsibilities and adopt safer behaviours through re-purposing imagery in a light-hearted and eye-catching way.



A similar mixed method of face-to-face and physical information was applied in Wales to encourage safe and responsible access among river users.

### Campaign: Providing information for specialist visitor groups

Canoeists will travel across the country to find ideal river water levels. This information is sought from websites and shared between private networks and social media. The decision to launch or not is often the underlying safety decision in a number of drowning events involving kayakers, particularly during the wetter and more variable winter months. A visual inspection and shared knowledge in guidebooks and networks as to the particular dangers on a given stretch is the traditional decision method. This decision is informed by interpreting a particular inspection point(s) for a section of river – typically a bridge or spot easily accessible from a road. Errors in judgement can be made as to the correct level, or how the catchment data relates to ‘real’ levels.

As part of a programme to increase safe and environmentally responsible access to rivers in Wales, a series of river information guides was produced outlining these locations, expectations and safety

points. At the launch or inspection points, a number of indicators were placed to show water levels, which were backed up by data from the catchments manager and verified in partnership by river experts from the national outdoor centres and sport governing bodies. The signs were placed so that they did not disturb the overall vista.<sup>52</sup>

By providing useful information for canoeists, a number of gains were made: a broader number of rivers could be chosen on water level, enabling better informed choice; marginal or dangerous levels could be advised by interpretation online; the canoeist could avoid the pressure of getting on a river at either too high or low a level.

Local shops and cafés hosted the information, helping to secure return trade, spend in the local economy, and capture further visitor information.





Ensuring enough people are aware of a particular community risk may require a hard-hitting approach to be taken.

**Campaign:** **#Dontdrinkanddrown**

This campaign was designed to warn people, particularly students, to act responsibly near water when they have been drinking alcohol, and to make sure they and their friends avoid walking home near bodies of water.

RLSS UK launched a short, powerful and thought-provoking film as part of the campaign. The film sees the effects of alcohol on a young person when in the water. It aims to raise awareness of the dangers of being near water when under the influence of alcohol. It is supported by community advocates, including parents, who convey hard-hitting messages.



Central are partnerships that provide a base set of skills for communities, at scale.

### **Community swimming scheme**

Southern Water is a large water and wastewater utility company based in the south east of England. With the region's 700-mile coastline and many miles of rivers, Southern Water believes it's appropriate to help teach children to stay safe around water.

Research from the Amateur Swimming Association (ASA) shows that 1.1 million children aged 7-11 leave school unable to swim. The 'learn to swim' programme aims to help youngsters in the region avoid falling into this category.

This award-winning programme celebrated its 25th anniversary in 2017. Since 1992, it has helped teach more than 750,000 children to swim so they can enjoy being in the water and stay safe.

Southern Water (with essential help from its key supply partner Clancy Docwra) supports pools and swimming instructors with:

- Equipment for swimming lessons
- Organising Achiever Awards
- Providing instructors' seminars to help expand the knowledge and skills of those guiding children to master this life-saving ability.

Up to 35,000 children a year benefit from using pools involved in the scheme. They are taught by 1,000 fully-qualified, ASA-standard teachers supported by Southern Water volunteer coordinators.

Southern Water's scheme ambassadors past and present include some of the world's top swimmers, including Duncan Goodhew MBE, Mike Goody and Sascha Kindred.







# Glossary

**Cold water shock (CWS)** is the body's short-term, involuntary response to being suddenly immersed in cold water. It is considered to be a principal underlying factor in many drowning deaths.

After sudden immersion, a number of physiological responses happen: closure of the blood vessels in the skin result in increased resistance to blood flow; the heart then has to work harder and as a result blood pressure increases.

At the same time there is a 'gasp' response, along with a dramatic change in the breathing rate, meaning the ability to keep controlled, steady breathing is lost for a while.

The effect of these can lead to a sense of panic, inhalation of water and/or loss of ability to stay afloat or swim, and in some instances a cardiac arrest. Thus, during early (approximately three minutes) immersion there is an increased risk of drowning. The effects of CWS can be somewhat mitigated by using a well-fitting wetsuit, entering the water slowly in a safe and shallow location – allowing the body time to adjust to the temperature – and longer-term habituation through regular exposure to cold water. Incorporating strategies such as the 'float-first' technique may also be a life-saving skill acquired during swimming and water safety lessons.

**Cold water** is defined as being  $\leq 16^{\circ}\text{C}$ , and extremely cold water as being  $\leq 6^{\circ}\text{C}$ .

**Countryside and Rights of Way Act 2000 (CROW).**

**Drowning** is the process of experiencing respiratory impairment from (full body) submersion, or (partial) immersion in liquid. The outcomes are classified as fatal or non-fatal, the latter with morbidity or no morbidity. In many cases the victim suffers a fatal cardiac arrest; often it's unclear if this resulted from the drowning process, or was the prime trigger for the event. Drowning is a hypoxic injury: deprivation of oxygen to the brain is particularly harmful and life-changing for survivors.

**Health and Safety at Work etc Act 1974 (HSWA).**

**Health and Safety Executive (HSE).**

**Impact injuries** are often associated with water-related harm, due to slips, falls and contact with objects in the water. Catastrophic and life-changing impact injuries leading to disability are associated with jumping from height or into shallow, often unclear water.

**National Water Safety Forum (NWSF).**

**Slip, Trip and Fall (STF)** events most commonly precede impact injuries. Typically caused by poor surfacing conditions such as holes or uneven surfaces.

**United Nations Educational, Scientific and Cultural Organization (UNESCO).**

**Visitor Safety in the Countryside Group (VSCG).**

**Water Incident Database (WAID).**

**World Health Organization (WHO).**



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# Appendix

Outline of duties related to the management of water safety.

Act/Regulation	Key aspects
<b>Health and Safety at Work etc Act 1974</b> (HSWA)  <a href="https://www.legislation.gov.uk/ukpga/1974/37">Legislation.gov.uk</a> <a href="https://www.hse.gov.uk/hsaw/">HSE advice pages</a>	<p>HSWA sets out the duties between employers and employees and, via the subordinate management regulations, the requirements to plan for, assess, and manage safety and health risks. Of particular note are:</p> <p>General duties</p> <ul style="list-style-type: none"><li>(2) of employers to employees</li><li>(3) toward non-employees (such as visitors and contractors, detailed in main document text)</li><li>(4) of persons concerned with premises other than their employees</li><li>(7) of employees at work</li><li>(8) not to interfere or misuse things provided [for safety purposes]</li></ul> <p>offences</p> <ul style="list-style-type: none"><li>(33) various offences, including failure to comply with official notice, or to make false record, among others</li><li>(36) offences due to fault of other person [i.e. managers' duties]</li><li>(37) by body corporations [i.e. directors' and senior managers' duties]</li><li>(40) onus of proof [upon duty holder]</li></ul> <p>General</p> <ul style="list-style-type: none"><li>(47) civil liability [no longer automatically applies]</li></ul>
<b>Management of Health and Safety at Work Regulations 1999</b>  <a href="https://www.legislation.gov.uk/ukreg/1999/163">Legislation.gov.uk</a> <a href="https://www.hse.gov.uk/mhswr/">HSE advice page</a>	<p>Subordinate to the HSWA, it sets out a range of requirements. The HSE provides a number of guides depending upon the complexity of business and the role you play, to help you be compliant.</p> <p>Of note within are Regulations:</p> <ul style="list-style-type: none"><li>(3) risk assessment for (a) his employees and (b) persons not in his employment [affected by his work]</li><li>(5) to make arrangements to establish control of safety operations</li><li>(7) to appoint competent staff</li><li>(11) to cooperate and coordinate in shared [occupiers'] settings</li></ul>
<b>Construction (Design) Management Regulations 2015</b>  <a href="https://www.hse.gov.uk/cdm/">HSE advice page</a> <a href="https://www.legislation.gov.uk/ukreg/2015/61">Legislation.gov.uk</a>	<p>The law that applies to the whole construction process on all construction projects, from concept to completion, and what each duty holder must or should do to comply with the law to ensure projects are carried out in a way that secures health and safety. Sets out the requirement for designers to consider significant risks at construction and during lifetime use.</p>

Act/Regulation	Key aspects
<b>Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013</b>	Sets out requirements for reporting injuries for staff and members of the public. The reporting triggers for situations involving the public are not the same as those for employees.
<b>Occupiers' Liability Acts 1957 and 1984</b>  <a href="#">Gov.uk advice page</a> <a href="http://www.legislation.gov.uk">www.legislation.gov.uk</a> <a href="#">HSE advice page</a>	The Occupiers' Acts 1957 and 1984 established duties towards visitors and trespassers on land. This is discussed in detail in the main document.
<b>Countryside and Rights of Way Act 2000</b> (CRoW)  <a href="#">Legislation.gov.uk</a>	Applies to specific mapped areas of open-access countryside in England and Wales. The Act does not convey a right of access to water. The effect of the Act is to ensure that liability risks arising on mapped open-access land are very low. CRoW does not extend this reduction to defective structures or deliberate/reckless acts.
<b>Public Health Act 1936</b>  <a href="#">Legislation.gov.uk</a>	Gives local authorities the power to regulate water users.  Sections 231-234 cover the creation of byelaws to manage bathing including protection of bathers from dangers, placement of life rings, and effective zoning of craft/bathers.
<b>Corporate Manslaughter and Corporate Homicide Act 2007</b>  <a href="#">Legislation.gov.uk</a>	In the event of a death or a 'gross breach' of a relevant duty, a charge under this may be brought. No additional duties created. However additional and considerable penalties are available. Discussed in the main text.



## Act/Regulation

## Key aspects

### **Mines and Quarries Act 1954**

[Legislation.gov.uk](https://www.legislation.gov.uk)

An Act to make fresh provision with respect to the management and control of mines and quarries and for securing the safety, health and welfare of persons employed thereat; to regulate the employment thereat of women and young persons; to require the fencing of abandoned and disused mines and of quarries; and for purposes connected with the matters aforesaid.

In Section 151 Fencing of abandoned and disused mines and of quarries:

(2) For the purposes of [Environmental Protection Act 1990], each of the following shall be deemed to be a statutory nuisance that is to say: (c) a quarry (whether in course of being worked or not) which — (i) is not provided with an efficient and properly maintained barrier so designed and constructed as to prevent any person from accidentally falling into the quarry; and (ii) by reason of its accessibility from a [highway/road] or a place of public resort constitutes a danger to members of the public.

### **Flood and Water Management Act 2010**

[Legislation.gov.uk](https://www.legislation.gov.uk)

An Act to make provision about water, including provision about the management of risks in connection with flooding and coastal erosion.

### **Bathing Water Directive 1976**

[Legislation.gov.uk](https://www.legislation.gov.uk)

The Directive requires EU member states to monitor and assess bathing water for a number of bacteria. It also requires that the public be informed about bathing water quality.

At designated bathing locations, the public should be provided with information about beach management and water quality at 'designated bathing water locations'. The information must be provided during the bathing season, which is May 15 to September 30.

### **Health and Social Care Act 2012**

[Legislation.gov.uk](https://www.legislation.gov.uk)

Local authorities were given a core role for public health in England under the Act. Priorities include protecting the public health, community safety, and promoting active lives and green spaces. The national priorities are provided by the Public Health Outcomes Framework, which includes themes such as injuries to children, falls, and green space. At the time of writing, drowning was not an explicit indicator, but many local authorities will track and address the issue through this framework.



Act/Regulation	Key aspects
<b>Occupiers' Liability Act (Scotland) 1960</b> <a href="https://www.legislation.gov.uk">Legislation.gov.uk</a>	Imposes a duty of care to any visitor for the purpose of which they are visiting. At water sites, the operator may be relieved of liability if a hazard is brought to the visitor's attention.
<b>Public Health (Scotland) Acts 1897 and 1945</b> <a href="https://www.legislation.gov.uk">Legislation.gov.uk</a>	Offer local authorities the power to regulate water users. Local authorities can create by-laws to regulate areas and times of swimming as well as providing public rescue equipment.
<b>Civic Government (Scotland) Act 1967</b> <a href="https://www.legislation.gov.uk">Legislation.gov.uk</a>	Permits a local authority to provide public rescue equipment at places they see fit.
<b>Land Reform (Scotland) Act 2003</b> <a href="https://www.legislation.gov.uk">Legislation.gov.uk</a>	Permits a local authority to make by-laws in relation to land to which access rights are exercisable. The local authority may take steps (such as putting up fences and signs) if appropriate to warn the public of danger. They can provide written notice to a landowner to require that owner to take reasonable action. They may also provide staff and/or equipment for life-saving purposes.



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