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Health and Safety Specialised Topic Guide S8

Working near to water

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Preface

The purpose of this guide is to provide a brief introduction, overview and summary of one of the principal health and safety topics which has implications for many of the operations carried out by BMF members. It identifies some particular aspects which need to be taken into account and provides references and links for further information you may require. However, a brief guide cannot be definitive or comprehensive or include the detailed information you might need. Members need to ensure that their own safety management systems adequately address the risks in their own business and are consistent with legal requirements.

These Specialised Topic Guides assume that the reader is familiar with the general principles of managing health and safety as discussed in BMF's 'Guide to Members' and with the associated sector guidance.

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1 Introduction

Working on or near to water brings with it hazards additional to those encountered from the work activity itself and may require additional risk control measures to be implemented.

Within the marine industry there are many combinations of circumstances and activities involving working near water. This specialised guide is intended to provide consistent guidance which can be used across this large range of situations.

There are no specific regulations covering this area of activity in the marine industry however the risk assessment¹ and PPE regulations² are relevant, and for those risks from exposure to chemical and biological substances, the COSHH regulations will apply³.

This guide does not address the provision of permanently installed life-saving, rescue equipment, or fixed water's edge fall protection. For guidance on these items refer to the BMF Sector Guide for Marinas.

2 Nature of the Hazards

The principal risks of concern here are those of drowning, and chemical or biological contamination. These can arise from a wide range of work activities, including:

- boat trials or demonstrations
- boat maintenance
- carrying out repairs to marina pontoons or other waterside structures
- other work activities at or near the water's edge

Chemicals found in the water are unlikely to present a significant risk to staff unless they are concentrated in the form of a surface film or scum, or as a sediment. Some of these may result from natural flora and fauna such as blue-green algae, while others result from human activity such as pesticides and sewage effluent. The factors likely to influence the reaction of an individual include:

- toxicity
- quantity and concentration
- duration of exposure
- route and speed of entry to the body
- susceptibility of the individual (e.g. immune deficiencies or pregnancy)

Hazardous biological agents are commonly found in the form of viruses, bacteria, fungi, protozoa or parasites. The sources can include rats, wildlife, foliage, surface water run-off, and discharge pipes. Examples of the possible effects include:

- **Leptospirosis.** A flu-like illness with persistent and severe headaches transmitted mainly by rat urine. Damage to the liver, kidneys and blood may occur and the condition can be fatal.
- **Hepatitis.** This can cause inflammation of the liver and jaundice
- **Gastro-enteritis.** Characterised by cramping pains, diarrhoea, and vomiting

¹ Management of Health and Safety at Work regulations, Refer to BMF "Guide to Members"

² BMF Specialised Topic Guide S5. Personal Protective Equipment.

³ BMF Specialised Topic Guide S3. Substances Hazardous to Health.

- **Salmonellosis.** Caused by salmonella bacteria resulting in gastric problems

3 Duties and Responsibilities

The employer has the responsibility for assessing the risks to employees who are exposed to these water-related hazards, and taking appropriate action to manage the risks. For drowning hazards the approach will follow the well established route described in the BMF 'Guide to Members'. The options for controlling the risks are discussed further in sections 5 and 6 below.

For chemical and biological hazards the approach follows that set down in the 'Principles of Good Practice' for the control of substances hazardous to health (COSHH)³:

- a) Design and operate processes and activities to minimise emission, release and spread of substances hazardous to health*
- b) Take into account all relevant routes of exposure – inhalation, skin absorption and ingestion – when developing control measures*
- c) Control exposure by measures that are proportionate to the health risk*
- d) Choose the most effective and reliable control options which minimise the escape and spread of substances hazardous to health*
- e) Where adequate control of exposure cannot be achieved by other means, provide in combination with other control measures, suitable personal protective equipment*
- f) Check and regularly review all elements of control measures for their continuing effectiveness*
- g) Inform and train all employees on the hazards and risk from the substances with which they work and the use of the control measures developed to minimise the risks*
- h) Ensure that the introduction of the control measures does not increase the overall risk to health and safety*

4 Risk Assessments

When carrying out an assessment, account must be taken of the following factors:

- size and depth of the water-space
- water temperature
- water quality (the untreated nature of the water may contain micro-organisms)
- sediment quality (this may have the effect of concentrating hazardous agents)
- currents and tidal effects
- whether work is being done by a team or alone
- plant and equipment being used
- time of day and weather conditions
- availability of means of escape from the water, (e.g. ladders or grab chains)
- availability of help in an emergency

5 Risk Control

The basic hierarchy of control must be applied which includes preventing staff from tripping, falling, or being swept into the water; and should they do so, ensuring their survival and rescue in the shortest possible time without putting other people, including the rescuers, at risk. See section 6.

Similarly, the risks of contracting water-borne infections are low but can nevertheless be minimised by good management control and hygiene practices. See section 7.

6 Control of Drowning Risks

People with good swimming ability often grossly over-estimate their ability to swim out of trouble when they are fully clothed and/or immersed in cold and/or fast flowing water. For these reasons it is recommended that no benefit in terms of risk controls be assumed from an ability to swim.

Measures which can be taken to minimise the risk of staff falling-in include:

- ensuring that working platforms are properly constructed, stable and secure with sufficient hand-holds, whether fixed or floating
- gang-ways must be secure so they cannot become displaced or dislodged in conditions of swell or high winds, and have adequate handrails
- minimise tripping hazards especially near the water's edge
- slippery surfaces should be treated where practicable
- be informed about the predicted weather conditions
- ensure that boats are secured when embarking or disembarking passengers
- ensure that plant fitted with cabs have in addition to the cab door an alternative means of escape such as a second door/escape hatch or a means of breaking the window
- availability of life-rings, life-buoys and other buoyancy/rescue aids and of people to deploy them

6.1 Lifejackets⁴

The risk assessment process should be used to identify those situations where it is judged necessary to wear lifejackets. For the purposes of clarity in implementing the results of the assessments it is strongly recommended that members produce some house rules which set down their expectations clearly and unambiguously. Examples of members' 'house rules' for requiring lifejackets to be worn are included in the appendix. These are designed to suit their own circumstances and are not exhaustive.

It should be remembered that in the workplace, staff may spend large periods of time in situations where they may end up in the water. This increases the risk to them compared with, say, a casual visitor who is exposed to the hazard of falling for a much shorter time.

Where lifejackets are required a buoyancy of 150N should be considered a minimum standard. Higher buoyancy jackets may be required if a person is carrying heavy equipment or other items such as PPE, or where the conditions experienced are likely to be more severe.

Where staff are issued with lifejackets, employers must ensure they are familiar with how to wear them correctly, use them, and carry out basic condition checks. The employer has the responsibility for ensuring that recommended maintenance is carried out.

⁴ Inflated by CO₂ cartridge either self-inflating on immersion, or manually initiated. In some work situations aids which provide fixed buoyancy ('buoyancy aids') may be appropriate as determined by risk assessment.

6.2 Other Life-saving Equipment.

Where fixed equipment such as lifebuoys or throw-lines is available and someone is likely to be in the vicinity to deploy it, this should be factored into the risk assessment. Consideration should also be given to whether additional life saving equipment is needed for the planned work.

7 Control of Chemical and Biological Risks.

The incidence of people in the marine industry suffering from work related water-borne chemical and biological effects is low. Good management control and occupational hygiene practices can keep these risks to a minimum. These include:

- investigation of known or potential sources of pollution
- minimising generation of sprays and mists from canal or river water
- minimising the disturbance of silt
- use of PPE for eye and respiratory protection when sprays are generated, or gloves when handling contaminated materials or when cuts or scratches are likely
- frequent washing of work clothes
- use of barrier creams
- ensuring personal hygiene before handling food or smoking
- ensuring cuts or abrasions are covered before undertaking work, and thoroughly cleaning any cuts or abrasions which do occur as soon as possible and covering with a waterproof dressing

7.1 Leptospirosis will initially have symptoms very similar to flu and is treatable if caught early enough but potentially fatal if not. Anyone who is potentially at risk of contracting the disease as part of their occupation should advise their GP to assist in early diagnosis. A leaflet is available which gives more information on the illness and can also be used to alert and inform the GP⁵.

7.2 Blue Green Algae. This can be found in fresh or sea-water. It can resemble fine grass cuttings or irregular clumps, and “blooms” in high concentrations. It may grow on the bottom of water courses and form large gelatinous ‘mats’, very dark in colour and resembling sewage. A factor in its occurrence is nitrogen enrichment resulting from the presence of nutrients from such as farm run-off or outfalls from sewage works.

The principal controls are to avoid contact or ingestion. The leaflet “Blue Green Algae” published by the Environment Agency gives further information on recognizing the algae, its effects and how to deal with it⁶.

8 Emergencies

In workplaces where there is a risk of somebody falling into the water, employers must ensure that their staff are aware of how to respond to what may quickly become an emergency.

⁵ Leptospirosis. HSE leaflet INDG84.

⁶ See section 9, Further Information sources.

This awareness will include:

- Familiarity with the water spaces and their characteristics
- how to raise the alarm and respond (including man-overboard drills)
- the location of any life-saving devices such as throw-lines or buoys, and how to use them correctly
- the importance of avoiding entering the water (evidence shows that rescues from waters' edges are the most effective way of carrying out a rescue)

9 Further Information Sources

Environment Agency booklet on blue-green algae
[http://www.werrington.org.uk/Blue Green algae.pdf](http://www.werrington.org.uk/Blue_Green_algae.pdf)

'Leptospirosis' Leaflet published by HSE ref INDG84. Free download from HSE website.

Appendix: Working near to water: Marine industry good practice.

The BMF Technical Department is committed to sharing experience amongst members in the interests of encouraging adoption across the industry of good standards of safety management and business-efficient solutions to safety issues. We intend to keep these documents up-to-date in the light of members' experiences and developments in 'best practice' and legislation.

The following are examples of practices followed by some members. These have been developed to suit their own circumstances and situations and can be considered as representing 'good practice'. Before implementing these in other organisations careful consideration based on a risk assessment must be given to their suitability in a different working environment.

Oyster Group

The following has been extracted from Oyster and Fox's Marina health and safety rules which are issued to all employees and contractors. Their sailboats are large and well equipped, operating from a sheltered marina on a tidal river.

As a working boatyard there are a number of specific hazards, which we need to point out and explain the precautions taken to ensure your safety. You should also be aware of your duty to look after your own safety, and that of others who may be affected by your actions, including members of the public.

NB. - These General Rules apply to all Oyster employees and also Fox's and other contractors working on site. Additional Rules and Procedures may apply to those involved in particular activities where Risk Assessments have been carried out and Safe Systems of Work drawn up and issued. These Rules may be subject to revision from time to time.

- *Working in the Marina. Since the floating pontoons are surrounded by water, there is an inevitable risk if you should fall in. Therefore, you must take great care at all times. Running on the pontoons is not permitted and suitable footwear must be worn. No bare feet. There are a number of lifebuoys positioned around the marina and each pontoon is equipped with a ladder, to enable anyone in the water to climb out. You should make yourself familiar with the location of these emergency stations. If the pontoons are used for access only, lifejackets should not be necessary, except in icy or very wet conditions, in high winds or during the hours of darkness. If carrying out work on the pontoons themselves or other marina equipment, lifejackets must be worn.*
- *The Lift Dock. There is a risk of falling into the water from a significant height, which could result in injury or death. Unless specifically authorised, you should not approach within 5 metres of the threshold. Anyone aboard whilst the boat is in the hoist must stay below, or in the cockpit, whilst it is in motion.*
- *Working on a yacht in the marina. Appropriate footwear with high grip soles must be worn on deck. If working involves any part of the body being outside the lifelines, if working alone on deck, in darkness or in inclement conditions, lifejackets must be worn. Special care is required when there is a risk that invisible "black" ice has formed on the deck. Whilst normally shoes should be removed when going below on a yacht, certain circumstances may necessitate the wearing of protective footwear.*
- *Small Craft. If going afloat in the marina in any workboat, RIB, tender or other small craft, or a yacht without fixed lifelines, lifejackets must be worn at all times.*
- *Going Afloat. If the task involves going to sea (outside the marina) on a yacht, lifejackets and harnesses must be worn in the following circumstances: - between the hours of sunset and sunrise, when alone on deck, when reefed, when the true wind speed is*

above 25 knots or above, when the visibility is less than 1 nautical mile, or when so instructed by the skipper. NB Horseshoe life-rings must be fitted to all yachts under our control.

- Non-swimmers should wear a lifejacket when afloat, except when below decks.
- In any other circumstances where there is an increased risk of falling into the water, lifejackets must be worn. (e.g. when loading aboard a large piece of equipment)
- **If there are any other occasions when you would feel safer in a lifejacket, or if you are instructed to do so, you should do so without hesitation. A lifejacket can be loaned to you from Fox's Reception, Oyster or the Commissioning Office.**
- **NB Lifejackets must be correctly fitted and done up.**

NB – Whilst every member of staff is responsible for his own safety and of those around him, ultimate responsibility for all Health and Safety matters in the marina, yard or workshops rests with the Managing Director of Fox's, as well as with the Directors of the Oyster Group.

British Waterways

The following instructions are issued by BW to its staff in respect of wearing lifejackets throughout the BW network of canals, rivers and reservoirs:

'NB Wearing of lifejackets is mandatory in the following situations unless specific risk assessments indicate otherwise.

Examples of where life jackets are mandatory include: -

- *All work activities conducted on or from a boat, including steering (risk assessment of enclosed wheel houses may indicate that a lifejacket is inappropriate)*
- *Working on or next to water during flood conditions*
- *Working next to deep or fast flowing water*
- *Lock keeping where work is carried out at the water's edge (lock operation from within a control cabin would not require a lifejacket but it must be available for immediate use)*
- *Using ride-on equipment without a cab or without roll over protection (ROPS) and seat belts e.g. mowers, dumper trucks, quad bikes etc within 2 metres of the water's edge.*
- *Working at night near water'*

Sunseeker

The following is Sunseeker's current Safe Operating Procedure for Working on or around Deep Water:

WORKING ON OR AROUND DEEP WATER

1. *Life jackets must be worn by all persons whilst working around the dock edge, on the pontoons and on the exterior of boats where there is insufficient edge protection.*
2. *Personnel must wear life jackets when mooring up boats, or when using small boats as ferries or work floats.*

3. *Appointed person to check and maintain all recovery equipment i.e. life jackets/lifebuoys, static ladders and emergency mobile ladders, etc. and enter on record sheet.*
4. *Fire extinguishers and circuit breakers on dock and pontoons to be visually checked weekly and entered on record sheet.*
5. *Training in emergency procedures to be given to persons working near or on deep water.*
6. *Persons must not work alone unless a safe system or regular and frequent checks are in place by others nearby who can render assistance if necessary.*
7. *Keep pontoon clear of tripping hazards and materials blocking access and egress. Maintain walkways/pontoons, especially in winter, to avoid accidents on slippery surfaces. Pontoons and quays to be adequately lit for night working.*
8. *Suitable safe boat access steps and gangways to be inspected and maintained regularly.*
9. *Open hatches on boats to be protected by barriers and signs where practicable.*
10. *Barrier-off and sign exposed dock edges where practicable. Prevent non-authorised personnel from entering excluded unsafe areas. Display warning notices of hazard.*

Members with specific queries or suggestions for sharing best practices should contact the Technical Department on 01784 473377, or email technical@britishmarine.co.uk