

Water Safety

Actsafes Safety Bulletin #17

This bulletin provides guidelines to help keep performers and crew safe while working in or around water, including ponds, rivers, lakes, swamps, bogs, oceans, pools, tanks, and other bodies of water.

For additional water-related safety information, see the following safety bulletins: [#15 Watercraft Safety](#), [#7 Scuba Diving Recommendations and Requirements](#), and [#7A Principal Performers Using Underwater Diving Equipment](#).

HAZARDS

Motion picture production in or around water presents a unique set of potential hazards that may include the following:

- Drowning and unplanned immersion
- Hypothermia and hyperthermia
- Biological & chemical exposure
- Electrical contact
- Slips, trips, and falls
- Other physical hazards
- Inclement weather
- Working on ice

PRE-PRODUCTION RESPONSIBILITIES

Before filming, the production should do the following:

- Determine whether a marine coordinator and/or a stunt coordinator are required
- Identify all known hazards and determine what precautions or controls are needed
- Evaluate upstream activities (i.e. dams, waste-disposal sites, agriculture, tailing pools, flash-flood risks, etc.)
- Complete water quality testing or establish if water quality testing is required and engage a laboratory or environmental consulting company for guidance, testing timelines and protocols
- When working on, in or over water written rescue procedures must be developed
- Ensure prep and wrap crew are considered when developing safety precautions

Performers and crew should be notified in advance when working in or around water. Anyone who is uncomfortable around water should notify their supervisor in advance. All performers and crew maintain the right to refuse unsafe work if there is reasonable cause to believe it would create an undue risk to their health and safety.

SAFETY MEETINGS

Before work begins on location, conduct safety meetings that cover the following:

- Discuss the safety aspects of the day's activities and any potential hazards of the location.
- Discuss elements of any written rescue procedures, such as the crew assigned to coordinate the rescue procedures, means of rescue, equipment used, etc.
- Discuss safety precautions to be followed around any specialized equipment that may present potential hazards.



Water Safety

Actsafes Safety Bulletin #17

DROWNING & IMMERSION

The risk of drowning is heightened by factors such as inability to swim, inadequate rescue procedures, cold-water temperatures, strong currents, unplanned immersion, the use of heavy or restrictive clothing, costumes, or equipment. Consider the following hazards when working in or around water:

- Natural water hazards (e.g., currents, tides, waves, rip currents, sudden drop offs, etc.)
- Entanglement by underwater objects (e.g., deadheads, intakes, fishing nets, etc.)
- Entrapment by natural features, equipment, or structures (e.g., muddy waterbed, quicksand near shorelines, docks, etc.)
- Low visibility, poor lighting conditions (e.g., nighttime, fog, murky water etc.)
- Difficult water access and egress

Post-immersion syndrome, often referred to as “dry drowning” can occur after inhaling even small amounts of water causing respiratory impairment. Symptoms of dry drowning, which can occur up to 24 hours after a water incident, may include difficulty breathing, persistent cough, chest pain, fatigue, pale or blue lips and behavioral changes. If symptoms occur, emergency medical attention should be sought immediately.

Safety Measures, Personal Floatation Devices (PFDs), & Life Jackets

Productions should provide PFDs and/or implement other safety measures when the risk of drowning is present. When PFDs are used, they must meet the applicable standards. Note that life jackets are required if working alone near water.

To minimize the risk of drowning, consider implementing controls, including but not limited to the following:

- Ensure workers entering water are competent at swimming, aware of hazards, and are informed about rescue procedures.
- Create control zones 2 metres (6.5 feet) from the leading edge of water hazards to prevent workers from unplanned immersion.
- Ensure performers and crew wear PFDs or life jackets, unless other adequate safety measures are in place that protect workers from the risk of drowning.

HYPOTHERMIA & HYPERTHERMIA

Production should take steps to prevent hypothermia (reduced body temperature) and hyperthermia (elevated body temperature) which can result in medical emergencies. Performers and crew should be monitored for signs and symptoms of hypothermia or hyperthermia, and medical attention should be sought for anyone exhibiting or experiencing them. Water temperatures should be monitored when performers and crew are expected to be immersed in the water.

Hypothermia

Hypothermia (reduced body temperature) can

occur rapidly in Canadian waters, even during warmer months. Symptoms of hypothermia include:

- Shivering (Note: This stops once the hypothermia is moderate to severe)
- Clumsiness or lack of coordination
- Drowsiness or very low energy
- Slurred speech or mumbling
- Confusion or memory loss
- Slow, shallow breathing
- Weak pulse
- Loss of consciousness



Water Safety

Actsafes Safety Bulletin #17

Consider the following for performers and crew to mitigate the risks of hypothermia:

- Wear properly fitted wetsuits or dry suits.
- Take periodic breaks to regulate body temperature.
- Provide workers with heated showers, dry towels, and warming areas (e.g., vehicles) for when they come out of cold water.

Be aware that rapid increase and decreases in body temperature may pose additional risks (e.g. going between hot tubs and cold water)

Hyperthermia

Hyperthermia (elevated body temperature) is a more likely a risk when performers and crew are working in wet suits in tank environments. Symptoms of hyperthermia:

- High body temperature
- Altered mental state or behaviour
- Profuse sweating
- Rapid, shallow breathing
- Nausea, vomiting, and headache
- Flushed skin
- Elevated heart rate

Consider the following for performers and crew to mitigate the risk of hyperthermia:

- Reduce physical activity / schedule frequent breaks
- Stay hydrated
- Use cool compresses, ice packs, or cool-water immersion
- Avoid medications such as aspirin and acetaminophen

BIOLOGICAL & CHEMICAL EXPOSURE

Before workers enter a body of water, a determination should be made that the water quality meets the Guidelines for Canadian Recreational Water Quality or appropriate controls are determined to mitigate exposures. Some pathogens (e.g. E coli) live naturally in the water and can become a problem if they are present in high enough numbers. Pathogens can cause infections if contaminated water is swallowed or it gets in the eyes, ears, nose, open cuts, wounds or other openings. To make this determination, do one or more of the following:

- Check local water advisories
- Sample the water directly by engaging a laboratory or environmental consulting company

Workers may be exposed to chemical contaminants in the water related to adjacent industrial or agricultural activities, and these hazards must be assessed during preproduction. Workers should be advised to keep all potential contaminants away from the water, including paints, thinners, gasoline, and oils. Disturbing still water may release naturally occurring hazardous gases like H₂S, which can lead to serious or fatal injuries in enclosed areas.

Production must make water sampling results and acceptable water quality criteria available to performers and crew upon request. Refer to the **Water Testing Fact Sheet** for more information about water quality testing.

ELECTRICAL CONTACT

Take extra care whenever electricity is used in or around water to avoid the risk of shock. All electrical connections should be made by, or under the supervision of, a qualified person. (See Safety

Bulletin [#23 Working with Lighting systems and Other Electrical Equipment](#)).

Special care must be used whenever alternating current (AC), or direct current (DC) supplied



Water Safety

Actsafes Safety Bulletin #17

equipment is used in or around water. Consider the use of electrical equipment that operates at less than 50 volts, such as battery-powered, or remote power-supplied LED lighting fixtures. All electrical cables and lights in close proximity to water should be properly secured to prevent tipping and falling. All wiring and all electrical equipment and devices that will or may be submerged should be approved for underwater use.

Ground Fault Circuit Interrupters (GFCI)

When any electrically powered equipment is used and wet or damp conditions exist, the use of a GFCI should be determined by a qualified person. GFCIs should not be used on circuits where removal of power may create a greater hazard, such as airbags, decelerators, emergency egress lighting, etc.

SLIPS, TRIPS, & FALLS

Ensure the performers and crew are instructed on the appropriate footwear for the working environment (i.e. slip resistant footwear, etc.).

Assess the access/egress for work locations to determine the safest path and inform the performers and crew.

OTHER PHYSICAL HAZARDS

Various natural and man-made hazards may be present at the work location. Following are other physical hazards to consider:

- Boating traffic
- Pinch point between docks and other objects

- Hazardous Marine life (i.e. Lion's Mane Jelly Fish, Leeches, Sea Urchins etc.)
- Debris, deadheads, trees, or logs

INCLEMENT WEATHER

Flash floods, atmospheric rivers, and other inclement weather conditions may result in an increase in the strength of currents and/or raising water levels. Other weather conditions such as

lightning pose additional risks. Regularly monitor local weather advisories for special weather advisories and warnings.

WORKING ON OR AROUND ICE

Before working on frozen surfaces, the ice must be tested by a qualified person before any workers or equipment are allowed onto the surface. Loads that may safely travel on ice may not necessarily be

left on ice for extended periods of time. The load-bearing capacity of ice can be affected by natural variation in thickness and composition over a given area.

EMERGENCY RESPONSE PROCEDURES

Written rescue procedures are required for work in, on or over water and a qualified person must be

assigned to coordinate their implementation. The production must ensure the appropriate equipment



Water Safety

Acts safe Safety Bulletin #17

and number of crew required to implement the rescue procedures are available. A qualified first aid attendant must be available when workers enter a body of water. The production should consider engaging emergency medical services in case urgent transportation to the nearest hospital is needed.

When working in fast-moving bodies of water, plan for emergency rescues (e.g., swift water rescue). Specialized rescue personnel and equipment must be available on site and positioned strategically (e.g., off camera, downstream, etc.).

REGULATORY REFERENCES

- [Section 4.32 \(Access to work areas\)](#)
- [Section 4.39 \(Slipping and tripping hazards\)](#)
- [Section 8.26 – 8.30 \(Buoyancy Equipment\)](#)
- CGSB Standard CAN/CGSB-65.7-M88, Lifejackets, Inherently Buoyant Type with a minimum buoyancy of 93 N (21 lbs)
- CGSB Standard CAN/CGSB-65.11-M88, Personal Flotation Devices with a minimum buoyancy of 69 N (15.5 lbs)
- CGSB Standard 65-GP-14M, Lifejackets, Inherently Buoyant, Standard Type with a minimum buoyancy of 125 N (28 lbs)
- British Safety Standard BS EN 396-1994, Lifejackets and Personal Buoyancy Aids - Lifejacket 150 N, automatically inflatable units with a minimum buoyancy of 150 N (34 lbs).
- [Sections 24.2–24.6 \(Wharves, Docks and Mooring Floats\)](#)
- [Section 4.13 \(3\) \(e\) Emergency preparedness and response](#)

RELATED RESOURCES

- [Safety Bulletin #7 Scuba Diving Recommendations and Requirements](#)
- [Safety Bulletin #7a Principle Performers using Diving Equipment](#)
- [Safety bulletin #15 Watercraft Safety](#)
- [Safety Bulletin #23 Working with Lighting Systems and Other Electrical Equipment](#)
- Water Testing Fact Sheet
- [Guidelines for Canadian Recreational Water Quality](#)

Acts safe Safety Association

Acts safe is a not-for-profit health and safety association supporting British Columbia's arts and entertainment industries. Acts safe provides resources and training to employers, workers, and supervisors. We are always here to provide information relevant to best practices around health and safety in the arts and entertainment industries in B.C.

Disclaimer: The information contained in Acts safe's products (including, but not limited to, our training materials and courses) is for educational purposes only and is not intended to provide legal or other advice to you. Acts safe's products are not a substitute for obtaining appropriate legal or other advice from legal or other professionals. Acts safe's products have been developed based on information available as of the date of preparation. Acts safe does not make any warranty or representation as to the accuracy or completeness of information contained in its products or the suitability of such information for any purpose. Neither Acts safe Safety Association nor any person or entity involved in the production of Acts safe's products shall be liable for any loss, injury, claim, liability or damages of any kind resulting from the use or reliance on the product for any purpose.

Website: www.actsafe.ca | Email: info@actsafe.ca

