

Advanced White Water Safety & Rescue Training

Course Trainers Notes

Course philosophy

The Advanced White Water Safety and Rescue (AdWWSR) Training course is designed for all paddlers operating with kayaks in an advanced white water environment. In addition, the training is required for those seeking their British Canoeing 5 Star Leader (white water) Award.

The course will, in the main, be delivered as part of a journey on grade 3-4 white water. The equipment and resources used will therefore be limited to those normally available to a paddler journeying in this environment.

The objective is to provide the underpinning knowledge and teach safe practical skills that can be applied appropriately. By its nature the course is very 'hands on' and should not usually contain much classroom work. Any theory should be short riverside sessions, the duration of which will be naturally limited.

Course aims

- To develop the principles and techniques taught at WWSR and consider their application in an advanced environment
- To introduce the concept of the "Team approach" in order to provide structure in an emergency situation
- To move on from a "set piece" approach to safety and rescue to one where "core skills" are combined creatively to provide safety and rescue

Staffing requirement

For details of staffing requirements and ratios, please refer to the latest version of the British Canoeing Staffing Requirements and Ratios document, available from the British Canoeing or Home Nation websites. British Canoeing AdWWSR Training may only be conducted by those qualified and registered to do so. For details of registering as a British Canoeing AdWWSR Provider, refer to the British Canoeing document 'Becoming an AdWWSR Provider'

Course content

By the end of this course students will have covered;

- Recap core principles from WWSR and consider their application on grade 3-4 white water
- Safe paddling techniques including protecting rapids
- Managing people and equipment on difficult ground
- Team structure in emergency situations

- The following core skills and their application in a range of settings:
 - Knots and anchors
 - Generating and controlling loads on rope
 - Placing a rescuer in the current

Prerequisites

Due to the paddling environment and the boat control required the candidate should be:

- Confident in their ability to paddle on grade 3-4 white water
- Be confident swimming in normal paddling clothing suitable for a moving water environment
- Have attended a British Canoeing WWSR course (ideally in the previous 3 years)
- Be a minimum of 16 years of age
- A first aid certificate is not a pre-requisite; however the holding of a first aid certificate is strongly recommended for all paddlers.

Equipment

Techniques and concepts taught throughout the British Canoeing Advanced White water Safety and Rescue course call for the minimum of technical equipment.

The following equipment should be available for students to use on the training course:

- A range of modern throwlines; with floating high visibility rope minimum 8mm diameter
- River Knife – sharp, safely stowed but easily accessible single-handed
- Karabiners – Locking HMS pear shaped anodised alloy karabiners
- Un-knotted 3-5m lengths of climbers tape webbing
- Buoyancy aid with quick release chest harness
- Whistle
- A range of modern pulleys (one of which should be a design that is prussic minded)
- Prussic

Venue and duration

The philosophy of the course is to provide realistic training on 'natural sites' of grade 3-4 white water. In line with this philosophy both days of the course must be delivered on rivers with a natural riverbed, ideally at least one day of the course should be delivered as part of a journey. In addition, the environment should allow for students to experience inspection, portage, and operating on steep/difficult banks. The training will take place over two days and include a minimum of 10 hours teaching time.

Risk assessment and disclosure

By its very nature, training in white water safety and rescue will involve students undertaking activities that they normally try to avoid in their normal paddling e.g. swimming in white water. It is

essential that white water safety and rescue trainers are aware of the inherent risks involved and take steps to minimise any risks that students are exposed to.

Two key steps to this are site selection and risk assessment. Both of these need to be considered both in the planning stage but also dynamically during course delivery.

Selection of a suitable training site is essential. Issues such as water quality, depth of water for swimming, reliability of water levels, water hazards, and steep/difficult ground all need to be considered. Once a site is identified it must be risk assessed. Whilst it may not be legal requirement to write down this risk assessment (depending upon size of training organisation) it is certainly good practice to record this risk assessment and to review it periodically.

When actually delivering courses, trainers need to undertake a continual dynamic risk assessment to ensure that the sites being used for particular sessions are suitable and do not present unacceptable levels of risk. If a site is well known and regularly used this may be achieved by visual inspection but it might also need such measures as the instructor checking the site via pre-swimming the section or shallow water inspection.

It must be remembered that even with good site selection and risk assessment there will always be inherent risk to this type of training. Use of qualified and experienced trainers, delivering agreed syllabus content to well briefed and equipped students within clearly defined training areas and group sizes are all key control measures to ensure any residual risk is kept to an acceptable level.

Core principles from WWSR continue to apply:

- C.L.A.P.
- Clean rope and equipment principles
- Equipment principles
- Prioritisation principles

Course Content

The following programme outline is designed to highlight specific sessions that need to be incorporated in the British Canoeing AdWWSR course. The delivery, timing, and order of each session will differ to suit clients and conditions. It is important that the chosen progressions are logical and safe.

Core skills sessions

The sequencing of delivering the “core skills” will need to be considered carefully as some of the other sessions rely heavily on the information given in these sessions. For example, it would be difficult to deliver the session on difficult ground without participants first having knowledge of holding/generating loads or anchors.

Knots

Participants should be familiar with following knots. This could be covered in advance of the course through reference to books, websites, or handouts, or as a taught session.

- Prusik (3 wraps) and Klemheist with sling
- Overhand (two ends, on the bite, re-threaded, and tape knot)
- Figure of 8 (on the bite and re-threaded)
- Italian Hitch
- Double Fisherman's
- No knot (AKA Full strength tie off or Tugman's hitch)
- Wrap 3 tie 2

Anchors

Participants should become familiar with the following single point anchors:

- Tree - Attach anchor rope to tree, recommended method is using a sling wrapped three times around tree and tie off ends with overhand, then attach karabiner to the two loops without the overhand knot. Attach line with clove hitch. If the tree is too large to permit this, a sling once around the tree tied off with a tape knot should be used.
- Undercut boulder - Test the security of the boulder. Make length of tape into sling by using tape knot or overhand knot, pass sling over boulder, and test for security by pulling either side of sling so as it runs forward and back on the boulder, if it slips off the boulder is not suitable to use as an anchor. Attach karabiner and attach line with clove hitch.
- Spike - Attach the same way and use same test for security. Attach karabiner and attach line with clove hitch.
- Thread - Pass tape or tape made into sling through a closed off gap between two immovable rocks, secure with karabiner and attach line with clove hitch.

Controlling a load on a rope

Participants should become familiar with the following methods of controlling a load on a rope:

- Indirect (Hand) – One hand held in front of the other with fingers and thumbs pointing up, rope laid across gap between thumb and forefinger, grip the rope and twist hands forward forming a 'Z' shape in rope. A slightly increased load can be held by two rescuers using the same method to hold the rope at the same time.
- Indirect (Waist) – In a secure seated position pass the rope around the body. Hold the rope in the control hand (the side not loaded) and use the friction off the rope running round the body to absorb load. For extra security take one turn of rope around wrist on the control hand.
- Turn around an Anchor (trees, rock / spike) held by hand or waist – Take the rope and pass it around a tree/spike/rock. Use a hand or waist hold as described above. The friction of the rope running around the tree will allow you to hold greater loads.
- Direct (Italian hitch) – Attach a single point anchor as described above. Attach a pear shaped karabiner and tie an Italian hitch in the line.

Generating pull on a rope

Participants should be familiar a range of methods to generate pull on a rope;

1. Attach line
2. Attempt to pull by hand
3. If this is not successful add more people to pull (if available)

If that is unsuccessful use one of the following methods to generate extra pull (create mechanical advantage):

3:1 system

- Secure bank end of line to suitable anchor and hand tension rope, vector pull at 90 degrees to rope from as near the middle of rope as possible (this can then be sweated if it is effective)
- Set up a simple 3:1 mechanical advantage system. Leave the system as above and attach a prussic and karabiner on the load rope as close to the load as possible. Run the rope through this karabiner and pull the rope in the direction of the original load
- When the prussic and karabiner reach the anchor, slide the prussic back down the rope to re-set and start again
- If you require to hold the load while re-setting attach a prussic to the anchor and tie around the load rope. This will hold the load while re-setting.
- In order to reduce friction add pulleys at the anchor and the return karabiner. The prussic at the anchor karabiner may foul the pulley when pulling in on the system. In order to prevent this, the prussic must either be supervised or a pulley with a narrow gate (prussic-minded pulley) should be used

4:1 system

- Attach loop of rope attached to load via karabiner
- Rope taken to fixed point and looped through karabiner and back to karabiner on bag end of line
- End of rope pulled in direction of original load to tension system
- To reduce friction a pulley can be added at the load and at the bag end of the line, but should not be added at the anchor karabiner
- When the bag reaches the anchor simply release the tension and rotate the system to re-set

If there is insufficient rope to link the load to the anchor using either of the above systems then they can be extended by the use of an additional line. The 4:1 system cannot be modified to hold the load while resetting the system without adding another parallel system.

Safe paddling

Building on WWSR safe paddling session:

- Participants will be familiar with basic river running strategies from their WWSR course. The principles of C-L-A-P should be re-enforced and participants should develop an understanding of how the following repertoire of group river running approaches adapt and merge in moderate and advanced settings:
 - Group run all together in their own time and their own route.
 - Group paddling together following a nominated leader.
 - Run in smaller groups (2 or 3) other group members not protecting rapid
 - Eddy hopping or leap frog approach
 - Run as individual or pair with other group members setting up pre-arranged protection
 - Portage
- This session should be run on a section of moderate/advanced water of suitable duration to allow participants to experience the flow between the various strategies. A significant proportion of the time will be spent practicing eddy hopping or leap frog approach. Participants should practice using these approaches with consideration to what other group members are doing at any given time, appreciating the tension between restricting the number of moving paddlers at a given time and the need to progress down the river. Participants should have a clear understanding that this type of team paddling relies on principles and not rules and in moderate/advanced water relies on flexibility, judgement, and all team members being aware of what is going on with the rest of the team.
- Discuss and demonstrate strategies for inspecting rapids, both from the bank and from boats.
- Introduce a range of bank-based strategies for protecting rapids introducing the idea of getting away from a “set piece” approach to one of using the core skills (anchors, knots, holding/generating loads) to be creative in providing rescue following an incident. This should include:
 - The use of pre-placed bank rescuer/s adopting shout – reach – throw – go priorities (“row” for boat based rescuers). Consider the use of anchors where required and the number rescuers required. Consider the location of the rescuer (at a point of usefulness rather than at the hazard that is likely to cause a capsize). Introduce more complex throwing rescues such as different rescuers throwing and holding the line and the “holder” being located away from the bank in order to vary the arc of the pendulum.
 - Use of a combination of bank and boat based rescuers
- Discuss signals needed in a setting where there is no line of sight from the rescuers to those waiting to paddle. This will include the use of hand, paddle, or whistle signals either passed directly or relayed.

Placing a rescuer in the current

Participant should be familiar with a range of options for placing a rescuer in the current with as little risk to the rescuer as possible.

- Wading

- Line astern and wedge
- Use of hand rail
- Use of paddle/pole for support.
- Tethered by chest harness
- Recovery of incapacitated paddler using above methods
- “V” lower – Attach two throwlines to a rescuer’s chest harness (bag ends). Run the other end of the lines to a position upstream of where you want to place the rescuer, with one line on each bank. The lines should be held using one of the “controlling a load” methods detailed above. The rescuer enters the current with tight lines. By feeding the ropes out the rescuer can be positioned in the current and lowered down stream to the position required.
- “Y” lower – Very similar to “V” lower except only one line is attached to the rescuer. The other line is clipped as a runner to the rescue line. This allows a bit more flexibility to lower the rescuer down stream without affecting their lateral position in the current.
- Using controlled pendulum - Attach one line to the rescuer (bag end) and pass the other end as far upstream as possible on the same bank as the rescuer and hold using one of the “controlling loads” methods detailed above. The rescuer should start level with the position they wish to be placed at in the current. Attach another line to the rescuer and lead to the opposite bank level with where the rescuer needs to be placed. Use the second rope to pull the rescuer across the stream to the position required. This reduces the time a rescuer spends above a hazard and therefore reduces the risk to them and makes it easier to evacuate the rescuer if required.
- Live bait (wading / jumping / fast water / stoppers). Loads can be high so one of the “controlling loads” methods detailed above should be used by those holding the line on the bank.
 - Wading - Attach a line to a rescuer (bag end). The rescuer wades into the current on a slack line and locates the swimmer. The rescuer and swimmer are then pendulumed back into the bank by the rescue line.
 - Shallow entry - Attach the line as for wading. The rescuer jumps (very shallow dive, hands covering the face and crotch area) and locates the swimmer. The rescuer and swimmer are then pendulumed back to bank by rescue line.
 - Stoppers - Attach line as above. Wade, swim, or jump into the stopper. Locate the swimmer. The person holding the line on the bank pulls the rescuer and swimmer back to the bank usually along the line of the stopper.

Attaching a line to a trapped paddler

Participants should be familiar with a system of attaching a recovery system to a trapped paddler with options for when either single bank or double bank access is available. These systems are normally added to the stabilising line that participants should be familiar with from the WWSR training.

- Double bank access - Throw lines from opposite banks. Attach karabiners to the bag end of both lines and attach to the other bag as a runner. Pull on both lines allowing the bag to slide along the opposing line to create a synch around the trapped paddler. To add further

control to the system attach control lines to both bags before synching. These lines can be used to recover the system if it synches in the wrong place.

- Single bank access - Attach two throw lines together linked by a length of sling. Throw the two lines by two separate people beyond the trapped paddler with one line landing either side of the trapped paddler. Pull the line in catching on the trapped paddler. Pull trapped paddler off with this system or pull one end through and attach a karabiner to one bag and set up a single line synch.

Difficult ground

Participant should be familiar with a range of options for providing support to people moving around on difficult ground and understand the limitations of the equipment traditionally carried while when used on difficult ground.

Notes of caution:

- Polyprop rope should not be used for life loads (not to be used when a slip will result in hanging load)
- Systems taught on this course are limited to preventing a slip becoming a tumble
- Attaching non-releasable rope to support someone should not be used if there is a risk of entering the water
- When using a chest harness as an attachment point on the bank manufacturers recommendations should be followed, this will normally involve engaging the back plate.

Protecting people in ascent or descent

- Attach throwline either around buoyancy aid and secure with karabiner and clove hitch,
- or to propriety loop on front buoyancy aid if available
- Use one of the anchor systems described above
- Use one of “holding loads” systems described above

Raising or lowering equipment

- Lowering:
 - Use one of the “anchor systems” described above
 - Use one of “holding loads” systems described above
- Raising equipment - Use one of “generating loads” system described above

A combination of these methods can be used in a range of difficult ground scenarios such as, a difficult portage or securing a paddler on difficult terrain while their equipment is recovered or outside help is sought.

Casualty management

Managing an incident may not be over when swimmers and equipment are returned to the bank. If a paddler is injured or overcome by cold, then they require managing until they are removed to

definitive care. While this is not a first aid course participants should be familiar with some of the following. These issues can often be explored best through scenarios. It is useful to do this more than once to allow participants to apply some of the learning they will have achieved after reviewing the first scenario.

- Protection from environment:
 - Insulate from ground (use buoyancy aids, kayaks or anything else available)
 - Group shelter
 - Blizzard bags/bivvy bags
- Short move carry where the history rules out neck or spinal injury. Using as many people as possible grabbing clothing and lifting
- Transport casualty across river (walking wounded);
 - Wedge with casualty
 - Live bait
 - “V” “Y” or “vector” system
 - Down stream diagonal
- Rescue roles – Ensure the following roles are being filled:
 - Leader / organiser overseeing the activities of rescuers with a strategic planning overview
 - Casualty monitoring / first aid
 - Kit/resource organiser
 - Workers
 - Liaising with outside agencies

Acknowledgements

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