



## Level 3: River Safety and Rescue

(Sample Skills Course)

**Course Overview:** The **River Safety and Rescue** workshop teaches recognition and avoidance of common river hazards, execution of self-rescue techniques, and simple rescues of paddlers in distress. Emphasis is placed both on personal safety and on simple, commonly used skills. Fundamental techniques for dealing with hazards that carry greater risks for both victim and rescuer, such as entrapments, and pins, also are taught. This course is aimed at whitewater boaters interested in learning fundamental river rescue skills.

### Course Objectives:

- Promote proactive prevention of river accidents and injuries.
- Develop and practice key self-rescue skills.
- Identify and avoid river hazards by understanding hydrology, hazards, and river features.
- Focus on fast, low-risk strategies for early management of river accidents
- Practice methods for recovering swimmers, and loose boats and equipment

### Essential Eligibility Criteria (EEC):

ACA courses are open to all individuals who acknowledge the ability to perform the following essential eligibility criteria.

1. Breathe independently (i.e., not require medical devices to sustain breathing)
2. Independently maintain sealed airway passages while under water
3. Independently hold head upright without neck / head support
4. Manage personal care independently or with assistance of a companion
5. Manage personal mobility independently or with a reasonable amount of assistance
6. Follow instructions and effectively communicate independently or with assistance of a companion
7. Independently turn from face-down to face-up and remain floating face up while wearing a properly fitted life jacket\*
8. Get on / off or in / out of a paddlecraft independently or with a reasonable amount of assistance\*
9. Independently get out and from under a capsized paddlecraft\*
10. Remount or reenter the paddlecraft following deep water capsize independently or with a reasonable amount of assistance\*
11. Maintain a safe body position while attempting skills, activities and rescues listed in the appropriate Course Outline, and have the ability to recognize and identify to others when such efforts would be unsafe given your personal situation\*

*\* To participate in adaptive programs, participants must acknowledge only the first six EEC listed above. Entry-level adaptive programs will involve teaching and practicing EEC #7-11.*



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**Course Prerequisites:** All paddle craft are welcome. Boaters should be able to competently maneuver their craft in class I-II rapids. However, all boaters, and non-boaters with an interest in swiftwater rescue (e.g., professional rescuers), will benefit from the class. Participants should be in good health and overall fitness, possess solid swimming ability, and be comfortable swimming in moving current during river drills. Participants should dress appropriately for weather and temperature and expect to be in the water for extended periods of time.

**Minimum personal equipment for class:** PFD designed for whitewater use, whitewater helmet, protective clothing suitable for extended swimming in cold water, protective footwear, boat, paddle, whistle and throw rope.

**Course Duration:** One day (7 – 9 hours)

**Course Location / Venue:** A deep chute of water with well-defined eddy lines and no immediate hazards or risks below. The site may include moving water, class I rapids, and class II rapids. Protected space is needed for on-land work, with adequate shelter for inclement weather.

**Succeeding courses:**

Level 4: Swiftwater Rescue

Level 5: Advanced Swiftwater Rescue

**Class Ratio:** 12 Students: 1 Instructor; with an additional instructor the ratio can be 24 : 2

The following is a general summary of course content for the Level Three **River Safety and Rescue** course. Safety and Rescue Instructors should use this document as a general guide for conducting programs. Depending on the program, specific content points might be studied and practiced in depth, briefly reviewed, or skipped entirely. Specific program content should be adjusted as necessary to accommodate student skills, goals and experience, as well as weather and water conditions during the program.

**Introduction, Expectations, & Logistics:**

- Welcome, introductions, paperwork
- Student & instructor course expectations and limitations
- Course itinerary & site logistics
- Review waiver, assumption of risk, challenge by choice, medical disclosure
- About the ACA
- PFD policy (always wear on water)
- Appropriate personal behavior
- No alcohol / substance abuse
- Proper etiquette on & off the water
- Respect private property
- Practice Leave No Trace ethics

- Weather
- Water

**Personal Preparation:**

- Personal ability
- Swimming ability
- Water comfort & confidence
- Fitness, conditioning, and warm up
- Safe paddle and boat handling
- Safety and rescue considerations
- Personal equipment (reviewed by Instructor)

**Rescue Philosophy**

- Accident avoidance and proactive rescue
  - o Accident timeline
  - o Prevention and “what if...?” strategy

**The Paddling Environment:**

- Wind
- Waves



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## (Sample Skills Course)

- o Prior planning for accident management
- Priorities
  - o Me, my group, bystanders, the victim, equipment
  - o Simple and fast to complex and slow
  - o Most effective rescues may have an increased level of risk
- Liability and Ethical issues
  - o Negligence, duty to act, breach of duty, harm, standard of care, abandonment
  - o Moral vs. legal obligation to act
  - o Trip leader vs. common adventurer
- Trip Organization
- Trip planning principles
- Emergency action plan
  - o Lead and sweep
  - o Know the group, the river and the weather
  - o Plan the trip and communicate the plan

### Scene Management

- Locate, access and assess, stabilize and transport
- Prioritizing the rescue
- Most rescues performed quickly, without a formal structure “Self-directed rescue”
- Larger groups and longer rescues often need more structure
- Incident Command structure
  - o Leader
  - o Safety
  - o Rescuer
  - o Additional roles – medic, rigger, runner, ...  
Debriefing to reinforce rescue priorities
  - o Complete the rescue without compounding the situation
- Communication (AW signals)

- o hand and whistle signals
- o cell phone or radio if appropriate

### Medical Issues

- This is NOT a first aid class; perform medical care to your level of training
- Don't make the situation worse
- Obtain more training; calling 911 is rarely an effective option
- Rescuers should be familiar with common medical problems including hypothermia, drowning, cuts and scrapes, and dislocations/broken bones.
- CPR and wilderness first aid skills are essential for rescuers

### Equipment

- Protection from rocks and water
  - o shoes, helmet, PFD
- Thermal protection
  - o wet suit vs. dry suit, wool vs. synthetics, avoid cotton in cold/wet conditions
- Personal rescue gear
  - o boat, paddle, whistle, throw rope, knife, saw, first aid kit, rescue PFD
- Group rescue gear
  - o specific needs depend on the river paddled and local weather
- Survival equipment
  - o specific needs depend on the river paddled and local weather

### Throw Ropes

- Selection based on rope material, diameter, and length
- Advantages and disadvantages of traditional bags, waist bags, coiled lines
- Care of the rescue rope
  - o avoid sun exposure, keep clean, avoid stepping on the



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- line, avoid sharp or rough edges
    - o when in doubt, replace the line
  - Rope safety
    - o avoid standing over lines
    - o avoid tensioning lines perpendicular to current
    - o keep your body out of loops in the line
    - o consider clean line techniques
    - o keep entire rope in bag to avoid accidental deployments
  - Throwing and recovery zones
    - o consider where the victim will land, don't make their situation worse
  - Types of throws
    - o over-arm (football and arc), underarm, side-arm
    - o deploying less than full length for close targets
  - Factors impacting an accurate throw
    - o rope length and diameter, brush and trees, footing, distance to target, cold hands, practice
  - Receiving the rope
    - o hold over your shoulder, with hands on your chest and elbows tucked into stomach
    - o rope should sit on the shoulder opposite the target shore (to set ferry angle)
  - Belay techniques
    - o hip belay, sitting, buddy, dynamic, tree
    - o line on downstream side
  - Coiling and re-throwing
  - Vector pull to assist landing
  - Stuffing techniques
  - Multiple swimmers
  - Figure 8 knot and figure 8 on a bight
- Rivers are powerful, predictable and persistent
  - Subjective vs. objective hazards
    - o poor judgment can be fatal
    - o river hazards don't care if you don't recognize them
    - o flooding dramatically increases risk
  - Water reading (upstream and downstream Vs)
  - Eddies and eddy lines
  - Waves
  - Hydraulics
  - Strainers
  - Horizon lines
  - Undercut rocks, broaching rocks
  - Foot entrapment risks
  - Flush drowning

### Swimming

- Essential self-rescue and access tool
- Safe eddy rule, don't try to stand in swift current
- Defensive and aggressive swimming
- Strategies to conserve energy including positioning, short aggressive position sprints and "porpoising" for in-water scouting
  - o Breathing techniques – timing in waves and focus on downstream side
- Defensive to aggressive transitions
- Aggressive upstream and downstream orientation (upstream ferry and downstream eddy catching)
- Crossing eddy lines
- Ferry techniques
- Swiftwater entries
  - o Modified belly flop; head and feet up, impact on the PFD, sliding across the water
  - o Enter water with a good ferry angle
  - o Protect face with outstretched crossed arms

### Water Hazards and Hydrology



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- Consider crawling or sliding into water, especially if shallow and rocky
- Managing holes and drops
  - Ball up over drops
  - Escape holes by aggressive swimming towards ends, changing shape or crawling to river bottom
- Swimming with gear
  - Keep boats downstream
  - Boat and paddle in one hand, swim with other hand
- Many uses for boats
- Ferries for people and equipment
- Tool to sprint for help
- Paddle recovery
  - throw, two paddles in hand, put in your boat
- Boat recovery
  - bulldozer or shove
  - set a ferry angle
- Self rescue
  - hold boat and paddle in one hand when swimming with gear
  - set a ferry angle
  - boat stays downstream of victim

### Strainers

- Lethal hazard, common cause of river fatalities
- May appear benign (it's just a tree...)
- Possible approaches
  - Avoid (best by far)
  - Aggressively swim into and over (best if can't be avoided)
  - Defensive and/or passive (potentially fatal)
  - "Canadian Log Roll" technique for large diameter strainers

### Wading

- Safe eddy rule
- Swim instead of fighting for marginal footing
- Water depth, water speed, and bottom conditions affect performance
- Maintain balance
- "Look with your toes"
- One person with paddle/prop
- Two person
- Line astern

### Boat-based rescue

- Often the fastest and easiest technique for boaters, but potentially high risk

### Pins

- Avoid getting pinned or entrapped by recognizing hazards
- Pin mechanics
  - balance between gravity, friction, and force of water
- Types of pins
  - vertical, center broach, end to end, pinch pin
- Release by unbalancing forces
- Tag line on boat for recovery after release
  - consider what happens when the boat releases
- Stabilization line to support trapped victim
- Self rescue
  - avoidance, high side to avoid inverting, wiggle off the rock, bail out
- If all participants are safe, waiting for low water may be a viable option



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## Conclusion & Wrap Up:

- Group debrief / Individual feedback
- Course limitations
- Importance of First Aid & CPR
- Importance of additional instruction, practice, experience
- Importance of appropriate level of safety & rescue training
- Demo advanced maneuver
- Life sport / Paddling options
- Local paddling groups / Clubs
- Handouts / Reference materials
- ACA Membership forms
- Course evaluation
- Participation cards

## Entrapment

- High risk; hands-on rescue places rescuers near the entrapping object
- Most commonly foot entrapments, strainers, or trapped in a boat
  - Avoid by hazard recognition, appropriate swimming techniques, and appropriate outfitting
  - Extrication often requires hands on contact by a rescuer (e.g., two+ person wading techniques)
- Keep victim heads up with stabilization line
  - Supports trapped victim
  - Set a sharp downstream pointing V in the line for optimal support
  - Line ideally should be under armpits and support victim in heads up position
  - Very effective, with documented saves
  - Very difficult for unresponsive victims – often requires some victim cooperation
- Snag line
  - Line designed to release a foot entrapment
  - Tensioned and deep in the water below the stabilization line
  - May need to be weighted or submerged with a paddle

## Scenarios

- Managing common river problems, including multiple swimmers and loose gear
- Emphasis on what worked and what could be done differently next time.
- Goal is to create appropriate confidence in training and techniques



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## Resources

- Whitewater Rescue Manual (Walbridge and Sundmacher)
- • Swiftwater Rescue (Ray)
- • River Rescue (Bechdel and Ray)
- • Heads Up! (video)
- • Whitewater Self Defense (video - Ford, Walbridge and DeCuir)
- • River Safety Reports (Walbridge)
- Whitewater Safety and Rescue (Ferrero)
- Kayaker's Toolbox (video – Holt and Dickert)
- Rescue Manual (Walbridge and Sundmacher)
- Swiftwater Rescue (Ray)
- River Rescue (Bechdel and Ray)
- Heads Up! (video)
- Whitewater Self Defense (video - Ford, Walbridge and DeCuir)
- River Safety Reports (Walbridge) Angle Rescue Techniques (Vines and Hudson)
- NOLS River Rescue Guide (Ostis)

[www.animatedknots.com](http://www.animatedknots.com)

[www.cmcrecue.com](http://www.cmcrecue.com)

<http://www.americancanoe.org/?page=R3>

[rescueforriverrunners.com](http://rescueforriverrunners.com)