



# Level 5: Advanced Swiftwater Rescue

(Sample Skills Course)

**Course Overview:** The **Advanced Swiftwater Rescue** workshop is aimed at trip leaders, boaters paddling on more challenging whitewater, and anyone desiring opportunities to develop their rescue skills. Critical judgment and rescue awareness, impacting both personal and group safety, are emphasized throughout the course. Although new skills may be taught, this class focuses on developing judgment and applying skills in rescue scenarios. Scope and content of the course will vary, based upon participant needs, interests and experience.

## Course Objectives:

- Reinforce basic rescue skills, including swimming/self-rescue, throw ropes, and boat based rescue
- Practice skills during multiple scenarios
- Refine and extend critical judgment through multiple scenarios
- Develop and practice more advanced rope-based and in-water skills

## 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.*

**Course Prerequisites:** Participants should have completed an ACA (or equivalent) Swiftwater Rescue workshop within the past three years. Participants should be in good health and overall fitness, possess solid swimming ability, and be comfortable swimming in moving current during river drills.

**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, throw rope, 15+ feet of one inch tubular nylon webbing, 2 locking carabiners, and 2 prusick loops. Additional equipment may be used, depending on the participant's background and specific course content

**Course Duration:** Two or more days (16+ hours)

**Course Location / Venue:** A chute of water with deep, clean wave action, well-defined eddy lines and no immediate hazards or risks below. Ideally, the site should contain class II rapids, although it may be taught on less difficult rapids. Protected space is needed for on-land work, with adequate shelter for inclement weather.

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



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The following is a general summary of course content for the **Level 5: Advanced Swiftwater Rescue** course. Safety and Rescue Instructors should use this document as a general guide for conducting programs. All of the topics listed below do not need to be covered in a particular class. Depending on the program, specific content points might be studied and practiced in depth, briefly reviewed, or skipped entirely. As new equipment and techniques are developed, the ASWR instructor may introduce them to students, so long as the general principles taught by the ACA SWR program are maintained. 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

**Definitions of key terms and skills can be found in the [ACA River Safety & Rescue Terminology Handbook](#).**

## **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 use
- Proper etiquette on & off the 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)

## **The Paddling Environment**

- Weather conditions and forecasts
- International scale of river difficulty
- Characteristics of current
- River levels and streamflow (CFS)
- Subjective vs. objective hazards
- Effective river/rapid scouting strategies
- River features & hazards:
  - Downstream and Upstream V's/chutes
  - Eddies and Eddy Lines
  - Waves/Wave Holes
  - Holes/Hydraulics
  - Ledges / Horizon lines
  - Strainers: types, typical locations
  - Rocks/Pillows



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## The Paddling Environment (continued)

- Cold water immersion/response
- Dams / Flow Diversion Structures / Pipelines
- Undercut Rocks / Ice
- Flush drowning

## Personal Paddling Equipment (PPE)

- Helmet
- PFD
- Footwear
- Craft & Paddle
- Thermal Protection
- Accessories: Knife, whistle, food, etc.
- Craft specific PPE (i.e. SUP leashes)

## Personal Rescue Equipment (PRE)

- Tubular webbing
- Locking carabiners
- Throw Rope
- Pulleys
- Prusik Loops
- Specialized Rescue Equipment
  - Line Capture Devices
- Survival Equipment
- Quick Release Harness System
  - Parts, applications, advantages, disadvantages, and hazards
  - Common causes of QRHS failure and prevention strategies
  - Threading options for tri-glide
  - Buddy checks for QRHS
- Rescue Tethers: parts, applications, advantages, disadvantages, and hazards
  - Strategies to prevent entrapment: proper stow points & acceptable attachment options for carabiners

## Rescue Strategy

- Personal Preparation: Swimming ability, Confidence, Fitness & Conditioning
- Strategies to prevent or minimize incidents
- Trip organization and planning principles: Float plans, emergency action plans
- Communication: Hand/paddle and whistle signals
- C.L.A.P. - Communication, Line of Sight, Avoidance, Position of Maximum Usefulness
- Incident Timeline
- Rescue Priorities
- Responsibilities of swimmer/subject
- Phases of rescue:
  - S.T.O.P - Stop, Think, Observe, Plan
  - L.A.S.T - Location, Assess/Access, Stabilize, Transport
- Rescue Management: Leadership, Safety, Rescuers, Subject (stable & unstable)



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## Rescue Strategy (continued)

- Establishing Acceptable Level of Risk: Can I [do this]? Should I [do this]?
- Liability Issues: duty to act, breach of duty, harm, standard of care, abandonment
- Ethical Issues: moral vs. legal obligations
- Medical Issues & Considerations
- Importance of Fitness & Conditioning
- Rescue strategies for common river scenarios:
  - Swimmer with/without equipment in current
  - Paddlers & Equipment on rocks in current
  - Boat pins with/without paddler
  - Entrapment
  - Unaccounted for paddler

## Wading Skills

- Causes and prevention of foot entrapment
- Formal vs. informal wading techniques
- Factors that affect success in wading: depth, force, composition of river bottom, number of waders, etc.
- Strengths, limitations, advantages, disadvantages, and risks of wading techniques
- Four-point Crawl
- Single Person Assisted Wade
- Two-Person Wade
- Line Astern Wade
- Wedge Wade
- Line Abreast Wade
- Fence Wade
- Tethered wading techniques
- Direct Line Crossing
- Wading Applications for foot/boat entrapments

## Swimming Skills

- Strategies to minimize risk of foot entrapment
- Techniques for successful exits from current to eddys
- Defensive swimming position
- Aggressive swimming position
- Defensive to aggressive transitions
- Ferry techniques: defensive and aggressive swimming
- Self-Rescue: swimming with equipment
- Swimming techniques for: waves, hydraulics, and drops
- Strategies to conserve energy: short aggressive sprints, “porpoising” for in-water scouting, & appropriate timing
- Managing holes and drops
- Swiftwater entries: in & out of water starting positions
- Techniques for successful downstream swim of a rapid
- Strategies for handling strainers: aggressive swim in and over and log walk
- Non-tethered Swimming Rescue (Contact Rescues)
- Tethered Rescue Swimming
- Direct Line Lower of rescuer



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## Throw Rope Skills

- Characteristics of throw ropes: rope diameter, length, construction material, and bag design
- Rope management & safety strategies
- Rope care
- Rope hazards
- Throwing and recovery zones
- Factors impacting throw accuracy and success: stationary and moving targets
- Single person throw rope techniques: underhand, overhand, and sidearm
- Two-person throw bag techniques: split bag toss
- Bag re-stuffing techniques
- Advantages and disadvantages: bag and coil throwing techniques
- Rope coiling methods and throw techniques: butterfly and coil
- Rope receiving techniques
- Communication with swimmers
- Techniques for handling multiple swimmers
- Vectors pull to assist with landing swimmers
- Belay techniques:
  - Hip belay, seated belay, and back-up belay
  - Dynamic and friction belay
- Pendulum use for crossing current
- Line ferrying techniques:
  - Boats
  - Tethered swimmers
  - Messenger lines
  - *Specialized equipment*

## Rigging Skills

- Knots: components of good knots, dressing, terminology, strengths, and limitations
- Tie and properly dress:
  - Figure 8 Family: standard, on bight, follow-through, Flemish Bend, in-line, double-eye/super
  - Overhand Family for webbing: Overhand on a bight, overhand bend
  - Double Fisherman
  - Prusik Hitch
  - Munter Hitch
  - Clove Hitch
  - Butterfly Knot
- Anchors:
  - Components of solid anchor points
  - Terminology
  - Advantages, and disadvantages of anchor types
  - Characteristics of self-equalizing and load distributing anchors
  - Risk Management: Planning for anchor failure
  - One-point Anchors: Friction Wrap, 3 Bight, Single Loop, & Wrap 3 - Pull 2
  - Two-Point Anchors
  - *Multi-point Anchors*



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## Rigging Skills (continued)

- Mechanical Advantage:
  - Applications of MA in the rescue environment
  - Risk management strategies: Scene Management, Dampeners
  - Characteristics of Simple and Compound Systems
  - Simple Systems: 2:1 & 3:1
  - *Load Releasing Hitches: Mariners Hitch*
  - *Compound Systems: 4:1 (with & without pig rig), 5:1, & 9:1*
- *Tensioned Diagonal (zip line)*

## Craft Pins

- Pin mechanics
- Types of craft pins
- Boat-based techniques for pins
- Stabilization, Haul, and Control Lines
- Strong Arm Method
- Vector Pull
- Progressive Vector Pull
- 1:1 with change in direction
- Craft Specific Anchors (e.g. creating anchors on specific craft)
- Craft-specific Techniques: Hull Wrap for Rotation, Raft specific techniques, etc.

## Craft-based Rescues

- Advantages and disadvantages during rescues of various crafts: canoe, kayak, SUP, raft, prone kayak, river boards
- Paddle recovery options
- Strategies for boat recovery
- Self-Rescue: swimming with equipment
- Swimmer tow options
- Swimmer re-entry/re-mount techniques
- Craft bumping/bulldozing
- Craft towing (with and without QRHS and rescue tether)
- Craft specific rescues
- Unresponsive Paddler Rescue
- Tethered Craft Rescue
- *Controlled Boat Lower*

## Strategies & Skills for Entrapments

- Stabilization & Control Lines
- Snag Lines
- Cinches
  - Characteristics of open, closed, and irreversible cinches
  - One-Bank Cinches: Kiwi & U cinch
  - Two-Bank Cinches: Simple Cinch, *Y Cinch*, *Shrinking Loop/Lasso*, & *Box Cinch*
- Application of cinches for paddler, swimmer, equipment, and/or boat entrapments



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## **Vertical Rescue (Discussion/ Land-based Demonstration)**

- Tyrolean Traverse
- Applications of rigging skills in vertical environments
- Risk Management:
  - Significantly increased risks
  - Specialized equipment & training required

## **Scenarios**

- Simulated rescue skill sessions and scenarios will be used throughout the course to:
  - Model and utilize effective risk management and rescue strategies
  - Highlight essential skills for the course level and venue
  - Increase skill and experience level of students
  - Maximize learning outcomes for all students

## **Conclusion & Wrap-Up:**

- Group debrief / Individual feedback
- Course limitations
- Importance of First Aid/CPR and Wilderness First Aid
- Importance of additional instruction, practice, experience
- Life sport / Paddling options
- Local paddling groups / Clubs
- Handouts / Reference materials
- ACA Membership forms
- Course evaluation
- Participation cards