SWR Notes/flipcharts

teachig notes and aids

based on ACA L4 SWR outline RSR/SEI - 12/2010
Walter's SWR IDW Looseleaf Binder 2010

other reference materials, most published, some just circulated in out teaching team

update 16 Oct 2012. A Bowie

Objectives

1. **Understand Rescue Philosophy**

2. **Experience and Practice;**
   - **Skills**
   - **Techniques**
   - **As Individual**
   - **As Team**

3. **Develop;**
   - **Effective Responses**
   - **Good Judgment**

ACA Waiver and Release of Liability

1. Read And Understand the Contract

2. Understand Dangers And Risks Are Serious

3. All is Challenge By Choice:
   If Unsafe, Refuse

Prevention

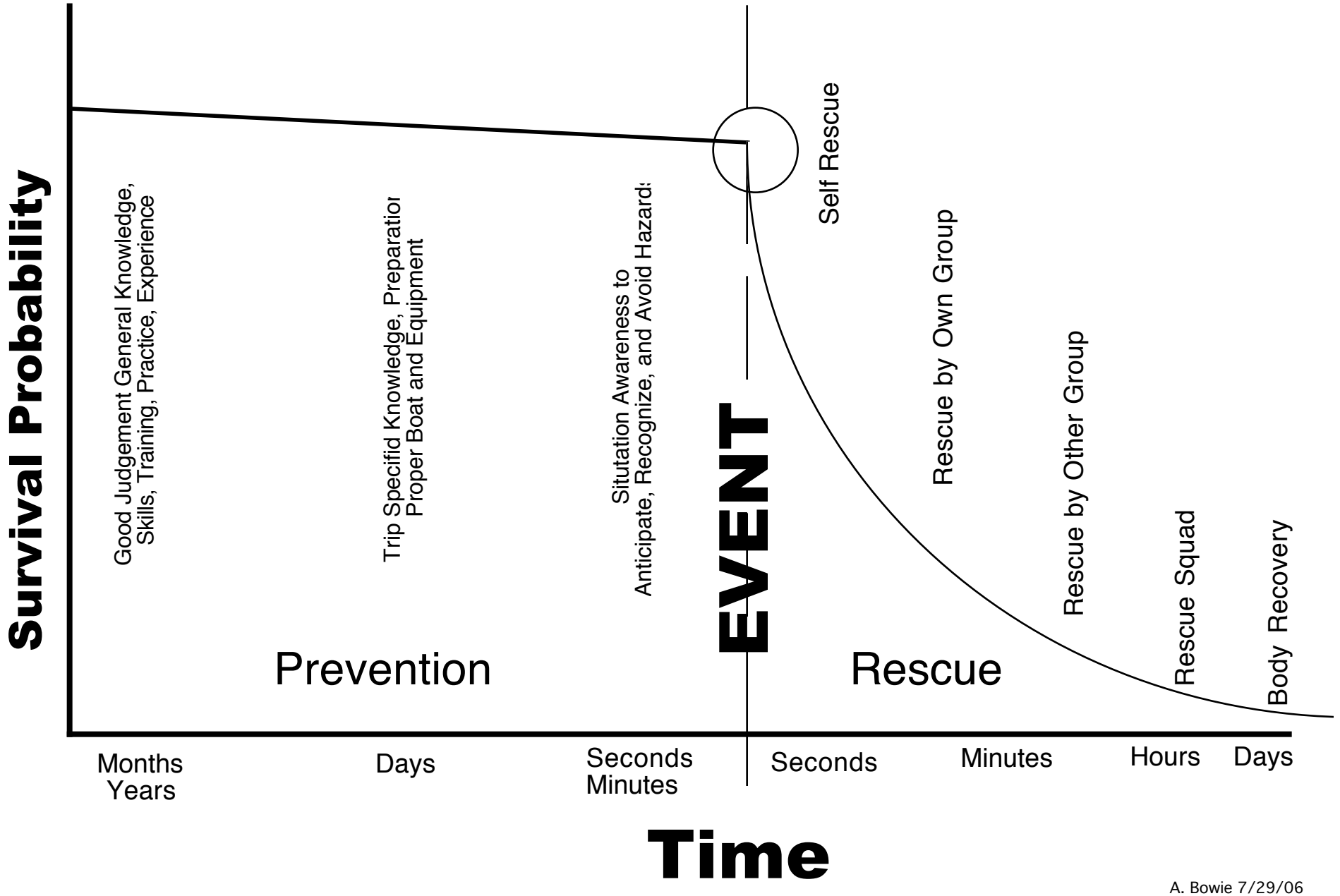
The Best Rescue

Is The One That Never Happens

No More Victims!

Accident Timeline

The Best Rescue is the one that never happens!



A. Bowie 7/29/06

Self, Team , then Victim

People First, Boat and Paddle, Gear Last

KISS

Keep It Simple, Safe, Swift

Simple and Fast to Slow and Complex

S Re Th Ro G

Stay Safe, Self first, Survey Scene

Reach with voice, with paddle/hand

Throw a rope or float

Row or Paddle your boat

Go by wade or swim

The Knows

Good Judgment

Training Practice Experience

Anticipate and Avoid Trouble

Good

Judgement

Experience

on the Water

Practice

Skills Decision Making

Training

First Aid SWR Paddle

Unconscious
Competence

Conscious
Competence

Conscious Incompetence

Unconscious Incompetence

Avoid Trouble / Manage Risks

By Choosing:

The Rivers You Paddle,

The People You Paddle With,

And The Equipment You Use

First Line Of Defense Is Preparation:

Equipment, Group Organization, Signals, Reading, Hazards

Trip Planning & Organization

Know:

1. Group

Are my **paddle and rescue skills appropriate** for this river in these conditions?
How about everyone else? **How many** people and boats? **Who is going to watch after me?**
Is everyone in **good physical and mental condition** now?
Does everyone have **adequate equipment** in good condition?

2. River

Water Levels, Access, Length, Difficulty, *gages for plan, visual for decision to launch.*
Hazards- typical vs possible at this level and weather forecast. ....and **increase as levels rise** *from low to adequate to high*.

3. Weather

Actual vs Forecast, Time of Day, Daylight hours, Temperature -- *60°F, Wind, Rain, Thunderstorm, lighting*?

Plan the trip / Communicate Plan

Do we agree on what we are doing, where we are going, and how will we proceed?
Does the plan really fit with Group, River and Weather?
Shuttles !!

Common Adventure vs Leader

Individual paddlers are **responsible for their own safety** and
must make their own decisions to participate, select appropriate equipment, and to scout, portage, continue, or takeout.

Keep the group Together

Each maintain **Visual Contact** to rear, **Lead keeps group together**, Sweep deals with problems, *ditto on river and shuttle*

The Dynamics of Accidents Formula
As the Accident Potential goes up, the margin of safety goes down.

Environmental Hazards + Human Factor Hazards = Accident Potential

A. Environment

*** High Water**
* **Cold temperature** (water/air) *
*** Foot entrapment**
*** Strainers**
Pinning / entrapment
Undercut rocks / ledges
Dams / Low water bridges
Holes
Strong eddy lines / cross currents
Overexposure to wind / sun

B. Equipment

Boat Ill-suited for individual/river
*** No Life Jacket ***
Failure to wear life jacket
Improper clothing for temperature
Boat in poor repair / Overloaded
No food or water
No Throw Rope

A. Individuals

Limited Understanding / Respect for Environmental Hazards
*** Alcohol *** / Drugs
Unaware of Actual Skill Level
Poor Judgment
Poor Boat Control
Lack of Training, Practice, Experience
Not a Competent Swimmer
Exhaustion / Fear
Other inexperienced paddlers
Need to prove self
Lack of physical strength, stamina

B. Group

Poor communication/visual contact
Failure to maintain spacing & pace
Lack of attention to slower individuals
Peer Pressure to perform / continue

C. Trip Leaders

Poor Planning /Judgment
Poor Decision to Put In or Continue
Ineffectual under stress
of emergency situation
Unclear instructions
Failure to Anticipate & Avoid Hazards
Failure to Supervise and Control

Accidents

**** Fear Replaces Fun***

**** Hypothermia***

Cuts & Bruises

Broken Bones

Shoulder dislocation

Loss of gear or boat

Boat pin

Foot entrapment

Broached boat

Head Injury

Spinal Injury

**** DROWNING***

http://www.princeton.edu/~oa/paddle/
Adapted from Canoe, May 1993 and ACA River Canoeing Poster
Adapt for trip leaders A Bowie, Bentonville Ark, 24 Jan 2010

Negligence

Duty to Act?

Breach of Duty?

Harm

Standard of Care

Abandonment

Moral vs Legal Obligations

Leader vs Common Adventure

Manage the Scene

Locate, Access, Stabilize, Transport

Prioritizing

Don’t create More Victims!

Communications

Scene Management

When an accident happens,

Should We **Intervene?** **How** Should We Proceed?

STOP and LOOK -- Size Up the Scene.

Is there immediate danger to me or my group?

What happened?

Is situtation stable or unstable?

LAST

Locate

Where Are & How Many victims?

Access and Assess

Get Eyes On then Hands On.

Is there immediate threat to life? *i.e. heads up or down, bleeding?*

What is state of mind? *Conscious? Able to assist? Life Jacket?*

Stabilize

Don't let situtation get worse

Transport

Out of immediate danger

Out of the river

To appropiate location or help.

Prioritize the rescue

Protect **Self First**, Then Your **Team**, Then **Bystanders**, **.....Victim Last**.

Rescue **People First**, **.....Boat, Paddle And Gear Later**

Immediate Life Threats / Unstable Situtation First

Try Simple, Safe, Swift First,
Progress to Slow & More Complex

Most River Rescues are **Quick** *and have only an* **Informal Structure**

Quick Action or Considered Planning ?

Informal Organization often develops in small groups
Individuals fill **Multiple Roles**, *beginning with routine trips*.
Roles may evolve, overlap, or exchange.

Leader - From who group willing accepts influence
- Primary decision maker for the group
- Finds the jobs and the volunteers for each job
- Position to see, Communicate with group, but Hands Off
- Aware of Overall Situtation

Rescuers - Hands On, throws, rows, goes.
- also may belay, go to other bank, catch a line ferry, group wade, etc

Safety - Backup Rescuer, Downstream Backup, Upsteam Spotter

Others -

Rigger - set anchors and haul systems, set & tension lines
Gofer - find equipment
Medic - assist/advise LAST with severe injury, provide first aid

Larger groups and longer rescues often need more structure

Complete The Rescue Without Compounding The Situation

Fire Dept, Police, SAR, and other government agency use

Incident Command Structure - ICS

if multi-jurisdictional, **Unified Command -UC**
Detailed by OHSA and FEMA Formal and Rigid
One **Commander**, *several Deputy, officier, chief Director, Supervior*
Generally non-authorized not allowed within site
If approaching, seek the **Incident Commander**

ICS has Five Major Units:

Command sets incident objectives, strategies and priorities and has overall responsibility
Operations develops tactical objectives, conducts tactical operations to carry out the plan
Planning prepares Incident Action Plan, collects and evaluates information, and documentation.
Logistics provides support, resources, and all services to meet operational objectives.
Finance /Admin monitors costs, provides accounting, procurement, time recording.

Communication (AW signals)

Hand, Paddle, and whistle signals
Stop **Help** **All Clear** **I'm OK**
Cell phone *or radio if appropriate*

Medical Issues

1. **Perform as trained.**
2. **Don't Make Situation Worse**
3. **WFA and CPR training**
4. **Prep and Train for :**
    a. **Drowning / Near** ***LOC to ER***
    b. **Hot / Cold Issues**
        Heat Exhaustion / Stroke
        Seek Shade, Swim, Drink, Pee
        Hypothermia
        Strength, Coordination, Alertness, Decision Making
        Get Dry and Out of Wind --- Heat'em, Feed 'em and Beat 'em
        Prevention: Dress Appropriately & Your Know Limits
    c. **Cuts, Bruises, Dislocations, or Breaks**
    d. **Bee Stings -** ***Train with epi-pen***
    e. **Lighting -** ***NOLS***

Cold Water = Hypothermia

Strength, Coordination
Alertness, Decision Making

Fumbles, Mumble And Grumbles, Stumbles And Tumbles

Get Dry and Out of Wind

Heat’em, Feed ‘em and Beat ‘em

Prevention: Dress Appropriately
Know Limits

Equipment

appropriate for people, river, and weather

Protection

Life Jacket - Helmet - Footwear
Injury - especially to foot, leg, head
Cold Water/Air/Weather

-- synthetics in layers, wet or dry suits/tops

Rescue

Personal - boat, air bags, rope, knife, medical, $
Group -- Communication, Haul Rigging, Medical

Survival

Food, water, clothing, shelter, fire, light, compass

Rescue Vest

Tying or entangling a rescuer to a line can be a fatal !

Multi-use rescue tool

Provides a reliable release from tether line when needed,
if snagged, rope angle is wrong, or caught in wrong current
Requires comfort swimming and wading in swiftwater
Requires rope skills
Requires reading the river and understanding the hazards
Single most important characteristic is fit
Bulk hinders paddling, swimming, & movement
Doesn't turn unconscious swimmer face up

Components of the vest

Sewn in harness.
Belt with Quick release buckle-DEMO--*min 25# pull, up to max of 1,100#*
Tethers --*increase danger of snagging*
Locking carabiners only
Short self tether is called pigtail
Longer tow tether is called cowtail

Hazards of the vest

Buckle jam --*avoid by correct release, smooth end, appropriate length-*
Cross lock harness and belt...*use locking carabiner only!*
In water risk exposure ...*Practice, know your limits.*
Snag potential
Impact protection -- *location of flotation*
Inspect self & team thru day.

Applications *Many possible Uses, but less than Lifeline.*

Anchor and self belay from shore
Towing boats or gear with tether
Line ferry via wade, swim, or paddle
Personal extrication
V lower and direct lower
Live bait - preset and on the fly

Communications

One hand in air means "**Help Me**"
Use two hands for directional changes and movement

Hazards and Hydrology

(*30 minutes*) **SWR-Ray** **page 13+**

There are many ways to effectively teach this topic. Because this group has a lot of experience, I'll go thru everything on the course outline today, then Saturday and Sunday as we do other topics, you'll see most, and experience many of these. With less experienced people, I try to help them find as much of this on the river as practical.

Moving Water in Rivers and Creeks is:

Powerful - can move huge boulders, houses, cars or hold boat /person

- power increase with square of speed

see the Poster "Force of Swiftwater" *however;*

Awareness starts in most people when we WADE and SWIM in Swiftwater

Persistent - continues relative long times - hours days weeks -without change

Predictable - Boats Float and **Water FLOWS Down Hill**

Because we **Floa**t on Surface and **See & Read** the Surface,

We tend to overlook both what's below and the thermal effects

Rescuers and Instructors need to be fully aware

FLOWS by gravity to lower level, as a fluid mass rather than roll like a ball

Goes in a straight line until pushed, pulled, or blocked (inertia)

and accelerates - faster at bottom than top of a drop/downstream Vee.

Volume and Gradient -- determines Speed, Force, & Power

River Bed Shape and Character are a factor in the features and hazards

Pool and Drop vs **Continuous White Water**

Bed Rock, broken-moveable rock, or soil

Friction - actually is a boundary layer....of small blocks and direction changes

simple friction of the Flow with bottom -- demo as layers with deck of cards

also friction with the banks and objects in the water.

open channel flow, water poured on floor spreads, doesn't stack, but fills channel.

Whitewater may appear **random & chaotic** to inexperienced eyes **--- READ the RIVER**

Subjective Vs. Objective Hazards *outlined on Dynamics of Accidents poster*

Human Factor Hazards *discussed in Rescue Philosophy, as lecture*

Pyramids-

Unconscious Incompetence is most common hazard

Poor Judgement can be fatal

Environment (River) Hazards *don't care if you don't recognize them.*

Assignment: find all features/hazards on the river tomorrow!

AW Safety Code 1.5 - hazards that frequently kill

AW Scale of River Difficulty - summary of swiftwater hazards

Flooding Dramatically Increases Risk **typical fatality**

Cold Swift Water is much more dangerous than Warm, Calm Water

Reading the River

Four directions : Upstream , Downstream, given looking downstream are River Left and River Right
Upstream VEE points to Hazard page 26 fig 2.17
Downstream VEE points to deepest clear line
Flow Lines are often visible

Most of water has **Laminar flow**- in relative straight, uniform, parellel lines
Helical flow most common in larger volumes and river beds. Friction with banks and bottom causes "corkscrew" pattern between bank and main, laminar current...may have enough power to push swimmer away from bank and back into main current.

Bends are fast and deep on outside, slow and shallow inside, **strainers common on outside**

Eddies And Eddy Lines pages 18 & 19, figs 2.5-2.6
calm, upstream current on downstream of obstacle. Flow rushes past, then turns to fill the low area
pillow or cushon on face of boulder forming eddy
eddy fence/line/ wall visible line of separation, height differential
whirlpools and boils, steady or surging

Waves are a visible sign of release of energy
River waves are stationary & tied to features of the river bed
tend to turn boat broadside and capsize
Causes
fast moving current entering slower section
sudden constriction or change in cross section or gradient
flow over a submerged obstacle
current hitting hard obstacle like bolder or bank
converging or reflected Currents form unstable shear line
wind is less of factor on river waves than on more open water
Wave Hole - depression with wave breaking upstream. may stop boat but flush swimmer fig2.9

Horizon Lines and Sound indicate ledges, low head dams, low water bridges.
Unseen area may have hydraulicss, holes, and other hazards

Hydraulics

As water rises around an obstacle sequence is eddy, hydaulic, wave hole, small waves fig 2.7
strong upstream current, recirculates and may hold boat, swimmer, and other objects fig 2.8
Length, Width, and Shape matter fig 2.10
Ends pointing downstream release from hole. Ends pointing upstream hold objects in the hole

Strainers , Sieves are common but lethal hazards. fig 2.11 and 2.12
Water flows through, but solid objects like boats and people do not.. *example: downed trees, fences*.

Undercut Rocks, Ice flow is under and has no pillow fig 2.13

Foot Entrapment Risks are present in nearly all moving water!
Face and toes upstream
Crawl before Walk Safe Eddy Rule -- *Don't stand in swift current more than crawling depth.*

Force of Swiftwater

Velocity		On legs	On Body	On Swamped 16’ Boat
MPH	FPS	lbs	lbs	lbs
3	4.4	20	35	170
6	9	70	130	670
9	13	150	300	1500

AW International Scale of River Difficulty

Class =	Boat Control	+ Scouting	+ Danger to Swimmer
I	Easy With Little Training	All Obvious	Slight Risk, Self Rescue Easy
II	Easy For Trained	Straight Forward	Seldom Injured/Assist Seldom Needed
III	Complex Maneuvers	Advisable	Injury Rare, Self Rescue Easy but Long
IV	Precise, Fast Maneuvers	Necessary	Moderate To High Risk, Self Rescue Difficult
V	Long, Violent, Unavoidable	Difficult	Swim Dangerous, Rescue Difficult
VI	Never Attempted, Extreme		Severe Consequences, Rescue Impossible

AW International Scale of River Difficulty

Goober Indicators

Class I

Many Goobers in rented boats No PFD, Cooler Most Do Fine

Class II

Some may Hesitate or Walk No PFD, Cooler Some Carnage, Only Few Injuries

Class III

No rental available Inadequate PFD River Quickly Takes Boat Away

In State Examples ?

Water Rescue Ropes

Primary use is Rescue/Assist Swimmers,
And Recovery of Equipment & Line Crossings
A basic tool in all swiftwater rescue.

Haul Ropes - Static - -low stretch for haul systems, stabilization lines, clinches, ***not*** *your first rope*

Throw Ropes - Dynamic - -lots of stretch, soft coils, -- ***best first rope and for most typical rescues***

Characteristics of Rescue Throw Ropes

#1 -- It must be with you... *small and compact enough to carry in your boat!*

#2 -- You must be able to throw it effectively

High Visiblity Color

Floats, + strength & weight that are relatively unaffected by water, dries fast

Diameter large enough for easy grip even with cold hands -- 3/8" standard, 1/4" special use only

Length appropriate for your throwing ability and size of river . 75' standard, 50' min.

Construction and Material

----Essentially all rescue ropes are synthetic materials, ***kernmantle with braided sheath***

----Twisted and Braided ropes generally ***not used****, strength and durability issues...*

----Cotton and Manila materials generally ***not used*** *in river rescue, low strength, durablity*

----Some high strength materials are ***more difficult*** *to throw, recoil, restuff and tie.*

Traditional Bag with Handle is easiest to throw, stuff, and carry.*Probably best all around.*
Waist bag, small bag, and coiled lines have advantages only in certain uses

Recommended Ropes

3/8 Max Grip/Grabline **3600#** *Easy throw, Easy restuff, Best for Victim, more stretch, more expensive OK with typical Z drag*

3/8 Polypro , 1/4 Max Grip, 1/4 Spectra --all abt 1**900#** -- *Easy throw, easy restuff, inexpensive. Fails on typical Z drag*

3/8 Spectra/Dyneema/UltraLine **4500+ #** *Hardest to throw and restuff, low stretch, most expensive. Best for haul systems*

1" x 1/8" Tubular Webbing 4000# *Best for anchors, attaching to pinned boat or sharp edges, low stretch, inexpensive*

Vendors:

Max-Grip, UltraLine and Polypropylene ropes with a variety of throwbags, custom sizes
http://rescuesourcestore.com/
Dyneema, Spectra, and Polypropylene ropes with a variety of throwbags in standard lengths.
http://www.nrsweb.com/
A few Throw Ropes and bags by Astral, NRS and Salamander
http://store.noc.com/store/
Throw Ropes and bags by NRS and Harmony
Ozark Rescue Suppliers, 14531 E Highway 12, Rogers. (*near Praire Creek Park*) 479-925-7705
Pack Rat, 209 West Sunbridge, Fayetteville
Ouachita Outdoors Outfitters, Hot Springs
Turner Bend Store, Highway 23 at Mulberry River

General Rules

Don't Tie Yourself to Rope, *Don't put wrist into loop, Beware of entangles.*
Carry a Knife --- *to cut away and release from rope*
Avoid stepping on / standing over rope

Receiving the Rope

Face downstream on back
Feet up, toes out of water, arch back,
Grab the rope rather than the bag
Hold rope on chest, across opposite shoulder , set ferry angle

Throwing the Rope

Only One throw at a time
Consider what happens when victim catches rope
1 Establish eye & voice contact with victim before throw
2 Hit victim with rope
3 Hold on to rope, prepare for serious force
4 Pendulum or reel victim in asap

Practice, Practice, Practice! *4' target at 40 feet*

Second Throw

Restuff the bag
Spaghetti pile and fill bag with water
Coil into throwing hand

Belaying the swimmer

Dynamic-- move to lessen load, guide landing
Static- hip, sitting, shoulder, friction wrap a tree
Buddy Belay
Vector pull to assist landing

Protect yourself. Look out for each other. Don't Create More Victims!

Knots

Desirable Characteristics

Recognizable Form + Strong
As simple to untie as it is to tie.
Simple and easy to inspect.
Minimal rope use
Won't work itself loose.
Less decrease to rope strength.

Terminology

Standing and Running Ends, Bights. Loops

Key Actions:

Dress to align, straighten, & bundle all the parts.
Set to tighten all to touch, grab & cause friction.
Back up

3 Families of Basic Knots

Figure 8 Family

8 Stopper, 8 On a Bight,

Follow Thru/Trace 8 --loop & bend

Double Eye 8, In Line 8.

Overhand

Overhand Water Knot Double Fisherman,
Butterfly bowline

Hitches

No knot or Friction Hitch
Girth Hitch Prussik Hitch Munter Hitch

Entrapment (10 mininutes) 365

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 and appropriate swimming techniques*

Keep victim **Heads Up** with stabilization line

Snag line to release foot entrapments

Cinch line as a last resort

V-lowers (60 mininutes)

Slower, Higher Risk, More Complex

Requires:
two belay teams, rescue vest, rescue swimmer,
locking carabiner and two throw ropes

Allows direct maneuvering to rescue location

use hand signals and safety plan

arching back to plane

single rope technique for direct lower

higher water volumes and deeper conditions can overwhelm the rescuer

Anchors

Good Anchors:

Align with Load

Adequate for Load

What is weak link of haul system?

Close to Load

Accepts Haul Line

Learn to Use Equipment on Gear List

General Concepts

Stay low

Angles < 90° =70% 120°=100% 150°=200%

Bends > 4 x d

Avoid friction

Hard on soft / Soft on hard

Higher Risk -- What if?

Single Point Anchors

Simple, Fast, Safer?

No knot

Simple Loop

- on rock horn
- or around tree

3 Bight

Wrap 2, Pull 1

Cracks and Chocks

Back Up & Build Up

Multi-Point Anchors

higher risk, more difficult, longer lines, more equipment

If More Strength Needed:

in Base or Lines

To Align Line with Load

To Allow Load to Move

To Separate Load from Haul

1. **Load Sharing**
2. **Load Distributing** (***Self equalizing***)
3. **Self Protecting**

Safety Precautions with Haul Systems

Consider Haul System Failure
Consider Load Movement
Pull Angle is single most important aspect

Know Limits of your Haul System
Force Available:
Shoulder Jerk = 1.2 x weight
Hand Pull = 0.6 x weight

Rope Strength
Carabiner bend reduces by 50%
Carabiner Friction adds 40% to heavy load
Rescue Pulley adds less than 10% to load
Minimum bend is 4 x diameter
Wet reduces by 10%
Figure 8 knot reduces by 20%
Prusik slips about 900#
1” web with kleinheist fails about 3000#

3/8 Polypro 1900#	Fails with 3 pulling Z
3/8 Max Grip 3575#	OK with 3 on Z
3/8 Spectra 4500#	OK with 3 on Z
1” x 1/8” Tubular Webbing 4000#	

Mechanical Advantage Systems

Pull Angle is single most important aspect of system

Single Line

- **a. with Ten Boy Scouts** quick and simple 1:1
- **b. Vector Pull** 100:1 but short & variable

Multi Line

- **2:1** simple, single pulley, single tension, Easy to compound
- **Z-Drag** more complex and slower, single tension 3:1
- **Compound** stacked systems, 2:1 on 3:1 = 6:1, Double Vector

Additional Functions:

Progress Capturing Device: *prusik brake, Munter hitch, Kleimheist, Bachmann, friction wrap, Figure Eight, Gibbs, Jumar, etc*

Load Release Device: *knife, mariner hitch, tied off munter hitch*

Tag Line and Snubber

Quick rules:

Number of lines from the load *represents amount of MA*
If rope is attached directly to load, *MA is odd*
Pulley that is anchored, *change of direction only, doesn't add to MA*
Pulley that moves with load, *does add to MA*

Other Functions:

Brake/Progress Capturing Device:

prusik brake, Munter hitch, Kleimheist, Bachmann, friction wrap, Figure Eight, Gibbs, Jumar, etc

Load Release Device: *knife, mariner hitch, tied off munter hitch*

Tag/Recovery Line,

Damper/Snubber

Quick rules:

Protect Yourself If It Breaks -

stay out of line of fire, face away, wear helmet & Life Jacket, change angle

Number of lines from the load *represents amount of MA*

If rope is attached directly to load, *MA is odd*

Friction Matters - *Pulleys are much better than carabiner*

Pulley anchored- *change of direction only, doesn't add to MA*

Pulley that moves with load *adds to MA*

Wading (50 minutes)

Safe eddy rule *Toes Up until butt bounces on bottom or out of current*

Swim instead of fighting footing

Water Depth, Speed, and Bottom Features matter

Toes Upsteam

Side Step and Test before committing

Maintain Balance and "Look with your toes"

Solo with paddle

Two person

Wedge

Line astern

River Side Safety Rules *10 to 15 minutes*

Everyone is a Rescuer

Helmet and Life Jacket on and hooked when near water --- 15 foot rule --- *ask why*.

Real Emergency -- **Code Word** of the day
-- 3 blasts of **whistle**
--- limit **whistles** to emergency use
Signals : Help, Stop, I'm OK, Clear Center

Keep the Group Together --- Buddy within group
As Instructor/Leader make **frequent count** of heads and boats
Don't let anyone wander away alone or without notice

Watch -- Each Other for heat, cold,
--- weather, river traffic, other hazards
--- **Situational Awareness**

Up Stream Safety -- watch for (and if possible stop/warn) **traffic** and free floating hazards
-- Communicate with group leader

Down Stream Safety with throw rope
--- *Do not let swimmer/participants downstream of last safety*

Safe Eddy Rule: *You have to crawl before you walk.*
Don't stand until out of the current and in shallow water

Swimming Strategies:

p31-34, 130, 5/05 SWR Outline A Bowie 8/2010

Essential Self Rescue and Access Tool (*IV AW Safety Code*)

Self Rescue Quickly, *don't wait on others!*

Roll, Swim With Boat, Release Boat, Assist Your Rescuers, then swim to safe eddy

Safe Eddy Rule ++++ *Must Crawl before you walk in swift water!*

Don't Stand Up or push against bottom because of **risk of foot entrapment**

Swimming with boat and paddle

Situation Awareness: know "when to hold 'em and when to fold 'em"

Keep upstream or away from boats

Boat and paddle in one hand,

longer painter is easier to control than grab loop or gunnel

throw paddle, push boat toward bank if options are limited

Enter water cautiously, arms crossed, head up, back arched, **Up Stream Ferry Angle**

Defensive- Safe Swim Position-feet first, toes above water.

Face downstream, on your back, feet in front and toes at surface, set ferry angle

Downstream survey for hazards and eddies

Roll across eddy line

In Shallow Water arch your back,, tuck chin to look forward, stay in line with current

In Big water save strength, breathe between waves, focus on avoiding big hazards

Ride Out Major Drops To Save Strengththen catch eddy at the bottom

BRO Breathe, Relax, Observe

Work with current, get to shore, arm stokes for upstream ferry

change to aggressive position by rolling legs to side to avoid foot entrapment

Holes,Ledges and **Steep Drops** have danger of foot entrapment,

tuck into ball when entering

Escape **Hydraulics** may be difficult, best find a downstream jet

try to swim downstream after surfacing at boil line,

aggressive swimming towards end of hole

change body position/shape,

crawl on river bottom

Aggressive-head first and head down- in short hard bursts,to avoid hazard and out of current,

flutter kick with legs straight overhand back stroke or overhand crawl,

use **Up Stream Ferry Angle**

Get in the Eddies, Swim Hard- aim high, **barrel roll across eddy line**

whirlpools are transitory, big boils are nearly impossible

Strainers are common and a lethal hazard. Avoid if at all possible!

-roll on stomach, swim forward fast toward strainer and pull up and over

Exit: Crawl before you walk in deep or swift current,***Foot Entrapment is Lethal Hazard!***

Instructor exercise extra caution whenever anyone is in the river

Don't allow participants downstream of staff downstream safety position.

Live Bait Rescue

High Risk For Rescuer, --- Fast And Simple

Requires Trained People with Equipment

Rescue Swimmer With Rescue Vest & Locking Carabiner,
Shore Team: Rope Belay, Vector Pull, Backup/Buddy Belay,
Landing Zone Help, Downstream Safety/rope

Victim Psychology

Normal: able to assist in their own rescue
Panicked / Aggressive: extremely dangerous, *not in immediate danger*
Near/Counter panic: *initially nearly unresponsive, becomes panicked*
Unresponsive: *assume C-spine injury if unconscious*

Timing for water entry *key, and takes practice*

Hold 10 to 20 feet of rope on entry (toss downstream)
Time entry so as to ferry directly to victim
Avoid hovering

Speak to victim

Calm and Coach
Splash and back away for self protection
Rescuer safety is highest priority

Turn victim & hold

to PFD, or execute cross chest, or surf carry

Rescuer and victim belayed to shore

Vector pull on shore helpful

Contact Rescues and C-spine control

Recommended Only For Unconscious Victims Where No Other Option Exists
Fast, Simple, EXTREMELY RISKY
Rope throw is critical, receiving & holding to rope difficult
Very Difficult To Swim Victim To Shore
Redundant downstream safety is essential
Requires near-competitive swimming ability
Maintain in-line c-spine **Bring victim Face Up** with cradle or rotation methods
Crossed wrists for fast moving water, body sandwich if deep and slow

Line Ferries & Crossings

Get A Line Across The River?

Essential Skill !

General Principles

Look for narrow areas & clear throwing zones

Establish A Line Catcher

Keep the line as high as possible

Safety upstream and downstream is vital

Throw

Direct throw

Buddy throw

Messenger line

Boat, Swim, Or Wade

Rescue vest , webbing sling, under knee or butt

Reverse pendulum if possible,

Line out of water

Downstream loop

Simple Line Crossings

Toes and Face upstream

Pendulum --- *with multiple people, vector pull adds speed*

Hand over hand tag line -

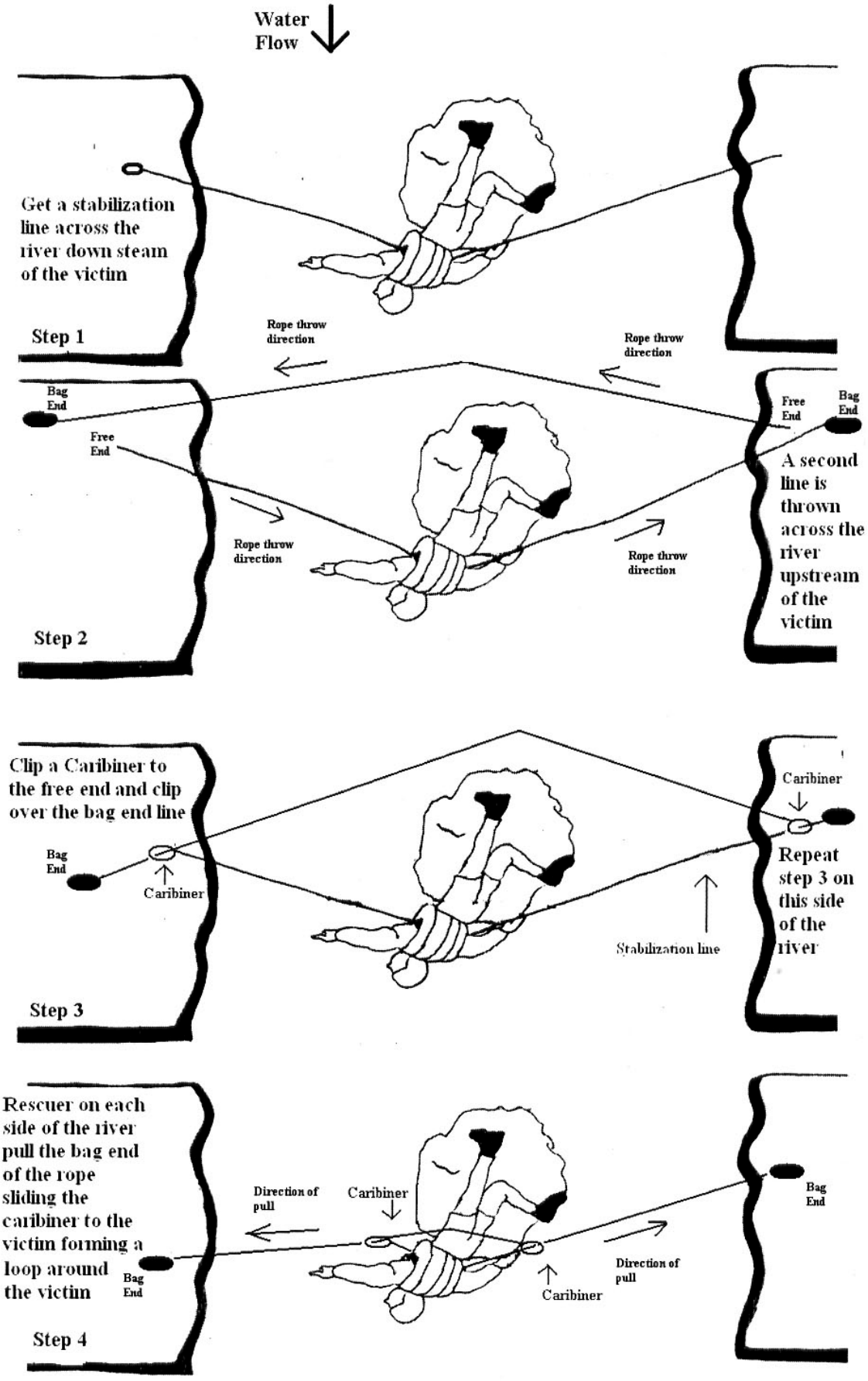
hard in fast deep water, excellent wading assist

Angle downstream is easier

Zip Line -- *slow set up, for larger groups, big loads, fun.*

Arkansas Cinch

Two lines, Uses both banks, No swim needed



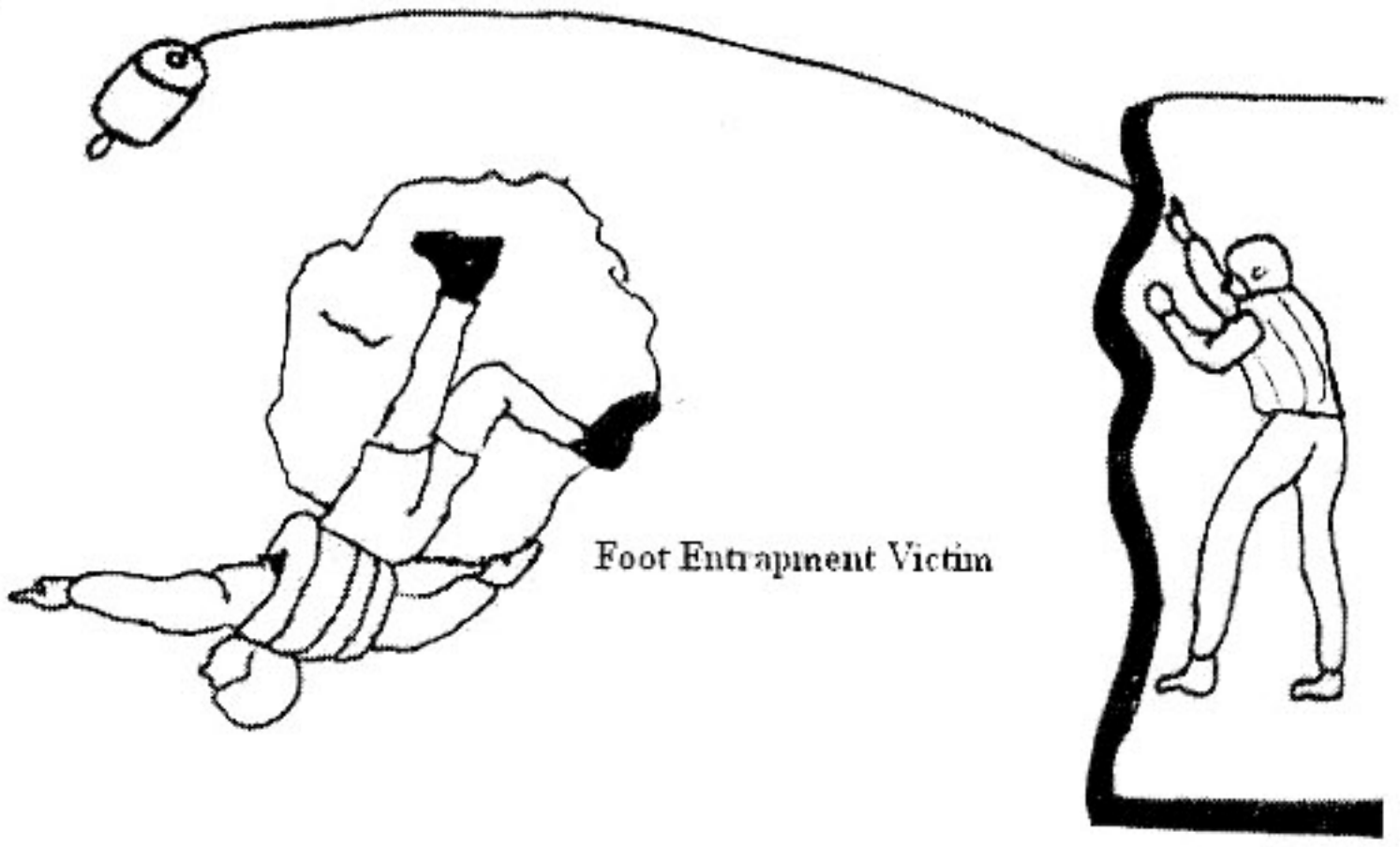
Simple Cinch

Two lines, Uses both banks, No swim needed

Kiwi Cinch

One line, Only one bank, Tethered Swim or Special Gadget Needed

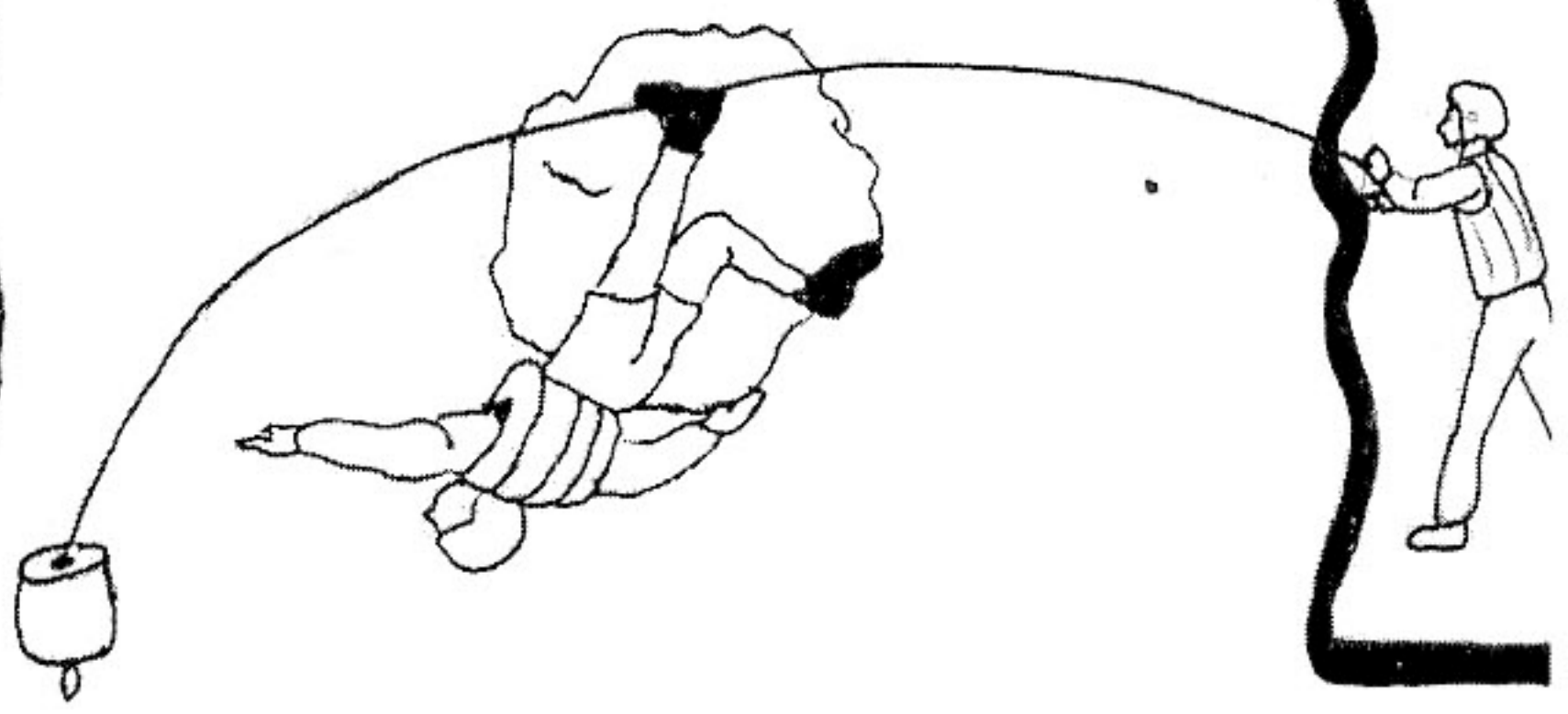
Water Flow ↓



Foot Entrapment Victim

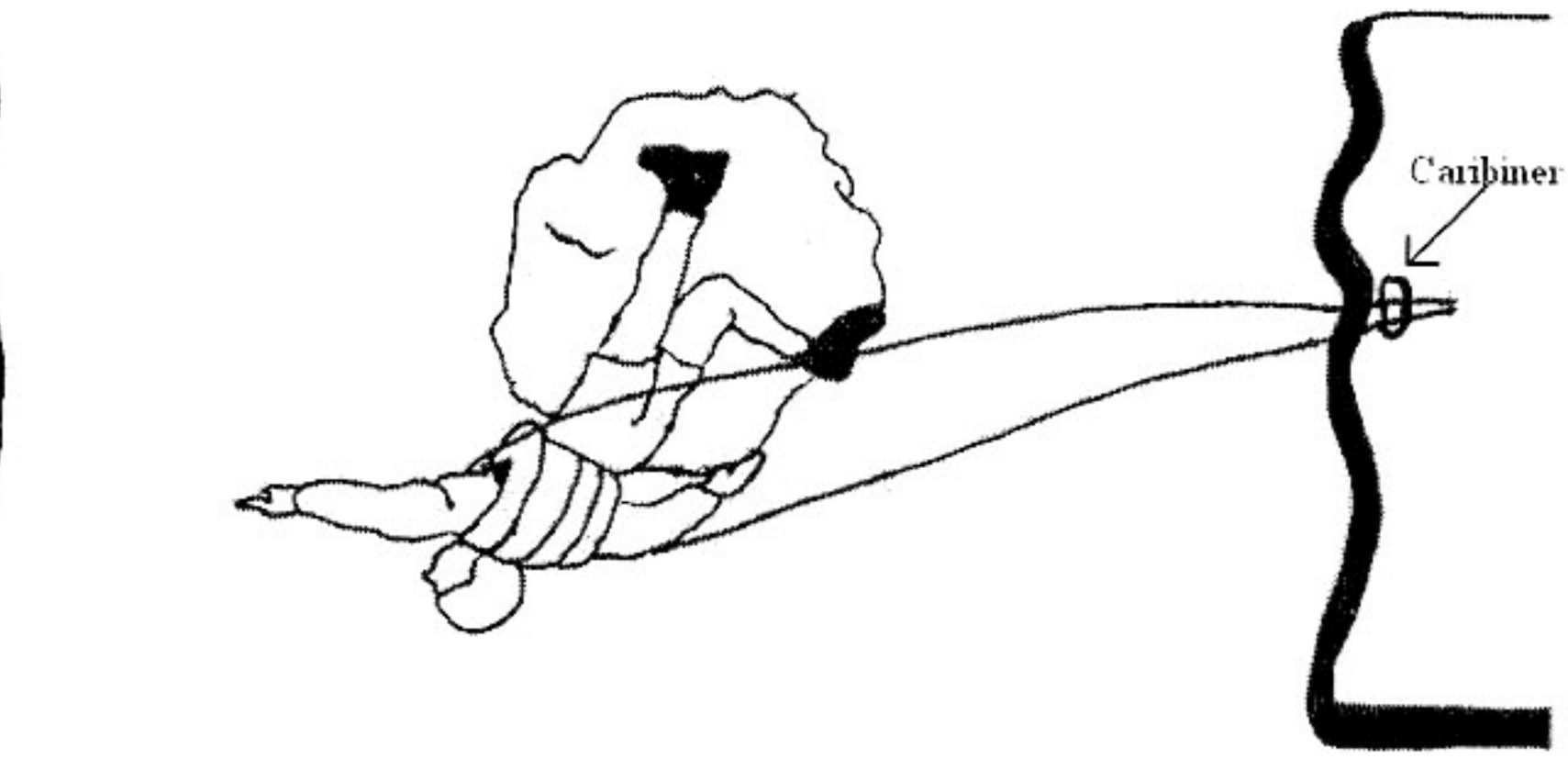
Throw a rope upstream and beyond the victim

Step 1



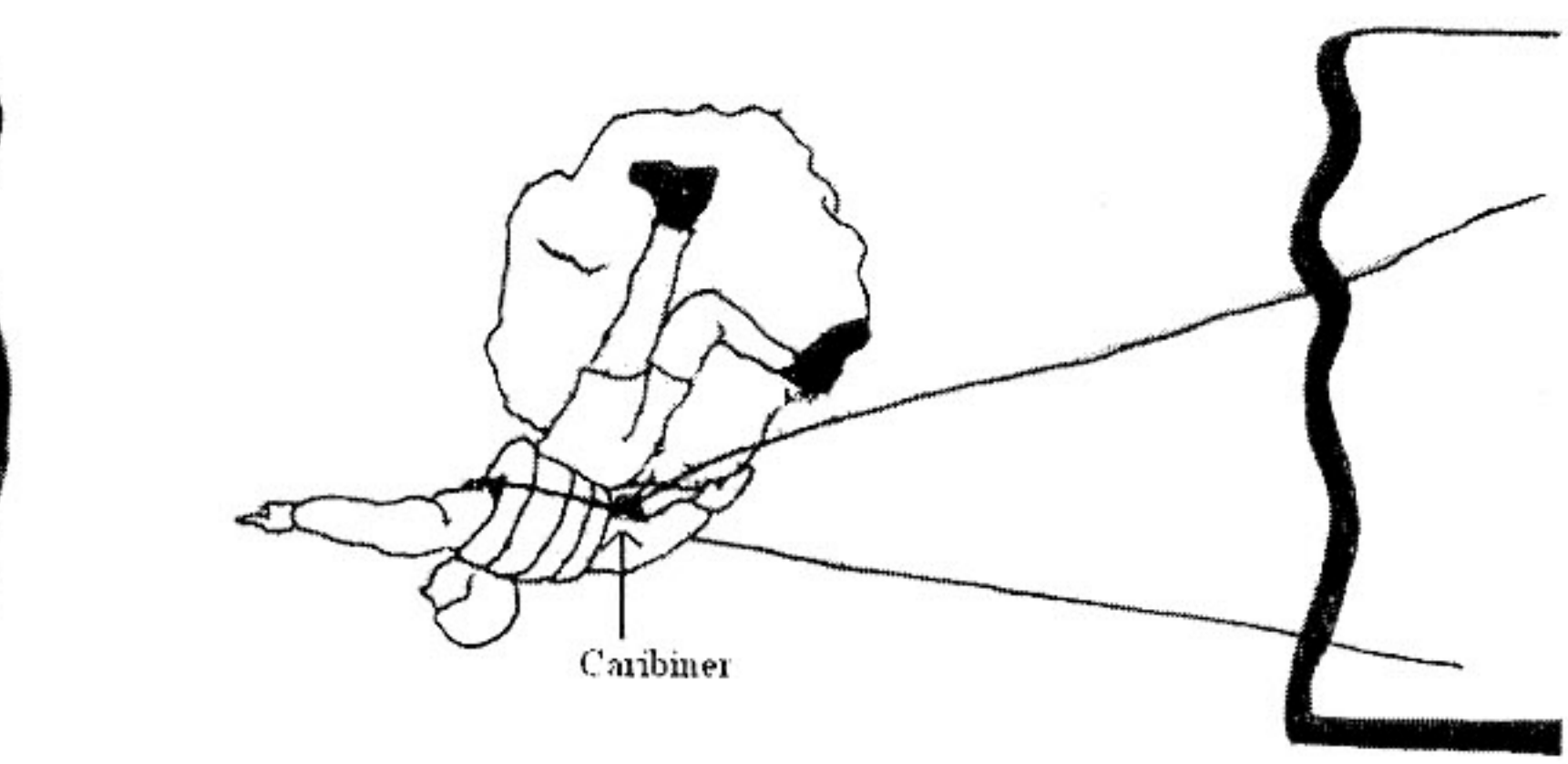
Allow the rope to float around and down stream of victim. Retrieve the rope from river by teathered swimmer weighted throw bag or reach system.

Step 2



Hook a caribiner around both lines. then cross the lines

Step 3



Take one line up stream and one line down stream sliding the caribiner down the rope towards the victim. encircling the victim in the rope

Step 4

Carlson Cinch