

SAFETY AND RESCUE
ON WHITEWATER, RIVERS, LAKES, REMOTE COUNTRY, BAYS AND OCEANS
By Karl DeLong

Paddling background. I started to canoe in the mid 1960s on the lakes of Wisconsin, and in Okefenokee Swamp and the Everglades. In the late 60s, I joined the staff of the Associated Colleges of the Midwest Biological Wilderness Field Station located in the BWCA. All travel was by canoe, 150-300 miles in a 5 week session, with inexperienced students and, sometimes, inexperienced instructors. The years I did not teach, I often paddled the Quetico at any time from May thru October, now about 4,000 miles and counting.

In 1976 I married Kathy McCluskey, a Red Cross Instructor trainer in canoeing and first aid. She had paddled for six years with the Penn State Outing Club (PSOC), the first U.S. group to get the technology from Europe for molding whitewater boats, and to first explore many of the rivers of the Appalachians and Rockies. Many became national champions and were actively involved in paddle safety, including Charlie Walbridge, ACA safety chair. I learned much from this group from the point of view of a middle-aged paddler being rescued. Kath and I continued to paddle with eastern paddlers in the Appalachians and with western paddlers in the Rockies, to train Grinnell College paddlers, and to lead students in trips to the East and West. After her death in 1987, I continued to paddle with friends and to teach and paddle with my son

After replacement of a heart valve in 1995, difficult whitewater was not wise, and I started to tour in kayaks in the Apostle Islands of Lake Superior, Voyageur National Park, Rhode Island, and Maine.

Introduction. The following is written to apply to all paddling. Much of my experience has been leading student groups in a field course (BWCA) or for recreation (BWCA, whitewater), or with expert groups in whitewater. But many of the points apply specifically to solo paddling, which I mostly do because of lack of a companion. The choice is often either never do it, or do it alone. Since this is my life style, I try and paddle with great care.

General precautions and considerations.

1. "Don't trade safety for comfort, convenience, or excitement" – *Sea Kayak Deep Trouble*
2. Know your own skill level and know your group and their capabilities – discuss this in advance. Be prepared to exclude a person if he/she has inadequate endurance, equipment or skill, or an incompatible attitude.
3. Tie all gear to a canoe.
4. Don't paddle alone, especially in whitewater (elsewhere, realize the consequences and risk).
5. Dress for water temperature, not air temperature.
6. Practice skills in warm, calm water. Then, with help, in rough and cold water. Practice in what you will wear.
7. Know that you can reach equipment (spare paddle, paddle float, pump, emergency gear (flares, whistle, etc.))
8. Know when to swim and when not to.
9. Have an emergency plan for all possibilities, and think, think, think of the possibilities.

10. The need for rescue of oneself or another almost always comes quickly and unexpectedly, except in play in whitewater.

Conditions. Pinning (vertical and horizontal), falls, strainers, foot entrapment, water temperature, culverts, group size, holes (reversals), toilets and suck holes, undercut rocks, fatigue, shoulder dislocation, dams, wind, steep waves, broaching, breaking waves, portage accidents (cuts, sprained ankle or knee, knocked unconscious, tides, fog, current

Skills. Know your skills and those of your companions in self-rescue, paddle skills in headwind, tailwind, quarter wind from front and behind, broadside. Strokes: sweeps, draw, pry, forward, backward, angled paddle, rudder, high and low brace. First aid, CPR, navigation, survival route finding, effects of moving water on a boat moving slower/faster than the current. Emergency signals – three of anything (fires, canoes, flares)

Equipment. Spare paddle, paddle tether, rope (painters, throw rope, extra for on land, and for towing a swimmer), carabineers, 1st aid kit (not just band aids), bailing bucket, pump and tether, paddle float and tether, compass, whistle, maps, tide charts, strobe, flares, mirror, air horn, VHF weather and Emergency Channel 16 broadcast, extra paddle and tether, watch, candle, duct tape

Whitewater.

I consider this topic first because it is essential to learn self-rescue, group rescue, and the paddle skills to handle many circumstances. Practice (play) is a large part of the sport and leads to refined skills. Since paddlers are almost always in a group, experience is easily and freely shared.

Conditions

Tight, steep creeks – horizontal pinning, falls and vertical pins, strainers, foot entrapment, surprises due to poor visibility, undercut rocks

Low water – pins

Class 3-5 - holes (reversals, hydraulics), fatigue, injury exiting boat (knee), shoulder dislocation, route finding, visibility, foot entrapment, undercut rocks

Temperature – not as critical as in lakes and the ocean where distances from shore are far greater, but should be understood, especially if swims could be long.

Equipment – throw rope bags (75') (many are too short and too light – a person in the water can not grip a thin rope), tow rope with quick release on boat or belt, first aid gear, dry bags in addition to air-float bags

Strokes and leans – forward, backward, sweeps and reverse sweep, draw, pry, rudder, high and low brace. Always lean away from the current (upstream in an eddy).

Behavior. Never let go of your paddle!

Practice, even class 2 whitewater, develops strokes and reflexes necessary in many lakes, and in oceans and bays. For example, the rudders and sweeps necessary to keep from broaching on steep waves on a windy Red Rock, and the reflex leans necessary to remain upright. Care must be taken to avoid sliding down a wave with the paddle on the down side where it can be drawn under the boat to cause a flip. Even on small streams such as the Buffalo R. in Arkansas there are surprises - tight turns, eddies, eddy lines, and rocks in swift current.

Even in relatively mild conditions, a person familiar with the above strokes makes a far more efficient solo or tandem peddler – steering can and should be done efficiently in both the stern and the bow.

Group size –

- Solo – an expert is often safer alone than with an inexperienced group, but dangers must be recognized
- Two – rescue possible but often difficult in class III and above
- Three – can rescue person and paddle, and boat (in whitewater or wind on a lake)
- Four – usually one can go for help

Rescue

- A person can be towed with a rope, or preferably, given a lift on the back of a boat
- A boat can be towed with rope, or put your bow in the boat's cockpit and push (quick and effective, but not streamlined – use a rope for long tows)

Large lakes (Red Rock and up), ocean bays and rounding ocean points

Conditions. Wind, difficulty keeping course, steep waves, swamping, distance from shore, temperature, difficult landings in waves, fast motorboats

Wind. Know how to steer. This might seem elementary, but turning a sea kayak when broadside in a stiff wind and waves is difficult. Practice this. Realize that an alternative course might necessary, even if not desirable, to reduce fatigue. Try changing course in a sea kayak from parallel to the waves to 45 degrees to the waves when crossing the mouth of White breast Bay in Red Rock.

Suggestions are given in *Sea Kayak – Deep Trouble*

Steep waves in open water.

Following waves and wind – weight boat toward back

Into waves and wind – weight boat toward front

Quartering – practice sweeps, draws, braces, leans

Swamping – know the capabilities of your canoe and the load limit (not the printed one, but the correct one) for the conditions at hand. I have often seen three persons with gear in one canoe, on a windy lake, in very serious trouble. John and I saw two adults (no vests) and two children under similar conditions. The canoe had a cover with waist ties – what would happen in a flip? Would they be trapped under the boat?

Distance from shore. In steep waves, wind, or cold water, a flip in a canoe or kayak can be serious when far from shore. Practice self-rescue. Have you ever flipped a canoe loaded with tied-in gear?

Can it be bailed or emptied if only one boat is present? Have you tried entering a canoe from the water? Can you roll your sea kayak? Have you ever towed a person a long (or even short) distance? Can you carry a person on the back of your white-water or sea kayak? Do you realize the effort needed? Can you roll with a person on the back (not too difficult)?

Temperature. Dress for the water temperature, not the air temperature.

Waves. They get larger and break as the water becomes shallower. Therefore the size and force of waves during landing can be a surprise and danger.

Motorboats are a danger on the Great Lakes, Voyageur National Park, ocean bays, etc. On a recent trip to Voyageurs, JP had a close call with a boat that apparently did not see him, while we were crossing a “motorboat thoroughfare.” See description in the next section.

See – contacting help under “Bay and Ocean Kayaking” below.

Remote Backcountry. BWCA, Quetico, many rivers, ocean bays “there ain’t much help out there”
-Sea Kayak deep trouble

Any problem can become serious when hours or days from help, other persons, telephone contact
 We once met two girls in the Quetico who wanted to lose weight on a long paddle trip – they took tea and some low calorie food, crackers, I think. After 5 days they were not in good shape.
 Portage accidents. (Hypothetical). You come to the end of a portage and find an unconscious companion under his canoe. He apparently slipped on wet, mossy rocks.

Know what to do and what not to do, how to lift a person (try it on a limp body), cautions, and basic first aid.

Can you deal with a cut from the slip of a knife or ax?

Be aware of falling dead trees or tree limbs. On Darky Lake in the Quetico, a companion and I looked at a large dead tree next to the campsite and decided to camp further than its height away.

On the return a week later, the tree was down on the “usual” site.

Know how to signal an aircraft (three of anything - fires, paddle in circle, flares, mirror)

Be able to signal other groups that may be distant – mirror, whistle (each has its own situation)

Know your route finding skills – I have found some people lost for several days, and many more very confused for at least a few hours. If you don’t know where you are on a map, you can’t use the map!

Bay and ocean kayaking. Consider a lone paddler who flips in waves attempting to land on an island, and the boat is damaged and not useable. Or, the boat is blown away by the wind in the middle of a crossing. Many of the following categories are important here.

Salt water. Waves can flip you, and you (without your boat) get to a remote shore or island, or a boat is damaged beyond available repair in getting to shore. Any accident that maroons a person in a saltwater environment, with no source of freshwater, is potentially serious if help cannot be summoned. A surplus of water should always be carried, along with a two-way radio, flares, etc. Dew can be collected in a rain-tarp directly or from drip from trees or rocks.

Water temperature. Any cold water 70 or cooler is potentially dangerous, especially if below 60 degrees. Temperatures in Maine are well below 60 degrees early in the summer, and rarely about 65. These temperatures can quickly cause hypothermia and loss of rational thought, if not unconsciousness. *Dress for water temperature, not air temperature. A complete wetsuit or dry suit is recommended. Alternative – a Farmer John and dry top – better shoulder flexibility.*

Remote area. This will exacerbate any problems. “There ain’t much help out there.”

Rapidly changing conditions. A weather radio with good batteries, and spares, is essential. Best is a more expensive model (\$200-399) with Channel 16 monitored by the coast guard (including great lakes). Some radios can be used to contact help from the more remote areas of the BWCA. Learn how to use the radio *before* it is needed.

Waves in open water. Practice in big waves, with expert help, before you are caught in them. This could happen trying to recross Red Rock to your car in the afternoon after a calm morning. Waves are far more complex in the ocean and bays where there is interaction between ocean waves, which have traveled long distances, and local wind, often in a different direction. I have found areas where I was “paddling in moguls” in ski terms, or in steep waves coming from several directions, similar to the bounce off a cliff in whitewater. *Practice* self-rescue under these conditions.

Waves near rocks and rocky landings. These can bash boats, heads, limbs, and ribs... and create very tricky currents; good whitewater skills are essential. A helmet should be worn.

Steep breaking waves on sandy steep beaches. Very dangerous and powerful – can easily disable you physically (dislocate a shoulder, tear a knee, bang head on bottom), tear a paddle from your hands, or bust a boat.

Motorboats and visibility. This past summer, John Pearson and I were crossing a wide, boat channel in Voyageur National Park. I was in front of John, part way across, when I noticed a motorboat in the distance 90 degrees to the right, and paddled hard. The boat passed well behind me but came very close to John. It appeared as if the person steering in the back of the boat did not see around the person sitting in the front (who was looking back). An air horn might have alerted the boat. I have also thought of an international orange flag on a slim stick (like used on motorbikes) to wave back and forth. A direct hit could mean the loss of the boat, injury, or death.

Wind. In addition to the creation of waves, wind can blow you far off course, or make keeping on course difficult, if not exhausting. It can change in strength or direction slowly, or in an instant, catching a raised paddle blade causing a flip.

Fog. Memories of Maine....thinking back to the fog bank far offshore as I paddled out around Isle au Haut, off Deer Isle ...”I better memorize some readings at the takeoffs to major crossings.” This proved valuable on the return trip when nothing was visible across the 3 crossings, each about one mile.

Have a compass and know how to use it.

Loss of kayak in wind after a wet exit. Here are a host of problems from hypothermia, visibility on ships, etc. The main advice is *keep all essentials on your body*. This might be bulky, but when conditions might be difficult, pack all this stuff on your back (compass, fire-building equipment, flares, strobe, whistle, air horn, and some short light rope). If the wind is bad enough to flip you, and you wet exit, it could whisk your boat away in an instant.

A paddle tether could keep the paddle with the person or boat. I am cautious, however, about ropes that are loose. They could entangle a paddler. I remember a competent paddler in a popular play hole on the Ocoee R; he flipped and a person on shore immediately threw a rescue line, which entangled the paddler and made rolling difficult. He came up livid with rage and gave he “rescuer” quite a verbal dressing-down.

Learn to swim with a paddle. Crawl with an unfeathered paddle, backstroke with a feathered paddle. You might find your boat on the shore.

Happy Paddling

Incidents. A sampling from personal experiences and those of close friends

Flat water

1. BWCA - Wheelbarrow falls – body at base of falls
Inexperienced? Solo paddler who got too close to the top?
2. Inexperienced biology instructor paddles parallel to waves in a wind and overturns canoe in BWCA
No items secured in canoe – all gear lost; instructor and students rescued
3. Des Moines River above Ft. Dodge: Corn belt Power Dam - 3 dead at lowhead dam in 1985;
Recognize dangers of lowhead dams and the reversals at the bottom which are vary powerful and have no exits
4. Florida Bay – calm to island, high wind toward ocean on way back; nearly swept under bridge to ocean
Do not assume conditions will be constant
5. 40 rescues in one day on the St. Francis, MS. The river went from 8” to 40” in a few hrs. Kathy and I were the S&R paddlers for a Univ. IA trip, whose leader just paddled off downstream.
Be prepared for such an occurrence.
6. 6 deaths on the Arkansas in one week
Inexperienced rafters, fatigue of a kayaker after 3 hrs. Rescuing another, and a heart attack of a middle-aged man from falling into cold water
7. A class 5 racer in Idaho dead at the bottom of a class 3 rapid.
Cause unknown, but paddled solo
Do not assume conditions will be constant
9. New York Unadilla Slalom – racer flipped in 2’ of water and could not roll; exited and started to walk to shore. Foot entrapment occurred; the peddler was submerged and rescue was unsuccessful even with rescue attempts by the top paddlers of the country.
Never put your foot down in whitewater.
10. Bull Sluice, Chattooga R. section 3, SC. A boater gets out before the main drop (why??) He takes a step and is sucked into a “toilet” in the rock, which was unknown to all paddlers, not just this group. He disappeared below water except for an outstretched arm.
Never put your foot down near a drop.
Section 4. An instgructor is bobbing in a eddy next to a rock. He flips and is pulled under the rock and pinned. This is difficult to call – undercut rocks are not easy to spot unless you see the current flow under the rock; often they are discovered only at low water levels.
11. A paddler heads across Red Rock in 40 degree water, on a warm day, with low wind and few waves, but with no wet or dry gear and no practice in self rescue (rolling or re-entering).
Never assume that a wind will not develop and that you will not broach and flip. In cold water this could be fatal.
12. A novice is invited on a run in a “rubber duckie” thru Brown’s Canyon on the Arkansas by a class IV paddler from Philadelphia, a policeman. He loans her his daughter’s life vest. Three S&R paddlers in kayaks accompany them, one ranked 5th nationally. All goes smoothly until “widow maker” where the inflatable flips and both occupants swim. The adjacent S&R paddler also flips; he rolls to see no one. Other S&R paddlers were absorbed in conversation, a bend behind. The

first S&R, after a short search, sees the novice, his wife, underwater holding her paddle, reaches down and pulls the person up, instructs her on holding on to the boat, and paddles to shore. 2nd occupant eventually self-rescues from undercut rock. 2nd and 3rd S&R finally show up (and get reprimanded).

Know your group, capabilities, responsibilities, and equipment (life vest had no buoyancy)

13. Gauley R. Class V – shoulder dislocation.

Never paddle alone.

14. Quetico Prov. Pk. Student portages in low cut tennis shoes and gashes foot badly. Needs many stitches and a multi-day escort to car and hospital.

Never portage in water in tennis shoes; wear high top boots.

15. Arkansas R. at high level (4' below numbered rapids – Harvard Estates run). Waves so large boaters could not see each other. I came over a wave and was struck in the chest by another boater's bow (he was surfing the next wave below). Ribs were bruised – it took months to recover.

Same stretch – C-1 paddler (later a Nantahala Instr.) could not roll and came out of her boat.

Three persons were needed to reach and rescue the paddler, a fourth to get the boat, and a fifth to get the paddle. I was the seventh, out of commission in an eddy.

16. A paddler flips and swims in a steep 250 ft/mi drop class 5 run Pine Creek Canyon of the Arkansas, in the 1970s. She has on rain pants. She is not buoyant, despite a good PFD.

Water in rain pants loses air bubbles, which escape, but the paddler is in foamy whitewater. Thus, she is much heavier than the surrounding water and sinks. She was rescued by a person on shore with a rescue rope.

17. Ocoee – approaching double-trouble, two large surfing waves, and a surfing paddler does not look upstream – putting the approaching paddler in danger of being hit in chest

Always be aware of upstream traffic and yield to it. That is convention.

18. Wolf R. Wis. A kayaker flips in the hole above horserace, makes two roll attempts, and then wet-exits. Another flips downstream in a steep, rocky, long rapid in fairly low water and cannot get out of her boat. In each case, the speed of rescue necessary caused the flipped paddler to grab the combing of my boat from the side so that the rest of the rapid had to be paddled with a lean away from the person hanging on to the boat.

This is O.K., but know your limitations so that you do not also put yourself in danger.

19. Flathead R., MT. A paddler flips and wet exits and grabs my rear grab loop. Although momentarily safe, we are washing toward a hole. I repeatedly yell “Let go!” so as to avoid the hole and then re—rescue the swimmer. He doesn’t, and we enter the hole, coming apart in many pieces. He thought I said “Let’s go!”

Paddlers should develop precise language similar to that used in rock climbing

20. Three times I have pinned; each time I was watching a novice paddler or chasing a free boat, and was not paying enough attention to where I was going. Two pins resulted in swims, the third in a busted fiberglass boat which began to wrap the rock. This is dangerous, because it can pin the person in the boat and prevent exit. All were on small streams in less than 3’ of water.

Always pay attention to yourself first – you cannot rescue if you are in trouble

21. An expert takes a novice women on a run thru granite canyon, Arkansas R., CO. He heads downstream and around a bend, she flips, swims, and lodges on and then crawls onto a mid-river rock in fast, powerful current. I eddy behind the rock but cannot reach her, my wife paddles to catch the first paddler to get him to return and help in the rescue. When all are gathered again, the rescue takes an hour and involves a few ropes, carabineers, and all of the paddlers.

The group must stay together. *Learn paddle language.* Vertical paddle – clear; horizontal – stop; top diagonal left – go left; top diagonal right – go right. This is the way the early 1970s paddlers signaled, even in a group of class V and national champion caliber.