

Drowning

Drowning is the top killer in national parks—accounting for 37 percent of deaths—and in the backcountry, rivers are the biggest threat. Here's how to keep from going under.

1

Assess

Waterfalls often create idyllic swimming holes, but their hydraulics can trap you underwater. If the "boil line" (A), where water bubbles up below a cascade, is more than 10 feet downstream and water is circulating back up to the falls, the hydraulic is too strong; avoid it.

In early summer, mountain streams can swell with snowmelt. **To gauge the speed** of a river, throw a stick in the water and walk alongside it. If the stick is moving faster than you can walk, the current is likely too powerful to cross.

Eddies (B) form behind rocks and other obstructions and have slower, easier-to-cross flows.

Downstream hazards (C) greatly increase your risk of getting pinned under if you fall. Don't cross above waterfalls, rapids, "V" formations (indicating swifter, deeper water), boulders, or logjams.

Steep or undercut banks (D) indicate faster flow; beware.



Escape a hydraulic.



Eddy method



Rescue a partner.



Improve a flotation device.



Group pole method

2

Cross

If a river is knee-deep or deeper—but slow enough to cross—use one of these techniques to get across.

Solo tripod If you're alone, use a trekking pole for added stability and

to probe the river bottom. Face upstream and sidestep across the river, always maintaining two points of contact with the riverbed.

Group eddy (E) In a group, put your strongest person farthest upstream, doing the tripod (see above). Everyone stands in line behind the leader, holding the hipbelt of the person in front. Each successive member creates a larger eddy that reduces the forces on the person behind him. Good for three to five people of various size.

Group pole (F) Stand shoulder-to-shoulder with your group, facing across the river, with the strongest person upstream. The group all holds an easy-to-grasp pole (like a downed lodgepole pine or fishing rod case) in front of them. Everyone walks straight ahead across the river and can use the pole for support. Best for groups of up to about 10 people in rocky or boulder-strewn riverbeds.

3

Survive

Unbuckle your pack straps before crossing. If you fall in, **take off your pack**; hold onto it for flotation and kick. Lose your pack? Roll into a seated position, feet downstream, and paddle with your arms.

If you get stuck in a hydraulic (G), swim underneath the recirculating water to break free, and continue downstream beyond the boil line to avoid getting caught in the swirl again.

Save a friend in trouble.

Reach out to him with a branch or trekking pole (H). Make sure you are securely anchored at the shore so you don't fall in when he grabs hold.

Improve a "rescue torpedo" (I), using items like a rolled-up foam sleeping pad bound with long webbing or bear-bag cord, and tow him to shore.

Go in after him only as a last resort, and only if you can do so safely. You don't want to become a second victim.