WATER RESCUE

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# TEAM PROTECTION

## A new strategic paradigm for Swiftwater Rescue

## Upstream, downstream, mid-stream and pinned underwater.

By Dr Michael Croslin & Mitch Sasser


**Mike Croslin is co-founder of the world's first swiftwater rescue program, indeed co-inventor of the very term 'swiftwater rescue' along with fellow water rescue legends Jim Segerstrom, Warren Berg and Barr Edwards. They went on to form Rescue3.**

**Mitch is the CEO of training company Tandem Rescate in Chile formed 20 years ago. He was originally trained by Jim Segerstrom, Mike Croslin and Jim Lavalley**


***Trust the source. I'm the one that baked a fundamental mistake into the original swiftwater rescue training cake all those years ago so if I now tell you that there are certain aspects of that cake that need to be improved you should want to hear my confession and act upon it to rectify any further propagation of mistakes.***

**Dr Michael Croslin**

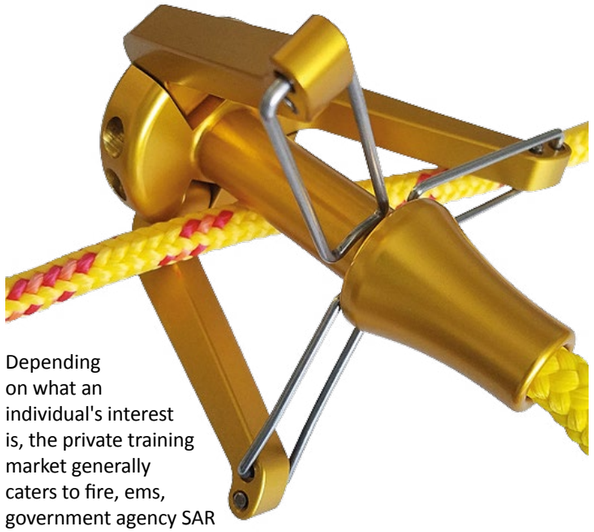
## INTRODUCTION

### A history of modern swiftwater rescue

Team leaders must ask the question, "How do I define competency in Swiftwater rescue to protect my team members? This requires a strong level of independence on each team member's part. They must be able to self-rescue and handle their own weight in the water, always be looking for solutions to help, and most importantly should know their PPE and how to use it. This instinct is to be of service to others, to develop ourselves in such a manner that we stand beside a group of like-minded individuals with vigilance and trust in each others skill-sets. Swiftwater incidents should involve the least amount of risk to you, your teammates and those you serve. In that order.







Depending on what an individual's interest is, the private training market generally caters to fire, ems, government agency SAR groups, Special operation groups on training rotations as a team. Each getting introduced or refreshed at different levels based on experience, or past certifications. The standard today is SRT 2-3 and 4(Advanced) or some equivalent similar iteration thereof, or in-house agency program some of which are excellent. A top-tier example is CalFire in California who does their own training roughly copied with some improvements from what Jim Segerstrom and Michael Croslin taught them in the early days of Rescue3 at the inception of developing a national standard for NFPA. These refinements learned over time as their lead instructors grew their programs throughout the state. For 24/7 OES and local area coverage, these teams are required to train year-round and have more Swiftwater experience than any other SAR group in the state. Sean Norman brought his team for a weeks training in the central Sierra to get introduced to the Reach line capture capabilities and experience first-hand a series of exercises that frankly astonished them and opened their minds to a new way of looking at Technical Swiftwater training and establishment of standard protocols within their program. Cal-Fire's area of operations included the very technically difficult Feather River Canyon with a highway running right next to the river and all the motorists, tourists, boaters, swimmers etc that get in trouble, and the flood plain below it and beyond. This Team immediately adopted and grew to a standard of competency that made it clear to us all that the Reach device is PPE for each team member not simply a piece of team equipment. If one person could speed up and simplify an evolution with such impressive accuracy and precision, the versatility of the entire team utilizing the same would exponentially increase the safety between members and that of the rescue operation.

That was 15 years ago and it's the longest-running team-based test of the REACH's value as a trusted and essential tool in public service. Mitch Sasser and I worked together to transmit the same level of competency in Chile at Tandem Rescate where his crew and students took development even further as a test-bed for big volume applications and remote anchoring. We obviously have a vested interest in propagating use of the Reach system but somebody would have come up with a

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Learning the ropes.....literally. Team members should become intimately familiar with the correct way to stow, coil and throw the Reach device in all of your most likely incident spots and in ideal conditions before training in a whole host of unfamiliar situations in uncomfortable circumstances; difficult stances in inclement weather and poor light.

similar design sooner or later and we would have been happy to promote whatever was on the market of high enough quality to do this job. We're very thankful that we are again working with trusted friends to evolve specific methods to gain mastery over the use of the REACH device as PPE in combination with a waist-worn throwbag. Jim Lavalley of *Rescue Canada* helped with testing and validation and teaches and utilizes it in their programs. ACA instructors teach it in their programs and their instructors were involved in testing. These changes all make you safer and more effective at doing your job. We don't make these suggestions to boost anything but your effectiveness and survivability under harsh conditions and because I firmly believe that water rescue needs to be safer for the rescuer. There will be those whose only motivation in joining a swiftwater team is the adrenaline rush of an epic battle with fast moving water and there will be times when this might be sufficient to pull off a 'heroic' rescue. But the wants of the individual need to be weighed against the needs of the team.

...Turn off the lights and roll the projector showing how easy it is to die trying to be a hero to your teammate who made a rookie error of missing a throwbag toss in a choppy set of haystacks. The bag was only 6 inches from your teammate's head but in a trough behind him as he peaks on the wave with a great view of his impending death. You struggle to open a second bag and toss it nervously, but on target, to your teammate just as he accelerates into the sieve. You and your other teammates will be spending the next three days trying to extract your dear friend from the belly of the river monster you all tried to mitigate against with standard protocols for down stream protection. You learned these in your SRT program taught by a very reputable Instructor from a training program that pioneered and created the SRT programs that the entire planet has emulated with amazing results. They did what they were taught but, in this case, it did not work.

Things are changing rapidly in the world and as we know, climate change will require some serious increases in our preparation and operational tempo and response. There will be more to do with less time to do it in conditions that put rescuers at greater risk. We train during the day with repetition to prepare for the night calls during more powerful and unpredictable weather-related/flood-related events. Regardless of what progress is made against climate change, there is no possible way for us to alter this reality, and Swiftwater teams will benefit greatly from the less role-based protection. Downstream protection will be put to the test and teams with big exposure in their areas of operation will appreciate the protocols we are suggesting in this article and most recertification of students should focus on team-based protection to enhance the safety of everyone on the water. We are suggesting a more team-based awareness and remote capture upgrade. Strategic protection awareness and efficiency that can be provided by the Reach and constant carry throw bag combination and it is strongly recommended that teams learn to integrate this into every aspect of their programs.

## The REACH SYSTEM as PERSONAL ISSUE.....

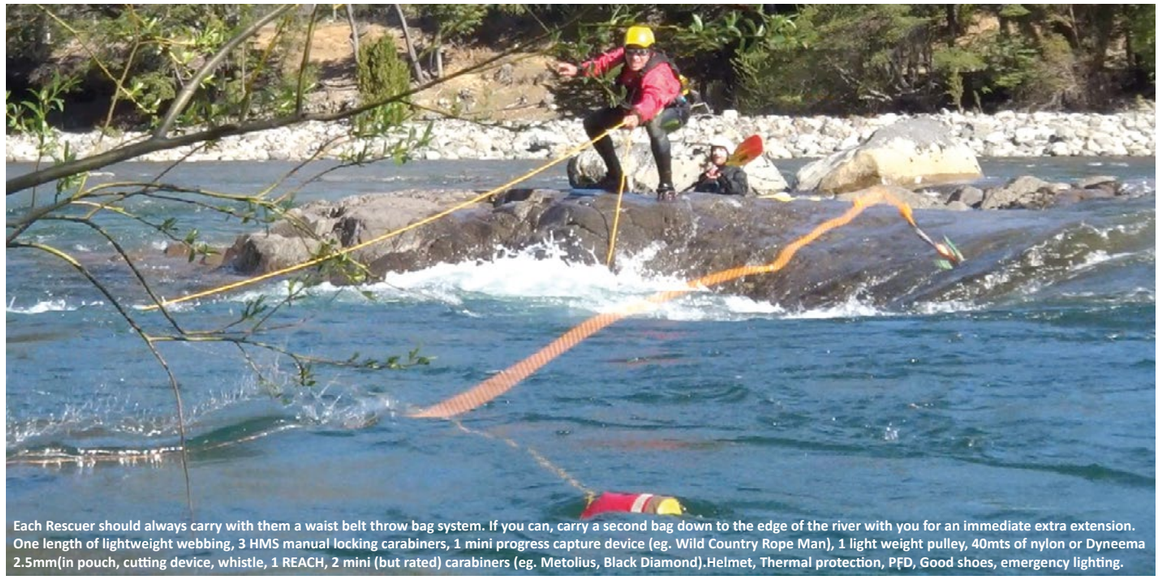
On every evolution where a rescuer must cross pushy high-velocity channels, a rescuer must know how to place a remote anchor with a Reach by snagging in the brush, chocking between rocks, or snagging preset natural anchors at recurrent Swiftwater incident sites. By doing so.....

### no one should ever need to swim a line

let the rope pendulum the rescuer, and the channel flow does the heavy hauling. Once anchored on the far shore the rescuer now has a fixed line to manage and give stability to a wading crossing.
Rescuers need small micro ascending and progress capture devices added to their PPE set-up that enable them to have a better grip (Jumar type handle) on the line while crossing and apply ascent and descent capabilities. This greatly increases mobility and confidence. Even with a traditional throw bag, it is a method that has been proven to be added safety for wading crossings where the final section of the crossing must be done by a pendulum floating swing into shore. If a fall occurs the angle is already set for the line to pendulum the rescuer,
and let the flow do the heavy hauling.

## Jim Lavalley on WADING

I began teaching wading techniques quite different that what was first demonstrated as possible wading techniques for rescuers and teams. Line A-Stern and The Wedge are techniques that ergonomically do not favor the human body while crossing fast moving water while facing upstream. This is due to the form of the human leg and atriculation of movements prone to wash-out while taking a step. Canadian Wildlife and Fisheries and combined knowledge from Fly-Fishing Guides who spend time in rivers wading up to 40hrs a week proved to have developed techniques that are mechanically better and actually flow with the push of the current saving energy and improving progress towards shore. Enter the river facing the opposite shore. Your upper leg should incline upstream while your back leg anchors directly behind in a triangle supporting your upstream leg. The body is more narrow standing sideways to the current and your back leg is in the eddy of the front. Sliding your foot across the bottom of the river is more secure while lifting your foot off the bottom can cause a wash-out difficult to recover from resulting in a fall. Wading Staffs at 2mts in length also support this wading technique in a downstream support forming a tripod of contacts to stabilize with while crossing. Using the same positioning for crossing as a pair your wading partner will have their back to the far shore. Work in unison sliding the feet across the bottom, inclining the body and upstream leg towards the current for better stabilization. Fly fisherman care for a unique group of clients, many of ,whom are older in age. Outdoor educators , Guides and all rescuers should know how to wade downstream at 45 or greater to the current for easy go with the flow stream or channel crossings. The forward downstream progression in shallower water is best done with a wading staff for better stability but when the channel is up to your waist the is a forward downstream hop-skip and float a bit type of fast crossing. Jim is a Higgins and Langly Life-time Achievement Award Recipient and Founder of Rescue Canada



Each Rescuer should always carry with them a waist belt throw bag system. If you can, carry a second bag down to the edge of the river with you for an immediate extra extension. One length of lightweight webbing, 3 HMS manual locking carabiners, 1 mini progress capture device (eg. Wild Country Rope Man), 1 light weight pulley, 40mts of nylon or Dyneema 2.5mm(in pouch, cutting device, whistle, 1 REACH, 2 mini (but rated) carabiners (eg. Metolius, Black Diamond).Helmet, Thermal protection, PFD, Good shoes, emergency lighting.

If it's a wide channel beyond 70ft it is already protocol to have a rescue swimmer cross the channel ***without*** towing a line. Instead the rescuer should carry a waist-mounted Reach system. This should be the case for ALL crossings. Once across, she takes off her waist-worn throw bag and attaches a reach and gets positioned to cross clip a 75ft throw bag thrown from her teammate, each having 60ft of deployable rope to create 120ft of remote crossing power in strong turbulent water. This is a religious experience – when a throw bag is tossed halfway across a big, fast-moving, turbulent channel and a rescuer from a safe place tosses a reach and hauls that rope in like magic. Team members quickly learn that chasing after lines thrown short, running high-risk sprints along the shore to manage lines, going after lost throw bags during training, and clearing channels of wire/fishing tackle are all potentially high-risk activities. Without use of the Reach System, this is the current state of the art in Swiftwater Emergency Response.

Checks and operational considerations for night ops means you must have DAY-TIME training methods wired to the core. Are you training daytime protocols with night ops in mind? Many do not know how to do this in an effective way that builds confidence in operations involving distances more than 15mts from your position.

Muscle memory and brain function memory when using the rescue throw bag combined with remote rescue, expanded range contact and self-rescue methods are the highest level of proficiency an individual can achieve. A team of these like-minded pro-active rescuers can cover and contain twice the radius that teams without the device can reasonably control. When we teach students to manage rescue lines we get down to details that matter when a successful throw is of vital importance. The trained rescuer will know how to pack the bag in seconds, mount each coil correctly in hand avoiding overlaps and entanglement, and count coils, your coils! Your working arm is the fixed measurement that combines length and weight calculations used for accuracy and memorizing distances. Eliminate the doubt in your head. These practices almost completely eliminate questionable throws of throw bags, cross clips for line capture and remote anchoring because, before performing the technique, the rescuer already has the knowledge and skill-set to accomplish the task.

At night, if you can hear your teammate over the rush of the water, your senses will kick in to determine the gap between you. Voice contact generally falls within the 30-40mt range so repeated success when performed in day-time training, perhaps using sight-limiting props covering your eyes, can be modified to be performed at night with limited visibility but allowing for a small increase in sound travel. Repetitive day-time training in likely and historical rescue locations will also help when it comes to tackling the same locations in the dark. External lighting can be of great help but should be set-up as background lighting that frames a silhouette of what we are aiming for with the Reach.

Working with Chem-Lights in night conditions will also help with accuracy and distances. There are a few throw bags on the market today that include an attachment for chem lights. Attaching one to the end of a Reach is simple and huge addition to clipping lines at night or even remote anchoring to.
When performing line capture at night, focus on the position of the bag deployed into the water knowing the effective range of getting a secure clip in relation to the deployment of the Reach. When performing line capture it is best to cross-clip at moments when the line in the water is as straight as possible. Avoid throwing the Reach into the pendulum downstream belly of the line to be captured.



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If the two rescuers are directly across from each other the cross-clip angle is best achieved downstream of the rescuers. A straight throw at an angle downstream of your partner who will deploy the Reach for capture, will suit best for execution. This is especially true in high-velocity flows. The deployed bag into the river must be a low-angle arc over the water that allows the reach to come into play in some cases only a half-second after the deployment of the bag into the water.

If you are having trouble clipping a line in high velocity flows your position or cross-clip angle may need to be improved. This is most often achieved from an upstream position deploying the Reach downstream across the opposing line. This also helps in keeping the Reach off the bottom of the river by using the current speed to keep it up close to the surface much like a fishing lure.

If a throw of the Reach misses, no worries. Just coil back into your hand with the Reach hanging just below your coils to avoid entanglement and you are ready for the second throw in a matter of seconds. Train fast current line-capture from the best angle of interception from steep upstream angles projected downstream that have a higher rate of success when capturing pendulum bags deployed with the intention to connect the two and progress onto the next evolution or to connect and rescue quickly.

Train fast current line-capture from the best angle of interception from steep upstream angles projected downstream that have a higher rate of success when capturing pendulum bags deployed with the intention to connect the two and progress onto the next evolution or to connect and rescue quickly. This training is unique, especially for night ops. We like to call it PPE training and what it does is strain your ability to perform within the comfort zone of contact with a partner or shoreline. This training method will push you to use your PPE in a way that enables seamless communication in an expanded range of options that can only be achieved if the Reach is included in your PPE. When team members train to the limits of length of their throw bag they understand how important a role this device makes in all of the floating rescue line rescue methods established to date.

If you are still wondering why you have not been able to get up to par it may be a lack of instructor knowledge specifically on the use of the Reach device. In other words, your team should be looking for training programs that include more than just line capture with the reach but also remote anchoring to rocks and boulders or trees and brush for stream crossings on a tension diagonal, pendulum swings, gear retrieval. There must be a focus on access and egress including the use of the Reach. As many know and others will learn, the game has changed. All rescuers have now been upgraded to be able to connect and protect.

The best way to better your response under high-risk conditions is to never forget to perform your preplanning work that is so critical to success. This brings us to dryLand training and frequent historical site maintenance and improvement that rescuers need during a night ops event under stormy conditions.

Can one clip another line with the Reach on Dry-Land? Yes you can! Do not limit your imagination to the most common applications of the Reach or what have become to be known as the easiest uses of the Reach. There is so much more you can do with it. The moment the reach hits the far bank there is no need to haul in rapidly, maintain line tension if need be so the line stays out of the water. If not, manoeuvring can help situate the Reach for the cross clip on dry-land or slide into remote anchor placement.

Predictions are risky in Swiftwater. Getting out and training to the limits of your PPE will help you to be a more complete part of a connected team. This means constantly looking for solutions to keep team members out of the water or if a rescuer does end up in the water, having a layered downstream safety plan in place that can work remotely from a safe distance to enable exiting the water or arriving at the desired location. Downstream protection will be put to the test and real teams with big risks and areas of operation will appreciate the increase in protection strategies and protocols we are suggesting. Most recertification of students should focus on ***team based protection*** as a fundamental element.

Equipped with the Reach you are now an integrated mechanism that can perform within the dynamics of moving water because you have the ability to create and to sew technical rope-based evolutions mid-river or across the river.