

Responding to Critical Situations- An Incomplete Guide to River Emergencies

By Ken Phillips

What is the single best way to handle any emergency? Think about it in advance. A proven approach to handling any emergency effectively is to have mentally pre-planned it before hand. Like the scout above a rapid, this advanced mental projection permits you to dry run it in your head. In the "heat of battle" during a life threatening emergency, it will be more difficult to think clearly with the effect of adrenalin impairing your senses. Having a mental pre-plan permits you to simply work from recall in your mind, rather than having to make time critical decisions under pressure.

Many would-be rescuers, when faced with a life-threatening emergency, suddenly take shortcuts with their personal safety. Sadly this results in tragic consequences. The basic safety rules that we live by every day can't simply be disregarded because "it's an emergency."

In the early morning of October 18, 2005 a Diamond River Expeditions trip was camped at River Mile 192. At 4:45 am a 78 year-old female commercial river trip passenger, accidentally fell in the Colorado River and was washed downstream, as she was attempting to return from the toilet in the dark. She had become disoriented, and fell in the river grasping the "HELP" cushion for the toilet and was immediately carried downstream in the swift moving 54 degree water. Miraculously her daughter-in-law, who was checking on her at the time, spotted the victim in the river with a headlamp on her head and began screaming for help. As the victim's headlamp disappeared downstream, four employees of the Diamond River Adventures crew rushed to provide assistance. Adam Bringham immediately donned his life-jacket, rushed downstream and dove in the river. Adam swam downstream and got ahold of the victim, while Mike Bork and Mike Wood responded with a raft downstream after Adam in order to provide rescue support. The two boatmen located Adam and the elderly victim, after twenty minutes, one mile downstream. With the assistance of the other crew members, the victim was brought ashore and treated for possible hypothermia. Meanwhile boatman Mike Sampson had gone into the river in order to physically assist the distraut daughter-in-law.

The swift actions of the Diamond River Expeditions crew saved a life that day. More importantly their ability to provide for their own personal safety first and foremost ensured that no rescuers lost their lives. The first rule of rescue is not to trade the lives of rescuers for a victim. Your personal safety is paramount, followed by the safety of your co-workers. The safety of the victim is third. We

can't help anyone if we get get injured or killed in the process. Remembering this and adhering to this principle during a time of crisis requires personal discipline.

When we work together in a small team during an emergency, our ability to share information and develop a "*shared mental image*" is the key to effective teamwork. The team leader (e.g. River Trip Leader, incident commander, etc) must adequately communicate their intent and plans to other rescuers.

Keep in mind these five communication responsibilities for all personnel;

1. Brief others
2. Communicate hazards to others
3. Acknowledge messages
4. Ask if you don't know
5. Debrief your actions

"It's what you don't say that can kill you."

-US Navy Crew Resource Management Training Program Manual

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The following checklist is used by Grand Canyon National Park Search & Rescue personnel prior to launching a helicopter medical evacuation;

EMERGENCY BRIEFING FORMAT

- Here's what I think we face.
- Here's what I think we should do.
- Here's why.
- Here's what we should keep our eye on.
- Now talk to me.

Situational awareness

As human beings we retain our prehistoric instincts that allow us to perceive when something "does not feel right." Exactly what cues we are detecting through our subconscious is difficult to assess, but listening to our instincts can be a healthy survival tactic in emergency situations. Trusting our gut feeling and proactively communicating with other emergency responders may sound simple but it requires discipline that we frequently lack.

In the broadest sense, situational awareness is defined as the ability to "know what is going on around you." During emergency response operations our ability

to maintain our situational awareness is decreased by the effects of stress, poor communications and getting over-tasked.

Emergency operations are dynamic events. A patient's condition may deteriorate or improve. High-risk environments, such as a rescue operation, require us to gather information on a continual basis so that we can update our *mental image* of the mission. Failing to incorporate information from our surroundings causes us to employ a faulty mental image that could result in bad decisions. With an accurate mental image we are able to project into the future and play the mental "what if" of a current situation. This projection permits us to stay ahead of the situation being proactive rather than reactive.

Task Saturation

As a team leader during an emergency it is very easy to reach the point of task overload. If a trip leader were to place them self in the role of primary care provider for an injured passenger, their ability to initiate a rescue operation as well as make critical decisions would be impaired.

The July 27, 2007 mid-air collision of two news helicopters in Phoenix from KTVK-TV and KNXV-TV, although still under investigation, may be a tragic example of such circumstances. Both news helicopters, along with three other aircraft, were covering an active police pursuit on the ground below. The pilots were busy flying their respective helicopters, communicating with other aircraft, monitoring video feed to their respective television stations as well as following "see and avoid" procedures of the airspace.

There are limits to how much one person can do in a critical situation. It is imperative that an effort is made to assign tasks clearly and delegate when appropriate.

Medical Emergencies

Does the injury warrant a helicopter evacuation? If you find yourself struggling with the answer to this question, then you already have your answer. Do what is in the best interest of the patient. Some apparently minor injuries (e.g. eye injury, infection) simply must be evacuated to prevent aggravation. Err on the side of being conservative and evacuate early, rather than regretting your decision later.

Provide for immediate care of the patient. Stabilize their injury and document the care given. It is important to understand that if CPR is being performed on a patient at a remote scene, NPS paramedics will reach the site and conduct resuscitation attempts right there. The fact that the patient is not immediately moved toward the helicopter may cause concern, however the best chance of resuscitation will occur without unnecessarily moving the patient.

When you contact the Grand Canyon National Park by satellite phone (928-638-7911) the dispatcher will get your initial information and then transfer you to the

ranger who is coordinating SAR incidents for the day. The single most important piece of information to give, in the event the call is lost, is location. If the injury/situation is not time sensitive, then make phone contact during business hours when all personnel, including the pilot are in service.

Select a functional helispot. The helicopter requires a fairly level touchdown pad 15 feet by 15 feet and a safety circle 75 feet in diameter, which is clear of major obstructions for approach and departure. If possible, wet down sandy areas just prior to the aircraft landing. Deploy orange panel markers in an 'X' on the landing zone. In spite of the best intentions to secure these with rocks, there have been some close calls with panel markers being blown loose by the strong rotor wash from the helicopter. Remove the panel markers once the aircraft is beginning its final approach to your location. If you have a ground-to-air radio, advise the park during your sat phone call and agree on what frequency you will be monitoring (121.5 MHz is the standard emergency frequency).

Your patient may need to be moved from an accident site closer to a landing zone. Use your best judgment in moving a patient, but don't put yourself and others at risk transporting a patient over wildly hazardous terrain. An option for extrication of the patient from technical terrain may involve a helicopter short-haul rescue. This involves the use of a fixed rope attached beneath the aircraft.

With a stable patient, the possibility exists to motor or row downstream to a more suitable evacuation site. On a day when an NPS response is delayed, this can be coordinated with personnel on the South Rim. We recognize the stress for a river guide who is trying to remain on a schedule.

Flying out companions of a victim during a medevac mission is typically not an option. However, if weight and space permit, juvenile patients need to be accompanied by a parent or guardian. In the event of truly life-threatening injury or in the case of a fatality, a follow-up flight may be conducted to fly out the companion(s). This is very situationally dependent.

Complicating the down-river progress for any commercial river trip, is the need to evacuate a river guide. If the injury is minor, then the evacuation may be delayed until a replacement river guide can reach the South Rim, and be flown into the trip during the initial evacuation flight.

NPS aircraft are only permitted to fly between one half-hour prior to sunrise till one half-hour after sunset. There is a dramatic increase in the risk associated with conducting a night flight into Grand Canyon. Although very infrequent, a night flight would be considered in the event of a "life-or-death" situation. In order to appropriately assess the situation, with consideration to the risk for the flight crew, NPS personnel will request very detailed information in order to make the best decision possible. Due to their capability with night-vision goggles, Arizona

DPS Air Rescue would be the preferred resource to conduct such an evacuation. If the nature of the injury permits, a night flight will be deferred till “first light” in order to reduce the associated risk.

Fatality

An accidental fatality on the river has an enormous psychological impact on all members of a trip. They are all “victims” that we can do something for. Grand Canyon National Park SAR personnel go through a CISM (Critical Incident Stress Management) defusing session immediately following exposure to a fatality. Park personnel, who are trained as “peer counselors”, conduct such sessions. In the event of a river trip fatality, an offer will be made to bring a peer counselor to the scene in order to conduct a defusing session. This will help initiate the healing process.

There will be a need to conduct a fatality investigation at the scene, which includes bringing an investigator to document the incident and interview witnesses. If appropriate consider keeping an accident scene as intact as possible. Prevent tracks, personal property and involved equipment from being disturbed or removed.

A drowning accident with the subject still missing will involve over-water and on-water searching. This will be conducted over several days and planned to coincide with the statistically likely days post-accident for a body to surface. If you are on a trip that encounters a body floating on the river, secure the body to the shore with a line and contact NPS. This should be done in a manner that limits the visual exposure of your passengers to such a scene.

Psychological Emergencies/The Violent Passenger

With increasing frequency passengers get evacuated from the river due to psychological emergencies. One of the most common scenarios is an individual with a pre-existing condition (e.g. bipolar disorder) who stops taking their medications. Whatever the cause, a subject who becomes irrational or delusional on the river needs to be evacuated. Common sense dictates that you maintain your own personal safety, while calmly communicating with an impaired subject. Keep possible weapons away from the subject (e.g. knives in the river kitchen).

Prior to loading such a patient on a helicopter, they will be well restrained and secured to a backboard. This is to prevent a violent event from occurring in-flight. If the situation warrants, the patient can be sedated with medication prior to an evacuation.

River guides annually initiate approximately seventy medical evacuations. These are well coordinated operations and the patient care prior to the arrival of the NPS is professional. Far from complete, this review will hopefully provides you with valuable information to continue your mental pre-planning process.

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