

THE RESCUER



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Notes From the Field: Lessons Learned on Flood Management

by Slim Ray

(A heavily edited version of this article appeared in October 2001 issue of Fire-Rescue Magazine. This is the original.)

There are two kinds of knowledge. One is the theories that works like found in books and magazines. The other is a little harder to find and has to be distilled from the folks out there in the field who are actually doing rescues. Floods have been much in the news lately, so I decided to call up a couple of people to get some tips on what they'd done when the water started to rise in their jurisdiction.

BRRRRING! My first call was to Tim Gallagher in College Station, Texas. Gallagher, who retired as a Battalion Chief from the Phoenix, AZ, Fire Department, is now the Director for Texas Task Force One. Things were going pretty well with the normal missions that this USAR team does, such as building collapse rescues, but Gallagher and some others wanted to look at another vital area — flood response. Three years ago the task force had been sent down to a massive flood in Del Rio, and found that while they were ready to rescue people from collapsed buildings, they didn't really have the equipment or training to do flood rescues.

Gallagher, who had some experience managing floods and teaching swiftwater rescue in Phoenix, convened a working group on flood rescue, with an eye on

expanding the scope of the state's USAR teams' missions. Flooding was, after all, a major problem in Texas and was a lot more common than structural collapses. Their idea was to effectively use this and other existing resources rather than to create new ones. The group decided to use a 24-person strike team, organized around a "quick-strike" regional response model. "We had to have the ability to bring in teams from other areas of the state, since a regional flood would effectively tie up all local resources. Mutual aid won't work if the guy next to you is flooded too."

Texas did have one major advantage, though— it has a large number of trained swiftwater rescue technicians, probably more than any other state except California. So individual training was less of an issue than it would have been in most places.

Gallagher approached the local fire chiefs to see what conditions they would need to support the effort and participate in the regional response plan. They wanted:

- A uniform incident command (ICS) system
- To keep their people together
- To work in fire-company sized units of 4-5 people if possible
- To send only trained people
- To send only one squad because of local requirements & staffing considerations.
- For the same reason they could not send equipment

"We decided, then, that the state would provide the equipment: each strike team would get a 24 ft. trailer

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Higgins and Langley Award Winners Honored



On May 31st, a number of fine individuals and organizations were honored at a conference held in Charlotte, NC.

These awards were established in 1993 by members of the Swiftwater Rescue Committee of the National Association for Search and Rescue (NASAR) in honor of Earl Higgins, a writer and filmmaker who lost his life in 1980 while attempting to rescue a child being swept down

the flood-swollen Los Angeles River, and Jeffrey Langley, a firefighter-paramedic with the Los Angeles County Fire Department, who lost his life in a helicopter incident in 1993.

Awards for 2000

H&L International Award for Outstanding Achievement in Swiftwater Rescue

- South African Air Force - In Recognition of the Lifesaving Flood Rescues Performed during Operation LITCHI in Mozambique, February-March 2000

H&L Swiftwater Rescue Lifetime Achievement Award

- Stephen F. Miller, Sr., Cabin John Fire Department

H&L Swiftwater Rescue Team Commendation

In honor of the rescue of two young men who were swept down Big Dalton Creek on April 7, 2000

- Los Angeles County Sheriff's Department Emergency Services Detail
- Los Angeles County Sheriff's Department Aero Bureau
- Los Angeles County Fire Department

Swiftwater Rescue Special Commendation

In honor of the rescue of two young men who were swept down Big Dalton Creek on April 7, 2000

- Pennsylvania US&R Task Force One
- Timothy Sevison
- Michael P. Kurtz

Swiftwater Rescue Incident Commendations

For Hurricane Floyd Flood Rescues, September 16, 1999

- Baltimore County Fire Department Advanced Tactical Rescue Team
- Kingsville Volunteer Swiftwater Rescue Team
- Arbutus Volunteer Swiftwater Rescue Team
- Middle River Volunteer Dive Team

For the McAlpine Creek Rescue, July 12, 2000

- Charlotte Fire Department

For the Saline River Rescue, June 17, 2000

- Lake Norrell Area Fire-Rescue
- Benton Fire Dept.
- Arkansas Game and Fish Commission

Awards for 2001

H&L International Award for Outstanding Achievement in Swiftwater Rescue

In Recognition of the Development of the Texas State Swiftwater Rescue Strike Team Program and the Response to Tropical Storm Allison, June 2001

- Texas Engineering Extension Service
- Texas Task Force 1
- Water Rescue Strike Team Working Group

Program Development Award

In Recognition of the Development of the Chattooga River Rescue Task Force

- Chattooga River Rescue Task Force

Swiftwater Rescue Team Commendation

In Recognition of the Development of the Chattooga River Rescue Task Force

- Austin/Travis County EMS Swiftwater Rescue Team

Swiftwater Rescue Incident Commendation

For the Potomac River Rescue, June 18, 2000

- Montgomery County River Rescue and Tactical Services Team (Cabin John Fire Dept.)

Special Commendations

For Developing a Joint-Agency Swiftwater Rescue Training and Response Program for Columbia, SC

- City of Columbia Fire Department
- Tony Bendenbaugh
- Glenn Davis

For Developing a Swiftwater Rescue Training and Response Program for the Cabell County Emergency Services Disaster Immediate Response Team

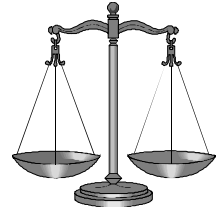
- Cabell County Emergency Services
- Disaster Immediate Response Team
- Gordon Merry
- Steve Murray

All of us at Rescue 3 International congratulate these winners. Their outstanding work is an inspiration to us all! 🗨️

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Releases of Liability Forms

Rescue 3 subscribes to a publication called the Law Quarterly which is written with the outdoor and recreation markets in mind. In the Winter issue, one of the case summaries was about a guide and his company being sued for an injury that occurred on what was termed an “unscheduled activity.” It seems that during a river trip the guide pulled the raft off the river and suggested the participants take a swim. While jumping off rocks into the river the plaintiff was injured and later sued.



Rescue 3 instructors are aware that it is mandatory to have each student initial the front side and sign the back of the *Acceptance of Responsibility and Acknowledgment of Risk* form before they participate or engage in any activities. This case points out that we might have some responsibility for accidents or injuries that occur before, after, or even during lunch. Especially if the student is injured doing an activity that is not part of the normal class. So even though we want to make our classes unique and with varied experiences it important to have consistency and clarity, not only in the documentation review and signing by participants but between the document and activities that take place in the class. The best way to do this is to have a class outline and schedule of activities and stay with it throughout each and every class.

As for the above case, the plaintiff signed a release and acknowledgment and assumption of risks form which the courts eventually upheld (even on Appeal) and dismissed the plaintiff’s claim.

In closing we should remember that an honest disclosure of inherent risk of our classes is important and that the participant is a partner in the risk management effort. They must accept responsibility for following instructions and advising you of any special issues (physical or mental) that would effect his or her participation in the class. We should strive to achieve a balance in providing information about the risks and dangers as well as details about the course.

Please note that we are changing our risk forms to include scheduled and unscheduled activities. 🗨️

“Lessons” continued from page 1

with enough equipment to make a 24-person strike team self-sufficient for 72 hours.” This included boats, PPE (including life jackets), sleeping gear, MREs, water, tents, rescue gear etc. “We received a lot of support from the state—they are serious about this and put their money where their mouth is.”

There were a few other problems that were unique to the Lone Star state, though. “One major problem that we had to deal with was fire ants. Being from Arizona this was something new for me. These things get into the trees during floods and make rescues more urgent, since people can’t stay in a tree with them very long.”

Gallagher’s team came up with a response model that emphasized:

- fast response
- a regional response
- that departments send trained people, not equipment, which makes for a faster mobilization.
- a “rolling mobilization”—people are deployed early as they become available instead of all at once

The basic tactical unit is the 24-person strike team, comprised of four squads of five trained individuals each plus a team headquarters. The team headquarters consists of a team leader, an assistant team leader; a logistics specialist, and technical support specialist. Each squad has:

- Strike Team leader
- assistant Strike Team leader
- paramedic in each rescue squad
- logistics specialist
- technical support specialist —someone to act as the communications specialist, small tools repairman, and jack of all trades.

Just before the start of hurricane season—on May 31st to June 1st—TEEX conducted two 24-hour training exercises for mixed strike teams. This turned out to be a good call, since Tropical Storm Allison

visited Houston the next week, causing record floods. “We had it driven home to us on game day how valuable this exercise was—everyone knew each other and had worked together.”

With the flood in progress, Gallagher had to get people into Houston—fast. So he rounded up a Texas Army National Guard CH-47 Chinook, loaded the Ft. Worth strike team into it, and told them “head toward Houston—I’ll let you know where to land.” Everyone else was told to head south by road and they’d be told where to stage en route. “One lesson I learned there,” he admits, “was to get callback numbers for everyone so we can communicate with them while en route to the scene.”

Unfortunately, air space management broke down as more and more helicopters from different agencies showed up, many on different frequencies and with different operating procedures. Low clouds and poor visibility further hampered air operations. Gallagher initially tried to manage air space operations because no one else seemed to be doing it, but the situation remained less than satisfactory throughout the operation. “We didn’t manage it as well as we could have,” he conceded. “We know that we need to have better air space management, and we’re having a meeting shortly to work things out with all agencies involved so it won’t happen again.”

Another problem that emerged was that of finding addresses in the city. People from out of town naturally had the greatest difficulties, but the flood waters made this a problem even for natives. Neighborhoods looked completely different, and many street signs



The worst flooding in Houston history brings damage to 30,000 homes

were under water. “Next time I’m going to have every squad carry a GPS so that they can locate themselves and tell others.”

Once on the ground attempts to manage the situation on a call-by-call basis broke down almost immediately. Teams sent to a specific location kept finding people along the way who needed to be rescued. “They were doing it all on the fly,” said Gallagher. “We had to go to a sector basis, which meant we’d give teams a sector and tell them to rescue everyone in their sector and keep us informed of how it was going. This worked pretty well and I think we’ll do it that way next time.”

Communications kept breaking down, adding another major complication. The cellular system quickly became overwhelmed with calls and had no emergency override, and much of phone infrastructure was flooded and inoperable. There were also problems with radio system. “I was getting pretty nervous because I needed to hear some voices from the people out there. I tend to be a mother hen in these types of situations and needed to know that they were doing okay.” In the end the only thing that worked reliably were satellite phones, however these are bulky and very expensive to use. New supplies are on the way: “Since that event we’ve spent some \$34,000 on new communications equipment.”

There were a few other lessons as well: “Next time I’ll reduce my span of control.” Because of the incremental way the deployment was done, Gallagher ended up running 13 squads himself. “That was my own fault,” he said. “Next time I’ll go to a semi-independent strike team of four and make my job a little easier, as well as making for a more effective operation.”

After talking to Gallagher about the big picture I called down to flood ground zero. The Rescue Chief of the Houston Fire Department, Joe Clark, filled me in on the details. “We were overwhelmed,” he said. “My family’s lived here for four generations and we’ve never seen anything like this. There were parts of the city that flooded that have never flooded before. To give you an idea of how bad it was, we had a swiftwater river running through one of the highest

parts of the city, and four inches of water running through my station.” Clark himself was out of town when it hit. There had been some minor flooding associated with tropical storm Allison earlier in the week, but the water was going down. What he didn’t know was that Allison was doubling back for another swipe at an already-saturated Houston. “Looking back,” he admitted, “maybe I got a little complacent. We have floods here just about every year and we thought we could handle it.”



Trapped and submerged trucks are all that is visible along Interstate 10 after heavy rains inundated the highway on the night of June 8.

On Friday night, June 8th, it started raining in earnest – rainfall peaked at 5 ft. per hour that night and some parts of the city got 32 ft for the week—and all hell broke loose. “By midnight Friday we’d pretty much ceased to respond. We were out of units and all the roads were flooded. Things were like that from about 6pm Friday to Saturday afternoon. For about 11 hours the city was basically under water.” The floods hit the city hard, taking 22 lives, 11 of them in moving water incidents. It cost insurance companies over 650 million dollars, making it by some estimates the third most costly disaster in US history.

Several factors hampered resource deployment. One was incident triage. “We need to find a better way to filter the dispatch calls,” said Clark, “so that we’re getting units to the calls with people in trees and on the tops of cars, and not for flooded basements. We’re looking at dispatcher training and using the Natural Disaster Information Cards.”

“Next time, we’ll try to put people out there beforehand, before all the roads flood.” Those same

flooded roads also kept personnel on other shifts from getting in. Nor were enough trained rescuers available. Although Houston has a 3200-person department, it has only a 40-person technical rescue team with water rescue training and equipment. There used to be a voluntary water rescue certification but the funding was cut off four years ago. “One thing I’d say we learned was that everyone should have at least first responder training. Whether the city will fund it is another thing.”

Clark had high praise for the Texas Task Force One. “Those guys were great. They came in when we really needed them and did an excellent job. They made over 1100 documented rescues that we couldn’t do.” In addition, Clark said, Coast Guard helicopters made some 70 aerial rescues.

“I’m definitely going to get some more boats. Our Zodiac rafts didn’t hold up too well, mostly because of debris and because people don’t get enough experience handling them. We’re going to try to go to four-cycle engines, too. No more mixing oil and gas. We now have 15 boats – 5 Zodiacs and 10 hard hull boats. We just didn’t have enough boats in the right places. Next time we’ll try to preposition them and have two Zodiacs per company instead of one.”


Chief Clark gave high marks to the flood predictions of Harris County weathermen. “They had mostly good predictions of where it was going to flood, but Houston is just unpredictable.” Although the meteorological system was overworked, it continued to function, giving valuable lead time to managers.

To finish up I called Battalion Chief Tim Rogers of the Charlotte, NC, Fire Department. He has been through several floods as both a company officer and a chief, including service in the Floyd floods in 1999. Although he says he’s been “busier than a tick in a dog pound,” he agreed to slow down long enough to share some of the things he’s learned about managing floods. “Probably the biggest lesson I’ve learned after several floods is that you somehow have to get ahead of the event and stay there. If you once get behind, you’ll never get caught up.” Rogers

emphasized that once streets flood and become impassable, the rescuers’ job becomes much harder. “There is a lot to do,” he said. “You have to put barricades up, people have to be evacuated or rescued, and your own people have to get where they need to be. This takes time.”

Another vital question he’s found that must be answered in any flood is, “Where does the water go?” What areas flood and how much rain does it take to flood them? How fast does this happen? How does development of places like malls affect the drainage? This particularly a problem in expanding urban areas like Charlotte-Mecklenburg where new development goes on at a rapid pace.

Chief Rogers emphasizes that, “It’s vitally important to get all the players together beforehand.” These players include the fire service, police agencies (both city police and sheriff), storm water engineers, mapping agencies like US Geological Survey, and weather prediction people. “Once this happens, though, you can figure out in advance what areas will flood and how much rain it’s going to take. As a result, we now have a thirty minute window for critical areas to predict flooding and get people out there. This sounds like a lot, but in a big city it’s really not a lot of time to alert people and get them where they’re needed. We look for trigger events,” he said. “We can now tell that a certain amount of rain in a certain place causes a certain level of flooding, and therefore a certain level of response and resource commitment. This allows us to push resources out to an area before they’re actually needed.”

It’s worth comparing the gist of what these men have found out by experience—get all the players to the table; train together before the event; and know where the water’s going and what a given amount of it in a certain place will do. Get ahead of the event by anticipating problems. These are all common sense measures, but unfortunately these are all too seldom done. However, as more information on managing floods becomes available, better management practices will result. 

Rope Care - Part One: Keeping a Rope Log

So you're hanging off the side of a rather steep embankment attempting to rescue a victim. As you're being lowered down a question pops into your mind, yet you can't quite seem to come up with an answer. The question: "How long has it been since this rope was inspected, and did that person know what they were doing?" When your life is literally on the line, the last thing you want to be worrying about is the integrity of your equipment, especially your rope.

There are some very simple, quick guidelines that you and your department can follow in order to keep your rope in the best condition possible. In this section we will look at keeping a detailed rope log.

The rope log should be easy to read and should keep track of basic information about the rope and its history. The exact style doesn't matter but it should include items such as manufacturer, diameter, design, tensile strength, date purchased, cleanings, and inspections. Significant events in a rope's life, such as shock loading, chemical exposure or other potential damage must be noted. After every use a note should be made in the rope log as to how the rope was used, as well as any other information that seems pertinent. By writing down everything about a rope, it will be

easier to know the cause of any damage and when to retire it.

In order for this information to be useful, it is critical that the rope and rope log can be matched easily. While this may be simple if an individual owns only one or two ropes, this can become much more complicated if there are several ropes.

To avoid any possible confusion, especially in a departmental situation, each rope should be tagged for positive identification. There are many tagging methods, but no matter which one you choose, it should be permanent and unmistakable. The most often used methods include: marking the end of the rope and protecting it with Whip-End Dip™; using a label and covering it with shrink tubing or clear plastic tape.

By keeping a separate history for each rope it should be easy to quickly identify any potential problems before they happen. It will also let you know just how much you can abuse the rope in any given situation. Remember: if the integrity of a rope is in question - RETIRE IT! The cost of rope is never worth a rescuer's life. 🚫

Meet Our Talented People - Jolene!



Behind the scenes at Rescue 3, countless hours go into making, putting together, and shipping all of the materials instructors need for their classes. This responsibility falls on our production person, Jolene. Since she joined us in November of last year, she's taken control of fulfilling class material orders and running the production room for Rescue 3, as well as working for Rescue Source

as both an order taker and warehouse assistant. Though fairly new to the Rescue 3/Rescue Source staff, Jolene has become an indispensable part of our team. So whether you place your orders months in advance, or wait until the last minute you can rest assured that Jolene will be there to fill your order and get it to you as soon as humanly possible.

Personal Info:

Jolene is the mother of two beautiful young children, Austin and Madison. She loves to cook and is currently serving in the US Army Reserves. 🚫

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- This link is a just released NIOSH investigative report about a career fire fighter in Colorado who drowned while attempting a rescue in flood waters <http://www.cdc.gov/niosh/face200102.html>. Our thanks to Tim Rogers for bringing to our attention!
- This is very interesting marine safety site connected with the USCG Office of Maritime Safety. They have lot of useful info re: epirbs, emergency gear, safety hazards, etc. for commercial and recreational vessels. <http://www.uscg.mil/hq/g-m/> Thank you Greg Mactye for this link!

Calendar

- July 19-21, 2002. *Firehouse Expo*, Baltimore Convention Center, Baltimore, MD. This conference is dedicated to Fire, Rescue and EMS personnel. For more information on this show, visit the website at www.firehouseexpo.com
- August 23-26, 2002. Fire-Rescue International, Kansas City, MO. Provides comprehensive educational programs and motivational speakers. Visit the IAFC website at www.iafc.org or call 800-424-5249.
- October 3-5, 2002. *EMS Expo*, Nashville, TN. This conference focuses on terrorism preparedness in EMS. Visit their website at www.emsmagazine.com or call 877-EMS-EXPO.
- TBA in November or December 2002. *Rescue 3 Instructor-Trainer Meeting*, Elk Grove, CA. Only for *current* I.T.'s. Meeting will last two days. Call Gaile at 1-800-457-3728 for more information.