

AT THE END OF HIS ROPE

Jason Lopez, a Cedar Rapids firefighter practices a rescue after tossing a throw bag to a fellow trainee. The Cedar River offered swift, powerful current in late April 2007. **RIGHT:** A trainee practices a shallow water crossing to get used to the force of current against his body. The paddle helps stabilize a rescuer in water conditions below-waist. Higher water levels are too difficult to maintain body control.



SWIFTWATER RESCUE

BY JOE WILKINSON PHOTOS BY CLAY SMITH

Monitoring cautiously upstream, the small inflatable boat pushes through the churning Cedar River. In the bow, Chris Schmid stays low, readying for his throw into the 'boil,' downstream of the dam. "He is simulating a throw to a person inside that boil; trying to get that rope to them so they'll get wrapped up in it and can be pulled out," explains DNR conservation officer and course instructor John Mertz, watching from the command post on shore. "The potential danger would be being pulled into the boil, too," Mertz cautions.

Resembling a giant bobber, the rescue boat edges closer to the rolling water. Schmid heaves a throw bag, arching it into the boil—water that pulls anything in its lethal hold back to the dam. Dead center. From shore, his commander hand signals, "Peel out!" Schmid braces his feet on the boat bottom and locks hands onto the rescue line. A second boat, tethered about 100 feet downstream, guns the motor and turns hard toward shore. "That secondary boat is attached by a rope," points out Mertz. "As he takes off on a 90 degree turn toward shore, it shortens the distance between the boats and pulls the primary boat out away from the dam." The rescue craft and crew were yanked to safety. Mission accomplished.





IN DEEP WATER

Cedar Rapids firefighter Pete Schmit holds his breath while playing victim as DNR trainer Randy Schnobelen rolls him upright to demonstrate a victim stabilization technique. A face-down victim with potential spinal injury is rotated over while the neck and spine are held steady, then placed on a backboard. Schnobelen began on the opposite side before rotating the victim. **BELOW:** Rescuers practice throw bag use. **OPPOSITE TOP:** Below the dam, a hill-shaped boil line of highly aerated water is seen between the students in the red and white helmets. The churning water pulls anything back toward the dam face. **LOWER RIGHT:** An inflatable starts a practice rescue. As the lead boat, it is tethered to a hard-hull boat down river to pull the inflatable out of the boil if needed. **FAR RIGHT:** In the commander role, trainees practice hand signals to direct rescue craft.







FINAL COACHING

DNR swiftwater rescue instructor Randy Schnoebelen goes over final details before a shore-based tag-line rescue. Using ropes tied to a ring buoy and rescuers on both river banks, the buoy can be pulled back and forth to bring a victim to safety. With rescuers on the same shore, they can move a buoy up or down river. "The most overlooked hazard on a river is the current," says Schnoebelen. **RIGHT:** Getting set to haul rescuers across the Cedar River to practice tag-line rescues. The multi-day training uses classrooms, swimming pools, dry land and finally, the river.

No victim to resuscitate on this wild ride, though. It was just training today. Schmid and other firefighters from Cedar Rapids, Muscatine and Lowden were applying what they learned in a four-day swiftwater rescue training program.

And while each training segment is important, this “two-boat tether” operation is most dangerous. A misstep and a rescuer might end up in the water, dangerously close to the boiling mess. The would-be rescuers were reminded repeatedly just how powerful these hydraulic mazes are. And why they are dubbed “killing machines.”

Every second, thousands of gallons of water pour over the dam. As it hits bottom, it rolls back to the surface, only to be caught by torrents of water flowing over. These hydraulic properties turn it over and over. A floating object can be trapped in the boil for days. Victims can’t swim away. The boil’s got you until it decides to spit you out.

As each team finished a two-boat tether rescue attempt, instructors and students reviewed the progress. Actually, Schmid’s dead-on throw came on his second attempt. “The first time, we misunderstood the commander and we were too far away and missed the throw,” recalls Schmid. “The rope got caught in the propeller. We reorganized, went back up and made a decent throw over the boil. Everything went smooth, like it was supposed to.”

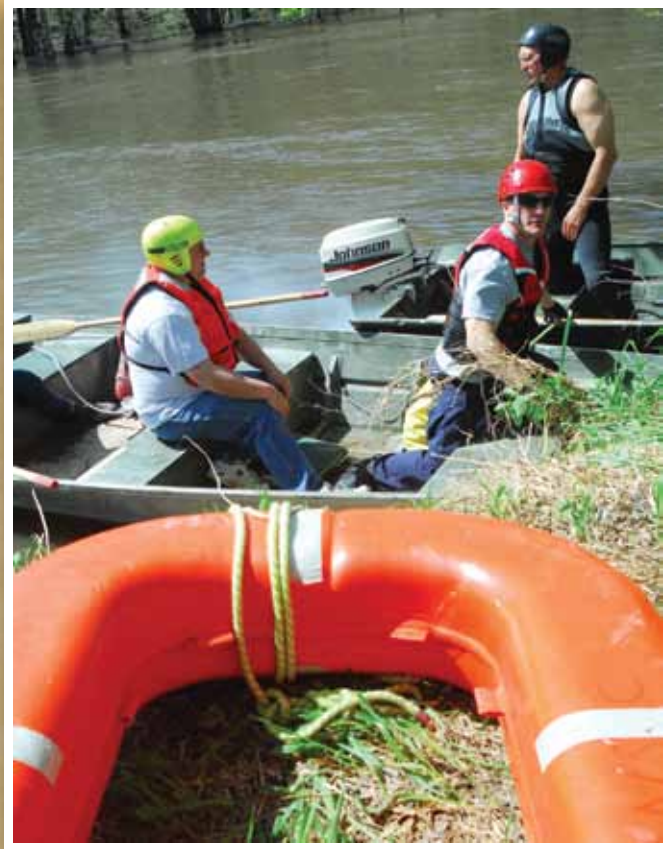
The misfire was an important element. Actual rescue attempts face pitfalls, too. Sometimes, success can be measured by how you react when something goes wrong. “We want you to do it again. We are simulating a rescue. You have problems? You want to do it again,” stresses Mertz. “Then, the second time you went in there, you had a really nice throw, right inside the boil,” he tells Schmid.

Though the two-boat tether is the most dramatic and risky exercise—one firefighter stood up in the bobbing craft, risking a plunge into the churning water—it isn’t the only element. Before receiving certification, these firefighters set up movable control points to reach a victim trapped in a fast-flowing stream. They simulate finding their way through flooded urban streets and strapping injured victims to backboards while in the water.

FROM THE CHALKBOARD TO BACKBOARD

Watching one’s own backside is a basic tenet in emergency response. “You’re trying to save someone who has already done something very careless. Don’t compound it by losing your own life,” instructor and DNR officer Virginia Ashby bluntly warns in the opening classroom session. “The media is going to be there. People on the banks will be telling you what to do. You have to decide, regardless of what they think.”

The training took firefighters from the classroom into the pool, then head-to-head with the lowhead dam and picking their way through low-water flooding on the Cedar



River below Cedar Rapids. That flooding was a nature-thrown curve ball, when several inches of rain fell during the second weekend, pushing the Cedar out of its banks.

In the days ahead, student-rescuers became familiar with terms like “Movable Control Point,” “Z-lines,” “Primary Boat Operator” and “Rotational Turning Force” from diagrams on a classroom drawing board to real-life procedures first in a swimming pool and eventually on the river itself.

“Dams are the most obvious hazard, because of the danger of that recirculating water,” says DNR officer Randy Schnoebelen. “There are also solid obstructions in the river, floating objects, especially following a flash flood.” Instructors emphasized the force of the current, in any stream-based rescue. “That’s the most overlooked thing out there. People get lulled into a comfort zone. They don’t know how fast that current is going,” warns Schnoebelen. “Most accidents happen when they think they can overcome that current.”

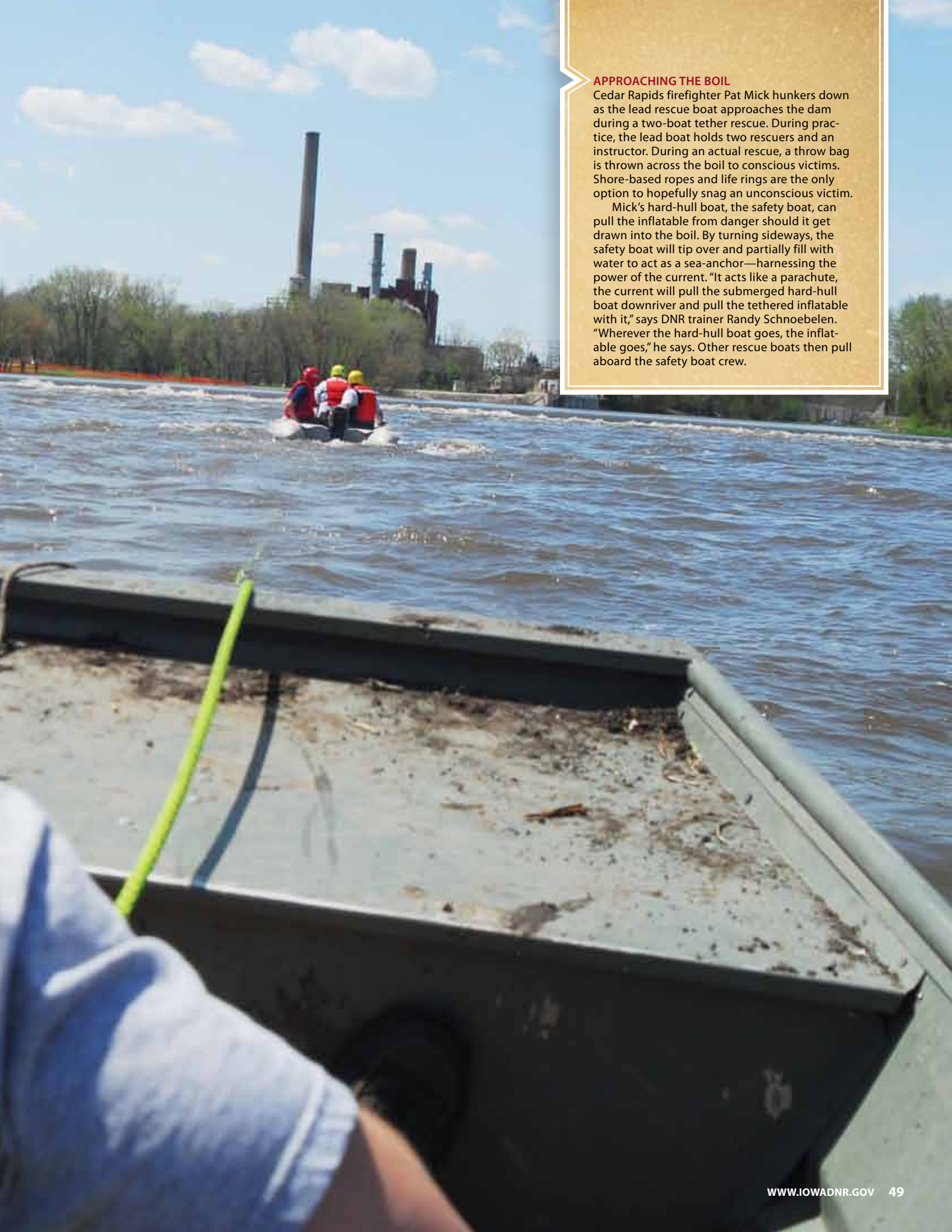
There were tips for operating a boat in the current, knowing that more people on board meant the craft would sit lower, providing more area for the current to push. They learned that a quick turn into the current would restore control in an emergency situation.

Even the water temperature itself came under scrutiny. Instructors reminded students that even after a victim is pulled from the water—especially cold water—the rescue is not over. Water conducts heat many times faster than air. As that water chills a victim, it shunts blood and heat to the vital organs as a survival reaction. The heartbeat slows. “You need to watch for ‘after load’ with the victim,” points



CRFD

EVOLUTION



APPROACHING THE BOIL

Cedar Rapids firefighter Pat Mick hunkers down as the lead rescue boat approaches the dam during a two-boat tether rescue. During practice, the lead boat holds two rescuers and an instructor. During an actual rescue, a throw bag is thrown across the boil to conscious victims. Shore-based ropes and life rings are the only option to hopefully snag an unconscious victim.

Mick's hard-hull boat, the safety boat, can pull the inflatable from danger should it get drawn into the boil. By turning sideways, the safety boat will tip over and partially fill with water to act as a sea-anchor—harnessing the power of the current. "It acts like a parachute, the current will pull the submerged hard-hull boat downriver and pull the tethered inflatable with it," says DNR trainer Randy Schnoebelen. "Wherever the hard-hull boat goes, the inflatable goes," he says. Other rescue boats then pull aboard the safety boat crew.



out Cedar Rapids firefighter and instructor Pete Schmit. "That victim might say, 'Hey, I'm okay. I just need to walk around.' He needs to lie down instead. His core temperature could actually get colder for a short period" as blood flows back to the extremities. "He risks cardiac shock. He needs to avoid that 'after load' risk."

In the classroom, as the class watches, firefighter Brent Smith, hooked up to a monitor, took a deep breath and dropped his head into a container of ice water. Before immersion, his heart rate was 84 beats per minute. Within five seconds, it had dipped to 75. In 15 seconds, it showed 53 beats. At 30 seconds, the class watched the monitor freefall, Smith's heart had slowed to 26 beats per minute. Schmit tapped Smith, the signal to end the ice bath. "If a person sustains 30 beats per minute, we want to administer drugs," emphasized Schmit. "He can't survive at that rate."

From the classroom, participants moved to the pool at Washington High School. There, they could practice rescues in water, but under heated, controlled conditions. They also learned how to deal with "in-water" injuries; even how to stay warm while waiting for help.

With the basics out of the way, the rescue class was ready for the river. And if the two-boat tether is the most dramatic rescue, then the movable control point is the most complicated. It allows rescuers to safely move across a river or up or downstream to reach a victim

stranded in a midstream snag or fallen tree. Knots, clasps, pulleys and long rescue lines are key.

First, the rescue team secured a static line across the river which is easier said than done. The rushing current made it tough to hold the boat in place, while one member tried to lash a line around a tree trunk. Once, the line dipped into the water and the current dragged it downstream. As it went into place, the team positioned pulleys and clasps to slowly feed out a second line. Now in place, the crew could maneuver their control point and the rescue craft, left or right, up or downstream, to the victim, pull him on board and head for shore.

A victim stranded. A swollen river, a potentially deadly dam. With any luck, these river rescuers will never use the tools they obtained over the two-weekend session. Chances are, though, they will. 🐻

ONE SURVIVES. TWO DO NOT

It was a hot day with high water in April 2007, as three friends put an old, 17-foot aluminum canoe on the swollen Iowa River in Hardin County. As Jonathon Hill, Drew Goodnight and Levi Wendling approached the low head dam at Alden, they paddled past the traditional "take out" about 100 yards above the dam on the east side of the river. Instead, they aimed for the small, downtown park just above the dam, on the west side.

"They portaged around the dam and walked the canoe down the fish ladder there," recounts DNR conservation officer Mike Bonser, pointing to a spot 40 feet below the dam where the three friends, all in their 20s, put back in. It was way too close. "They put in at the boil line. It drew them back in to the dam and caused them all to be thrown out as the vessel capsized," explains Bonser.

The incident turned to tragedy in moments. The rain-stoked river was rushing over the dam so fast that the boil expanded. Near the point where they were pulled underwater, a gravel and sand bar—visible as a small island during low water—apparently split the current. On shore, witness Melissa Smith saw Wendling come out, face down. Hill, Goodnight and the canoe stayed in the boil as it corkscrewed them over and over. After a minute or so, the rushing current pushed them out of the boil on the east side. Smith helped direct rescuers as they arrived a few moments later. "She did a wonderful job, calling 911 and keeping her wits about her," recalls Bonser. "She kept an eye out...directing rescuers to the (right) spots."

As Wendling floated downstream toward the County Road S-25 bridge, passerby Scott Dillon waded into the swollen river, grabbed him and pulled him to shore to begin resuscitation. Within an hour, Hill and Goodnight were found. It was too late to save them.

The double drowning underscores the graphic strength of the boil. The sheer volume of water streaming over the dam made it hard to distinguish. However, it was still active, and... with the volume of water rushing downstream...deadly.

Ironically, the fatal accident happened as students in the Cedar Rapids training session, two hours away, headed home.

COMMANDS FROM ABOVE

Cedar Rapids firefighter Pat Mick stands over the river, providing hand signals. The right hand commands the inflatable raft, the left the hard-hull safety boat. The commander guides boats to victims who can be hard to see over the boil. **LEFT:** An inflatable approaches the boil during late-April training for law enforcement and firefighters. **BELOW:** The same weekend of rescue training, a canoe was put into the Iowa River in Hardin County too close to the boil. One paddler survived the dam at Alden and two did not (see sidebar opposite page.) "The photo shows what happens when a boat is in the boil," says DNR rescue trainer Randy Schnoebelen.



CANOE PHOTO MIKE BONSER; BOTTOM PHOTO JOE WILKINSON