Another year has passed. I wish I could say 2013 was an uneventful year but it wasn’t. For us here, it will be remembered as one of the most stressful and trying times we have ever faced. We had a variety of personal and family setbacks and a couple of them all but paralyzed us.

But, we pushed through and are finally moving forward again. Our families truly thank those of you who responded and supported us in our lowest times.

The coming months hold a lot of new possibilities for me personally and will hopefully involve progressing the training programs I have been teaching and building for the last 30 years. Now that I have retired I can work at what I love to do. I have two programs already booked and others in negotiation. If you are interested in MY PSD programs, let me know.

In the works, there is one project in particular that has great potential and will require us to look for and enlist outside help and eventually adjunct instructors. The possibilities it offers are staggering and the potential for growth is huge. Yes, this is a teaser and no, I will not talk about it yet even if you call me.

However, if we are even remotely successful, we will build an army! Part of the project will include a new PSDiver Monthly Continuing Education program. In itself, the CE program is exciting and may offer PSD Instructors the opportunity to expand their own programs. If you are interested in joining our CE team, you can call or email me and I will get you started.

Last year we saw what could be a beginning of an attitude change in our genre of diving.

In Virginia, we witnessed both reactive and PROACTIVE training program development that had both funding and administrative support. We have seen renewed interest in our genre of diving, from corporations and safety entities who have finally noticed us. WE will be watching and working at building that interest over the months to come.

This time of year is slow for most of us. Those ice diving teams in the north typically do not get or take the down time that the rest of us typically get this time of year. They still train and do it under ice. Your team is not training because…. It is too cold? They do it under ice...

OK. I get it. I hate cold water too and believe ice should be in my sweet tea, not in the water I swim in. But the public we serve is still doing what they do and we are still subject to being called out. So get up, get your team together and put together a training day. Go practice cold water diving and get your equipment sorted, serviced and mission ready.

If that is still too much, set up a pool class and work on basic skills AND complete your annual team qualifications. Whatever you choose to do, do it well and do it safely.

This year promises to be a good one. I can’t wait!

Dive Safe!
Mark Phillips
Editor / Publisher
Email: PSDiverMonthly@aol.com

If you would like to discuss this topic or any other, join our discussion group: CLICK HERE TO JOIN
The reality of public safety diving is that underwater visibility rarely exceeds an arm’s length. More often, the diver is in zero visibility where sensory input is limited to sound and touch.

Using sonar makes almost every dive operation more efficient and, more importantly, safer!

As mentioned in the first of this series of articles, there is no best sonar to have in the SAR dive team inventory. Side-scan and scanning sonar are complimentary systems – each with inherent operational strengths and limitations. In an ideal situation, a dive team has access to both.

**Side-Scan Sonar**

Side-scan is an unbeatable, wide-area search tool. Its resolution (image clarity) is a function of its horizontal beam angle and frequency. Side-scan subsea electronics are often mounted in a towed hydrodynamically shaped instrument (towfish) that has transducers on either side of its long axis. The sound energy transmits via the transducers perpendicular to the tow direction. The result is a plan-view record of the bottom. The image builds by aligning narrow acoustic pulses scrolling similarly to the line-by-line way a computer printer produces a printout. The key to getting great side scan data is keeping the towfish moving in a straight line, at a constant speed, and at a consistent height above bottom.
Albeit the saying “you get what you pay for” applies to just about everything – including marine electronics - there are relatively good inexpensive hull-mounted and towed side-scan units available for teams on a tight budget. What they lack in reduced resolution (as compared with higher end systems), they make up for with low cost and simplicity of operation. These units, too, must be operated with the vessel at a fixed speed and in a straight line, otherwise the data becomes difficult to interpret. Hull-mounted side-scan is also more prone to “quenching”

where air bubbles from the boat motor on a previous line result in signal blanking. (Air bubbles generated by boat motors are just one cause of quenching.)

Another issue with hull-mounted side-scan is the geometry of the beam to bottom. As the water depth increases, the record becomes more like that from an echo sounder, and targets become increasingly difficult to interpret due to the beam’s projected angle to bottom.

**Acoustic Shadows and Data Interpretation**

![Image](https://example.com/image.jpg)

Thanks to all who responded to challenge question on side-scan search time in the previous issue of PSDiver Monthly. The first correct answer of 24 hours and 55 minutes was from Anthony Amato with the St James Fire Dept., St James, New York.

**Anthony receives a free copy of Echoes and Images, The Encyclopedia of Side-Scan and Scanning Sonar Operations.**

Further information on how to complete that search time calculation follows this article.

Steeper grazing angles also reduce target shadow detail. The following example illustrates the importance of
shadows and their influence on data interpretation. The left image shows a target with its shadow removed through the magic of Photoshop®. In the right untouched image, the shadow significantly aids interpretation; by observing the shadow, it is immediately apparent the target is a bicycle.

Most of today’s side-scan sonars integrate with GPS. When a target of interest is observed on the side-scan record, initiate a waypoint on the GPS, use the sonar’s target marker function (system dependent) and/or deploy a marker buoy. Confirm the target on another run (more than one may be needed), and if required, deploy another buoy closer to the target. Assuming the target remains of interest, use the side-scan software measurement tool to calculate the distance between the marker buoy’s anchor and target. It is then time to recover the side-scan towfish and prepare to dive.

**Scanning Sonar**

Scanning sonar operates much like a side-scan but from a fixed position. The sonar head produces an acoustic pulse that travels through the water column; the echoed returns are processed and most often presented as a polar plot resembling that of a radar screen. After each ping, a motor in the sonar head turns the transducer and the ping process repeats.

Most SAR teams tripod-deploy scanning sonar. This arrangement keeps the head stable (producing the clearest images) and at a fixed height above bottom where its close proximity and low grazing angle accentuate bottom features and target shadows. Although generally deployed from a small boat, scanning sonar can be deployed from a dock, bridge, seawall or even shore – depending on the search area. In the image titled, *Using Scanning Sonar for Dive Planning*, the scanning sonar was lowered to bottom from fingers of a floating dock.

![Scanning Sonar Acoustic Coverage](image-url)
Diving Distances from Active Sonar
There are potential health risks when diving in close proximity to a transmitting acoustic source. The question of safety is most often, but not exclusively, encountered on military programs where high-powered naval sonars are of concern to anyone entering the water. Volume 1, Appendix 1A: Safe Diving Distances from Transmitting Sonar, from the US Navy Diving Manual is specifically dedicated to this topic. Click HERE to read this chapter!

The US Navy Diving Manual covers every imaginable diving topic and is a fantastic reference. If you dive, this manual SHOULD be in your “library.” Since it is free to download off the internet, all it costs is hard drive space (approximately 18MB).

When determining the detrimental effects of diver exposure to sonar, it is the Sound Pressure Level (SPL) - and not distance from the source - that has the greatest influence.

The US Navy Diving Manual delineates low-frequency and high-frequency sonar (250kHz or greater), and details whether the diver is hooded, or using a dry diving helmet. Listed are exposure times and SPLs showing acceptable exposure limits. At the time of this writing, the manual states that hooded divers should not approach closer than two yards (1.9m/6.24’) for a Personal Exposure Limit (PEL) of greater than 120 minutes to active sonar with an SPL output of 215dB. There are no restrictions for high frequency sonars when the diver is using a dry helmet.
Immediately suspend diving operations if the diver feels any pain due to sound emitted from active sonar or other sound source.

**Author’s note:** The provided information on Safe Diving Distances from Transmitting Sonar is an overview interpretation from the US Navy Diving Manual. It is the responsibility of public safety dive teams, dive supervisors and divers to review current codes, regulations and standards, and adhere to those that deal with diving in close proximity to active sonar.

**Other Safety Considerations**

Sonar, surface-supplied underwater lights and television cameras require a power source. Install electrical power supplies in accordance to the governing electrical codes. If the diver observes electrical arcing on the face of the transducer, sonar head or cable, report this information immediately to the surface and instruct them to turn off power to the sonar. 

_Electrical short circuits and diving operations do not mix!_

**Checking the Search Site for Potential Dive Hazards**

As shown in the following image, there is an enormous safety benefit using scanning sonar to check for possible dive hazards. Identified as a target of concern on the record prior to commencing search training, the sonar operator guided the diver and in less than 1’ of visibility it was identified it as a tangled mass of barbed wire.

**Shore-Based Operations**

Although usually operated from a boat, consider the option of having the sonar computer shore-based. This option is dependent upon on the location, size of the search area and length of the sonar umbilical. The advantages of this arrangement are not needing a vessel large enough to support both sonar and dive operations, and operating from a vehicle or dive trailer where one can keep the computer display shaded and out of the elements. And, another bonus:
the generator can be positioned where its exhaust and noise does not bother the crew.

Rig the sonar umbilical with a float that supports the in-water weight of the sonar and tripod. Using a Prusik knot (www.animatedknots.com) allows the person deploying the unit to slide the supporting float along the umbilical until the tripod reaches bottom. Position the tripod offshore with a small skiff or divers. Always attach small floats to the umbilical so it does not lie on bottom and snag when repositioning the tripod.

When working from shore, pay more attention in laying out the search grid to ensure 100% coverage. Most scanning sonar body searches are completed at ranges up to 60’-75’ (20-25m) with 50% overlapping coverage on adjacent scans. If the sonar program allows a GPS position of the tripod to be entered into the program, mark a waypoint over top of the tripod at every deployment position. Advise the sonar operator of that position. If this is not practical – or the sonar program does not allow it - use chainage markers on the sonar cable (discussed in an earlier article) to consistently position the tripod at fixed distances from shore.

What if the sonar umbilical is not marked?

Have the sonar operator select a range on the sonar that exceeds the distance the tripod needs to be set from shore. With the sonar head hanging in the water and running, observe the distance on the sonar record to the shoreline and use that to position the unit. This establishes distance from shore but not along the shoreline. From the first drop location, pace approximately 50’ (15m) along the shoreline and set a visual marker as a reference point for the next drop. From the new position, reset the tripod perpendicular to shore at the desired distance. Repeat on either side of the initial drop location until there is no more sonar umbilical available. Reposition the sonar computer to expand the search.

Positioning the Diver when Prosecuting Small Targets

Have the diver face his/her umbilical and move left, right, forward or backward. Move the diver in steps or arm lengths and not distance measurements. Keep the diver from going under the anchor line/chain.

Use hard-wire or through-water communications between the surface and the diver. Line pull signals are not as effective when directing the diver to a very small target.

When prosecuting small targets, avoid positioning the diver between the sonar and the target.

Wind direction

Anchor the vessel during diving operations.
**Directing Divers Using Scanning Sonar**

Scanning sonar remains the most suitable tool to guide divers *in real time*. Whenever possible prior to the diver entering the water, the sonar operator *and diver* should review the sonar data and decide how to best prosecute each target of interest.

With tripod-deployed and the sonar stable and in a fixed position on bottom, an accurate, relative position search can be conducted without having to utilize a subsea tracking system.

To minimize bottom time, tether the diver to the surface (preferably using an umbilical surface-supplied air and hardwire communications). The next best option is to use through-water coms and a rope tether. In this operation, line pulls on the tether are not nearly as effective as voice communication. While depth is not necessarily an issue, time is. Depending on the system, the size of target resolved can be quite small. In zero visibility, directed diver movement may be in increments of inches. Typical PSDiver line pull / tug signals would not be applicable. Briefing the divers and tenders prior to the dive and establishing location dictated signals may be necessary.

Position the sonar display next to the dive radio to lessen any delay in getting directional information to the diver.

The diver’s suit, tank and exhaust bubbles are generally good acoustic reflectors (albeit some types of rubber used in drysuits absorb high-frequency sound). If, however, the diver is “lost” among bottom clutter, have the diver hold position and exhaust some air. The bubbles are very visible on the sonar screen. This is another advantage of using “unlimited” surface-supplied air.

Directing a tethered diver (with communication to the surface) is a simple process. All directions are given with the diver facing his/her tether. When ready, the diver will signal “OK”. Prior to the dive the tender and diver will have established signals for moving left or right as well as in and out. The tender and diver must maintain a taught search line or umbilical. Keep in mind that these techniques are for diving in zero visibility.

**When using stationary scanning sonar, start recording the sonar data the moment the diver enters the water.**

Direct the diver to targets on only one side of the tripod and clear them. Recover the diver to surface and cross over the sonar umbilical before descending to investigate targets on the other side. The same caution applies to working from an anchored vessel. *Never direct a tethered diver under the anchor line.*

Target size and bottom conditions determine the sonar scale range. Accept the fact that the smaller the target and more complex the bottom conditions, the longer it takes to complete the program. Heavy concentrations of weeds are particularly difficult to search using sonar.

At each sonar location take *at*...
least two scans at each selected range to establish which are fixed. Targets that move from scan to scan are typically fish. Even stationary targets that appear on multiple scans are subject to misinterpretation. It is somewhat embarrassing to guide a diver to a very reflective return and then, as the diver approaches, the sonar operator watches the target scurry away and the diver reports it is a turtle or crab. Yes, it happens!

**Working off a Support Vessel**

When the diver enters the water from an anchored surface support vessel and descends directly to bottom, the tether is straight up. In zero visibility, this makes it impossible for the diver to face his/her tether and move in a specified direction. Locate the diver with the scanning sonar and once the diver is on bottom and ready to move, have them take five steps or other predetermined measured movement. This should establish the tether’s direction. If not, repeat this process until the diver is able to determine the umbilical angle to the tender.

Another method is to have the diver swim 30’–50’ (10m–15m) on the surface and descend vertically to the bottom.
This distance is often enough for the diver to determine the umbilical alignment to the surface vessel. Allow the diver enough slack during descent or the diver will pendulum toward the support vessel.

When giving directional instructions, keep the number of steps, arm spans or other measured movements at five or less. After completing each instruction have the diver verify the movement covered.

Remember that scanning sonar is capable of detecting small targets the diver may not see even if there is visibility. Avoid positioning the diver between the sonar and a small target, as this will block its acoustic view. With high-resolution scanning sonar at ranges up to 20m (66′), and depending on the geometry, it is often possible to observe a diver’s arm, which the sonar operator can direct to a specific target of interest.

Most scanning sonar systems have a continuous 360° “polar” coverage unless the operator selects a sector mode of operation. In sector mode, the sonar transducer turns to the limit of the operator’s selected arc then reverses and scans to the other limit of the arc. Depending on the sonar range, a

**Author’s note:** Sufficiently weight the diver so they can hold position on bottom when directed to stop. Coordinate the diver’s movements so as not to wrap the diver’s tether around the tripod, an ROV mounted sonar umbilical, or support vessel’s anchor line.

With corroborative evidence indicating that a homicide victim was in the area previously searched by a police dive team, scanning sonar was deployed to resurvey the bottom. Three months after the individual’s disappearance, the body, wrapped in a sleeping bag and weighted with chains, was located on the third scan. In-water visibility was zero.
scan in polar or sector modes can take a few seconds to a minute or more. To speed up the operation, an operator initiated manual reverse scan button changes the scan direction. Use this feature to scan back and forth and constantly update the diver’s position. It is also prudent to occasionally sweep and re-establish the target’s position.

**QUICK TIP:** Whether the diver takes steps, fin kicks or lies on bottom and moves in arm lengths or another unit of measure doesn’t matter. The diver just has to be consistent in the distance of each move.

If the diver has an aversion to facing his/her tether and backing up, relax! Face the tether to get the direction, then turn around, and move forward until the required distance is covered.

No one wants to run inadvertently into a victim on bottom – especially in poor visibility. Restrict movement to a single step or arm’s length as the diver closes distance to target. If needed, this is the time to relax the situation by doing an air, vitals and ‘coms’ check. Let the diver know the distance from target and then move in one-step at a time.

With the body is located and the diver on target, slow down the transducer scan speed to generate the highest resolution images, and check the sonar record for small targets in the area. Particularly in homicide cases, if there are any out of character targets in the immediate proximity, this is the time to investigate. Moving the body will change the acoustic perspective as the recovery diver’s fins/knees push into the bottom. After recovering the body and the diver is out of the immediate vicinity, record a few more scans at different ranges to verify there is no potential evidence remaining on bottom.

**Author’s note:** The described method of positioning the diver works well when the sonar operator tender and the diver are in communication with each other. More importantly the diver must be willing to listen and follow directions. If the diver is unable to execute directional search commands recover the individual and deploy the next diver. Accept the fact that this does occasionally happen. Trying to direct someone that is unable or unwilling to follow instructions is time consuming unproductive and frustrating.

Presented in the last sonar article for PSDiver Monthly was the following challenge question:

**Using side-scan sonar, how long will it take to search a one square nautical mile (6076’ X 6076’/1852m X 1852m) with the following constraints?**

- The side-scan range selection is set to 25m/82’ (because of the target size and shape and the beam angle of the sonar transducer).
- The required overlapping coverage is 50% so there is limited chance of positioning the target in the sonar nadir (that area directly beneath the towfish) where the signal is in compression - and potentially missed.
- The search vessel speed is 4 knots.
- The turn-around time at the end of each line is 5 minutes.

**Answer:**

With a range scale of 25m/82’ (swath of 50m/164’), and needing a 50% overlap, the number of lines is determined by dividing 1852m/6076’ (1 nautical mile) by 50% of 50m, or 25m.

\[
= 74.08
\]
Since it is difficult to survey 0.08 lines, round 74.08 up to 75.

With a vessel speed of 4 knots, the on-line survey time is 15 minutes per line, for a total of $75 \times 15 = 1125$ min. When divided by 60 min. = 18.75 hours (18 hrs and 45 min.).

There are 75 lines and a turnaround time of 5 min. at the end of each – except for line 75 as the search area is complete at the end of that line (so no turn-around time required).

$74 \times 5 = 370$ (min.)

$370/60 = 6.16$ hours (6 hours and 10 minutes)

Total search time is:

$18:45 + 6:10 = 24$ hours and 55 minutes

**About the Author:**

Mark W. Atherton is Special Projects Manager at Kongsberg Mesotech Ltd. He is also the author of *Echoes and Images, The Encyclopedia of Side-Scan and Scanning Sonar Operations.*

**NEWS**

Update: Boys falls through ice, 6-year-old trapped underwater for 30 minutes

His 12-year-old brother managed to get out okay


Dec. 8, 2013

Two boys fell through the ice on Joe Creek on the edge of the Firefox Apartments near 71st and Riverside Dec. 7, 2013  Russell Mills

TULSA — Updating the very latest on a child who fell through ice on Joe Creek Saturday afternoon in South Tulsa.
Tulsa police have told KRMG an unnamed six-year-old boy was later declared dead at the hospital.

**Original:** A six-year-old boy and his older brother fell through the ice on Joe Creek near 71st and Riverside Saturday afternoon, and it took nearly a half-hour to rescue the younger boy.

Tulsa Fire Department District Chief Dale Cooley told KRMG at the scene the younger boy did not regain consciousness, but was still alive when transported.

The older boy was taken in as a precaution, but was expected to be okay.

When emergency crews arrived on the scene, two adults were in the water as well, trying to find the young boy.

They were also taken to the hospital as a precaution.

It took police divers at least 20 minutes to find him, witnesses told KRMG at the scene.

"It seemed like hours... looking at the ice, it seemed like you were going through a whole day," one girl said.

They said they knew the boys, that they were brothers, and that the older brother told them the pair had been sledding near the creek when they broke through the ice.

"He'll have to live with that the rest of his life," one young witness said.

Police have not released any names of the people involved.

Chief Cooley said people who live in Oklahoma need to understand how dangerous an iced-over creek or pond can be.

"It looks safe, it's tempting, but it's not. We need to keep people off the ice here in Oklahoma," he said.

**Rescue divers say Boise ice is unsafe to skate on**


Dec 10, 2013 By Eric Gonzales

**BOISE, Idaho (KBOI) -** KBOI News found two people skating on a pond near fire station number one on Reserve road near Fort street. Rescue divers with the Boise Fire Department know this pond well. "That pond is one of the ponds that we go train on, it's one of the first ponds that we can go to for surface ice training. It isn't very deep but I wouldn't want to go through it in clothing," says Scott Hall, a rescue diver.

»Click For Video
Divers say that water flows underneath the ice at the pond keeping it from ever fully getting thick. They add it generally takes a long period of cold with subzero temperatures and that's when you start to get the good thick ice.

Hall says reaching someone who has fallen through the ice is a dangerous rescue. Last year divers say they had only one rescue and that was on a dog that eventually died because of the freezing temperatures. Rescuers say that a person would have only a few minutes before they would start freezing trying to get out of the water.

"Their limbs are going to go numb within 30 seconds to 2 minutes and be almost useless. Their best technique is to get away from the area of the ice that they broke through and try to find a more solid surface," Hall says.

Generally the Fire Department says the ice is not considered safe in Boise and playing on the ice early in the season may be especially unsafe.

xperts offer guidelines for safety on ice
Dec. 11, 2013 By STEPHEN Di BENEDETTO

McHenry County residents may be tempted this week to ice fish, skate, drive a snowmobile along the Fox River or play some pond hockey as temperatures dip to frigid levels.

But area firefighters warn the cold weather doesn’t mean ice over a lake, pond or river is safe for walking or other winter activities.

"There is no such thing as 100 percent safe ice," said Chris Bedore, dive rescue coordinator for Crystal Lake Fire Rescue.

H. Rick Bamman file photo
Those inexperienced individuals can face grave consequences. A fall through the ice is always life threatening, said Bedore, who has 14 years of dive expertise at the Crystal Lake department.

The extremely cold water and shock can instantly cause hypothermia, where the body loses heat faster than it can replace it. If body heat can't be maintained, death is almost certain, Bedore said.

A Johnsburg man drowned early last year after falling through ice in a pond near his home. In February 2012, residents in Grayslake made the evening news after saving four kids who fell through a frozen neighborhood pond.

In almost any instance, people can follow general guidelines to determine the strength of ice and to recover from a fall through it.

Temperatures need to be lower than 20 degrees for at least a week to make ice strong enough to be considered safe, Bedore said. The safety of the ice also depends on age.

For children, two-inch-thick ice might be safe enough, but ice needs to be at least four inches thick to support adults. Children should be discouraged from venturing onto thin ice since adults may not be able to rescue them, Bedore said.

Temperatures, snow cover, currents, springs and fish all affect the safety of ice, which can be a few feet thick in one area and inches thick a few yards away, Bedore said.

Appearances also matter. Thin, white, cloudy or snow-covered ice is not safe, while ice that is clear or bluish is generally safe, Bedore said.

“The most important tip is, ‘If you don’t know, don’t go,’ ” Grayslake Fire Lt. Rodney Buckley said.

Buckley is a team leader on the dive rescue team for the Lake/McHenry County Fire Departments Specialized Response Team. A team of divers from 45 area fire departments make up the rescue team, dispatched to assist individual departments in emergency situations.

Buckley also speaks to high school students around the Grayslake area about ice safety. A common misconception he encounters from people is that clothes make it harder to swim.
Clothes will absorb water, so people shouldn’t waste energy – and excess body heat – trying to take items off, Buckley said.

“Don’t take off your coat, your boots, you just get yourself out of the water,” Buckley said.

If people find themselves in the frozen water, they should put their hands and arms on the unbroken surface of the ice, lie horizontal in the water and kick their feet to work back onto the surface, Bedore said.

Once on the surface, people should lie flat on the ice and roll away from the hole in the water, he said.

Keep yourself safe
Ice thickness safety guidelines for new, clear, solid ice:
• 2 inches or less: stay off
• 4 inches: ice fishing or other activities on foot
• 5 inches: snowmobiles or ATV
• 8-12 inches: car or small pickup
• 12-15 inches: medium truck

Would-be rescuers should:
• Immediately call 911 and use others to make a rescue
• Reach the victim by extending items like tree branches or ladders.
• Throw items like a rope or hose for longer distances.
• Go to the victim, if all other options have failed.

Recovery mission to resume Tuesday morning for Grundy Center man who fell through ice
Dec 16, 2013 | by Lillian Schrock

After about five hours of searching Monday, divers were still unable to locate a man who fell through the ice on Lake Ponderosa on Saturday.

David Allen Hartke, 57, of Grundy Center, reportedly fell through a weak spot in the ice on Lake Ponderosa while ice fishing with a friend, said Chief Chris Widmer of the Montezuma Volunteer Fire Department.

The Midwest Regional Dive Team was called in Monday
and searched from noon until 5 p.m., Widmer said.

Divers will begin searching the area around 8 a.m. Tuesday. If they are unable to find Hartke, officials will have to assess the situation, Widmer said.

"With it warming up, it becomes a safety issue to have them on the ice," Widmer said. "I don't want to put their lives in jeopardy."

Still, Widmer would like to find Hartke "to bring closure to the family," he said.

The Montezuma Fire Department was called to Lake Ponderosa about 6:30 p.m. Saturday for a report of a man who had fallen through the ice.

Hartke was reportedly ice fishing with a friend and both were using UTV Rangers on the ice, said J.R. Shearer with the fire department. The man’s friend saw him fall through the ice, Shearer said.

"We responded and immediately called in the Grinnell and New Sharon fire departments for ice rescue support," Shearer said. "After our first initial rescue attempt, we called in the dive team."

Recovery crews worked until their equipment began to freeze late Saturday, Widmer said.

On Sunday, about 30 rescue workers from the area, including the Montezuma, Malcom and New Sharon fire departments, were on scene assisting the divers from Johnson County and the Central Iowa Underwater Search and Rescue team.

All three diving teams consisted of volunteers, who plunged into 37-degree waters. Shearer said underwater conditions were cold and sight was limited.

Recovery efforts were...
suspended Sunday evening due to the search being too dangerous for divers.

Crews drilled holes in the ice and inserted cameras, immediately locating the man’s UTV Ranger and hut underwater. However, the man’s remains were not in the vehicle.

“It is a recovery operation at this point,” Widmer said.

The search consists of groups of divers going into the water two at a time for periods of 15 minutes. One team leaves the water to get warmed up while another team takes over.

“They’re developing a radius of about 50 feet around the Ranger,” said Dann Hayes, who was on the scene Sunday with the Malcolm Volunteer Fire Department. “That includes areas they’ve already searched.”

It was estimated by the divers that the ice was only two-inches thick where Hartke fell through.

According to officials, the area where Hartke fell through was open water a couple weeks ago.

Falling through the ice: How one Madison man survived

One Madison man's story may make you think twice before going out on the ice.

He's lucky to be alive to tell it, after falling into Lake Mendota, and finding himself in 15 feet deep of bone chilling water.

All alone, out on the ice getting ready to fish; that's when Dan Hovey's life forever changed, falling through the ice, not able to call for help; spending 25 minutes in the potentially deadly temperatures.

"I thought when I first went in, no problem, I'll get out," said Dan Hovey. Dan Hovey will never forget
that December day, five years. A routine ice fishing trip on Lake Mendota, that almost took his life. "With the sun in my eyes, I walked out about 100 yards, I took a left, as soon as I took a left, maybe 10 steps later, I was in," he said.

Scrambling to get to the surface, saved for the moment by a life preserver; wanting to scream for help but his body- already in shock. "I think it took a while for somebody to actually notice that I was in," he said. Dan spent nearly 25 minutes in the water, eventually being pulled out with a rope by a fellow fisherman. Unable to stand, talk, or even think clearly. "When I got out of the water and up here on shore, I had icicles all over me," he explained.

He then changed clothes and eventually drove home. We asked, "do you remember driving home at all?" He answered, "not much." He may have been out of the water, but he was far from out of danger, still not able to make rational decisions. "They might be confused, disoriented or lethargic, and it might make it difficult for the person to make the best decision," said Emergency Room Physician at Meriter Hospital, Jeff VanBendegom.

So, it was Dan's wife that made the decision for him, to take him to the emergency room. "As soon as she came through the door and saw me, she knew something was wrong," he said. Being admitted with a body temp of 91 degrees. "Hypothermia as a diagnosis really sets in when a body temperature drops below 95 degrees," explained Dr. VanBendegom.

Dan knows he was lucky that day, surviving what many have not. He explained, "I think I got a second chance." Dan says he's cut down on his ice fishing. He used to go a couple times a week, and now he says he only goes out on the ice maybe two or three times a year, specifically on areas where he knows the ice is at least 5" thick.

**Body of man who fell through Lake Ponderosa ice found** –
http://www.desmoinesregister.com/article/20131218/NEWS/312180058/Body-of-man-who-fell-through-ice-is-found
Dec. 18, 2013 Katherine Klingseis

**Divers found David Hartke after they turned over his vehicle on the lake bottom.**
Divers found the body of a man who fell through the ice on Lake Ponderosa on Saturday, officials announced Tuesday night.

![Kongsberg Mesotech MS 1000 Scanning Sonar for Search & Recovery](image-url)
David Allen Hartke, 57, fell through a weak spot in the ice on Lake Ponderosa while ice fishing with a friend around 6:30 p.m. Saturday, Montezuma Fire Chief Chris Widmer said. Hartke and his friend were using an utility vehicles when Hartke reportedly fell through the ice.

Officials estimated the ice where Hartke fell through was only 2 inches thick.

The recovery ended four days of searching at Lake Ponderosa, which is in Poweshiek County, about 70 miles east of Des Moines.

The Johnson County Metro Dive Team and Central Iowa Underwater Search and Rescue team attempted to find Hartke on Saturday and Sunday. Using cameras, divers were able to locate Hartke’s utility vehicle and hut underwater. However, they did not find Hartke.

Recovery crews had to stop searching Saturday night because their equipment kept freezing. On Sunday, recovery efforts were suspended because the search was getting too dangerous for divers.

Crews worked for five hours Monday to try to locate Hartke, but were again unsuccessful.

On Tuesday, divers found Hartke after they rolled over his vehicle, which had been on its roof, officials said.

The recovery came just as divers would have likely been forced to suspend the search again, this time because of warmer temperatures weakening the already thin ice on the lake.

Bruce’s Legacy, a Wisconsin not-for-profit search and recovery organization, arrived Tuesday evening. The company will help remove the vehicle from the lake, officials said.
Divers recover victim
December 18, 2013 by Chuck Morris

**Red Oak** -- Members from the Midwest Regional Dive team are back home today after a successful recovery mission of a tragic drowning at Lake Pondersosa near Montezuma, Iowa on Saturday night.

Kenny Hamman the Infinite Commander of the Midwest Regional Dive Team says finding the body of 57 year old David Hartke of Grundy Center is bittersweet.

"It' a bad time of the year, of course anytime is a bad time, but just a few days before Christmas makes this especially tough. We were very fortunate that we were able to help provide closure to the family by finding Mr. Hartke about 6 p.m. on Tuesday".

Hamman says the family of David Hartke and the Ponderosa Lake community as a whole was grateful for the volunteer help from the twenty divers from Red Oak, Clarinda, Mount Ayr, Corning and the Cass County Sheriff's office for their expertise in extremely tough conditions where water temperature ranged from the low to mid 30's. Hamman credits training and dedication of the divers that makes them a one of kind unit in Iowa.

"We train once a month as a group and each organization trains on and above that each month too. You're never completely prepared for all of it, but we work at learning more every time and with the divers training so much and working together as a team, the training always pays off."

The Midwest Regional Dive Team organized about ten years ago. It is made up entirely of volunteer divers from the five organizations that each previously had their own dive teams.

Hamman says the call for help came on Sunday night and members of the team were on site at Lake Ponderosa by mid-morning on Monday. Again, the divers arrived home late Tuesday night.

**UPDATE: Sheriff Confirms Name of Area Mom Who Jumped From I-94 Bridge**
December 28, 2012 by Micheal Foley

Witnesses say the 48-year-old River Falls mom stopped her vehicle on the shoulder of the bridge Thursday morning, left her 11-year-old daughter inside, climbed
over the railing and jumped to her death on the frozen St. Croix River.

Related Story: Man Jumps off Bridge and Into Freezing River on New...

UPDATE (9:15 a.m., Dec. 28, 2012): St. Croix County Sheriff John Shilts confirmed Friday morning the name of the Pierce County woman who jumped off the I-94 bridge to her death onto the frozen St. Croix River on Thursday after leaving her young daughter in the car.

Molly Crumley, 48, of River Falls, pulled onto the shoulder of eastbound I-94 on the St. Croix River bridge, exited her vehicle, climbed over the railing and jumped to her death at about 8:30 a.m. on Thursday, Dec. 27.

O'Connell Family Funeral Home took initial custody of Crumley's body after recovery crews retrieved it from the river. Funeral arrangements are pending.

Please express your condolences, prayers and wishes for the family in the comments of this post or on Crumley's page on the funeral home’s website.

ORIGINAL POST (Dec. 27, 2012):

Witnesses say a woman stopped her vehicle on the shoulder of I-94 on the St. Croix River Bridge, left her 11-year-old daughter inside, climbed over the railing and jumped to her death just before 8:30 a.m. on Thursday.

Law enforcement and rescue personnel from the St. Croix County Sheriff's Office, Hudson Police Department, Washington County Sheriff's Office, Wisconsin Department of Natural Resources and the Lower St. Croix Valley Fire and EMS Service responded to the scene, according to a press release from the St. Croix County Sheriff's Office.

The 48-year-old Pierce County woman's body was recovered on the ice-covered river by the use of an air boat. Her identity is being withheld until relatives are notified, according to the release. Her 11-year-old girl is now with other family members.

The incident remains under investigation.

Other Media Reports:

- Hudson Star-Observer: Update -- Woman who jumped from Hudson Bridge Thursday morning was 48-year-old from Pierce County
- Pioneer Press: Wisconsin woman leaves daughter in car, jumps from I-94 bridge
- Star Tribune: Woman leaves daughter in vehicle, leaps to death into St. Croix from I-94 bridge
Divers recover body of missing, pregnant Texas woman


January 3, 2014 by ABC News

(ABC NEWS) -- A diving team has recovered a body believed to be that of a missing, pregnant 26-year-old Texas woman who is believed to have been a victim of foul play.

Melissa Rene Sowders disappeared the evening of Dec. 26. She was last seen at a McDonald's restaurant on interstate 45 in Harris County, where she was supposed to meet her ex-husband, Matthew Sowders, and their youngest daughter, according to the Harris County Sheriff's office.

Divers recovered the body in a creek close to Matthew Sowders' home. She was two months pregnant with boyfriend Jason Sanford's baby.

Detectives have questioned Matthew Sowders in connection with his ex-wife's disappearance. At this point he has not been named as a suspect in the case, but authorities are combing his truck for evidence.

Relatives say Sowders, who had three children with Melissa, abused her.

"As far as we know he has threatened her numerous times. He has had a knife to her throat before," Melissa's cousin Michelle Bierman told ABC News. "We think he just went off the edge when he found out she was two months pregnant with Jason's child."
According to Bierman, the children are believed to be in the custody of Matthew Sowders' parents.

"He wasn't ever abusive to the kids, only to Melissa," Bierman said.

Bierman believes Sowders took his ex-wife back to his home, or directly to the creek after their meeting at McDonald's.

"Everything they found is right next to Matt's house. The creek is pretty much his backyard," Bierman said.

Detectives told ABC's Houston affiliate KTRK that Matthew Sowders was not cooperating with the investigation. His attorney has denied he played any role in his estranged wife's disappearance, KTRK reported.

"Everybody in the family is just torn up." Bierman said. "All we think about is getting her home so we can give her a proper burial."

**Fascinating pictures of York scuba club’s early days found in New Zealand**

When his daughter, Wendy, was going through some old family papers, she found a collection of photos of the York divers, and tracked the club down online to return the images.

For Bernard Wilding and Denis Moor, both founding members of the club, the photos have brought back many happy memories.

Denis said: “It was a great surprise to hear that Tom’s daughter had been in touch, and even more of a surprise when she sent the photos over.”
The photos include images of emergency repairs at Naburn lock, members training with police divers in a pond near Tom’s home, Lake Cottage at Elvington, and even a wintry scene of divers on an iced-over pond in 1958.

Tom’s handwritten note said they had cut through ten inches of ice to practice diving in freezing temperatures.

Denis said: “Tom’s photos really took me back to the early days when the equipment was very basic – things are so different today.

“Then it was just fins, a mask and a snorkel, without any weights. The breathing tanks were initially just small
oxygen tanks, like the ones that pilots had on planes, which we refilled each time.”

Bernard Wilding remembers the club’s early days when it was known as the York Underwater Research Group and members met in pubs around York.

He said: “We needed ten members to become a branch of the BSAC and finally we got people to put the money up – and so we officially became the 50th branch in 1957.”

Denis has written a history of the club in which he notes Tom and a friend were early diving pioneers with extremely basic equipment.

“They donned their woolly jumpers and walked in (to the lake at Elvington) with a bucket on their heads, weighted down by heavy ploughshares. They took it in turns to pump air into the bucket with a war-time stirrup pump,” he wrote.
'We Need Some Divers ASAP': Multi-Agency Emergency Response at I-94 Bridge over St. Croix River


January 05, 2014 Chris Steller (Editor)

Responding agencies included at least a half dozen fire departments: Stillwater, Hudson, Bayport, Scandia, Mahtomedi and Lower St. Croix.

Updated at 6:30 p.m. Tuesday. Emergency responders from many local agencies rushed to the I-94 bridge over the St. Croix River Tuesday afternoon.

Washington County officials confirmed Tuesday evening the incident was a suicide. The National Suicide Prevention Hotline is 1-800-273-8255.

This is how the situation unfolded Tuesday:

The first calls came in at 2:24 p.m., according to Washington County emergency dispatch officials. Fire, police, emergency and medical personnel, including a dive team, responded to the scene.

Dispatchers and responders discussed the arrival of divers at 2:45 p.m., including a plea that "we need divers ASAP."

Lakeland resident Richard Glasgow

Related Stories:

- UPDATE: Sheriff Confirms Name of Area Mom Who Jumped From ...  
- In Loving Memory of Justin Lindstrom  
- Man Jumps off Bridge and Into Freezing River on New...  
- Goodbye
Glasgow said he saw the Lower St. Croix Fire Department as well as fire crews from Hudson, Scandia (dive team), Bayport, Mahtomedi and Stillwater. Glasgow reported seeing a vehicle towed from the bridge and a rescue crews' airboat traveling on the river near the bridge. (See Glasgow's photos of emergency responders above.)

At 2:58 p.m., crews were breaking ice for divers and awaiting their arrival, according to scanner reports. "We're still in rescue mode here," said one responder.

Radio reports indicated that dive crews were pulling back from the scene at 3:30 p.m.

At 4:45 p.m., a Washington County emergency dispatcher said most responders had cleared the scene although a dive team remained.

MnDOT cameras showed lights at midspan of the bridge and traffic backed up past Hwy. 95.

Divers were set to return to the frigid waters to search for the man's body, according to the St. Paul Pioneer Press.

A similar tragic incident occurred one year earlier.

**Minn. Divers Recover Three Victims, Search for Fourth**


01/07/14 CURT BROWN STAR TRIBUNE (MINNEAPOLIS)

*Their SUV plunged into the icy Mississippi River.*

Jan. 07--The three men had been best friends since kindergarten, growing up near picturesque Lanesboro in the southeastern corner of the state. They left a downtown Winona tavern together at 1:15 a.m. Sunday, all passengers in a sport-utility vehicle driven by a woman they had just met. Her SUV plunged into the icy Mississippi River.

Three bodies have been recovered, and divers continue searching for a fourth victim.

"They did everything together so it's not surprising to the family that the three of them would have stuck together," said Ron Ganrude, chief deputy of the Winona County sheriff's office.

Tipped by sonar, authorities recovered the third body around 1:30 p.m. Monday. He was Blake Overland,
28, of Stewartville, Minn., who recently moved to Winona.

The body of the driver, 36-year-old Christina Lee Hauser of Winona, was found belted in the SUV, 20 feet deep in water when a diver connected a winch and the vehicle was hauled to the surface at noon Sunday. Several windows were broken, but investigators aren't sure yet if the windows were cracked by trapped passengers or from the impact of the crash.

Matthew Patrick Erickson, 30, was also found belted in the SUV. Searchers called for lights as they attempt to find the fourth victim, Andrew Kingsbury, 29, of La Crosse, Wis.

Ganrude said Hauser was out socializing with some coworkers when the three friends from Lanesboro started chatting with her. She might have been giving them a ride home, he said.

Investigators didn't immediately say whether alcohol contributed to the crash.

He said the vehicle of one of the three friends was found about a block from the bar and family members hadn't heard from either Kingsbury or Overland. Their cellphones were off.

As dive teams using ice saws continued searching for a fourth body Monday, the news traveled quickly 40 miles south to Lanesboro, population 743. "We all knew them, we're a very small school," said the woman who answered the phone at Lanesboro High School and declined to give her name.

"It's too fresh here," she said, adding that all three were "good kids," active in sports and other school activities. Two of the victims graduated in 2003 and one in 2004.

According to Facebook pages, Hauser was from Nebraska and working as an administrative assistant at a Winona health clinic.

A family member of Erickson's in rural Chatfield, 20 miles northwest of Lanesboro, declined to talk about the accident. Erickson listed Lewiston, 15 miles from Winona, as his home on Facebook and said he worked for Benson
Farm Services. Kingsbury was living across the river in La Crosse, Wis. Overland's Facebook page listed Winona as his home and said he worked at Xcel Energy.

"The assumption is two friends came to his place, the three met up and drove one vehicle to downtown Winona," Ganrude said. "It was still sitting there, less than a block from the bar and it seems reasonable to believe they were probably in the vehicle when it went into the river."

The Sheriff's Department responded to a call at 7:20 a.m. Sunday reporting car tracks and damage consistent with an accident at Riverview Drive near the intersection of Second and Huff streets.

Responders found a license plate, purse and other debris on the shore near a broken guardrail.

Winona County Sheriff Dave Brand said dive and rescue teams from Winona and La Crosse used an underwater camera to locate the vehicle and pulled it from the river. The car was upright and its air bags had been deployed.

Brand said the car was taken to a nearby heated garage for an investigation. The bodies were taken to Rochester for autopsies.

The cold weather, with biting winds, made recovery efforts difficult. The 20-foot-by-30-foot hole cut with saws to recover the vehicle froze over during the night and required ice chain saws to crack new holes.

"There is some current at 20 feet, but we don't believe the bodies would travel too far from where the vehicle went in," Ganrude said. "It doesn't typically take the bodies a long way."

Firefighters rescue swan from icy water in High Point

HIGH POINT, N.C. — The cold weather kept local fire departments very busy on Tuesday but there was one call in particular that stood out.

High Point firefighters were called to a retention pond in High Point off Penny Road to rescue a swan that was stuck in the ice.

A worker who worked near the retention pond noticed the swan around 5
p.m. When firefighters arrived, the bird was still trapped.

So, wearing survival suits, Training Chief Owen Farmer and Capt. Damon Tobin went in.

They used a stick to break the already thin ice and waded — then swam — closer to the swan.

Eventually the two were able to push the swan out of the ice and into open water.

The firefighters said it looked like the swan had a small injury on its wing but the main problem was it just couldn’t get any footing on the ice.

**Lifesaving Resources to conduct 14th annual INTERNATIONAL ICE RESCUE TRAIN-THE-TRAINER ACADEMY**

January 07, 2014

Lifesaving Resources (lifesaving.com) will be conducting its 14th annual INTERNATIONAL ICE RESCUE TRAIN-THE-TRAINER ACADEMY, February 20 - 23, in Portland, Maine.

The purpose of the Academy is to train representatives of Fire, Rescue, EMS, and Law Enforcement agencies as Ice Rescue Instructors. Upon successful completion of the Academy, graduates will be authorized to conduct Ice Rescue Awareness, Operations, and Technician level courses for personnel within their own and surrounding departments. Lifesaving Resources' Ice Rescue training programs meet and exceed NFPA 1670 Standard for Technical Rescue.

The Academy includes 16 hours of classroom instruction as well as 16 hours of on/through-the-ice practical training conducted on and through the ice.

**Lifesaving Resources** is dedicated to drowning and aquatic injury prevention and emergency management. The company develops curriculums in Water Rescue, Swiftwater Rescue, Ice Rescue, Escape and Rescue from Submerged Vehicles, Aquatics Safety, and Lifeguarding and conducts this training internationally for the Public Safety and Rescue, as well as the Lifeguard and Aquatic Recreation Sectors.

The Academy is conducted under the supervision of Gerry Dworkin, a professional Aquatics Safety and Water Rescue Consultant for Lifesaving Resources, a company

Video Clip: Click to Watch
dedicated to drowning and aquatic injury prevention and emergency management. Gerry serves on the Board of Directors for the National Drowning Prevention Alliance, and on Advisory Boards for the American Red Cross and the International Swimming Hall of Fame. He is also a Firefighter/Emergency Medical Technician for the Kennebunkport Fire Department in Maine. Gerry is an internationally recognized educator and speaker, and consults regularly as a Forensics Expert in drowning and aquatic injury litigation.

For information and/or registration for the 2014 Academy, access the Lifesaving Resources' website at www.lifesaving.com or call 207/967-8614.

"He Who Saves A Single Life, Is Said To Have Saved The Entire World"

Gerald M. Dworkin
Consultant, Aquatics Safety and Water Rescue
Lifesaving Resources, LLC
Kennebunkport, ME
207-967-8614

FirstUrl: Ice Rescue Train-the-Trainer Academy Registration

Firefighters, humane society rescue ducks stuck on frozen pond
01/07/14 Scott Rosts Niagara This Week - St. Catharines

ST. CATHARINES — Kevin Strooband has worked for the Lincoln County Humane Society for 23 years, but he had never seen a rescue similar to the one Tuesday in Port Dalhousie.

During his time with the LCHS he has been on calls with the assistance of the St. Catharines Fire Service, but on Tuesday it was the first time he’d participated in a rescue to assist six ducks frozen to the ice in the harbour.

“I’ve heard of it before, but it’s not something I’ve ever been involved in,” said Strooband.

The call came into the humane society Tuesday morning after a passerby noticed one duck stuck to the ice. LCHS inspector Todd Menard responded, and he noticed it was a much larger issue.
“They started to look around and saw a number of them stuck,” said Strooband. “We decided to call the fire department for help, and they deployed two of their ice rescue boats.”

Five ducks were rescued and released, while one other duck was taken to the humane society to due to an immense amount of ice that was built up on its body.

“We looked to see if there were any that had clumped hair or exposed skin, or to see how much ice buildup they had on them,” Strooband explained. “We brought one back here and it was just lethargic and wouldn’t do a thing. If it had been out there much longer it may not have survived.”

The duck spent a few hours at the humane society to warm up, and was released on Tuesday afternoon.

Strooband said it is tough to say how long the ducks were out there. The one with ice buildup on it, he said, may have been there for several hours. At least one was seen getting stuck to the ice when LCHS officials were on scene.

“It’s a result of them swimming and then jumping out on the ice. They sit down, and then freeze almost immediately,” he said. Strooband said he is thankful for the support of the fire service. Fire Chief Mark Mehlcnbacher said the service was pleased to lend a helping hand.

“They are there to help us at times and we were happy to be able to help them out,” said Mehlcnbacher. “This was a good opportunity for us to train.”

Given that it wasn’t responding to an emergency response, such as if a human was stuck on the ice, Mehlcnbacher said it allowed for the service to break out its Polar 75 inflatable vessel, and about 10 firefighters were on hand to assist with the rescue.

“It was a great chance to put our training into practice,” said Mehlcnbacher, noting each of the service’s 136 firefighters should undergo such training each year, but sometimes the weather conditions don’t cooperate. Strooband said he encourages anyone who sees something similar to contact the humane society. The LCHS, he said, planned to head out to other spots in St. Catharines, including Happy Rolph’s and around the Welland Canal, on Tuesday to check to see if there were any similar situations.
FROM YOUR SPONSORS

Law Enforcement & Public Safety Diver Sonar Training

Boston Sea Rovers
March 8, 2014 1 pm.

Black Laser Learning, Inc.®, known worldwide for its in-depth sonar technology expertise and innovative training programs, will deliver a four-hour sonar training course for law enforcement personnel and public safety divers at the popular Boston Sea Rovers conference http://www.bostonsearovers.com/clinichome/workshops/#6.

Join seasoned sonar instructor Vince Capone from Black Laser Learning on Saturday, March 8, 2014, and learn how to effectively use the Humminbird and other towed sonar systems.

The four-hour workshop runs from 1 to 5pm and covers the principles of sonar operation and data interpretation, focusing on drowning victim location as well as field techniques to optimize search operations. Class is limited to 40. The fee is $85.00. Participants receive a free training DVD upon completion.

The Boston Sea Rovers is a non-profit volunteer organization with a rich history of diving and underwater education and awareness. Black Laser Learning’s four hour workshop will cover both Humminbird and towed sonar systems, with a particular focus on drowning victim location. Instruction, 3D animations and dozens of sonar images will provide participants with a firm grounding in the principles of sonar operation and data interpretation as well as field techniques to optimize search operations.

The training provides an opportunity for a large number of organizations that might not be able to afford individualized training to receive it in a group conference setting.

"Many organizations spend good money on sonar systems for underwater search operations but don’t recognize the need for proper training," says Senior Instructor, Vince Capone, who has over 25 years of experience working with and training on a variety of sonar systems. "Our sophisticated yet easy-to-understand training concepts will help make these ops units be much more effective on the job."

Organizations may purchase slots for any number of people without being required to name attendees. Upon completion of the course, participants can choose between two free training DVDs, each a $100 value. Choices include the Not in the Manual Guide® to Underwater Search OPS with Humminbird® Side Imaging® Sonar DVD or the Second Edition Not in the Manual® Guide to Side Scan Sonar Image Interpretation DVD.

Black Laser Learning, Inc.® has provided sonar training for such organizations as the Royal Canadian Mounted Police, the Medicine Hat Fire Department, New Jersey State Police, Suffolk County Marine Division, the Calcasieu Parish Sheriff’s Office and the East Baton Rouge Sheriff’s Office.

About Black Laser Learning:
Black Laser Learning, Inc.® is a marine technology training company specializing in distilling complex technological subject matter into easy-to-understand training segments presented live, by DVD or computer-based interactive training formats. Our clients include the U.S. Navy and Marine Law Enforcement organizations.
**Cold Water**
What is it? It is difficult even for an expert to define. It is estimated to be around and under the temperature of 70 degrees. However, this will vary in each case due to the specific circumstances and physical condition of the person involved.

**What Happens In Cold Water?**
Many of the fatal boating accidents occur in the "out-of-season" months when the water is cold. What happens to the body when suddenly plunged into cold water?

The first hazards to contend with are panic and shock. The initial shock can place severe strain on the body, producing instant cardiac arrest, as happened to a 15 year old scout in the month of March in Pennsylvania several years ago.

Survivors of cold water accidents have reported the breath driven from them on first impact with the water. Should your face be in the water during that first involuntary gasp for breath, it may well be water rather than air. Total disorientation may occur after cold water immersion. Persons have reported "thrashing helplessly in the water" for thirty seconds or more until they were able to get their bearings.

Immersion in cold water can quickly numb the extremities to the point of uselessness. Cold hands cannot fasten the straps of a lifejacket, grasp a thrown rescue line, or hold onto an over-turned boat. Within minutes, severe pain clouds rational thought. And, finally, hypothermia (exposure) sets in, and without rescue and proper first aid treatment, unconsciousness and death. We all recall the incident in which the airliner went down in the dead of winter in the water in Washington, D.C. several years ago. The vivid video of the rescue attempts and those that died due to hypothermia is not easily forgotten.

Normal body temperature of course, is 98.6. Shivering and the sensation of cold can begin when the body temperature lowers to approximately 96.5. Amnesia can begin to set in at approximately 94, unconsciousness at 86 and death at approximately 79 degrees.

**What To Do In The Water**
Cold water robs the body's heat 32 times faster than cold air. If you should fall into the water, all efforts should be given to getting out of the water by the fastest means possible.

Persons boating in the cold water months should be thoroughly skilled in rescue and self-rescue techniques. Most accidents involve small boats which with practice, can be righted and re-entered. Most boats, even filled with water, will support the weight of its occupants. If the boat has capsized and cannot be made right, climb on top of it.

Physical exercise such as swimming causes the body to lose heat at a much faster rate than remaining still in the
water. Blood is pumped to the extremities and quickly cooled. Few people can swim a mile in fifty degree water. Should you find yourself in cold water and are not able to get out, you will be faced with a critical choice - to adopt a defensive posture in the water to conserve heat and wait for rescue, or attempt to swim to safety.

Should you find yourself in the water, avoid panic. Air trapped in clothing can provide buoyancy as long as you remain still in the water. Swimming or treading water will greatly increase heat loss and can shorten survival time by more than 50%.

The major body heat loss areas are the head, neck, armpits, chest and groin. If you are not alone, huddle together or in a group facing each other to maintain body heat.

Preparation
Proper preparation is essential when boating on cold water. Make sure your boat and equipment are in first class condition. Check the weather forecast before leaving for your event. Always tell someone where you are going and when you expect to return. Dress in several layers of light clothing. Next to a diver's wet suit, wool clothing offers the best protection. Always wear a personal flotation device (PFD) when boating.

First Aid Considerations For Cold Water Victims
Treatment for hypothermia depends on the condition of the person. Mild hypothermia victims who show only symptoms of shivering and are capable of rational conversation may only require removal of wet clothes and replacement with dry clothes or blankets.

In more severe cases where the victim is semi-conscious, immediate steps must be taken to begin the rewarming process.

Get the person out of the water and into a warm environment. Remove the clothing only if it can be done with a minimum of movement of the victim's body. Do not massage the extremities.

Lay the semi-conscious person face up, with the head slightly lowered, unless vomiting occurs. The head down position allows more blood to flow to the brain.

If advanced rescue equipment is available it can be administered by those trained in its use. Warm humidified oxygen should be administered by face mask.

Immediately attempt to rewarm the victim’s body core. If available, place the person in a bath of hot water at a temperature of 105 to 110 degrees. It is important that the victim's arms and legs be kept out of the water to prevent "after-drop". After-drop occurs when the cold blood from the limbs is forced back into the body resulting in further lowering of the core temperature. After-drop can be fatal.

If a tub is not available, apply hot, wet towels or blankets to the victim's head, neck, chest, groin, and abdomen. Do not warm the arms or legs.

If nothing else is available, a rescuer may use their own body heat to warm a hypothermia victim.

Never give alcohol to a hypothermia victim.
Some Important Facts To Remember
Most persons recovered in cold water "near" drowning cases show the typical symptoms of death:

- Cyanotic (blue) skin coloration
- No detectable breathing
- No apparent pulse or heartbeat
- Pupils fully dilated (opened)

These symptoms, it was discovered, did not always mean the victim was dead. They were, on the other hand, the body's way of increasing its chances of survival through what scientists call the mammalian diving reflex. This reflex is most evident in marine mammals such as whales, seals or porpoises. In the diving reflex, blood is diverted away from the arms and legs to circulate (at the rate of only 6-8 beats per minute, in some cases) between the heart, brain and lungs. Marine mammals have developed this ability to the point where they can remain under water for extended periods of time (over 30 minutes in some species) without brain or body damage.

Humans experience the diving reflex, but it is not as pronounced as in other mammals. The factors which enhance the diving reflex in humans are:

- Water temperature - less than 70 degrees or colder, the more profound the response and perhaps the more protective to the brain
- Age - the younger the victim, the more active the reflex
- Facial immersion - the pathways necessary for stimulating this series of responses seem to emanate from facial cold water stimulation.

The diving reflex is a protective mechanism for humans in cold water immersions, but it may confuse the rescuer into thinking the victim is dead. Resuscitative efforts for these victims should be started immediately utilizing CPR in accordance with your training.

Remember, numerous children have been brought up from freezing water after 30 minutes and been successfully resuscitated.
Letters to the Editor

I would like to extend a *call for speakers for the Water Rescue Track during the 2014 National Association for Search and Rescue Conference* that is being held in Woodcliff Lake, New Jersey. The dates of the conference are June 5-7, 2014. As always, the Water Rescue Track features some of the best Water Rescue minds from around the world, and I expect this year's conference to be no different.

For the second time, the Mountain Rescue Association and NASAR are combining conferences this year. This will give you an opportunity to experience many different types of classes while you are attending. Also during the conference will be the Higgins and Langley Swiftwater Rescue Award Presentations given out by the Higgins and Langley Memorial and Education Fund. If you have any questions about the conference, you can always go to the NASAR website at www.nasar.org.

If you are interested in speaking at this year's conference, please respond to this email with the following information:

- Name
- Organization Representing
- Dates Attending
- Name of Class with Description
- Contact Number

Thanks to every one of you for what you do. If you have any questions pertaining to this email, please do not hesitate to reply back to me.

I hope to see you there in New Jersey.

Justin W. Todd
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CALL FOR NOMINATIONS HIGGINS & LANGLEY MEMORIAL AWARDS IN SWIFTWATER

Nancy Rigg  "N J Rigg" njrigg

The Higgins & Langley Memorial and Education Fund, working in conjunction with the Swiftwater Rescue Committee of the National Association for Search and Rescue (NASAR), is seeking nominations for the *2014 Higgins & Langley Memorial Awards for Outstanding Achievement in the Field of Swiftwater Rescue*, the highest international honors presented for flood and swiftwater rescue.

In addition to individual achievements and swiftwater-flood rescue team efforts, those who have dedicated years of service to developing and implementing swiftwater-flood rescue training programs, as well as public safety media-education efforts, will be considered for nomination.

Nominations for the 2014 flood and swiftwater *incident* awards may include technically challenging swiftwater and flood rescue incidents that have been performed between January 1, 2013 and February 1, 2014.

The awards honor civilian rescuer, Earl Higgins, who lost his life in February of 1980 while attempting to save a child being swept away in the flood-swollen Los Angeles River, and firefighter/paramedic Jeffrey Langley of the Los Angeles County Fire Department, who lost his life in a helicopter accident in March of 1993.

The awards will be presented during the annual conference of the *National Association for Search and Rescue* on Friday, June 6, 2014, in Woodcliff Lake, NJ.
DEADLINE FOR SUBMISSIONS is **February 10, 2014**

All nominations must be submitted no later than February 10, 2014. *Read and follow the nomination form instructions with care to avoid having nominations disqualified for a failure to submit all required information and forms, including support documentation.

There are several award categories, not all of which require noteworthy technical swiftwater/flood rescues. Some categories recognize significant achievement in the development of swiftwater/flood rescue training programs, flood disaster preparedness and response, flood and swiftwater safety education programs, etc. Select from the following award categories:

**The Higgins & Langley Memorial Award for Outstanding Achievement in the Field of Swiftwater Rescue**
The Higgins & Langley Memorial Award is the premier internationally recognized Award for excellence in Swiftwater Rescue. It recognizes an intense dedication to the field and a genuine desire to benefit the larger community. Only one Higgins & Langley Memorial award is awarded in any calendar year.

**Lifetime Achievement Award**
The Lifetime Achievement Award is reserved for those few individuals who make a significant and lasting impact in the field of swiftwater rescue. Consequently, lifetime achievement awards are awarded only occasionally. Support documentation is vital in this category.

**Program Development Award**
The Program Development Award recognizes agencies that make a significant commitment to swiftwater rescue programs in their area. This award profiles the education, training and resources to develop a successful swiftwater rescue program.

**Incident Award**
Occasionally, a specific Incident is recognized that clearly demonstrates outstanding skill and preparedness, as well as outstanding teamwork in swiftwater rescue.

**Special Commendation Award**
The Special Commendation Award recognizes the breadth of possible contribution in the field of swiftwater rescue. Awards of this type can be for media contribution, strategic planning, and individual heroism and contributions to this technical rescue discipline that are noteworthy.

For more information and to submit a nomination online: [http://higginsandlangley.org](http://higginsandlangley.org)

**Donations to the Higgins & Langley Memorial and Education Fund:**

**a 501(c)3 non-profit organization:**

Checks made out to the Higgins & Langley Memorial and Education Fund may also be mailed to:

Higgins and Langley Memorial and Education Fund  
c/o Fred "Slim" Ray, Treasurer  
8 Pelham Rd  
Asheville NC 28803

Fred "Slim" Ray, Treasurer  
slimray@higginsandlangley.org  
828-505-2917
Mark,

Love the newsletter and thanks for all the hard work you put into it.

My team, The Bullhead City Police Department Dive Team, is selling t-shirts as a fund raiser. On the front of the shirt it says "Recovery Diver" with a dive flag type font running through both words. On the back is a photo of a diver with the words "when your bubbles stop..... mine start". It's a light hearted approach to a serious matter.

Our team is a part time team consisting of 5 divers and a tender. We are responsible for about 10 miles of the Colorado River as it passes through our jurisdiction. Our work consists of evidence and body recovery. Most of the evidence we have collected over the years are weapons that were used in crimes. We also work with adjacent agencies and jurisdictions on a mutual aide basis.

We are selling these T-shirts to raise funds to purchase Intova video cameras for our team. Our team has been faced with many of the same obstacles that others have, shrinking budgets and old gear that needs to be replaced to name a few. That being said the city we work for does "not have it in the budget for those items".

I have attached a photo of the shirts. We have large and X-large in stock. I can get any size. The shirts are 100% cotton so plan on some shrinking. I have a local print shop that is printing them for us.

We suggest a donation of $20 for the shirts and an extra $5 for shipping and handling.

Mark, if you able to can you please put something in the newsletter about our team and the shirts? I would be more than happy to send you one for trade of putting it in.

I can be contacted at;
Sgt. Reid McNally
Bullhead City Police Dept.
1255 Marina Blvd
Bullhead City, AZ 86442
928-763-9200 X395
rmcnally@bullheadcity.com

Thanks again for your newsletter!

To The Editor:

Every issue I discover something about Public Safety Diving that I did not know. I do not always agree with your editorials and have come to realize that is one way you are presenting new ideas. Ours is an old grouchy team that does not do a lot. The new guys are younger and we are using your magazine to make a difference here. WE, the young ones, are taking your advice and are working on water comfort skills and are using basic scuba skills to do it! We thought it would be boring. Turns out to be a LOT harder that we thought! I can’t wait to go through one of your training programs.
NEAR DROWNING
By MARK HARRIES

Prolonged immersion in a fluid results in drowning if the victim asphyxiates, but in near drowning should he survive. The clinical picture is usually one of asphyxiation, often with pulmonary edema caused by water inhalation, in a profoundly cold subject. Complete recovery after 40 minutes. Submersion has been documented. (1) The resuscitation and subsequent management of near-drowned victims differs from all other emergencies in which cardiopulmonary arrest is a feature.

INCIDENCE
The incidence of near drowning is unknown but that of drowning ranges from 0.4 to 9.0 deaths per 100,000 per year, being highest in the warmer and less well-developed countries. Overall male deaths outnumber female by 4 to 1. In the age range 1-14 years, only road traffic accidents and cancers account for more deaths. Two-thirds die in fresh water, chiefly because the opportunity to drown in unguarded inland waters is greater than in the sea. (2) Between 25% and 50% of adults who drown show evidence of recent alcohol ingestion. (3)

PATHOPHYSIOLOGY
Death following submersion is by asphyxiation, but a person who survives receives a thermal challenge if the water is below body temperature, lung injury if water is inhaled and brain injury if the resulting hypoxemia is not treated promptly.

Effects of cold
Both the specific heat and thermal conductivity of water are significantly greater than those on air, and so body cooling is much faster in water than in air at the same temperature. Sudden immersion of an unacclimatized subject in ice-cold water results in reflex hyperventilation and tachycardia. Often with supraventricular ectopic beats and hypertension, a response known as cold shock. (4) Drowning may occur at this early stage unless a buoyancy aid is used, enabling the airway to be held above the surface of the water. A clothed adult immersed in water below 5°C can be expected to lose consciousness in less than an hour. Without a correctly inflated life jacket, water will then enter the unprotected airway. Cold water also severely limits swimming ability as a result of loss of synchrony between stroke and breathing.(5)

Post-immersion collapse
Head-out upright immersion in water at body temperature results in a 32-66% increase in cardiac output caused by the pressure exerted by the surrounding water, an effect similar to wearing a gravity suit. On leaving the water the assistance to circulation is removed and, in addition, there is gravitational venous pooling. In normal individuals with intact homeostatic responses, these changes are compensated for by baroreceptor reflexes.
The result is an increase in heart rate, cardiac output and vascular smooth muscle tone. Following prolonged immersion in cold water these responses are compromised. It is likely that post-immersion circulatory collapse is the cause of death among those found conscious in cold water wearing a life jacket, but who perish within minutes of rescue. A mean increase in heart rate of 16% during vertical lifting from water compared with lifting the victim in a horizontal or sifting position has been reported. (6)

**Asphyxiation**
Infants show the apneic phase of the “diving response” when thrown into water, but this reflex tends to wane by the toddler stage. (7) After infancy submersion beyond the breath-hold breaking point ends in involuntary gasps and aspiration.

Postmortem measurements of lung weight show that between 10% and 18% of those who drown inhale very little water, hence the term, “dry drowning” (8) Failure of water to enter the lungs has been attributed to laryngospasm. However, the trachea and bronchial tree form a blind ending tube and filling may well not occur, if for example, the victim is submersed face down or head down. Doubtless there is a gradation from asphyxiation with very little water in the lungs to lungs that fill completely.

Recovery from asphyxia following long periods of submersion occurs in circumstances that favor rapid cooling, such as those arising when a small child or infant is submerged in ice-cold water, typically below 50C. (9) It seems probable that circulatory arrest occurs well after the head is immersed so that cerebral perfusion continues during the cooling process. Experience in children undergoing open head surgery shows that, with hypothermia, circulation can be arrested for at least 30 minutes.

The survival advantage bestowed by submersion in ice-cold water is exemplified by the unique set of circumstances surrounding a young female skier. She was with friends when she fell down a water filled gully and became trapped beneath an ice sheet. She struggled for 40 minutes while attempts were made to extract her before all movements ceased. Her body was recovered through a hole cut in the ice one hour and nineteen minutes later. Though she was clinically dead, cardiopulmonary resuscitation was administrated throughout the air-ambulance flight to hospital where her core temperature was 1 3.70C. She was resuscitated by means of an extracorporeal membrane oxygenator and then spent a further 35 days on a ventilator. At 5 months, her faculties had recovered sufficiently to allow her to return to work as a hospital doctor. (10)

**Fluid-electrolyte effects**
Much higher death rates follow immersion in fresh water than in the sea. However, this has little to do with the salinity of the water, but derives from the quality of the rescue services, which are sparse on inland waters by comparison with the coast. Experiments with dogs suggest that fresh water instilled into the trachea produces more lung injury than either isotonic or

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*Technical Rescue Magazine*
http://www.trescue.com
hypertonic saline. (11) However in humans, fresh water washes out surfactant, causing atelectasis and intrapulmonary shunting. By contrast, salt water aspiration appears to be associated with very little alveolar-capillary damage. (12) Earlier claims that red cell hemolysis gives rise to hyperkalemia has been refuted. On the contrary, hypokalemia is seen after both fresh and salt water aspiration. The volume of water that would have to be inhaled to cause clinically significant red cell hemolysis is greatly in excess of that which can produce irreversible pulmonary damage. (13) Ventricular fibrillation following immersion is predominately a complication of hypothermia and not of electrolyte imbalance. The electrolyte changes that are seen probably result from absorption of ingested fluid from the stomach rather than from the lungs. High serum sodium and magnesium levels may be seen after immersion in sea water but seldom require treatment. Water intoxication causing convulsions in infants has been described rarely.

EMERGENCY MANAGEMENT
Swimmers recovered unconscious from shallow water should be assumed to have suffered fracture or dislocation of the cervical spine, particularly if there is injury to the face or head. Care must be taken not to over-extend the neck during expired air resuscitation. The head and neck must be immobilized during transport to hospital. Rupture of the liver or spleen may have occurred if the victim has entered the water from a height.

After removal from the water the subject should be laid prone and cardiopulmonary resuscitation carried out in all other respects in the usual way. (14) The quality of the resuscitation procedure is the single most important factor that determines outcome. The subject’s prognosis is transformed if the heart can be restarted at once.

Simcock reported that around 70% of subjects arriving in the emergency room of a hospital apneic, but with a pulse, could be expected to survive, compared with only 8% in whom the heart was not restarted outside hospital. (15) It may be necessary to continue chest compression for an hour or more, and attempts at resuscitation should not be abandoned while the subject remains cold. Pragmatic advice on the management of hypothermia in the field is available from the Medical Commission on Accident Prevention. (16)

Regurgitation of gastric contents during resuscitation occurs in nearly all unconscious victims. The airway should therefore be secured with an endotracheal tube as early as possible and high-concentration oxygen given. The pulse may be slow and of low volume making assessment very difficult. An added dilemma is that Brady arrhythmias may be converted to ventricular fibrillation by chest compression in profoundly cold subjects. For this reason, great care is needed in assessing the carotid pulse. Palpation for at least 10 seconds is recommended.
MANAGEMENT IN HOSPITAL
Near drowning is a medical emergency. At worst the subject may present deeply unconscious with acidosis and profound hypothermia. Pulmonary edema is an early complication. Cerebral edema and septicemia may develop later and are life threatening.

Early measures
Subjects who appear to be completely well should be kept under observation for 6 hours in case of delayed-onset pulmonary edema (secondary drowning). They may then be discharged provided there is no cough or lung crackles, the chest radiograph shows no shadows and the respiratory rate and arterial oxygen level is normal with the subject breathing air. Anyone who has inhaled water is at risk of infection and should be followed up with a chest radiograph. Unconscious or apneic subjects require intubation and positive pressure ventilation with a high concentration of oxygen. Venous access through a central line is essential both for monitoring pressure and for giving fluids or drugs. An electrocardiogram may reveal Brady arrhythmias or ventricular fibrillation in those who appear to be pulseless. Blood should be drawn for both aerobic and anaerobic culture. Broad-spectrum antibiotics effective against Gram-negative organisms should be given (Table 2).

Arterial blood gases
A low PAO2 in a subject breathing air provides an early indication that water has been inhaled and suggests pulmonary edema or atelectasis with shunting. Arterial gases and pH should be measured in all subjects, including those who are conscious and apparently well on arrival in hospital. Modern analyzers assume a normal body temperature of 370C. Failure to enter a low core temperature in those who are hypothermic will result in a falsely high arterial oxygen reading. Differences become significant when core temperature is as little as 10C below normal. As, in practice, recordings around 300C are not unusual, this correction is essential. An initial arterial pH of 7 or less is a poor prognostic sign.

Electrocardiography
In immersion victims, abnormalities of cardiac rhythm are the result of hypothermia coupled with hypoxia rather than of changes in serum electrolytes. Sinus or nodal bradycardia is common, making the carotid pulse very difficult to find in some cases. Nevertheless circulation may still be adequate, so early monitoring of the electrocardiogram is essential to establish cardiac activity. Ventricular dysrhythmias induced by hypothermia do not respond to DC cardioversion; once established, the treatment of fibrillation is to support the circulation with chest compression until the temperature of the myocardium (deep body) exceeds 280C.

Venous pressure and intravenous drugs
A central venous line provides access and allows pressure measurement. This becomes important in the event of pulmonary edema when its use to monitor the optimum level of positive end-expiratory pressure (PEEP) may be
critical. Central venous pressure is often low initially and plasma expansion is indicated. Acidosis is managed with mechanical hyperventilation; sodium bicarbonate is seldom needed. Use of systemic corticosteroids has not been convincingly shown to prevent the development of pulmonary edema or to influence its course, and is not recommended. (17) Antibiotics should be given after first obtaining a blood culture.

Hypothermia
A fully conscious subject may be hypothermic and yet not shiver, underlining the importance of rectal temperature readings. Hypothermic subjects must be rewarmed and their rectal temperature measured with a low reading thermometer. The probe should be placed at least 10cm beyond the anal sphincter to avoid erroneously low readings from the cooler periphery. Aspiration of stomach contents by nasogastric tube prevents further absorption of water or salt and removes the risk of regurgitation. Rewarming in bath water at 400C is most satisfactory. If not possible, then passive rewarming is achieved by insulation in thick woollen blankets after first cutting off wet clothing. A short-lived fall in core temperature, commonly seen as rewarming commences and known as the “after drop”, is caused by continued loss of heat through conduction from the core to the cooler peripheral tissues. It occurs independently of blood supply and is not a risk factor. (18)

Active rewarming by heating the blood with extracorporeal bypass can be life saving for those found unconscious with profound hypothermia. (19) Bolte and colleagues (20) used this technique to revive a child who had been submerged in ice cold water for 66 minutes. Letsou et al. (21) reviewed the clinical course of five subjects each presenting with a rectal temperature below 260C all of whom were rewarmed on bypass. Three survived to be discharged with normal mental scores. Over several years, Swiss mountain, rescue teams have recovered the bodies of 46 victims of avalanche or incarceration in ice, all were sent to one of three major centres in Switzerland with extracorporeal blood rewarming facilities. Fifteen out of 32 people rewarmed in this way have survived. (22) (Table 3)

Pulmonary edema
Pulmonary edema occurs only in those who have inhaled water and usually within 4 hours of aspiration. (23) It is believed to be the result of a plasma leak through a damaged alveolar-capillary membrane and not of fluid overload. Left atrial pressure remains normal throughout, a picture similar to adult respiratory distress syndrome.

The earliest sign of impending pulmonary edema is a falling PAO2, and may precede any changes seen on the chest radiograph. Respiratory distress should be treated promptly by assisted ventilation and with positive end expiratory pressure (PEEP). The pressure setting is that
which maintains the PAO2 above 10kPa with a FI02 that ideally should not exceed 0.6. Pressures above 2.0kPa may be needed to obtain satisfactory arterial oxygenation following fresh water aspiration but are poorly tolerated because of impairment of cardiac output.

**Cerebral edema**
Cerebral edema is the result of hypoxemia and contributes further to any damage the hypoxia may already have induced. There was a vogue for more aggressive treatment in children with prolonged hypothermia by means of barbiturate-induced coma. However, no improvement in outcome has been demonstrated, so the technique has been abandoned, and with it the need to monitor intracranial pressure.

(24) Reducing the PACO2 by mechanical hyperventilation induces cerebral vasoconstriction and may be useful. Early use of diuretics such as mannitol may also help.

**Septicemia**
Lung infection is common following near drowning. Septicemia and brain abscess have also been reported suggesting that arterial embolization of infected material occurs, possibly as a result of pulmonary barotrauma. As well as common pathogens, exotic organisms have been described, including Pseudomonas putrificiens, (25) Pseudomonas psudomallei, (26) Aspergillus fumigatus, (27) lactose-positive Vibrio sp. (28) and Petriellidium boydii. (29) Leptospirosis is a hazard well recognised in inland waters. Victims of such immersion should be warned of fever developing within a few days of the accident and offered short-term follow-up.

For a full list of references and follow up CLICK HERE
participants. These courses meet and/or exceed NFPA 1670 Standard for Technical Rescue. The Academy includes over 30 contact hours of instruction consisting of 15-hours classroom and 15-hours on and through the ice practical training. For more information, access the Lifesaving Resources at **International Ice Rescue Train-the-Trainer Academy**. To register, please access: **Ice Rescue Train-the-Trainer Academy Registration**.

Ice Rescue Technician
January 25, 2014, 08:00 - 18:00 hrs.
Standish, Maine
**January 25 Ice Rescue Technician Registration**

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<tr>
<td>Feb 22 thru Feb 23</td>
<td><strong>Texas Dive Show 2013, Arlington, TX, USA</strong></td>
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<td>Feb 26</td>
<td><strong>Catalina Clean Up, Avalon, CA, USA</strong></td>
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<td>Feb 22</td>
<td><strong>Minnesota Dive Show, Brooklyn Center, MN, USA</strong></td>
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**DUI**

**Diving Unlimited International**

**February 7-8, Clinton Township, MI**

We have an amazing workshop planned. Join speakers from DUI, Interspiro and Dive Rescue for a rewarding weekend. Friday and Saturday offers pool workshop with drysuits, full face mask, surface supplied, ROV demonstration.

**View seminar flyer by clicking here**

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**DUI 2014 DIVEOPS Calendar.**

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<th>Saturday, Mar 15</th>
<th>San Diego, CA</th>
<th>National University Polytechnic Institute</th>
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<tr>
<td>Friday, April 25</td>
<td>Pelham, AL</td>
<td>Dive Alabama</td>
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<td>Sunday, May 4</td>
<td>Eureka Springs, AR</td>
<td>Beaver Lake</td>
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<td>Friday, May 9</td>
<td>Gloucester, MA</td>
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<td>Friday, May 30</td>
<td>South Beloit, IL</td>
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<td>Saturday, Aug 23</td>
<td>Black River Falls, WI</td>
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<td>Friday, Sept 5</td>
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<td>Sunday, Sept 21</td>
<td>Metropolis, IL</td>
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<td>Friday, Sept 26</td>
<td>Bethlehem, PA</td>
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<td>Friday, Oct 10</td>
<td>Portland, ME</td>
<td>Kettle Cove</td>
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<td>Friday, Oct 17</td>
<td>Rawlings, VA</td>
<td>Lake Rawlings</td>
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<td>Friday, Nov 7</td>
<td>Chiefland, FL</td>
<td>Manatee Springs</td>
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<tr>
<td>Friday, Nov 14</td>
<td>Terrell, TX</td>
<td>Clear Springs Scuba Park</td>
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**FOR DETAILED INFORMATION visit DUIDIVEOPS.COM**

Want to be part of the CREW? Click here [http://www.dui-online.com/demo-tour/volunteers/] for more information and to sign up!

**EACH DIVEOPS EVENT INCLUDES**

- Contaminated water diving workshop
- Training opportunity for your team – certificates awarded
- TEST DIVE DUI’s CXO Drysuit designed specifically for contaminated water & public safety dive operations
- Hands-on testing of surface supplied equipment
- Equipment demonstrations in surface support including line tending and communication
• Get fitted by DUI factory professionals and expert dealer staff
• Network with teams nationwide to review field-proven methods
• Free barbecue lunch
• Free collectors Special Operations cap

Additional event sponsors:

Want to be part of the CREW? Click here http://www.dui-online.com/demo-tour/volunteers/ for more information and to sign up!

Ice Rescue Technician
February 08, 2014, 08:00 - 18:00 hrs.
Standish, Maine

**February 8 Ice Rescue Technician Registration**

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<tr>
<td>Mar 2</td>
<td>Great Lakes Shipwreck Festival, Ann Arbor, MI, USA</td>
<td>Scuba &amp; H2O Adventure Show, Santa Clara, CA, USA</td>
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<tr>
<td>Mar 9 thru Mar 10</td>
<td>The Boston Sea Rovers Clinic, Boston, MA, USA</td>
<td>May 3 thru May 4 Scuba &amp; H2O Adventure Show, Seattle, WA, USA</td>
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<td>Mar 15 thru Mar 16</td>
<td>Ghost Ships Festival 2013, The Wyndham Milwaukee Airport and Convention Center, WI, USA</td>
<td>May 26 thru May 31 Dive BVI 5th Annual Wreck Week 2013, Virgin Gorda, British Virgin Is.</td>
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<td>Mar 22 thru Mar 24</td>
<td>Beneath the Sea, Secaucus, NJ, USA</td>
<td>May 3 thru May 4 The 4rd Annual Northern California Informational Dive Conference, Suisun City, CA, USA</td>
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<td>Mar 14 thru Mar 16</td>
<td>ScubaFest, Columbus, OH, USA</td>
<td>May 3 thru May 4 Scuba &amp; H2O Adventure Show, Santa Clara, CA, USA</td>
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Ice Rescue Technician
March 08, 2014, 08:00 - 18:00 hrs.
Standish, Maine

**March 8 Ice Rescue Technician Registration**
1) Generally it is considered that ice must be at least _____ inches thick to support an average adult.
   a. 2
   b. 4
   c. 6
   d. 8

2) One issue with ice thickness is ______________.
   b. As long as you don’t see cracks it is fine to go upon
   c. Water depth determines ice thickness
   d. Ice thickness can vary in any given area
   e. Ice thickness is dependent on water content and should never contain any bubbles.

3) Using sonar makes almost every dive operation more efficient and, more importantly, safer!
   a. True
   b. False

4) Ice thickness of _____ inches is generally considered safe for a small vehicle to drive upon.
   a. 4 to 8
   b. 6 to 10
   c. 8 to 12
   d. 24 or greater

5) Cold water robs the body of heat ______ times faster than air.
   a. 15
   b. 25
   c. 32
   d. 50

6) Expected survival time in water 50 to 60 degrees (F) unprotected by a thermal suit is ________
   a. 1 to 2 hours
   b. 4 to 5 hours
   c. 6 to 10 hours
   d. Indefinately

7) Treatment for hypothermia depends on the condition of the person.
   a. True
   b. False

8) Swimmers recovered unconscious from shallow water should be assumed to have suffered fracture or dislocation of the cervical spine.
   a. True
   b. False

9) A generally accepted water temperature of ______ or less is considered to be “cold water”.
   a. 98
   b. 96
   c. 80
   d. 70

10) The diving reflex is a protective mechanism for humans in cold water immersions, but it
may confuse the rescuer into thinking the victim is dead.
   a. True
   b. False

11) A key element for preventing a drowning is to always wear a ________.
   a. Dry Suit
   b. Warm Underwear
   c. Coast Guard work suit
   d. PFD

12) Much higher death rates follow immersion in fresh water than in the sea.
   a. True
   b. False

*Can you explain the answer to question 12?*

**Team Discussion / Training**

1. As a team, discuss the effects of weather as it pertains to temperature ranges for your area. Identify and discuss how that directly affects your dress, victim survival and rescue potential. Compare your findings to your existing operational guideline and determine if changes or modifications need to be made.

2. Examine your cold weather suits for both support and for diving as to the applicability of use. Are your waters, temperature ranges etc. within the manufactures recommended temperature ranges?

3. As a team, discuss your department procedure for unconscious and not breathing water victims. In the discussion, include a review of your call out or activation policy and procedure for water response.

4. Discuss the importance of understanding **acidosis** in the body, how it develops and how it affects the body if allow to go undetected.

5. As a team, discuss and identify how when using sector sonar to direct a diver in zero visibility water, to a very precise location, using nothing more than rope signal pulls. Consider precision movement to be in increments of 6 inches.

6. As a team, review your department medical protocols for injuries related to cold temperatures. Verify that cold water immersion protocols are included and up to date.

   “Under Srtress, You WILL Perform As You Trained”

**PSDiver Monthly is a free subscriber E-Zine distributed by Press Release notice and website download. PSDiver Monthly is not bound by borders and while our largest subscriber base is in North America, we have a worldwide subscriber base. PSDiver Monthly is the magazine for PSDiver.com and is edited and published by Mark Phillips.**

**Associate Editors:** Dominique Evans-Bye

**Continuing Education Editor:** Chuck Elgin

For advertising and sponsor rates, please email: psdivermontly@aol.com

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Chemical spill information can be obtained by calling 1-800-424-9300.
DAN Medical Information Line at 1-919-684-2948
DAN operates a 24-hour emergency hotline
(1-919-684-9111) to help divers in need of medical emergency assistance for diving or non-diving incidents

Centers for Disease Control and Prevention
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800-CDC-INFO (800-232-4636)
cdcinfo@cdc.gov

These training agencies have recognized PSDiver Monthly as a valued addition to their programs and Continuing Education requirements.
We welcome all training agencies and organizations to participate. For details, email PSDiverMonthly@aol.com.

A psychologist walked around a room while teaching stress management to an audience. As she raised a glass of water, everyone expected they’d be asked the “half empty or half full” question. Instead, with a smile on her face, she inquired: “How heavy is this glass of water?” Answers called out ranged from 8 oz. to 20 oz. She replied, “The absolute weight doesn’t matter. It depends on how long I hold it. If I hold it for a minute, it’s not a problem. If I hold it for an hour, I’ll have an ache in my arm. If I hold it for a day, my arm will feel numb and paralyzed. In each case, the weight of the glass doesn’t change, but the longer I hold it, the heavier it becomes.” She continued, “The stresses and worries in life are like that glass of water. Think about them for a while and nothing happens. Think about them a bit longer and they begin to hurt. And if you think about them all day long, you will feel paralyzed – incapable of doing anything.” Remember to put the glass down.

Issue 107 CE Answers

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