



PSDiver Monthly 82

February 2011

Side Scan Sonar in PSD

by, John C. De Mille

*Public Safety Diver
EPA Polluted Water Diving
(Part 3 of 3)*

NEWS
EVENTS

DIVING MEDICINE
CONTINUING ED.

AND MORE!

Volume 6 * Issue 82

DIVE TEAM FOOTBALL

We have discussed this topic before and written about it extensively. I am a strong believer in the need for standards and give you this as a reminder of the need for written operational guidelines.

When we consider how a football game is played, we can relate each part of the game to Public Safety Diving. The team is easy. The team is the team. In a football game, the Quarterback calls the plays and is responsible for the team actions on the field. Our Quarterback is our Dive Officer. The team and the Quarterback get their information and logistical support from the Coach. The Coach is our Dive Team Supervisor or Coordinator. The owner of the Team makes sure the Coach has what is needed for him to do his job and in general provides support for the Coach. The owner is also obliged to keep expenses within budget and activities of the team within reason. The owner is our Department Head or Chief. But the owner is answerable to a group of investors who must be continually updated of all aspects of the team. Those are our City Council and tax payers. Of course, the team is worthless without fans. We don't have fans, we have victims. Without them, we really are not needed. While this appears to be a pretty complete list of participants, we are missing The *Armchair* Quarterback. He is the one who will second guess you about everything. Let's call them the Press.

Like a football team, we need a play book. Without a written idea to train, respond, and equip ourselves and to perform the job, each and every "game" will be a haphazard attempt to make things work safely, efficiently and effectively.

When we refer to Public Safety Divers, we tend to generalize a large group of people who perform as part of a Water

Response Team. Because there is such a diversity of water conditions, environments, equipment, and training, it would be very hard to change generalizations to absolutes. There is one common thread the Public Safety Divers share. They are all divers. In SCUBA, there are still a lot of generalizations but there does exist a basis for at least two absolutes. #1: NEVER HOLD YOUR BREATH. #2: ALWAYS BE AT THE TOP OF THE FOOD CHAIN. Simply put, "Don't die and don't get eaten up by administrative policies that overshadow the former.

How can we establish, gauge and maintain performance levels for each aspect of a Water Response Team? What training programs will help our Public Safety Divers comply with our two absolutes? And if the unforeseen happens, what type of training and record keeping will help place our department in a better, more legally defensible position by substantiating our actions as being reasonable and prudent if and when a lawsuit strikes?

Standard Operating Procedures or Guidelines have been the mainstay for organizations since the creation of organizations. We tend to forget that they are living documents and need to be "fed" every once in a while. When was the last time your SOPs / SOGs were reviewed by your team? When was the last time they were revised?

WHAT IS IN YOUR PLAYBOOK?

Check www.PSDiver.com for SOP assistance and examples.

Stay Safe,
Mark Phillips
Editor / Publisher
[PSDiver Monthly](http://www.PSDiver.com)

If you would like to discuss this topic or any other, join our discussion group at:
[CLICK HERE TO JOIN](#)

SPECIAL to PSDiver Monthly

Public Safety Diver – EPA Polluted Water Diving Module 4 (Part 3 of 3)

Module 4. Medical Monitoring and Immunizations

Whether diving under the OSHA commercial diving standards, public safety standards, or OSHA scientific diving exemption, divers should be working under conditions that are in compliance with OSHA standards (29 CFR

1910.120), as the OSHA scientific diving exemption for example does not exempt scientific or other divers from employing personal protective equipment (PPE) and other preventative exposure measures and monitoring, including medical monitoring for chemical exposure. However, as previously discussed, EPA's experience is that divers in Portland Harbor involved in sampling/analysis do not always dive in compliance with the OSHA standards and/or do not initially propose dive plans in compliance with hazardous waste site operation

Site	Date	Specific Chemical and Physical Factors	Exposure Level	Level of PPE	Symptoms from Exposure
1.Quendall Terminals, Lake Washington Superfund Site Sampling	May 2009	PAHs	Minimal	Level B	None
2. Duwamish River Superfund Site Sampling	July 2009	PAHs, metals, PCBs, dioxins	Minimal	Level B	None
3.Sinclair Inlet, Puget Sound scuttled vessel hazmat survey	February 2009	None known	None	Level B	None
4. Ocean dredge material disposal survey, Brookings, OR	September 2009	None known	None	Recreational SCUBA	None
5.Lake Pierre, WA instrument recovery	October 2009	H ₂ S	Gas could be smelled through mask.	Level B	None

Figure 11: Excerpt from an exposure history form filled out for fiscal year 2009 for an EPA Region 10 diver.

(HAZWOPER) standards ([USEPA 2009b](#)). The reason for this is that the divers' typically do not believe the dive site to be contaminated and/or do not track their contaminated site exposures against the 30 day exposure OSHA exposure monitoring requirement. Typically, items such as basic diver environmental

isolation/(PPE) and medical monitoring (1910.120 HAZWOPER items) are not proposed in the Health and Safety Plan at Superfund Sites, where EPA has purview over site health and safety. It is a reasonable presumption that divers doing similar work not under EPA oversight may not be equipping their divers, training their divers, or monitoring their divers for hazardous waste exposure per OSHA 29 CFR 1910.120.

Primarily due to the dive program's mission relative to environmental protection, necessitating sampling activities at polluted sites, EPA's standard is to inventory dive exposures for the past year and adjust blood tests based on the chemical exposures reported (See Figure 11 below).

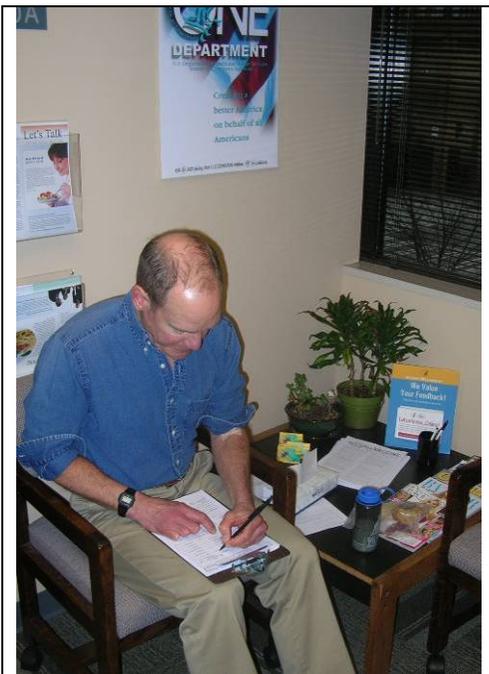


Figure 12: Region 10 Diver, Rob Pedersen, answering exposure history questions on dives he made in the past year. Photos used with permission of patient. Photos by Sean Sheldrake, EPA Region 10 Dive Team.

Vaccinations for various disease vectors are also provided at EPA hazmat dive units, such as hepatitis A/B, diphtheria, and tetanus (USEPA, 2001). Symptoms of chemical or biological exposure are encouraged to be reported immediately, such that the diver can obtain treatment and use of PPE can be evaluated for future diving, if one particular dive site can be localized as the causal factor.

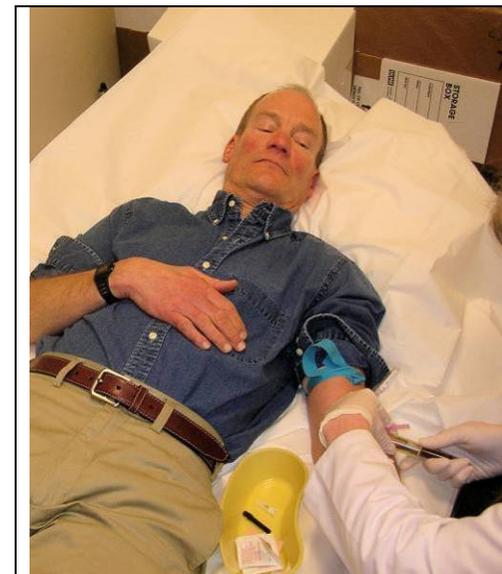


Figure 13: Diver undergoing medical monitoring, including analyzing blood work for signs of chemical exposure.

Conclusion and Discussion

No one approach will eliminate all diver exposures other than not diving at all. Consideration of non diving techniques is always a good start to a dive operation where time, budget, and other logistics allows, such as use of boat based, or unmanned sampling techniques rather than diver based techniques. For example, an ROV can be useful in surveying a site viewed as too polluted to dive and/or used to look for overt signs of contamination prior to diving, such as labels on leaking drums, so long as tenders are adequately protected.

Heat stress continues to be viewed by many as an overarching, if not overriding concern with respect to polluted water by most. Tunnel vision for many dive units that focuses primarily on heat stress occurs despite the fact that in the case of carcinogens, there is no way to evaluate "success" in the

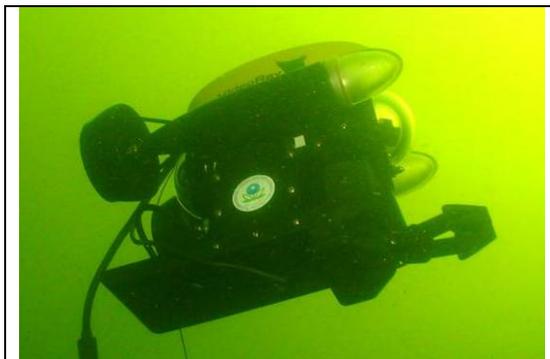


Figure 14: EPA Region 10's ROV being used to survey a manufactured gas plant site. Photo by Sean Sheldrake, EPA Region 10 Dive Team

approach to polluted water for decades. In many cases in the dive community, personal protective equipment upgrades are viewed as overprotective given the inherent tradeoff in heat stress, despite available mitigation for such stress. Medical monitoring generally focuses on only obvious signs or symptoms or simply physical fitness to dive, rather than making an attempt to run tests to detect more subtle signs of chemical exposure. Many dive entities could focus more on the following with respect to polluted water:

1. Development of an explicit set of dive planning tools to use as a checklist when planning a dive including items such as internet based resources for real-time dive planning and personnel to contact with polluted water diving expertise for specific questions;

2. Provision of training to all divers in their respective dive programs in polluted water recognition, planning, PPE, decontamination, and exposure monitoring regardless of mission. The importance of this is just as high for an entity that does not intend to do polluted water dives, as it is for an agency who has a stated intention is to do polluted water diving, like EPA. How is a dive master to otherwise appreciate when to dive or not?
3. Adaptation and broader adoption of USN/EPA polluted water PPE standards, or similar. For example, improvement of the level of protectiveness of Navy category 3 diver dress and broader application of category 3 by the broader dive community for unknown, but suspect dive site conditions could mitigate long term exposure to sites we know are growing more contaminated by the day.
4. Use and improvements to standard decontamination protocols by EPA and USN and development of decontamination protocols for other entities is an ongoing need.
5. Development of an exposure monitoring program for those entities conducting mission oriented dives in polluted water and contingency protocols for those inadvertently conducting polluted water dives.
6. Development of reporting processes to evaluate individual dive master decision making with respect to the level of pollution at dive sites, such that feedback is given on the PPE used if under (or over) protective. A reporting procedure can also be

useful in documenting when standard practices developed at the programmatic level are not applied in the field.

Though over three decades of detailed information on safe polluted water diving exists, much improvement is needed on the part of many units in the scientific, commercial, military, and public safety communities to consistently put this information into practice to the benefit of divers and tenders.

Disclaimer: *This paper is an illustration of steps to be taken to minimize exposure to the diver in hazardous environments and does not necessarily represent the official view of the USEPA. Mention of any specific brand or model instrument or material does not constitute endorsement by the USEPA.*

More online resources

Papers on polluted water diving available from EPA:
http://yosemite.epa.gov/r10/OEA.NSF/investigations/dive_pubs

SOPs for polluted water diving:
<http://yosemite.epa.gov/r10/oea.nsf/Investigations/Dive+Team+Safety>

Useful links for polluted water diving:
<http://yosemite.epa.gov/R10/OEA.NSF/Investigations/Div e+Team+Links>

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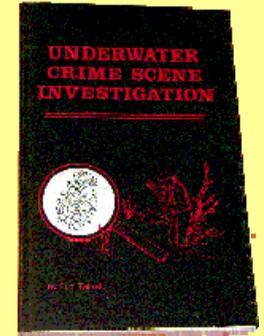
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"Underwater Crime Scene Investigation"
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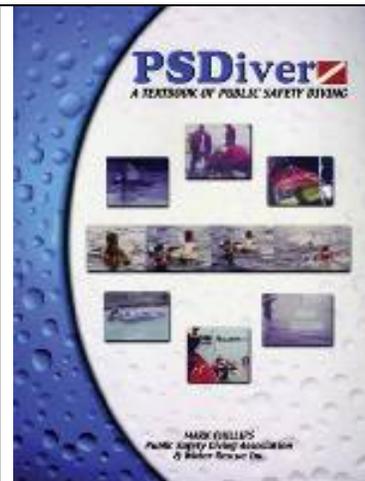
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SPECIAL to PSDiver Monthly

Side Scan Sonar in PSD

Written by: John C. De Mille
Marine Sonic Technology, Ltd

How is Side Scan Sonar used? What is the Benefit of using Side Scan Sonar? Is Side Scan Sonar a rescue tool or locating for recovery tool?



**PSDiver – A
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Side Scan Sonar along with other Technologies has changed the way many Law Enforcement, Fire Departments and Volunteer teams conduct underwater searching. In the big picture it has increased diver safety by reducing diver's bottom time doing old typical line or pattern searches. To give an example of time savings in using a side scan sonar consider that using a side scan sonar on 30 meter range the area of a football field can be searched in just over one minute. Think about the time it would take for a well trained experienced dive team to search that area using just divers on line or pattern search techniques.

Teams that now employ side scan sonar in their tool boxes have a mission statement of "Search with Side Scan Sonar and recover with divers or ROV." The added safety factor is huge given the amount of diver's exposure to hyperbaric environments.

The cost savings of using side scan sonar is measurable as well. I was called to a search a number of years back in Johnson City, TN. When I arrived on site a statement was made that the Sheriff's Office had spent 30,000 man-hours to that point in searching for the victim. Within 5 minutes of deploying the system the victim was located. Not all searches go like this in fact most do not but with the side scan we located the victim within the search area that the Sheriff's teams had been dragging and diving.

Over my 14 years doing this job, teaching teams, providing support and conducting side scan sonar searches, I have learned that when a search appears that it will be simple the reality is Murphy is about to throw you a curve. No search is easy; the one described above in Johnson City, TN is the exception. The side scan sonar does give the search teams a fair chance of locating the



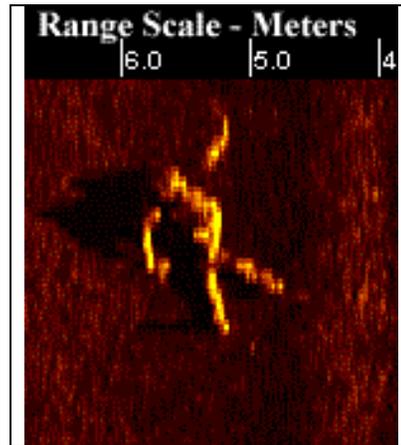
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victim when there is a large area to be searched.

Side Scan Sonar is a tool used for recovery not rescue. The time it takes to have the side scan sonar on location, locate the victim, deploy divers or ROV in the water and on too the target the Golden hour has more then likely ticked away.

There is value in using side scan sonar to image a victim or crime seen. It is important that when a sonar team locates the victim or objects that time is spent to collect a high quality image of the area. Just because it seems that it is an obvious drowning it may still be a crime seen. Even though you have collected a sonar image of the objects and the area does not mean a diver will get on the targets and the sonar image maybe the only evidence you have of the targets and area. Spend



This is a sonar image of a life size mannequin in zero visibility water that was imaged in 12 feet of water with a 1200 kHz tow fish in February of 1997

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the time to collect as clear and defined of an image you can keeping in mind that these images maybe presented to a jury. Side Scan Sonar imagery has been used in criminal trials so there is a precedence set. The image that excites you because you located what you thought was a drowned victim could turn out to be a key piece of evidence so take the time to get the best image you can of that seen.

Side Scan Sonar is just one tool in your tool box, there are others as well. Side Scan Sonar is the best tool for large area searches. Other sonar types such as the Mechanical Sonar commonly referred to by many term such as: Sector Scan or Rotating Sonar has search and diver safety value as well. This type of sonar is better suited for confined or known areas. One of the best tasks of this type of sonar is when a victim goes though the ice, the victim should be close to the hole in the ice and lowering the Rotating sonar though the hole should locate the victim quickly and the top side crew can safely direct the diver to specific targets by viewing him or her in the sonar image.



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Yes technology has changed the way PSD teams conduct underwater searches. Using Side Scan Sonar and other technologies searches today are safer for team members and searches are much more effective. Not sure if anyone has numbers of recovery success or failure rates but I would think that using today's sonar technology that the success rate is much greater then in the past using line or pattern searches.



So what is the value and benefit when employing side scan sonar?

1. Can search large areas quickly, 1 football field in about a minute
2. Diver and team member safety (Safest dive is the one you do not make).
3. Images with GPS position, can be used in a Court of Law
4. Documented search provides images and area searched

This is a short list of how Side Scan Sonar is a variable tool for PSD teams. If you want the real answer ask a team that employs' side scan sonar regularly.

NEWS

Little Gabby Grady will always be in our hearts

http://www.worcesternews.co.uk/news/local/8853449.Little_Gabby_will_always_be_in_our_hearts/

February 15, 2011 By James Savage

FLOWERS have been laid at the scene where a young girl tragically died in a Worcestershire river to mark the first anniversary of her death.

Tributes to [Gabby Grady](#) have also been left at a memorial in Market Square, Evesham, a year after the five-year-old was killed in a car which crashed into the river Avon.

Gabby was trapped in the submerged car for two hours, after it is alleged her father Chris Grady deliberately drove along Boat Lane and into the river with his daughter and six-year-old son Ryan inside.



Gabby was rescued by police divers on Thursday, February 11, last year and taken to Birmingham Children's Hospital but died three days later.

Her brother Ryan was taken to the same hospital and was later discharged.

Bouquets of flowers and other tributes were laid at the riverside and in the centre of Evesham yesterday.

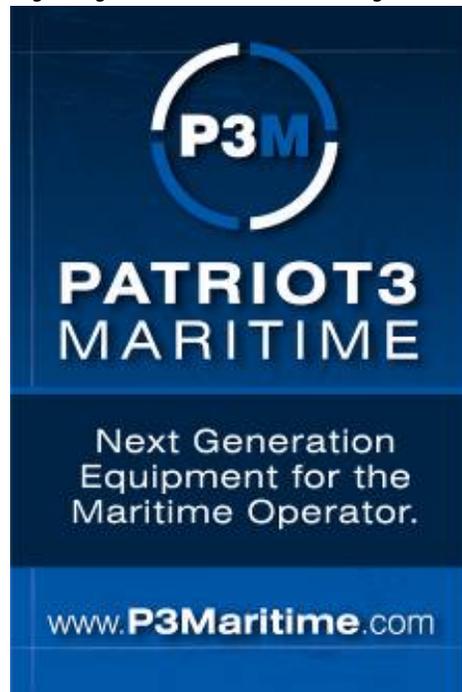
A plaque mounted on to a rock said: "In remembrance of Gabby 'A little Angel' from the residents of Boat Lane".

One message said: "Gabby, My little friend, Always Remembered, Jane, Nathan and Jessie."

A special group has also been set up on [Facebook](#), titled One year on...Still in our thoughts Gabby Grady.

So far, more than 100 people have joined the [group](#), including Gabby's mother, Kim Wise.

She wrote: "My special princess I miss you every single day the love never dies



you know baby your in my heart n thoughts for ever sleep tight my little angel, love forever mommy xxxxxx"

And today via the Facebook page, Ms Wise has asked us to publish the following: "Please just mention how nice the people of Evesham are. "Not many knew my little girl but they all took her to their hearts and I appreciate all the support."

Kristie Marie Grady posted: "Find it hard wat 2 say :(i love you gabs and always will no1 will replace you.. best sister in the world"

- [Christopher Grady](#) has denied murder and attempted murder.

The 42-year-old, of no fixed address, is due to stand trial at Birmingham Crown Court at the start of next month.

He has been remanded in custody until then.

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Dumped vehicles hoisted from river

<http://www.dailytelegraph.com.au/dumped-vehicles-hoisted-from-river/story-fn6bm90q-1226007340069>

February 17, 2011 Staff Writer [The Daily Telegraph](#)

A DOZEN vehicles suspected of being stolen have been recovered by police divers from a river in south-west Sydney.



***Big haul: A dozen vehicles suspected of being stolen and dumped have been recovered from Georges River.
Picture: Bill Hearne Source: The Daily Telegraph***

The nine cars and three motorcycles had been dumped in the Georges River, off the Davey Robinson boat ramp at Chipping Norton.

They were towed to police holding yards on Wednesday before they were forensically examined.

Police believe the vehicles had been used in criminal activities including robberies and car rebirthings, Liverpool local area command

Inspector Damian Leemon said.

Police divers will continue to look for more vehicles that have possibly been dumped in the river on Thursday.

"The vehicles quickly rust upon being submerged and pollute the river," Inspector Damian Leemon, from Liverpool police said.

"Submerged wrecks are a major risk for any boats trying to navigate their way along the river."

Anyone with information about vehicles being dumped in the river, or illegally disposed of elsewhere is urged to contact Crime Stoppers on 1800 333 000.

Police uncover 48 bones from NSW dam

<http://news.smh.com.au/breaking-news-national/police-uncover-48-bones-from-nsw-dam-20110218-1az09.html>

February 18, 2011

A total of 48 human bones have been recovered from a dam in NSW's far west.

The first bone, a femur, was discovered by a fisherman in the weir pool next to Little Menindee Creek Regulator, southeast of Broken Hill, on December 28.

A second bone was then uncovered in the same location in early January.

Police divers have since trawled the waterway, which is part of Kinchega National Park.

Barrier Local Area Command crime manager Detective Inspector Mick Stoltenberg told AAP on Friday that a total of 48 bones have now been found.

They have been sent to Newcastle for scientific analysis and to try to establish an identity of the deceased person.

Det Insp Stoltenberg said there was no indication as to when the results will be known.

Police have previously said it is likely the bones belong to a single corpse.



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Interstate and NSW missing persons databases are being examined to try to identify the deceased person.

Police divers thanked for long search for boy

<http://www.winnipegfreepress.com/local/police-divers-thanked-for-long-search-for-boy-116719389.html>

02/23/11 By: Aldo Santin

A mother's tears and a native elder's prayers were offered in thanks yesterday for the efforts made to recover the body of six-year-old Nathaniel Thorassie from the Red River.

AMC Grand Chief Ron Evans presented ceremonial gifts and heartfelt thanks to the 16 members of the Winnipeg Police Service dive unit and the city's political leadership for the futile search that consumed almost two months during December and January.

"We are mindful that Nathaniel's body has not yet been recovered,"



JOHN.WOODS@FREEPRESS.MB.CA

McLean Flett thanks police chief Keith McCaskill and police dive team members for their efforts to find her son's body.

Evans said during a ceremony at the AMC headquarters at the Kensington Building on downtown Portage Avenue. "The (recovery) effort was a profound act of love."

Nathaniel and his brother, Ralph Chartrand, Jr., 10, were playing on the Red River in early December when they fell through the ice. Ralph was pulled to safety by a teenaged boy who was driving by but Nathaniel never surfaced.

The Winnipeg police dive unit and a team of volunteers plumbed the river until Jan. 30, when the search was called off.

Elder Thelma Meade offered prayers, calling on the Creator to speed the recovery of Nathaniel.

"He is in our hearts on a daily basis," Meade said of Nathaniel.

McLean Flett,



mother of Nathaniel, broke down and cried during her brief comments at the ceremony.

"I want to thank everybody that supported us," Flett said.

Sgt. Rob Riffel, co-ordinator of the Winnipeg police dive unit, said following the ceremony that he and the other members of the unit were disappointed they were unable to recover Nathaniel's body, but they were humbled by the show of thanks at yesterday's ceremony.

Evans presented the members of the dive unit with a plaque and a hand-painted ceremonial box containing traditional sweetgrass and tobacco.

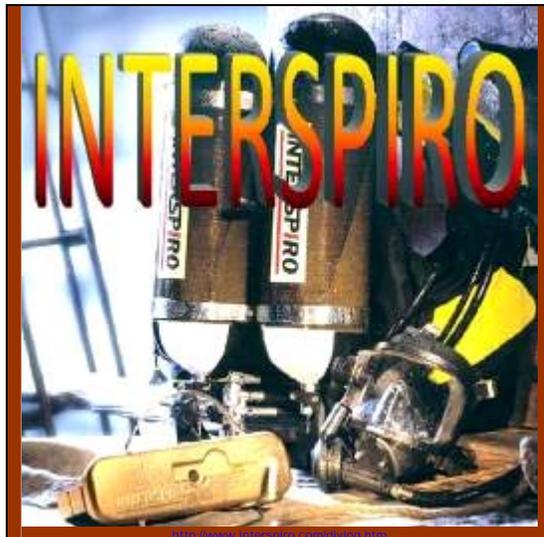
Mayor Sam Katz and Police Chief Keith McCaskill were also at the ceremony and were thanked by Evans and Flett.

Drug dealer Paulo Miranda 'tortured, beaten to death'

<http://www.adelaidenow.com.au/news/south-australia/drug-addict-paulo-miranda-tortured-beaten-to-death/story-e6frea83-1226009437428>

February 22, 2011 Court Reporter Sean Fewster
From: [The Advertiser](#)

A MISSING man was blindfolded, tortured and beaten to death by vengeful drug dealers, a court has heard.





Police divers search a lake at Pooraka for evidence in the disappearance of Paulo Miranda. Pic: Michael Milnes
Source: AdelaideNow

In the Supreme Court yesterday, prosecutors outlined their case against five men they say murdered Paulo Miranda at a Pooraka property in May 2008.

They claimed Mr Miranda was tortured so viciously that police found "a pool of blood approximately 300mm by 400mm" on the garage floor, and blood-stained gloves, clothes and beanbags scattered throughout the house.

Tim Preston, prosecuting, said the "gruesome crime scene" was the end result of a complex scheme, coordinated via mobile phone calls and text messages.

"Each of the five accused was part of a joint enterprise that involved the luring of the deceased to the house

where they tortured him to extract money from him," he said.

"That is the only reasonable and rational conclusion."

Ngoc Thai Tran, 27, Jean Ngo, 22, Chhay Ly, 27, Huan Hoang Lam Nguyen, 21, and a youth who cannot be named, have each pleaded not guilty to murder.

Mr Miranda's body has never been found.

Opening the trial, Mr Preston said Tran and Ngo both produced the methylamphetamine "ice".

Mr Miranda was one of their clients, but "friction" had developed between the parties over allegedly unpaid debts.

Tran, he said, had been caught with drugs just prior to the alleged murder - an arrest, Mr Preston said, he blamed on Mr Miranda.

Mr Preston said Tran and Ngo conspired, via mobile phone, to lure Mr Miranda to Ly's Pooraka home.

Ngo, he said, was

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overheard saying "come and get him" and "we will bash him" on his phone.

Mr Preston said that phone was later found to contain a photograph of Mr Miranda "blindfolded and bleeding from the head".

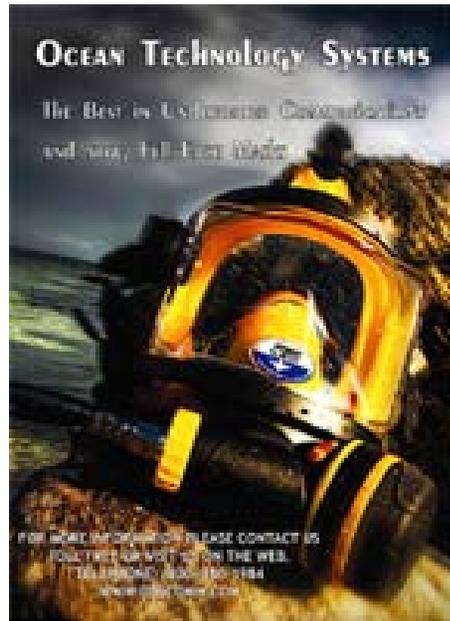
"The prosecution will prove that photo was taken in the bedroom of the Pooraka house," he said.

He said Mr Miranda's phone was used to send text messages to the dead man's brother, claiming the "small-time dealer" was "in trouble with bikies" and needed money urgently.

A "draft version" of those messages was found written, in Tran's handwriting, in the bedroom of the Pooraka house.

Mr Preston said CCTV cameras recorded Nguyen and the youth using Mr Miranda's bank cards to withdraw money from two ATMs just after the murder.

On each occasion, he said, the correct PIN was used.



"The prosecution case is that the deceased's bank cards were obtained at the Pooraka house and that the accused inflicted really serious bodily harm upon the deceased to extract from him the correct PINs," he said.

He said Mr Miranda's car was torched by two men who claimed Tran paid them \$1000 to destroy it - and that his DNA was found in the boot of a car Tran used.

The trial, before Justice Michael David, is expected to run for 10 weeks.

'Limbs in the loch' killer to appeal in European court

<http://news.stv.tv/scotland/west-central/230192-limbs-of-the-loch-killer-to-appeal-in-european-court/>



Appeal: William Beggs, who is serving a sentence for murder

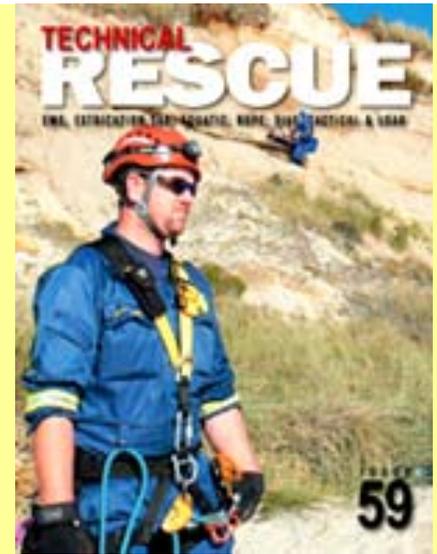
22 February 2011

'Limbs in the loch' killer William Beggs could be awarded over £13,000 if he can convince European judges that his human rights have been breached.

William Beggs, who murdered and dismembered Barry Wallace, wants the European Court of Human Rights to consider his case.

Beggs, 47, stands to win 16,000 euros in damages if he succeeds in an action which claims the Scottish legal system has taken too long to hear his appeal.

Beggs is serving life for murdering and dismembering teenage supermarket worker Barry Wallace, whose head was washed ashore on an Ayrshire beach. Mr Wallace's body parts were found in Loch Lomond.



<http://t-rescue.com>

Since his trial, which began in September 2001, Beggs has fought a long and complicated battle at the Court of Criminal Appeal in Edinburgh to overturn his conviction, which ended in failure in March last year.

Two months ago, he reached the end of the line when the Supreme Court

rejected his bid for a hearing there. Only Beggs' challenge to trial judge Lord Osborne's ruling that he could not apply for parole for 20 years

remained, which appeal judges in Edinburgh expected to hear on Tuesday.

Instead, it emerged that Beggs - who has acquired a reputation for giving legal advice to fellow cons in Peterhead Prison - wants the European Court of Human Rights in Strasbourg to consider his case. Beggs is seeking cash damages there because, he says, the legal process in Scotland has taken too long.

The delay breaches Article Six of the European Convention on Human Rights, he claims.

The trial in 2001 heard how Barry Wallace, 18, disappeared in December 1999 after a Christmas night out with friends from the Tesco store where he worked.

Beggs took him back to his flat in Kilmarnock, Ayrshire, where the teenager was punched, handcuffed, sexually assaulted and murdered. Beggs then disposed of the

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dismembered body in the loch near Glasgow. The remains were found by police divers during a training exercise.

Irish-born Beggs took a ferry from Troon to Belfast and threw his victim's head into the sea. It was washed ashore at Barassie Beach, near Troon, where it was discovered by a woman walking her dog. Beggs then fled, first to Jersey then to France. He surrendered to authorities in the Netherlands and was brought back to Scotland to stand trial.

Beggs had previously been convicted of murder in England but the conviction was overturned on appeal. Beggs also attacked a man with a razor after taking him to his Kilmarnock flat after picking him up at a disco in Glasgow.



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He served just under half of a six year jail sentence imposed by a judge, who branded him a danger to the public because he could not control his sexual urges.

Beggs is due back before appeal judges in Edinburgh soon to try to get his minimum sentence cut. He has dropped his claim that Lord Osborne's 20-year minimum sentence was excessive, but will be asking for "a

discount" to compensate for his long wait.

Mystery over body found in lake

http://www.getsurrey.co.uk/news/s/2088141_mystery_over_body_found_in_lake

February 23, 2011

POLICE are still attempting to identify the body of a man found in a lake in Shepperton.

The man, believed to be in his 30s or 40s, was discovered in the water in Littleton Lane by police divers at around 5am on Monday.



Officers are now in the process of trying to locate his next of kin.

Members of the Littleton Sailing Club alerted firefighters after hearing somebody shouting for help.

A Surrey Police spokesman added: "Officers are carrying out a thorough and extensive investigation to establish the circumstances surrounding how the man came to be in the water."

Youth drowns in Pine Island debris

<http://www.canberratimes.com.au/news/local/news/general/youth-drowns-in-pine-island-debris/2086990.aspx>

25 Feb, 2011 BY MYLES PETERSON

A 16-year-old male drowned at the popular Pine Island swimming area in Tuggeranong last night. Friends of the youth who had been swimming together reported him missing at 5.50pm.

The youth's friends were taken to Tuggeranong Police Station, where they were offered counseling.



Police divers scour the Murrumbidgee River at Pine Island searching for the youth who had been swimming with friends. Photo: ANDREW SHEARGOLD

A police spokesman urged people to be cautious when swimming in local rivers for the remainder of summer because of low water visibility and an increase in debris displaced by recent storms and flooding.

Police divers search for body

<http://www.skynews.com.au/local/article.aspx?id=582875&vld=>

Monday February 28, 2011

Divers have begun the grim task of planning the recovery of the body of a 29-year-old woman who died in Australia's longest underwater cave.

She was found overnight about 600m inside the cave system after going missing on a dive at Tank Cave near Millicent in South Australia's southeast on Sunday.

The woman died after leaving her dive buddy.

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ACT Police, police special response services, ambulance para-medics, firefighters, SES and the SouthCare helicopter conducted an extensive search of the area in a desperate attempt to find the youth.

Giant spotlights were brought in to enable the search to continue as light conditions deteriorated.

At 8.30pm, police divers found the youth's body trapped underwater close to where he reportedly disappeared and worked for some time to free the body from debris.



A Royal Navy helicopter hovers near the dock entrance.
Photo by Eddie Leonard

difficult task.

'Our divers and the divers from the Cave Diving Association of Australia have the grim task of re-entering the cave in order to identify a plan to recover the deceased,' he told ABC radio in Adelaide on Monday.

Police divers had the experience and competencies to do the dives, he said.

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Superintendent Trevor Twilley from the Limestone Coast police says they won't know what happened to the woman until they recover and test her equipment and diving umbilical cords.

He said cave divers are helping police plan the recovery on Monday because of the complexities of the almost 8km stretch of twisting underwater passages.

Supt Twilley said it will be a

'However, they don't have the capabilities or have the necessary equipment given the complexity of the cave system... and how narrow certain parts of it are.'

That is why members of the tight-knit cave diving group are helping, despite the emotional risk, he said.

'That is something we have certainly discussed at length this morning - the emotional side of asking them to do that and particularly when they do reach the deceased what impact that may have on their emotions and what risk that may add

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Clyde pilot boat Toward searching near the dock. Photo by Eddie Leonard.

to their safety.'

They are first undertaking an assessment dive, expected to take up to three hours to complete.

Then they will reassess the situation before diving to recover the body.

MAN'S Body Recovered From Dock After Major Search

<http://www.inverclydenow.com/index.php/news/local/4213-major-search-after-man-reported-in-water>

01 March 201

THE body of a man was found following a major search operation at James Watt Dock, Greenock. Emergency services were called around 5.15 on Monday afternoon after a report of a man in the water at the dock.

A Royal Navy rescue helicopter, the lifeboat from Helensburgh, Coastguard land units, fire and rescue crews and police were called out.

It is understood that a witness had seen a man on the quay and then shortly after had seen him swimming across the

dock to where a ferry was tied alongside; the man was last seen attempting to climb on to the ferry.



Police divers recovered a body just before 9pm. The man's identity has still to be confirmed. Police say there are no suspicious circumstances.

YOU'VE 10 SECONDS TO SAY GOODBYE TO THE CHILDREN, 'KILLER' DAD TELLS EX

<http://www.express.co.uk/posts/view/232071/You-ve-10-seconds-to-say-goodbye-to-the-children-killer-dad-tells-ex>

March 2 2011 by Jane Mathews UK NEWS

A FATHER who drove a car containing his screaming children into an icy river told their mother she had 10 seconds to say goodbye "and then they are dead", a court heard.

Christopher Grady's five-year-old daughter Gabrielle died in hospital three days after being pulled from the car with her brother Ryan, aged six, who survived.

Grady, 42, had told his former partner Kim Smith: "This is the last time you are going to see them. They're going to die," Birmingham Crown Court was told yesterday.

Graham Reeds, QC, prosecuting, said Miss Smith had phoned Grady on February 11 last year after the children failed to turn up at school after a night with their father.

He said: "There was a

confrontation on the telephone when the defendant told her the children 'are never going to school again'.

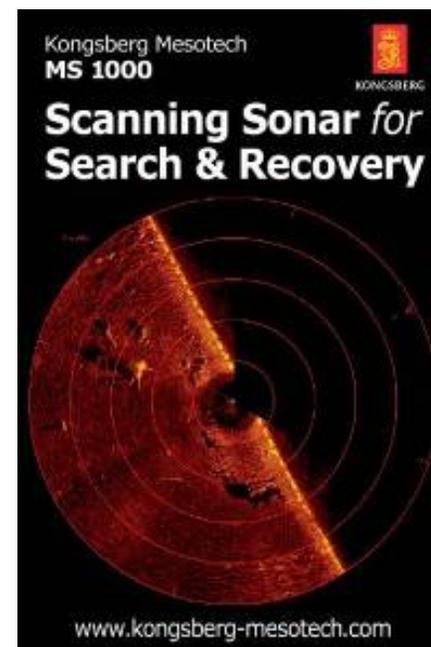
"He said to her: 'Be outside your house. You've got 10 seconds to say goodbye to your kids and then they are dead'.

"A minute later he arrived in his car outside her house. He was angry and shouting."

He said that Miss Smith frantically tried to get the children out of the car but Grady sped off and minutes later drove the Vauxhall Vectra into the River Avon in Evesham, Worcs.

Mr Reeds said witnesses who heard the children "screaming and wailing" could do nothing.

"As the car sank, eye-witnesses remember seeing one of the children banging on the back window trying to get out of the car." Grady and Ryan escaped but Gabrielle was trapped for almost two hours in the cold water before she was rescued by police divers. She died from "catastrophic" brain injuries three days later.



The prosecution said Grady, who separated from Miss Smith in 2009, had financial problems. The self-employed welder left a suicide note which read: "You led me to this. My kids are with me now." The court was told he once told Miss Smith: "If I can't have the kids, you can't and I will kill them with myself."

Girl's Body Found Stuffed In Duffel Bag In Canal

Discovery Made In Canal Dividing Boca Raton, Delray Beach

<http://www.wpbfl.com/news/27054606/detail.html>

March 2, 2011

DELRAY BEACH, Fla. -- The body of a girl was found stuffed in a duffel bag in a South Florida canal Wednesday.

Delray Beach police said the body was found about 9 a.m. Wednesday in a canal that divides Boca Raton and Delray Beach.



Police divers retrieved a duffel bag that contained the body of a girl between 6 and 12 years old. Since the canal runs for miles in each direction, the body could have been dumped anywhere, investigators said.

Police said the girl was wearing a short-sleeved shirt, dark pants and blue Polo brand

sneakers. She also had braided hair with white beads on each strand.



Sgt. Nicole Guerriero said police couldn't find any descriptions that matched the girl in the national missing children's database.

The girl's body was taken to the Palm Beach County Medical Examiner's Office, where they were trying to determine a cause of death.

2 dead children found in canal

<http://www.miamiherald.com/2011/03/02/2094232/body-of-young-girl-found-in-canal.html>

03.02.11 The Associated Press

DELRAY BEACH, Fla. -- Officials have recovered the bodies of two dead children from a South Florida canal.

Delray Beach police say divers retrieved the body of a young black girl, stuffed into a duffel bag, Wednesday

morning from a canal that divides Delray Beach from Boca Raton. Since the canal runs for miles in each direction, investigators say the body could have been dumped anywhere. Later Wednesday, the body of a boy, stuffed into a suitcase, was found in the canal.

Authorities haven't identified either child, but they are investigating as if the cases are related.

Police say the girl was wearing a short-sleeved shirt, dark pants and blue Polo brand sneakers. She had braided hair, with white beads on each strand. No description was immediately available for the boy.

More:

- [2 dead children found in canal](#) - MiamiHerald.com
- [Bodies of boy, girl discovered in canal](#) - Tampabay.com
- [Police: Second child's body found in canal between Delray, Boca ...](#) - Palm Beach Post

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Being Eaten by Crabs

National Geographic Video

Dr. Anderson uses a pig carcass to investigate what happens to a human body when it decomposes in the sea.

[Click HERE to go to the website](#)

Underwater Insects Tell The Tale -- Aquatic Invertebrates Provide Clues About The Case History Of Submerged 'Bodies'

<http://www.sciencedaily.com/releases/1997/10/971023065618.htm>

ScienceDaily (Oct. 23, 1997) — NIKI MACDONELL SAYS the eight rotting pig carcasses she'll pull from streams and lakes in local forests next month hold important clues about deaths that occur in freshwater.

For the past year, the Simon Fraser University graduate student in pest management has made routine visits to the clothed and submerged 'bodies' to study the life cycles of insects that colonize on them - everything from aquatic bugs to earthworms and even clams.

Insects may be able to tell how long a body has been at a certain location, and whether it has been moved -vital

information in determining the circumstances surrounding water-related deaths.

With virtually no research in the field to draw on, Macdonell says pathologists are "basically taking an educated guess" when they estimate time of death in such cases.

Macdonell examined 200 cases of freshwater deaths in B.C. in 1995/96, and now wants to see if what happens to the pigs is what happens to humans.

"I'm trying to find out whether we can use some of these invertebrates to indicate a time line in deaths," says Macdonell. "It doesn't appear we'll be as accurate with these invertebrates as with those occurring on land. So little research exists that anything we learn will help."

Macdonell identified more than 50 species of invertebrates and is now piecing together their activity patterns. She's found that populations are different between streams and lakes, for example, so determining where death occurred, if it's in question, is possible.

Some aquatic insects are unpredictable, while others appear to be seasonal. "Unlike terrestrial insects, they may have other reasons for attaching themselves to bodies," adds Macdonell. "Bodies are a nutrient-rich source, but their decomposition and shape also make for great habitat."

Macdonell, who wants to be a coroner, says the research will be useful, given the high number of water-related deaths in B.C. It's also groundbreaking. The first study of

a body decomposing underwater took place in Tennessee only three years ago. No research has been done in Canada. In fact, Macdonell planned to remove her pigs months ago, figuring they would have decomposed by then. "We're still learning about this process in underwater situations," she says.

Fascinated by forensic research as an undergraduate, Macdonell connected with SFU forensic entomologist Gail

Anderson through the Internet. Anderson, who studies insect life cycles on murder victims' bodies, is well-known for assisting with local murder investigations. Her research includes studies of insects on clothed pig carcasses which have been buried or partially buried.

Macdonell is also helping Anderson teach a course in forensic science, offered by the school of criminology. It's proving there are many who share Macdonell's fascination - the class has 85 students and a waiting list.

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How Bacteria Can Tell Time of Death for Bodies Underwater

<http://www.environmentalgraffiti.com/biology/news-breaking-news-bacteria-tells-time-death-submerged-bodies>

Written by [Asher Kade](#)

Imagine conducting a criminal investigation on a reported body floating in the river. Who knows how long it has been a "floater"? An inspection of the body will not tell you how long it has been in the water. It will take weeks, if not months, to get an ID on the body. Worse, the killer has likely skipped the country and is taking a permanent vacation on a tropical island drinking cocktails.



Meanwhile, a family mourns the death of their loved one and can't bury the person in a timely fashion due to an ongoing investigation. If you watch shows like CSI, you'd think that this is a quick investigation with a convenient and fast ending. The coroner is always there within

minutes, stabs the body with a thermometer, and exclaims the time of death. Not so fast. This is nowhere near the truth as you can see [here!](#)

You see, the above is actually what they find after a body has been in the water for only a few weeks.

Decomposition is fast due to the poor environmental factors of marine life, yo-yo temperatures, bacteria in the water and all sorts of other issues. The investigators can't discern if this is an accidental drowning or a case of homicide until many weeks or months after finding the body.

The reason for this is that marine life, like crabs and other shellfish, make [circular patterns](#) of consuming the flesh (as you can see below). These patterns can mimic foul play as well. Marine life also destroys the evidence that may be left on the body. Their favorite parts of the body to eat are: lips, eyelids and ears.

There aren't any maggots or bugs consuming the corpse. Rigor Mortis is altered by the water current. So, how do you tell what time the organism died? This is imperative





Photo: [gruntzooki](#)

to know if one plans to win a prosecution case and bring a conviction against the perpetrator.

"Unless a body is witnessed entering the water, there is no reliable method for determining the length of time that a body has been submerged," [says Gemma Dickson](#), a forensic biologist at the University of Otago in Dunedin, [New Zealand](#).

Recently, on Australia's Queensland coast, researchers began to decode the unfortunate demise of a man's life, a man found sunken in the water with no "return to sender" or loved ones to claim him.

What was discovered is that bacteria, more specifically [Psychromonas bacteria](#), first begin to colonize on decomposed bodies in the frigid temperatures that typically are

associated with free standing, natural bodies of water. In other settings, this bacteria is still able to grow, just not as virulently.

It is a specific genera in the [Bacteroidales](#) order only colonised after 10 days of submersion and can accommodate many water environments. This bacteria loves the fecal matter associated with the decomposing body.

This new discovery will transform the field of general science, forensic and law enforcement studies, and how the environment like bacteria interacts with decomposing bodies. The same researchers in [Australia](#) have submerged three pig heads and let them decompose on their own in the water to study the aforementioned bacteria.

The small size of the [study](#) and the fact that the results haven't been tested elsewhere to prove replication similarity shows that this breakthrough is still in its early stages. However, the potential development and possibilities are endless when studying these microorganisms.

The comprehensive and final results of the study will be published soon in the journal *Forensic Science International*.

Even when the dead body is forcefully sunk to the lower depths of



the ocean, *Psychromonas* bacteria can survive and tell scientists how long the body has been in the water. The pressure of the water pushing down on the body does not deter the bacteria from ingesting it (to see a shark-infested body, [click here](#)).



Photo: [goga312](#)

As one can see above, having larger marine life like sharks chewing on the body can make things very tough for scientists and law enforcement during the investigation. Bacteria, like all other living things, excrete waste products to the environment, causing reliable, noxious odors specific to each bacterium. In the case of bacteria feeding on a corpse, this means that analysis of the surrounding soil or water can be revealing.

Sometimes, the water can be misleading or evidence in the water can be damaged or destroyed (as indicated in the picture above).

Though bacteria obviously prefer oxygen-enriched environments to grow in, they can also survive in [anaerobic conditions](#) as well. The time and seasons of the year seem to have little affect on their growth because of the nourishing environment of the water.

One bacteria that has yet to be studied but holds promise in indicating the time of death in a submerged body is flavobacteria. [Once thought](#) to only affect living fish and killing them, it is now being discovered that it may dine on dead flesh as well. See the effects of water submersion on skin [here](#).

This forensic tool of studying bacterial life cycles can also help aid those of interest in [identifying the body](#) and giving surviving loved ones closure.

It makes one wonder if Louis Pasteur and Robert Koch had the slightest clue that they had embarked on something bigger than life itself when bacterial studies were then in its infancy. Now death and many mysteries can be solved through the bacteria that shrouds the once living vessel.

Additional sources: [1](#), [2](#), [3](#)

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specialist.

Free Diving and Shallow Water Blackout

SHALLOW WATER BLACKOUT (Latent hypoxia)

Shallow water blackout (SWB) is the sudden loss of consciousness caused by oxygen starvation following a breath holding dive. This was first described by S. Miles as "latent hypoxia", shallow water blackout is the term he ascribed to unexplained loss of consciousness in divers using closed-circuit oxygen breathing apparatus at shallow depths. Unconsciousness strikes most commonly within 15 feet (five meters) of the surface, where expanding, oxygen-hungry lungs literally suck oxygen from the divers blood. Once you lose consciousness you are likely to drown. The blackout occurs quickly, insidiously and without warning. The victims of this condition die without any idea of their impending death.

There are about 7000 drownings in the U.S. annually - many of whom are good swimmers. Craig, in 1976 reported interviews of survivors of near drowning. All had hyperventilated prior to the swim, had the urge to breathe, and had no warning of the impending unconsciousness. Hyperventilation is used by free divers to reduce the concentration of CO₂ and extend the length of breath-holding.

Beginning breath-hold divers, because of their lack of adaptation, are not generally subject to this condition. It is the intermediate diver who is most at risk. He is in an accelerated phase of training, and his physical and mental adaptations allow him to dive deeper and longer with each new diving day- sometimes too deep or too long. Advanced divers are not immune.

Conditions that produce latent hypoxia (Shallow water blackout)

Hyperventilation

Hyperventilation is the practice of excessive breathing with an increase in the rate of respiration or an increase in the depth of respiration, or both. This will not store extra oxygen. On the contrary, if practiced too vigorously, it will actually rob the body of oxygen. The magical benefit of hyperventilation is what it does to carbon dioxide levels in the blood. Rapid or deep breathing reduces carbon dioxide levels rapidly. It is high levels of

carbon dioxide, not low levels of oxygen, that stimulate the need to breathe.

The beginning diver is very sensitive to carbon dioxide levels. These levels build even with a breath-hold of 15 seconds, causing the lungs to feel on fire. The trained diver has blown off massive amounts of carbon dioxide with hyperventilation, thus outsmarting the brain's breathing center. Normally metabolizing body tissues, producing carbon dioxide at a regular rate, do not replace enough carbon dioxide to stimulate this breathing center until the body is seriously short of oxygen.

Hyperventilation causes some central nervous system changes as well. Practiced to excess, it causes decreased cerebral blood flow, dizziness and muscle cramping in the arms and legs. But moderate degrees of hyperventilation can cause a state of euphoria and well-being. This can lead to overconfidence and the dramatic consequence of a body performing too long without a breath: blackout.

Pressure changes in the freediver's descent-ascent cycle conspire to rob him of oxygen as he nears the surface by the mechanism of partial pressures. Gas levels, namely oxygen and carbon dioxide, are continuously balancing themselves in the body. Gases balance between the lungs and body tissues. The body draws oxygen from the lungs as it requires. The oxygen concentration in the lungs of a descending diver increases because of the increasing water pressure.

As the brain and tissues use oxygen, more oxygen is available from the lungs while he is still descending. This all works well as long as there is oxygen in the lungs and

the diver remains at his descended level. The problem is in ascent. The re-expanding lungs of the ascending diver increase in volume as the water pressure decreases, and this results in a rapid decrease of oxygen in the lungs to critical levels. The balance that forced oxygen into the body is now reversed. It is most pronounced in the last 10 to 15 feet below the surface, where the greatest relative lung expansion occurs. This is where unconsciousness frequently happens. The blackout is instantaneous and without warning. It is the result of a critically low level of oxygen, which in effect, switches off the brain.

Dalton's Law of partial pressures applies. ($P_b = P_{O_2} + P_{N_2} + P_{\text{other gases}}$.)

As P_b decreases, the partial pressures of all component gases decrease in the same ratio. The hypoxia of pre-dive hyperventilation is corrected by an increased P_{O_2} during descent.

During descent, the lung volume decreases due to chest compression, resulting in increased lung P_{O_2} , P_{CO_2} and P_{N_2} .

- In the lung there is an increased breathing rate and a reduced P_{CO_2} . Lung volume is reduced to one-half, lung P_{O_2} is increased, lung P_{CO_2} increases initially, but is followed by lowered P_{CO_2} due to reversed gradient.
- The blood reacts by developing a respiratory alkalosis and a right shift of the HbO₂ (oxyhemoglobin) curve. The reaction is $CO_2 + H_2O \rightleftharpoons H^+ + HCO_3^-$.

- Carotid body chemoreceptors cause a slow-down of the heart and permit longer breath holding.
- There is vasodilatation of the brain vessels with hypoxia (low oxygen). There is rapid O₂ usage, the arterial P_{CO_2} is lowered so that respiration is not stimulated until P_{O_2} drops so low that the breath hold breakpoint is reached. The breakpoint (P_{CO_2}/P_{O_2}) in a trained person is less sensitive to increased P_{CO_2} or lowered O₂. The act of consuming oxygen rapidly (as in chasing a large fish), delays the breakpoint because of the higher P_{CO_2} and the exercise per se. The diver becomes lightheaded, dizzy, has tingling, air hunger, muscle rigidity and unconsciousness.
- While at depth, increased lung P_{O_2} provides a favorable gradient for O₂ transfer from the lung to blood, occurring more rapidly than if the diver were on the surface.
- Because alveolar P_{CO_2} increases with compression, CO₂ does not leave the blood to enter the lung. Arterial CO₂ rises rapidly (especially with exercise) initially, then the tissues store CO₂. Trained divers use a timed bottom time (1.5 minute maximum) to avoid unconsciousness on return to the surface.
- On Ascent to the Surface:
- The lung re-expands to normal, the P_{CO_2} becomes elevated as more diffuses into the lung and the P_{O_2} drops dramatically.
- In the blood the P_{CO_2} elevates depending on the depth of the dive and the amount of exercise. Deep dives drive more CO₂ from the lungs into the tissues and increases the problem. There is a right shift of the HgbO₂ curve.

- When the break point is reached , the chemoreceptors are stimulated by CO2, thus stimulation of respiration. Low O2 also stimulates respiration.
- In the brain:
- CO2 stimulates respirations
- Vasodilation encourages O2 consumption
- Latent hypoxia occurs
- Unconsciousness ensues
- On ascent the lungs re-expand reducing the favorable diffusion gradient for oxygen. Shallower depths cause this gradient to approach zero, the diver reaching a critical state of hypoxia.
- Hypoxia causes unconsciousness, possibly before the diver reaches the surface.
- Signs and symptoms of latent hypoxia (Shallow water blackout)
- Extreme weakness, trembling, unconsciousness in the water, amnesia of the event, drowning.

THE PHYSIOLOGY OF SHALLOW-WATER BLACKOUT

In addition to the changes due to the Physics of Dalton's Law, there are other physiological changes that take effect during shallow water blackout and free diving.

Diving Reflex

The human body is capable of remarkable adaptations to the underwater environment. Even untrained divers will show a dramatic slowing of the heart when immersed. This is commonly referred to as the diving reflex. Immersion of the face in cold water causes the heart to

slow automatically. Chest compression can also slow the heart. Untrained divers can experience up to a 40 percent drop in heart rate. Trained divers can produce an even lower heart rate some can slow to an incredible 20 beats per minute.

Spleen Effects

Trained free divers develop several other physiological adaptations that lead to deeper and longer dives. The spleen, acting as a blood reservoir, assists trained divers in increasing their performance. Apparently their spleen shrinks while diving, causing a release of extra blood cells.

According to William E. Hurford M.D., and co-authors writing in *The Journal of Applied Physiology*, the spleens of the Japanese Ama divers (professional women shellfish free divers) they studied decreased in size by 20 percent when they dove. At the same time their hemoglobin concentration increased by 10 percent (Volume 69, pages 932-936, 1990).

This adaptation, similar to one observed in marine mammals (the Weddell seals' blood cell concentration increases by up to 65 percent), could increase the divers ability to take up oxygen at the surface. It could also increase oxygen delivery to critical tissues during the dive.

Interestingly, the spleens contraction and the resultant release of red cells is not immediate- it starts taking effect after a quarter-hour of sustained diving. This

spleen adaptation, as well as other physiologic changes, probably take a half-hour for full effect. This might account for the increased performance trained free divers notice after their first half-hour of diving, and also may be one of the causes of unexplained heart failure in the diver with a border line heart condition.

Other adaptations

There are other known adaptations: blood vessels in the skin contract under conditions of low oxygen in order to leave more blood available for important organs, namely the heart, brain and muscles. Changes in blood chemistry allow the body to carry and use oxygen more efficiently. These changes, in effect, squeeze the last molecule of available oxygen from nonessential organs. Most importantly, the diver's mind adapts to longer periods of apnea (no breathing). He can ignore, for longer periods of time, his internal voice that requires him to breathe.

PREVENTION OF SHALLOW-WATER BLACKOUT

Shallow-water blackout was a hot research topic for diving physicians in the 1960s, when they worked out the basic physiology described above. They also studied the case histories of SWB victims, identifying several factors that can contribute to this condition. These include hyperventilation, exercise, a competitive personality, a focused mind-set and youth.

The use of hyperventilation in preparation for freediving is controversial. No one disagrees that prolonged

hyperventilation, after minutes of vigorous breathing accompanied by dizziness and tingling in the arms and legs, is dangerous. Some diving physicians believe that any hyperventilation is deadly because of the variation in effects among individuals and on one person, from one time to another. Other physicians, studying professional freedivers such as the Ama divers of Japan, found that they routinely hyperventilated mildly and took a deep breath before descending. Their hyperventilation is very mild; they limit it by pursed lip breathing before a dive.

Probably the best approach can be found in the U.S. Navy Diving Manual (Volume 1, Air Diving), which states: Hyperventilation with air before a skindive is almost standard procedure and is reasonably safe if it is not carried too far. Hyperventilation with air should not be continued beyond three to four breaths, and the diver should start to surface as soon as he notices a definite urge to resume breathing.

Learn the deadly effects of exercise underwater and plan to deal with this situation.

Freedivers learn to prolong their dives by profoundly relaxing their muscles (see the section on deep diving). Most divers make minimal use of their muscles except when they fight a fish or free an anchor. A physician writing in an Australian medical journal found a common scenario for diving deaths in Australia is the experienced diver with weight belt on, speargun fired.

Medical researchers feel that many pool deaths, classified as drownings, are really the result of shallow-water blackout. Most occur in male adolescents and young

adults attempting competitive endurance breath-holding, frequently on a dare. Drowning victims, especially children, have been resuscitated from long periods of immersion in cold water 30 minutes or more. The same is not true for victims blacking out in warm-water swimming pools. Warm water hastens death by allowing tissues, especially brain tissues, to continue metabolizing rapidly; without oxygen, irreversible cell damage occurs in minutes.

SUMMARY

- Do not hyperventilate to excess no more than three or four breaths.
- Reduce exercise at depth.
- Recognize the danger of focusing.
- Don't hesitate to drop your weight belt.
- Avoid endurance dives.
- Adjust your weight belt so that you will float at 15 feet.
- Don't practice breath-holding in a swimming pool.
- Always have an observer standing by to assist.

Learn the basics of CPR and think about adapting them to your diving arena, whether diving from shore, board or boat.

Reference: Hong, SK. 1990. Breath-Hold Diving. In: Bove and Davis, Diving Medicine, 2nd ED., Philadelphia, PA: WB Saunders, pp 59-68.

[Taravana](#)

From a lecture by Paul Sheffield, PhD
[Medical Seminars](#), Bonaire, 1996



* EVENTS *



DUI RISK MANAGEMENT 2011 TRAINING PROGRAM



April 1 Pelham, AL Alabama Blue Water Adventures
April 8 Austin, TX Windy Point Park
May 13 Gloucester, MA Stage Fort Park
May 20 Bethlehem, PA Dutch Springs
June 10 Black River Falls, WI Wazee Lake
Aug 19 Tacoma, WA Les Davis Park
Sept 16 Ottawa, OH Gilboa Quarry
Oct 21 Rawlings, VA Lake Rawlings
Nov 11 Chiefland, FL Manatee Springs
Nov 18 Terrell, TX Clear Springs Scuba Park

TEST DIVE THE WHITES FUSION DRYSUIT

To attend a Fusion Demo Day, you have to register and pay the applicable fee.

[Click HERE for REGISTRATION INFO](#)



March 5th Victoria, BC Ogden Point
March 6th Vancouver, BC Whytecliff Park

March 12th-13th Seattle, WA Redondo Beach
March 19th-20th Monterey, CA Breakwater
April 9th Orange County, CA Corona del Mar State Beach
April 10th Vista, CA Aqua Lung America
April 16th-17th San Marcos, TX Aquarena Springs
April 30th-May1st Pelham, AL Alabama Blue Water Adventures
May 14th-15th Bethlehem, PA Dutch Springs
May 21st-22nd Findlay, OH Gilboa Quarry
June 18th-19th Kankakee, IL Haigh Quarry
June 25th-26th Metropolis, IL Mermet Springs
Sept 10th Gloucester, MA Stage Fort Park
Sept 17th-18th Prince William County, VA Millbrook Quarry

[SWAT Counter Terrorism Operations](#)

March 8-11, 2011 - Camp Blanding, FL

[Beneath The Sea 2011 Expo](#)

March 25, 26, 27

[SWAT Counter Terrorism Operations](#)

April 12-15, 2011 - Yakima Firing Range, WA

[National Drowning Prevention Symposium](#)

April 14 -26 Colorado Springs, CO

[6th Annual Homeland Security Professionals Conference & Expo](#)

October 3-7, 2011 - Las Vegas, NV

If you have an event or know of an event that might be of interest to PSDiver Monthly subscribers send the information to: PSDiverMonthly@aol.com

PSDiver Monthly Continuing Education

PSDM-CE-82

- 1) Regardless of diving standards or exemptions to diving standards, divers should be working under conditions that are in compliance with:
 - a. 29 CFR 1910.120
 - b. 29 CFR 1910.360
 - c. 29 CFR 1940.200
 - d. All of the above

- 2) Vaccinations for various disease vectors should be at a minimum:
 - a. Hepatitis A/B
 - b. Diphtheria
 - c. Tetanus
 - d. All of the above

- 3) Which approach will eliminate exposure to water contamination health hazards:
 - a. Level A suits
 - b. Dry suits
 - c. Surface supplied air
 - d. Not to dive

- 4) Benefits of side scan sonar are:
 - a. Diver safety

- b. Reduce search times
 - c. Reduced search costs
 - d. All of the above
- 5) Side Scan Sonar is the only type of sonar to be used for drowning victims.
- a. True
 - b. False
- 6) Sonar recordings cannot be used in a court of law as evidence.
- a. True
 - b. False
- 7) Side Scan Sonar is a tool used for:
- a. Rescue
 - b. Recovery
 - c. A & B
 - d. Metal Objects
- 8) A diver should never hyperventilate more than _____ breaths.
- a. 4
 - b. 5
 - c. 6
 - d. 8
- 9) Diver blackout is most pronounced between _____ feet of depth.
- a. 5 to 10
 - b. 10 to 15
 - c. 20 to 30
 - d. Only below 40 feet
- 10) Diver exercise (work) underwater can increase the chance for blackout .
- a. True
 - b. False
- 11) Which of the following is the primary stimulus for the body to breathe:
- a. Low oxygen
 - b. High carbon dioxide
 - c. Deflating lung volume
 - d. Increased nitrogen level
 - e. A & C
- 12) Many pool drownings are thought to have been caused by:
- a. Alcohol
 - b. Head injuries
 - c. Swimmer's skills (lack of)
 - d. Shallow water blackout
- 13) A site deemed too polluted to dive should be surveyed by
- a. The team rookie
 - b. The dive supervisor
 - c. An ROV
 - d. The EPA Dive Team

T/F

- 14) The title your team gives it's procedures can affect your liability.
- 15) Simple wording can designate your procedures as general guidelines or absolute standards.
- 16) Since a dive team performs an important community service, the press will always be supportive of your efforts.
- 17) OSHA exemptions do not apply to adhering to contaminated water procedures.
- 18) Exposure history forms can be used to evaluate PPE for future dives.
- 19) Blood tests can be used to identify chemical exposure.
- 20) OSHA does not require medical monitoring for divers exposed to hazardous waste.

Chemical spill information can be obtained by calling 1-800-424-9300. Is this number in your phone list?

Team Discussion:

1. Discuss your teams guidelines on Polluted water diving.
2. Review your teams SOP for diver protection PPE
3. Review your teams SOG for search and assess the tools needed and where obtained if not locally.

PSDiver Monthly is a free subscriber E-Zine distributed by Press Release notice and website download. We have a world wide distribution and a verified email subscriber list of over 13,000.

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Public Safety Diving

Association (PSDA) recognizes and approves the PSDiver CE program. Each month's Q&A program credits 1 CEU for renewal up to a maximum of 3 CEUs from this source for each year's renewal.



ERDI Recognizes and supports the PSDiver Monthly CE Program. Contact your ERDI Instructor for details.

Life Saving Resources

Lifesaving Resources advocates the need for Public Safety and Rescue personnel to be trained in Water and Ice Rescue and recognizes the PSDiver Monthly CE Program for continuing education training and credits.



Lifeguard Systems – TEAM LGS



We welcome all training agencies and organizations to participate. For details, email PSDiverMonthly@aol.com

I don't make this stuff up! - Editor

Small Tourist Boat on Lake Windermere Overturned by Lake Monster, Three Missing

<http://www.thespoof.com/news/spoof.cfm?headline=s1i91873>
20 February 2011

Coming on the heels of a couple who claimed they saw a "Nessie-like" lake creature while out on Lake Windermere in England, it has been reported that something very large has overturned a small boat of tourists who were out to get a glimpse.



"We got a glimpse alright", stated a very wet Homer Lacefield from Little Rock, Arkansas in the US. "There we was. Out there like a bunch of hair-brained idiots with our bi-knockers and the next thing we knewed that big thang had swum right under the boat. A big head rose and looked me in the eye and I shat right whar I stood."

Homer stated that the next moment he was "spinning sidewise and sorta catty-cornered and trying to get ahold of the boat that was now on it's side."

"Here's Alice, my wife. You tell them Alice."

"I-I can't Homer. Mama's still missing."



