



Spring 2016



**Saskatchewan
Underwater
Council**

BUDDYLINES

Newsletter



Welcome to our Spring 2016 Issue
of BuddyLines from the
Saskatchewan Underwater Council.

The new website has been up for a year now and
we have gotten some great feedback about it.

Check it out at: www.saskuc.com.

Also check out the Saskatchewan Underwater
Council Facebook group for details on
everything diving in Saskatchewan.



www.saskuc.com



LIONFISH

The lionfish is a genus of venomous fish commonly found in tropical reefs. Native to the Indo-Pacific, the fish is one of the most infamous invasive species in the western Atlantic. This voracious predator is not a threat to divers, but its introduction into exotic ecosystems can decimate juvenile specimens. In an attempt to control the spread of lionfish populations, recreational divers in the Americas have started aggressive campaigns to hunt them; in the process, many divers are stung with the lionfish's sharp spines, which can cause very painful and sometimes complicated wounds.

IDENTIFICATION AND DISTRIBUTION

Lionfish, turkeyfish and zebrafish are common names for fish species of the genus *Pterois*, a subset of fish of the venomous Scorpaeniform family. Though lionfish are native to the Indo-Pacific, members of the order Scorpaenidae can be found in oceans all over the globe, even in arctic waters. Lionfish specimens are typically red with white and black stripes and have showy, spiky fins. Species include *Pterois volitans*, *P. miles*, *P. radiata* and *P. antenata* among a few others.

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The 2016 ANNUAL GENERAL MEETING (AGM) will be held this year at the Ponderosa Pine Lodge in Candle Lake on the Father's Day long weekend, June 18, 2016. If you are planning on staying overnight, please contact the lodge directly at 306.929.2488. We are planning a meal for the evening of the 18th. If you would like to be included in the meal, please RSVP no later than May 31, 2016. You can RSVP via email to executive@saskuc.com.



Please check the Saskatchewan Underwater Council's Facebook page for more details coming soon.

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WESTERN ATLANTIC INVASION

Since the early 1990s, invasive lionfish have wreaked havoc on local juvenile reef fish populations in the western Atlantic. Out of the nine species of *Pterois*, only *P. volitans* and *P. miles* are found in Western Atlantic waters, but they range from as far north as Rhode Island down to Venezuela and The Guianas.

RISK TO HUMANS

Knowing no predators, these fish are generally docile, allowing divers to approach closely enough and making themselves easy targets for spearfishing. Unfortunately, the desperate attempts to eradicate these fish from the Americas have caused a significant rise in the incidence of lionfish puncture wounds.



EPIDEMIOLOGY

The prevalence and incidence of lionfish envenomations is unknown. Treating physicians may not choose to consult a poison control center, and in the United States they are under no obligation to report these injuries to state or federal agencies. Scientific literature accounts for 108 cases of lionfish envenomations reported between 1976 and 2001, and almost all of these reports are actually from marine aquarists. It is impossible to know how often victims go untreated and how often treatment goes unreported, but the frequency of case reports seems to indicate that lionfish envenomations are not uncommon.

Lionfish culling tournaments are becoming more and more popular all over the Caribbean. Recent studies conducted by DAN staff from Cozumel, Mexico, accounted for a total of 26 cases of lionfish envenomation over four years of tournaments. Incidence of injury during these events was between 7-10 percent of participants.

MECHANISM OF INJURY

Most lionfish-related incidents occur as a result of careless handling, usually during spearfishing or while preparing them for consumption. Lionfish have needlelike spines located along the dorsal, pelvic and anal fins, and punctures can be extremely painful and lead to rapid development of localized edema and subcutaneous bleeding. Pain can last for several hours, edema typically resolves in two to three days, and tissue discoloration can last up to four or five days. Due to edema and the venom's inherent toxicity, puncture wounds on fingers can lead to ischemia (restriction of blood supply to the tissues) and necrosis.

PREVENTION

Lionfish are by no means aggressive. To prevent injuries, maintain a prudent distance. If you are committed to engage in spearfishing or culling activities, avoid improvisations, and do not try to handle these animals until you learn from more experienced divers.

FIRST AID

If you are stung, remain calm. Notify the dive leader and your buddy. The priority is to safely end your dive, returning to the surface following a normal ascent rate. Do not skip any decompression obligation.

On the surface, first aid providers should:

- Rinse the wound with clean freshwater.
- Remove any obvious foreign material.
- Control bleeding if needed. It is OK to allow small punctures to bleed for a minute immediately after being stung (this may decrease venom load).
- Apply heat. Immerse the affected area in hot water (upper limit of 113°F/45°C) for 30 to 90 minutes. If you are assisting a sting victim, try the water on yourself first to assess tolerable heat levels. Do not rely on the victim's assessment, as intense pain may impair his ability to evaluate tolerable heat levels. If you cannot measure water temperature, a good rule of thumb is to use the hottest water you can tolerate without scalding. Note that different body areas have different tolerance to heat, so test the water on the same area where the diver was injured. Repeat if necessary.

NOTE: Thermolysis can also be a secondary benefit worth pursuing, but it tends to be less effective in cases where the venom has been injected deep into the tissues.

- Apply bandaging as needed.
- Seek a professional medical evaluation. ■

Courtesy of Divers Alert Network

OXYGEN SENSOR LIFE IN REBREATHERS

By Mark Derrick

IANTD O2ptima CCR Instructor, Mark Derrick, shows how to best use and care for your O2 sensors in order to safely maximize their life and efficacy.

Oxygen sensor cells used in rebreathers are exposed to pressures of oxygen much greater than normally encountered in analyzing gas. As they age they become 'non-linear', meaning they are perfectly accurate for some conditions and very inaccurate for certain other conditions and this can have serious consequences for rebreather divers. Rebreather manufacturers recommend replacing the cells annually, long before they can become non-linear. The widely accepted absolute maximum useful lifespan of cells in rebreather applications is 18 months, with 12 months being the recommended replacement interval.

No manufacturer recommends doing things to cells like vacuum packing, freezing, refrigerating, storing in inert gas because they have not tested what happens to cells when these things are done. They can tell you that based on their expert knowledge of the cells, these life-extending steps can and probably will cause minor improvements in the life of some components in the cell while damaging or having no effect on other components in the cell. They are almost certain to cause the cell to go non-linear faster than normal, to become unstable, affect the cell response time curves, and on and on.

So real world for a rebreather diver....

Case One: take three cells, install them in the rebreather, and leave them there. At the end of 12 months, throw the perfectly good sensors away and install new ones. In my opinion, and those of the manufacturers, this is the best course of action to follow.

Case Two: another rebreather diver installs and removes the cells after each dive trip... carefully doing their favorite ritual to store the sensors to extend their life. At the end of twelve months the rebreather diver discards the sensors that have been handled in a manner that literally frightens the rebreather manufacturers. Hopefully the diver survives case two, there have been a few accidents where handling of the cells have been implicated or even declared the proximate cause of the accident.

Case Three: See case one or two, except the rebreather manufacturers extremely strong warnings regarding cell replacement times are further ignored and the cells are continued to be used until failure. Hopefully the diver survives case three; there continue to be fatalities directly linked to old cells, even in the face of the information available today. I was personally involved in investigating a high profile fatality in 2010 where the oxygen sensors were 22 months old and tested non-linear.

The experiences of the rebreather community demonstrate the life of the '36 month in air 10mv oxygen sensor' in rebreather applications is 12 to 18 months and with heavy use it's probably less. I do 150 hours a year and replace my perfectly good sensors every 8 to 10 months. It would seem most reasonable rebreather divers at this point would just follow manufacturer's recommendations, but there are always those who feel the manufacturers have a 'hidden agenda' in the frequent replacement of oxygen sensors and choose their own path.

Heat has a major impact on the life of oxygen

sensors because sensor life can be significantly shortened by excessive exposure to heat. Keep rebreathers out of the sun both pre-dive and post-dive; an easy solution is just to cover the area where the sensors are mounted with a light colored towel. Treat your rebreather or contents analyzer with respect, keep it at temperatures you are comfortable in (if you are too hot or too cold, so are the sensors).



Another factor that can significantly affect sensor life is the length of time the sensor is exposed to elevated levels of oxygen. The most common circumstance is setting up the rebreather a day or two before diving and leaving 100% oxygen in the loop following calibration of the sensors until the unit is actually used. This means the sensors were exposed to very high levels of oxygen for the long period prior to use, and this can shorten the life of the sensors quite a bit. Best practice is if your rebreather loop has an elevated PO₂ and will not be used for a while, then flush the loop with diluent to keep the loop PO₂ to a minimum.

So what is the shelf life of a new, unopened sensor? The manufacturers specify the shelf life for most types of sensors at 12 or 24 months from date of manufacture, and that's reasonable for sensors intended for use in analyzers. However, I suggest you may want to use a fresher sensor in rebreather applications. For this reason I do NOT recommend rebreather divers keep a 'backup' sensor in their spares kit. Rotating a sensor from the spares kit into the rebreather might seem cost effective, but it's not best practice. There are a variety of reasons, but ultimately rattling around in the spares kit is hard on sensors and they often come out of the bag not working well anyway. If you suddenly need a replacement sensor, they are generally available via overnight delivery. If you feel you must keep a spare sensor for immediate availability, such as during dive travel, then it should be discarded no later than 18 months after date of manufacture, regardless whether it was used or not.

One final thought, pushing the useful life of an oxygen sensor is a 'risk vs. reward' decision. If you choose to use a sensor for an additional six months beyond recommendations, you saved only a few dollars and incurred an unknown but very significant risk. ■

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BATTLEFORDS SCUBA COMMUNITY

By Dennis McCullough

The members of the Battlefords Scuba Community have been enjoying their pool time each week (Sundays from 10 am through 12 noon if you are in the neighbourhood) working on fitness and skills. The first of three Open Water Scuba courses was held Nov. 7 through 9 with the second happening on the weekend of Jan. 22 – 24. Together 10 participants took the courses, one being a refresher. The third course is slated for May, a weekend affair, if anyone is interested.

The Advanced Diver, the Rescue Diver and Divemaster candidates are all working on refining their skills and, for some developing their leadership skills. A number are gearing up for Specialty courses once the ice is gone – we have a dry suit course, a night diving course, and an underwater navigation course slated for May, June and July.

At the moment, we are in a lull between runs of discover Scuba sessions with the high schools. In 2015, the club had 354 students go through the program thanks to a grant from the Battlefords Agency Tribal Chiefs. This compares favourably with the 298 done in 2014. We are targeting another 300 for 2016. Students have come from Paradise Hill, Spiritwood, Leoville, Turtleford, Unity, Cut Knife, Kerrobert, Rosetown, Kerrobert, Biggar, Maymont, Wilkie, Lloydminster, Langham, Cando, Borden and Neilburg as well as the three high schools in North Battleford – John Paul II, North Battleford Comprehensive high and Sakewew. We were also able to subsidize some of the students who had gone through

the Discover Scuba program for their Open Water Scuba course from these funds. The club gratefully acknowledges the assistance of BATC for without their grant, this program would only be a dream. Thanks to all the volunteers who have helped with getting gear ready and putting it away after as well as helping get students into the gear and the gear adjusted. A big thank you to George at The Diving Centre and David and Connie at Alberta Adventure Divers for their assistance with gear rentals.

BSC has its Underwater Gymkhana coming up on Sunday, March 27th starting at 9 am. This is a morning of competition and fun followed by a lunch at the Battleford Co-op Aquatic Centre. There's games and contests for snorkelers and scuba divers as well as the old pros – things like a Shape Ball Challenge, an Obstacle Race, a Balloon Blowing Contest, a Lego Construction contest, and some Underwater Hockey. There will be prizes in all events. The fee is \$20 for the event and this includes lunch. For more information or to register, contact Dennis McCullough at suesan@sasktel.net or via phone at 306-937-7195. Come join us for some entertainment. Lunch for non-divers is just \$7.50.

Preparation has begun for the **Definitely Diving Days Weekend** June 25 and 26 at Atton's Lake. This is a weekend of diving and socializing with some games and contests thrown in. Again, contact Dennis for more information.

That's kind of the news from the northwest for now. Let's keep diving!!

battlefordsscubacommunity.ca



Saskatchewan Underwater Council

Saskatchewan Underwater Council Inc.
Box 7651, Saskatoon SK S7K 4R4

Membership Renewal Information

Membership fee structure is: Single Membership is \$30
Family membership is \$35

You will receive the following: Buddylines
Diver Magazine - 8 issues (Regular \$49.98 newsstand price) your name will be passed onto Diver Magazine for mailing.
Reduced rate on all SUC and Co-Hosted SUC Events

For Your Information

The Saskatchewan Underwater Council compiled a Dive Sites Manual of favourite dive spots throughout Saskatchewan. The cost of the manual is \$10. For more information please call Clifford Lange at (306) 374-8341.



Name: _____	Individual Membership:	\$30	\$ _____
Name(s): _____	Family Membership:	\$35	\$ _____
Address: _____	Other: _____		\$ _____
City/Postal Code: _____		Total =	\$ _____
E-Mail Address: _____			

If you wish to receive Buddylines by e-mail.

Make Cheque or Money Order Payable to the Saskatchewan Underwater Council Inc.