

## DANGERS IN THE WATERS

After a long cold winter, the first hot day a lot of people will want to play in the water. In the Northwest that can be dangerous. Most of our streams and rivers are fed by the mountain snow-pack and when we get a really hot day like we did on May 17 that snow melts really fast and causes the rivers to roar like a monstrous beast. And like a wild beast these rivers can kill the unwary or foolhardy. There were so many water rescues that day that the local sheriffs had a hard time keeping up with the calls for help. In this article I want to first mention Laminar Flow and Flow rate, and then mention features in the water that present hazards to avoid..

**LAMINAR FLOW** sometimes known as streamline flow, occurs when a fluid flows in parallel layers, with no disruption between the layers. What this means is a river or stream runs at different flow rates at different depths. While the layer next to the streambed may run slow due to friction, the layers above it will run faster. Whitewater is formed, when a river's gradient drops enough to disturb its laminar flow and create turbulence, e.g. form a bubbly or aerated and unstable current; the frothy water appears white.

**FLOW RATE**, or discharge, is the volume of water moving past a cross-section of a stream over a set period of time. It is usually measured in cubic feet per second (cfs). Flow rate is affected by the amount of water within a *watershed*, increasing with rainstorms or snowmelt, and decreasing during dry periods. Flow is also important because it defines the shape, size and course of the stream. Flow rates can reach thousands of cubic feet per second.

**STRAINERS** are formed when an object blocks the passage of larger objects but allows the flow of water to continue - like a big food strainer or colander. These objects can be very dangerous, because the force of the water will pin an object or body against the strainer and then pile up, pushing it down under water. Strainers are formed by many different objects, like storm grates over tunnels, trees that have fallen into a river ("log jam"), bushes by the side of the river that are flooded during high water. In an emergency it is often best

to try and climb on top of a strainer so as not to be pinned against the object under the water. If you are in a river, swimming aggressively away from the strainer and into the main channel is your best bet. If you cannot avoid the strainer, you should swim hard towards it and try to get as much of your body up and over it as possible

**SWEEPERS** are trees fallen or heavily leaning over the river, still rooted on the shore and not fully submerged. Its trunk and branches may form an obstruction in the river like strainers. Since it is an obstruction from above, it often does not contribute to whitewater features but may create turbulence. In fast water sweepers can pose a serious hazard.

**HYDRAULICS** (also known as "stoppers" or "souse-holes") are formed when water pours over the top of a submerged object, causing the surface water to flow back upstream toward the object.. Hydraulics can be particularly dangerous:. In high-volume water, hydraulics dramatically aerate the water, possibly to the point where it may even lose the capacity to carry any water craft. Some of the most dangerous types of hydraulics are formed by lowhead dams (weirs), underwater ledges, and similar types of obstruction. In lowhead dams, the hole has a very symmetrical character - there's no weak point - and where the sides of the hydraulic are often blocked by a man-made wall, making it impossible to slip off the side of the hydraulic. Lowhead dams are insidiously dangerous because their danger cannot be easily recognized by people who have not studied whitewater

**WAVES** are formed in a similar way to hydraulics and are sometimes also considered hydraulics as well. Waves are noted by the large smooth face on the water rushing down. Sometimes a particularly large wave will also be followed by a "wave train", a long series of waves. These standing waves can be smooth or, particularly the larger ones, can be breaking waves (also called "whitecaps" or "haystacks"). Because of the rough and random pattern of a riverbed, waves are often not perpendicular to the river's current.

**PILLOWS** are formed when a large flow of water runs into a large obstruction, causing water to "pile up" or "boil" against the face of the obstruction. Pillows can be dangerous because sometimes the

object that forms the pillow is undercut and so you can be swept underwater - possibly to be entrapped. Pillows are also known as "pressure waves".

**UNDERCUT ROCKS:** are rocks that have been worn down underneath the surface by the river. They can be extremely dangerous features of a rapid because a person can get trapped underneath them, under water. This is especially true of rocks that are undercut on the upstream side. Here, you may become pinned against the rock underwater. Many whitewater deaths have occurred in this fashion. Undercuts sometimes have pillows, but other times the water just flows smoothly under them, which can indicate that the rock is undercut. Undercuts are most common in rivers where the riverbed cuts through sedimentary rocks like limestone rather than igneous rock like granite. In a steep canyon, the side walls of the canyon can also be undercut.

**SIEVE** is a narrow empty space where water flows between two obstructions, usually rocks. Similar to strainers, water is forced through the sieve, resulting in higher pressures which forces water up and creates turbulence.

The dangers can be mitigated (but not eliminated) by training, experience, scouting, the use of safety equipment (such as personal flotation device, helmet, throw ropes), and using other people as "spotters".

One last mention is that since most of the water is from snow melt, hypothermia is also a danger in the rivers of the Northwest. While the air temperature may be in the nineties, the water temperature could be in the forties. This could leave you only a few minutes before you become numb and unable to save yourself.

## TACOMA MOUNTAIN RESCUE BOARD MEETING MINUTES

These minutes as published are unofficial and subject to approval at the next regularly scheduled board meeting. Convened 7:13.

**BOARD MEMBERS PRESENT:** Rick Wire, Tyler Severy, Christine Davies, Greg Lang, Gus

Bush, Jeff Sharp, Chris Berryman

**OTHER MEMBERS PRESENT:** Ken Davies, Josh Hall, Tracy Berryman

**TREASURER'S REPORT:** Lynn Severy  
Tyler passed out the treasurer's report. Motion was made, seconded and passed to accept the report.

**KIT REPORT:** Tracy Berryman  
Tracy wanted to know what the status of the Shelter label is. In one month we will need to have a new design because we won't be putting matches in the package any more. No one has volunteered to redo the cover, so Rick and Tracy will both speak to people they know to see if they can do a new design. There aren't any specific guidelines for the design, other than leaving enough room for a UPC sticker.

Greg started a discussion regarding the future of the Kits. He noted that there are many survival kits on the market now and the competition is greater than in the past. He suggested that we consider just going with the kids' kit since there isn't much available for that purpose.

**OPERATIONS REPORT:** Gus Bush  
There have been no missions during this reporting period.

**TRAINING REPORT:** Berndt Bittlingmeier  
There were no participants at the last training in May. There was discussion regarding why the turnout for training has gone down, and what kinds of things might be done to resolve this. This led to discussion regarding general membership levels being down. Christine will e-mail a friend at the Mountaineers who is part of the climbing committee to see if there are any recruiting opportunities there. Chris suggested team volunteer opportunities, such as trash clean-up at the Fairfax bridge.

The June training will be on the 21<sup>st</sup> and 22<sup>nd</sup>, which is not the regular weekend. It will be held at Frenchman's Coulee. On Saturday it will be a play day for climbing, and Sunday we will be working with the Grant County fire department training them on low angle rescue systems.

**EQUIPMENT REPORT:**

Chad has officially left the unit because he moved to Colorado. We need an equipment chair.

**COMMUNICATIONS:**

There is no Communications chair at this time.

**SAFETY & EDUCATION:** Chris Berryman

No report.

**MEMBERSHIP REPORT:** Dan Deprez

Chris, filling in for Dan, introduced Josh Hall as a candidate for membership. Josh told us about himself and his climbing experience. Chris moved that he be accepted as field support. The motion was seconded and passed.

**MRA:** Jeff Sharp

Jeff reminded everyone about the Spring Conference in June.

**SAR COUNCIL:** Christine Davies

The SAR Council picnic scheduled for August has been cancelled for the time being because there is no venue available at this time. The council is still working on potential locations or dates.

Fran was at the Council meeting and discussed the National MRA's involvement in the SAR credentialing process and the SAR Working Group. Christine reported that our new SAR deputies are Doug Pressel and John Otis.

**AIR OPS:** Tim Greminger,

Jeff reported that he is currently on the County's new fixed-wing program as one of the two available pilots. Jeff participated in a training with the new avalanche beacon used with the King County helicopter. He informed the board that they are talking about mounting a recovery mission for the three snowboarders who were lost in December. King County is supposed to be getting a new Bell helicopter in July. Ken Davies flew with the National Park Service a week ago during their Chinook training. He also reported that the National Guard Chinook unit will be going to Iraq in 2009 and will not be available for missions.

**OLD BUSINESS:** The banquet date is locked in for November 14, if we use the Mountaineers building. The shed needs to be painted and Ian

Davies will volunteer to do it for community service hours towards his next Boy Scout rank.

**NEW BUSINESS:** Jeff discussed some ideas for a faster response time in order to get more involved in local missions. One idea that Fran has brought home from other teams around the country is having team members report directly to the location of the mission.

Meeting Adjourned 8:49

Respectfully yours,  
Christine Davies, Secretary

**KIT PARTY**

The following members attended the Kit Party on May 7<sup>th</sup>:

Greg Lang                      Randy Brake  
Gus Bush                        Ken Capron

They Made 120 Kits

**STOP THE PRESSES**

As I was composing this month's Rucksack the Unit was called out on 4 missions in the space of 24 hours. We were called to help in the recovery of two bodies of subjects who had drowned in the Green River on May 17. We also were called to help in the rescue of two climbers on Mt. Elinor in the Olympics. We were also called to help Snohomish County in the rescue of a injured climber on Mt. Baring. Unfortunately we were no able to respond to Mt. Baring because of the conflict with the Mt. Elinor mission. I will have mission reports in next month's Rucksack