

Bubbles From A Snag Diver

By Dr. Hannu Laukkanen

(WebMaster's Note: Many College of Optometry faculty members have varied and interesting lives apart from the college. Besides being a snag diver, Dr. Laukkanen teaches courses on Vision Therapy and Perception, and directs the Forest Grove Vision Therapy Clinic. This article originally appeared in the Fall 2003 issue of CUMTUX, the Clatsop County Historical Society Quarterly. Its is the first of a series of articles written by Dr. Laukkanen on his Columbia River adventures. I think that you will enjoy reading this very personal glimpse into the "other life" of one of our faculty members.)

Forward

The following is dedicated to my late brother, Mark. I am fairly certain that in his over thirty years of snag diving, he logged more snag diving days than any other diver on the Columbia River.



Hannu Laukkanen, Liisa Mellin, and Mark Laukkanen with Petey the dog in front of the Laukkanen house in June 1958

Mark was tragically killed at his home November 11th, 2002 when he was crushed by a falling forklift. Mark was a multifaceted fellow with many talents and responsibilities including: forester, log-buyer, gillnetter, fish-buyer, snag diver, firefighter, and port commissioner, just to name a few. He was a loving husband, father, and brother who will be sorely missed for a very long time. Mark was very proud of his four children, three of whom graduated as valedictorians and one as salutatorian. Of his

many, many, accomplishments, I hope that Mark will be remembered for his humility, his integrity, generosity, his common touch, and for being a mensch. It was an honor to be able to call him my brother.

Hannu Laukkanen

Slack water snag story

How much water?" I asked the skipper. From the stern he poked his head into the cabin of the square ended bowpicker and glanced at the fathometer. "A little under thirty feet" he barked back. I checked the pressure gauge on my dive tank, 700 pounds of pressure. Should I switch to a fresh tank with four times more air and a greater safety margin before diving on the next snag? Naw, it was fairly shallow with little current. My tender hoisted my mostly depleted tank to the ready position. I turned my back to him and put my arms through the straps. I strapped on my weight belt and pulled on my rocket fins while the skipper nudged our boat parallel and next to the boat hanging on the snag. With one hand on



the snag net hanging over his bow reel, the fisherman in the locator boat gave me a nod. He was ready for me to jump in and pull myself down his net to the snag. I inserted the air pressure regulator into my mouth, locked my jaws on the rubber bite, and drew a test breath. Nice smooth airflow, with no resistance; good. I felt and heard the carabineer click into the grommet on my weight belt as the tender attached the end of quarter inch steel cable to my waist.

My job was to take the cable to the bottom of the Columbia River and attach it to the snag. Then I would free the snag net from its grip so it could go on and catch another snag that interfered with commercial fishing. I would signal the tender with two jerks that I had cabled the embedded snag, then the tender would tie his end of the cable to the bow cleat. I would surface, we would pull the snag loose with the boat, tow the snag, and deposit it in a place where it would no longer interfere with gillnets trying to catch salmon.

I stepped off the fish locker into the river and enjoyed the cool waters swirling and rushing over my head. Excellent. My neoprene-gloved right hand had a good grip on the cork line of the snag net. I pointed my head into the current, rolled over on my side, grabbed the net with both hands, and headed for the bottom by reaching overhead and pulling the net hand-over-hand. The eerie but familiar darkness immediately enveloped me. Three feet below the surface my eyes were useless, the turbid waters prevented me from even seeing my hands. This should be a relatively easy dive, in spite of the complete darkness. Even though the tide book had predicted a strong minus run out tide today, the strong ebb current had not started smoking yet. As I pulled myself down, I noticed that the net was

at a very shallow angle relative to the bottom. The fisherman in the locator boat must not have picked up a lot of net after he hooked the snag. I knew he was worried that in this weak current his net would slip off the snag if he tried to retrieve too much net into his boat. That meant there was a long run of net ahead of me and I would have to burn way more air than I anticipated to reach the snag. I repeated to myself: "nice steady pulls on the net, nice steady breathing; go easy on the air, you'll find the snag soon." Unexpectedly my arm jabbed something hard. "What's this, I'm not on bottom?" I was surprised that my gloved hand bumped the snag before I kicked the sandy river bottom with my fins. Normally the web was taut, almost rope-like near the snag and I would have bumped the bottom first. Through my insulated hand I could feel many different roots poking out in several directions. The roots were jutting out from a three or four foot tall sand ridge. It was probably the root wad of a sunken and sanded in cottonwood tree, I thought. In the quiet stillness, I pulled on the web. The snag net behaved as though it was attached in many places. Most likely the net had grabbed more than a few of the gnarly root appendages. I knew that I would have to explore the different roots and find a good solid place on the snag not covered by net. Only then could I choker the snag with my cable, and go about the business freeing the net. I could sense that net was everywhere around me but I found a small open place by lying on my side near the stem of the tree in the sand bank. Good, it was less than a couple of feet in diameter and there was a small space under it so I could thread the cable around the main stem. The snag crew topside would be so happy when I could tell them what a good cable hold we had.

Reaching down to my waist with my left hand I unsnapped the cable and threaded it to my right hand down the length of my fully extended arm under the log. In the velvety blackness I reached over the log with my left arm, groped until I found the end of the cable, then pulled it over, unscrewed the shackle pin and reattached the shackle over the cable on my side of the tree ensnaring the snag. Now at last the cable was on and the snag was lassoed. Still on my side, I jerked twice on the cable and felt it come tight. In response to my signal, the tender had hauled in the slack and tied his end of the cable to the boats bow cleat. At the same time, the skipper had turned off the boats motor allowing the top current to draw the cable even tighter. I was now incommunicado and could send no more signals topside with the cable because it was now too taut.

Without warning, the weak bottom current did a strange thing. It changed direction. Not only was I almost out of air, but I was also surrounded by web with no way out. I couldn't swim upwards because the snag net that was ensnaring me was still attached to the snag somewhere beyond my reach. As I struggled to free myself from the net, I could feel the backpressure steadily increase from my regulator. This indicated that my life-giving air cylinder was about to expire. Panic gripped me. There wasn't much time. Like a rabbit fleeing a predator, I tried to escape willy-nilly. My arms and legs were flailing uncontrollably. I was becoming more and more hopelessly entangled in the net. I was on fire. Dreadful thoughts, images, and feelings were igniting and vanishing like exploding sparks in my brain. Only a breath or two from drowning, a voice deep inside said: "You are going to drown, you're out of control." "No, dammit, I am not going to die this way!" I opened my jaw and bit the inside of my cheek, violently. Warm salty blood flowed into my mouth and regulator, but it was the pain from the bite that I wanted. "Focus on the pain, focus on the pain." Little by little, my legs and arms were coming back under my conscious control, but my air supply was spent. I was now holding my breath. "THINK! Find the dive knife strapped to your right calf. Bend over slowly; don't let the web rip the mask off. Unsnap

the catch to the knife. Carefully pull the knife from its sheath. Grip it firmly. Don't drop it, don't drop it. Do not slash at the web with the blade. That's it; grab a handful of web with the left hand. Saw steadily with the right hand. Saw with the serrated edge at the base of the blade. Not too fast or the knife will be pulled out of the thick neoprene glove and tumble into the darkness. Good; both arms are free. Next, cut the legs loose from the web. Yes, you can; yes, you can. You can hold your breath just a bit longer. Reach way, way, back. Behind the neck and shoulders, grab the web attached to the tank valve. That's right. Saw the web carefully. I got it cut! I'M LOOSE! Get to the surface NOW, before you lose consciousness. Kick the legs hard. No embolism, remember to exhale going up, no embolism, remember to exhale."

When I broke the surface, the tender took one look and knew this had been a close call. I was gasping like he had never heard before. The whites of my eyes were hemorrhaged and bulging out of my head. I had no strength. I couldn't get into the boat. The tender and skipper teamed up and grabbed my arms. They dragged me aboard more like a jellyfish rather than a human. I kept gasping. I couldn't speak. I lay quivering on the fish locker for quite some time because I couldn't sit up or stand. I remained in that state for maybe half-an-hour; perhaps it was only fifteen minutes because I lost sense of time. When I could finally speak, I had no wish to recount what I had just experienced.

A bit later the skipper came round and put his face directly in front of mine. "One of the other locator boats is snagged up, what do you want to do?" The most terrifying thing that I could possibly imagine at that point was getting back in the water and diving again. However, in my heart I knew that if I didn't dive now, I would never snag dive again. I would end up like Ray, an exceptionally bright and talented fellow, who, following a similar experience, never again dove on a snag. When asked why he quit, he simply said: "Because I am the Chicken of the Sea." I unfastened my regulator from the empty tank and mounted it on my fresh untapped tank. My actions wordlessly communicated to the skipper and tender that I would resume.

This event I described happened nearly thirty years ago during my second year of snag diving. I learned several lessons. The first lesson was that the velocity and direction of the top current doesn't always predict the bottom current. Nets can behave unpredictably when the tide is changing. Diving on slack water snags requires extra caution to avoid entanglement. Air is inexpensive. I vowed that in the future, if I had any doubt, I would not go overboard without surplus air in the tank for unexpected adversities. Always carry more than one knife when diving around nets. Most importantly, I learned that I harbored within me a feral and potentially lethal panic response. Implicit in that understanding was that if I intended to continue with snag diving, I would need to maintain a high level of mental discipline and rigid control to avoid another such frenzied panic.

Columbia River driftnets and snagging: a primer



Unlike Alaska where set nets are allowed in some areas, Columbia River gillnetting is not permitted with a net that has one or both ends anchored. Excluding long since banned fish traps, traditional netting on the Columbia River has involved the use of drift nets, or nets that move with the tide. Moving nets hook or snag objects protruding from the river bottom in shallow water. When a net catches a non-moving object on the bottom, the snag acts as a hinge point while the ends of the net swing together in the current. The result is that the net is much less likely to catch salmon. In addition, the net may tear itself in a heavy current or sustain significant damage when it is retrieved from the snag by picking, winching, or reeling. For a gillnetter, a snag symbolizes aggravation, lost time, plus lost revenue.

Although greatly oversimplified, the following are the basic elements of the gillnet: cork line, lead line, and web. The cork line is a rope that is strung with floats whose purpose is to keep the top of the net on the surface. The lead line is a smaller diameter rope that is strung with weights that pull the web downward. The cork line forms the net's upper boundary, whereas the lead line forms the bottom boundary; they are separated by the business part of the net, the fish-catching web. Although typically over a thousand feet long, most river gillnets fish down to only a depth of about 20-40 feet. Gillnets can be categorized into two basic types: floater nets and diver nets. A floater net skims the surface and is better for catching salmon on the flood, or incoming tide when salmon are migrating nearer to the surface. In contrast, a diver net skims the river bottom and is more effective for catching salmon that are migrating upriver during the ebb, or outgoing tide. A diver net is much more likely to encounter and be hindered by snags because, regardless of river depth, it always travels on the river bottom in deep water and in shallow water. Anything immobile on the bottom that stops a net is generically referred to as a "snag" by Columbia River fishermen. River snags include but are not limited to: sunken stumps, trees, sinker logs, anchors, remnants of boats, barges, and even sticks, rocks, and natural mud banks.

Columbia River fishermen have always competed with one another, but they have always had common enemies: "outsiders" who wanted to crowd in and fish their favorite part of the river and snags. To tackle both problems, individual fishermen naturally aggregated into loose groups or "drift right associations." Although the river and its bottom can not be owned by an individual, drift right organizations enabled sufficient cooperative effort amongst its members to be able to clear a specific area of the river bottom from snags. Once they had invested the time and resources to clear their drift, these individual members of a drift would behave more or less like de facto owners making it more difficult for nonmembers to fish on their turf with diver gillnets. Most drifts are between a half mile and five miles long. Interestingly, drift rights are not only inherited but are also bought and sold for a market price. This is the case, despite the fact that the drift rights themselves have questionable validity from a legal perspective.

An old-timer from Puget Island recounted a tale to me about Jon Ostervold, a reluctant drift right pioneer. Old Jon had by his own efforts cleared an area of river bottom where he fished on the lower end of Puget Island. A committee of local Norwegian gillnetters confronted Jon and informed him that they were incorporating his grounds into a larger drift, of which, they said, he was welcome to become a member. Late the next night, neighbors heard the labored putt-putt of Jon's gillnet boat towing big snags back out onto the new drift. Legend has it that he deposited them in locations where everyone would hook them but himself.

Early snagging was a slow, labor-intensive process. Many drifts tried to catch and pull snags by dragging a cable on the bottom behind two boats. Drift fishermen who had taken part in earlier cable dragging ventures often grumbled to me that it had been a very inefficient process, and the results were mediocre at best. A more effective method was to use nets that were specialized to catch snags. On occasion, snag nets by themselves were used to catch and pull snags, particularly smaller snags. Trying to clear the bottom using a snag net alone without a diver was frequently a "catch and release without getting it off the drift program." The bonus was that more often than not, you had to go back to the net rack and mend the snag net afterwards.

Hardhat divers were the first snag divers on the Columbia. Hardhat gear included a very heavy dive suit, helmet, and leaden boots. The hardhat diver got his air from an air pump at the surface via hoses. The first pumps were hand-operated, requiring two men on the surface to continually work the pump in order to force air down to the diver. The hardhat diver descended to the bottom using a ladder or rope, then walked to the snag, being wary to keep the trailing air hoses from getting pinched in the net. After the snag was found and choked, the hardhat diver had to be hauled by hand back up to the surface. I have been told by many who still remember the hardhat era, that snag diving was very slow and productivity very low. During that earlier era, a productive day meant removing two to three snags out of the drift.

The advent of the self-contained underwater breathing apparatus (SCUBA) greatly increased the speed and productivity of snagging on the river. My personal productivity record was set on a drift near Puget Island. We yanked and cleared 23 snags out of the bottom during a single ebb tide. You can imagine how very tired I felt at the end of that noteworthy day.

How I got into snag diving

How did I get into snag diving? It seems a bit of a stretch for a boy who grew up on a small dairy farm in Brownsmead. My parents, sister, and two brothers emigrated from Finland to the U.S. via Ellis Island in 1948, four years before I was born. My parents had earned a good living farming their relatively large tract of ancestral lands in Karelia (the Eastern most part of Finland) prior to the Second World War. My family was first displaced by the Russo-Finnish hostilities in 1939, then again in 1944 by the imposed peace that required the cession of nearly ten percent of Finland's land area to the Soviet Union as a buffer. My parents were fortunate enough to have relatives in the U.S. and were able to obtain permission to immigrate here. My family moved to Brownsmead after working for a year on a farm in Wyoming to earn a small grubstake. With the help of relatives and lots of borrowed money, they were able to buy a small farm on Davis Bottom Road.



Machine shop and barn on the Laukkanen farm on Davis Bottom Road in Brownsmead

My parents biggest new world "surprise" was my arrival in 1952; they were both in their forties at the time. Life on a small dairy farm was hardscrabble in the 1950s but it helped nurture our respect for both education and well paid employment. My brother Mark, six years my senior, was the best job hustler in the family. He was a hard worker, industrious to a fault, and he always found outside jobs in addition to our never-ending unpaid farm chores. Mark learned about commercial fishing from our neighbor up the valley.

Jaffet

Jaffet was an old gillnetter who lived alone in the former Sylvandale schoolhouse at the top of Davis Bottom. When he wasn't mending his nets in his erstwhile gymnasium, Jaffet liked to spend a lot of time in one unkempt and overcrowded room of his otherwise ample dwelling. He would sit in his beat-up lounge chair, parked right next to the noisy oil heater. Jaffet explained that he liked the

temperature to be "nice and hot" in the cramped room because he had spent so much of his life in the cold. From inside the room you couldn't see out the windows because it was so hot the windows were usually steamy. That and the fact they hadn't been washed in decades. Jaffet was one of the first in our valley to buy a television. Mark and I regularly hiked over to watch T.V., even after we got one in our home. Jaffet's schoolhouse was on a hill and his reception was much clearer than ours on the valley floor. We spent many hours squished together in that hot stuffy room on his scruffy red velour couch staring at an old black and white set that had poor vertical hold control. When his old T.V. got so bad that even he couldn't tolerate the rolling images, Jaffet didn't throw the defective console out but put another T.V. on top of the old one in the corner.

When we weren't watching T.V., we would be perusing Jaffet's magazine collection. Jaffet's policy was to save all his magazines, so his living quarters were crowded with tall stacks of Argosy, Field & Stream, Out-Door Life, and True Detective. Those were not our preferred periodicals, however. Sunshine and Health was the publication that held the most fascination for us neighborhood boys. This wonderful journal celebrated the nudist lifestyle. It was chock full of pictures of naked people frolicking, playing volleyball, and the like. Sunshine and Health was entirely more informative than those coy girlie magazines other fishermen hid under their boat bunks and pickup seats. In addition, most of those folks cavorting in Sunshine and Health sported candid sincere smiles that attested to the genuine fun that could be had while buff in the great outdoors!

When Mark reached his teens, Jaffet would take him gillnetting. He first employed Mark as a gofer, then later as a boat-puller to haul the heavy net back into the boat. I would tag along with Jaffet too, whenever I could sneak away from my farm chores. Jaffet would "hire" us for a dime or a tasty snack from the Knappa Market to help pull a net from his bowpicker onto his net rack so he could change or mend tears in his nets.

My favorite job was skippering Jaffet's boat when he needed to put it on the hoist at the warehouse along lower Gnat Creek. First, Jaffet would drop Mark or me off at Laurila's dock five miles away on Blind Slough in his emerald green Nash or powder blue Chevy Cheyenne pick-up. Although I don't ever recall getting any boat piloting lessons from Jaffet, he would let us run his 28-foot gillnet boat up Blind Slough and the narrow Gnat Creek channel to the Warehouse, unsupervised and alone, while he drove his vehicle back to the rendezvous point at the warehouse. I do recall one instance of getting royally chewed out by Jaffet when I was about ten or eleven years old. It was the first time I piloted his boat back to Laurila's dock. I came into the dock too fast because I was completely naive about the complementary inertial effects of wind and current as related to docking a boat. Although I had kicked the boat transmission into reverse, it wasn't soon enough. As I approached the dock, it just didn't occur to me, or was counter-intuitive, that I could more quickly decelerate the boat if I gunned the throttle while it was in reverse. The expression of utter horror on Jaffet's face is indelibly etched in my memory as he stood on the dock while I steamed in with plank-busting velocity. Luckily, he was able to deflect my trajectory enough with his arms and body to avoid my damaging his bowpicker's dark green painted spruce planks.

Another favorite outing with Jaffet was snag pulling. There was much to see and do, because snagging happened during daylight hours. Being an overactive youngster, I learned that the best time to be out

snagging was when the drift was using the snag scow. The Union scow was a veritable playground of old cables, tools, motors, pipes, a pot bellied stove, a ladder to the roof, and more. Fun was contingent, of course, on not getting in the way of the snag crew. Getting in the way during "busy time" was usually rewarded with a sharp rebuke or cuff behind the ear for repeat offenders.

Brother Mark was the first in our family to be SCUBA certified. Although he was a big outdoor sports enthusiast, I recall that a big motivating factor for his learning to dive was the possibility of supplementing his future income by becoming a snag diver eventually. In the meantime, he could add another enjoyable hobby to his repertoire of outdoor activities that included water skiing, snow skiing, parachuting, hunting, trapping, and others.

Brotherly advice from Mark

Another Brownsmead boy, Jim Beckwith, taught Mark the basic protocol of snag diving. Mark, in turn, taught me what he had learned on the job and what Jim had shared with him. The prime directive was: "Don't get tangled in the net." When pulling yourself down to a snag, stay out of the bight of the net. This may sound like advice for the mentally challenged, but it should be every novice diver's mantra. In the beginning, I found myself inadvertently in the bight a few times because of inexperience. It is all too easy to make navigational errors when you are crawling around a snagged net in the dark looking for a good cable hold. Experience teaches you to unconsciously and continuously monitor the direction of the current like a migrating fish using the earth's magnetic field. You learn how to "see" the net underwater with your hands even when your eyes can't see it. A net sensing safety technique that I learned from Mark was reaching ahead and sweeping the free hand in front of me when pulling myself forward. I disciplined myself to use it every time I went down on a net; I ingrained the habit to my benefit.

Be as slick as a seal

A snag diver needs to be as "slick as a seal," is another lesson that I gained from Mark. During training, all divers learn the gospel of always diving with certain requisite safety equipment. The first piece of "indispensable" dive gear Mark and I jettisoned was the buoyancy compensator. Because a diver's buoyancy varies with depth, the purpose of the compensator is to allow the diver to easily adjust whether he or she floats or sinks by adding or releasing air from a bladder worn around the neck. The bladder can be inflated to function like a life preserver in order to keep the diver and all his heavy equipment floating on the surface.

Snag diving differs from sport diving in that the snag diver carries extra lead in the weight belt. The experienced snag diver wants to get to the bottom as quickly as possible. Through trial and error, we learned that the bulky bladder with its many protruding valves and hoses is a net magnet when snag diving. Another important reason why the snag diver tries to mimic being slick as a seal, is to conserve strength. The snag diver is always fighting the current. Anything that enlarges hydrodynamic profile (like a bulky buoyancy compensator) progressively saps the diver's strength on each dive against the current. By the end of the day, the busy diver is completely exhausted.

My strategy was to buy the best dry suit available and to trust it for buoyancy compensation in potential emergencies. Sport divers are also taught that they must dive only if they have an extra second stage regulator, a pressure gauge, depth gauge, compass, bottom timer/calculator, etc. I fastidiously avoided carrying anything extra that could potentially catch the net, except for a single pressure gauge. Mark would rely upon the low air alarm of his regulator to let him know when he needed to change his air tank. I didn't have a low air alarm, but even if I had, I would not have stripped my regulator of one extra hose and pressure gauge, because I had learned to be compulsive about checking my air pressure before and after each dive.



Hannu getting zipped in to a dry suit.

Mark gave me useful advice from a customer relations and business perspective that helped my own snag diving business to become successful. "Don't snag dive for chicken scratch. If you do it for (poor) wages, it will not serve the diver, and ultimately will not serve the fishermen well either." I took Mark's statement to mean that snag diving involves some very easy enjoyable days and some very, very difficult days when you come close to losing it all. In time, the easy days will no longer make up for the difficult days, so, without adequate compensation, you will lose interest in snag diving. Rather than continuing to snag dive, you will seek a safer, drier, and easier job that pays a commensurate wage. The result is that a drift will be forced constantly to churn through new divers for snagging. "An inexperienced diver is an enormous liability for our drift," is a quote that I heard even from penny-pinching fishermen more than once.

"Never insult a fisherman's vessel, no matter how humble or rundown it may be. It's better to insult his home, his wife, or his kids." Mark used to tell a story about himself going snagging on a dilapidated, weather beaten bowpicker that had seen better days. Walking to the bow, he stepped off the fish locker and crashed through the rotten floorboards into the bilge. This was only shortly after Mark had teased skipper Tony about the general condition (lack of) of his vessel. For the remainder of that particular day when he wasn't diving, Mark mended broken boards under the angry tyrannical eye of

the skipper. Not only did Tony oversee the hammering of each nail, but he also offered constructive criticism about Mark's excessive weight and lack of carpentry skills.

True to his hardworking nature, Mark liked to offer me advice about non-diving related work: "Always keep yourself busy on the boat; your job is far from being over once you finish the dive. There is tons of work do on a bowpicker when snagging." I always tried to take Mark's advice to heart. After finishing a dive and surfacing, I would first hand my gear piece-by-piece to the dive tender; then I would pull myself aboard. Next, the tender and I would begin the process of getting the snag off the bottom and away from the drift. The first step for me would be to describe the snag to the skipper, how securely I had the snag choked, and how hard and in what direction the skipper should first pull on the snag.

On smaller snags, we would usually pull from the bow cleat first. With the cable attached to the bow of the boat it is easier to control the direction of the pull and apply the force so the cable bites into the snag and the choker doesn't slip off the end. If a snag didn't budge, as was often the case, I would have the tender untie the cable from the bow cleat. Next, the skipper would gently nudge the boat ahead, and I would walk the cable from the bow to the stern, keeping the cable as taut as possible to prevent it from slipping off the snag.

A bowpicker can exert considerably more pulling force on a snag when the cable is attached to the stern cleat. After a preliminary pull to "set" the cable into the snag, the skipper would kick the boat transmission into neutral, and the tender and I would haul slack out of the cable so we could get more up-and-down leverage on the snag. Once the snag broke loose from the bottom, the skipper would throttle back and we would "test" whether the group of us could heave-ho the snag closer to the boat from the stern. With many snags it was pure folly to try to get such a huge mass to move with only human muscle. With smaller snags, the tender and I pulling together could usually drag the snag close to the boat.

Chain lines and pickeroons

It was hard to get loose of and dispose of snags tied off on the stern of the boat, so I would have to walk the cable back to the bow cleat and tie off there. Most drifts would dump their snags behind a jetty or onto a beach where they would be unlikely to wash back on to their drift following a big high tide. Getting loose of the snag and getting the cable back had traditionally been an inefficient process. After a hard pull, the cable would usually bite so deeply into the wood that it might take as much time to get the cable off as it had originally taken to pull the snag off the bottom and tow it to the beach.

A snag removal operation in February 1968. Ross Lindstrom is the diver.

Mark innovated upon the time-honored process by employing a short chain line, which I also adopted. If the snag surfaced during towing, we would attach the hook of the chain line into the shackle on the noose of the snag cable. We would snug the chain line to another cleat and gently loosen the main cable when approaching the beach. The effect was that the cable would "un-bite" the snag. Thus,

getting the cable back from the snag was greatly simplified and much time was saved. Using a pickeroon was another one of Mark's clever ideas. Most drifts used a pike pole when trying to disengage and get the cable off the snag. Both Mark and I learned to use pickeroons while working in sawmills, so we always carried one for snagging. A pickeroon was much handier than a pike pole for grabbing and holding smaller snags near the boat and getting the cable off.

Untangling snags on the surface

Another time-consuming task where my help was appreciated was untangling snags that had been pulled to the surface by the net. If the snag had an opportunity to bounce around in the net on the bottom before surfacing, the result was a snag wrapped in a ball of net. In many of those circumstances another locator boat was called in to pick the other end of net until the two-locator boats came together and both ends of the snag could be brought near the surface. I would then jump in and attach lines near the ends of the snag so the snag could be supported on the surface while the net was slackened. I would usually stay in the water to help untangle the net. Untangling was much easier if both boats could be navigated to shallower water where the fishermen could get out of their boats and help me with the untangling process. There were a number of occasions when we spent the entire tide disentangling a single snag from the snag net. On one interesting encounter in St. Helens, a law enforcement boat arrived and demanded to see our required state issued snag permit just as a balled up snag was hoisted near the surface with the net. As was usually the case in that part of the river, a concerned citizen had probably reported that a group of gillnetters was brazenly catching salmon out-of-season in broad daylight. Fishermen on this particular drift were more than a little familiar with this drill. Most were not sympathetic to law enforcement's regular need to repeatedly verify the snag permit. The sheriff's boat pulled to within a few feet of our boat and the officer yelled to no one in particular to go fetch the snag permit. After an uncomfortable pause the snag boss yelled: "Can't you see we are working here? You will have to wait." The sheriff's boat stayed quite near as we navigated the locator boats to the beach near the town of St. Helens. Instead of finding the permit for the police immediately after we got to the beach, the fisherman climbed into the water and began the process of disentangling the net from the snag. We unraveled for over an hour while the cops stewed. I knew there would be consequences. After the net was untangled, the requisite snag permit was finally produced. Although the permit was in order, the still stewing cops began a very thorough inspection of each boat. Sure enough, minor violations such as worn life preservers were found, and fines to the individual skippers were levied.

My first snag diving experience

A year after obtaining my basic SCUBA certification I was eager to try my hand at snag diving and to earn some big money. Mark helped me secure my first booking, diving for the local Brownsport Drift. Experienced snag divers who were available during the big run-out tides were not in abundant supply at the time. The drift elected to take a chance on hiring me in the hope that I could put a cable around a snag, would not drown, and would be available to them for future snag diving.

I was somewhat nervous about diving but it proved to be a slow day. Near the end of the tide a locator boat finally hooked a snag in the Pole Hole. [The Pole Hole is one of the arms of the "Y" shaped

Brownsport Drift.] As we maneuvered next to the snagged locator boat, I went through my mental diving checklist and reviewed key advice I had received from Mark about diving on snags. Perfect. The snag was at a depth of only twenty feet. I confidently jumped over-board, grabbed the snag net and began my descent. I was grateful that the basic SCUBA certification course I had taken had been surprisingly rigorous, both the didactic portion as well as the hands-on underwater training. My course instructor had great credentials, was highly trained, and certified me with both the PADI and NAUI diving organizations [Professional Association of Diving Instructors and National Association of Underwater Instructors]. He had simulated all kinds of emergencies underwater. I had finished at the top of my class. What could there possibly be to worry about on this shallow water snag?

None of that training or open water diving experience in clear water had prepared me for this kind of Columbia River underwater darkness. As a youngster, I had experienced being lost in the forest by myself after dark. Yeah, that had been a dark and scary experience, but it had been nowhere nearly as dark and scary as going down this snag net for the very first time.



Hannu getting fortified with coffee.

Since that time, I have come to realize that each one of us harbors primal fears within. I have come to understand that nearly everyone has a fear of complete darkness, of being lost, and of being utterly and completely alone. Fortunately, most folks rarely have to face the kind of primitive fear that arises from darkness, being alone and being unable to communicate. In our culture, blindness is our biggest fear after cancer. I suspect, our fear of darkness may in part be why we fear blindness so.

I found the snag on the bottom quickly and explored it with my hands. Both ends were cleanly sawed off, so it was undoubtedly a hemlock sinker that had fallen out of a log raft that had been towed

overhead across the Brownsport Drift through the Pole Hole. It was easy getting the net off and choking the snag. I straddled the sinker between my thighs, bent down and threaded the cable from one hand to the other and shackled the cable. After jerking on the cable to signal that the snag was secure, I surfaced. Easy as pie. Back in the boat I checked my pressure gauge. How could this be? Three-fourths of my air tank was depleted. I had been underwater only five to ten minutes and it had been shallow water. On previous open water sport dives, this volume of air had lasted nearly 45 minutes at even greater depths. I asked the tender if I had produced an abnormal amount of bubbles during my dive. Both he and skipper Orville broke out laughing: "The water all around the boat boiled. We have never ever seen so many bubbles coming out of a diver." "Well, I have a pretty big tidal volume" I sheepishly offered. "Then you better bring a lot of tanks with you in the future" was Orville's suggestion.

When we were back at Westerholm's dock near the mouth of Blind Slough, and unloading my gear, Alan, the drift paymaster, approached me with the drift's checkbook and a pen. He asked me, "What does a junior diver charge?" Convinced that I was not going to get the standard \$75 diver pay, I responded, "What do you pay a commercial snag diver for a tide?" Alan, who had a reputation as being very tight fisted with a buck, reminded me again that I was a greenhorn apprentice diver. Orville, the cranky old snag boss who was monitoring our negotiations, opened his mouth to speak. My heart sank; I knew that Orville would back some low-ball salary amount that Alan suggested. I would be stuck for years as an apprentice diver with this drift. "Pay the man \$75, the full amount!" Orville croaked. What a happy, proud day it turned out to be for me! Not only was I getting paid what an experienced commercial snag diver would earn, but Orville, the curmudgeon, had called me a man. This was even after he witnessed me make the surface of the river boil with my fear-laced bubbles.



The Brownsmead warehouse near Davis Bottom Road

I would characterize my early snag diving performance as slow, sequential, and very methodical. When it was time for me to go overboard after a snag, I was not always completely geared up and ready. I would wait while the locator verified that his boat was not moving and slowly dragging the snag in the current. I would double-check all my gear and then ask my skipper to position our dive boat flawlessly before I would go overboard. I liked to have both boats parallel with exactly eight feet of separation between the dive boat and the snag net. Sometimes this would require more than one approach. No one ever complained until Clarence, a.k.a. "Snookie," took it upon himself to school me one day.

Snookie was a moonlighter. He not only gillnetted, but he ran his own gyppo logging outfit. Other fishermen on the drift were amused by the fact that Snookie's boat with the big Chrysler V-8 had only two speeds. They were lay-out-the-net-speed, and go-home-speed. He was impatient with slow men in the woods and with slow divers. My lesson began one evening when he looked up from his drink and said: "You are a good diver, but..." I took his advice to heart, I always tried to be geared up and ready before the locator had picked up to the snag. I learned to be a quicker diver underwater too. I was later grateful for Snookie's coaching, it helped me to become a more professional diver.

Tough snags that required more than one boat

In my years of snag diving, I found many tough snags that resisted relocation.

In bygone days when men were made of iron and wooden boats had very little horsepower, a float log was towed to the unyielding snag during the lowest part of the tide. The float log was then tightly cabled directly above the snag. The fishermen went home leaving high tide and current to gradually work the snag loose. In recent years, this method has been used very sparingly because the Coast Guard frowns upon anyone but the Coast Guard putting navigational hazards in the river. Colossal fines usually accompany Coast Guard frowns.

A Columbia River bowpicker powered by a six-cylinder Crown or eight-cylinder Chrysler can tow pretty hard on a snag, but often it wasn't enough. We would always start by pulling in the direction I prescribed. If that was not successful, the skipper would turn the rudder so the boat would make a slow 360° arc while tugging on the snag.

If the snag didn't budge after about 15 minutes of full-throttle pulling, heavy-duty measures were called for. The stern line of a second boat would be lashed to the bow cleat of the first boat. After the first gradually throttled up to full power, the leading boat would then do the same. In addition to the increased horsepower brought to bear by the second boat, this method helped to maximize the power of the boat closest to the snag by keeping its bow from lifting under full power. An ever-present danger was that if the cable suddenly snapped, the first boat could rear-end the lead boat.



More power needed.

If this method was not successful, two and even three boats were lashed together in parallel. I learned from many broken cables that my quarter inch steel line would not bear the strain of three boats, so I would have to dive down to the snag beforehand with a heavier cable.

If the snag wouldn't stir, the next escalation in the war of snaggers versus snag was to exploit the advantages of a snag scow. Prior to the era of boats with big engines, scows were the contraptions of choice with reluctant snags. Snag scows are rigged with slow but powerful logging winches and heavy cables. Tremendous lift can be wielded on a snag when the decks are winched down to water level, given the huge water displacement of the scow. Most snag scows also had pumps and fire hoses. Many a time, I took the fire hose down to the snag and used high pressure water to try and jet out sand from under and around the snag. If the scow couldn't first pull the snag out of the bottom, my jetting excavation work rarely contributed to later success.

There were few snag scows on the river, so most drifts didn't have access to one when they needed one. The have-not drifts would usually rely upon the kindness of passing tugboat captains. Quite a number of tugboat captains had either gillnetted in an earlier life, had family who were gillnetters, or were just plain friendly towards commercial fishermen. Most drift fishermen knew the friendly captains, so they would call for help on the VHF radio when they encountered an entrenched snag. If a tugboat was running through the area without a tow or a push, the boat and crew would usually lend a hand when OK'd by the skipper. Many of these Columbia River tugboats were relatively massive and had in excess of a thousand diesel horsepower. With such a vessel there is no such thing as gradually coming tight on the cable. Even the one-inch diameter cables attached to a snag snapped as if they had been made of string. Although there were exceptions, most of the big tugboat encounters that I witnessed usually resulted in busted cables and a snag that stayed put.

Interesting snag removal solutions sometimes emerged. The Cathlamet Drift was cursed with a snag that was in the worst possible location on their drift. Multiple fish-boat, and tow boat pulls had all been unsuccessful, so the drift hired a digger barge. Using a big crane and clamshell bucket, the digger barge dug out and removed the troublesome snag. It was an expensive but successful solution for the drift.

Fellow snag diver, Jim Beckwith, shared some the novel solutions he had employed with snags that wouldn't come out by conventional means. On one of the Rainier drifts, he found a big buried tree with branches that stuck out of the bottom and habitually snagged any net that happened to pass by. It was in the prime fishing area of the drift. It wouldn't move, so he revisited the snag with his crosscut hand-saw. Jim cut off all the branches that were sticking up. The fishermen were subsequently able to drift their nets over the remainder without snagging up. Jim came up with a different nifty solution for another huge immovable snag by building a metal net ramp over the part jutting out of the sand. He pounded several metal pipes into the sand upriver from the snag and oriented them in such a way as to create a ramp over the snag. This ramp allowed nets to travel downriver and up and over the snag without hooking up. A clever solution for a part of the river where there was little if any incoming tide.

Blowing snags with explosives

Years ago, terrorists were few and so were regulations for obtaining and using explosives. Some of my most unforgettable snag diving escapades involved dynamite. An observation of mine is that most boys never outgrow their fascination for high-quality fireworks, even when they are discharged underwater. Rigging dynamite always created a more festive mood aboard the boat. My job was to take the rigged explosives down to the bottom and place them carefully around the immovable snag. A snag could be cut off right at sand level with an appropriate sized explosive charge that was correctly placed. Those were not the results we got, however. Powder monkeys (experienced with explosives and rigging charges) with whom I worked lacked experience using dynamite underwater and had to rely on my description of the snag. Their experience was usually limited to blowing farmers' stumps into the air. We would typically start with a medium sized charge, after which I would visit the bottom to see how much of a dent we had made in the snag. Next I would go down with an even bigger payload and we would repeat the process. My biggest payload was putting 48 sticks of dynamite on one snag in Skamakowa. The resulting explosion created a lot of little pieces of wood floating down the river. The mother snag remained intact, still rooted in the same spot, but it was a lot gnarlier to the touch afterwards.



Bubble, bubble, toil and trouble

There is an often-told snag-dynamite story that I heard several times on the river. It involved accidentally detonating a big charge with the bowpicker still directly above the exploding dynamite. The resulting concussion expelled caulking from in-between the boat's wooded planks and water started pouring into the bowpicker. The boat had to be run at full speed to the nearest shore where it was beached to prevent its sinking. I can testify to the attention grabbing effect of being in a boat when dynamite explodes directly underneath. We were snugged up tight above a big snag, one time, and before we had a chance to scope out the cable and electrical wire, the powder monkey accidentally brushed the wire ends against the battery. Good thing it was a metal-hulled boat because the entire tug rose out of the water by about a foot. The concussion through the soles of my dive boots felt like somebody had hit my heels with a steel hammer.

What I learned from my demolition experiences is that placing blasting caps into sticks of dynamite in small confined spaces can produce dizziness and the mother of all headaches. After providing some minor assistance in helping rig the 48-stick charge in Skamokowa, I had to deliver the explosives. My cable was winched as tight as a piano wire and it pointed nearly straight down at the snag. The current was running so hard that when I went overboard I could hear my cable audibly vibrating in the swift water. Before I was half way down, my inner ear began telling me that I was spinning around in circles as if I were in a washing machine. I knew that I wasn't spinning, because the cable that I was pulling

myself down with was still humming. It was all I could do not to vomit. I was able to complete the dive successfully. That was my first experience with underwater nausea and dizziness. I attributed it to the fumes from the dynamite. Nitrogen compounds in dynamite can dilate the body's blood vessels (and cause headaches) not unlike a sublingual nitroglycerine pill taken for angina.

To be continued....

About the Author

Hannu Laukkanen was born at Astoria, Oregon on July 21, 1952. He attended school at Hilda Lahti Elementary and graduated from Knappa-Svensen High School in 1970. He received his B.S. from the University of Oregon in 1974 in General Science, and did graduate studies at the Department of Neurosciences, also at the U. of O. He received his B.S. at Pacific University in 1983 in Visual Science, and the Doctor of Optometry degree at Pacific University in 1984.

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