

Shotline Diving – the Ups and Downs of Free Ascent Diving

I remember when I first started diving. I was paranoid that I would not find the line and have a physical item to help on my ascent to the surface. I hate to admit it, but I may have done some of my stop's upside down in my wetsuit hanging on to the line for dear life so I didn't surface.

At the time we were doing mostly evening/night dives with computers that you could only read with a light on it (and not very well at that). I remember thinking that if I had to do many of those types of dives, I would probably have to resort to doing daylight dives only with a line. Sometimes you don't know what you don't know



Figure 1 Photo by Matthew Charlesworth of Corey Phillips

What don't I get a card automatically for the course?

Where everything changed for me was when I took my GUE Fundamentals class and later the Tech 1. During my Fundamentals, I couldn't hold the bottom and went to the surface arms and legs out to slow my ascent. Poor Barry chasing me that day. I was task loaded to the max and all we were doing was holding a stop while doing the basic 5. It took 30 dives practicing qualifying with a pass. I'm going to get my monies worth as Dan Mackay said when he eventually surfaced with the class.

The skills that I acquired over time (and continually hone) were the basis for my "shotline" dives that I now love. Skills I attained were buoyancy, trim, balance, stopping either simulated or real decompression stops mid water column without physical assistance from a line to name a few while having simulated failures.

There is so much out there to be explored... I got to the point where if I was diving with a mooring it felt more like a tour through a museum – I wasn't the first to see it, I wouldn't be the last to see it. I was just one of many who had been there before.

I have helped dive buddies who got task loaded while diving. I have had dive buddies who were just holding a light who were task loaded. I had a dive buddy that handed me a stage bottle, broken scooter and I still had to deal with my camera, scooter and parts in my hand from the broken scooter and they were the one who got out of the water saying they were task loaded with just the gas on their back to contend with.

Shotline Diving – the Ups and Downs of Free Ascent Diving

Northern Tech Diver had a list of wrecks and “hits”. Most unmoored, unblocked and to me unexplored. We would go out with a boat use the fish finder with a bottom finder, “find” the wreck and send a “shotline” down to make sure we didn’t drift off the target. I started to enjoy the weekly unknown dive and what would be below. Little did I know that I would be hooked on “Shotline” diving and prefer this type of diving most – the unknown combined with free ascents on every dive.

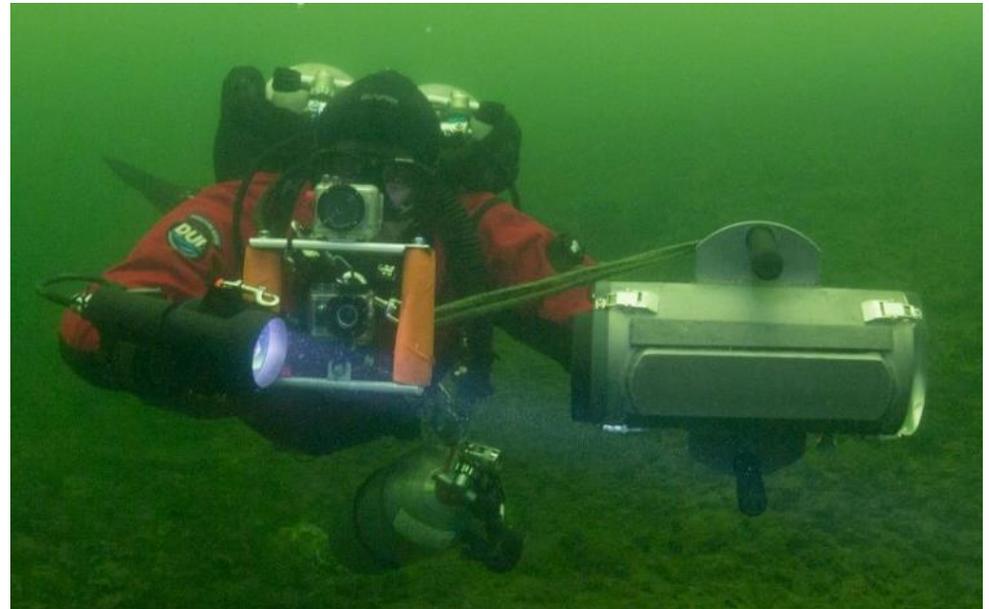


Figure 2 Photo by Matthew Charlesworth of Corey Phillips - Task loading

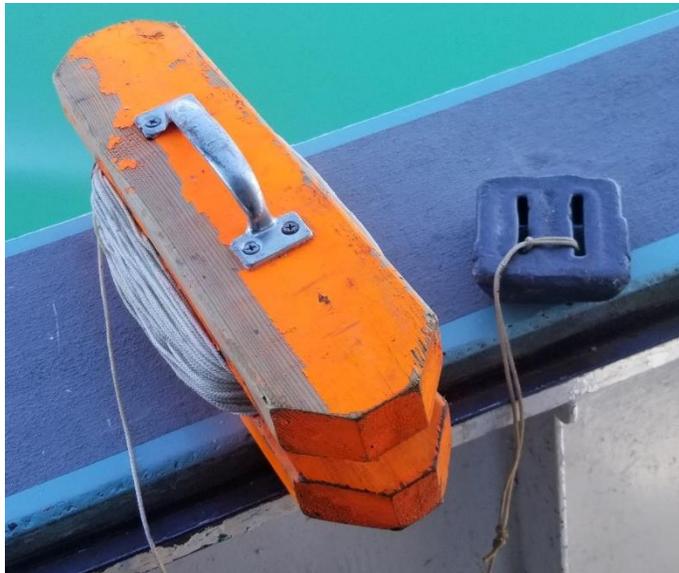


Figure 3 Photo by Corey Phillips of his personal “SHOTLINE”

What is Shotline Diving?

I have talked about a lot so far about “shotline” diving. What is it though you might ask.

Definition of *shot line*: a light line attached to a projectile and used with a Lyle or other line-throwing gun (as to pass a cable to a wrecked vessel)

“Shot line.” *Merriam-Webster.com Dictionary*, Merriam-Webster, <https://www.merriam-webster.com/dictionary/shot%20line>. Accessed 23 Sep. 2022.

Shotline Diving – the Ups and Downs of Free Ascent Diving

In diving, Shotline diving is having a weighted line (I usually use nylon braided cave line) that is thrown and unspools by itself to the bottom and a marker stays on the surface and should unfurl very little once it hits the bottom.

Shotline Diving adds a layer of complexity and task loading that diving the same site doesn't exist by diving the same location with other methods (shore, mooring, scooter etc.) Carrying extra gear (cameras, DSMBs, tools, navigators, materials for the dive at hand) can add to the complexity of the shotline dive.

Speaking of Shotlines

First things first. Line is evil as Dan Mackay told us during our Fundamentals training and proved it during our Tech 1 training. It needs to be kept taught and have as little slack as possible. The purpose of the line is to provide a visual reference while ascending to ensure you arrive at the surface near where you entered. It is not to be touched, OK'd or pulled.

I will mention braided nylon line works best. Polypropylene line you would think is good since it floats but most of it is twisted, and twisted line eventually becomes unraveled leaving three separate strands. Nylon line on the other hand is heavier than the water. This means that it will drop to the bottom, but it can still float and cause problems. Braided won't come unraveled, is abrasion resistant, is easier to tie and the list goes on. If you lose the spool when you deploy a DSMB it will go up in the water column. Stay where you are and if the spool is setup properly it will drop miraculously right in front of you. At this point catch it and make it look like a magic trick to your dive buddies. Only disadvantage I can think of is that is more expensive typically than twisted line poly line.

You might think that shotline diving is like doing a shore dive - they are quite different. While both don't have a mooring line that you can hang onto most shotline dives are in the full water column. Shore dives usually start quite shallow, and you follow the contour on your descent and ascent. On ascents you have the option of touching the bottom to help with the ascent. During a shotline dive to let's say 100 feet you do the ascent with no bottom after you start your ascent.

DSMBs, Spool's and Reels

While this document can't explain all the nuances of DSMBs, Spools and Reels. In shotline diving I use reels for horizontal work, spools are generally attached to DSMBs for bottom-up vertical work. Depending on the dive I will use the shotline for descent (top to bottom), reel for a search (horizontal) which provides greater distance than a spool will and is quickly rewound and possibly a DSMB with a spool for an ascent or sending a block mooring line to the surface.

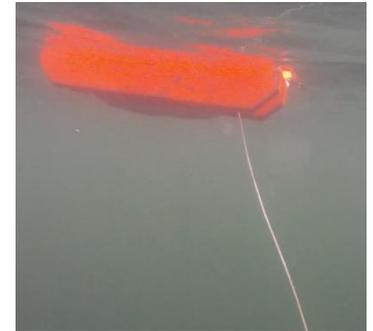


Figure 4 Shotline on the surface

Shotline Diving – the Ups and Downs of Free Ascent Diving



Figure 5 Photo by Matthew Charlesworth of Corey Phillips Shooting a bag to the surface

A Note on Proper Weighting to get a Balanced Rig

It has been 20 years since I did my open water. I was taught I needed a balanced rig (properly weight). I was taught to have my mask ½ submerged on the surface and when I exhale, I should go down. To be honest I didn't take the time to get this right (not sure everyone can actually). Unfortunately, the answer always was more weight. Ankle weights, weights behind the shoulders etc. At no point was I told that heavier fins could remove ankle weights or a backplate could take weight off my belt. I digress though. Back to the weighting. Dan Mackay would say don't substitute equipment for skill. I would complement this statement with don't add equipment if another piece of equipment that you already use can accomplish the task (it may need to be upgraded to accomplish this though).

At the end of a dive (preferably in a safe environment with support). Purge the tank to 500psi and add/subtract weight until you can comfortably hold the stop. This is your worst-case scenario (or at least it should be). If you can hold a stop with 500psi at 10 feet (the most vulnerable part of the dive) with the exposure suit and thermals – you should be weighted correctly.

Be Honest with Yourself

After saying all I have said the question comes up: ***should I shotline dive?*** or ***even bolder – I want to shotline dive like others I see doing it.*** Good questions, the answer may be more complicated than you think.

Just because you want to do something doesn't mean that you should necessarily do it. This sport is one that can be enjoyable but if not performed properly can be dangerous as well. Self-assessment is key (or maybe a buddy giving an assessment if you think you won't be honest with yourself). Sometimes chess or golf are the better relaxation sports.

Shotline Diving – the Ups and Downs of Free Ascent Diving

These points below are in no particular order but all work together to have a safe “shotline” dive.

1st off, can you do a free ascent? Be honest here folks. My shotline has a 3-pound weight on the end. It will not keep you from going up through the water column – you must have this under control. That means no touchy, no big OK on the line, only time you come near the line is if it poses a hazard and needs to be tightened. Even then it is probably best to just stay away from it and use it as the visual reference it truly is meant to be. There isn't any hanging upside down from the shotline because you have your feet full of gas on your ascent (remember the no touchy). Can I be where I need to be at any time in the water column and stay there for a predetermined time? Are you weighted correctly to do a stop with 500psi at 10'?

2nd do I feel comfortable doing a free ascent if everything goes wrong. From leaking masks or drysuits to losing the shotline and having to deploy a DSMB from depth so the boat doesn't run you down to doing air sharing while doing stops on the way up. Sometimes with all of those happening at the same time.



Figure 7 Divers heading to the shotline to do their descent



Figure 6 Corey Phillips throwing the shotline with a strobe attached at 10' off the bottom

3rd you need to be situationally aware. You need to be that diver who is looking around at the environment you are diving in, watching your buddies, and preemptively dealing with things before they become issues.

4th shotline diving usually includes other “skills”. Are you comfortable with sending a DSMB to the surface from depth? Can you wind up the line as you ascend doing any stops required along the way? Can you keep your buoyancy while using a camera? Can you do all of this as a team?

5th Do you function well in a team? You are relying on your buddies for more than just open water demands. Will they have the situational

Shotline Diving – the Ups and Downs of Free Ascent Diving

awareness to watch and move line away from you so you don't get tangled? Do they have the skill to cut you free from the line if needed? Could they do an out of air share with you while doing stops on your ascent?

6th Shotline diving typically requires some planning. Who is going to do what? What are the goals of the dive? What are contingencies? What does a DSMB sent to the surface mean?

7th Can you correct another diver in the water. That may mean getting their buoyancy under control and helping them do stops. I have been in situations where I have grabbed a shoulder and my buddy the other shoulder to hold a diver at their stop to prevent the diver from surfacing which allowed them to complete deco stops and prevented surfacing too early.

8th How do you handle task loading and prioritization? You may have a DPV & camera in your hands. Can you deploy an DSMB while managing the other gear? Do you enjoy the task loading? I get a sense of accomplishment pulling all the pieces together underwater. Some people it really stresses out though.

9th Is today the day that you have your head in the Shotline Diving game? Hey, it's ok if you have life happening and the diving is a stress relief. Be able to call the days you are on your game and the days a nice mooring line is the dive that you should do.

10. Make sure you do a post dive debrief on the dives. Go into detail about what worked and what didn't. Put plans in place to improve on the next dive.



Figure 8 Paul Darnbrough throwing the shotline

Shotline Diving – the Ups and Downs of Free Ascent Diving

Questions relating to the boat operator

Do you have a boat operator who understands shotline diving? Do they know the protocol and what to expect if they see a DSMB? Is the boat maneuverable enough to stay close but not run you over? Does the boat captain watch their phone more than the bubbles in the water? Is it a safe day for shotline diving, will they call that for you?

I really hate to discourage anyone from doing Shotline Dives but **to be safe ourselves and in a team, we need to be honest with ourselves about our realistic capabilities and skills under the water.**

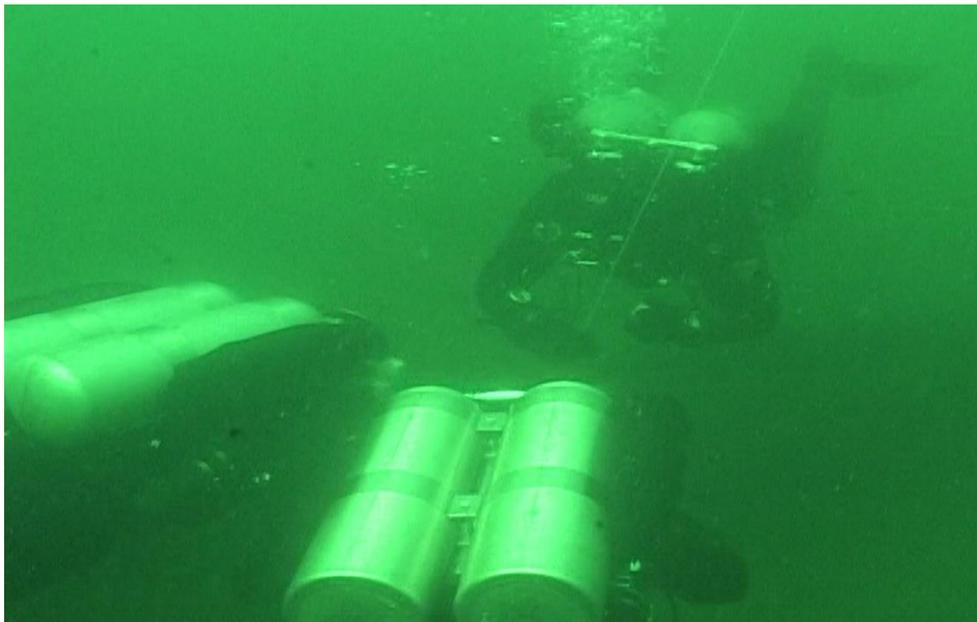


Figure 9 Corey Phillips with a DSMB and dive buddies Photo from video by Dan Mackay

mooring line. Ascent skills are what they are ascent skills (although I do have an opinion (which includes a refund) on your instructor if you are on a rebreather not able to do a free ascent).

Next steps to become a Shotline Diver

If you haven't done so already enroll in an Intro to Tech course or the GUE Fundamentals. This will be a first step in assessing your skills. By the way... if you don't self-assess in those courses there will be an instructor who will give you the feedback you need (don't go into the course with an ego). 😊

Learn the skills and practice the skills regularly. When you need the skills during a shotline dive you need them. They must be easy to pull and use when necessary.

Start small in your Shotline Dives. Don't jump and do a 175' tech dive. Work your way up from 30-40 feet to the depth in which you are certified and are comfortable diving in. Just because someone is a rebreather diver doesn't necessarily mean they are a good diver. I have seen many a rebreather diver hand over handing a

Shotline Diving – the Ups and Downs of Free Ascent Diving

In the end it is about having FUN. If shotline diving causes you and/or your team stress... maybe it isn't for you. If you still really want to shotline dive it may mean that you need to practice, practice, practice. On the shotline going “oh sh#t I can't hold the stop” is the wrong time to do your skills inventory and will be extremely stressful for both you and your dive buddies.

Personally, I find it to be enjoyable to shotline dive due to the added skill and responsibility that it adds to the dives and the ability to open sites to those who enjoy the museum experience.

If you are interested in learning more about Shotline Diving please look me up and contact me on:

Email – cfpdiver@gmail.com

Facebook – www.facebook.com/cfpdiver

Ontario Diving – <https://www.facebook.com/groups/OntarioDiving>

Dive safe everyone!!

Corey Phillips