

Dive the Line

by Martyn Farr



<http://www.divemagazine.co.uk/news/article.asp?UAN=2738&v=4&sp=332568698678330706428>

Five steps to pro-level penetration diving

Martyn Farr explains how divers can adapt their line techniques to improve their own dives into caves, caverns or wrecks



ONE

Choose the right line

Whether you are exploring beneath ice or penetrating the gloomy confines of a wreck, you absolutely must have a continuous guideline to the surface or at the very least back to open water. In the event of a 'silt-out' [where disturbed silt reduces visibility to zero], the diver can simply place his hand on the line and exit along a known route.

Other than beneath ice - where a sturdy floating line such as polypropylene offers a distinct advantage - the recommended line is nylon and preferably of braided construction, which makes it easier to handle. Nylon is strong, resistant to abrasion and sinks in the water. Depending on the environment, it will normally vary between 2mm and 6mm in thickness. Where the water is warm and clear, and the current is not an influencing factor, thinner line is suitable for use.



In temperate areas where visibility is limited, thicker line is the preferred choice. Even if you cannot see the line, you must be able to feel it, even while wearing thick neoprene gloves. While the golden rule of line-following is never to pull on the line, a thicker construction does at least give that option in an emergency, and thicker lines will obviously withstand the rigours of current flow, sharp rocks and routine wear. In poor visibility, thicker line definitely gives you a certain psychological reassurance.

In general, I recommend that you avoid using floating line, certainly until you have mastered the skills of line laying. If too much nylon line is accidentally unspooled from your reel, it tends to settle harmlessly on the floor until you are able to reel it back in, or wrap it around an object. If too much floating line escapes from a reel, it spreads and tangles, becoming a hazard rather than a safety aid.

TWO

Use your reel correctly



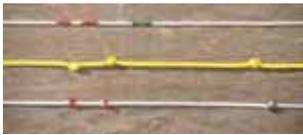
Your line should be laid from a specialised reel, which will vary in size and type according to the thickness of line it holds and the markings, which may be required on the line itself. Reels come in two basic types, namely closed frame and open frame. With the former type, the entire drum is encased, with a small opening through which the line is deployed. The open frame is a simpler design, and if not handled with care can accidentally shed line over the side, thereby creating a risk of entanglement. Ideally, a reel should have some form of locking mechanism, which prevents the line from shedding when not in use, and a simple method of attachment to the diver when being

carried. Another type of reel, popular in warmer-water cave environments, is a finger spool. This accessory allows the diver to make a brief assessment of a side lead (a short passage running off the main cave for example), by simply running a short line (less than 20m) from a small spool after tying it off from the main line.

No matter what type or size of reel you use, don't be tempted to cram it full of line. If you overload the spool, you are risking spillage or a jam that could occur while reeling in. As a rule, your reel should not be more than two thirds full.

THREE

Mark your direction and distance



No matter how much line you have on your reel, you should place distance and directional markers along the line. Cave lines can be labelled in a variety of ways, with distance markers consisting either of cable ties, or perhaps a wrap of insulation tape at set intervals, depending on the environment (every 10m is a popular option). In popular caves in Florida, prominent plastic line markers are set at distances of 30m or more.

In extreme environments, some divers may also incorporate a directional colour and/or tactile coding sequence on the line (knots or cable ties). If you become disorientated, your urgent priority must be to establish the outward direction. If you have numbered tags on a fixed or permanent line, then you will have to continue for least two tags (perhaps 20m) before you can confirm, or change the direction of travel. Remember, you are likely to be already stressed due to being disorientated and perhaps from an earlier problem. Your breathing supply may well be low. If there is any element of doubt regarding your direction of travel, it's a cause of more stress. Directional markings give a great deal of reassurance in such situations.

In most caves and mines (and in some wrecks) there are permanently installed lines. These will eventually degrade due to wear and tear, so my advice is to treat them as uniformly unreliable. Lay your own line.

FOUR

Lay your line appropriately



While it is possible for line to be paid out by someone on the surface while ice diving, or from a diver to his buddy who is tentatively probing the inside of a wreck, this technique (I call it 'base feeding') is very limiting. In the absence of verbal or sight communication, maintaining the essential degree of line tension between the two the diver and the surface is extremely difficult. Confusion can easily arise when the tender misinterprets a signal, or an accidental pull, and pays out line instead of taking it in. With the exception of ice diving, the divers should lay line from

their own reel and recover it themselves on exit. When installing a guideline, the line should be kept reasonably taut and should follow a route which will be easily to negotiate on the exit. As a rule, you should never lay the line deliberately along a ceiling. If you become caught or entangled, the source of the problem is above and behind you, which makes it all the more difficult to remedy. What's more, it is difficult to look up when the natural way for most divers to look is downwards. Keep things as possible simple, and if possible avoid zigzagging the line from one side of a passageway to the other.

Lines should be anchored at regular intervals, certainly at points of significant depth or directional change. A technique routinely employed by cave divers is that of using 'snoopy loops'. These are large elastic bands fashioned from old car inner tubes to form neatly cut loops approximately 1-2 cm wide. To belay the line, you simply pass half of the snoopy around the line, then pull it back through the other part of the loop. With the rubber loop fixed and hanging from the line, the diver simply stretches the loop around a suitable object or projection. Snoopy loops are extremely effective at holding the line in position, but may be prone to detachment if the line is pulled. The environment, visibility and the type of line will determine how often it should be belayed. Preferred belay points are close to a wall at floor level. In caves and mines, divers often encounter T-junctions. Inexperienced penetration divers should be extremely mindful of such junctions, where it is easy to get confused.

FIVE

Stay with the line!



A diver should always remain close to the line, all the while maintaining a slight distance to ensure that he is not accidentally caught. Pulling or displacing an installed line can be hazardous. At the very least, slack line is a potential entanglement threat, but worse still, it might be pulled into a line trap that may be impossible to pass on exit. Slack rope has an unnerving ability to lead a diver into impossible situations - the line might be able to squeeze through a 10cm gap - but you certainly will not be able to. Good buoyancy control, a steady position in the water and appropriate propulsion are all-important in following your line. These are the techniques adopted to prevent the dreaded 'silt-out'. Finally, no matter how much redundancy you are carrying, a similarly equipped and trained buddy will enhance the safety and enjoyment of your dive.

Care should be taken to mark the way out of every junction with a personalised marker such as a plastic triangular-shaped 'arrow' or perhaps a clothes peg. This lessens the chance of disorientation when visibility falls. To avoid a proliferation of markers, potential confusion and unsightly litter, it is important that personalised ones are removed on the outward journey. Removal of markers confirms the dive order and informs the last person in the team that his buddies are all safely accounted for.

THE RULES OF LINE DIVING

- Always lay a continuous line in any overhead environment.
- Always stay close to the line; if visibility is poor maintain finger contact.
- Never pull on any line, unless the line in question has been designated for that purpose.
- Use line appropriate to the environment. Avoid floating line wherever possible.
- Incorporate directional markings and colour code the line as appropriate.
- Always lay/install line with care and mindful of the outward journey.
- Mark junctions with a personalised 'out' arrows or clothes pegs
- Always carry the right reel for the right environment
- Always carry at least two knives