

The impact of damaged subsea cables

A result of the technological revolution, our society is now more interconnected than ever before. However, despite our dependence on gadgets, glitches still occur and technology can fail us from time-to-time. While the most we have to deal with is a smashed smartphone screen or an unresponsive laptop, what happens if the problem is located deep on the ocean floor?

There are over 350 subsea cables across the world spanning 550,000 miles in total, helping to connect countries to the internet. We've become dependent on them — but what happens when these essential connections are damaged?

It may sound like an impossibility considering the cables stretch deep underwater, however it has happened many times in the past — and the impact it can have is huge. Here, [subsea cable laying company](#), Fraser Hydraulics, explains how these vital cables become damaged, the impact it has and the implications of repairing them.

What damages subsea cables?

There are several causes of subsea cable damage—some expected and some unexpected. It is estimated that 70% of cable damage is caused by ship anchors. Despite having access to maps showing where the subsea cables lie, incidents can still occur where anchors are dropped and cables are ruptured.

In 2012, cables linking East Africa to the Middle East and Europe were severed twice in the space of a month, leading to widespread outages in as many as nine countries. More recently, 2016 saw four of the eight cables between Folkestone and Calais severed as a result of Storm Angus, reducing electricity flow by half.

Other common causes of damage are fishermen and natural disasters like earthquakes or tsunamis.

Of course, there are a number of unexpected causes too. In 2013, a fire broke out in Alexandria, Egypt, damaging six of the coastal subsea cables. It had huge impact, causing internet outage across many East African countries, highlighting how multiple cables in the same area can be risky should damage occur.

And it's not just humans who are causing the damage. Back in 2014, Google reinforced undersea internet cables after sharks bit them. Experts believe the signals sent via the fibre optic cables create motion, much like the movement of fish, attracting the predators to them.

Thankfully, we have never seen subsea cables damaged as part of a terrorist attack. However, because the cables are such a vital component of our infrastructure, it can never be completely ruled out.

Repairing damaged subsea cables

As the huge impacts outlined above have underlined, repairing subsea cabling is a priority in order to restore connectivity as quickly as possible. The cost of this repair work is dependent on a number of factors, which will vary depending on the severity of damage and the positioning of the cables involved.

So what happens when cables are damaged? Cableships are placed at strategic locations across the world, so they can be quickly mobilised to respond to an issue. With continuous monitoring, it's easy to detect changes within a cable system, which could indicate damage.

When a fault has been detected, work is carried out to establish its whereabouts, which largely depends on collaboration between the cable stations at each side of the cable system. Once located, details are passed to the cables ship, which is loaded with the necessary equipment and sent to carry out the repair.

To retrieve the cable, a large cutting grapnel — a hook-like device — is towed along the seabed, hooking the cable as it moves. The cable can then be raised and repaired. For deeper sections, an ROV may be used.

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