



## ICPC News Release

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### Sharks are not the Nemesis of the Internet—ICPC Findings

LYMINGTON, United Kingdom—Last August 2014, a rediscovered *YouTube* video of a shark biting a subsea cable caused a media storm. According to some commentators, the video signified that worldwide telecommunications were under attack by sharks because submarine fibre-optic cables are the backbone of the global Internet. The [International Cable Protection Committee \(ICPC\)](#) has reviewed records of cable faults worldwide, and together with an assessment of the video, conclude that much of the media hype was incorrect. Essentially, sharks and other fish were responsible for less than 1% of all cable faults up to 2006. Since then, no such cable faults have been recorded.

Information about the *YouTube* video is sparse, but it appears to have been produced in 2003 as part of a marine survey. In 2010, the video was uploaded to *YouTube* by an individual named *Sudmike*, but that person has not been traced. The video received wide media exposure in the summer of 2014 during the annual “Shark Week” in the US, when the number of “views” approached 1 million.

Expert advice suggests the cable was attacked by a six-gill, blunt nose shark (*Hexanchus griseus*), which took one bite and swam away. The cable sustained no obvious external damage and is unlikely to have suffered internal damage.

It is also unclear if the cable is a fibre-optic telecommunications or an electrical power system. If readers have additional information about the video or cable, ICPC would like to hear from them via: <https://www.iscpc.org/information/frequently-asked-questions/>.

Less speculative are the cold facts from records of cable faults; those records coming mainly from ICPC members, who represent 98% of the organisations involved with the world’s subsea telecommunications cables. Three studies reveal a marked decline in the number of faults caused by fish bites including those of sharks.

1. For 1901 to 1957 – a period dominated by subsea telegraphic cables – at least 28 cables were damaged<sup>1</sup>.
2. During 1959 to 2006 – a span that encompasses coaxial cables, which were replaced by fibre-optic systems in 1988 – around 11 cables needed repair. Fish bites accounted for 0.5% of all cable faults<sup>2</sup>.
3. The latest analysis, covering 2007 to 2014, recorded no cable faults attributable to sharks<sup>3</sup>.

That marked reduction in faults is consistent with improved cable design and other measures to protect cables such as burial beneath the seabed. The negligible amount of fish bite damage contrasts strongly with ships’ anchoring and fishing activities, which account for 65-75% of all cable faults<sup>2,4</sup>. Other faults relate to natural phenomena, such as subsea landslides and ocean currents (less than 10%), cable component failure (5%) and “cause unknown” (10-20%). It is unlikely that shark

bites are masked in the “cause unknown” category, because bites leave evidence in the form of teeth imprints or actual teeth embedded in a cable’s sheathing.

The first recorded shark bites of a deep-ocean fibre-optic cable occurred off the Canary Islands in 1985 to 1987<sup>4,5</sup>. These pioneering systems were damaged by small sharks biting through cable’s polyethylene sheath. Testing by Bell Laboratory scientists showed the culprit was the deep-dwelling, crocodile shark (*Pseudocarcharias kamoharai*) that occupied water depths of 1060-1900m. Those events led to design improvements of the cables’ protective sheathing that effectively eliminated the problem.

## References

- <sup>1</sup> International Cable Protection Committee, 1988. Paper ICPC Plenary 1988.
- <sup>2</sup> Carter, L., Burnett, D., Drew, S., Hagadorn, L., Marle, G., Bartlett-McNeil, D., Irvine, N., 2009. Submarine Cables and the Oceans- connecting the world. UNEP-WCMC Biodiversity Series 31. ICPC/UNEP/UNEP-WCMC, 64pp. ISBN 978-0-9563387-2-3
- <sup>3</sup> Data from latest ICPC coordinated analysis.
- <sup>4</sup> Marra, L.J., 1989. Shark bite on the SL submarine light wave cable system: History, causes and resolution. IEEE Journal Oceanic Engineering 14: 230–237
- <sup>5</sup>Burnett D., Beckman R., and Davenport, T., 2014. *Submarine Cables The Handbook of Law and Policy*, Martinus Nijhoff Publishers at p.185 n.24, 194, and 257.

## About ICPC

[International Cable Protection Committee](#) was formed in 1958 and its primary goal is to promote the safeguarding of international submarine cables against man-made and natural hazards. The organisation provides a forum for the exchange of technical, legal and environmental information about submarine cables and, with 155 members from over 60 nations, including cable operators, owners, manufacturers, industry service providers, as well as governments, it is the World’s premier submarine cable organisation. For further information about ICPC, [www.iscpc.org](http://www.iscpc.org) or send an e-mail to: [secretary@iscpc.org](mailto:secretary@iscpc.org).

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