

International Hydrographic Organization

7th Meeting of the Hydrographic Services
and Standards Committee (HSSC-7)

Commodore Hotel. Busan, Republic of Korea – 9 – 13 November 2015

Submarine Cables

A Case for an MoU between the IHO & ICPC

Presentation by the International Cable
Protection Committee (ICPC)

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The Global Critical Infrastructure

“Cyberspace, in the physical form of undersea fiber-optic cables, carries an even greater value for trade [than shipping goods] through financial transactions and information.”

Greenleaf and Amos, “A New Naval Era” U.S. Naval Institute Proceedings, June 2013, at 17

The Global Critical Infrastructure

- ❖ 98% of all international voice, data, video, and internet traffic is carried on submarine cables comprising \approx 265 systems \approx 1.6 million Kms
- ❖ Each day the Society for Worldwide Interbank Financial Telecommunications (SWIFT) transmits \approx 15 million messages to more than 8300 banking organizations, securities intuitions, and corporate customers in 208 countries
- ❖ The United States Clearing House for Interbank Payment System (CHIPS) process over US\$ 1 Trillion per day to more than 22 countries for all manner of commodity exchanges, investments, and securities
- ❖ Recent World Bank study indicated a 10% increase in broadband penetration results in a 1.38% increase in GDP growth in low and middle income countries
- ❖ The criticality of this global infrastructure to world finance, socio-economic development, defense, and the internet itself is therefore inescapable

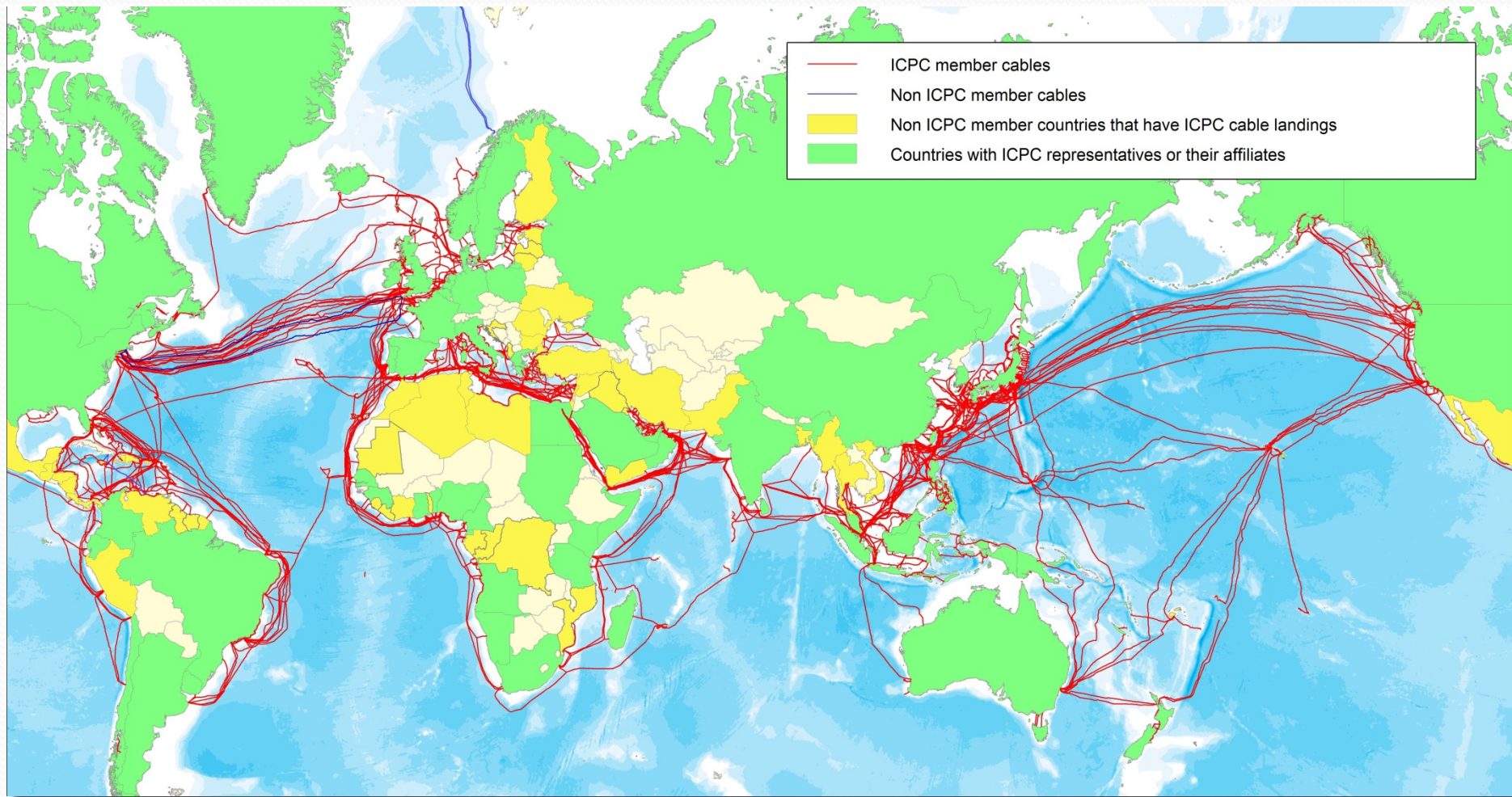
The Role of the ICPC

- ❖ To foster team-working relationships with other seabed users, so that submarine telecommunications and power cables can operate in harmony with other seabed activities
- ❖ To promote awareness of submarine cables as Critical Infrastructure to Governments, other users of the seabed and the Public
- ❖ Establish internationally agreed industry standards for cable installation, protection and maintenance
- ❖ Undertake publically available, peer-reviewed research on environmental aspects of cables
- ❖ Publish a series of industry recommendations of best practices related to cable protection and security
- ❖ Monitor the evolution of international treaties and national legislation and help to ensure that submarine cable interests are fully protected
- ❖ Liaise with UN Bodies including UNEP, ISA, ITU and IMO and regional Cable Protection Committees (CPCs)

ICPC Membership & Organization

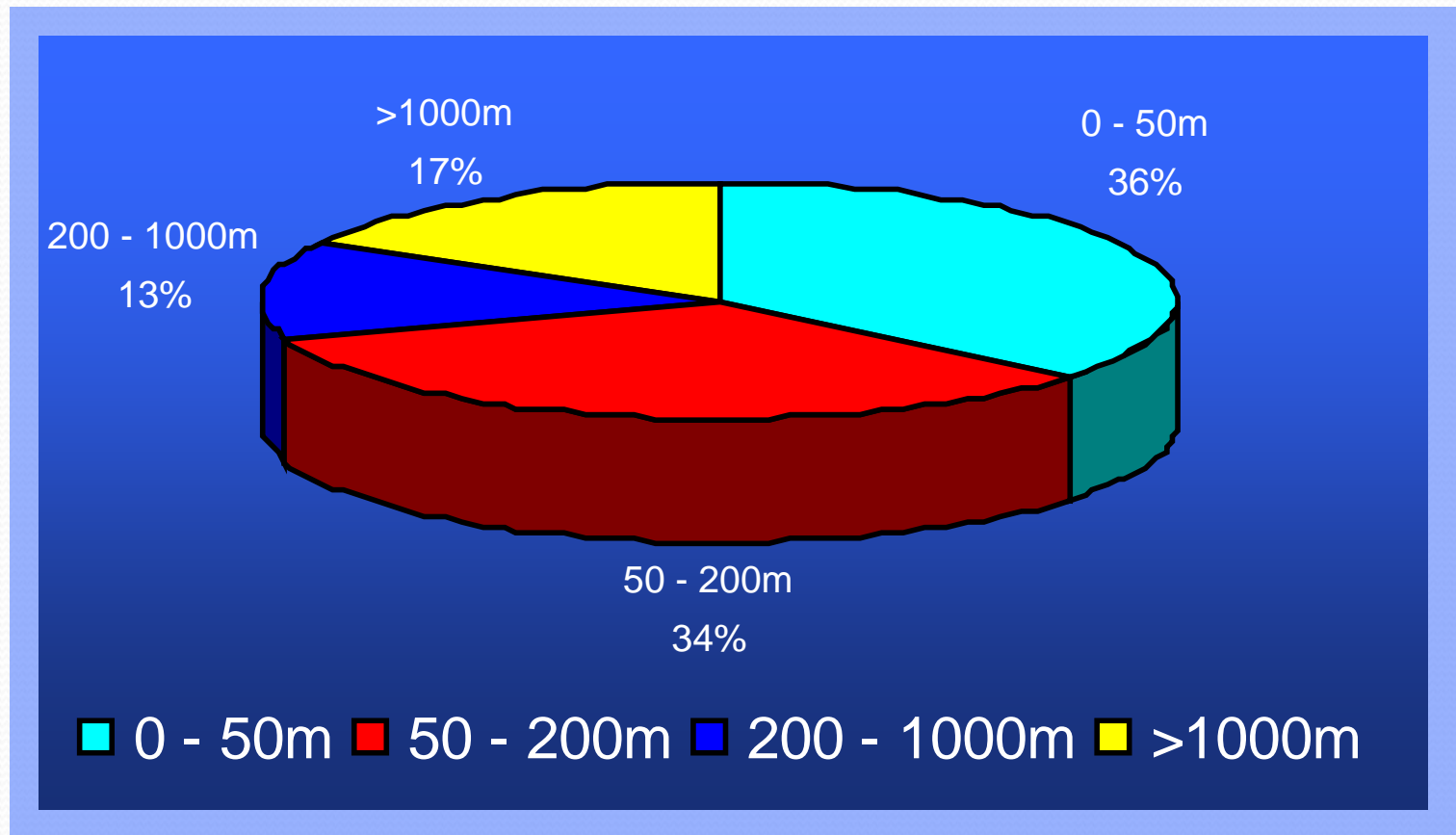
- ❖ Established in 1958 for Owners and Operators of submarine cables
- ❖ In 2010, membership opened up to Governments, Ship Operators, System Suppliers and Survey Companies.
- ❖ In 2013, Associate Membership class created for Industry supporters
- ❖ Australian, United Kingdom, Malta, New Zealand and Singapore Government Departments now members
- ❖ Currently 162 Members from 65 countries
- ❖ Represent more than 98% of installed submarine cables
- ❖ ICPC organization comprises:
 - Executive Committee comprising 17 elected Full Members including Chairman and Vice Chairman
 - 6 Working Groups
 - Outsourced Secretariat
 - International Law Advisor
 - Marine Environmental Advisor

Membership Coverage

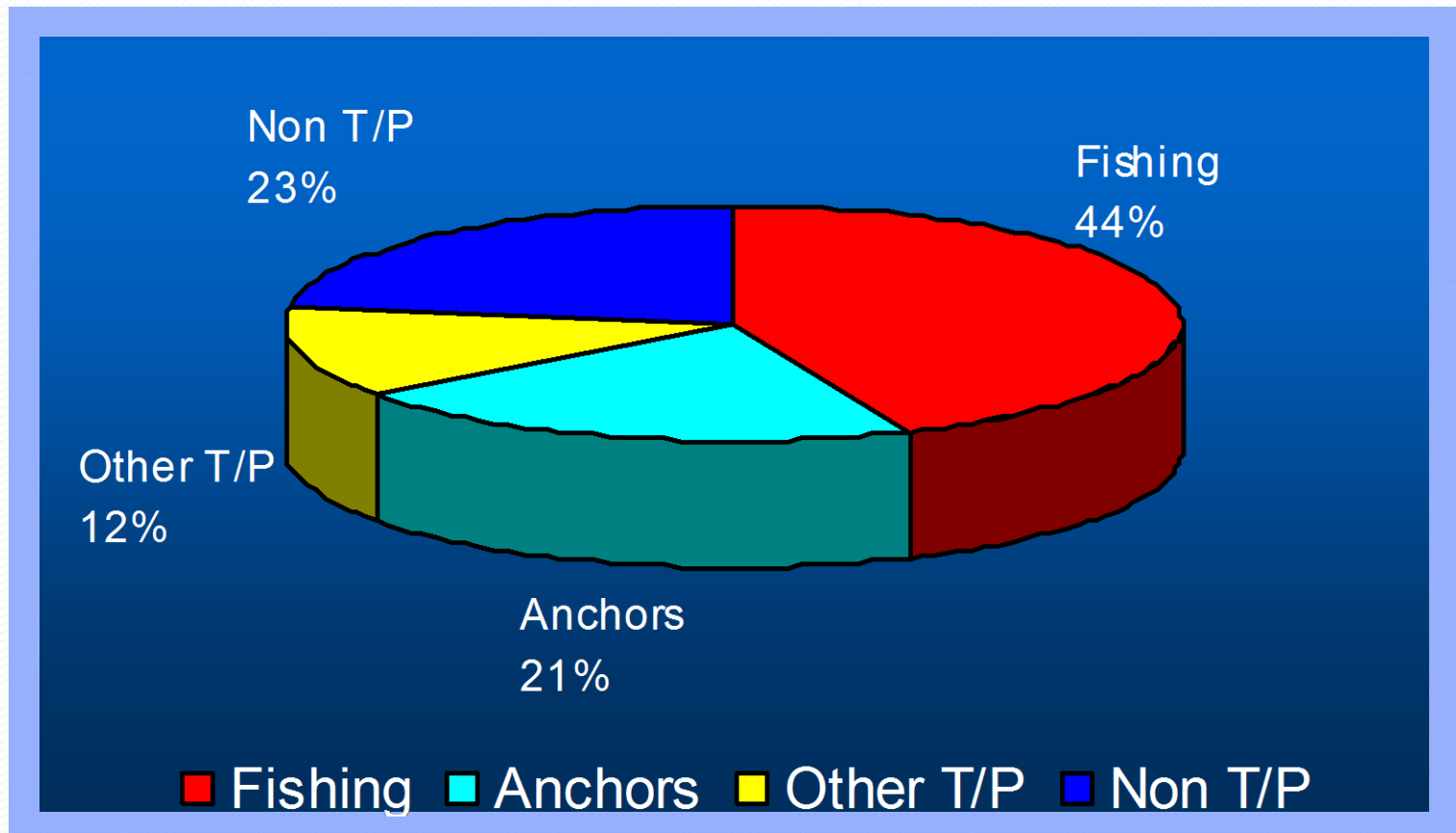


ICPC represents 98% of International Cable Kms.

Worldwide Cable Faults by Depth



Total Faults <1,000m by Cause



Fault Analysis - Conclusions

- ❖ 83% of all faults occur in <1,000m water depth
- ❖ 71% of faults occur in <200m
- ❖ All submarine cable systems transit this aggression zone
- ❖ Although there is a need to focus on shallow water cable security, an increasing risk to telecommunication cables is being posed in water depths exceeding 2,000m to which cables are currently charted (IHO S4 B-443) by:
 - Deep sea mining activity
 - Frontier block oil and gas developments

Power Cables

- ❖ Power cables are typically point to point linking communities
- ❖ Power cables are not readily duplicated with limited service restoration possibilities and their loss can be made overtly political
- ❖ Power cables are typically laid in shallow water and therefore have a greater exposure to fishing and anchor risks and require longer repair lead-times than telecommunications cables
- ❖ Anchor and fishing gear entanglement with power cables pose particular Safety at Sea concerns due to the high voltages carried
- ❖ The development of offshore renewable energy and longer haul HVDC cables require this infrastructure to be charted accurately and without delay following installation

Cable Protection & Cable Awareness

- ❖ Cable protection can be engineered through armoring and cable burial
- ❖ However, cables do remain vulnerable to third party actions particularly from anchors, fishing activity and increasingly from deep sea mining and renewable energy activities
- ❖ Cable awareness initiatives have been developed by regional Cable Protection Committees (CPCs) for example KIS-ORCA for UK/Europe
- ❖ Otherwise cable awareness relies on published navigational charts
- ❖ Cable awareness plays a critical role not only in the protection of the submarine cable infrastructure
- ❖ Cable awareness also plays a key role in Safety at Sea as not only power cables but also telecom cables can carry very high voltages.

Charting Standards

- ❖ The charting of submarine cables is covered under IHO Chart Specifications S4 Edition 4.5.0 Published in October 2014
- ❖ Specifically B-443, B-320.6i and C-408
- ❖ Discussions on charting standards for submarine cables have taken place between the UKHO and Subsea Cables UK (Regional CPC representing UK and European stakeholders)
- ❖ A paper for consideration by the CSPCWG at the 9th CSPCWG Meeting in Seoul prepared by the UKHO reflected output from the UKHO and SCUUK discussions
- ❖ Key goals for the ICPC working with the IHO would be
 - To have a uniform set of cable charting standards adopted globally by HOs
 - To develop compatible digital input formats for as-laid cable data that addresses differing charting platforms between HOs (Excel, CSV, GIS shape files)

Charting Standards

- To provide consistency in the treatment of charting data for cables globally to facilitate data re-use from other HOs around the world, and to allow data correlation without further manipulation
- To optimize resources and reduce lead times from data availability from cable operator to the publishing of updated charts
- To have a global approach to the issuance of Notices to Mariners for new cables
- To develop charting policies that address hazards to submarine cables from deep sea mining (see next bullet) and oil and gas activities as well as renewable energy developments
- To specifically address ISA Technical Paper No. 14 recommending the ICPC and ISA approach IHO on charting submarine cables in ISA designated mining concessions
- To anticipate potential impacts from future ABNJ/BBNJ regulation

Moving Forward

Given the criticality of the submarine cable infrastructure to world finance, socio-economic development, defense, and the internet; the ICPC believes that the timely and accurate charting of this infrastructure plays a vital role in its protection; in this regard

- ❖ The ICPC proposes that an MoU be developed with the IHO to set out a framework for cooperation with a view to meeting mutual objectives
- ❖ It is proposed that a Joint Working Group be established to develop tangible and appropriate actions and outputs specifically to develop a set of standards and unified global approach across the IHO membership to the charting of submarine cables and promotion of submarine cable awareness



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Sharing the seabed in harmony