

# Best Practices for Submarine Cable Protection and Resilience

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# The International Cable Protection Committee (“ICPC”)

- Founded in 1958, ICPC is the world’s preeminent global organization for:
  - Advancing freedoms to install and maintain submarine telecommunications and power transmission cables, and
  - Mitigating risks of damage to those cables.
- ICPC has more than 170 private-sector and government members from more than 60 countries and:
  - Works with governments, other marine industries, international organizations, and NGOs to promote cable awareness, cable protection best practices, and effective international agreements;
  - Commissions peer-reviewed research on the environmental characteristics of cables; and
  - Promulgates recommendations for cable operators.

# General principles government promotion of submarine cable protection and resilience

- Focus on **statistically-significant risks** where government action could have the greatest impact on risk reduction;
- Promote commercial and regulatory environments that encourage **multiple and diverse** domestic and foreign submarine cables connections;
- Promote **transparent regulatory regimes** that expedite cable deployment and repair according to well-established timeframes;
- **Consult with industry** to understand industry technology and operating parameters and to share data regarding risks;
- Complement existing **industry best practices**;
- Recognize that laws and government policies themselves can sometimes exacerbate risks of damage and reduce resilience; and
- **Promote high-seas freedoms** to encourage submarine cable deployment and repair;
- Engage with other states on a global and regional basis, as other states' actions can greatly affect an individual state's own connectivity.

# Threats and risks to submarine cables

## Specific threats

- Commercial fishing
  - Anchoring
  - Dredging and dumping
  - Energy resource development (oil, gas, renewables)
  - Mining (seabed minerals, sand, gravel)
  - Earthquakes, typhoons, tsunamis
  - Underwater landslides, turbidity currents, and on-shore flooding
  - Sea floor geology
- } **70% of faults annually**

- Weather and climate change
- Equipment theft
- Unexploded ordnance
- Malicious damage

## Types of risk

- Direct disturbance/damage
- Impeded access to water column and seabed for repair, which can delay repair
- Clustering and route foreclosure, which can magnify risks

# Methods used by industry to protect submarine cables as part of system development design



- Cable owners seek to follow the **shortest viable route** between landing points.
  - Route planners seek **flat and uninteresting seabed** that avoids geographic features with steep gradients, seamounts, vents, or fracture zones.
  - Route planners consider route adjustments to address seabed characteristics and other ocean activities.
  - Route planners also seek **geographically diverse routes and landings** in order to minimize incident impact.
- Operators conduct desktop studies and marine seafloor surveys and engage with other ocean stakeholders at the earliest possible stage.

# Methods used by industry to protect submarine cables post-installation



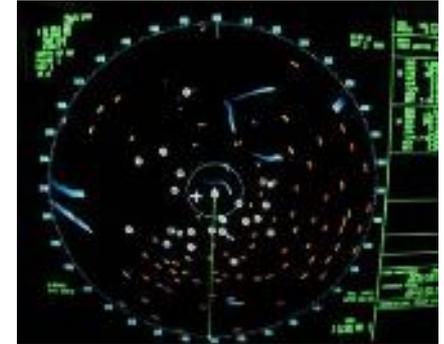
- Dissemination of route information
- Stakeholder liaison and education
- Monitoring and automatic identification systems
- Separation distances
- Cable protection zones and corridors
- Marine spatial planning
- Cable-fishing committees
- Crossing agreements
- Civil and criminal liability for damage
- Private legal claims and litigation
- Physical and cybersecurity measures to secure infrastructure and communications

# Industry self-help is necessary, but insufficient, to protect submarine cables and promote resilience

- Government action is necessary to:
  - Regulate other marine activities that threaten submarine cables and establish spatial and planning requirements in areas of jurisdiction;
  - Exercise UNCLOS freedoms and implement and enforce UNCLOS cable protection provisions;
  - Ensure effective charting;
  - Establish liability rules and civil and criminal penalties for cable damage;
  - Establish regulatory regimes and policies that promote new and diverse infrastructure and speedy repairs; and
  - Coordinate and advocate with other states, bodies, and institutions regarding neighboring, regional, and global activities affecting submarine cables.

# Government measures to address fishing and anchoring

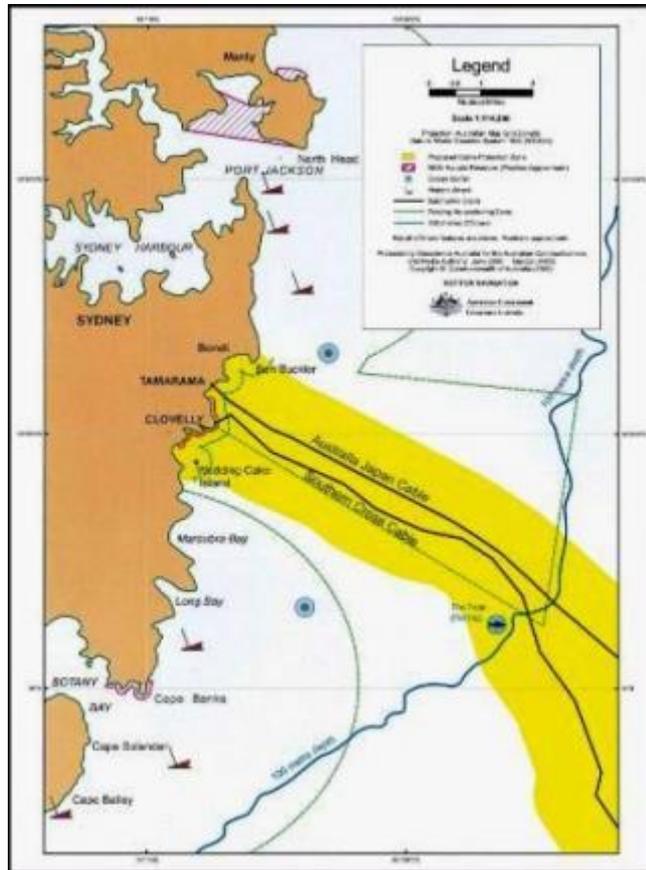
- States should adopt and enforce specific measures to reduce fishing and anchoring risks:
  - Prohibit fishing in close proximity to submarine cables;
  - Promote distribution and use of cable awareness charts (prepared by submarine cable operators) to fishermen;
  - Require use of designated anchorages and establish and prosecute legal offenses for anchoring outside of designated anchorages;
  - Require use of automated identification systems (“AIS”) on vessels at all times, establish and prosecute legal offenses where vessel operators turn off or disable AIS; and encourage/require use of AIS by smaller vessels;
  - Direct the coast guard to issue notices to mariners re submarine cables and to communicate with vessels operating or drifting near submarine cables;
  - Cooperate with their neighbors regarding illegal, unreported, and unregulated fishing.



# Default and minimum-separation distances

- States should consider adoption of default or minimum separation distances between submarine cables and other marine activities in the EEZ:
  - In shallow water with a depth of 75 meters or less: 500 meters; and
  - In greater depths of water: greater of 500 meters or two times depth of water.
- A **default separation distance** establishes a minimum separation distance between an existing submarine cable and another marine or coastal activity in the absence of any mutual agreement to allow the activity in closer proximity to the submarine cable.
- A **minimum separation distance** establishes an absolute minimum separation distance between the submarine cable and the other marine or coastal activity.
- Consistent with ICPC and other industry standards, many countries—as diverse as China, Denmark, Indonesia, Russia, Singapore, and the United Kingdom—have established default or minimum separation distances to protect submarine cables.

# Cable protection zones may be appropriate, but not corridors



- Cable protection zones and corridors prohibit specified activities posing risks to submarine cables—including fishing, anchoring, and dredging—within fixed geographic areas and typically include robust enforcement measures.
- **Cable protection zones** grant protections to submarine cables that choose to locate in them or may be declared around existing cables.
- **Cable corridors** require submarine cable operators to route their infrastructure in defined geographic areas and are disfavored by operators as they force clustering of cables that can magnify risk of damage across multiple systems.

# Charting consistent with IHO standards

- States should **update nautical charts** regularly and in near-real-time .
- **Show all submarine cables** on nautical charts, distinguishing between in-service and out-of-service cables.
- States should ensure that national and regional charting authorities implement amended IHO Resolution 4/1967, which requires that charting authorities include a text box in publications such as mariners' handbooks and notices to mariners:



- Directing vessels to avoid anchoring, fishing, mining, dredging, or engaging in underwater operations near cables at a **minimum distance of 0.25-nautical mile on either side** of a cable, and
- Recognizing submarine cables as critical infrastructure, noting that damage to a submarine cable can constitute a national disaster.

# Cable protection laws

- UNCLOS article 113 provides that every state shall adopt the laws and regulations establishing a punishable offense under national law for the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done wilfully or through culpable negligence.
- Countries such as Australia and New Zealand have established substantial penalties that are more likely to have a deterrent effect.
- Countries such as Sweden impose strict liability, requiring that if the owner of a cable or pipeline causes damage to another cable or pipeline, the owner shall pay the cost of repairing the damage.
- States should adopt and enforce effective cable protection laws to ensure **compensation** of cable owners for damage and to **deter future damage**, particularly by commercial fishermen and vessel anchors.
  - Penalties should be substantial enough to deter damage.
  - Coast guards and law enforcement agencies should be familiar with laws

# Marine spatial planning and inter-industry coordination

- To deconflict cable routes, states should:
  - Consult with submarine cable operators as stakeholders in such processes;
  - Identify submarine cables in their mapping resources and tools (not just on nautical charts);
  - Identify and include submarine cable operators as critical stakeholders in marine spatial planning and policymaking;
  - Adopt regulatory frameworks for other marine activities, such as oil and gas development and renewable energy installations, to require coordination with submarine cables at the earliest stage of planning and development of those other projects; and
  - Ensure that planning and leasing documents for oil, gas, and renewables specifically reference submarine cable protection and coordination.

Communication

Cooperation

Coordination

# Single point of contact



- Every state should establish a single point of contact for submarine cables.
- Point of contact should serve as a focal point not only for permitting purposes, but also for any issues arising with respect to installation, repair, and protection.

# Regulatory frameworks that promote geographic diversity of routes and landings

- Geographic diversity of routes and landings helps to minimize risk that an incident will impair all communications on a particular route or to a particular country.
- Such diversity empowers submarine cable operators to enter into restoration arrangements with each other until repairs are completed.
- Diversity can be impaired by government shore-end permitting, marine protected areas, and marine spatial planning (or lack thereof) that results in clustering of cables, magnifying risk that a single incident will damage multiple cables and impair connectivity.
- Such an approach recognizes that submarine cables cannot be hidden or armored and buried to guard against all malicious and non-malicious sources of cable damage.

# Regulatory frameworks that expedite installation and repair and acknowledge high-seas freedoms

- States should ensure that permit requirements for installation and repair:
  - Are consistent with UNCLOS in the EEZ and archipelagic waters and on the continental shelf—excessive jurisdictional assertions by one’s neighbors can impair installation of new cables and repairs of existing ones;
  - Are transparent;
  - Establish clear timeframes that are as short as possible;
  - Promote diversity of routes and landings; and
  - Reflect the best available science showing that submarine cables are neutral-to-benign in the marine environment.

# No cabotage or crewing restrictions on cable ships

- States should avoid applying cabotage or crewing restrictions on vessels engaged in installation or repair, whether in the territorial sea, archipelagic waters, or EEZ/continental shelf.
- Cabotage and crewing restrictions can **greatly delay critical repairs**, render installations and repairs **more expensive**, and can result in **performance and safety problems** arising from the use of inappropriate vessels and inexperienced crew.
- Most of the world's installation and repair services are provided by a few global and regional providers with the necessary expertise and economies of scale.
- Submarine cable operators often pool risks and resources to contract for cable ships in regional zone agreements that cover vast multinational geographic areas, meaning that there are no discrete national maintenance markets. Cabotage restrictions undermine these maintenance consortia.

# No port entry requirements

- States should avoid requiring port entry for cable ships conducting installations and repairs beyond the territorial sea, as such requirements disrupt operations and delay installation and repair.
- For work within the territorial sea and archipelagic waters, states should establish annual pre-clearance procedures for cable ships and crews.



# Customs duties, taxes, and fees

- Customs duties, taxes, and fees often function as **trade barriers**, the application of which renders submarine cable installation and repair more expensive and are a **source of disputes that delay** installation and repair.
- States should refrain from imposing customs duties, taxes, and fees on installation activities beyond the limits of the territorial sea, and on cable ships merely transiting an EEZ and reduce or eliminate them on submarine cable equipment



# Critical infrastructure designation

- States should designate submarine cables as critical infrastructure.
- Critical infrastructure consists of:
  - Assets that are **essential for the functioning of society and the economy**, and
  - Damage or destruction of which would harm national and economic security, public health, and public safety.
- Governments use critical infrastructure designations to:
  - Highlight assets criticality, and
  - Identify and mitigate vulnerabilities and threats with specific laws and policies.

# Sharing of risk and incident data

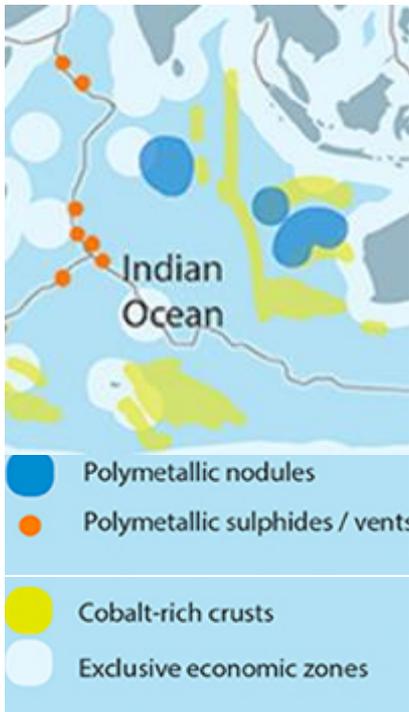


- States and submarine cable operators should share risk and incident data to identify:
  - Gaps in existing cable protection efforts;
  - Areas for improving resilience; and
  - Identification of malicious acts by state and non-state actors.

# Recognition of, and advocacy on, high-seas threats to submarine cables

- States should recognize that regulatory activities of other states, bodies, and institutions far beyond a state's maritime boundaries can impair submarine cable repair and resilience, including:
  - Deep seabed mining, and
  - Environmental regulation on the high seas under a BBNJ instrument.

# Coordination with deep seabed mining



- Deep seabed mining poses risks of:
    - Damage to existing submarine cables, and
    - Route foreclosure for new submarine cables, rendering them less resilient.
  - Some mining contractors have argued that cable owners proceed at their own risk, or that mining contractors have a right to exclude submarine cables from their contract areas.
  - UNCLOS does not establish specific coordination mechanisms and requires instead only mutual “regard” obligations.
  - The exploration regulations adopted by International Seabed Authority (“ISA”) do not address submarine cables at all.
- Based on an ICPC-France proposal, the ISA’s draft exploitation regulations now ensure early coordination between mining and submarine cables, to protect existing submarine cables, and to permit future submarine cables.

# Shaping BBNJ treaty to promote submarine cable protection and resilience

- A proposed treaty to promote conservation and sustainable use of BBNJ could impair submarine cable protection and resilience.
- The treaty could require environmental impact assessments (“EIAs”) for cables in high seas areas, restrict cable transits and repairs in new marine protected areas on the high seas, and create a new international body to oversee such activities.
- Many of the proposals under consideration by the treaty conference would impose significant costs and delays on new builds and repairs and result in cable routes that are less efficient and resilient.
- It is therefore critical that the BBNJ treaty:
  - Account for the socio-economic importance of submarine cables;
  - Recognize the benign environmental impact of submarine cables and their co-existence in existing MPAs in areas of jurisdiction; and
  - Recognize submarine cables as a sustainable use of the oceans.

# Contact information

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