

# Submarine Connectivity: Competition, Markets & Regulation

European Subsea Cables  
Association (ESCA)

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# What is ESCA?

- A forum of companies which own, operate or service submarine cables in European and surrounding waters. Established in 1999
- Southern Europe Working group established following ESCA's Sicily Plenary 2025. Brings together owners, vessel operators, repair/maintenance providers covering congested Mediterranean, Mid-Atlantic and North Africa

Principal aims:

- **Maritime Safety**  
KISORCA project - active fault prevention and engagement with fisheries  
Positive project supported by fishing industry
- **Safeguarding of submarine cables**  
Policy, engagement, government interaction, sharing good practices, long standing cable protection measures



## Who are ESCA?

- Telecommunications/data cables
- Power cables (interconnectors, OFTOs, domestic festoon & island communities)
- Offshore Renewables – export and inter-array
- Other - oil and gas, cable suppliers, installers, maintenance, consultants, cable protection organisations, government members.
- All come together with a common aim to provide a voice for the cable industry, and engage with other sea users and seabed asset owners in an increasingly busy and crowded environment.

<https://www.escae.org/>



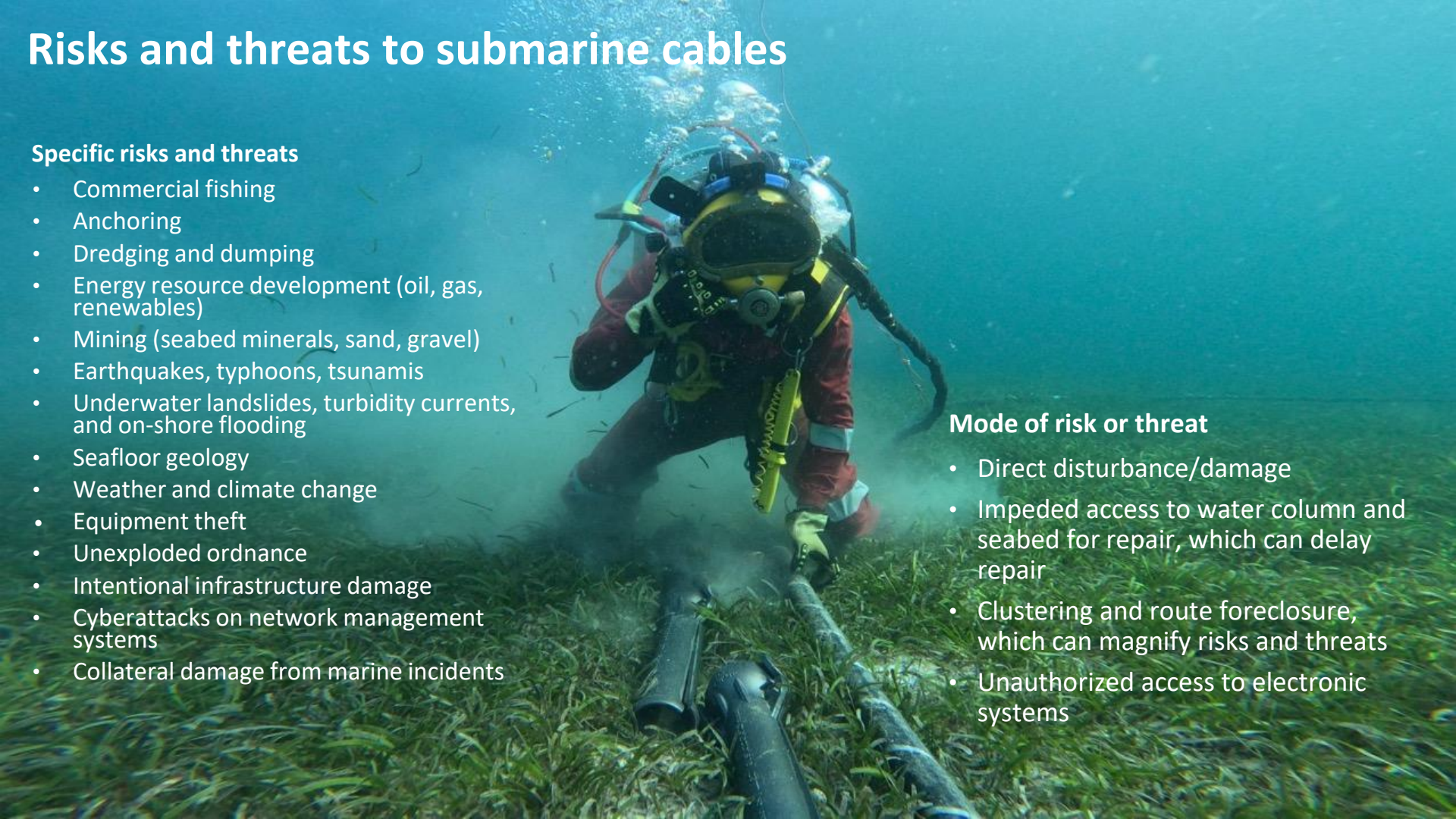
# Risks and threats to submarine cables

## Specific risks and 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
- Seafloor geology
- Weather and climate change
- Equipment theft
- Unexploded ordnance
- Intentional infrastructure damage
- Cyberattacks on network management systems
- Collateral damage from marine incidents

## Mode of risk or threat

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



## A Welcome Initiative

1. ESCA and its members welcome BEREC's Report on Submarine Cable Infrastructures & the EU Cable Security Action Plan
2. Subsea cable security and resilience will be most effective if it builds on existing market systems rather than creating parallel or conflicting processes

Existing cable ecosystem is mature, market driven and globally interconnected

# Market dynamics: Regulation

1. **Engage the Experts:** Build engagement with industry via ESCA, DKCPC and ICPC into implementation processes, and the design of stress test scenarios
2. **Coordination and harmonisation:** submarine infrastructures extend across different policy domains, including environmental permitting, maritime spatial planning, and maritime transport. Also need to harmonise incoming:
  - a. Digital Networks Act
  - b. Submarine Security Toolbox
  - c. NIS2 / CER directive
3. **Industry structures are collaborative and interrelated:** Subsea cables are shared infrastructure based on deep integration, collaboration and common interests. But operators run networks independently - so regulation can not be “one size fits all”
4. **Pragmatic Frameworks:** Some evolving regulatory development pose unintended risks to cable resilience (eg. EEZ licences).

# Market Dynamics: Security & Resilience

1. **The Greatest Risk is Delay:** Over-securitisation and bureaucracy that slow down deployment and repair are the primary threats to resilience
2. **Implement notification-based repair processes as the optimal response model.** Simple, rapid repair regimes already exist in parts of Europe and prove model's effectiveness
3. **Reinforce What Works:** Supporting the existing, market-led repair ecosystem is the most effective and efficient strategy
4. **Interconnected impacts:** International alignment is essential for a system that is, by its nature, global
5. **Large-scale sensing technologies are currently unproven: mandatory adoption** - enforcement of existing systems (eg AIS, VMS for vessels near cables) is more effective for real world resilience



# Case Study: Repair Response

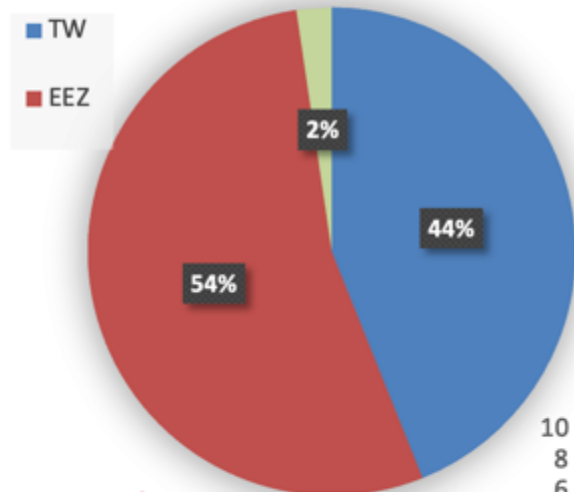




# Repair Distribution

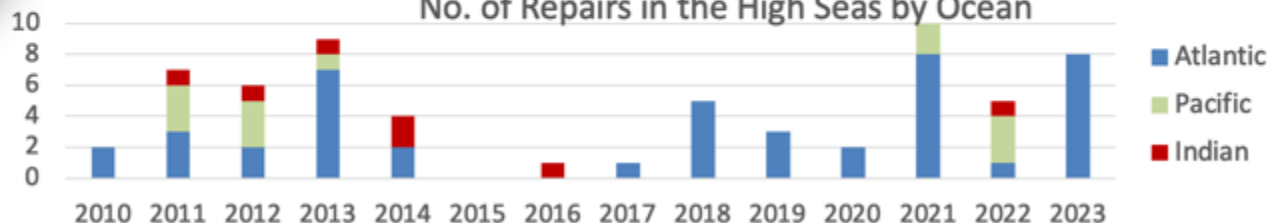
Repairs are reported by their locality in a country's Territorial Waters, Exclusive Economic Zone, or on the High Seas.

Global Repair Distribution

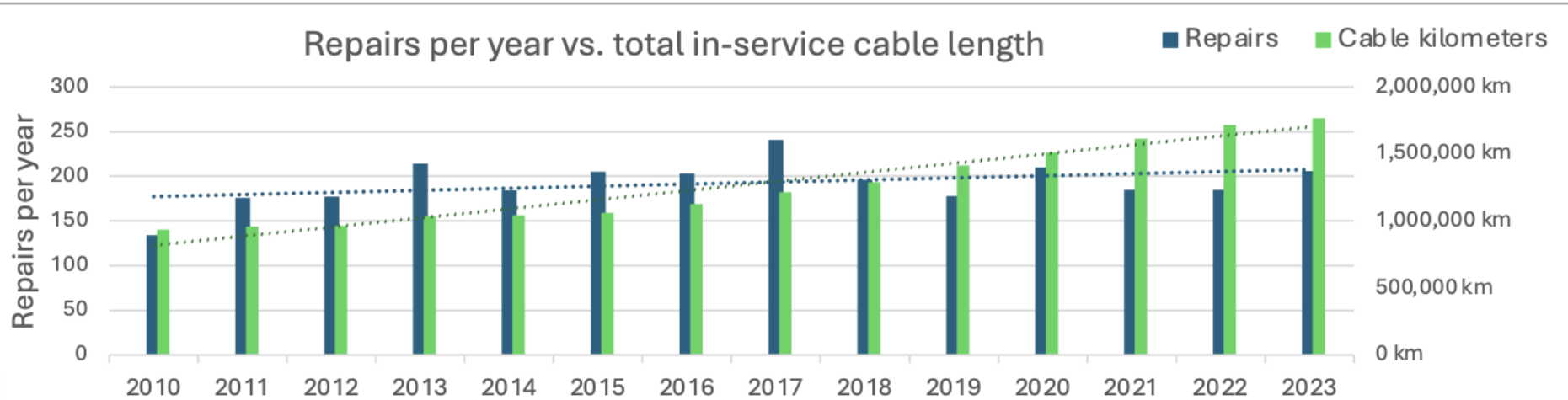


**Repairs/km decreased as more systems have been built than decommissioned**

No. of Repairs in the High Seas by Ocean



# Cable damage and repair



Overall repair numbers have been flat over the last decade, averaging 199/yr.

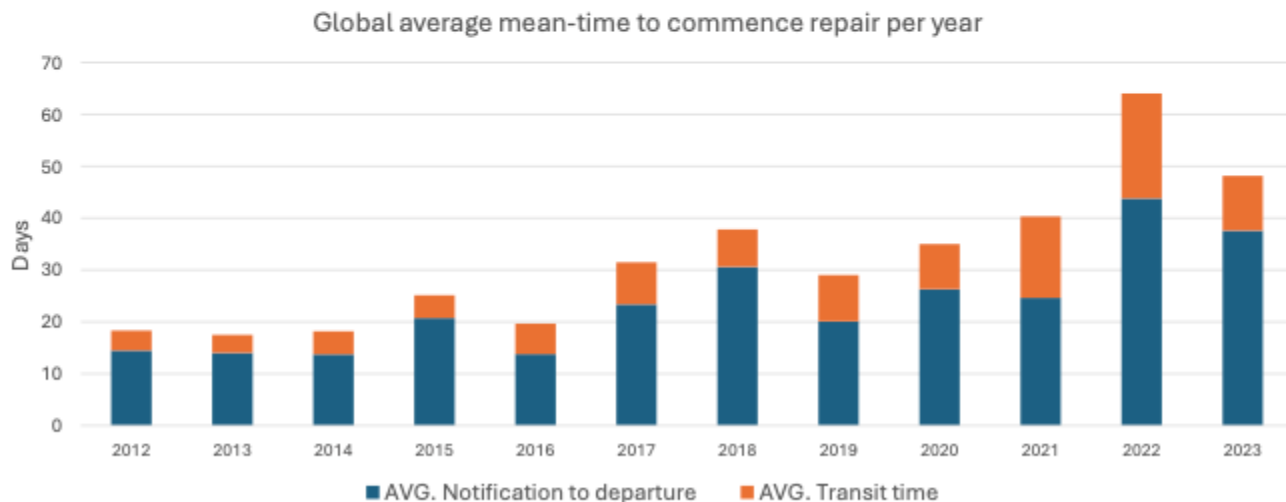
- **Good news!** Kilometres of cable increase – but flat number of repairs
- **Bad news...** Time to commence repairs is increasing



Refer to ICPC '*Government Best Practices for Protecting and Promoting Resilience of Submarine Telecommunications Cables*'. Downloadable from <https://www.iscpc.org/documents/?id=3733>

# Repair Response Time – Why the Increase?

- No. of repairs per year has only increased slightly
- Number of cable repair ships has not changed significantly
- Why has repair response time more than doubled?





An underwater photograph showing a large, dark, weathered piece of driftwood lying diagonally across the frame. The seabed is covered in various types of coral and marine life, including some orange and purple corals. The water is a deep blue, and the lighting is somewhat dim, creating a moody atmosphere.

# QUESTIONS?

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