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Distinguished members of the Committee, thank you for the opportunity to testify today on behalf of the International Connectivity Coalition in support of H.R. 261, the "Undersea Cable Protection Act". We appreciate Congressman Buddy Carter for introducing this legislation to address subsea cable permitting in national marine sanctuaries.

I am Denise Toombs, Advisor to the ICC, and am appearing on behalf of the ICC to share my experience permitting subsea cables for nearly 25 years. I am recognized as a leading expert in environmental permitting and licensing for marine capital projects, particularly subsea cable projects in the U.S. and globally. I understand the complexities of the local, state, and federal permitting regimes for these types of projects and have a deep knowledge in applying these regulations to subsea cable systems. The ICC is a group of companies with substantial investments in subsea fiber optic cable networks that enable people, companies, governments, and institutions to communicate and transact business across oceans and between continents in near real time.

Subsea cables are essential to U.S. economic and national security. This is important legislation needed to address commercial subsea cable[1] permitting in national marine sanctuaries and is a balanced approach to safeguarding our marine environments, while enabling investment in vital communications networks.

Subsea Fiber-Optic Cables. Modern subsea cables use fiber-optic technology to facilitate the transmission of 99% of international data and communications across the world.[2] These cables are laid on the seabed between and around continents. Subsea cables are critical infrastructure and are pivotal in the functioning of governments, economies, and societies worldwide.[3] They underpin the digital economy, supporting everything from global trade and financial transactions to the daily operations of businesses across borders. The Center for Strategic and International Studies estimates that the contribution of subsea cables to the U.S. economy in 2019 was nearly 649 billion, or approximately 3% of US GDP.[4] Subsea cables also support our national security communications, including secure military and intelligence operations. Any disruption to these systems poses a significant risk to U.S. economic and national security.

[1] This testimony is limited to commercial subsea cable permitting, not subsea cables for research or military use.
[2] *See* https://www.subseacablemap.com/
[3] *See* Priorities for DHS Engagement on Subsea Security & Resilience; *see also* Securing Asia's Subsea Network: U.S. Interests and Strategic Options
[4] *See* Securing Asia's Subsea Network: U.S. Interests and Strategic Options

With the rise of digitalization, e-commerce, data-driven economies, and now artificial intelligence, the need for reliable, global internet connections continues to grow exponentially, and worldwide demand for bandwidth is now nearly doubling every two years.[5] This, in turn, has resulted in a year-over-year increase in the number of subsea cables at a rate of 4 percent annually,[6] making today's world of approximately 575 active subsea cables[7] starkly different than the world of approximately 100 cables that existed in 1999.[8]

Accommodating these essential lines of communication through geographically diverse ocean routes is necessary to ensure that disruption caused by an earthquake, maritime accident, or other incident does not cause widespread loss of connectivity for U.S. commerce, safety, and security interests. Subsea cable "route diversity" is one of the key considerations during the design of new cable systems to maintain resilience of digital communication infrastructure. Therefore, potential route diversity benefits from having fewer constraints during spatial planning. A principal policy goal set by DHS is to coordinate internationally to increase network resilience and route diversity.[9] Given the vital role subsea cables play in our digital communication infrastructure across the globe, it is imperative that the United States promote, not delay, investment in their installation and operation. The proposed legislation will help ensure the United States remains a leader in strengthening the resilience of cable networks through route diversity.

Subsea Cables in the Marine Environment. Subsea fiber optic cable systems have minimal environmental impact. Subsea fiber optic cables are typically less than 2 inches in diameter or about the size of a garden hose. Throughout the design and installation process, extreme care is taken to minimize its environmental footprint. The industry practices early-stage engineering and leverages modern technology to avoid or minimize environmental impacts while at the same time maximizing societal, economic, and national security benefits.

The industry also deploys intensive routing analyses and regularly engages with resource agencies and local marine users during the design phase. During installation, they follow well established industry guidance and best management practices and cooperate with resource agencies and stakeholders during and after installation.

There is significant data which demonstrate that subsea fiber optic cable installation and operation, including maintenance and repair, have minimal environmental impact.[10] For example, there are impact assessments, monitoring reports, and post-installation surveys prepared for U.S. subsea cable projects, including studies addressing cables in national marine sanctuaries that demonstrated, even for subsea cables within national marine sanctuaries, seafloor conditions return to pre-cable installation conditions following the cable lay activities, and biological communities along the cable route were found to be indistinguishable from those

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[5] *See id.*
[6] *See Rising Bandwidth Demand and the Impact on Subsea Cables*, OCEANS & CABLES (Feb. 26, 2024), https://oceanscables.com/rising-bandwidth-demand-and-the-impact-on-subsea-cables/.
[7] *See id.*
[8] *See World Submarine Cables & International Bandwidth*, STACKSCALE (July 7, 2022), available at https://www.stackscale.com/blog/submarine-cables/.
[9] *See* Priorities for DHS Engagement on Subsea Security & Resilience.

in control areas away from the cable.[11,12] In addition, burial verification surveys conducted for permit compliance along the West Coast consistently show cables, once installed and buried, remain in place as recorded during installation.

In addition, publicly available reports, such as the 2009 UNEP-WCMC Report "Submarine Cables and the Oceans: Connecting the World" ("UNEP-WCMC milestone report") aimed to provide objective, factual descriptions of the subsea cable industry and the interaction of subsea telecommunications with the marine environment.[13] Since the UNEP-WCMC milestone report, approximately 25 other peer reviewed university and research institution studies have been completed on various aspects of subsea cables in the marine environment, including leaching studies, seabed recovery studies, marine mammal and shark studies, and EMF.[14] The cumulative result of these studies echoes the UNEP-WCMC Report that modern subsea fiber optic cables have short-term, minimal impacts on the marine environment.

Robust Permitting Regime. The installation and operation of subsea cables in the US are subject to a robust permitting regime, requiring permits and consultations from multiple federal, state, or local agencies. The planning and permitting for a trans-oceanic subsea cable can take two to three years before installation.

The resources in national marine sanctuary designations already receive protection under existing federal and state laws governing the installation, operation, maintenance, and ultimately, the retirement of subsea fiber optic cables. The U.S. Army Corps of Engineers (USACE) is

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[11] J. Lindholm, K. Roetcisoender, M. Seida, and T. Leggett, Final Report, Olympic Coast National Marine Sanctuary PCL Cable Seafloor Habitat Recovery at 10 (Mar. 2024). March 2024 report for seabed recovery survey completed involving telecommunications subsea cables installed in the Olympic Coast National Marine Sanctuary indicating that there was "no evidence of the cable (either exposed cable or remnant trench from the cable installation)"; and that (2) "there was no difference with respect to the density" of either sessile macrofaunal invertebrates on the benthos or of demersal fishes "between either cable and their unimpacted reference sites." *See also* NOAA Office of National Marine Sanctuaries, ONMS-18-01, Submarine Cables in Olympic Coast National Marine Sanctuary: History, Impact, and Management Lessons (2018), at 42-43. Report found that "[i]n general terms, the physical habitat within OCNMS had returned to pre-installation conditions within five years of cable installation." In addition, the report concluded that in terms of "impacts from undersea cables, benthic communities along the cable route in [OCNMS] were indistinguishable from those in control areas during the post-installation surveys."

[12] Monterey Bay Aquarium Research Institute, Potential Impacts of the Monterey Accelerated Research System (MARS) Cable on the Seabed and Benthic Faunal Assemblages (2020) at i-ii. available at https://sanctuarysimon.org/regional_docs/monitoring_projects/100391_MBARI_MARS_2020_report.pdf. Summarized four "comprehensive surveys" performed in 2008, 2010, 2015 and 2020 (13 years after the MARS cable's 2007 installation), on potential impacts on the Monterey Bay national Marine Sanctuary, finding (1) that "the MARS cable has had little detectable impact on seabed geomorphology, sediment qualities, or biological assemblages; (2) in terms of potential seabed effects, that with respect to the "cable trench" associated with the cable's installation on the seafloor, sediment had filled the cable trench in deeper areas, "which is now nearly imperceptible in most locations"; and (3) that there was virtually no detectable effects along the cable route with respect to benthic communities, including that (i) for the first three comprehensive surveys, "local-scale variation in benthic megafaunal communities" near the MARS cable "was minor or undetectable", and (ii) the 2020 survey actually found that "the density of megafauna…was significantly greater along the cable route than the undisturbed area just 50 m away."

[13] *See* https://resources.unep-wcmc.org/products/WCMC_RT059.

[14] *See* https://www.un.org/depts/los/biodiversity/prepcom_files/ICC_Submarine_Cables_&_BBNJ_August_2016.pdf.

typically the lead federal agency for subsea cable projects in the US. Most cable projects qualify for authorization under Nationwide Permit (NWP) 57 Electric Utility Line and Telecommunications Activities. NWP 57 authorizes the installation of the cable and requires, at a minimum, federal consultations with the National Marine Fisheries Service (e.g., NOAA Fisheries), U.S. Fish and Wildlife Service, and Tribes.

US states and territories also have permitting authority for installation and operation of subsea cables. States have robust and well-developed regulatory regimes in place to protect marine environments and cultural resources that may be affected by the installation of subsea fiber optic cables. State authorizations include conditions that encompass installation and/or the life of the cable. Seabed leases in state waters generally have terms of 20 to 25 years, with options for renewal, aligning with the investment and lifecycle of a subsea cable.

California provides a good case study of a robust state regulatory regime. The California agencies involved in reviewing a subsea cable rely on a robust environmental review under the California Environmental Quality Act (CEQA). The CEQA analysis addresses impacts for multiple resources. It is conducted as a public process and results in enforceable mitigations that are ultimately incorporated into permit and lease conditions by appropriate agencies, including the California State Lands Commission and the California Coastal Commission. The California State Lands Commission is typically the lead agency with the California Coastal Commission having a substantial role in the review and authorization of subsea cables off the California coast.

The California State Lands Commission issues a submerged lands lease authorizing the placement, occupancy, maintenance, and retirement a subsea cable on state submerged lands incorporating mitigations developed during the CEQA review. The California Coastal Commission, in turn, issues a coastal development permit and certification under the federal Coastal Zone Management Act that assure consistency between federal actions and the California Coastal Management Program. The submerged lands lease and the coastal development permit are two good examples of state authorizations issued under existing state permitting regimes that prioritize the avoidance, minimization, and mitigation of impacts to resources, including resources of importance in national marine sanctuaries.

California resource agencies have learned from the experience of past projects and have amended some permitting requirements after reviewing the body of information developed from earlier subsea cable projects. The subsea cable industry, in turn, is able to anticipate applicable requirements and incorporate them into project design. The outcome is a more predictable – but still rigorous – process. Other states have similar permitting regimes that ensure a predictable and rigorous state-level permitting process for subsea cables.

Together, the existing federal and state subsea permitting regime and review process address potential adverse impacts to marine resources by requiring, at a minimum, the following:

- Biological Assessments for review and concurrence by NOAA Protected Resources Division and the US Fish and Wildlife Service for potential effects on species listed under the Endangered Species Act and Marine Mammal Protection Act.

- Preparation of an Essential Fish Habitat Assessment for NOAA Fisheries review and concurrence as required by the Magnuson–Stevens Fishery Conservation and Management Act.

- Environmental assessments of all elements of the project, including a full air quality and greenhouse gas assessment.

- Marine archaeological assessment required to identify and avoid sensitive archaeological and cultural resources, including consultations under the National Historic Preservation Act with the state historic preservation offices for potential impacts on historic and cultural resources.

- State water quality standard certifications.

- Filing of "as-built" documentation with agencies for inclusion on nautical charts, as well as providing pre-construction and installation plans, engineering design drawings, and emergency and contingency plans.

- Provisions addressing notification and performance of cable repairs and maintenance.

In addition to the above, many states have additional information requirements as part of their review. For example, California requires marine habitat assessment to identify and avoid sensitive marine resources, such as hard bottom habitats, with required mitigation for crossing unavoidable hard bottom habitat. Oregon and California also impose mitigation requirements addressing cable burial, and a pre-construction seafloor survey and post-installation survey (both which are standard industry practice independent of regulatory requirements in connection with construction and installation verifications). A burial verification survey may be required at five or six years following installation, and one year prior to the end of the lease term, or if there is an event likely causing cable to become unburied (such as a seismic event). Another evolving requirement we see (at a state level and by NOAA) is the development of a marine wildlife avoidance plan and requirement to have marine wildlife observers on board cable installation and survey vessels.

Permitting Subsea Cables in National Marine Sanctuaries. Under NOAA's current regulatory framework within national marine sanctuaries, subsea cable operators are required to obtain a special use permit to install and operate subsea cable systems. A special use permit is limited to a five-year term, which can be renewed at NOAA's discretion. However, 5-year permit terms are unsuitable for an infrastructure investment that has a minimum 25-year useful life.

In addition, the special use permit application process requires an applicant to undergo a separate federal environmental review by NOAA, in addition to the federal and state processes described above. NOAA's review requires a subsea operator to include an environmental assessment and alternatives analysis that describes routes that were considered and eliminated, the basis for elimination, and a site plan and description of each alternative.

NOAA's current special use permit review process for subsea cables is generally untested, does not have predictable processing timeframes, and would result in permit terms too short to justify the enormous investment required. Unlike USACE and state agencies, NOAA historically has little experience permitting subsea cables and its special use permit regulations contain no requirements specific to subsea cable siting. Further, a special use permit for subsea cables requires a fair market value fee using a formula that is outdated and not based on actual, verifiable costs. It is not predictable or easy to apply. Simply put, given the extensive review and protections guaranteed by existing local, state and federal procedures, there seems no reasonable need for NOAA to continue regulating subsea fiber optic cables with special use permits and the fair market value formula, when considering the various equities NOAA needs to balance.

It is evident that the existing NOAA regulations and permitting regime have created a de facto "no-go area" for subsea cables in national marine sanctuaries. According to NOAA's own data, only three commercial subsea cable systems have been installed in national marine sanctuaries, all between 1998 and 2000. Aside from these three cables, it appears no subsea cable have been installed in an existing national marine sanctuary since 2000. This is in comparison to, according to industry sources, some 50 or so new subsea cable systems installed in the United States since then (about 20 on the west coast and about 30 on the east coast).

The effect of NOAA's existing regulatory regime is clear. New sanctuary designations effectively prohibit new cables and could add new regulatory burden and significantly impact existing cables. This is illustrated in the attached map of California fiber optic subsea cables, overlaid by the boundaries of national marine sanctuaries off the coast of California. The map shows the extent to which commercial subsea cables landing in California and constructed since 2000, route around and avoid the national marine sanctuaries. This is a direct result of the special use permit process, and unrelated to market demand. In fact, the only commercial subsea cables installed in national marine sanctuaries in California were all installed *prior* to the sanctuary designation of the areas and have all since been retired.[15]

The effect of these regulations is real and increases risk to the subsea cable industry and has a direct, adverse impact on route diversity and subsea cable resiliency. The industry avoids sanctuaries because of the special use permit process, the special permit term, and associated fair market value fees imposed by NOAA under its special use permit regime. This in turn, especially on the west coast, diminishes the number of potential cable landings and forces new cables into more congested locations, especially when other maritime uses and physical constraints drive

[15] For the example, the cables, now retired, that land in Port Arena, CA and traverse what is now the northern portion of the Greater Farallones NMS, were installed prior to the 2016 expansion of the Greater Farallones NMS, which expanded the sanctuary footprint to cover the area traversed by the cables. Similarly, the cables, now retired, that traverse what is now the western Davidson Seamount expansion of the Monterey Bay NMS, were installed prior to the 2008 expansion of the sanctuary to Davidson Seamount, which expanded the sanctuary footprint to cover the area traversed by the cables.

routing decisions must be considered. This forced routing could result in potential single points of failure that could disrupt the timely exchange of data and information.[16]

Streamlined Permitting for Subsea Cables. The proposed legislation would alleviate a significant regulatory burden on subsea cables by eliminating NOAA's duplicative environmental permitting for subsea cables and rely on existing, robust federal and state permitting regime. NOAA would retain an oversight role for any commercial subsea cable passing through a national marine sanctuary.

For subsea cables that might be installed in a national marine sanctuary, which, as noted above, would require a permit from the USACE, NOAA has explicit consultation authority under Section 304(d) of the National Marine Sanctuary Act, which requires the USACE to consult with NOAA on likely adverse impacts on a sanctuary resource. This authority ensures NOAA's engagement in the USACE review process and allows NOAA to recommend conditions of approval and even alternative actions to protect sanctuary resources. The proposed legislation also contains an agency cooperation provision that further ensures that NOAA would have a continued consultative role on the installation of a new cables in a sanctuary that could have adverse impacts on sanctuary resources, similar to that of NOAA and other federal agencies, related to essential fish habitat, marine mammal protection and endangered species. For subsea cables that cannot rely on another federal or state authorization, under the proposed legislation, NOAA would retain permitting jurisdiction for subsea cables in national marine sanctuaries.

NOAA itself is in the process of reconsidering its permitting regime for subsea cables in national marine sanctuaries. In August 2024, NOAA issued Notice of Modification to the Special Use Permit Category for the Continued Presence of Commercial Submarine Cables within the National Marine Sanctuary System in Docket No. 2024-18099.[17] During the pause, NOAA is taking comments and considering revisions to the 2011 Final Policy and Permit Guidance for Submarine Cable Projects[18] Members of the International Connectivity Coalition provided comments to NOAA and encourage NOAA to consider eliminating special use permit review in its entirety for subsea cables and instead rely on its authorization and consultation authorities instead.

Under the proposed legislation, NOAA will continue to have a role in reviewing subsea cables within national marine sanctuaries. With the proposed legislation, however, the review process will be more efficient, provide greater certainty to applicants, improve diversity of routes, and focus Sanctuary staff resources on the marine sciences and resource education at which they excel rather than diverting time to permit processing.

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[16] *See id.*; Curtis Heinzl, *Subway-Style Map Visualizes the Global Network of Submarine Cables*, BLOOMBERG (July 17, 2024), https://www.bloomberg.com/news/newsletters/2024-07-17/subway-style-map-visualizes-world-s-network-of-submarine-cables?srnd=homepage-uk.

[17] https://www.federalregister.gov/documents/2024/08/16/2024-18099/notice-of-modification-to-the-special-use-permit-sup-category-for-the-continued-presence-of

[18] *See* https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/library/pdfs/subcable_final_guidance_2011.pdf

In closing, I wanted to express the ICC's deep appreciation for the Committee to the attention it is giving to this critically important matter and for allowing me to share my testimony with you today.

Attachment 1
California Coastline Map