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Chief, Antilles Regulatory Section
Jacksonville District Corps of Engineers
Department of the Army
Fund. Angel. D. Roosevelt Ave.
San Juan, Puerto Rico 00918

Dear Sir or Madam:

The enclosed Biological Opinion (Opinion) responds to your request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action.

Permit Number	Applicant	SER Number	Project Type
SAJ-2003-12401(NWP-CGR)	SMITHCOMS, Inc. / Telecom Group	SERO-2021-01334	Communication Cable Repair

The Opinion considers the effects of communications cable repair by SMITHCOMS Inc./Telecom Group on the following listed species and/or critical habitat: elkhorn coral and staghorn coral and their critical habitat; boulder star coral; mountainous star coral; lobed star coral; pillar coral; green sea turtle (North Atlantic and South Atlantic distinct population segments [DPSs]); hawksbill sea turtle; leatherback sea turtle; giant manta ray; Nassau grouper; and scalloped hammerhead shark (Central and Southwest Atlantic DPS). NMFS concludes that the proposed action is not likely to adversely affect elkhorn coral and staghorn coral, boulder star coral, mountainous star coral, lobed star coral, pillar coral, green sea turtle (North Atlantic and South Atlantic DPSs), hawksbill sea turtle, leatherback sea turtle, giant manta ray, Nassau grouper, and scalloped hammerhead shark (Central and Southwest Atlantic DPS). NMFS concludes that the proposed action is likely to adversely affect, but will not destroy or adversely modify, elkhorn and staghorn coral critical habitat.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions on this consultation, please contact Melissa Alvarez, Consultation Biologist, by phone at 954-734-0716, or by email at Melissa.Alvarez@noaa.gov.

Sincerely,

Andrew J. Strelcheck
Regional Administrator

Enclosure: Biological Opinion
File: 1514-22.f.9



**Endangered Species Act - Section 7 Consultation
Biological Opinion**

Action Agency: U.S. Army Corps of Engineers, Jacksonville District

Applicant: SMITCOMS, Inc. / Telecom Group

Permit Number SAJ-2003-12401 (NWP-CGR)

Activity: Communication Cable Repair, Isla Verde, Municipality of Carolina, Puerto Rico

Consulting Agency: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division, St. Petersburg, Florida

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Approved by: _____
Andrew J. Strelcheck, Regional Administrator
NMFS, Southeast Regional Office
St. Petersburg, Florida

Date Issued: _____

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ACRONYMS AND ABBREVIATIONS

BMT	Biological Monitoring Team
CFMC	Caribbean Fishery Management Council
CFR	Code of Federal Regulations
DPS	Distinct Population Segment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FMP	Fishery Management Plan
MHW	Mean High Water
MLW	Mean Low Water
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
Opinion	Biological Opinion
PCTS	Public Consultation Tracking System
PRD	NMFS Southeast Regional Office Protected Resources Division
PRDNER	Puerto Rico Department of Natural and Environmental Resources
SMITCOMS	SMITCOMS, Inc. / Telecom Group
US	United States of America

USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
USVI	US Virgin Islands

UNITS OF MEASUREMENT

ac	acre(s)
ft	foot/feet
ft ²	square foot/feet
in	inch(es)
m	meter(s)
m ²	square meter(s)

INTRODUCTION

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq.), requires that each federal agency ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. Section 7(a)(2) requires federal agencies to consult with the appropriate Secretary in carrying out these responsibilities. The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service share responsibilities for administering the ESA.

Consultation is required when a federal action agency determines that a proposed action “may affect” listed species or designated critical habitat. Informal consultation is concluded after NMFS determines that the action is not likely to adversely affect listed species or critical habitat. Formal consultation is concluded after NMFS issues a Biological Opinion (Opinion) that identifies whether a proposed action is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat, in which case reasonable and prudent alternatives to the action as proposed must be identified to avoid these outcomes. The Opinion states the amount or extent of incidental take of the listed species that may occur, develops measures (i.e., reasonable and prudent measures) to reduce the effect of take, and recommends conservation measures to further the recovery of the species.

This document represents NMFS’s Opinion based on our review of impacts associated with the proposed action within Municipality of Carolina, Puerto Rico. This Opinion analyzes the project’s effects on threatened and endangered species and designated critical habitat in accordance with Section 7 of the ESA. We based our Opinion on project information provided by U.S. Army Corps of Engineers (USACE) and other sources of information, including the published literature cited herein.

1 CONSULTATION HISTORY

The following is the consultation history for identifier number SERO-2021-01334, SMITCOMS, Inc./Telecom Group (SMITCOMS), Communication Cable Repair.

On May 24, 2019, a Department of the Army Permit (SAJ-2003-12401) was issued to replace a damaged cable section with a new cable section (Section 1) of approximately 1,372 meters in length; the installation of an articulated pipe along 1,513 meters in length of the new cable section 1; the protection of another two sections (Section 2 and 3) of existing cable of 200 and 100 meters in length with articulated pipe, and the use of sand bags for anchoring the cable installation vessel. A NMFS consultation was concluded for this permit on May 9, 2019 under the identifier number SERO-2017-00005. The authorized works as described above were not performed, due to restrictions resulting from the COVID-19 pandemic, according to the applicant.

On May 4, 2021, NMFS received a request for concurrence on whether or not this consultation should be reinitiated. NMFS determined that two reinitiation triggers have been met:

1. changes in project design that cause an effect to critical habitat that was not considered in the Biological Opinion, namely decreasing the amount of articulated pipe to be installed in Section 1 of the proposed cable repair and replacement project, and
2. the recent listing of giant manta ray.

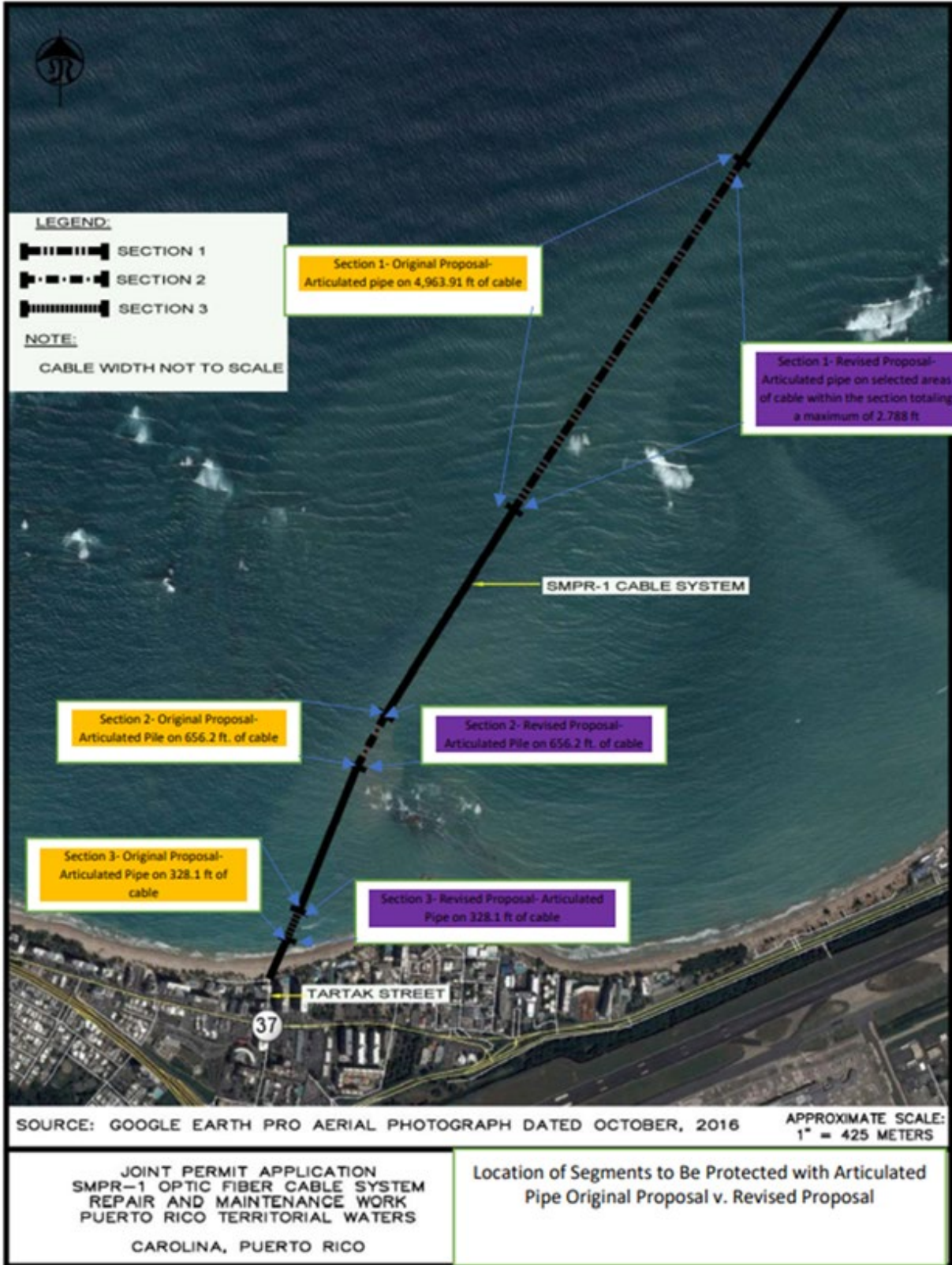
We received your letter requesting the re-initiation of consultation on May 10, 2021. We requested additional information on October 20, 2021. We received a final response on October 21, 2021 and initiated consultation that same day.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

SMITCOMS installed a submarine cable between Puerto Rico and St. Maarten to provide a direct communications link between the two islands. The original cable was authorized under Federal permit SAJ-2003-12401 (IP-VG) and a Concession by DNER (i.e., State permit). The shore end lands at the Isla Verde beach, Municipality of Caroline, Puerto Rico and makes an entry point in the headwall at the end of Tartak Street. The headwall is the same used by several other existing submarine cable systems.

The USACE is proposing to permit the applicant to replace the existing, non-functioning fiber optic cable with a new cable and add articulated pipe protection to the cable on 3 specific sections that are in need of repair, so that the cable can be brought back online. The work will be conducted on the existing SMPR-1 cable system within Puerto Rico territorial waters, referred to as Section 1, Section 2, and Section 3 (See Figure 1; note Figure 1 shows the original proposed project, previously consulted on, and the modified project. This consultation relates to the modified project, shown in purple.).



The proposed project as modified is to substitute the existing cable section with a new cable (33mm outer diameter) from the offshore at Section 1 (same cable Section 1 previously authorized in 2019) and to extend this new cable toward the shoreline (up to the existing cable manhole at the Tartak Street); and to install articulated pipe on several sections of the proposed new cable, as follows: Section 1: install approximately 2,788 feet long (850 meters) of articulated pipe on the 4,963.91 ft segment of new cable; Section 2, install articulated pipe on the approximately 656.2 feet long (200 meters) segment of new cable; and, Section 3, install articulated pipe on the approximately 328.1 feet long (100 meters) segment of new cable. No sand bags will be used for the cable installation, unlike the previously approved method. When the cable reaches the beach, a trench of approximately 2.5 meters wide and 2 meters deep will be dug landward of the mean high water (MHW) and at the site where the original SMPR-1 cable is located, using an excavator or backhoe outside landward of MHW, and manually (using shovels and hands). Once the old cable is removed from the beach, the new cable will be installed, and the trench will be covered with the excavated sand. No mechanical excavation will be conducted below the MHW.

Section 1:

The current footprint of the cable in Section 1 is 455.7 square feet (ft²), of which 271.07 ft² is within coral critical habitat. The estimated proposed footprint for the new cable and new cable in articulated pipe will be 1424.73 ft², of which 1206.94 ft² is within coral critical habitat. The proposed project therefore would result in an increase of 969.03 ft² total impacts to the bottom, and to 935.87ft² of critical habitat.

Section 2:

The current footprint of cable in Section 2 is 60.28 ft². The estimated footprint for the cable encased with articulated pipe will be 279.54 ft², which is a net increase of 219.26 ft².

Section 3:

The current footprint of cable in Section 3 is 30.14 ft². The estimated footprint for the cable encased with articulated pipe will be 139.77 ft², which is a net increase of 109.63 ft².

Areas outside Sections 1, 2, and 3:

The current footprint of cable and cable encased with articulated pipe outside of Sections 1, 2, and 3 is 488.57 ft². The estimated footprint for the cable and the cable encased with articulated pipe in these areas will be 555.53 ft², which is a net increase of 70.21 ft².

Construction Conditions

The applicant has agreed to adhere to NMFS Southeast Region's *Protected Species Construction Conditions* (NMFS 2021). The applicant has also agreed to the following construction conditions:

- The permittee shall have a biological monitoring team onsite during the cable installation, and the biological monitoring team shall approve all locations of the new cable and clamps to ensure avoidance of ESA-listed coral species.
- The permittee shall ensure that staff and support staff shall be trained in the conservation of sensitive benthic resources by the biological monitoring team.

- A designated personal to observe manatee and sea turtles during the work shall be present in the field during cable installation.
- The new cable section shall be marked on the seafloor by divers prior to the commencement of any cable laying operations. Divers shall assist during cable laying operations. Divers will ensure that new cable does not contact any corals, including ESA-listed corals.
- The permittee shall ensure that the biological monitoring team confirms that the cable route, including at least 1 meter – wide buffer area on either side of the new cable section is devoid of ESA-listed corals.
- The proposed work shall not take place during high swells or unfavorable weather conditions or during severe currents. Avoiding working in these conditions will prevent damage to corals due to unsafe working conditions for divers and vessel navigation and cable deployment. Cable deployment activities shall immediately cease should adverse weather conditions, including heavy swells, strong winds, heavy rains, storm conditions, or unexpected severe currents arise during cable deployment.
- The permittee shall implement the coral and mitigation plan dated November 17, 2017, and a post installation monitoring of the cable to verify that the final cable location avoids all ESA-listed species directly and within 1 m either side of the cable shall be performed and a post installation report shall be submitted to NMFS at within 30 days of the installation of cable and 3 reports yearly thereafter. Reports shall be submitted within 30 days from the date of each monitoring event.
- Support vessels will only anchor in sandy and coral free substrates, and the anchoring locations will be approved by the biological monitoring team.
- The sections of the cable will be left in place in those areas overgrown by corals or any other sensitive benthic organism, and fixed to the seabed with single clamps.
- The remaining sections of the old cable shall be removed under the supervision of the Biological Monitoring Team.

2.2 Action Area

The action area is defined by regulation as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action” (50 Code of Federal Regulations [CFR] 402.02). As such, the action area includes the areas in which the cable and clamps will be placed, as well as the immediately surrounding areas that may be affected by direct effects and indirect effects of the proposed action.

The proposed project site is located in the open waters of the Atlantic Ocean off the northern coast of Puerto Rico in the Isla Verde area (Alambique Beach), Municipality of Carolina (Table 1, Figure 2).

Table 1. Project Longitude and Latitude

Section	Latitude/Longitude* (Start/North End)	Latitude/Longitude* (End/South End)	Water Body
Area outside sections 1-3	18° 28.113 N 66° 00.369 W	18° 26.611 N 66° 01.285 W	Atlantic Ocean
Section 1	18° 28.113 N 66° 00.369 W	18° 27.477 N 66° 00.810 W	Atlantic Ocean
Section 2	18° 27.010 N 66° 01.114 W	18° 27.104 N 66° 01.059 W	Atlantic Ocean
Section 3	18o 26.694 N 66° 01.250 W	18° 26.743 N 66° 01.228 W	Atlantic Ocean

* North American Datum (1983)

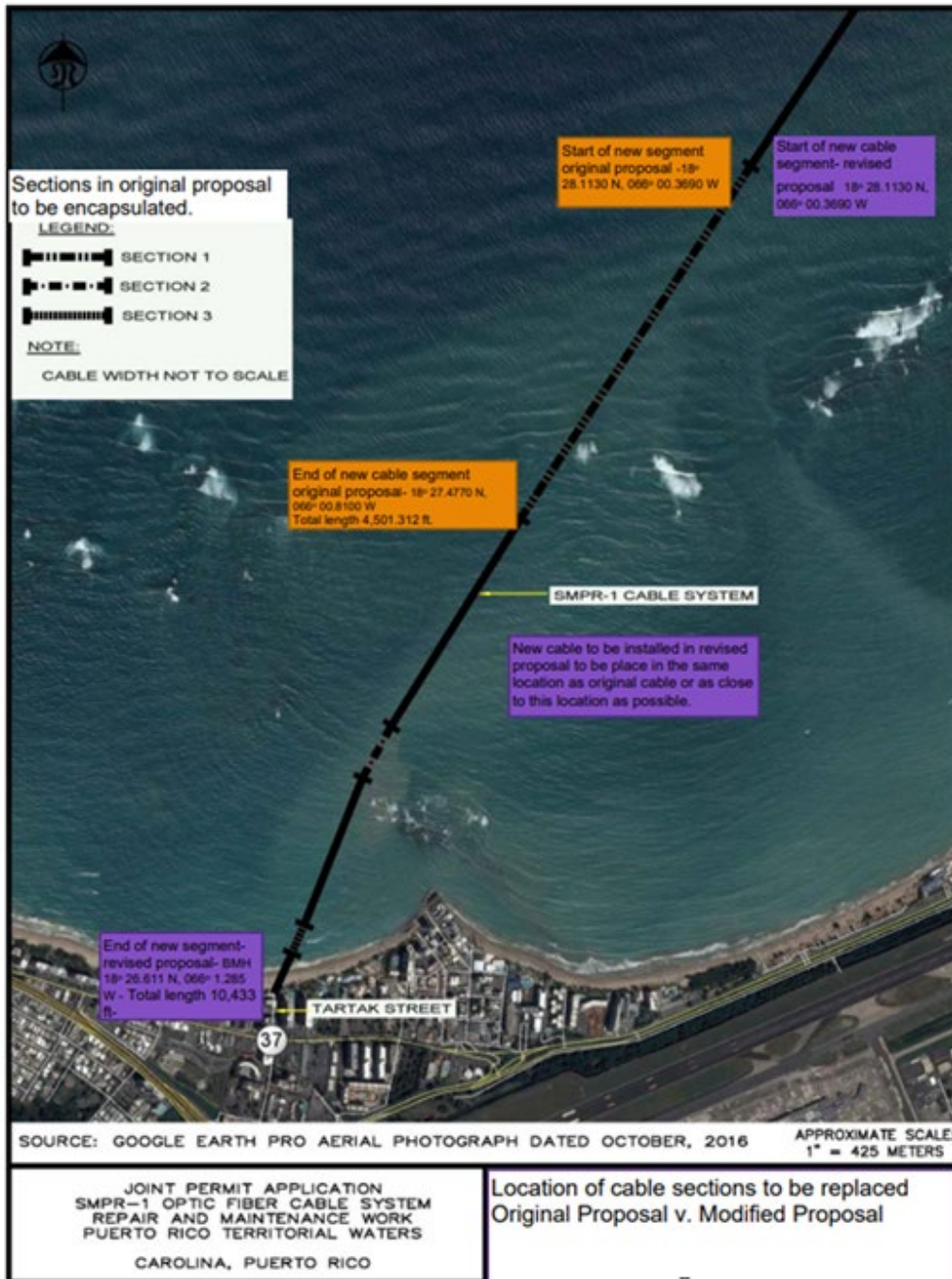


Figure 2 Image Showing the Project Site (provided by the applicant). Figure 2 shows the modified proposal (purple), compared to the original proposal (orange). This consultation concerns the modified proposal.

The benthic survey was conducted on September 05 and 09, 2020, which further inspected the cable corridor, in addition to the benthic survey performed in March 28-30, 2017. There are four habitat types present within the project area, which runs parallel to the coastline. Those types include backreef, reef, forereef, and deep reef platform. The cable crosses both unconsolidated and consolidated substrates, including hardbottom, algal

colonized hardbottom, and sand. The cable does not cross seagrass beds; however, other marine vegetation present consists of macroalgae. There were no mangroves within the survey area. The cable crosses areas that include sponges, soft corals, hard corals, and ESA-listed coral species (elkhorn coral, mountainous star coral, and pillar coral). Depths within the survey area range from 7-ft to 82-ft mean low water (MLW). Below is a summary of the three sections and the benthic resources present, per the benthic surveys. As noted below, we believe additional ESA-listed coral species (staghorn coral, boulder star coral, and lobed star coral) may be present in Section 1, outside of the area surveyed:

Section 1 (Depth ranges 7-82 ft):

- Deep reef – This is hardbottom covered by a thin layer of sand. Sponges are the prominent species over the substrate. Benthic cover in this segment is very low (<5%). There are low cover algal clumps and no seagrasses. There are no ESA-listed coral species.
- Forereef – This is a hardbottom and occurs within the boundary of elkhorn and staghorn designated coral critical habitat. This section has a relatively high diversity of sponges, soft corals, and hard corals. Overall benthic cover and hard coral benthic cover was low (<25%). ESA-listed mountainous star coral and pillar coral are present in this section. The algal cover is mostly low cover (0-25%) with no seagrasses.
- Reef A – This section is hardbottom and occurs within the boundary of elkhorn and staghorn designated coral critical habitat. This section has a relatively high diversity of sponges, soft corals, and hard corals. Overall benthic cover and hard coral benthic cover was low (<25%) except for particular higher cover patches. ESA-listed elkhorn coral is present in this section of habitat. The algal cover was mostly low cover (0-25%) with no seagrasses.
- Reef B – This section is an algal hardbottom. Substrate cover by algae was medium (25-50%) to high (50-75%) with some sand underneath. No seagrasses present. Very few isolated sponges and soft and hard corals were recorded, but no ESA-listed coral species.
- Backreef – Only macroalgae was present providing low (0-25%) to medium (25-50%) cover.

Section 2 (Depth ranges 5-9 ft):

- The section is within the Isla Verde Reef Marine Reserve managed by Puerto Rico Department of Natural and Environmental Resources.
- The substrate is mainly colonized by algae, but in low cover (0-25%). No seagrasses. Sponges, and soft and hard corals present in low cover.
- There are no ESA-listed coral species present and the sediment load is significant.
- This section does not occur within the boundary of elkhorn and staghorn coral designated critical habitat.

Section 3 (Depth ranges 7-10 ft):

- The section lies on top of sandy bottom lacking species and cover.
- This section does not occur within the boundary of elkhorn and staghorn coral designated critical habitat.

Areas Outside of/and Between Sections 1, 2, and 3:

- These areas consist of algal plain, sand and rock in unconsolidated sediment and are flat terrains dominated by sand and/or loose rock of variable sizes.
- These areas do not occur within the boundary of elkhorn and staghorn coral designated critical habitat.

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

This section identifies ESA-listed species and designated critical habitat under NMFS’s jurisdiction that may occur in or near the action area and evaluates which of those may be affected by the proposed action. Effects determinations are also summarized in Table 2. The section also describes the status of listed species and/or critical habitat that may be adversely affected by the proposed action.

Table 3 provides the effect determinations for species the USACE and/or NMFS believe may be affected by the proposed action.

Table 2. Effects Determinations for Species the Action Agency and/or NMFS Believe May Be Affected by the Proposed Actions

Effects Determination(s) for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action. Please note abbreviations used in the table below: E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect; NE = no effect.

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North Atlantic [NA] distinct population segment [DPS])	T	NLAA	NLAA
Green (South Atlantic [SA] DPS)	T	NLAA	NLAA
Leatherback	E	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Scalloped hammerhead shark (Central and Southwest Atlantic DPS)	T	NLAA	NLAA
Nassau grouper	T	NLAA	NLAA
Giant manta ray	T	NLAA	NLAA
Invertebrates and Marine Plants			
Elkhorn coral (<i>Acropora palmata</i>)	T	NLAA	NLAA
Staghorn coral (<i>Acropora cervicornis</i>)	T	NLAA	NLAA
Boulder star coral (<i>Orbicella franksi</i>)	T	NLAA	NLAA
Mountainous star coral (<i>Orbicella faveolata</i>)	T	NLAA	NLAA
Lobed star coral (<i>Orbicella annularis</i>)	T	NLAA	NLAA
Pillar coral (<i>Dendrogyra cylindrus</i>)	T	NLAA	NLAA

Table 4 provides the effects determinations for designated critical habitat occurring in the action area that the USACE and/or NMFS believe may be affected by the proposed actions.

Table 3. Effects Determinations for Designated Critical Habitat the Action Agency and/or NMFS Believe May Be Affected by the Proposed Actions

Species	Unit	USACE Effect Determination	NMFS Effect Determination
Elkhorn coral	Puerto Rico Area	LAA; no DAM	LAA; no DAM
Staghorn coral	Puerto Rico Area	LAA; no DAM	LAA; no DAM
LAA = likely to adversely affect; DAM = destruction or adverse modification			

3.1 Potential Routes of Effect Not Likely to Adversely Affect Listed Species

NMFS has analyzed the routes effect from the proposed action to sea turtle species and ESA-listed fish species. We have determined the potential routes of effect not likely to adversely affect these species include physical injury from construction activities, temporary habitat loss due to avoidance or exclusion from the action area, and vessel strike as described below.

Effects to sea turtles and ESA-listed fish species include the risk of injury from construction vessels and other construction equipment or materials. We believe this effect is extremely unlikely to occur. Because these species are highly mobile, we expect the species to move away from the project site and into nearby suitable habitat, if disturbed. The applicant's implementation of NMFS Southeast Region's [*Protected Species Construction Conditions*](#) (NMFS 2021), will further reduce the risk to sea turtles and ESA-listed fish by requiring all construction workers to watch for sea turtles and ESA-listed fish. Operation of any mechanical construction equipment will cease immediately if a sea turtle or ESA-listed fish is seen within a 150-ft radius of moving equipment. Activities will not resume until the animal has departed the project area of its own volition.

The action area contains habitat that may be used by sea turtle species and ESA-listed fish species for foraging and refuge. These species may be unable to use this habitat during construction due to avoidance or exclusion from the action area. We believe that any effects from this loss of habitat during construction will be insignificant because they will be temporary (up to 5 days), intermittent (limited to daylight hours only), and will only occur within a small footprint adjacent to otherwise open water. Further, sea turtles and ESA-listed fish species are mobile, and we expect that they will move away from construction activities and use adjacent areas with similar habitat.

As stated above, certain ESA-listed corals—elkhorn, mountainous star, and pillar coral—were identified during benthic surveys. These corals are not located within the footprint where the cable or pipe will be placed, but are located in adjacent areas. Staghorn, boulder star, and lobed star corals, though not identified in the surveys, also may be present within the Action Area, outside of the direct area where the construction will occur. ESA-listed corals may be affected by the resuspension and transport of sediment during the proposed project work. However, we

believe any impacts to listed corals will be insignificant because there is no in-water excavation involved with the cable replacement and all work will be completed by divers.

ESA-listed corals species could be affected by accidental groundings of the work vessels. We believe this risk is extremely unlikely to occur because the project will be completed utilizing the Wave Sentinel which requires no anchoring, given that it uses a Dynamic Positioning System and will not need to traverse the reef areas. Also, support vessels will be utilized to assist in the cable positioning, to support divers, and for the biological monitoring, but due to the shallow draft of these vessels, they are capable of traversing reefs without damage to the reef.

3.2 Status of Critical Habitat Likely to be Adversely Affected

The term “critical habitat” is defined in Section 3(5)(A) of the ESA as (i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (1) essential to the conservation of the species and (2) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” is defined in Section 3(3) of the ESA as “...the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.”

The summary that follows describes the status of the designated critical habitat that occurs within the geographic area of this proposed action and is considered in this Opinion.

3.2.1 Status of Elkhorn and Staghorn Coral Critical Habitat

On November 26, 2008, a Final Rule designating *Acropora* critical habitat was published in the *Federal Register*. Within the geographical area occupied by a listed species, critical habitat consists of specific areas on which are found those physical or biological features essential to the conservation of the species. The feature essential to the conservation of *Acropora* species (also known as the essential feature) is substrate of suitable quality and availability in water depths from the mean high water line to 30 m in order to support successful larval settlement, recruitment, and reattachment of fragments. “Substrate of suitable quality and availability” means consolidated hard bottom or dead coral skeletons free from fleshy macroalgae or turf algae and sediment cover. Areas containing this feature have been identified in 4 locations within the jurisdiction of the United States: the Florida area, which comprises approximately 1,329 square miles (3,442 sq km) of marine habitat; the Puerto Rico area, which comprises approximately 1,383 square miles (3,582 sq km) of marine habitat; the St. John/St. Thomas area, which comprises approximately 121 square miles (313 sq km) of marine habitat; and the St. Croix area, which comprises approximately 126 square miles (326 sq km) of marine habitat. The total area covered by the designation is thus approximately 2,959 square miles (7,664 sq km).

The essential feature can be found unevenly dispersed throughout the critical habitat units, interspersed with natural areas of loose sediment, fleshy or turf macroalgae covered hard substrate. Existing federally authorized or permitted man-made structures such as artificial reefs,

boat ramps, docks, pilings, channels or marinas do not provide the essential feature. The proximity of this habitat to coastal areas subjects this feature to impacts from multiple activities including dredging and disposal activities, stormwater run-off, coastal and maritime construction, land development, wastewater and sewage outflow discharges, point and non-point source pollutant discharges, fishing, placement of large vessel anchorages, and installation of submerged pipelines or cables. The impacts from these activities, combined with those from natural factors (i.e., major storm events), significantly affect the quality and quantity of available substrate for these threatened species to successfully sexually and asexually reproduce.

A shift in benthic community structure from coral-dominated to algae-dominated that has been documented since the 1980s means that the settlement of larvae or attachment of fragments is often unsuccessful (Hughes and Connell 1999). Sediment accumulation on suitable substrate also impedes sexual and asexual reproductive success by preempting available substrate and smothering coral recruits.

While algae, including crustose coralline algae and fleshy macroalgae, are natural components of healthy reef ecosystems, increases in the dominance of algae since the 1980s impedes coral recruitment. The overexploitation of grazers through fishing has also contributed to fleshy macroalgae to persist in reef and hard bottom areas formerly dominated by corals. Impacts to water quality associated with coastal development, in particular nutrient inputs, are also thought to enhance the growth of fleshy macroalgae by providing them with nutrient sources. Fleshy macroalgae are able to colonize dead coral skeleton and other hard substrate, and some are able to overgrow living corals and crustose coralline algae. Because crustose coralline algae is thought to provide chemical cues to coral larvae indicating an area is appropriate for settlement, overgrowth by macroalgae may affect coral recruitment (Steneck 1986). Several studies show that coral recruitment tends to be greater when algal biomass is low (Birrell et al. 2005; Connell et al. 1997; Edmunds et al. 2004; Hughes 1985; Rogers et al. 1984; Vermeij 2006). In addition to preempting space for coral larval settlement, many fleshy macroalgae produce secondary metabolites with generalized toxicity, which also may inhibit settlement of coral larvae (Kuffner and Paul 2004). The rate of sediment input from natural and anthropogenic sources can affect reef distribution, structure, growth, and recruitment. Sediments can accumulate on dead and living corals and exposed hard bottom, thus reducing the available substrate for larval settlement and fragment attachment.

In addition to the amount of sedimentation, the source of sediments can affect coral growth. In a study of 3 sites in Puerto Rico, Torres (2001) found that low-density coral skeleton growth was correlated with increased re-suspended sediment rates and greater percentage composition of terrigenous sediment. In sites with higher carbonate percentages and corresponding low percentages of terrigenous sediments, growth rates were higher. This suggests that re-suspension of sediments and sediment production within the reef environment does not necessarily have a negative impact on coral growth while sediments from terrestrial sources increase the probability that coral growth will decrease, possibly because terrigenous sediments do not contain minerals that corals need to grow (Torres 2001).

Long-term monitoring of sites in the USVI indicate that coral cover has declined dramatically; coral diseases have become more numerous and prevalent; macroalgal cover has increased; fish

of some species are smaller, less numerous, or rare; long-spined black sea urchins are not abundant; and sedimentation rates in nearshore waters have increased from one to 2 orders of magnitude over the past 15 to 25 years (Rogers et al. 2008). Thus, changes that have affected elkhorn and staghorn coral and led to significant decreases in the numbers and cover of these species have also affected the suitability and availability of habitat.

Elkhorn and staghorn corals require hard, consolidated substrate, including attached, dead coral skeleton, devoid of turf or fleshy macroalgae for their larvae to settle. Atlantic and Gulf of Mexico Rapid Reef Assessment Program data from 1997-2004 indicate that although the historic range of both species remains intact, the number and size of colonies and percent cover by both species has declined dramatically in comparison to historic levels (Ginsburg and Lang 2003). Monitoring data from the USVI TCRMP indicate that the 2005 coral bleaching event caused the largest documented loss of coral in USVI since coral monitoring data have been available with a decline of at least 50% of coral cover in waters less than 25 m deep (Smith et al. 2011). Many of the shallow water coral monitoring stations showed at most a 12% recovery of coral cover by 2011, 6 years after the loss of coral cover due to the bleaching event (Smith et al. 2011). The lack of coral cover has led to increases in algal cover on area hard bottom, including the critical habitat essential feature.

4 ENVIRONMENTAL BASELINE

This section describes the effects of past and ongoing human and natural factors contributing to the current status of the affected elkhorn and staghorn coral critical habitat in the action area. The environmental baseline describes the critical habitat's health based on information available at the time of this consultation.

By regulation (50 CFR 402.02), environmental baseline refers to the condition of the designated critical habitat in the action area, without the consequences to the designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Focusing on the current state of critical habitat is important because in some areas, critical habitat features will commonly exhibit, or be more susceptible to, adverse responses to stressors than they will be in other areas, or may have been exposed to unique or disproportionate stresses. These localized stress responses or stressed baseline conditions may increase the severity of the adverse effects expected from the proposed action.

4.1 Status of Elkhorn and Staghorn Coral Designated Critical Habitat within the Action Area

Above we described the status of elkhorn and staghorn coral critical habitat, including the Puerto Rico elkhorn and staghorn coral critical habitat unit. Within the Puerto Rico elkhorn and staghorn coral critical habitat marine unit, approximately 292 mi² (756 km²) are likely to contain the essential feature of ESA-designated elkhorn and staghorn coral critical habitat, based on the amount of coral, rock reef, colonized hard bottom, and other coralline communities mapped by NOAA's National Ocean Service (NOS) Biogeography Program in 2000 (Kendall et al. 2001). Within the action area, the essential feature of elkhorn and staghorn coral critical habitat is present along the cable corridor and areas adjacent to the cable. Impacts to critical habitat described in Section 3.2.1 include land-based sources of pollutants, fishing activities, boating, and commercial activities. Approximately 935.87 ft² of patch reefs that contain the essential feature of elkhorn and staghorn coral critical habitat will be in the footprint of the cable corridor. Large areas of coral reef and colonized hard bottom are in the immediate area of Isla Verde where project activities will take place. Given that the action area includes recreational boating, commercial operations, and areas with coastal development, we believe the status of critical habitat described in Section 3.2.1 accurately reflects the status of critical habitat within the action area.

4.2 Factors Affecting Elkhorn and Staghorn Coral Designated Critical Habitat within the Action Area

Federal Actions

Several types of fishing gear may adversely affect coral colonies and critical habitat. Longline, other types of hook-and-line gear and traps have all been documented as interacting with coral habitat and coral colonies in general, though no data specific to ESA-listed corals and their habitat are available. Available information suggests hooks and lines can become entangled in reefs, resulting in breakage and abrasion of corals. Net fishing can also affect coral habitat and coral colonies if this gear drags across the marine bottom either due to efforts targeting reef and hard bottom areas or due to derelict gear. Studies by Sheridan et al. (2003) and Schärer et al. (2004) showed that most trap fishers do not target high-relief bottoms to set their traps due to potential damage to traps. Unfortunately, lost traps and illegal traps can affect corals and their habitat if they are moved onto reefs or colonized hard bottoms during storms or placed on coral habitat because the movement of the traps leads to breakage and abrasion of corals.

Potential sources of adverse effects such as anchor and propeller damage and accidental groundings from federal vessel operations in the action area include operations of the Environmental Protection Agency (EPA) and NOAA, as well as the United States Coast Guard. EPA conducts coral surveys at different locations around Puerto Rico, often annually. In the past, EPA used a large research vessel but the agency no longer owns the vessel so any survey operations are done using smaller motorized vessels, typically through rental agreements with local operators. NMFS has not completed a Section 7 consultation with EPA for their coral survey program at this time. Similarly, NOAA, including NOS and other Line Offices, conduct coral reef monitoring in the action area. NOS and the Southeast Fishery Science Center lead the

NOAA National Coral Reef Monitoring Program efforts that take place every 2 years at randomly selected sampling sites around Puerto Rico. NOAA's Coral Reef Conservation Program has been in conversations with NMFS's Office of Protected Resources in Silver Spring regarding the possibility of completing a programmatic Section 7 consultation for the monitoring program and other efforts that receive some or all of their funding from the coral program, but no consultation has been completed to date.

Federal agencies such as the USACE are responsible for the permitting of coastal and marine development activities including the construction of docks, boardwalks along the shoreline, and dredging, all of which are activities that have been permitted within the last 5 years in the action area by the USACE. We have conducted consultations with the USACE for those projects that had the potential to affect ESA resources under our purview.

Non-federal Actions

A number of non-federal activities that may adversely affect designated critical habitat for elkhorn and staghorn corals include upland development that does not require federal permits or does not otherwise have a federal nexus (i.e., residential, agriculture), depending on the size of the development. Development can affect water quality and lead to habitat destruction, in particular through the transport of land-based sources of pollution in sediments and stormwater runoff, but this development often does not require federal authorization. NMFS does not have any knowledge of state or private actions occurring in or near to the action area that may affect these resources that would not also require a federal permit; the likelihood of a shoreline-adjacent project occurring in or near to the action area that does not require a federal permit for in-water construction work, for instance, is very small.

4.3 Other Potential Sources of Impacts to the Environmental Baseline

Hurricanes and large coastal storms can also harm corals and alter their habitat. Historically, large storms potentially resulted in asexual reproductive events if the fragments encountered suitable substrate, attached, and grew into new colonies. Over the past 2 decades, the amount of suitable substrate has been significantly reduced; therefore, many fragments created by storms die. Hurricanes are also sometimes beneficial, if they do not result in heavy storm surge and associated damage to corals, during years with high sea surface temperatures because hurricanes and other storms lower water temperatures. This provides relief to corals during periods of high thermal stress (Heron et al. 2008). Major hurricanes have caused significant losses in coral cover and changes in the physical structure of many reefs in the U.S. Caribbean. Flooding from hurricane events leads to transport of land-based sources of pollutants to reefs, along with an influx of freshwater to nearshore environments that affects water quality, in addition to the physical damage caused by the storms themselves and by the discharge of debris from large rivers during storm flows. There are also reports of widespread damage to coral habitats around Puerto Rico and the fringing reefs are likely to have suffered impacts based on the reports of storm surge effects in this area. Based on data from the NOAA Office for Coastal Management, there have been a total of 21 hurricanes and tropical storms that have affected Puerto Rico between 1975 and 2017, including most recently Hurricanes Irma and Maria.

4.4 Activities That May Benefit Elkhorn and Staghorn Coral Critical Habitat in the Action Area

The Coral Reef Conservation Act and the FMPs established by the CFMC under the Magnuson-Stevens Fishery Conservation and Management Act (the Reef Fish Fishery of Puerto Rico and the U.S. Virgin Islands and the Corals and Reef Associated Plants and Invertebrates of Puerto Rico and the U.S. Virgin Islands), require the protection of corals and prohibit the collection of hard corals.¹ The protection of corals also includes protecting their habitat so that they can continue to thrive. Activities to prohibit the collection of hard corals would benefit the hard substrate and critical habitat.

The Commonwealth Government regulates activities that occur in terrestrial and marine habitats of Puerto Rico. Puerto Rico Regulation 6766 (Law 241 of 1999, the New Wildlife Law) establishes protections for listed species. Permits can be issued by the Secretary of the Puerto Rico Department of Natural and Environmental Resources (PRDNER) for the collection and transport of species listed by the Commonwealth as vulnerable, threatened, endangered, or critically endangered species for rehabilitation, scientific use, or survival and species' benefit purposes (Note that federally-listed species are also protected through this Commonwealth regulation, as is ESA-designated critical habitat). In addition, the regulation prohibits the modification of listed species' habitat without a mitigation plan approved by the Secretary of PRDNER, although the regulation also restricts the type of habitat that can be modified at all. Regulation 6768 under the same law also regulates the collection of all organisms, not just listed species. The PRDNER Secretary can issue a collection permit for the purposes of scientific investigation, or educational activities or exhibits. Puerto Rico Law 147 of 1999 for the protection, conservation, and management of coral reefs in Puerto Rico, prohibits the removal, extraction, mutilation, or destruction of coral reefs and associated systems. The Secretary of PRDNER can issue permits for scientific investigations that require extraction of corals, or those that will otherwise affect corals.

Additionally, Puerto Rico has a state regulatory program that regulates most land, including upland and wetland, and surface water alterations, including in partnership with NOAA under the Coastal Zone Management Act, and EPA under the Clean Water Act. EPA has maintained regulatory authority for some activities regulated under the Clean Water Act, such as the non-point source discharge elimination system permits.

Section 6 of the ESA allows NMFS to enter into cooperative agreements with states to assist in recovery actions of ESA-listed species, including scientific research related to documenting species condition and trends in presence and abundance, and efforts to recover species could benefit critical habitat. PRDNER renewed its Section 6 agreement with NMFS this fiscal year. Recovery actions may also include the collection of fragments from coral colonies, their grow-out in nursery areas, and the outplanting of fragments. The PRDNER has issued memoranda of understanding to several coral nursery operators with coral nurseries in various areas around

¹ The Caribbean Council developed and the Secretary of Commerce has approved three island-based FMPs to replace the species-based FMPs described here. NMFS is in the process of developing regulations to implement the island-based FMPs, including the Puerto Rico FMP. The Puerto Rico FMP prohibits harvest of all corals in federal waters off Puerto Rico.

Puerto Rico. The PRDNER is also the entity responsible for permitting the use of coral species, including ESA-listed corals, in coral nurseries. NMFS is currently conducting an ESA Section 7 consultation with the USACE for the issuance of a Regional General Permit, SAJ-112, that will authorize the installation and maintenance of coral nursery operations up to 1 ac in size that do not require the placement of fill, such as the installation of PVC “trees”. NOAA’s Restoration Center also maintains coral nurseries in various locations around Puerto Rico and uses farmed corals in efforts to repair damage from vessel groundings on reefs.

NMFS convened a team comprised of fishers, scientists, managers, and agency personnel from Florida, Puerto Rico, and USVI, as well as federal representatives to create a recovery plan for elkhorn and staghorn corals. NMFS has also created a recovery outline for the development of a recovery plan for the five additional coral species that were listed in September 2014.² This recovery plan is dependent on the presence and vitality of the coral critical habitat in order for the species to recover, if there is not suitable habitat the species cannot continue to recover.

The NOAA Coral Reef Conservation Program, through its internal grants, external grants, and grants to the Territory, Commonwealth, and the CFMC, has provided funding for several activities with an education and outreach component for informing the public about the importance of the coral reef ecosystem of the USVI and Puerto Rico. The NMFS Southeast Regional Office has also developed outreach materials regarding the listing of elkhorn and staghorn corals, the listing of 5 other coral species on September 10, 2014, the ESA Section 4(d) rule for elkhorn and staghorn corals, and the designation of elkhorn and staghorn coral critical habitat. These materials have been circulated to constituents during education and outreach activities and public meetings, and as part of other Section 7 consultations, and are readily available on the web: http://sero.nmfs.noaa.gov/protected_resources/coral/index.html.

5 EFFECTS OF THE ACTION ON CRITICAL HABITAT

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02).

In this section of our Opinion, we assess the effects of the action on critical habitat that is likely to be adversely affected. The analyses in this section form the foundation for our destruction or adverse modification analysis in Section 7.0. The quantitative and qualitative analyses in this section are based upon the best available commercial and scientific data on species biology, critical habitat, and the effects of the action. Data are limited, so we are often forced to make assumptions to overcome the limits in our knowledge. Sometimes, the best available information may include a range of values for a particular aspect under consideration, or different analytical approaches may be applied to the same data set. In those cases, the uncertainty is resolved in favor of the species (House of Representatives Conference Report No. 697, 96th Congress,

² http://sero.nmfs.noaa.gov/protected_resources/coral/documents/recovery_outline.pdf

Second Session, 12 (1979)). NMFS generally selects the value that would lead to conclusions of higher, rather than lower risk to critical habitat. This approach provides the “benefit of the doubt” to threatened and endangered species.

5.1 Effects to the Substrate of Suitable Quality and Availability Essential Feature of Elkhorn and Staghorn Coral Designated Critical Habitat

The substrate of suitable quality and availability essential feature of elkhorn and staghorn coral designated critical habitat will be affected by the complete loss of this essential feature due to placement of the larger cable footprint in Section 1 only; therefore, we believe the installation of the repaired sections of cable is likely to adversely affect elkhorn and staghorn designated critical habitat as summarized in Table 4 below.

Table 4. Summary of the Permanent Effects to Critical Habitat (From Attachment D Submitted by Applicant)

Proposed Action	Total Area Affected by Current Cable (ft ²)	Total Area Affected by Proposed Action (ft ²)	Net Increase of Area Affected (ft ²)	Total Critical Habitat Affected by Current Cable (ft ²)	Total Critical Habitat Affected by Proposed Action (ft ²)	Net Increase of Critical Habitat Affected
Section 1	455.7	1,424.73	969.03	271.07	1,206.94	935.87
Section 2	60.28	279.54	219.26	0	0	0
Section 3	30.14	139.77	109.63	0	0	0
Areas outside of Sections 1, 2, 3	488.57	555.53	70.21	0	0	0
Total	1,034.69	2399.57	1,297.92	271.07	1,206.94	935.87

5.2 Summary of Effects to Elkhorn and Staghorn Coral Designated Critical Habitat

In summary, we believe the proposed action will adversely affect a total of 1,206.94 ft² (0.0277 ac)³ of elkhorn and staghorn coral designated critical habitat, which is an increase in 935.87 ft² (0.0215 ac), as summarized in Table 4.

6 CUMULATIVE EFFECTS

ESA Section 7 regulations require NMFS to consider cumulative effects in formulating its Opinions (50 CFR 402.14). Cumulative effects include the effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur in the action area considered in this Opinion (50 CFR 402.02).

³ 1 square foot = 0.0000229568 acres

No categories of effects beyond those already described are expected in the action area, and we did not identify any new future state, tribal or private activities reasonably certain to occur in the action area of the proposed action. Therefore, NMFS expects that the levels of interactions with elkhorn and staghorn critical habitat described for each of the fisheries and non-fisheries activities in Section 4.2 will continue at similar levels into the foreseeable future.

7 DESTRUCTION/ADVERSE MODIFICATION ANALYSIS

NMFS's regulations define *Destruction or adverse modification* to mean "a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species." (50 CFR 402.02). Alterations that may destroy or adversely modify critical habitat may include impacts to the area itself, such as those that would impede access to or use of the essential features. NMFS will generally conclude that a Federal action is likely to "destroy or adversely modify" designated critical habitat if the action results in an alteration of the quantity or quality of the essential physical or biological features of designated critical habitat, and if the effect of the alteration is to appreciably diminish the value of critical habitat for the conservation of the species.

This analysis takes into account the geographic and temporal scope of the proposed action, recognizing that "functionality" of critical habitat necessarily means that it must now and must continue in the future to support the conservation of the species and progress toward recovery. The analysis takes into account any changes in amount, distribution, or characteristics of the critical habitat that will be required over time to support the successful recovery of the species. Destruction or adverse modification does not depend strictly on the size or proportion of the area adversely affected, but rather on the role the action area and the affected critical habitat serves with regard to the function of the overall critical habitat designation, and how that role is affected by the action.

Elkhorn and Staghorn Coral Critical Habitat

The critical habitat rule for elkhorn and staghorn corals identified specific areas where the feature essential to the conservation of Atlantic elkhorn and staghorn species (also known as the essential feature) occurs in four units within the jurisdiction of the United States: Florida, Puerto Rico, St. Thomas/St. John, and St. Croix. The proposed action occurs within the Puerto Rico Unit of elkhorn and staghorn coral designated critical habitat. The Puerto Rico Unit has approximately 292 mi² (756 km²) that are likely to contain the essential element of ESA-designated elkhorn and staghorn coral critical habitat, based on the amount of coral, rock reef, colonized hard bottom, and other coralline communities mapped by NOAA's NOS Biogeography Program in 2000 (Kendall et al. 2001). The key objective for the conservation and recovery of elkhorn and staghorn corals that is the basis for the critical habitat designation is the facilitation of an increase in the incidence of sexual and asexual reproduction. Recovery cannot occur without protecting the essential feature of coral critical habitat from destruction or adverse modification because the quality and quantity of suitable substrate for ESA-listed corals affects their reproductive success. As noted in the rule designating coral critical habitat (73 FR 72210, November 26, 2008), the loss of suitable habitat is one of the greatest threats to the recovery of

listed elkhorn and staghorn coral populations. Man-made stressors have the greatest impact on habitat quality for listed elkhorn and staghorn corals.

The loss of the essential feature or a reduction in the function of the essential feature affects the reproductive success of listed elkhorn and staghorn corals because substrate for sexual recruits to settle is lost or unavailable. Critical habitat was designated for elkhorn and staghorn corals, in part, because further declines in the low population sizes of the species could lead to threshold levels that make the chances for recovery low. More specifically, low population sizes for these species could lead to an Allee effect (decline in individual fitness at low population size or density that can result in critical population thresholds below which populations crash to extinction), lower effective density of genetically distinct adults required for sexual reproduction, and a reduced source of fragments for asexual reproduction and recruitment. In other words, colonies may be separated by too much distance for successful sexual reproduction to occur. Isolation of settlement habitat and declines in the quality of habitat for coral larvae to settle and grow make the problem worse.

Therefore, the key conservation objective of designated coral critical habitat is to increase the potential for successful sexual and asexual reproduction, which in turn facilitates increases in the species' abundance, distribution, and genetic diversity. To this end, our analysis seeks to determine whether or not the proposed action is likely to destroy or adversely modify designated critical habitat, in the context of the Status of Elkhorn and Staghorn Coral Critical Habitat (Section 3.2), the Environmental Baseline (Section 4), the Effects of the Action (Section 5), and Cumulative Effects (Section 6). Ultimately, we seek to determine if critical habitat will remain functional to serve the intended conservation role for the species with the implementation of the proposed action, or whether the conservation function and value of critical habitat as a whole is appreciably diminished through alterations to the physical or biological features essential to the conservation of a species. The first step in this analysis is to evaluate the project's expected effects on the species' ability to meet identified recovery objectives relevant to the key conservation objective of critical habitat, given the effects of the proposed action.

There are two relevant recovery objectives in the Elkhorn and Staghorn Recovery Plan⁴ related to the proposed action's effects on elkhorn and staghorn coral designated critical habitat. Objective 1 of the recovery plan ensures population viability while, Objective 2 focuses on eliminating or sufficiently abating global, regional and local threats. Criterion 1 of Objective 1 assesses coral population abundance and Criterion 6 of Objective 2 evaluates loss of recruitment habitat. These two criteria work in concert because successful reproduction and increases in the populations of the species are dependent on available substrate for recruits to settle and grow.

Criterion 1 of Recovery Objective 1: Abundance

The recovery strategy for elkhorn and staghorn corals requires simultaneous increases in recruitment and abundance of large colonies while maintaining genetic diversity. Criterion 1 is population-based and measures whether stable, abundant, and genetically diverse populations of elkhorn and staghorn corals are present throughout their geographic ranges. Criterion 1 assesses coral population abundance and states the following:

⁴ NMFS. Recovery Plan: Elkhorn Coral (*Acropora palmata*) and Staghorn Coral (*A. cervicornis*). March 2015

Staghorn coral: Thickets are present throughout approximately 5 percent of consolidated reef habitat in 5 to 20 m water depth within the forereef zone. Thickets are defined as a recovered population of staghorn coral achieving a density of 1 colony (≥ 0.5 m diameter in size) per 1 square meter (m^2), throughout approximately 5% of consolidated reef habitat in 5-20 m water depth throughout the species' range.

and

Elkhorn coral: Thickets are present throughout approximately 10 percent of consolidated reef habitat in 1 to 5 m water depth within the forereef zone. Thickets are defined as a recovered elkhorn coral population achieving a density of 0.25 colonies (≥ 1 m diameter in size) per 1 m^2 , throughout approximately 10% of consolidated reef habitat in 5-20 m water depth throughout the species' range.

Typically, we assume that the expected conservation potential of critical habitat within the affected area can be estimated by applying these metrics for a recovered population. Applying these criteria to the area of critical habitat that we expect to be permanently adversely affected helps to understand the maximum recruitment habitat that the affected area could provide, but for the proposed action. When a large contiguous area is going to be adversely affected by an action, we calculate the number of colonies of certain size and density that the affected area could support to fulfill the population viability requirements identified by the recovery team in Criterion 1. That is because the sole purpose of critical habitat is to provide the substrate necessary to support a recovered population. This calculation helps to identify the relative conservation value of an affected area to the conservation value of critical habitat as a whole.

However, to have conservation value, an area must be capable of supporting thickets necessary to achieve the densities that characterize a recovered population. When an area that is small, discontinuous, or irregularly configured is adversely affected, this calculation is not appropriate because that area will not be capable of supporting thickets and achieving the recovery criterion. The proposed action will cover a small area of the essential feature, resulting in the loss of 935.87 ft^2 (0.0215 ac) in the reef. However, the irregular, elongated, thin shape of that 935.87 ft^2 (0.0215 ac) would not support thickets as described above. In addition, loss of that small area will not impede the ability of the surrounding and available essential feature to support the thickets required for recovery under abundance Criterion 1.

Criterion 6 of Recovery Objective 2: Loss of Recruitment Habitat (Listing Factor A)

Criterion 1, Abundance above addresses the threat of Loss of Recruitment Habitat because the criterion specifies the amount of habitat occupied by the two species. If Criterion 1 is met, then this threat is sufficiently abated;

Or

Throughout the range of these two species, at least 40% of the consolidated reef substrate in 1 – 20 m depth within the forereef zone remains free of sediment and macroalgal cover as measured on a broad reef to regional spatial scale.

This analysis focuses on the proposed action's effects on the second, alternative prong of Criterion 6. The proposed action is expected to eliminate 935.87 ft² (0.0215 ac) of the essential feature. The loss of 0.0215 ac represents a 0.0000115% reduction in reef and hard bottom habitat in the Puerto Rico Unit of 292 mi² (186,880 ac) (0.0215 ac divided by 186,880 ac of critical habitat times 100).

The loss of this very small percentage of available critical habitat will not appreciably reduce the Puerto Rico Unit's ability to maintain the reef structure required under recovery Criterion 6 (at least 40% of the reef structure within the forereef remains free of sediment and macroalgal cover) for elkhorn and staghorn coral.

In Section 3.3, Status of Critical Habitat Likely to be Adversely Affected, we document that there has been a significant decline of elkhorn and staghorn coral throughout their range, with recent population stability at low percent coverage. Our analysis for the proposed action has shown that the proposed action will not appreciably diminish the Puerto Rico Unit of elkhorn and staghorn coral designated critical habitat's conservation value. Thus, we do not believe recovery of the species will be delayed as a result of the proposed action. Therefore, we conclude the project is not likely to destroy or adversely modify designated critical habitat for elkhorn and staghorn coral as a whole.

8 CONCLUSION

NMFS has analyzed the best available data, the current status of the species, environmental baseline, effects of the proposed action, and cumulative effects to determine whether the proposed action is likely to result in the destruction or adverse modification of critical habitat for elkhorn and staghorn corals. It is our Opinion that the proposed action is not likely to impede the critical habitat's ability as a whole to support the conservation of elkhorn and staghorn coral. Thus, we conclude that the action, as proposed, is likely to adversely affect, but will not destroy or adversely modify designated critical habitat for elkhorn and staghorn corals.

9 INCIDENTAL TAKE STATEMENT

NMFS does not anticipate that the proposed action will incidentally take any species and no take is authorized. Nonetheless, take of any ESA-listed species shall be immediately reported to takereport.nmfsser@noaa.gov. Refer to the present Opinion by title, SMITCOMS Inc./Telecom Group Communication Cable Repair, issuance date, NMFS PCTS identifier number, SERO-2021-01334, and USACE permit number, SAJ-2003-12401(NWP-CGR). At that time, consultation must be reinitiated.

10 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations identified in Opinions can assist action agencies in implementing their responsibilities under Section 7(a)(1). Conservation recommendations are discretionary activities designed to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The following conservation recommendations are discretionary measures that NMFS believes are consistent with this obligation and therefore should be carried out by the federal action agency:

1. We recommend that NMFS's *Protected Species Construction Conditions* (NMFS 2021) and NMFS's *Vessel Strike Avoidance Measures and Injured or Dead Protected Species Reporting* (2008) be included in the design of projects requiring the installation of in-water structures or other in-water or shoreline construction activities, as appropriate, in order to minimize the potential impacts to all ESA-listed sea turtle species during construction and operation of project components.
2. We recommend that the USACE prepare a report of all permitted and proposed submarine cable and utility corridor projects in the range of ESA-corals and its critical habitat to assess cumulative impacts of these projects on these coral species and to develop recommended corridors to concentrate impacts in the same areas for similar projects.
3. We recommend that USACE forward any monitoring reports collected from the applicant during post construction monitoring.

To stay abreast of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

11 REINITIATION OF CONSULTATION

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of taking specified in the proposed actions is exceeded; (2) new information reveals effects of the actions that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified actions are subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the Biological Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified actions.

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