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F/SER31:MDA
SERO-2021-01551

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(s)	Applicant(s)	SER Number	Project Type(s)
SAJ-2018-01107 (SP-DCM)	Virgin Islands Water and Power Authority (VIWAPA)	SERO-2021-01551	Submarine Power Cables with Fiber Optic Capacity

The Opinion considers the effects of communications cable repair by VIWAPA on the following listed species and/or critical habitat: green sea, leatherback, hawksbill, and loggerhead sea turtles; scalloped hammerhead shark, Nassau grouper, giant manta ray, and oceanic whitetip shark; elkhorn coral and staghorn coral and their critical habitat; boulder star, mountainous star, lobed star, rough cactus coral, and pillar corals; and blue, fin, sei, and sperm whales. 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, rough cactus 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 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: Virgin Islands Water and Power Authority (VIWAPA)
Permit Number SAJ-2018-01107 (SP-DCM)

Activity: Submarine Power Cables, U S Virgin Islands

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

Tracking Number SERO-2021-01551

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

Date Issued: _____

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ACRONYMS AND ABBREVIATIONS

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
MHTL	Mean High Tide Line
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
Opinion	Biological Opinion
PRD	NMFS Southeast Regional Office Protected Resources Division
US	United States of America
USACE	US Army Corps of Engineers
USVI	US Virgin Islands
VIWAPA	Virgin Islands Water and Power Authority

UNITS OF MEASUREMENT

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 U S Virgin Islands (USVI). 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-2021-01551, Virgin Islands Water and Power Authority (VIWAPA)

On December 28, 2018, the U.S. Army Corps of Engineers (USACE) issued a public notice regarding the referenced permit application. Via electronic message dated February 14, 2019, NMFS, Protected Resources Division (PRD) provided comments in response to the public notice.

On June 30, 2021, we received your letter requesting the consultation. We requested additional information on March 10, 2022. We received a response on April 5, 2022 and initiated consultation that same day.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

The applicant seeks authorization to install three, 4.7 inches (in) in diameter submarine electrical cables with fiber optic capacity with an 8 in diameter articulated pipe laid over it in navigable waters of the U.S. totaling 96,104 feet. The first cable segment would be installed from Krum Bay to St. Thomas Harbor, and would connect VIWAPA's Randolph Harley Power Plant with the West Indies Company's Havensight Cruise Ship Terminal to supply electrical service to the cruise ships while they are at port. The second cable segment would be installed between St. Thomas Harbor and Bovoni Bay, and would connect the Havensight landing to a new proposed landing at Estate Bovoni. This new landing would allow a future power generation facility to be developed in uplands in the Bovoni area to serve as a redundant power source for St. Thomas. The third cable segment would be installed from Bovoni Bay to Red Hook Bay and would connect the Bovoni landing to the existing landing at Red Hook. This cable segment would provide a redundant power connection to the east end of St. Thomas and to St. John (since there are already two existing cables between Red Hook and Frank Bay, St. John).

Figure 1 – Project Location

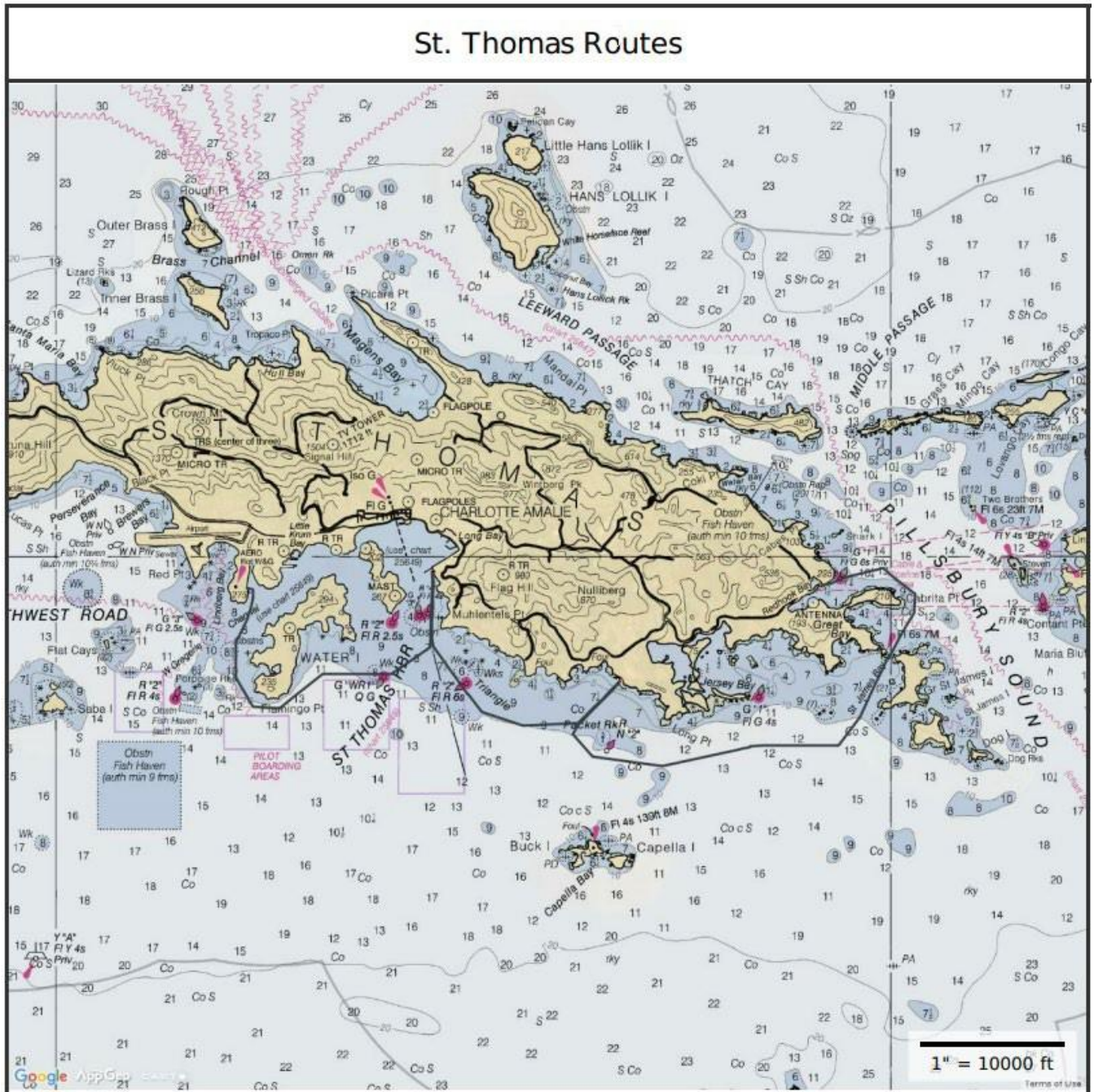


Table 1 Location coordinates of the proposed landing sites

Landing Site Description	Latitude (WGS84)	Longitude(WGS84)
Segment 1: Krum Bay – St. Thomas Harbor Corridor		
Krum Bay Landing	18.32752°	-64.96185°
St. Thomas Harbor Landing	18.33062°	-64.92447°
Segment 2: St. Thomas Harbor – Bovoni Bay Corridor		
St. Thomas Harbor Landing	18.33060°	-64.92445°
Bovoni Bay Landing	18.31020°	-64.88703°
Segment 3: Bovoni Bay – Red Hook Bay Corridor		
Bovoni Bay Landing	18.30997°	-64.88685°
Red Hook Bay Landing	18.32808°	-64.84728°

The proposed cables would be “free laid” along the sea floor. At the proposed landing points, the cable laying vessel would be positioned off the shore at an appropriate water depth to prevent any bottom disturbance. The vessel would be maintained in place by dynamic positioning, thus anchoring would not be required. Once the vessel is in place, the corresponding cable would be pulled with a rope and floated ashore (using large floats and a small boat) from the vessel into a beach manhole or other landing connection, where it would be secured at the beach joint. No excavation, trenching or backfilling activities would be conducted below the mean high tide line (MHTL) associated with the landings. In the deeper water (offshore) portions of the corridors, the cables would be floated from the cable laying vessel (or barge, depending on the water depth at each particular site) and positioned over the pre-marked routes by divers, who would assist during the laying operations to ensure the cables avoid corals and other sensitive benthic organisms where present. The divers would remove the floats from the cables one at a time, allowing the cables to settle to the seafloor with sufficient slack to allow for limited repositioning, if necessary. Upon completion of the cable installation activities, articulated pipe would be installed to cover and secure the cables to the sea floor in the shallow water areas containing hardbottom at the landing sites. The articulated pipe would be anchored to the sea bottom using anchor bolts that would be drilled into the hardbottom and epoxied in place. The Krum Bay, St. Thomas Harbor, Bovoni Bay, and Red Hook Bay landings would require 35 feet (ft), 100 ft (on each of 2 cables), 350 ft (on each of 2 cables), and 105 ft of articulated pipe to be installed seaward of the MHTL, respectively. The entire installation operation would take approximately two weeks per cable, in total 6 weeks. Overall, the proposed project would require impacts to approximately 399.6 square feet (ft²) of hardbottom habitats (Krum Bay – St. Thomas cable segment - 14.6 ft², St. Thomas Harbor – Bovoni Bay cable segment - 67.5 ft², and Bovoni Bay – Red Hook Bay cable segment - 317.5 ft²) and temporary impacts to approximately 3,645 ft² of seagrass areas.

Table 2 Total Impacts at Each Segment

SEGMENT	CABLE LENGTH(ft)	CABLE DIAMETER	ARTICULATED PIPE(ft)	CRITICAL HABITAT(ft ²)	SEAGRASS(ft ²)
KRUM BAY-HAVENSIGHT	29,667	120 mm (4.7")	8" Diameter - 135	14.6	900
HAVENSIGHT-BOVONI	22,694	120 mm (4.7")	8" Diameter - 450	67.5	1975
BOVONI-REDHOOK	43,743	120 mm (4.7")	8" Diameter - 455	317.5	770
TOTAL	96,104		8" Diameter - 1040	399.6	3645

Construction Conditions

The applicant has agreed to adhere to NMFS Southeast Region’s *Protected Species Construction Conditions* (NMFS 2021) and NMFS’ *Vessel Strike Avoidance Measures, NOAA Fisheries Southeast Regional Office*, revised on May 2021. The applicant has also agreed to the following construction conditions:

- The cable routes and nearby sensitive benthic habitats along the routes would be marked prior to the laying of the cables (routes would be marked with nails, flags, and/or weighed lines in hardbottom areas and with pin flags in sandy areas, whereas nearby sensitive habitats would be marked with buoys to ensure that project vessels stay away from those habitats)
- The cable laying vessel would be positioned offshore of the landing points at a sufficient water depth to prevent any bottom disturbance, and a small (shallow-draft) vessel would be used to pull the cables ashore into the landings. The new cable section shall be marked on the seafloor by divers prior to the commencement of any cable laying operations. The cables will be lain by hand by divers. Divers will ensure that new cable does not contact any corals, including ESA-listed corals.
- The cable terminal ends would be floated ashore so that they do not drag on the bottom and impact corals or other benthic resources.
- The laying of the proposed cables would be conducted without anchoring of the cable laying vessel. It will be a special condition of the USACE permit that anchoring is prohibited in seagrass beds or hardbottom.
- The lowering and final positioning of the cables would be assisted by divers, who would ensure that cables are placed on the sea bottom right on the marked routes along the shallow waters near the landings, and would maneuver/relocate the cables around any sensitive areas or organisms along the deeper sections of the routes, as necessary, during post-deployment monitoring dives.
- The cable routes would be monitored and videoed prior to, immediately after, and for the next 3.5 years after cable placement, as part of a monitoring plan intended to avoid, minimize and compensate, if necessary, any impacts to federally protected corals, seagrass and/or coral designated critical habitat (DCH) resulting from the installation of the cables.
- The cable laying activities would not take place during inclement weather conditions, high swells or severe currents (to prevent vessel impacts to sensitive benthic resources).
- The cables have been routed to give ESA-listed corals a minimum of a 25 ft clearance except in one circumstance where there will be 12 ft clearance from a single *Orbicella* colony.

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 action area includes the footprint of the proposed cables and articulated pipes (which have approximate diameters of 5 in and 8 in, respectively) and navigable waters extending 4 meters (m) from both sides of the cables footprint. These boundaries were established to include the project footprint, as well as adjacent open water areas along the project corridors where sensitive aquatic resources (such as seagrass beds, federally protected corals, reefs, hardbottom, and coral critical habitat) could be directly or indirectly affected by the proposed project. The established boundaries account for the accuracy of cable placement by the cable lying vessel/barge (+/-10% water depth).

Krum Bay – St. Thomas Harbor Corridor

Krum Bay terminus would be located on the northern side of the fuel pier at the Randolph Harley Power Plant facility (rather than on the southern side of the pier, like the existing cables) to avoid a shallow reef that is colonized by federally protected ESA-listed corals. There are also some non-ESA listed corals on the rip rap at the terminus that are being avoided. The proposed cable would come off the rip-rap lined shoreline onto a sandy shelf sparsely colonized by seagrass before dropping into a deeper uncolonized channel. The cable placement in these seagrass areas would require direct temporary impacts to approximately 900 ft² and the applicant stated that they expect the seagrasses to return to pre-lay conditions within 3-9 months once the cable self-buries. The depths on this corridor range from 0 ft to 80 ft.

According to the information provided, there are no federally protected corals within the action area for this cable corridor. Regarding coral DCH, the information provided indicates that the placement of the cable and installation of articulated pipe over approximately 19.5 linear ft of rip-rap lined shoreline at the Krum Bay terminus would result in direct impacts to approximately 14.6 ft² of hardbottom, stated in Table 2 above.

St. Thomas Harbor – Bovoni Bay Corridor

USACE indicates that the cable would cross sea bottom areas with seagrasses and would impact 1,975 ft² of seagrass. The cable would also cross a small area of hardbottom covered with a sand veneer that is not considered coral critical habitat.

Cable placement and installation of articulated pipe over approximately 90 linear ft of rip-rap and bedrock at the Bovoni shoreline would result in impacts to about 67.5 ft² of coral critical habitat within the action area. The cable has been routed to maintain a minimum clearance of 25 ft from any ESA-listed corals. Water depths along the proposed cable corridor range from 0 ft to approximately 65 ft.

Bovoni Bay – Red Hook Bay Corridor

In this corridor, the cable would cross shoreline rip-rap (90 linear ft), impact a total of 317.5 ft² coral critical habitat (67.5 ft² + 250 ft²), and impact 150 ft² of seagrasses. The cable would maintain a 25 ft buffer to all encountered ESA-listed corals (except for one, see next paragraph).

Post lay, divers would relocate the cable to sand pockets and grooves, as needed, to minimize impacts to hardbottom where possible.

There are 12 ESA-listed corals along the Red Hook landing site. All these corals have been mapped/marked and the cable has been routed to maintain as much clearance as possible from them. One *Orbicella* is located about 12 ft to the west of the proposed cable route (within the established action area). The cable would be lain by divers in these shallow waters near the landing and therefore, no impacts to ESA-listed corals would occur. Water depths along this proposed cable corridor range from 0 ft to approximately 95 ft.

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 3. The section also describes the status of listed species and/or critical habitat that may be adversely affected by the proposed action.

Table 3. 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
Loggerhead (Northwest Atlantic [NWA] DPS)	T	NLAA	NLAA
Fish			
Scalloped hammerhead shark (Central and Southwest Atlantic [SWA] DPS)	T	NLAA	NLAA
Nassau grouper	T	NLAA	NLAA
Giant manta ray	T	NLAA	NLAA
Oceanic whitetip shark	T	NLAA	NLAA
Invertebrates			
Elkhorn coral	T	NE	NLAA
Staghorn coral	T	NE	NLAA

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Boulder star coral	T	NE	NLAA
Mountainous star coral	T	NLAA	NLAA
Lobed star coral	T	NLAA	NLAA
Pillar coral	T	NE	NLAA
Rough cactus coral	T	NE	NLAA
Marine Mammals			
Blue whale	E	NLAA	NLAA
Fin Atlantic right whale	E	NLAA	NLAA
Sei whale	E	NLAA	NLAA
Sperm whale	E	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 4. 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	St. Thomas/St.John Area	LAA	LAA; no DAM
Staghorn coral	St. Thomas/St.John Area	LAA	LAA; no DAM
LAA = likely to adversely affect; DAM = destruction or adverse modification			

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

NMFS has analyzed the routes effect from the proposed action to ESA-listed sea turtle species, fish species, coral species, and marine mammals. 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 ESA-listed sea turtle species, fish species, coral species and marine mammals include the risk of injury from construction equipment, vessels, or materials. We believe this effect is extremely unlikely to occur. Because these species, except for coral species, are highly mobile, we expect the species to move away from the project site and into nearby suitable habitat, if disturbed. The applicants' implementation of NMFS Southeast Region's [Protected Species Construction Conditions](#) (NMFS 2021), will further reduce the risk to protected species by requiring all construction workers to watch for ESA-listed sea turtle species, fish species, and marine mammals . Operation of any mechanical construction equipment will cease immediately

if an ESA-listed sea turtle species, fish species, or marine mammal 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. ESA-listed corals species within the Action Area could be affected by accidental groundings or anchoring of the work vessels. We believe this risk is extremely unlikely to occur because the project will be completed utilizing a vessel which requires no anchoring, given that it uses a Dynamic Positioning System. Accidental groundings would be prevented by vessels staying in suitable water depths and avoiding shallow reefs. In addition, all work vessels associated with this project would transit at steady, low speeds during the cable installation activities, which would help prevent groundings. Furthermore, the small boat would follow the marked routes along the shallow water portions of the corridors to prevent groundings. Since the cables will be positioned by hand in areas where ESA-listed corals are known to occur, and the cable route maintains a 25 ft buffer from ESA-listed corals (except for one coral located 12 ft from the cable route), we believe it is unlikely the cable laying activities will impact ESA listed corals. In the unlikely event the cable is positioned improperly on or near an ESA-listed coral, trained divers will move the conduit by hand and reattach the corals in place.

ESA-listed corals are present within the Action Area, but outside of the area where the construction will occur. These corals may be affected by the resuspension and transport of sediment during the proposed project work. However, we believe any impacts to listed coral colonies will be insignificant because there is no excavation involved with the cable replacement and all work will be completed by divers.

While the project avoids ESA-listed corals, ESA-listed corals within the action area may be affected by the physical cable, if it were to move (such as during storm events) and cause breakage or abrasion to the corals. The project is utilizing articulated pipe and anchors to attach the cable and pipe to the seafloor. We believe any impacts to listed coral colonies will be insignificant because the heavy pipe and anchors will prevent movement of the cable during surge and storm events and therefore prevent abrasion or damage to nearby corals.

The action area contains habitat that may be used by sea turtle species, ESA listed fish species and marine mammals 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 2 weeks per segment), intermittent (limited to daylight hours only), and will only occur within a small footprint adjacent to otherwise open water. Further sea turtles, ESA-listed fish species and marine mammals are mobile, and we expect that they will move away from construction activities and use adjacent areas with similar habitat. Seagrass that may serve as foraging habitat for adult green sea turtles may be impacted by the projects. A total of 3645 ft² of seagrass may be impacted. We believe that any effects to green sea turtles from the potential loss of a 3645 ft² area of seagrass habitat due to the projects will be insignificant given the availability of ample seagrass habitat in the project area and throughout the USVI and that this impact will be temporary as it is expected the cable will self-bury over time and seagrass will overgrow the cable.

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 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 baselines for Opinions include the past and present impacts of all state, federal, or private actions and other human activities in, or having effects in, the action area. We identify the anticipated impacts of all proposed federal projects in the specific action area of the consultation at issue that have already undergone formal or early Section 7 consultation (as defined in 50 CFR 402.11), as well as the impact of state or private actions, or the impacts of natural phenomena, which are concurrent with the consultation in process (50 CFR 402.02).

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 St. John/St. Thomas area elkhorn and staghorn coral critical habitat unit. Within the St. John/St. Thomas area, which comprises approximately 121 square miles (313 sq km) of marine habitat 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 399.60 ft² hardbottom that contains the essential features of elkhorn and staghorn coral critical habitat will be in the footprint of the cable corridor. 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 is 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.

The Caribbean Fishery Management Council (CFMC) develops fishery management plans (FMP), implemented by NMFS-approved fishery regulations, that govern fishing activities that may affect critical habitat. For all fisheries for which there is a FMP or for which any federal action is taken to manage that fishery, impacts are evaluated under Section 7 of the ESA. NMFS reinitiated Section 7 consultations for the Coral, Queen Conch, Reef Fish, and Spiny Lobster FMPs under the jurisdiction of the CFMC when critical habitat was designated for elkhorn and staghorn corals. NMFS concluded that the implementation of the Coral FMP would have no effect on coral designated critical habitat. NMFS determined that the Queen Conch FMP is not likely to adversely affect coral designated critical habitat. NMFS had also reinitiated Section 7 consultations for the Reef Fish and Spiny Lobster FMPs to consider the potential impacts of the fisheries coral designated critical habitat, however due a re-structuring of the fishery management plans the consultations were put on hold.

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 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 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 nonfederal activities that may adversely affect designated critical habitat for elkhorn and staghorn corals include impacts from upland development that do not require federal permits or 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 do 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.

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 the St. John/St. Thomas area 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, 2 billion-dollar worth of weather disasters affected the U.S. Virgin Islands between 2010 and 2018., including most recently Hurricanes Irma and Maria.

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

The CFMC has established regulations prohibiting the use of bottom-tending fishing gear in seasonally and permanently closed fishing areas containing coral reefs in federal waters of the

(EEZ). 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.

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. NMFS completed an ESA Section 7 consultation on September of 2017 with the USACE for Regional General Permit, SAJ-112, that authorizes 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 USVI, utilizing 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 5 additional coral species that were listed in September 2014. (http://sero.nmfs.noaa.gov/protected_resources/coral/documents/recovery_outline.pdf)

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 continued action on listed species and their critical habitat that are likely to be adversely affected. The analysis in this section forms the foundation for our destruction/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 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, Second Session, 12 (1979)). NMFS generally selects the value that would lead to conclusions of higher, rather than lower risk to endangered or threatened species. 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 cable footprint; therefore, we believe the installation of the cable is likely to adversely affect elkhorn and staghorn designated critical habitat as summarized in Table 2 above.

In summary, we believe the proposed action will adversely affect a total of 399.6 ft² (0.00917 ac) of elkhorn and staghorn coral designated critical habitat as summarized in Table 2.

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, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Opinion (50 CFR 402.02).

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 actions 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 for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features” (50 CFR 402.02). Other 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. We intend the phrase “significantly delay” in development of essential features to encompass a delay that interrupts the likely natural trajectory of the development of physical and biological features in the designated critical habitat to support the species’ recovery. 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, or that precludes or significantly delays the capacity of that habitat to develop those features over time, and if the effect of the alteration is to appreciably diminish the value of critical habitat for the conservation of the species.

Ultimately, we seek to determine if, with the implementation of the proposed action, critical habitat would remain functional (or retain the current ability for the essential features to be functionally established) to serve the intended conservation role for 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. Thus, the analysis must take into account any changes in amount, distribution, or characteristics of the critical habitat that will be required over time to support a successfully recovering 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 4 units within the jurisdiction of the United States: Florida, Puerto Rico, St. Thomas/St. John, and St. Croix. The proposed action occurs within the St. Thomas/St. John Unit of elkhorn and staghorn coral designated critical habitat. The St. John/St. Thomas area, which comprises approximately 121 square miles (313 sq km) of marine habitat 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 3.2.1), 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 is appreciably diminished through alterations to the physical or biological features essential to the conservation of a species or because of significant delays in the development of these features. 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 2 relevant recovery objectives in the Elkhorn and Staghorn Recovery Plan (http://sero.nmfs.noaa.gov/protected_resources/coral/documents/recovery_outline.pdf) 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 2 criteria work in concert because successful reproduction and increases in the populations of the species is dependent on available substrate for recruits to settle and grow.

Criterion 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 of the NOAA recovery plan assesses coral population abundance and states the following:

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 this metric for a recovered population. This application of the criterion helps to understand the maximum recruitment habitat that the affected area could provide. Therefore, we apply this criterion to the area of critical habitat predicted to be permanently adversely affected by 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 the 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 399.6 ft^2 (0.00917 ac) in the reef. However, the irregular, elongated, thin shape of that 399.6 ft^2 (0.00917 ac) would not support thickets. 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: 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 2 species. If Criterion 1 is met, then this threat is sufficiently abated;

Or

Throughout the range of these 2 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 399.6 ft^2 (0.00917 ac) of the essential feature. The loss of 0.00917 ac represents a 0.00001184% reduction in reef and hard bottom habitat in the St. John/St. Thomas Unit, which comprises approximately 121 square miles (77,440 ac) ($0.00917 \text{ ac} \div 77,440 \text{ ac} \times 100$).

The loss of this very small percentage of available critical habitat will not appreciably reduce the St. John/St. Thomas 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 St. John/St. Thomas 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.

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 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, the Action Agency shall report any take of ESA-listed species to NMFS SERO PRD via the NMFS SERO Endangered Species Take Report Form (<https://forms.gle/85fP2da4Ds9jEL829>). Refer to the present Opinion by title, Virgin Islands Water and Power Authority (VIWAPA) Submarine Power Cables with Fiber Optic Capacity, issuance date, NMFS ECO identifier number, SERO-2021-01551, and USACE permit number, SAJ-2018-01107 (SP-DCM). 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 the USACE prepare a report of all permitted and proposed submarine cable and utility corridor projects in the range of ESA-corals 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.
2. We recommend that the USACE report all georeferenced locations of ESA listed corals to NMFS/PRD for inclusion in a presence/absence database of ESA listed corals to assess coral species populations and diversity within the Caribbean.

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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