

three years. The SBA has approved these definitions. The Commission will not know how many licensees will be small or very small businesses until the auction, if required, is held.

*D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements*

50. Should the Commission decide to adopt any procedural rules governing petitions for forbearance, the associated rules potentially could modify or impose new reporting or recordkeeping requirements. For example, we seek comment on the possible need for rules governing the form and content of forbearance petitions, such as “complete-as-filed” requirements and obligations for forbearance petitioners to demonstrate that they have satisfied each element of the forbearance standard. The Commission also seeks comment on the possible need or rules governing the scope and interpretation of protective orders in forbearance proceedings, including rules governing the submission of, access to, and use of information submitted pursuant to protective orders in forbearance proceedings. In addition, we seek comment on the need for rules establishing timetables for Commission proceedings addressing forbearance petitions, including requirements governing modification of forbearance petitions and processes for ex parte filings. We further seek comment on whether we should adopt procedural requirements governing petitions for reconsideration of forbearance decisions. The Commission also seeks comment on the need for any other procedural rules governing forbearance petitions, the scope of application of such rules, and the appropriate remedies for violation should the Commission adopt such rules. These proposals may impose additional reporting and recordkeeping requirements on entities. Also, we seek comment on the effects of any of these proposals on small entities. Entities, especially small businesses, are encouraged to quantify the costs and benefits or any reporting requirement that may be established in this proceeding.

*E. Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered*

51. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (1) The establishment of differing compliance or reporting

requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

52. The Commission’s primary objective is to implement the “pro-competitive, deregulatory” framework established in sections 10 and 332 of the Act. We seek comment on the burdens, including those placed on small carriers, associated with related Commission rules and whether the Commission should adopt different requirements for small businesses.

*F. Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rules*

53. None.

**Ordering Clauses**

54. Accordingly, *it is ordered* that pursuant to sections 1, 4(i), 4(j), 10, 303, 332 and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i)–(j), 160, 303, 332, 403, this Notice of Proposed Rulemaking in WC Docket No. 07–267 *is adopted*.

55. *It is further ordered* that the Covad, et al. Petition to Establish Procedural Requirements to Govern Proceedings for Forbearance Under Section 10 of the Communications Act of 1934, as Amended, WC Docket No. 07–267 (filed Sept. 19, 2007), *is granted* to the extent indicated herein and otherwise *is denied*.

56. *It is further ordered* that the Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, *shall send* a copy of this *NPRM*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

Federal Communications Commission.

**Marlene H. Dortch,**

*Secretary.*

[FR Doc. E8–2180 Filed 2–5–08; 8:45 am]

**BILLING CODE 6712–01–P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Parts 223 and 226**

[Docket No. 070801431–7787–01]

RIN 0648–AV35

**Endangered and Threatened Species; Critical Habitat for Threatened Elkhorn and Staghorn Corals**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Proposed rule; request for comments.

**SUMMARY:** We, the National Marine Fisheries Service (NMFS), propose to designate critical habitat for elkhorn (*Acropora palmata*) and staghorn (*A. cervicornis*) corals, which we listed as threatened under the Endangered Species Act of 1973, as amended (ESA), on May 9, 2006. Four specific areas are proposed for designation: the Florida unit, which comprises approximately 3,301 square miles (8,671 sq km) of marine habitat; the Puerto Rico unit, which comprises approximately 1,383 square miles (3,582 sq km) of marine habitat; the St. John/St. Thomas unit, which comprises approximately 121 square miles (313 sq km) of marine habitat; and the St. Croix unit, which comprises approximately 126 square miles (326 sq km) of marine habitat. We propose to exclude one military site, comprising approximately 47 square miles (123 sq km), because of national security impacts.

We are soliciting comments from the public on all aspects of the proposal, including our identification and consideration of the positive and negative economic, national security, and other relevant impacts of the proposed designation, and the areas we propose to exclude from the designation. A draft impacts report prepared pursuant to section 4(b)(2) of the ESA in support of this proposal is also available for public review and comment.

**DATES:** Comments on this proposal must be received by May 6, 2008. Public hearings will be held; see **SUPPLEMENTARY INFORMATION** for dates and locations.

**ADDRESSES:** You may submit comments, identified by the Regulation Identifier Number (RIN) 0648–AV35, by any of the following methods:

Electronic Submissions: Submit all electronic public comments via the

Federal eRulemaking Portal: <http://www.regulations.gov>.

Mail: Assistant Regional Administrator, Protected Resources Division, NMFS, Southeast Regional Office, 263 13th Ave. South, St. Petersburg, FL 33701.

Facsimile (fax) : 727-824-5309.

Instructions: All comments received are a part of the public record and will generally be posted to <http://www.regulations.gov> without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

NMFS will accept anonymous comments. Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

**Public Hearing:** See **SUPPLEMENTARY INFORMATION** for hearing dates and locations.

**FOR FURTHER INFORMATION CONTACT:**

Jennifer Moore or Sarah Heberling, NMFS, at the address above or at 727-824-5312; or Marta Nammack, NMFS, at 301-713-1401.

**SUPPLEMENTARY INFORMATION:**

**Background**

On May 9, 2006, we listed elkhorn and staghorn corals as threatened under the ESA (71 FR 26852; May 9, 2006). At the time of listing, we also announced our intention to propose critical habitat for elkhorn and staghorn corals. We are proposing to designate critical habitat for both species through one rule; due to their similar life histories, distribution, threats, and conservation requirements, critical habitat for these coral species is overlapping.

**Elkhorn and Staghorn Coral Natural History**

The following discussion of the life history and reproductive biology of threatened corals is based on the best scientific data available, including the Atlantic *Acropora* Status Review Report (Acropora Biological Review Team, 2005), and additional information, particularly concerning the genetics of these corals.

*Acropora* spp. are widely distributed throughout the Caribbean (U.S.—Florida, Puerto Rico, U.S. Virgin Islands (U.S.V.I.), Navassa; and Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Honduras, Jamaica, Martinique, Mexico,

Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and Venezuela). In general, elkhorn and staghorn corals have the same geographic distribution, with few exceptions. The northern extent (Palm Beach County, Florida) of staghorn coral occurrence is farther north than that of elkhorn coral (Broward County, Florida). Staghorn coral commonly grows in more protected, deeper water ranging from 5 to 20 m in depth and has been found in rare instances to 60 m. Elkhorn coral commonly grows in turbulent shallow water on the seaward face of reefs in water ranging from 1 to 5 m in depth but has been found to 30 m depth.

Elkhorn and staghorn corals were once the most abundant and most important species on Caribbean coral reefs in terms of accretion of reef structure. Relative to other corals, elkhorn and staghorn corals have high growth rates that have allowed reef growth to keep pace with past changes in sea level. Both species exhibit branching morphologies that provide important habitat for other reef organisms. Environmental influences (e.g., wave action, currents) result in morphological variation (e.g., length, shape of branches) in both species.

Staghorn coral is characterized by staghorn antler-like colonies with cylindrical, straight, or slightly curved branches. The diameter of staghorn coral branches ranges from 1 to 4 cm, and tissue color ranges from golden yellow to medium brown. The growing tips of staghorn coral tend to be lighter or lack color. The linear growth rate for staghorn coral has been reported to range from 3 to 11.5 cm/year. Today, staghorn coral colonies typically exist as isolated branches and small thickets, 0.5 to 1 m across in size, unlike the vast fields (thickets) of staghorn found commonly during the 1970s.

Elkhorn coral is the larger species of *Acropora* found in the Atlantic. Colonies are flattened to near round with frond-like branches. Branches are up to 50 cm across and range in thickness from 2 to 10 cm, tapering towards the branch terminal. Like staghorn coral, branches are white near the growing tip, and brown to tan away from the growing area. The linear growth rate for elkhorn coral is reported to range from 4 to 11 cm/year. Individual colonies can grow to at least 2 m in height and 4 m in diameter.

Elkhorn and staghorn corals require relatively clear, well-circulated water and are almost entirely dependent upon sunlight for nourishment. Unlike other coral species, neither acroporid species

is likely to compensate for long-term reductions in water clarity with alternate food sources, such as zooplankton and suspended particulate matter. Typical water temperatures in which *Acropora* spp. occur from 21 to 29 °C, with the species being able to tolerate temperatures higher than the seasonal maximum for a brief period of time (days to weeks depending on the magnitude of the temperature elevation). The species' response to temperature perturbations is dependent on the duration and intensity of the event. Both acroporids are susceptible to bleaching (loss of symbiotic algae) under adverse environmental conditions.

*Acropora* spp. reproduce both sexually and asexually. Elkhorn and staghorn corals do not differ substantially in their sexual reproductive biology. Both species are broadcast spawners: male and female gametes are released into the water column where fertilization takes place. Additionally, both species are simultaneous hermaphrodites, meaning that a given colony will contain both male and female reproductive parts during the spawning season; however, an individual colony or clone will not produce viable offspring. The spawning season for elkhorn and staghorn corals is relatively short, with gametes released on only a few nights during July, August, and/or September. In most populations, spawning is synchronous after the full moon during any of these 3 months. Larger colonies of elkhorn and staghorn corals have much higher fecundity rates (Soong and Lang, 1992).

In elkhorn and staghorn corals, fertilization and development are exclusively external. Embryonic development culminates with the development of planktonic larvae called planulae. Little is known concerning the settlement patterns of planula of elkhorn and staghorn corals. In general, upon proper stimulation, coral larvae, whether released from parental colonies or developed in the water column external to the parental colonies (like *Acropora* spp.), settle and metamorphose on appropriate substrates. Like most corals, elkhorn and staghorn corals require hard, consolidated substrate, including attached, dead coral skeleton, for their larvae to settle. Unlike most other coral larvae, elkhorn (and presumably staghorn) planulae appear to prefer settling on upper, exposed surfaces, rather than in dark, cryptic ones, at least in a laboratory setting (Szmant and Miller, 2005).

Coral planula larvae experience considerable mortality (90 percent or

more) from predation or other factors prior to settlement and metamorphosis (Goreau, *et al.*, 1981). Because newly settled corals barely protrude above the substrate, juveniles need to reach a certain size to reduce damage or mortality from impacts such as grazing, sediment burial, and algal overgrowth. Recent studies examining early survivorship indicated that lab cultured elkhorn coral settled onto experimental limestone plates and placed in the field had substantially higher survivorship than another spawning coral species, *Montastraea faveolata*, and similar survivorship to brooding coral species (species that retain developing larvae within the parent polyp until an advanced stage) over the first 9 months following settlement (Szmant and Miller, 2005). This pattern corresponds to the size of planulae; elkhorn coral eggs and larvae are much larger than those of *Montastraea* spp. Overall, older recruits (i.e., those that survive to a size where they are visible to the human eye, probably 1 to 2 years post-settlement) of *Acropora* spp. appear to have similar growth and post-settlement mortality rates observed in other coral species.

Studies of *Acropora* spp. from across the Caribbean confirm two overall patterns of sexual recruitment: (1) Low juvenile densities relative to other coral species; and (2) low juvenile densities relative to the commonness of adults (Porter, 1987). This pattern suggests that the composition of the adult population is based upon variable recruitment. To date, the settlement rates for *Acropora* spp. have not been quantified.

Few data on the genetic population structure of elkhorn and staghorn corals exist; however, due to recent advances in technology, the genetic population structure of the current, depleted population is beginning to be characterized. Baums, *et al.* (2005) examined the genetic exchange in elkhorn coral by sampling and genotyping colonies from 11 locations throughout its geographic range using microsatellite markers. Results indicate that elkhorn populations in the eastern Caribbean (St. Vincent and the Grenadines, U.S.V.I., Curacao, and Bonaire) have experienced little or no genetic exchange with populations in the western Caribbean (Bahamas, Florida, Mexico, Panama, Navassa, and Mona Island). Mainland Puerto Rico is an area of mixing where elkhorn populations show genetic contribution from both regions, though it is more closely connected with the western Caribbean. Within these regions, the degree of larval exchange appears to be asymmetrical, with some locations being entirely self-recruiting and some

receiving immigrants from other locations within their region.

Vollmer and Palumbi (2007) examined multilocus sequence data from 276 colonies of staghorn coral spread across 22 populations from 9 regions in the Caribbean, Florida, and the Bahamas. Their data were consistent with the Western-Eastern Caribbean subdivision observed in elkhorn coral populations by Baums, *et al.* (2005). Additionally, the data indicated that regional populations of staghorn separated by greater than 500 km are genetically differentiated and that gene flow across the greater Caribbean is low in staghorn coral. This is consistent with studies conducted on other Caribbean corals showing that gene flow is restricted at spatial scales over 500 km (Fukami, *et al.*, 2004; Baums, *et al.*, 2005; Brazeau, *et al.*, 2005). Furthermore, fine-scale genetic differences were observed among reefs separated by as little as 2 km, suggesting that gene flow in staghorn corals may be limited over much smaller spatial scales (Vollmer and Palumbi, 2007).

Both acroporid population studies suggest that no population is more or less significant to the status of the species. Staghorn coral populations on one reef exhibit limited ability to seed another population separated by large distances. Elkhorn coral populations are genetically related over larger geographic distances; however, because sexual recruitment levels are extremely low, re-seeding potential is also minimal. This regional population structure suggests that conservation should be implemented at local to regional scales because relying on long-distance larval dispersal as a means of recovery may be unreliable and infeasible. Therefore, protecting source populations, in relatively close proximity to each other (<500 km), is likely the more effective conservation alternative (Vollmer and Palumbi, 2007).

Elkhorn and staghorn corals, like most coral species, also reproduce asexually. Asexual reproduction involves fragmentation, wherein colony pieces or fragments break from a larger colony and re-attach to hard, consolidated substrate to form a new colony. Reattachment occurs when: (1) Live coral tissue on the fragment overgrows suitable substrate where it touches after falling; or (2) encrusting organisms settle on the dead basal areas of the fragment and cement it to the adjacent substrate (Tunncliffe, 1981). Fragmentation results in multiple colonies (ramets) that are genetically identical, while sexual reproduction results in the creation of new genotypes

(genets). Fragmentation is the most common means of forming new elkhorn and staghorn coral colonies in most populations and plays a major role in maintaining local populations when sexual recruitment is limited. The larger size of fragments compared to planulae may result in higher survivorship after recruitment (Jackson, 1977, as cited by Lirman, 2000). Also unlike sexual reproduction, which is restricted seasonally for elkhorn coral (Szmant, 1986, as cited by Lirman, 2000), fragmentation can take place year-round.

### Critical Habitat Identification and Designation

Critical habitat is defined by section 3 of the ESA (and further by 50 CFR 424.02(d)) as “(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.” This definition provides a step-wise approach to identifying areas that may be designated as critical habitat for listed corals.

### Geographical Areas Occupied by the Species

The best scientific data available show the current geographical area occupied by both elkhorn and staghorn corals has remained unchanged from their historical ranges. In other words, there is no evidence of range constriction for either species. “Geographical areas occupied” in the definition of critical habitat is interpreted to mean the current range of the species and not every discrete location on which individuals of the species physically are located (45 FR 13011; February 27, 1980). In general, elkhorn and staghorn corals have the same distribution, with few exceptions, and are widely distributed throughout the Caribbean. *The Status of Coral Reefs in the Western Atlantic: Results of Initial Surveys, Atlantic and Gulf Rapid Reef Assessment (AGRR) Program* (Lang, 2003) provides results (1997–2004) of a regional systematic survey of corals, including *Acropora* spp., from many locations throughout the

Caribbean. AGRRA data (1997–2004) indicate that the historic range of both species remains intact; staghorn coral is rare throughout the range (including areas of previously known dense occurrence); and elkhorn coral occurs in moderation. We also collected data and information pertaining to the geographical area occupied by these species at the time of listing by partnering with our Southeast Fisheries Science Center (SEFSC), NOAA National Centers for Coastal Ocean Science Biogeography Team, and the U.S. Geological Survey of the Department of the Interior. These partnerships resulted in the collection of geographic information system (GIS) and remote sensing data (e.g., benthic habitat data, water depth, and presence/absence location data for *Acropora* spp. colonies), which we supplemented with relevant information collected from the public during comment periods and workshops held throughout the ESA listing process.

In Southeast Florida, staghorn coral has been documented along the east coast as far north as Palm Beach County in deeper (16 to 30 m) water (Goldberg, 1973) and is distributed south and west throughout the coral and hardbottom habitats of the Florida Keys (Jaap, 1984), through Tortugas Bank. Elkhorn coral has been reported as far north as Broward and Miami-Dade Counties, with significant reef development and framework construction by this species beginning at Ball Buoy Reef in Biscayne National Park, extending discontinuously southward to the Dry Tortugas.

In Puerto Rico, elkhorn and staghorn corals have been reported in patchy abundance around the main island and isolated offshore locations. In the late 1970s, both elkhorn and staghorn corals occurred in dense and well developed thickets on many reefs off the northeast, east, south, west and northwest coast, and also the offshore islands of Mona, Vieques and Culebra (Weil, *et al.*, unpublished data). Dense, high profile, monospecific thickets of elkhorn and staghorn corals have been documented in only a few reefs along the southwest shore of the main island and isolated offshore locations (Weil, *et al.*, unpublished data) though recent monitoring data for the presence of coral are incomplete in coverage around the islands. Further, the species have been recently documented along the west (e.g., Rincon) and northeast coasts (e.g., La Cordillera). Additionally, large stands of dead elkhorn currently exist on the fringing coral reefs along the south shoreline (e.g., Punta Picúa, Punta Miquillo, Río Grande, Guánica, La

Parguera, Mayaguez). It appears that elkhorn and staghorn are rare on the north shore of Puerto Rico; however, there is a thin strip of hardbottom substrate on that shore, which may be supporting additional unrecorded colonies of elkhorn or staghorn.

The U.S.V.I. also supports populations of elkhorn and staghorn corals, particularly at Buck Island Reef National Monument. St. Croix has coral reef and colonized hardbottom surrounding the entire island. Data from the 1980's indicate that the species were present along the north, eastern, and western shores at that time. The GIS data we compiled indicate the presence of elkhorn and staghorn currently along the north, northeastern, south, and southeastern shores of St. Croix. Monitoring data are incomplete, and it is possible that unrecorded colonies are present along the western, northwestern, or southwestern shores. For the islands of St. Thomas and St. John, there are limited GIS presence data available for elkhorn and staghorn corals. However, Grober-Dunsmore, *et al.* (2006) show that from 2001–2003, elkhorn colonies were distributed in many locations around the island of St. John. Additionally, the data we have indicate coral reef and coral-colonized hard bottom surrounding each of these islands as well as the smaller offshore islands. Again, it is possible that unrecorded colonies are present in these areas.

Navassa Island is a small, uninhabited, oceanic island approximately 50 km off the southwest tip of Haiti managed by U.S. Fish and Wildlife Service (FWS) as one component of the Caribbean Islands National Wildlife Refuge (NWR). Both acroporid species are known from Navassa, with elkhorn apparently increasing in abundance and staghorn rare (Miller and Gerstner, 2002).

Last, there are two known colonies of elkhorn at the Flower Garden Banks National Marine Sanctuary (FGBNMS), located 100 mi (161 km) off the coast of Texas in the Gulf of Mexico. The FGBNMS is a group of three areas of salt domes that rise to approximately 15 m water depth and are surrounded by depths from 60 to 120 m. The FGBNMS is regularly surveyed, and the two known colonies, which were only recently discovered and are considered to be a potential range expansion, are constantly monitored.

Our regulations at 50 CFR 424.12(h) state: "Critical habitat shall not be designated within foreign countries or in other areas outside of United States jurisdiction." Although the geographical area occupied by elkhorn and staghorn

corals includes coastal waters of many Caribbean and Central and South American nations, we are not proposing these areas for designation. The geographical area occupied by listed coral species which is within the jurisdiction of the United States is therefore limited to four counties in the State of Florida (Palm Beach County, Broward County, Miami-Dade County, and Monroe County), FGBNMS, and the U.S. territories of Puerto Rico, U.S.V.I, and Navassa Island.

#### Physical or Biological Features Essential for Conservation (Primary Constituent Elements)

Within the geographical area occupied, critical habitat consists of specific areas on which are found those physical or biological features essential to the conservation of the species (hereafter also referred to as essential features or "Primary Constituent Elements" or "PCEs"). Section 3 of the ESA (16 U.S.C. 1532(3)) defines the terms "conserve," "conserving," and "conservation" to mean: "To use, and the use of, all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." Further, our regulations at 50 CFR 424.12(b) for designating critical habitat state that physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection may include, but are not limited to: (1) Space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally, (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. These regulations state that we shall focus on essential features within the specific areas considered for designation.

As stated in the Atlantic Acropora Status Review Report (Acropora Biological Review Team, 2005),

there are several implications of the current low population sizes of *Acropora* spp. throughout much of the wider Caribbean. First, the number of sexual recruits to a population will be most influenced by larval availability, recruitment, and early juvenile mortality. Because corals cannot move and are dependent upon external fertilization in order to produce larvae, fertilization success declines greatly as adult density declines;

this is termed an Allee effect (Levitan 1991). To compound the impact, *Acropora* spp., although hermaphroditic, do not effectively self-fertilize; gametes must be outcrossed with a different genotype to form viable offspring. Thus, in populations where fragmentation is prevalent, the effective density (of genetically distinct adults) will be even lower than colony density. It is highly likely that this type of recruitment limitation (Allee effect) is occurring in some local elkhorn and staghorn populations, given their state of drastically reduced abundance/density. Simultaneously, when adult abundances of elkhorn and staghorn corals are reduced, the source for fragments (to provide for asexual recruitment) is also compromised. These conditions imply that once a threshold level of population decline has been reached (i.e., a density where fertilization success becomes negligible) the chances for recovery are low.

Thus, we determined that based on available information, facilitating increased incidence of successful sexual and asexual reproduction is the key objective to the conservation of these species. We then turned to determining the physical or biological features essential to this conservation objective.

Currently, sexual recruitment of elkhorn and staghorn corals is limited in some areas and absent in most. Compounding the difficulty of documenting sexual recruitment is the difficulty of visually distinguishing some sexual recruits from asexual recruits (Miller, *et al.*, 2007). Settlement of larvae or attachment of fragments is often unsuccessful, given limited amounts of appropriate habitat due to the shift in benthic community structure from coral-dominated to algae-dominated that has been documented since the 1980s (Hughes and Connell, 1999). Appropriate habitat for elkhorn and staghorn coral recruits to attach and grow consists of hard, consolidated substrate. In addition to being limited, the availability of appropriate habitat for successful sexual and asexual reproduction is susceptible to becoming reduced further because of such factors as fleshy macroalgae overgrowing and preempting the space available for larval settlement, recruitment, and fragment reattachment. Similarly, sediment accumulating on suitable substrate impedes sexual and asexual reproductive success by preempting available substrate and smothering coral recruits. Exacerbating the effect of sedimentation is the presence of turf algae, which traps the sediment, leading to greater amounts of accumulations as compared to bare substrate alone. As described above, features that will facilitate successful larval settlement and recruitment, and reattachment of asexual fragments, are essential to the

conservation of elkhorn and staghorn corals. Without successful recruits, the species will not increase in abundance, distribution, and genetic diversity.

Elkhorn and staghorn corals, like most corals, require hard, consolidated substrate (i.e., attached, dead coral skeleton or hardbottom) for their larvae to settle or fragments to reattach. The type of substrate available directly influences settlement success and fragment survivorship. Lirman (2000) demonstrated this in a transplant experiment using elkhorn coral fragments created by a ship grounding. Fifty fragments were collected within 24 hours of fragmentation and assigned to one of the following four types of substrate: (1) Hardbottom (consolidated carbonate framework), (2) rubble (loose, dead pieces of elkhorn and staghorn corals), (3) sand, and (4) live coral. The results showed that the survivorship of transplanted fragments was significantly affected by the type of substrate, with fragment mortality being the greatest for those transplanted to sandy bottom (58 percent loss within the first month and 71 percent after 4 months). Fragments placed on live adult elkhorn coral colonies fused to the underlying tissue and did not experience any tissue loss; and fragments placed on rubble and hardbottom substrates showed high survivorship.

Unlike fragments, coral larvae cannot attach to living coral (Connell, *et al.*, 1997). Larvae can settle and attach to dead coral skeleton (Jordan-Dahlgren, 1992; Bonito and Grober-Dunsmore, 2006) and may settle in particular areas in response to chemical cues from certain species of crustose coralline algae (CCA) (Morse, *et al.*, 1996; Heyward and Negri, 1999; Harrington and Fabricius, 2004). While algae, including CCA and fleshy macroalgae, is a natural component of healthy reef ecosystems, the recent increase in the dominance of fleshy macroalgae as major space-occupiers on many Caribbean coral reefs impedes the recruitment of new corals. This shift in benthic community structure (from the dominance of stony corals to that of fleshy algae) on Caribbean coral reefs is generally attributed to the greater persistence of fleshy macroalgae under reduced grazing regimes due to human overexploitation of herbivorous fishes (Hughes, 1994) and the regional mass mortality of the herbivorous long-spined sea urchin in 1983–84. Further, impacts to water quality (principally nutrient input) coupled with low herbivore grazing are also believed to enhance fleshy macroalgal productivity. Fleshy macroalgae are able to colonize dead coral skeleton and other available

substrate, preempting space available for coral recruitment.

The persistence of fleshy macroalgae under reduced grazing regimes has impacts on CCA growth, which may reduce settlement of coral larvae as CCA is thought to provide chemical cues for settlement. Most CCA are susceptible to fouling by fleshy algae, particularly when herbivores are absent (Steneck, 1986). Patterns observed in St. Croix, U.S.V.I., also indicate a strong positive correlation between CCA abundance and herbivory (Steneck, 1997). A study in which Miller, *et al.* (1999) used cages to exclude large herbivores from the study site resulted in increased cover of both turf algae and macroalgae, and cover of CCA decreased. The response of CCA to the experimental treatment persisted for 2 months following cage removal (Miller, *et al.*, 1999). Additionally, following the mass mortality of the urchin *Diadema antillarum*, significant increases in cover of fleshy and filamentous algae occurred with parallel decreases in cover of CCA (de Ruyter van Steveninck and Bak, 1986; Liddel and Ohlhorst, 1986). The ability of fleshy macroalgae to affect growth and survival of CCA has indirect, yet important, impacts on the ability of coral larvae to successfully settle and recruit.

Several studies show that coral recruitment tends to be greater when algal biomass is low (Rogers, *et al.*, 1984; Hughes, 1985; Connell, *et al.*, 1997; Edmunds, *et al.*, 2004; Birrell, *et al.*, 2005; Vermeij, 2006). In addition to preempting space for coral larvae settlement, many fleshy macroalgae produce secondary metabolites with generalized toxicity, which also may inhibit settlement of coral larvae (Kuffner and Paul, 2004). Furthermore, algal turfs can trap sediments (Eckman, *et al.*, 1989; Kendrick, 1991; Steneck, 1997; Purcell, 2000; Nugues and Roberts, 2003; Wilson, *et al.*, 2003; Purcell and Bellwood, 2001), which then creates the potential for algal turfs and sediments to act in combination to hinder coral settlement (Nugues and Roberts, 2003; Birrell, *et al.*, 2005). These turf algae sediment mats also can suppress coral growth under high sediment conditions (Nugues and Roberts, 2003) and may gradually kill the marginal tissues of stony corals with which they come into contact (Dustan, 1977, 1999, as cited by Roy, 2004).

Sediments enter the reef environment through many processes that are natural or anthropogenic in origin, including erosion of coastline, resuspension of bottom sediments, terrestrial run-off, and nearshore dredging for coastal construction projects and navigation

purposes. The rate of sedimentation affects reef distribution, community structure, growth rates, and coral recruitment (Dutra, *et al.*, 2003). Accumulation of sediment can smother living corals, dead coral skeleton, and exposed hardbottom. Sediment accumulation on dead coral skeletons and exposed hardbottom reduces the amount of available substrate suitable for coral larvae settlement and fragment reattachment (Rogers, 1990; Babcock and Smith, 2002). Accumulation of sediments is also a major cause of mortality in coral recruits (Fabricius, *et al.*, 2003). In some instances, if mortality of coral recruits does not occur under heavy sediment conditions, then settled coral planulae may undergo reverse metamorphosis and not survive (Te, 1992). Sedimentation, therefore, impacts the health and survivorship of all life stages (i.e., fecund adults, fragments, larvae, and recruits) of elkhorn and staghorn corals.

Based on the key conservation objective we have identified to date, the natural history of elkhorn and staghorn corals, and their habitat needs, the physical or biological feature of elkhorn and staghorn corals' habitat essential to their conservation is substrate of suitable quality and availability, in water depths from the mean high water (MHW) line to 30 m, to support successful larval settlement, recruitment, and reattachment of fragments. For purposes of this definition, "substrate of suitable quality and availability" means consolidated hardbottom or dead coral skeleton that is free from fleshy macroalgae cover and sediment cover. This feature is essential to the conservation of these two species due to the extremely limited recruitment currently being observed.

We determined that no other environmental features are appropriate or necessary for defining critical habitat for the two corals. Other than the substrate PCE, we cannot conclude that any other sufficiently definable feature of the environment is essential to the corals' conservation. Other features of the corals' environment, such as water temperature, are more appropriately viewed as sources of impacts or stressors that can harm the corals, rather than habitat features that provide a conservation function. Therefore, these stressors would not be analyzed as factors that may contribute to a determination whether the corals' critical habitat is likely to be destroyed or adversely modified. Some environmental features are also subsumed within the definition of the substrate PCE; for instance, substrate free from macroalgal cover would

encompass water quality sufficiently free of nutrients.

#### **Specific Areas Within the Geographical Area Occupied by the Species**

The definition of critical habitat further instructs us to identify specific areas on which are found the physical or biological features essential to the species' conservation. Our regulations state that critical habitat will be defined by specific limits using reference points and lines on standard topographic maps of the area, and referencing each area by the State, county, or other local governmental unit in which it is located (50 CFR 424.12(c)). As discussed below, we determined that specific areas in FGBNMS and Navassa National Wildlife Refuge that contain the PCE do not otherwise meet the definition of critical habitat. Hence, in this section we only describe our identification of the specific areas we are proposing to include in this designation.

In addition to information obtained from the public, we partnered with SEFSC, NOAA Biogeography Team, and U.S. Geological Survey to obtain GIS and remote sensing data (e.g., benthic habitat data, water depth) to compile existing data to identify and map areas that may contain the identified PCE. The following are the major datasets upon which we relied. NOAA's National Ocean Service (NOS) and the Florida Fish and Wildlife Research Institute completed The Benthic Habitat Mapping of Florida Coral Reef Ecosystems using a series of 450 aerial photographs collected in 1991–1992. For this mapping effort, coral ecosystem ecologists outlined the boundaries of specific habitat types by interpreting color patterns on the photographs. Benthic habitats were classified into four major categories—corals, seagrasses, hardbottom, and bare substrate—and 24 subcategories, such as sparse seagrass and patch reef. Each habitat type was groundtruthed in the field by divers to validate the photo-interpretation of the aerial photography. Habitat boundaries were georeferenced and digitized to create computer maps. A similar method was followed by NOS using 1999 aerial imagery in developing the Benthic Habitat Mapping of Puerto Rico and the U.S.V.I.

Using GIS software, we extracted all areas that could be considered potential recruitment habitat, including hardbottom and coral. The benthic habitat information assisted in identifying any major gaps in the distribution of the substrate PCE. Given uncertainties in the age and resolution of the data, we were unable to identify smaller, discrete specific areas that

contained the PCE rather than large, continuous areas. Thus, we concluded that, based upon the best available information, although the PCE is unevenly dispersed throughout the ranges of the species, no major gaps existed in the distribution. We further limited the specific areas to the maximum depth of occurrence of the two corals (i.e., 30 m). The 30-m contour was extracted from the National Geophysical Data Center Coastal Relief Model for Puerto Rico & Virgin Islands, and Florida. Because Puerto Rico and the U.S.V.I. are islands, the contours yielded continuous closed polygons. However, because the two species only occur off specific counties in Florida, we used additional boundaries to close the polygons. The Florida Area consists of all waters contained by the boundary beginning at the MHW line at the north boundary of Palm Beach County; then due east to the 30-m contour; then following the 30-m contour to the intersection with the FKNMS boundary northeast of the Dry Tortugas; then following the FKNMS boundary to the intersection with the COLREGS line (see 33 CFR 80.727, 730, 735, and 740) for Florida Bay; then following the COLREGS line southeast to the intersection with Long Key; then following the COLREGS line and MHW line returning to the beginning point. The COLREGS line separates inland waters from marine waters. Also included are the waters in two shoals southwest of the Dry Tortugas bounded by the 30-m contour.

Using the above procedure and consistent with our regulations (50 CFR 424.12(c)), we identified four "specific areas" and a few small adjacent areas (separated from main areas by water depth greater than 30 m) within the geographical area occupied by the species, at the time of listing, that contain the PCE. These areas comprise all waters in the depths of 30 m and shallower to the MHW or COLREG line off: (1) Palm Beach, Broward, Miami-Dade, and Monroe Counties, including the Marquesas Keys and the Dry Tortugas, Florida; (2) Puerto Rico and associated Islands; (3) St. John/St. Thomas, U.S.V.I.; and (4) St. Croix, U.S.V.I.) (see maps). Within these specific areas, the PCE consists of consolidated hardbottom or dead coral skeleton that are free from fleshy macroalgae cover and sediment cover. The PCE can be found unevenly dispersed throughout these four areas due to trends in macroalgal coverage, and naturally occurring unconsolidated sediment and seagrasses dispersed within the reef ecosystem. A larger

number of smaller specific areas could not be identified because the submerged nature of the PCE, the limits of available information on the distribution of the PCE, and limits on mapping methodologies make it infeasible to define the specific areas containing the PCE more finely than described herein. Further, based on data about their historical distributions, the corals are capable of successfully recruiting and attaching to available substrate anywhere within the boundaries of the four specific areas. Given these species' reduced abundances, the four specific areas were identified to include all available potential settling substrate within the 30 m contour to maximize the potential for successful recruitment and population growth.

The PCE is not likely to be present in natural sites covered with loose sediment, fleshy macroalgal covered hardbottom, or seagrasses. Additionally, existing man-made structures such as aids-to-navigation (ATONs), artificial reefs, boat ramps, docks, pilings, maintained channels or marinas do not provide the PCE that is essential to the species' conservation. Substrate within the proposed critical habitat boundaries that do not contain the PCE are not part of the designation. Federal actions, or the effects thereof, limited to these areas would not trigger section 7 consultation under the ESA, unless they may affect the species and/or the PCE in adjacent critical habitat. As discussed here and in the supporting impacts analysis, given the precise definition of the proposed PCE, determining whether an action may affect the feature can be accomplished without entering into an ESA section 7 consultation.

### Unoccupied Areas

ESA section 3(5)(A)(ii) further defines critical habitat to include specific areas outside the geographical area occupied if the areas are determined by the Secretary to be essential for the conservation of the species. Regulations at 50 CFR 424.12(e) specify that we shall designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species. At the present time, the range of these species has not been constricted, and we have not identified any areas outside the geographical area occupied by the species that are essential for their conservation. Therefore, we are not proposing to designate any unoccupied areas for elkhorn and staghorn corals.

### Special Management Considerations or Protection

Specific areas within the geographical area occupied by a species may be designated as critical habitat only if they contain physical or biological features that "may require special management considerations or protection." A few courts have interpreted aspects of this statutory requirement, and the plain language aids in its interpretation. For instance, the language clearly indicates the features, not the specific area containing the features, are the focus of the "may require" provision. Use of the disjunctive "or" also suggests the need to give distinct meaning to the terms "special management considerations" and "protection." Generally speaking, "protection" suggests actions to address a negative impact or threat of a negative impact. "Management" seems plainly broader than protection, and could include active manipulation of a feature or aspects of the environment. Two Federal district courts, focusing on the term "may," ruled that features can meet this provision based on either present requirements for special management considerations or protections, or on possible future requirements. See, *Center for Biol. Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003); *Cape Hatteras Access Preservation Alliance v. DOI*, 344 F. Supp. 108 (D.D.C. 2004). The Arizona district court ruled that the provision cannot be interpreted to mean that features already covered by an existing management plan must be determined to require "additional" special management, because the term "additional" is not in the statute. Rather, the court ruled that the existence of management plans may be evidence that the features in fact require special management. *Center for Biol. Diversity v. Norton*, 1096-1100. NMFS' regulations define "special management considerations or protections" to mean "any methods or procedures useful in protecting physical and biological features of the environment for the conservation of listed species" (50 CFR 424.02(j)).

Based on the above, we evaluated whether the PCE proposed in this document may require special management considerations or protections by evaluating four criteria:

- (a) Whether there is presently a need to manage the feature;
- (b) Whether there is the possibility of a need to manage the feature;
- (c) Whether there is presently a negative impact on the feature; or
- (d) Whether there is the possibility of a negative impact on the feature.

In evaluating present or possible future management needs for the PCE, we recognized that the feature in its present condition must be the basis for a finding that it is essential to the corals' conservation. In addition, the needs for management evaluated in (a) and (b) were limited to managing the feature for the conservation of the species. In evaluating whether the PCE meets either criterion (c) or (d), we evaluated direct and indirect negative impacts from any source (e.g., human or natural). However, we only considered the criteria to be met if impacts affect or have the potential to affect the aspect of the feature that makes it essential to the conservation of the species. We then evaluated whether the PCE met the "may require" provision separately for each of the four "specific areas" proposed for designation, as well as Navassa Island and FGBNMS (discussed later), as management and protection requirements can vary from area to area based on such factors as the legal authorities applicable to areas and the location of the area within the occupied range.

Suitable habitat available for larval settlement and recruitment, and asexual fragment reattachment, of these coral species, is particularly susceptible to impacts from human activity because of the shallow water depth range (MHW to 30 m) in which elkhorn and staghorn corals commonly grow. The proximity of this habitat to coastal areas subject this feature to impacts from multiple activities including, but not limited to, 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 (e.g., major storm events), significantly affect the quality and quantity of available substrate for these threatened species to successfully sexually and asexually reproduce. We concluded that the PCE is currently and will likely continue to be negatively impacted by some or all of these factors in all four specific areas.

Overfishing of herbivorous fishes and the mass die-off of long-spined sea urchin *Diadema antillarum* are considered two of the primary contributing factors to the recent shift in benthic community structure from the dominance of stony corals to that of fleshy macroalgae on Caribbean coral reefs. In the absence of fish and urchin grazing or at very low grazing pressures,



coral larvae, algae, and numerous other epibenthic organisms settle in high numbers, but most young, developing coral larvae are rapidly outcompeted for space, and their mortality levels are high (Sammarco, 1985). The weight of evidence suggests that competition between algae and corals is widespread on coral reefs and is largely mediated by herbivory (McCook, *et al.*, 2001).

An additional factor contributing to the dominance of fleshy macroalgae as major space-occupiers on many Caribbean coral reefs is nutrient enrichment. Nutrients are added to coral reefs from both point sources (readily identifiable inputs where pollutants are discharged to receiving surface waters from a pipe or drain) and non-point sources (inputs that occur over a wide area and are associated with particular land uses). Anthropogenic sources of nutrients include sewage, stormwater and agricultural runoff, river discharge, and groundwater; however, natural oceanographic sources like internal waves and upwelling also distribute nutrients on coral reefs. Coral reefs have been considered to be generally nutrient-limited systems, meaning that levels of accessible nitrogen and phosphorus limit the rates of macroalgae growth. When nutrient levels are raised in such a system, growth rates of fleshy macroalgae can be expected to increase, and this can yield imbalance and changes in community structure.

The anthropogenic source routes for nutrients may also bring additional sediments into the coral reef environment. Sources of sediment include erosion of coastline, resuspension of bottom sediments, terrestrial run-off (following clearing of mangroves and deforestation of hillsides), beach renourishment, and nearshore dredging and disposal for coastal construction projects and for navigation purposes. Sediment deposition and accumulation affect the overall amount of suitable substrate available for larval settlement, recruitment, and fragment reattachment (Babcock and Davies, 1991), and both sediment composition and deposition affect the survival of juvenile corals (Fabricius, *et al.*, 2003).

The major category of habitat-related activities that may affect the PCE for the two listed corals is water quality management. Activities within this category have the potential to negatively affect the PCE for elkhorn and staghorn corals by altering the quality and availability of suitable substrate for larval settlement, recruitment, and fragment reattachment. Nutrient enrichment, via sewage, stormwater and

agricultural runoff, river discharge, and groundwater, is a major factor contributing to this shift in benthic community structure and preemption of available substrate suitable for larval settlement, recruitment, and asexual fragment reattachment. Additionally, sedimentation resulting from land-use practices and from dredging and disposal activities in all four specific areas reduces the overall availability and quality of substrate suitable for successful sexual and asexual reproduction by the two acroporid corals. Thus, the PCE currently needs and will likely continue to need special management or protection.

Although they fall within U.S. jurisdiction and may contain the PCE, we are not proposing to include FGBNMS and Navassa National Wildlife Refuge in our critical habitat designation, because we do not believe the PCE in these areas requires special management considerations or protections. Both FGBNMS and Navassa Island are remote marine protected areas and are not currently exposed to the negative impacts and conditions needing management discussed for the other areas above. Additionally, based on available information, we do not expect the PCE found within these two protected areas to experience negative impacts from human or natural sources that would diminish the feature's conservation value to the two coral species.

#### Activities That May Be Affected

Section 4(b)(8) of the ESA requires that we describe briefly and evaluate, in any proposed or final regulation to designate critical habitat, those activities that may destroy or adversely modify such habitat or that may be affected by such designation. A wide variety of activities may affect critical habitat and, when carried out, funded, or authorized by a Federal agency, will require an ESA section 7 consultation. Such activities include, but are not limited to, dredging and disposal, beach renourishment, large vessel anchorages, submarine cable/pipeline installation and repair, oil and gas exploration, pollutant discharge, and oil spill prevention and response. Notably, all the activities identified that may affect the critical habitat may also affect the species themselves, if present within the action area of a proposed Federal action.

We believe this proposed critical habitat designation will provide Federal agencies, private entities, and the public with clear notification of critical habitat for elkhorn and staghorn corals and the boundaries of the habitat. This designation will allow Federal agencies

and others to evaluate the potential effects of their activities on critical habitat to determine if ESA section 7 consultation with NMFS is needed given the specific definition of the PCE above. Consistent with recent agency guidance on conducting adverse modification analyses (NMFS, 2005), we will apply the statutory provisions of the ESA, including those in section 3 that define "critical habitat" and "conservation," to determine whether a proposed future action might result in the destruction or adverse modification of critical habitat.

#### Application of ESA Section 4(a)(3)(B)(I)

Section 4(a)(3)(B) prohibits designating as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DOD), or designated for its use, that are subject to an integrated natural resources management plan (INRMP), if we determine that such a plan provides a benefit to the coral species (16 U.S.C. 1533(a)(3)(B)). The legislative history to this provision explains:

- "The conferees would expect the [Secretary] to assess an INRMP's potential contribution to species conservation, giving due regard to those habitat protection, maintenance, and improvement projects and other related activities specified in the plan that address the particular conservation and protection needs of the species for which critical habitat would otherwise be proposed. Consistent with current practice, the Secretary would establish criteria that would be used to determine if an INRMP benefits the listed species for which critical habitat would be proposed" (Conference Committee report, 149 Cong. Rec. H. 10563; November 6, 2003).

No areas within the specific areas being proposed for designation are covered by relevant INRMPs. Although Naval Air Station Key West (NASKW) is within the specific areas being proposed for designation, the current INRMP was adopted in 2001 and does not address listed corals, nor corals in general. NASKW is in the process of updating the 2001 INRMP and has issued a draft of the document to NMFS for review. If the draft INRMP were to become final and provide a benefit to the two corals as described above, then we would not designate critical habitat within the boundaries covered by the INRMP. NASKW is, however, being proposed for exclusion pursuant to section 4(b)(2), as explained below.

#### Application of ESA Section 4(b)(2)

The foregoing discussion described the specific areas within U.S. jurisdiction that fall within the ESA section 3(5) definition of critical habitat in that they contain the physical feature



essential to the corals' conservation that may require special management considerations or protection. Before including areas in a designation, section 4(b)(2) of the ESA requires the Secretary to take into consideration the economic impact, impact on national security, and any other relevant impacts of designation of any particular area. Additionally, the Secretary has the discretion to exclude any area from designation if he determines the benefits of exclusion (that is, avoiding some or all of the impacts that would result from designation) outweigh the benefits of designation based upon the best scientific and commercial data available. The Secretary may not exclude an area from designation if exclusion will result in the extinction of the species. Because the authority to exclude is discretionary, exclusion is not required for any particular area under any circumstances.

The analysis of impacts below summarizes the comprehensive analysis contained in our Draft Section 4(b)(2) Report, first by considering economic, national security, and other relevant impacts that we projected would result from including each of the four specific areas in the proposed critical habitat designation. This consideration informed our decision on whether to exercise our discretion to propose excluding particular areas from the designation. Both positive and negative impacts were identified and considered (these terms are used interchangeably with benefits and costs, respectively). Impacts were evaluated in quantitative terms where feasible, but qualitative appraisals were used where that is more appropriate to particular impacts.

The ESA does not define what "particular areas" means in the context of section 4(b)(2), or the relationship of particular areas to "specific areas" that meet the statute's definition of critical habitat. As there was no biological basis to subdivide the four specific critical habitat areas into smaller units, we treated these areas as the "particular areas" for our initial consideration of impacts of designation.

### Impacts of Designation

The primary impacts of a critical habitat designation result from the ESA section 7(a)(2) requirement that Federal agencies ensure their actions are not likely to result in the destruction or adverse modification of critical habitat. Determining these impacts is complicated by the fact that section 7(a)(2) also requires that Federal agencies ensure their actions are not likely to jeopardize the species' continued existence. One incremental

impact of designation is the extent to which Federal agencies modify their proposed actions to ensure they are not likely to destroy or adversely modify the critical habitat beyond any modifications they would make because of listing and the jeopardy requirement. When a modification would be required due to impacts to both the species and critical habitat, the impact of the designation may be co-extensive with the ESA listing of the species. Additional impacts of designation include state and local protections that may be triggered as a result of designation, and positive impacts that may arise from conservation of the species and their habitat, and education of the public to the importance of an area for species conservation.

A Draft ESA 4(b)(2) Report describes the impacts analysis in detail (NMFS, 2007). The report describes the projected future Federal activities that would trigger section 7 consultation requirements because they may affect the PCE. Additionally, the report describes the project modifications we identified that may reduce impacts to the PCE, and states whether the modifications are more likely to be solely a result of the critical habitat designation or co-extensive with another regulation, including the ESA listing of the species. The report also identifies the potential national security and other relevant impacts that may arise due to the proposed critical habitat designation. This report is available on NMFS' Southeast Region Web site at <http://sero.nmfs.noaa.gov/pr/esa/acropora.htm>.

### Economic Impacts

As discussed above, economic impacts of the critical habitat designation result through implementation of section 7 of the ESA in consultations with Federal agencies to ensure their proposed actions are not likely to destroy or adversely modify critical habitat. These economic impacts may include both administrative and project modification costs; economic impacts that may be associated with the conservation benefits of the designation are described later.

Because elkhorn and staghorn corals are newly listed and we lack a lengthy consultation history for these species, we needed to make assumptions about the types of future Federal activities that might require section 7 consultation under the ESA. We examined the consultation record over the last 10 years, as compiled in our Public Consultation Tracking System (PCTS) database, to identify types of Federal activities that have the potential to

adversely affect elkhorn or staghorn coral critical habitat. We request Federal action agencies to provide us with information on future consultations if our assumptions omitted any future actions likely to affect the proposed critical habitat. We identified 13 categories of activities conducted by 7 Federal action agencies: Airport repair and construction; anchorages; construction of new aids to navigation; beach nourishment and bank stabilization; coastal construction; discharges to navigable waters; dredging and disposal; fishery management; maintenance construction; maintenance dredging and disposal; military installation management; resource management; and development or modification of water quality standards. Notably, all categories of projected future actions that may trigger consultation because they have the potential to adversely affect the PCE also have the potential to adversely affect the corals themselves. There are no categories of activities that would trigger consultation on the basis of the proposed critical habitat designation alone. However, it is feasible that a specific future project within a category of activity would have impacts on critical habitat but not on the species. Because the total surface area covered by the proposed PCE (although unquantified) is far larger than the total surface area on which the corals (again unquantified) currently occur, it is likely there will be more consultations with impacts on critical habitat than on the species. Nonetheless, it was impossible to determine how many of those projects there may be over the 10-year horizon of our impacts analysis.

To avoid underestimating impacts, we assumed that all of the projected future actions in these categories will require formal consultations for estimation of both administrative and project modification costs. This assumption likely results in an overestimation of the number of future formal consultations.

We next considered the range of modifications we might seek for these activities to avoid adverse modification of elkhorn and staghorn coral critical habitat. We identified 13 potential project modifications that we may require to reduce impacts to the PCE through section 7 consultation under the ESA. To be conservative in estimating impacts, we assumed that project modifications would be required to address adverse effects from all projected future agency actions requiring consultation. Although we made the assumption that all potential project modifications would be required by NMFS, not all of the modifications

identified for a specific category of activity would be necessary for an individual project, so we were unable to identify the exact modification or combinations of modifications that would be required for all future actions.

We also identified whether a project modification would be required due to the listing of the species or another existing regulatory authority to determine if the cost of the project modification was likely to be co-extensive or incremental. Several project modifications (i.e., conditions monitoring, diver education, horizontal directional drilling (HDD), tunneling or anchoring cables and pipelines, sediment control measures, fishing gear maintenance, and water quality standard modification) were characterized as fully co-extensive with the listing of the species or other existing statutory or regulatory

authority, because the nature of the actions that would require these modifications typically involve a large action area likely to include both the PCE and either the listed corals or other coral reef resources. Other project modifications (i.e., project relocation, diver assisted anchoring or mooring buoy use, global positioning system (GPS) and dynamic positioning vessel (DPV) protocol, sand bypassing/backpassing, shoreline protection measures, and use of upland or artificial sources of sand) were characterized as partially co-extensive with the listing of the species or other existing statutory or regulatory authority such as the Clean Water Act because of the typically smaller action area of projects that would involve these modifications, and thus the greater likelihood that specific projects would impact only the PCE. We did not identify any project

modification that we expected would result in fully incremental costs due to the critical habitat designation.

Table 1 provides a summary of the estimated costs, where possible, of individual project modifications. The Draft ESA 4(b)(2) Report provides a detailed description of each project modification, methods of determining estimated costs, and actions for which it may be prescribed. Although we have a projection of the number of future formal consultations (albeit an overestimation), the lack of information on specific project designs limits our ability to forecast the exact type and amount of modifications required. Thus, while the costs associated with types of project modifications were characterized, no total cost of this proposed rule could be quantified.

TABLE 1.—SUMMARY OF POTENTIAL PER-PROJECT COSTS ASSOCIATED WITH SPECIFIC PROJECT MODIFICATIONS—WHERE INFORMATION WAS AVAILABLE, RANGES OF SCOPES ARE INCLUDED

Project modification	Cost	Unit	Range	Approximate per project total
<b>Fully Co-extensive:</b>				
Conditions Monitoring .....	\$3.5–6K .....	per day .....	1–400 days .....	\$3.5K–2.4M.
Diver Education .....	Admin. Cost .....	n/a .....	n/a .....	n/a.
HDD/Tunneling .....	\$1.4–2.4M .....	per mile .....	0.2–31.5 miles .....	\$278K–76.9M.
Pipe Collars or Cable Anchors ...	\$1.2K .....	per anchor .....	13–2,529 anchors .....	\$15.6K–3M.
Sediment Controls .....	\$43K .....	per mile .....	0.05–7 miles .....	\$2–301K.
Water Quality Standard Modification.	Undeterminable .....	n/a .....	n/a .....	n/a.
<b>Partially Co-extensive:</b>				
Project Relocation .....	Undeterminable .....	n/a .....	n/a .....	n/a.
Diver-assisted Anchoring or Mooring Buoy Use.	\$300–1,000 .....	per day .....	n/a .....	n/a.
GPS & DPV protocol .....	Undeterminable .....	n/a .....	n/a .....	n/a.
Sand Bypassing or Backpassing	\$1.5–16K .....	per cu yd .....	75–512K cu yd .....	\$113K–8.2M.
Shoreline Protection Measures ..	Undeterminable .....	n/a .....	n/a .....	n/a.
Upland or Artificial Sources of Sand.	Undeterminable .....	n/a .....	n/a .....	n/a.

In addition to project modification costs, administrative costs of consultation will be incurred by Federal agencies and project permittees or grantees as a result of this designation. Estimates of the cost of an individual consultation were developed from a review and analysis of the consultation database, as previously discussed, and from the estimated ESA section 7 consultation costs identified in the Economic Analysis of Critical Habitat Designation for the Gulf Sturgeon (IEc, 2003) inflated to 2006 dollars (the 2007 inflation coefficient was not known at the time of drafting). Cost figures are based on an average level of effort for consultations of low or high complexity (based on NMFS and other Federal agency information), multiplied by the appropriate labor rates for NMFS and

other Federal agency staff. Although the PCE occurs in greater abundance than the corals and thus the probability that a consultation would be required because of the critical habitat designation is higher than for the listing of corals, we were unable to estimate the number of consultations that may be required on the basis of critical habitat alone. Therefore, we present the estimated maximum incremental administrative costs as averaging \$827,220 to \$1,633,229, annually.

**National Security Impacts**

Previous critical habitat designations have recognized that impacts to national security result if a designation would trigger future ESA section 7 consultations because a proposed military activity “may affect” the

physical or biological feature(s) essential to the listed species’ conservation. Anticipated interference with mission-essential training or testing or unit readiness, either through delays caused by the consultation process or through expected requirements to modify the action to prevent adverse modification of critical habitat, has been identified as a negative impact of critical habitat designations. (See, e.g., Proposed Designation of Critical Habitat for the Pacific Coast Population of the Western Snowy Plover, 71 FR 34571, June 15, 2006, at 34583; and Proposed Designation of Critical Habitat for Southern Resident Killer Whales; 69 FR 75608, Dec. 17, 2004, at 75633.)

Past designations have also recognized that whether national

security impacts result from the designation depends on whether future consultations would be required under the jeopardy standard regardless of the critical habitat designation, and whether the critical habitat designation would add new burdens beyond those related to the jeopardy consultation.

As discussed above, based on the past 10-year consultation history, it is likely that consultations with respect to activities on DOD facilities will be triggered as a result of the proposed critical habitat designation. Further, it is possible that some consultations will be due to the presence of the PCE alone, and that adverse modification of the PCE could result, thus requiring a reasonable and prudent alternative to the proposed DOD activity.

On May 22, 2007, we sent a letter to DOD requesting information on national security impacts of the proposed critical habitat designation, and received a response from the Department of the Navy (Navy). Further discussions and correspondence identified Naval Air Station Key West (NASKW) as the only installation potentially affected by the critical habitat designation. NASKW resides solely within the Florida specific area of the proposed critical habitat (Area 1). No other DOD installations were identified as likely to be impacted by this proposed designation.

The Navy identified several specific activities within NASKW and associated annexes that would be adversely impacted by requirements to modify the actions to avoid destroying or adversely modifying critical habitat. These activities include: military training and readiness; access to, management of, and maintenance of piers, harbors, and waterfront instrumentation; and support for refueling or docking of Federal vessels. The Navy considers nearshore areas to be under its control pursuant to its navigable servitude for purposes of national defense under the Submerged Lands Act (43 U.S.C. 1314).

Additionally, the Navy states that NASKW and associated annexes (including bombing and strafing areas) provide training necessary to national security and identified the types of military activities that take place in the areas. The Navy concluded that critical habitat designation at NASKW would likely impact national security by diminishing military readiness through the requirement to consult on their activities within critical habitat in addition to the requirement to consult on the two listed corals. We discuss our exclusion analysis based on these national security impacts below.

### Other Relevant Impacts

Past critical habitat designations have identified two broad categories of other relevant impacts: Conservation benefits, both to the species and to society as a result of designation, and impacts on governmental or private entities that are implementing existing management plans that provide benefits to the listed species. Our Draft Section 4(b)(2) Report discusses conservation benefits of designating the four specific areas to the corals, and the benefits of conserving the corals to society, in both ecological and economic metrics.

As summarized in the Draft 4(b)(2) Report, elkhorn and staghorn corals currently provide a range of important uses and services to society. Because the features that form the basis of the critical habitat are essential to, and thus contribute to, successful conservation of the two listed corals, protection of critical habitat from destruction or adverse modification may, at minimum, prevent further loss of the benefits currently provided by the species. Moreover, because the PCE is essential to increasing the abundance of elkhorn and staghorn corals, its successful protection may actually contribute to an increase in the benefits of these species to society in the future. While we cannot quantify nor monetize the benefits, we believe they are not negligible and would be an incremental benefit of this designation. However, although the PCE is essential to the corals' conservation, critical habitat designation alone will not bring about their recovery. The benefits of conserving elkhorn and staghorn coral are, and will continue to be, the result of several laws and regulations.

Elkhorn and staghorn corals are two of the major reef-building corals in the Caribbean. Over the last 5,000 years, they have made a major contribution to the structure that makes up the Caribbean reef system. The structural and ecological roles of Atlantic acroporids in the Caribbean are unique and cannot be filled by other reef-building corals in terms of accretion rates and the formation of structurally complex reefs. At current levels of acroporid abundance, this ecosystem function is significantly reduced. Due to elkhorn and staghorn corals' extremely reduced abundance, it is likely that Caribbean reefs are in an erosional, rather than accretional, state.

In addition to the important functions of reef building and reef maintenance provided by elkhorn and staghorn corals, these species themselves serve as fish habitat (Ogden and Ehrlich, 1977; Appeldoorn, *et al.*, 1996), including

essential fish habitat (CFMC, 1998), for species of economic and ecological importance. Specifically, Lirman (1999) reported significantly higher abundances of grunts (*Haemulidae*), snappers (*Lutjanidae*), and sweepers (*Pempheridae*) in areas dominated by elkhorn coral compared to other coral sites suggesting that fish schools use elkhorn colonies preferentially. Additionally, Hill (2001) found that staghorn coral in a Puerto Rican back-reef lagoon was the preferred settlement habitat for the white grunt (*Haemulon plumieri*). Numerous reef studies have also described the relationship between increased habitat complexity and increased species richness, abundance, and diversity of fishes. Due to their branching morphologies, elkhorn and staghorn corals provide complexity to the coral reef habitat that other common species with mounding or plate morphologies do not provide.

Another benefit of elkhorn and staghorn corals is provided in the form of shoreline protection. Again, due to their function as major reef building species, elkhorn and staghorn corals provide shoreline protection by dissipating the force of waves, which are a major source of erosion and loss of land (NOAA, 2005). For example, in 2005, the coast of Mexico north of Cancun was impacted by Hurricane Wilma; wave height recorded just offshore of the barrier reef was 11 m while wave height at the coast was observed to be 3 m (B. van Tussenbroek, pers. comm.). Damage to coastal structures would have been significantly greater had the 11-m waves not been dissipated by the reef.

Lastly, numerous studies have identified the economic value of coral reefs to tourism and recreation. Of particular relevance, Johns, *et al.* (2003) estimated the value of natural reefs to reef users, and the contribution of natural reefs to the economies of the four counties of Florida that are associated with the proposed designation (discussed below). The importance of the benefits elkhorn and staghorn corals provide is also evidenced by the designation of marine protected areas specifically for the protection of these species (e.g., Tres Palmas Reserve, Puerto Rico).

Many previous designations have evaluated the impacts of designation on relationships with, or the efforts of, private and public entities that are involved in management or conservation efforts benefitting listed species. Similar to national security impacts, impacts on entities responsible for natural resource management or conservation plans that benefit listed

species, or on the functioning of those plans, depend on the type and number of ESA section 7 consultations and potential project modifications that may result from the proposed critical habitat designation in the areas covered by the plans. Several existing resource management areas (Florida Keys National Marine Sanctuary, Dry Tortugas National Park, Dry Tortugas Ecological Reserve, Biscayne Bay National Park, Buck Island Reef National Monument, Virgin Islands National Park, and Virgin Islands Coral Reef National Monument) will likely require section 7 consultation in the future when the responsible Federal agencies revise their management plans or associated regulations or implement management actions. Negative impacts to these agencies could result if the designation interferes with their ability to provide for the conservation of the species or otherwise hampers management of these areas. Because we identified that resource management was a category of activities that may affect both the species and the critical habitat and that the project modifications required through section 7 consultation would be the same for the species and the PCE, these costs are considered to be coextensive. However, we found no evidence that relationships would be negatively affected or that negative impacts to other agencies' ability to provide for the conservation of the corals would result from the designation. We also describe in our draft 4(b)(2) report that the critical habitat designation will provide an important unique benefit to the corals by protecting settling substrate for future coral recruitment and recovery, compared to existing laws and management plans for these areas that focus on protecting existing coral resources.

#### **Synthesis of Impacts Within the Four Specific Areas**

As discussed above, no categories of Federal actions would require consultation in the future solely due to the critical habitat designation; all projected categories of future actions have the potential to adversely affect both the PCE and the listed corals. However, an individual action within these categories may ultimately result in impacts to only the PCE because the species may not be present within the action area. In addition, past actions triggered consultation due to effects on one or more other listed species within the areas covered by the proposed designation (e.g., sea turtles, smalltooth sawfish, Johnson's seagrass), but for purposes of the impacts analysis we

assumed these other species consultations would not be co-extensive with consultations for the corals or the PCE. For each of the specific areas, whether future consultations are incremental impacts of the critical habitat designation or are co-extensive impacts of the listing or other legal authorities will depend on whether the listed corals or other coral species are in the action area. Based on the relative abundance of the PCE and the listed corals, or all corals combined, there seems to be a higher likelihood that a future project could impact the PCE alone and thus be an incremental impact of designation. On the other hand, projects with larger or diffuse action areas may have a greater likelihood of impacting both the PCE and the corals, and the same modifications would alleviate both types of impacts, so the costs of these projects would more likely be co-extensive either with the listing or existing authorities focused on protecting coral reef resources.

The proposed Florida specific area of critical habitat (Area 1) will have the greatest number of ESA section 7 consultations resulting from the proposed critical habitat designation over the next 10 years, 317 consultations, or, on average, 31 per year; the Puerto Rico specific area (Area 2) will have the second highest number of consultations, 115, or, on average, 11–12 per year; and the U.S.V.I. specific areas combined (Areas 3 and 4) will have the lowest number of consultations, 41, or, on average, 4 per year. The number of future consultations is proportional to the length of coastline in each of the four specific areas: Area 1 is projected to experience 66 percent of total consultations and it contains 65 percent of critical habitat coastline; Area 2 is projected to have 25 percent of consultations and contains 26 percent of shoreline included in the designation; and Areas 3 and 4 are projected to have 9 percent of consultations and contain 8 percent of total shoreline. In all four specific areas USACE-permitted marine construction activities comprise the largest number of projected future actions, in similar percentages across the areas (75 percent in Area 1; 65 percent in Area 2; and 61 percent in Areas 3 and 4). We detected no patterns or clumping in the geographic distribution of projected future actions and future consultations and project modifications within any of the specific areas that would suggest an economic basis for focusing our evaluation of impacts on smaller areas within any of

the areas. In other words, no particular areas within the specific areas identified are expected to incur a disproportionate share of the costs of designation.

As mentioned above, the majority of projected ESA section 7 consultations in all four specific areas will be USACE-authorized marine construction activities, and all of these could involve third-party permittees. Although we assumed all of these projects will require formal consultation due to effects on the PCE and the corals to avoid underestimating ESA section 7 impacts, as discussed in our impacts report, it is unlikely that *all* of these projects will trigger consultation for either the PCE or the corals, or that they would require modification to avoid adverse impacts. Though our database on past consultations is not complete, the data indicate that the majority of the projects in this category were residential dock construction, and as such would have been located in protected shorelines such as manmade canals where the PCE and the corals are not routinely found. Even when these projects trigger consultation in the future, the project modifications that may be required as a result of the proposed critical habitat may also be required by an existing regulatory authority, including the ESA listing of the two corals. Thus, if both the PCE and corals are present, or if another regulatory authority would also require the project modification, the costs associated with these project modifications will be co-extensive. Many of the other categories of activities projected to occur in all four specific areas have the potential to have effects over larger, more diffuse action areas, and thus are more likely to be co-extensive costs of the designation (e.g., dredging projects, water discharge, and water quality regulatory projects).

We estimated the maximum incremental administrative costs of conducting ESA section 7 consultation for each of the four specific areas. Multiplying the total number of consultations by the low and high estimates of cost yields the following ranges of total administrative costs (in 2006 dollars) per area over the next 10 years: \$5,543,946 to \$10,945,740 in Area 1; \$2,011,211 to \$3,970,852 in Area 2; and \$717,040 to \$1,415,695 in Areas 3 and 4. Table 1 above provides a summary of the estimated costs, where possible, of individual project modifications. The Draft Section 4(b)(2) Report provides a detailed description of each project modification, methods of determining estimated costs, and for which action(s) it may be prescribed. Although we have a projection of the

number of future formal consultations (albeit an overestimation), the lack of information on the specifics of project design limits our ability to forecast the exact type and amount of modifications required. Therefore, while the costs associated with types of project modifications were characterized, no total cost of this proposed rule can be quantified accurately.

Preventing these project impacts is expected to contribute to the preservation of, and potential increases in, economic and other conservation benefits in each of the four specific areas, as described in the Draft Section 4(b)(2) Report. In Area 1, the natural reefs formed and inhabited by elkhorn and staghorn corals provide over \$225 million in average annual use value (2003 dollars) and a capitalized value of over \$7 billion to the four Florida counties covered by Area 1. Natural reef-related industries provided over 40,000 jobs in Area 1 in 2003, generating over \$1 billion in income. Area 1 experienced almost \$6 million in value of commercial reef-dependent fish landings in 2005. Available information also demonstrates the direct link between healthy coral reef ecosystems and the value of scuba-diving related tourism throughout the Caribbean, including Florida, with estimated losses in the hundreds of millions of dollars region-wide per year if reef degradation continues. Coral reefs provided over 87 percent of average annual commercial fish and invertebrate landings in Puerto Rico (Area 2) from 1995 to 2002. In 2005, domestic landings of shallow water reef fish comprised about 66 percent of all fish landed in Puerto Rico and were valued at over \$1.7 million. Tourism is not as important a component of Puerto Rico's overall economy as it is in Areas 1, 3, and 4, but it may be much more significant for the shoreside communities from which dive and other reef-related tourism activities embark. Tourism accounts for 80 percent of the U.S.V.I.'s (Area 3) Gross Domestic Product and employment. One survey documented that 100 percent of hotel industry respondents stated they believed there would be a significant impact on tourist visits if the coast and beaches were degraded, or fisheries or coral reefs declined. In 2005, domestic landings of shallow water reef fish comprised about 83 percent of all fish landed in the U.S.V.I. that year and were valued at over \$3.8 million.

Conservation benefits to the corals in each of the four specific areas are expected to result from the designation. As we have determined, recovery of elkhorn and staghorn corals cannot

succeed without protection of the PCE from destruction or adverse modification. No existing laws or regulations protect the PCE from destruction or adverse modification with a specific focus on increasing coral abundance and eventual recovery. Given the extremely low current abundance of the corals and characteristics of their sexual reproduction (e.g., limited success over long ranges), protecting the PCE throughout the corals' range and throughout each of the four specific areas is extremely important for conservation of these species. We also describe the potential educational and awareness benefits to the corals that may result from the critical habitat designation in our Draft 4(b)(2) Report.

Regarding economic impacts, the limitations to the type and amount of existing information do not allow us to predict the total costs and benefits of the proposed designation. Nevertheless, we believe that our characterization of the types of costs and benefits that may result from the designation, in particular circumstances, may provide some useful information to Federal action agencies and potential project permittees. We have based the proposed designation on a very specifically defined feature essential to the corals' conservation, which allowed us to identify the few, specific effects of human activities that may adversely affect the corals and thus require section 7 consultation under the ESA (sedimentation, nutrification, and physical destruction). We identified potential routine project modifications we may require to avoid destroying or adversely modifying the essential substrate feature. In some cases, these modifications are common environmental mitigation measures that are already being performed under existing laws and regulations that seek to prevent or minimize adverse impacts to coral reef or marine resources in general. Thus, we believe that parties planning future activities within the four specific areas proposed for designation will be able to predict the potential added costs of their projects resulting from the designation based on their knowledge of the location, size, and timing of their planned activities. We have discussed to the extent possible the circumstances under which section 7 impacts will be incremental impacts of this rule, or co-extensive impacts of this rule and the listing of the corals or another existing legal authority. We believe that the limitations of current information about potential future projects do not allow us to be more specific in our estimates of

the section 7 impacts (administrative consultation and project modification costs) of the proposed designation. In addition, based on available information, we did not identify any patterns or clumping in the distribution of future projects (and the associated consultations and potential modifications) either between or within the four specific areas proposed for designation that would suggest any disproportionate impact of the designation.

Similarly, with regard to the conservation benefits of the proposed designation, we determined that the designation will result in benefits to society. We provide a literature survey of the valuation of coral reefs to provide context for the readers on benefits of protective measures. Given the potential number and type of future ESA section 7 consultations, we expect that the designation will prevent adverse effects to the proposed critical habitat feature, and thus assist in maintaining the feature's conservation function for the two corals. We believe the designation will assist in preventing further losses of the corals and, eventually, in increased abundance of the two species. By contributing to the continued existence of these two species and eventually their increased abundance, the proposed designation will, at minimum, prevent loss of important societal benefits described above that are currently provided by the species, and potentially increase these benefits over time.

Regarding impacts on Federal agencies responsible for managing resources in areas proposed for designation, we expect section 7 consultation responsibilities will result from the designation as described above. However, as explained further in the section 4(b)(2) report, we determined that the designation will not negatively impact the management or operation of existing managed areas or the Federal agencies responsible for these areas. We further determined that the designation provides an added conservation benefit to the corals beyond the benefits provided by the existing management plans and associated regulations. We believe our evaluation and consideration of the potential impacts above support our conclusion that there are no economic or other relevant impacts that warrant our proposing to exclude particular areas from the designation. Given the limitations on existing data and information, we are specifically requesting comments and information that may be useful in refining our analysis, including any omitted categories of activities that may affect the essential feature and more

precise cost estimates for project modifications.

As discussed in the next section, we are exercising our discretion to propose excluding particular areas from the critical habitat designation based on national security impacts.

#### Proposed Exclusions Under Section 4(b)(2)

Impacts to national security as a result of the proposed critical habitat designation are expected to occur in Area 1, specifically on 47.3 sq miles (123 sq km) of NASKW. Based on information provided to us by the Navy, national security interests would be negatively impacted by the designation, because the potential additional consultations and project modifications to avoid adversely modifying the PCE would interfere with military training and readiness. Based on these considerations, we propose exclusion of the particular areas identified by the Navy from the critical habitat designation.

The benefit of excluding the NASKW particular areas is that the Navy would only be required to comply with the jeopardy prohibition of ESA section 7(a)(2) and not the adverse modification prohibition. The Navy maintains that the additional commitment of resources in completing an adverse modification analysis, and any change in its activities to avoid adverse modification of critical habitat, would likely reduce its readiness capability. Given that the Navy is currently actively engaged in training, maintaining, and deploying forces in the current war effort, this reduction in readiness could reduce the ability of the military to ensure national security.

The best scientific and commercial data available indicate that the PCE is rare within the proposed exclusion area. Further, the area to be excluded comprises only 1.1 percent of Area 1. The corals and habitat will still be protected through ESA section 7 consultations that prohibit jeopardizing the species' continued existence and require modifications to minimize the impacts of incidental take. Further, there are no other Federal activities that might adversely impact the proposed critical habitat that would be exempted from future consultation requirements due to this proposed exclusion, since these areas are under exclusive military control. Therefore, in our judgment, the benefit of including the particular area of NASKW is outweighed by the national security benefit the Navy will gain by not consulting on critical habitat. Given the small percentage of Area 1 encompassed by this area, we

conclude that exclusion will not result in extinction of either elkhorn or staghorn corals.

#### Critical Habitat Designation

We are proposing to designate approximately 4,931 square miles (12,569 sq km) of marine habitat within the geographical area occupied by elkhorn and staghorn corals in Florida, Puerto Rico, and the U.S.V.I. The proposed specific areas contain the substrate physical feature, or PCE, we determined to be essential to the conservation of these species and that may require special management considerations or protection.

#### Public Comments Solicited

We request that interested persons submit comments, information, maps, and suggestions concerning this proposed rule and supporting draft 4(b)(2) report during the comment period (see **DATES**). We are soliciting comments or suggestions from the public, other concerned governments and agencies, the scientific community, industry, or any other interested party concerning this proposed rule. We are also soliciting comments on the draft 4(b)(2) report and its analysis of economic, national security, and other relevant impacts and proposed exclusions. You may submit your comments and materials concerning this proposal by any one of several methods (see **ADDRESSES**). The proposed rule, maps, fact sheets, references, and other materials relating to this proposal can be found on the NMFS Southeast Region Web site at <http://sero.nmfs.noaa.gov/pr/protres.htm>. We will consider all comments pertaining to this designation received during the comment period in preparing the final rule. Accordingly, the final designation may differ from this proposal.

#### Public Hearings

50 CFR 424.16(c)(3) requires the Secretary to promptly hold at least one public hearing if any person requests one within 45 days of publication of a proposed rule to designate critical habitat. Such hearings provide the opportunity for interested individuals and parties to give comments, exchange information and opinions, and engage in a constructive dialogue concerning this proposed rule. We encourage the public's involvement in these hearings. Based on the high level of public interest in elkhorn and staghorn corals, public meetings have been scheduled for:

1. Tuesday, March 4, 2008, 7 p.m. to 9 p.m., IGFA Events Hall, 300 Gulf Stream Way, Dania Beach, Florida.

2. Wednesday, March 5, 2008, 7 p.m. to 9 p.m., Marathon Government Center, 2798 Overseas Highway, Marathon, Florida.

3. Tuesday, March 11, 2008, 6 p.m. to 8 p.m., Administration and Conference Center (ACC), 1st Floor Conference Room, University of the Virgin Islands, #2 John Brewer's Bay, St. Thomas, U.S.V.I./Simulcast Location on St. Croix: The Great Hall, Room #134, University of the Virgin Islands, RR 1, Box 10000 Kingshill, St. Croix, U.S.V.I.

4. Wednesday, March 12, 2008, 7 p.m. to 9 p.m., 4th Floor Conference Room, Environmental Building, Cruz Matos, State Road #838, km 6.3, Sector El Cinco, Rio Piedras, Puerto Rico. Requests for additional public hearings must be made in writing (see **ADDRESSES**) by March 24, 2008.

#### Peer Review

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Bulletin, implemented under the Information Quality Act (Pub. L. 106-554), is intended to enhance the quality and credibility of the Federal government's scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005. To satisfy our requirements under the OMB Bulletin, we obtained independent peer review of the scientific information that supports this proposal to designate critical habitat for elkhorn and staghorn corals and incorporated the peer review comments prior to dissemination of this proposed rulemaking. A Draft 4(b)(2) Report (NMFS, 2007) that supports the proposal to designate critical habitat for elkhorn and staghorn corals was also peer reviewed and is available on our Web site (see **ADDRESSES**).

We determined that this action is consistent to the maximum extent practicable with the enforceable policies of the approved coastal management programs of Florida, Puerto Rico, and U.S.V.I. The determination has been submitted for review by the responsible state agencies under section 307 of the Coastal Zone Management Act.

This proposed rule has been determined to be significant under Executive Order (E.O.) 12866. We have integrated the regulatory principles of the E.O. into the development of this proposed rule to the extent consistent with the mandatory duty to designate critical habitat, as defined in the ESA.

We prepared an initial regulatory flexibility analysis (IRFA) pursuant to section 603 of the Regulatory Flexibility Act (5 U.S.C. 601, *et seq.*), which describes the economic impact this proposed rule, if adopted, would have on small entities. A description of the action, why it is being considered, and its legal basis are included in the preamble section of this proposed rule.

Small businesses, small nonprofit organizations, and small governmental jurisdictions may be affected by this proposed designation if they engage in activities that would affect the essential feature identified in this proposed designation and if they receive funding or authorization for such activity from a Federal agency. Such activities would trigger ESA section 7 consultation requirements and potential requirements to modify proposed activities to avoid destroying or adversely modifying the critical habitat. The consultation record from which we have projected likely Federal actions over the next 10 years indicates that applicants for Federal permits or funds have included small entities. For example, marine contractors have been the recipients of USACE permits for dock construction; some of these contractors were small entities.

According to the Small Business Administration, businesses in the Heavy and Civil Engineering Construction subsector (NAICS Code 237990), which includes firms involved in marine construction projects such as breakwater, dock, pier, jetty, seawall and harbor construction, must have average annual receipts of no more than \$31 million to qualify as a small business (dredging contractors that perform at least 40 percent of the volume dredged with their own equipment, or equipment owned by another small concern are considered small businesses if their average annual receipts are less than or equal to \$18.5 million). Our consultation database does not track the identity of past permit recipients or whether the recipients were small entities, so we have no basis to determine the percentage of grantees or permittees that may be small businesses in the future. We do know from the more recent consultation history that small governmental jurisdictions (population less than or equal to 50,000) have received USACE permits for beach renourishment. Small businesses in the tourist and commercial fishing industries may benefit from the rule, as conservation of elkhorn and staghorn corals is expected to result in increased direct and indirect use of, and values derived from, coral reefs. We encourage small businesses,

small governmental jurisdictions, and other small entities to provide comment on whether they may be affected by this rulemaking to help us provide an accurate estimate of the number of small entities to which the proposed rule will apply.

We projected that, on average, approximately 39 Federal projects with non-federal grantees or permittees will be affected by implementation of the proposed critical habitat designation, annually, across all four areas proposed for inclusion in the critical habitat designation. Some of these grantees or permittees could be small entities, or could hire small entities to assist in project implementation. Historically, these projects have involved pipeline installation and maintenance, mooring construction and maintenance, dock/pier construction and repair, marina construction, bridge repair and construction, new dredging, maintenance dredging, NPDES/water quality standards, cable installation, beach nourishment, shoreline stabilization, reef ball construction and installation, and port construction. Potential project modifications we have identified that may be required to prevent these types of projects from adversely modifying critical habitat include: project relocation; environmental conditions monitoring; GPS and DPV protocols; diver assisted anchoring or mooring buoy use; pipe collars or cable anchoring; shoreline protection measures; use of upland or artificial sources of sand; direction drilling or tunneling; and sediment and turbidity control measures (see Tables 20, 21 and 24 of the Draft Section 4(b)(2) Report).

Even though we cannot determine relative numbers of small and large entities that may be affected by this proposed rule, there is no indication that affected project applicants would be limited to, nor disproportionately comprise, small entities. It is unclear whether small entities would be placed at a competitive disadvantage compared to large entities. However, as described in the Draft Section 4(b)(2) Report, consultations and project modifications will be required based on the type of permitted action and its associated impacts on the essential critical habitat feature. Because the costs of many potential project modifications that may be required to avoid adverse modification of critical habitat are unit costs (e.g., per mile of shoreline, per cubic yard of sand moved) such that total project modification costs would be proportional to the size of the project, it is not unreasonable to assume that larger entities would be involved in

implementing the larger projects with proportionally larger project modification costs.

It is also unclear whether the proposed rule will significantly reduce profits or revenue for small businesses. As discussed throughout the Draft Section 4(b)(2) Report, we made assumptions that all of the future consultations will be formal, and all will require project modifications; but this is likely an overestimation. In addition, as stated above, though it is not possible to determine the exact cost of any given project modification resulting from consultation, the smaller projects most likely to be undertaken by small entities would likely result in relatively small modification costs. Finally, many of the modifications identified to reduce the impact of a project on critical habitat may be a baseline requirement either due to the ESA listing of the species or under another regulatory authority, notably the Clean Water Act.

There are no record-keeping requirements associated with the proposed rule. Similarly, there are no reporting requirements other than those that might be associated with reporting on the progress and success of implementing project modifications, which do not require specific skills to satisfy. However, third party applicants or permittees would be expected to incur costs associated with participating in the administrative process of consultation along with the permitting Federal agency. Such third party costs of consultation were estimated for the 2003 designation of critical habitat for Gulf sturgeon in the southeast United States. In 2006 dollars, per consultation administrative costs for third parties are estimated to average from \$3,251 to \$4,596.

We encourage all small businesses, small governmental jurisdictions, and other small entities that may be affected by this rule to provide comment on the potential economic impacts of the proposed designation, such as anticipated costs of consultation and potential project modifications, to improve the above analysis.

No Federal laws or regulations duplicate or conflict with the proposed rule. Existing Federal laws and regulations overlap with the proposed rule only to the extent that they provide protection to marine natural resources or corals generally. However, no existing laws or regulations specifically prohibit destruction or adverse modification of critical habitat for, and focus on the recovery of, elkhorn and staghorn corals.



The alternatives to the proposed designation considered consisted of a no-action alternative and an alternative based on a broader conservation objective that would include multiple physical or biological features of the corals' environment in the designation. The no-action, or no designation, alternative would result in no additional ESA section 7 consultations relative to the status quo of the species' listing and finalization of a recently proposed ESA section 4(d) rule. However, while additional administrative and potential project modification costs would not be incurred under this alternative, this alternative is not necessarily a no cost alternative, including to small entities, given the potential loss of existing benefits provided by the corals if they continue to decline due to failure to protect the substrate PCE from adverse modification. The multiple features alternative was expected to increase the number and complexity of section 7 consultations and associated costs to small entities without concomitant increased conservation benefits to the corals, because we believe the additional features are already effectively managed through the jeopardy analysis required under ESA section 7 or subsumed within the substrate PCE identified for this designation.

An environmental analysis as provided for under National Environmental Policy Act for critical habitat designations made pursuant to the ESA is not required. See *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied, 116 S.Ct. 698 (1996).

Pursuant to the Executive Order on Federalism, E.O. 13132, the Assistant Secretary for Legislative and Intergovernmental Affairs will provide notice of the proposed action and request comments from the appropriate official(s) of the states and territories in which the two species occur.

The proposed action has undergone a pre-dissemination review and determined to be in compliance with applicable information quality guidelines implementing the Information Quality Act (Section 515 of Pub. L. 106-554).

This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

This proposed rule is consistent with E.O. 13089, which is intended to preserve and protect the biodiversity, health, heritage, and social and economic value of U.S. coral reef ecosystems and the marine environment.

## References Cited

A complete list of all references cited in this rulemaking can be found on our Web site at <http://sero.nmfs.noaa.gov/pr/protres.htm> and is available upon request from the NMFS Southeast Regional Office in St. Petersburg, Florida (see **ADDRESSES**).

## List of Subjects

### 50 CFR Part 223

Endangered and threatened species, Exports, Imports, Transportation.

### 50 CFR Part 226

Endangered and threatened species.

Dated: January 31, 2008.

### Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, we propose to amend 50 CFR parts 223 and 226 as set forth below:

## PART 223—THREATENED MARINE AND ANADROMOUS SPECIES

1. The authority citation for part 223 continues to read as follows:

**Authority:** 16 U.S.C. 1531–1543; subpart B, § 223.201–202 issued under 16 U.S.C. 1361 *et seq.*; 16 U.S.C. 5503(d) for § 223.206(d)(9).

### § 223.102 [Amended]

2. Amend § 223.102 by removing the text, “NA”, from the column labeled “Citation for Critical Habitat Designation” in paragraphs (d)(1) and (d)(2) and adding in its place the **Federal Register** citation for the final rule associated with this proposed rule.

## PART 226—DESIGNATED CRITICAL HABITAT

3. The authority citation of part 226 continues to read as follows:

**Authority:** 16 U.S.C. 1533.

4. Add § 226.215, to read as follows:

### § 226.215 Critical habitat for Elkhorn (*Acropora palmata*) and Staghorn (*A. cervicornis*) Corals.

Critical habitat is designated for both elkhorn and staghorn corals as described in this section. The textual descriptions of critical habitat in paragraphs (b) and (c) of this section are the definitive source for determining the critical habitat boundaries. The overview maps in paragraph (d) of this section are provided for general guidance purposes only, and not as a definitive source for determining critical habitat boundaries.

(a) *Physical Feature Essential to the Conservation of Threatened Corals.* The physical feature essential to the

conservation of elkhorn and staghorn corals is: substrate of suitable quality and availability, in water depths from mean high water to 30 m, to support larval settlement and recruitment, and reattachment of asexual fragments. “Substrate of suitable quality and availability” is defined as natural consolidated hardbottom or dead coral skeleton that is free from fleshy macroalgae cover and sediment cover.

(b) *Critical Habitat Areas.* Critical habitat includes one specific area of the Atlantic Ocean offshore of Palm Beach, Broward, Miami-Dade, and Monroe counties, Florida, and three specific areas of the Atlantic Ocean and Caribbean Sea offshore of the U.S. Territories of Puerto Rico and the U.S. Virgin Islands. The boundaries of each specific critical habitat area are described below. Generally, the seaward boundary is the 30-m depth contour and the shoreward boundary is the line of mean high water (MHW; see 33 CFR 329.12(a)). Within these boundaries, discrete areas of water deeper than 30 m are not included.

(1) *Florida Area:* The boundary for the Florida area begins at the MHW line at the north boundary of Palm Beach County at 26°58'13.5" N; then due east to the point of intersection with the 30-m contour; then following the 30-m contour to 24°45'20.6" N, 82°34'35.4" W, the point of intersection with the Florida Key National Marine Sanctuary (FKNMS) boundary (see 15 CFR 922.161); then following the FKNMS boundary to the point of intersection with the COLREGS line (see 33 CFR 80.727, 730, 735, and 740) at 24°54'56.8" N, 80°56'25.2" W; then following the COLREGS line to a point of intersection on Long Key at 24°49'1.7" N, 80°49'36.1" W; then following the COLREGS line and MHW line returning to the beginning point. The Florida area also includes two shoal areas southwest of the Dry Tortugas bounded by the 30-m contour.

(2) *Puerto Rico Area:* All areas surrounding the islands of the Commonwealth of Puerto Rico, 30 m in depth and shallower, seaward of the COLREGS line (see 33 CFR 80.738).

(3) *St. Thomas/St. John Area:* All areas surrounding the islands of St. Thomas and St. John, U.S. Virgin Islands, and smaller surrounding islands, 30 m in depth and shallower.

(4) *St. Croix Area:* All areas surrounding the island of St. Croix, U.S. Virgin Islands, 30 m in depth and shallower.

(c) *Areas excluded from critical habitat on the basis of national security impacts.* Critical habitat does not

include the following particular areas in the state of Florida:

(1) All waters surrounding Naval Air Station, Key West from the shoreline delimited by the line of mean high water to a distance of 46 m.

(2) All waters identified as naval restricted areas and danger zone at 33 CFR 334.610, as follows:

(i) All waters within 100 yards of the south shoreline of the Harry S. Truman Annex, beginning at a point on the shore at 24°32'45.3" N, 81°47'51" W; thence to a point 100 yards due south of the south end of Whitehead Street of 24°32'42.3" N, 81°47'51" W; thence extending westerly, paralleling the southerly shoreline of the Harry S. Truman Annex, to 24°32'37.6" N, 81°48'32" W, thence northerly to the shore at 24°32'41" N, 81°48'31" W.

(ii) All waters within 100 yards of the westerly shoreline of the Harry S. Truman Annex and all waters within a portion of the Truman Annex Harbor, as defined by a line beginning on the shore at 24°33'00" N, 81°48'41.7" W; thence to a point 100 yards due west at 24°33'00" N, 81°48'45" W; thence northerly, paralleling the westerly shoreline of the Harry S. Truman Annex, including a portion of the Truman Annex Harbor entrance, to 24°33'23" N, 81°48'37" W; thence southeasterly to the shore (sea wall) at 24°33'19.3" N, 81°48'28.7" W.

(iii) All waters within 100 yards of the U.S. Coast Guard Station and the westerly end of Trumbo Point Annex beginning at the shore at 24°33'47.6" N,

81°47'55.6" W; thence westerly to 24°33'48" N, 81°48'00.9" W; thence due south to 24°33'45.8" N, 81°48'00.9" W; thence westerly to 24°33'47" N, 81°48'12" W; thence northerly to 24°34'06.2" N, 81°48'10" W; thence easterly to a point joining the restricted area around Fleming Key at 24°34'03.3" N, 81°47'55" W.

(iv) Beginning at 24°34'03.3" N, 81°47'55" W; proceed northwesterly, maintaining a distance of 100 yards from the shoreline of Fleming Key, except for a clearance of approximately 400 yards across the mouth of Fleming Cove near the southwest end of Fleming Key, continue around Fleming Key to a point easterly of the southeast corner of Fleming Key at 24°34'00.8" N, 81°47'37.5" W; thence easterly to 24°33'57.6" N, 81°47'20" W; thence southerly to a point on the shore at 24°33'54.7" N, 81°47'20.9" W.

(v) All waters contiguous to the southwest shoreline of Boca Chica Key beginning at a point on the southwest shoreline at 24°33'24" N, 81°42'30" W; proceed due south 100 yards to 24°33'20.4" N, 81°42'30" W; thence, maintaining a distance of 100 yards from the shoreline, proceed westerly and northerly to 24°34'03" N, 81°42'47" W; thence due north to a point at the easterly end of the U.S. Highway 1 (Boca Chica Channel) bridge at 24°34'39" N, 81°42'47" W.

(vi) Danger zone. All waters within an area along the northeast side of the Naval Air Station on Boca Chica Key

defined by a line beginning at 24°35.472' N, 81°41.824' W; thence proceed in a northerly direction to a point at 24°36.289' N, 81°41.437' W; thence proceed westerly to a point at 24°36.392' N, 81°41.970' W; thence to a point on shore at 24°35.698' N, 81°41.981' W.

(3) All waters contained within the area identified as the Fleming Key Drop Zone, as defined by a rectangle with bounding coordinate pairs of: 24°35'42.2" N and 81°47'43.6" W; 24°35'42.6" N and 81°46'27.3" W; 24°35'13.0" N and 81°47'38.2" W; and 24°35'13.3" N and 81°46'27.2" W.

(4) All waters identified as bombing and strafing target areas at 33 CFR 334.620(a)(2)(i) through (iii), as follows:

(i) A circular area immediately west of Marquesas Keys with a radius of two nautical miles having its center at 24°33.4' and 82°10.9', not to include land area and area within Marquesas Keys.

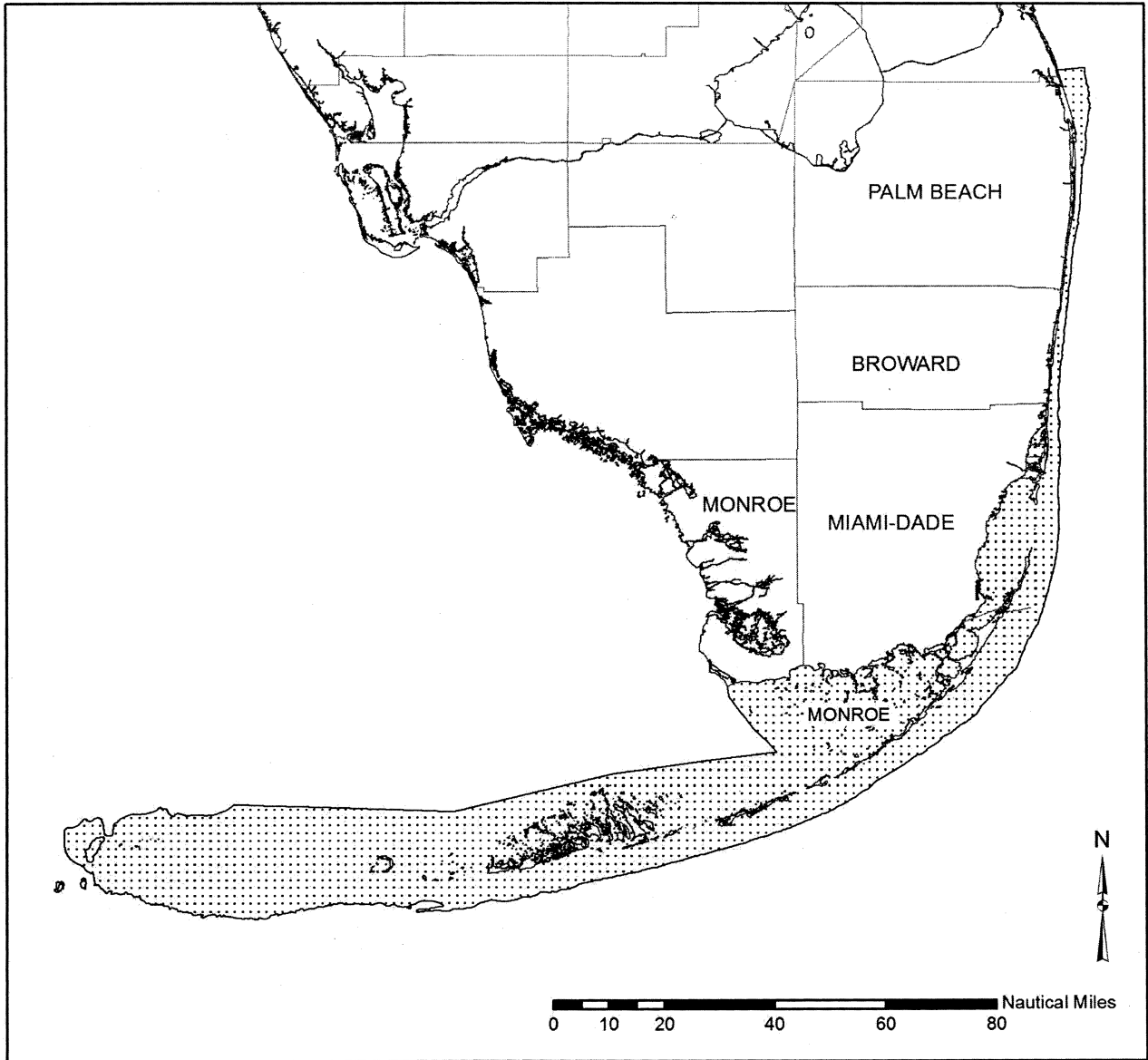
(ii) A circular area located directly west of Marquesas Keys with a radius of three statute miles having its center at 24°35.6' and 82°11.6', not to include land area within Marquesas Keys.

(iii) A circular area located west of Marquesas Keys with a radius of two nautical miles having its center at 24°34'30" and 82°14'00" .

(d) Overview maps of designated critical habitat for elkhorn and staghorn corals follow.

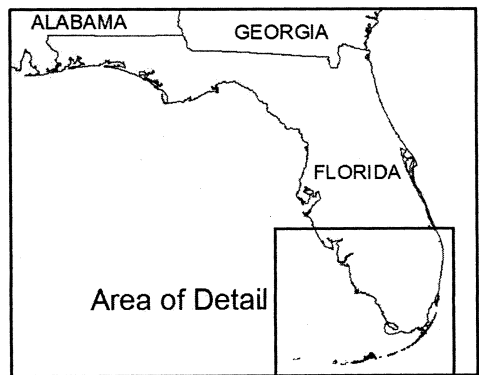
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**Critical Habitat for Elkhorn and Staghorn Corals  
Area 1: Florida**

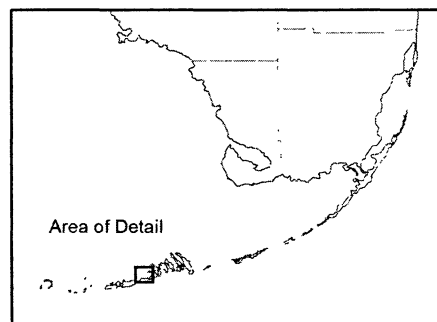
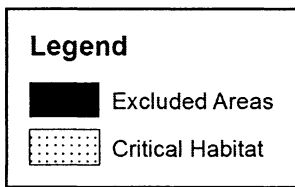
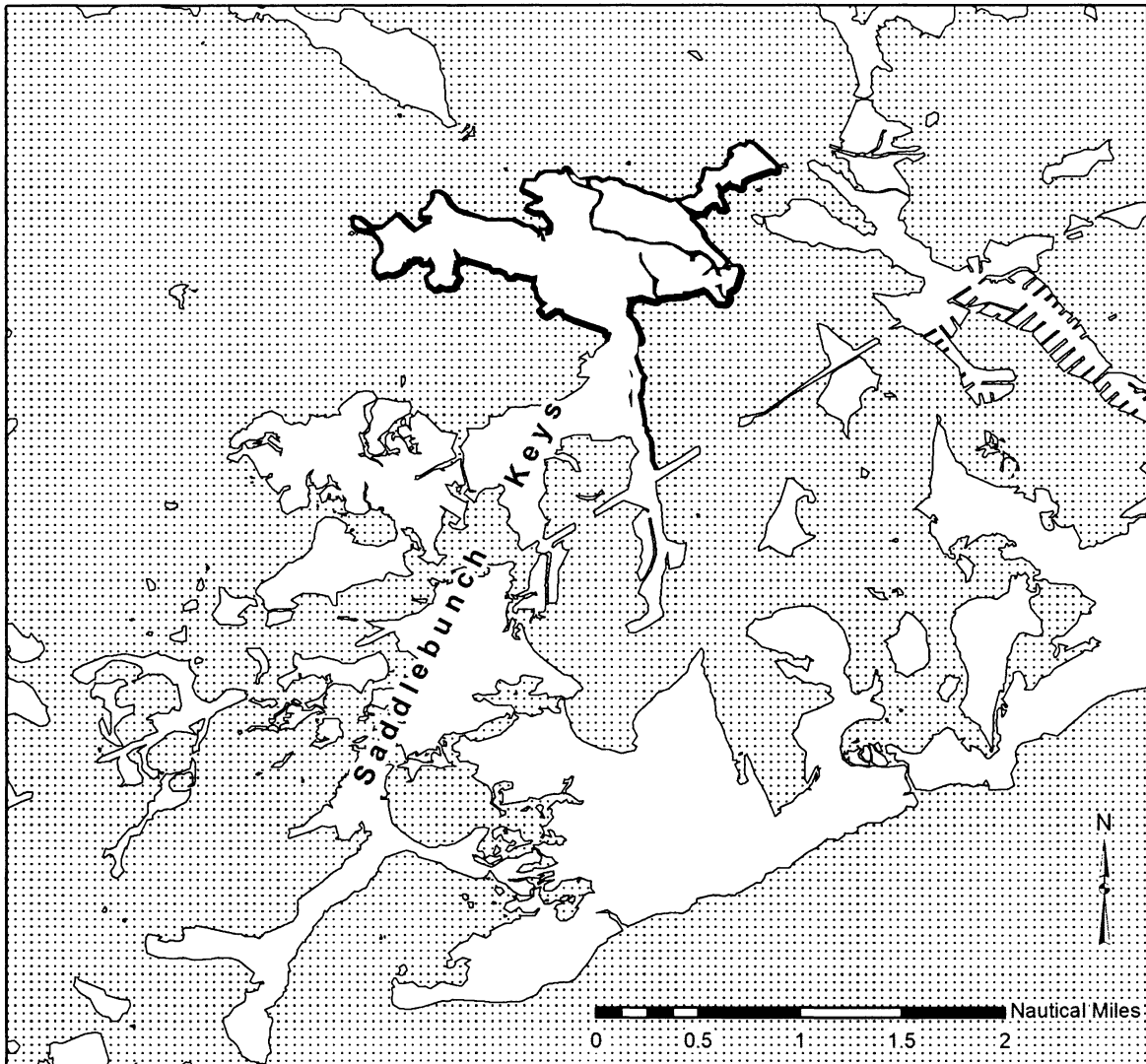


**Legend**

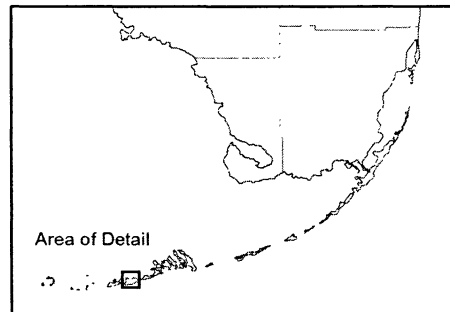
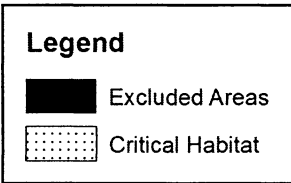
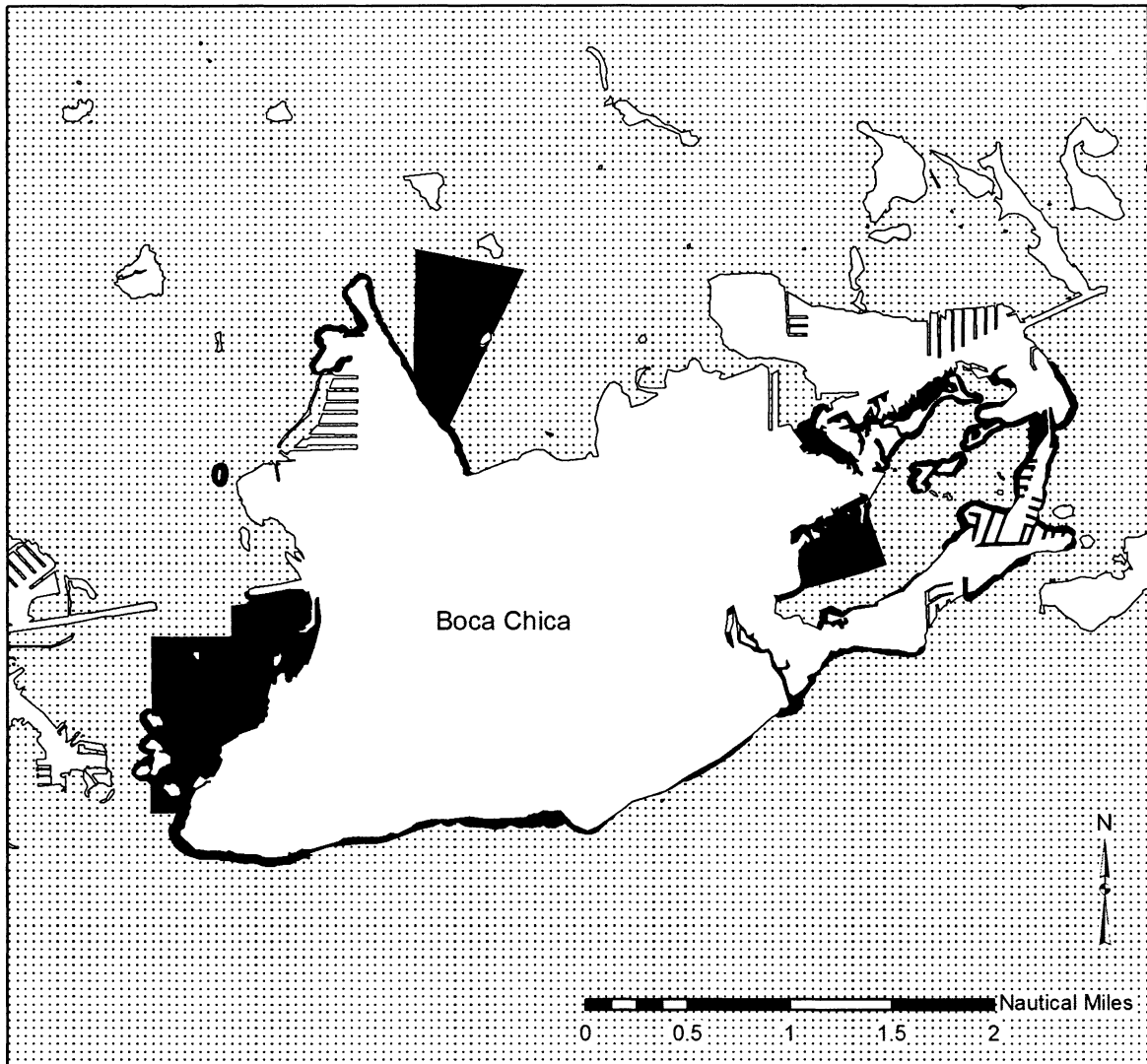
- County Line
- Critical Habitat



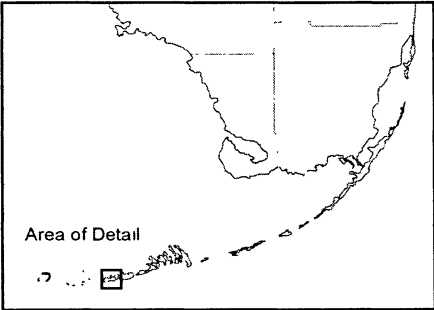
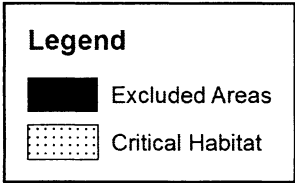
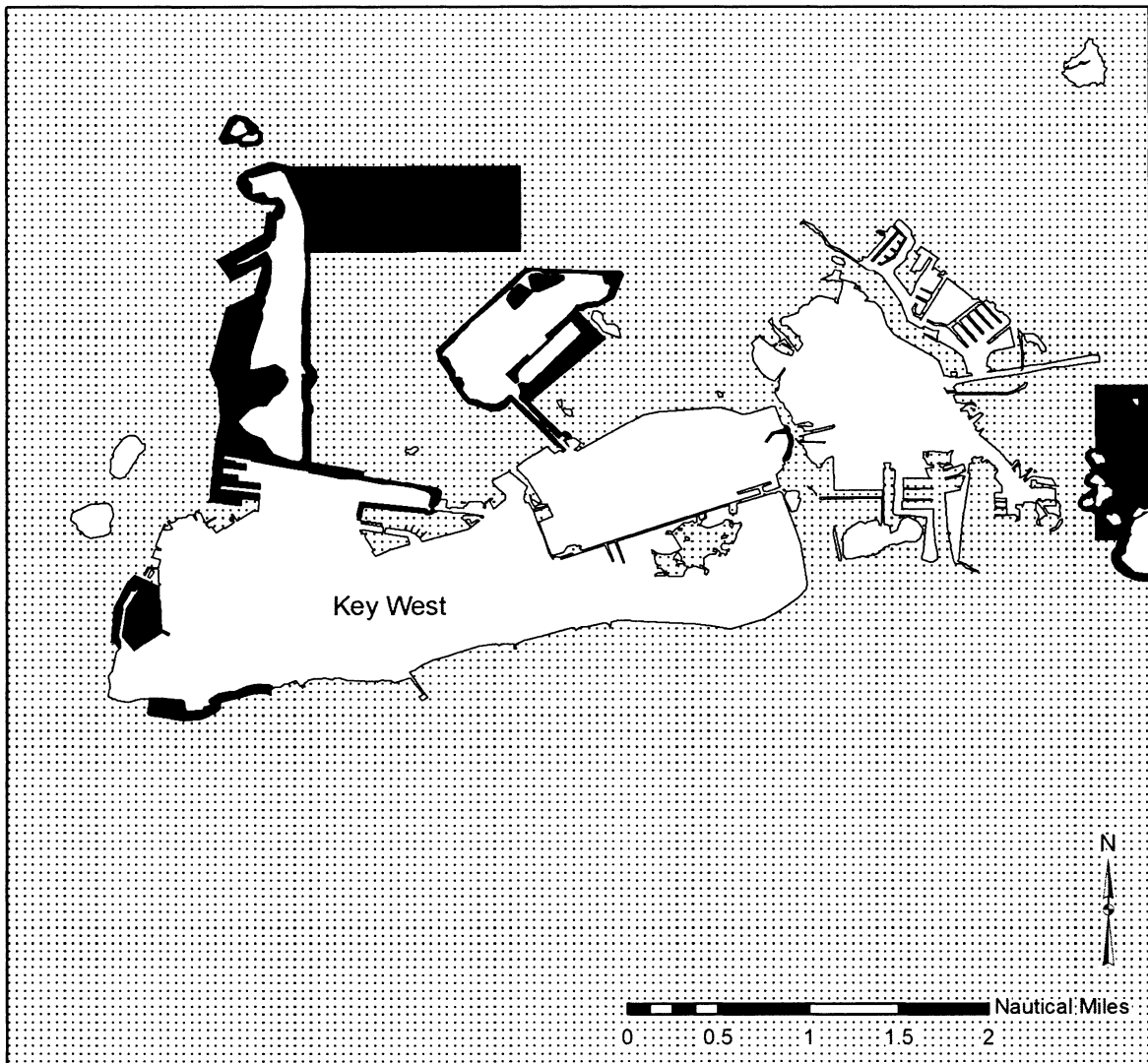
**Critical Habitat for Elkhorn and Staghorn Corals**  
**Area 1a: NASKW Excluded Area**



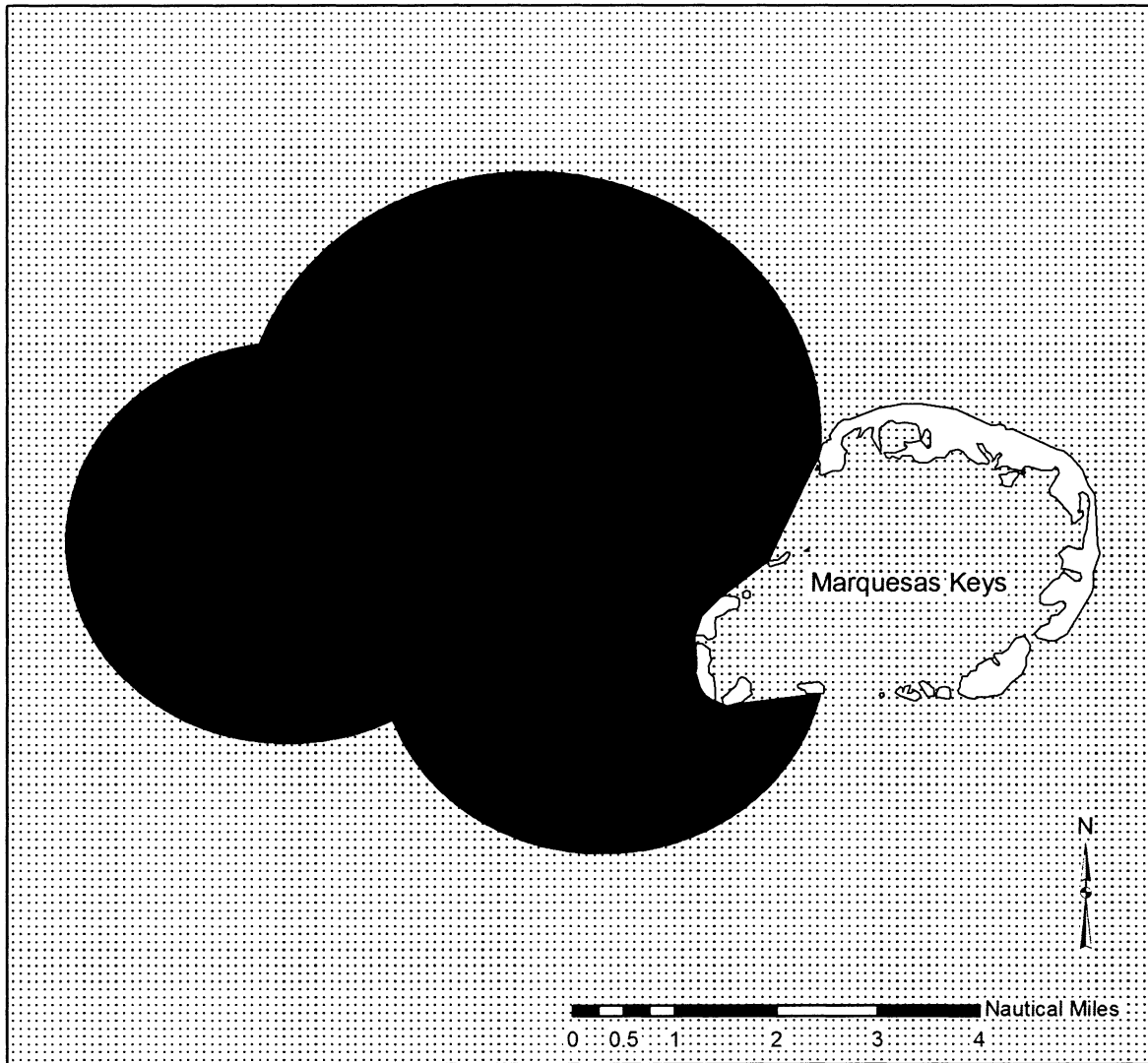
**Critical Habitat for Elkhorn and Staghorn Corals**  
**Area 1b: NASKW Excluded Area**





**Critical Habitat for Elkhorn and Staghorn Corals**  
**Area 1c: NASKW Excluded Area**

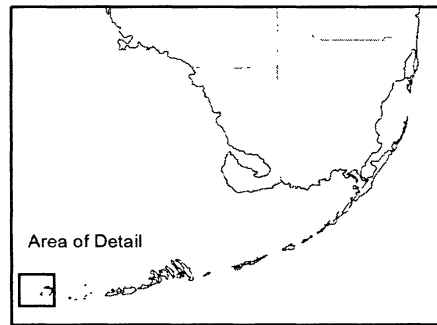


**Critical Habitat for Elkhorn and Staghorn Corals  
Area 1d: NASKW Excluded Area**



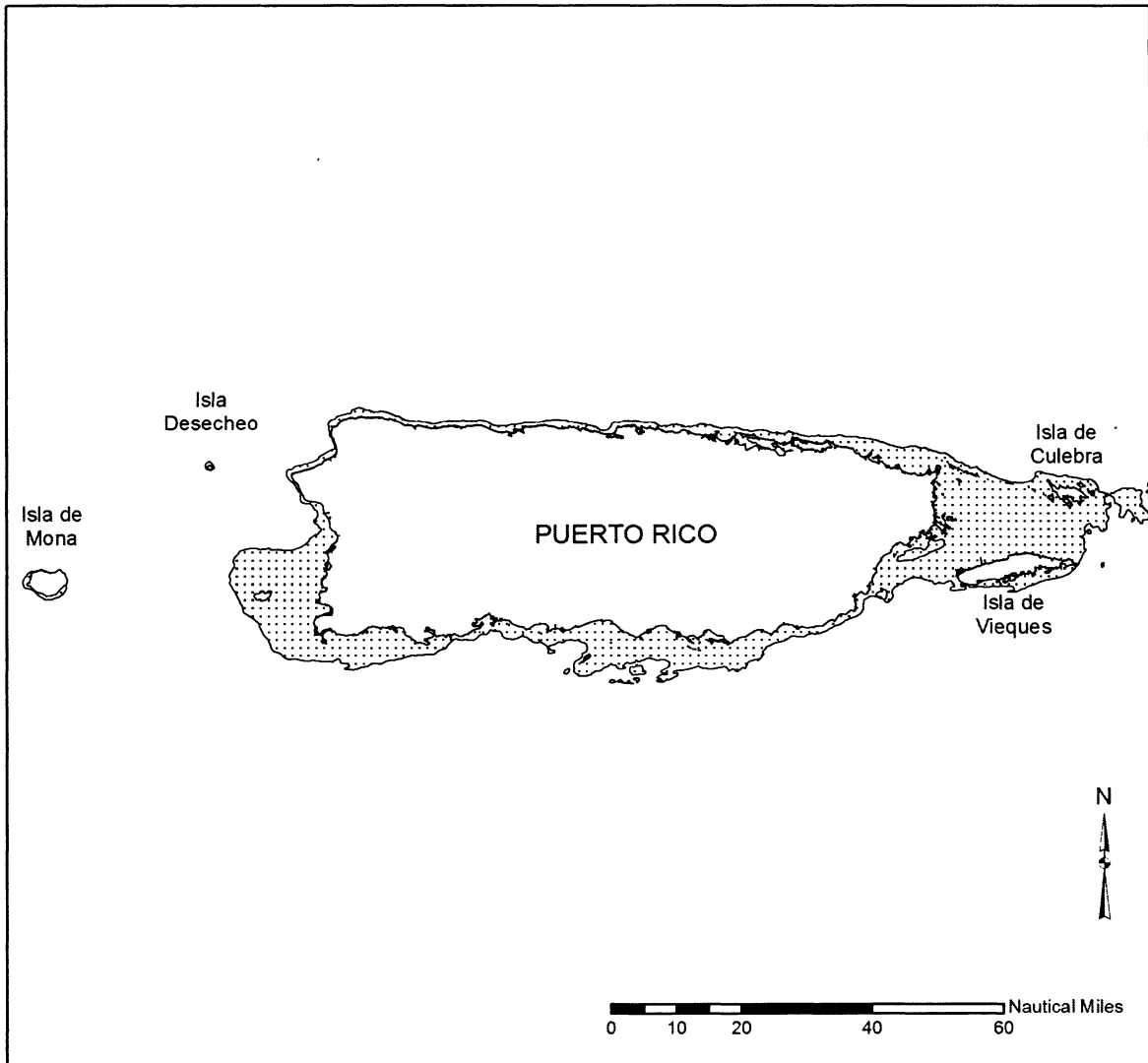
**Legend**

-  Excluded Areas
-  Critical Habitat




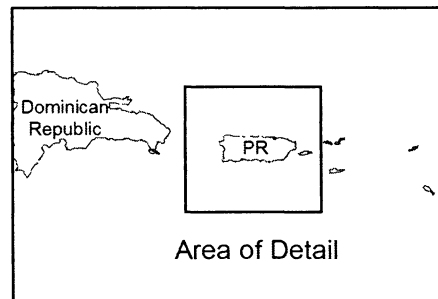


**Critical Habitat for Elkhorn and Staghorn Corals  
Area 2: Puerto Rico and Associated Islands**

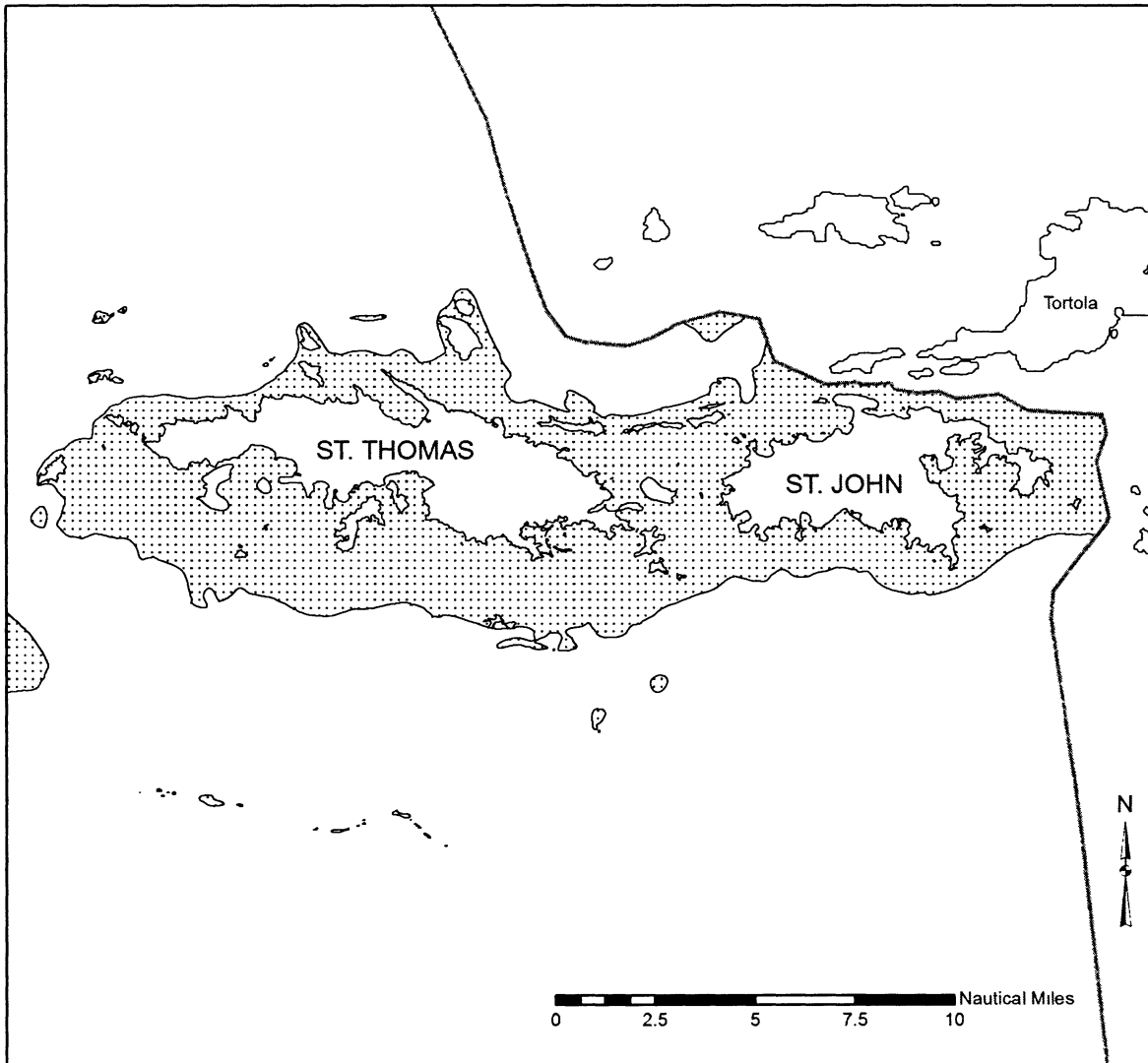


**Legend**

 Critical Habitat



**Critical Habitat for Elkhorn and Staghorn Corals  
Area 3: St. John/St. Thomas, U.S.V.I.**



**Legend**

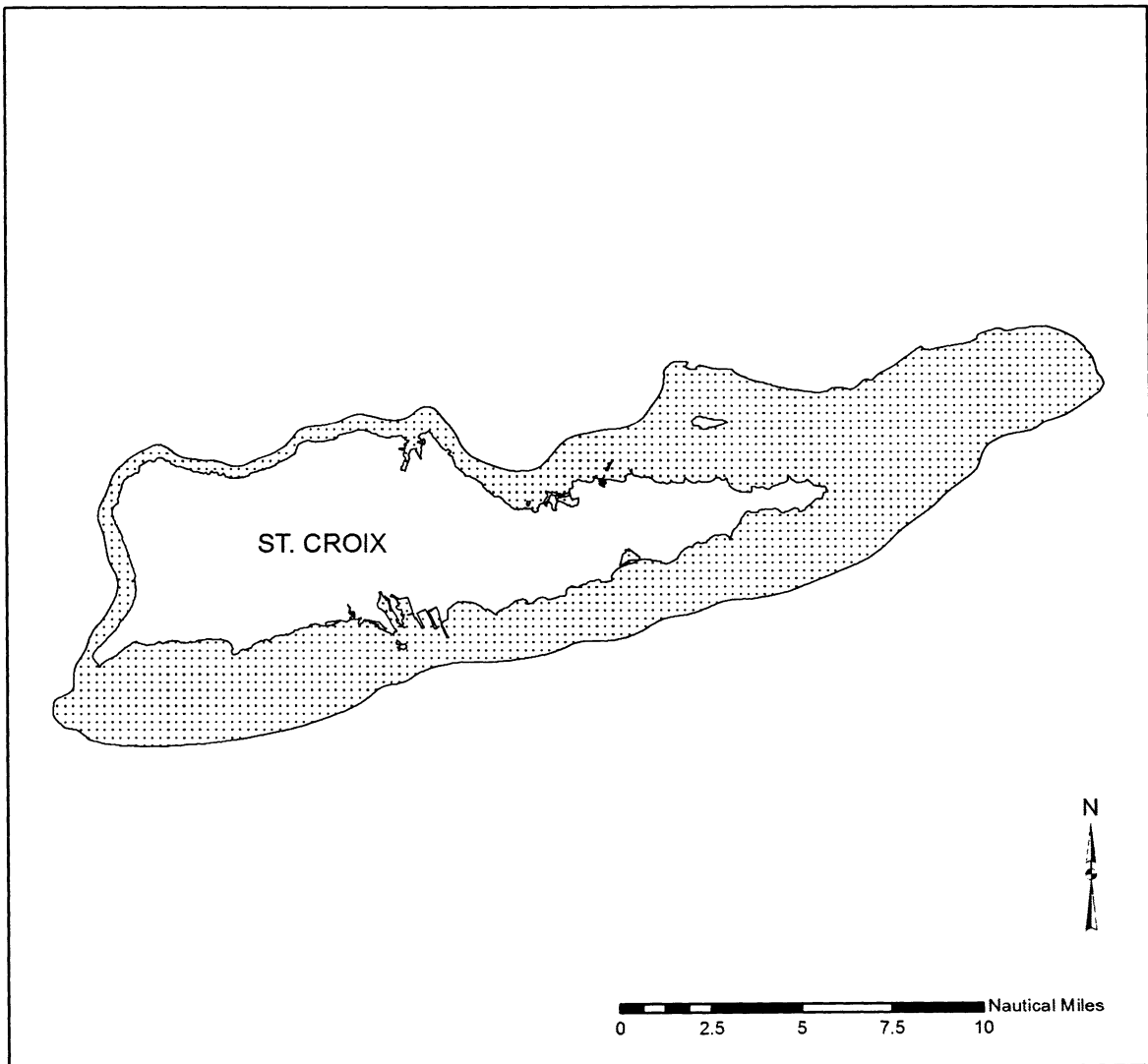
- Exclusive Economic Zone
- ▒ Critical Habitat

Puerto Rico


Area of Detail

The inset map shows the outline of Puerto Rico with a small rectangle indicating the location of the Area of Detail in the northern part of the island.

**Critical Habitat for Elkhorn and Staghorn Corals  
Area 4: St. Croix, U.S.V.I.**



**Legend**

 Critical Habitat

