



# Department of Agriculture Dipattamenton Agrikottura

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March 19, 2021

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**Re: Guam Department of Agriculture Comments for Proposed Rule: Endangered and Threatened Species; Critical Habitat for the Threatened Indo-Pacific Corals Docket No: 200918-0249**

On November 27, 2020, National Marine Fisheries Services (NMFS) proposed to designate critical habitat (CH) for seven Indo-Pacific corals listed as threatened under the Endangered Species Act (ESA) within U.S. waters in Guam, the Commonwealth of the Northern Mariana Islands (CNMI), American Samoa, and the Pacific Remote Island Area (PRIA). The seven species are *Acropora globiceps*, *A. jacquelineae*, *A. retusa*, *A. speciosa*, *Euphyllia paradivisa*, *Isopora crateriformis*, and *Seriatopora aculeata*. Proposed coral critical habitat consists of substrate and water column habitat characteristics essential for the reproduction, recruitment, growth, and maturation of the listed corals.

NMFS critical habitat proposal consists of 17 separate units, each of which contains all ESA-listed corals that occur there. There are four units in American Samoa (Tutuila, Ofu-Olosega, Ta'u, Rose Atoll); seven in CNMI (Rota, Aguijan, Tinian, Saipan, Anatahan, Pagan, and Maug Islands); five in the PRIA (Howland, Palmyra, Kingman, Johnston, and Jarvis Islands); and one unit encompassing all proposed designations in Guam. Between one and six listed corals occur in each unit. The following areas are either ineligible for proposed critical habitat, or excluded because of national security impacts: A complex of overlapping Navy Surface Danger Zones off of Ritidian Point in Guam; other parts of Guam; parts of Tinian; a group of six Navy anchorage berths on Garapan Bank in Saipan; all of Farallon de Medinilla; and all of Wake Atoll.

Critical habitat protections apply only to Federal actions under section 7 of the ESA. Activities that are not funded, authorized, or carried out by a Federal agency are not subject to these protections.

The Department of Agriculture (DOAG) has reviewed the proposal and provides the following comments. DOAG feels that NMFS wasn't transparent with the CH rule process. DOAG is disappointed that Guam and other agencies were not consulted before the proposed CH rule was initiated. This is an important undertaking that will have far reaching effects with the local Government of Guam (GOG) and other entities that use federal funds. Public hearings were not initially scheduled and were conducted after the territories requested hearings through NMFS. In any rule-making process, but especially one with such far reaching implications, public

hearings and other methods to solicit input should be an integral part of the process. It is understood that NMFS is conducting a 5-year assessment of CH while designating CH. NMFS needs to delay any CH rule until the 5-year assessment is completed. NMFS appears to be rushing the CH designation without completing necessary steps, such as the assessment. NMFS provided misleading documents as part of the CH justification, failed to provide meaningful opportunity for public and technical input, and did not demonstrate the use of best available data in this CH designation process. DOAG strongly objects to the designation and requests that NMFS delay any decision on CH designation until the assessment is complete and until NMFS reviews additional pertinent information regarding the listed coral species.

DOAG provides the following additional comments below:

- 1) Understanding that NMFS has an obligation to ensure the continued existence of the species, the Government of Guam submits that a critical habitat designation is not the best way to safeguard against the extinction of these coral species. The proposed rule notes that “only” activities that are federally authorized, funded, or carried out will be impacted by the designation. On Guam, where the island is subject to the whims of Congress and without true federal representation, the percentage of activities funded, authorized or carried out by the federal government is substantially higher than most states. The federal government controls almost a third of the terrestrial land mass and a large portion of the nearshore waters. Without primacy granted to Guam Environmental Protection Agency (GEPA) for permitting authorities, many activities – including construction on one acre of land or larger – are required to have federal permit coverage.

The U.S. Environmental Protection Agency (USEPA) has not granted Guam the authority to issue National Pollutant Discharge Elimination System (NPDES) permits; all these permits remain a federal activity. The threshold for a construction site to require an NPDES coverage is one acre, or less if the activity is part of a larger project. Subsequently, a family intending to subdivide an acre between two or more children would be required to have permit coverage for the smaller house lots, and the requirement for NPDES coverage would trigger consultation under a critical habitat designation. Even informal consultation is an expensive, time consuming process requiring expertise and information that small landholders would likely not have. The impact on these smaller parcels could be tremendous in terms of time and cost, and NOAA’s economic analysis does not appear to consider the way that its cost estimates would unfairly target small local landowners. This situation is already playing out with the presence of threatened and endangered snail species on small land holdings, and we can presume a critical habitat designation associated with nearshore waters would only increase cost and time associated with any development over an acre. Large projects, including federal funded actions or military activities, may be able to handle the added cost and time, but smaller projects might well be forced to delay or cancel activities because of the increased burden. Given the state of the economy during the pandemic, this burden seems especially cruel and ill-timed.

NOAA's own economic analysis documented nearly 100 informal consultations during the study period. While the analysis suggests that informal consultations can be dismissed, even informal consultations are expensive and time consuming, sometimes taking longer than the amount of time required by statute for formal consultations. In our experience, the consulting process rarely proceeds quickly and smoothly, even for projects that do not have significant environmental impacts. The burden for large projects with formal consultations is even greater, and it is likely that the economic analysis underestimates the potential for water quality consultations.

The NDPES permit system has not, apparently, achieved desired water quality goals all this time, given the current state of the threatened corals and the language of the proposed rule and its supporting reports. What will the new proposed critical habitat designation achieve? If the designation results in substantial alterations to projects to improve water quality, then the economic analysis is not accurate, and costs could rise dramatically. If the designation and subsequent consultations do not result in substantial alterations, how will this improve water quality? It will likely not result in improvement but will add large cost and time complications to already expensive, complicated projects. In the worst-case scenario, a critical habitat designation will increase costs, add additional permitting delays and paperwork, require expensive project changes, and still show no benefit to coral habitat or individual coral species.

- 2) Creating a critical habitat designation around the entire island – with the exception of military installations and a few other federal exemptions – is guaranteed to generate resentment and antagonism, while securing few conservation benefits. Recreational and cultural users are fearful of the designation, and rightfully so. It is misleading for NMFS to assert that the proposed rule will not impact cultural or recreational fishing. DOAG is working on reinstalling Fish Aggregating Devices (FADS) and Shallow-water mooring (SWMs). These are anchored to the ocean floor and are federally funded, which will trigger a review based on the proposed rule.

Fishers and resource managers are right to be fearful of this proposal causing new difficulty in an already tense relationship between natural resource managers and the public. The perception of an unfair rule, exempting the military while penalizing small local landowners and small scale cultural or subsistence, will make it more difficult for local and federal managers to work with resource users. Regardless of the actual impact of the rule, this proposal could lead to less compliance with existing or future rules and more negative impacts on nearshore waters. Furthermore, Guam and the other territories should be considered for exemption, whether under the Sikes Act or ESA because the Government of Guam has worked diligently in drafting documents, plans, and laws to protect and conserve corals and coral reef habitat. This shows NMFS unfairness towards the local territories. CH would restrict the local government in its own territorial waters particularly since many local agencies receive federal funding. Although CH designation does not directly affect cultural and subsistence uses, the public perception of this

designation and the effects it has on local projects will likely drive behavior shifts and increased animosity toward any resource management efforts.

- 3) The government of Guam offers an alternative to critical habitat designation in an effort to achieve our shared goal of coral reef conservation and the protection of Guam's rich natural biodiversity, including the threatened corals.
  - a. The Guam Coral Reef Resilience Strategy (GCRRS), completed in 2018, and the Guam Reef Restoration and Innovation Partnership (GRRIP), are just two of the latest initiatives designed to protect and restore our reefs. Through GRRIP, massive *Porites* colonies and *Heliopora coerulea* fragments were transplanted to the Piti Marine Preserve, and massive coral bleaching events on Guam are being combated through coral restoration efforts to restore and rebuild Guam's threatened reefs to fill up the coral trees in Guam's coral nurseries ensuring that they live and thrive in comfortable conditions to outplant to highly affected bleached areas in the near future.
  - b. Our U.S. Environmental Protection Agency and NOAA approved Nonpoint Pollution Control Program addresses water quality and sedimentation issues at an actionable local level, with buy-in from agencies and support of the public. A renewed focus on this program, combined with active interventions outlined in detail in the resilience strategy and restoration efforts, will go much further in protecting the coral reefs around Guam than the imposition of critical habitat.
  - c. DOAG and partners, including NOAA NOS, have invested in many erosion and sedimentation control projects. Reforestation work within the Mannell-Geus, Piti-Asan, and other southern watersheds have been showing positive results to reduce impacts to nearshore coral reefs, with some Mannell-Geus projects showing reductions in sedimentation in less than five years. DOAG has been actively reforesting upland forest stands within the Manell-Geus Watersheds (121-acres managed) to reduce an estimated 72,000 tons of sediment entering streams and near shore reefs. Efforts include removal of invasive species, preparing planting sites, working with volunteers to outplant vegetation, and the installation and maintenance of firebreaks to prevent loss of newly planted sites during the dry season. Additional sites across the island under similar management by DOAG include the COTAL Conservation Area (502-acres managed) within the Ylig Watershed, the Masso Reservoir Nature Park (29.5-acres) located within the Piti-Asan Watershed and the Cetti Bay project.
- 4) There are sufficient regulatory protections currently in place to adequately protect listed corals and their habitat. The designation of CH will only further complicate the permitting system creating an unnecessary conservation measure and redundancy when it comes to environmental reviews. There are already numerous existing Federal, State, and Local regulatory programs that protect coral reef habitats. The designation of CH

will have no significant effect on the recovery of listed corals. This is a classic example of federal overreach to address a perceived problem that several federal and state regulatory programs are already fully addressing. NMFS states that designation of CH will be a conservation benefit to listed ESA corals. What are the specific CH designation conservation benefits that aren't already covered by the following regulatory programs below? The following is an overview of environmental regulatory programs that would be protecting the same exact resource that CH designation would protect.

- a. **National Environmental Policy Act (NEPA) – Federal agencies or any federal action must assess the environmental effects of their proposed actions prior to making a decision.** Using the NEPA process, agencies evaluate the environmental and related social and economic effects of their proposed actions. Agencies also provide opportunities for public review and comment on those evaluations. If the same action requires a US Army Corps of Engineers (USACOE) permit (as most marine projects do), USACOE must ensure the issuance of said permit comply with established USACOE NEPA policies.
- b. **Clean Water Act Section 404/Rivers & Harbors Act Section 10 (Lead Agency: US Army Corps of Engineers).** Issuance of individual USACOE permits must be analyzed in accordance with the CWA Section 404(b)(1) Guidelines (40 CFR 230). Section 230.44 (of these guidelines) identifies coral reefs as a Special Aquatic Site. Significant impacts to this resource often require the development of a Compensatory Mitigation Plan (see 2008 Compensatory Mitigation Rule) that involves compliance with stated performance standards and 5 years of monitoring.
- c. **Endangered Species Act Section 7 Consultation (Lead Agency: NOAA NMFS PIRO Protected Resources Division).** Listed corals are protected by the Endangered Species Act. Federal actions that have a “may effect” determination (made by the Federal Action Agency) must be addressed through the Section 7 consultation process with NOAA NMFS PIRO Protected Resources Division.
- d. **Essential Fish Habitat (Lead Agency: NOAA NMFS PIRO Habitat Conservation Division).** Presently, PIRO HC Division considers everything EFH when consultations are conducted on USACOE permitting actions. Many consultations are focused on coral reef habitat conservation and mitigation measures to compensate from impacts to coral reef resources.
- e. **USEPA Section 402 General Construction Permit (Lead Agency: U.S. Environmental Protection Agency).** This permit addresses the control of surface water runoff and erosion issues associated with earthmoving activities. The purpose is to minimize sediment laden runoff from flowing offsite into coastal waters and impacting marine benthic resources. This is required for construction sites that exceed 1 acre in size.

- f. **Guam Section 401 Water Quality Certification (WQC)** (Lead Agency: Guam Environmental Protection Agency (GEPA)). A GEPA Section 401 WQC is required for federal permits, most of which are identified in the Federal Clean Water Act, for construction, fill, dredging, and discharges to Waters of the United States and Guam Waters every USACOE permit issued. 401 WQC issuance identifies that construction or operation of a proposed project or facility will be conducted in a manner consistent with the Guam Water Quality Standards. This authorization establishes water quality standards for during-construction activities. For dredging projects, this typically involves installation of sediment plume control devices, establishment of a turbidity monitoring system, and a system to address water quality violations. Issued permits typically require the temporary cessation of dredging during the summer coral spawning event. This permit condition is also included on USACOE and Coastal Zone Management (CZM) permits.
- g. **Coastal Zone Management Program** (Lead Agency: Bureau of Statistics and Plans (BSAP) Guam Coastal Management Program). Federal consistency review is required for federal agency activities, activities requiring a federal license or permit, and federal assistance to local governments to determine if a particular activity affects any coastal use or resource (any land or water use or natural resource of Guam).
- h. **The Guam Seashore Protection Commission (GSPC)** (Guam Code Annotated 21 GCA, Chapter 63) has jurisdiction over the seashore reserve and any proposed development within the reserve must first be granted a permit from the GSPC. Applicants for such a permit (see Seashore Clearance form) shall demonstrate that the development will not have any substantial adverse environmental effect; that the development is consistent with the objectives of the Territorial Seashore Protection Act. Upon filing of a permit application and supporting documents with the Department of Land Management, the Application Review Committee (ARC), which is composed of various agencies including DOAG and GEPA, will review the material and a public hearing will be conducted. Then the GSPC will meet to review the application, ARC recommendations, public hearing results, other comments, and render a final decision.
- i. **Land Use Permits: Clearing and Grading Permits.** The Guam Department of Public Works (DPW) oversees building construction and application of the requirements of the International Building Code. As described further in this section, DPW requires permits for numerous development activities such as clearing and grading, buildings, and construction. The DOAG, GEPA, and other regulatory agencies are part of the review process providing conditions on the development of land that may have direct/indirect effects to coral reef habitat or EFH.
- j. **Guam's Marine Preserves – 5 Guam Code Annotated (GCA) Chapter 63 Article 1 and Guam Public Law 24-21.** The purpose of the marine preserve is to protect,

preserve, manage, and conserve aquatic life, habitat, and marine communities and ecosystems, and to ensure the health, welfare and integrity of marine resources for current and future generations by managing, regulating, restricting, or prohibiting activities to include, but not limited to, fishing, development, and human uses. All forms of fishing, and the taking or altering of aquatic life, living or dead coral and any resources to include, but not limited to, mangroves, seagrass, sand, and rocks within a preserve, is unlawful except as specifically permitted by the Director of Agriculture through regulations. DOAG DAWR reviews applications for permits within the marine preserves and has denied application requests that would have negative impacts to the marine preserves. Furthermore, DOAG DAWR has included compensatory mitigation with approved marine preserve permits providing for the protection and conservation of corals and coral reef habitats.

- k. 5 GCA Chapter 63 Article 6. It shall be unlawful to remove live coral from that area surrounding the Island of Guam extending from the shore of the island outward to the ten fathom contour, except in accordance with this Article. DOAG DAWR has stopped the commercial harvest of coral and has limited the take of coral to scientific purposes.
  - l. 5 GCA Chapter 63 Article 2 ESA of Guam. DOAG has its own local ESA with the purpose of protecting and conserving the ecosystem of endangered or threatened species. DOAG DAWR is in the process of updating its local ESA and ESA list providing greater protection for ESA listed species.
  - m. Guam Public Law 27-87 Marine Preserve Eco-permitting System. This law allows DOAG DAWR to create a permitting system for activities beyond fishing that maximizes public access and use consistent with the protection of species and habitats. DOAG DAWR has a draft plan and is currently moving forward with completing a final plan and regulations.
- 5) NMFS defined CH as areas occupied by the species with essential features that are found on fringing reefs, which provide hard substrates for corals to grow on and suitable water quality to sustain them through their life cycle. However, the maps of the proposed coral CH in the Pacific Island Region are erroneous and misleading. By including all non-military nearshore areas, the maps overstate the possible habitat for the listed corals and are not useful to determine where CH consultation would be appropriate. For instance, the map includes large nearshore areas, such as Talofof Bay, that are wholly unsuitable for coral habitat.
- 6) NMFS has not provided any information on the benefits of CH. No reports or studies besides ESA Section 7 consultations have been provided demonstrating the benefits or efficacy of CH. Have corals recovered or coral cover increased with CH? If so, could they have recovered without CH?

- 7) DOAG has reviewed the proposed CH rule and most of the information provided is from Brainard *et al.* 2012, which is a monitoring report for 2003-2007. The Brainard *et al.* 2012 report seems to be one of two sources of substrate and water quality data informing the ESA listing. This report is based on NOAA data collected during Mariana Archipelago Reef Assessment and Monitoring Program (MARAMP) cruises in 2003, 2005, and 2007. However, MARAMP cruises were also conducted in 2009, 2011, 2014, and 2017. DOAG feels that Brainard *et al.* 2012 report is not the best available data. Coral reefs/nearshore habitats have changed substantially since 2007, particularly given the extreme bleaching events. It is not clear why the most recent data sets were excluded from the information provided, and why updated coral data was absent from the packet.
- 8) The Guam Coastal Atlas from 2005, which is based on data from 2001 to 2004 was also used in the proposed CH rule. General "geological" substrate classifications (like hard bottom/pavement) probably have not changed much, however, live coral cover, and algal cover and water quality, which influence the suitability of habitats for coral growth, have changed significantly over the last 15-20 years. Although, Guam doesn't have a more recent coastal atlas of the entire island, there are more recent habitat maps of certain areas (e.g., a report on Manell Geus in 2018, which mapped all coastal/nearshore habitats in the area, including corals, seagrasses, and mangroves).
- 9) DOAG does not agree with using a single personal communication with one person from the University of Guam (UOG) to determine the presence of listed coral species and subsequent critical habitat designations. From DOAG's review, it appears that the basis for confirming the occurrence of all three species that are listed for Guam (*A. globiceps*, *A. retusa*, and *S. aculeata*) is personal communication with the one individual from UOG in 2015 and not a published study. DOAG questions the validity of basing such important regulatory decisions on personal and outdated personal communication. *A. retusa* and *S. aculeata* were rare on Guam half a decade ago so it is highly possible that they have been locally extirpated (or even that they were misidentified at the time), given the difficulty of identifying coral species.

In 2015, UOG reported the presence of *A. globiceps* (widespread but not common), *S. aculeata* (two colonies total at two sites), and one colony of what may have been *A. retusa*. UOG did express uncertainty about the identification of the *A. retusa* colony at the time. Since then, the sites were revisited and colonies of *S. aculeata* or what may have been *A. retusa* could not be found. Even if there are not any published studies/reports that confirm or refute the presence of these species around Guam, and we must rely on personal communication, these newer insights are much more useful than the insights from 2015. The presence of these three species on Guam needs to be reconfirmed with new, quantitative surveys before any critical habitat is designated.

- 10) DOAG received a letter from Regional Administrator Michael Tosatto, dated March 19, 2021, in which Mr. Tosatto stated that NOAA Fisheries values our (meaning state



agencies) input on the proposed critical habitat and NOAA staff will work directly with the agency to ensure that NOAA has the relevant information from the Department to incorporate into the final coral critical habitat rule. To date, this has not occurred. Letter is attached.

Instead, DOAG reached out for support and assistance. On March 25, 2021 DOAG representatives requested shape files NOAA used to develop the proposed critical habitat maps. In repeated email exchanges NMFS provided maps or links to maps that were not relevant to our request. DOAG still has not received the requested GIS shape files or an explanation for why the requested files are not provided.

In the proposed rule figure 5 to paragraph (f) Guam, NMFS provided low grade pdf files illustrating the proposed critical habitat areas for Guam. Without the GIS shape files for the proposed critical habitat map, DOAG would have to scan the pdf and digitize the pdf, in order to create a GIS shape file, but this process introduces high occurrences of human error. We did not engage in this process. Rather, our GIS person used the NOAA benthic habitat map created with IKONOS imagery from 2001-2003 and classified in 2004, which is completely inappropriate to use to determine benthic habitat, particularly coral, accurately for Guam in 2021.

- 11) The 2004 benthic habitat maps are glaringly inaccurate. In 2005 a NOAA Pacific Islands Technical Assistant ground-truthed the benthic habitat maps as part of a NOAA CRCP-funded project. DOAG used the ground-truthed maps to create our exclusionary zones, which are attached to this document.

DOAG confirmed areas not suitable as coral habitats. Attached maps illustrate the factual conditions of habitats that should be not considered nor identified as areas for Critical Habitat Designation for the corals. Estimated total area of benthic habitat that indicates no coral present and should be excluded from the proposed critical habitat designation is 696 sq. km. Estimated total areas of all buffers (0.3048 km.) established around coastal discharge and known coastal springs measured to be 89.42 sq. km. Estimated total of all federal and local protected areas is 82.26 sq. km. With the best science data available from DOAG and our local and federal partners, proposed exclusionary areas are highlighted in the final map.

We thank you for the opportunity to comment on this proposed rule. If you have any questions, please contact me at [Chelsa.MunaBrecht@doag.guam.gov](mailto:Chelsa.MunaBrecht@doag.guam.gov), Jay Gutierrez, DAWR Chief, at [jay.gutierrez@doag.guam.gov](mailto:jay.gutierrez@doag.guam.gov), or Jeff Quitugua, Technical Guidance Coordinator, at [Jeffrey.Quitugua@doag.guam.gov](mailto:Jeffrey.Quitugua@doag.guam.gov).

Sincerely,



Chelsa Muña-Brecht  
DIRECTOR

**Attachments:**

Letter, March 19, 2021 from Michael Tosatto, Regional Administrator  
Guam – Benthic Habitat (NOAA 2004) for Exclusion from Critical Habitat Designation  
Guam – Benthic Habitat for Exclusion from Critical Habitat Designation  
Guam – 1000 ft. Buffers around Coastal Discharge (Streams and Known Coastal Springs)  
Guam – Marine Protected Areas and Federal Reserves  
Guam – Proposed excluded zones to the Critical Habitat Designation

**CC:**

Paul Doremus, Acting Assistant Administrator for Fisheries  
Sam Rauch, Deputy Assistant Administrator for Regulatory Programs  
Lance Smith, Fishery Biologist, PIRO Protected Resources Division  
Michael Seki, Director, Pacific Islands Fisheries Science Center  
Archie Soliai, Chair, Western Pacific Regional Fishery Management Council; Director, AS  
Department of Marine and Wildlife Resources  
Anthony Benevante, Secretary, CNMI Department of Lands and Natural Resources  
Kitty Simonds, Executive Director, Western Pacific Regional Fishery Management Council



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**NATIONAL MARINE FISHERIES SERVICE**  
Pacific Islands Regional Office  
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March 19, 2021

Anthony T. Benavente, Secretary, DLNR, CNMI  
Chelsa Muña-Brecht, Director, DOAg, Guam  
Taotasi Archie Soliai, Director, DMWR, American Samoa

Subject: Critical Habitat Designation for ESA-listed Corals

Dear Mr. Benavente, Ms. Muña-Brecht, and Mr. Soliai:

Thank you for your March 12, 2021 letter, in which you requested that the National Marine Fisheries Service (NMFS or NOAA Fisheries) delay the final coral critical habitat designation for corals listed under the Endangered Species Act (ESA) until such time as the ongoing ESA 5-year reviews for the listed corals have been completed. You also mentioned our Coral Recovery Planning Workshop planned for May 2021, to which representatives from each Territory have been invited.

We agree that both undertakings provide opportunities for your departments and NOAA Fisheries to cooperatively gather the best available information on the listed corals, and to apply that information to the conservation of threatened coral species. Unfortunately, NOAA Fisheries cannot delay the designation of critical habitat until a recovery plan or 5-year update is completed because the Endangered Species Act requires that we make a timely decision as to whether a final regulation is warranted within one year of publishing our proposed regulation (November 2020), subject to narrow exceptions not applicable here.

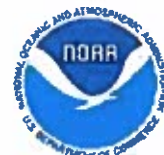
However, NOAA Fisheries values your input on the proposed critical habitat for corals and will take the following steps:

1. We will extend the public comment period for proposed coral critical habitat by an additional 60 days. Currently, the public comment period closes on March 27, 2021.
2. My staff will work directly with your agency staff to ensure that we have the relevant information from your Departments to incorporate into the final coral critical habitat rule, if warranted.

We look forward to working with you on the coral critical habitat designation.

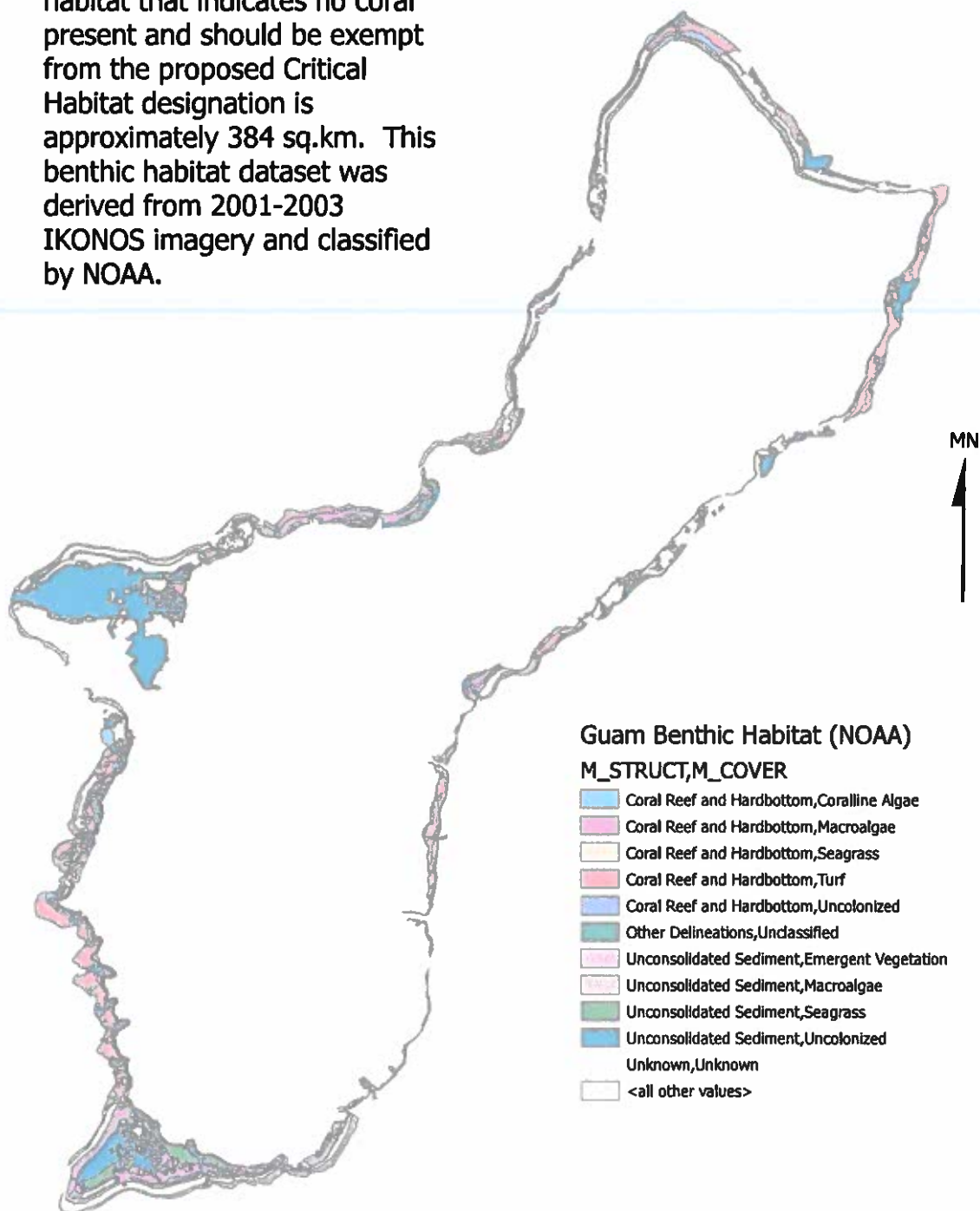
Sincerely,

Michael D. Tosatto  
Regional Administrator



# Guam - Benthic Habitat (NOAA 2004) for Exclusion from Critical Habitat Designation

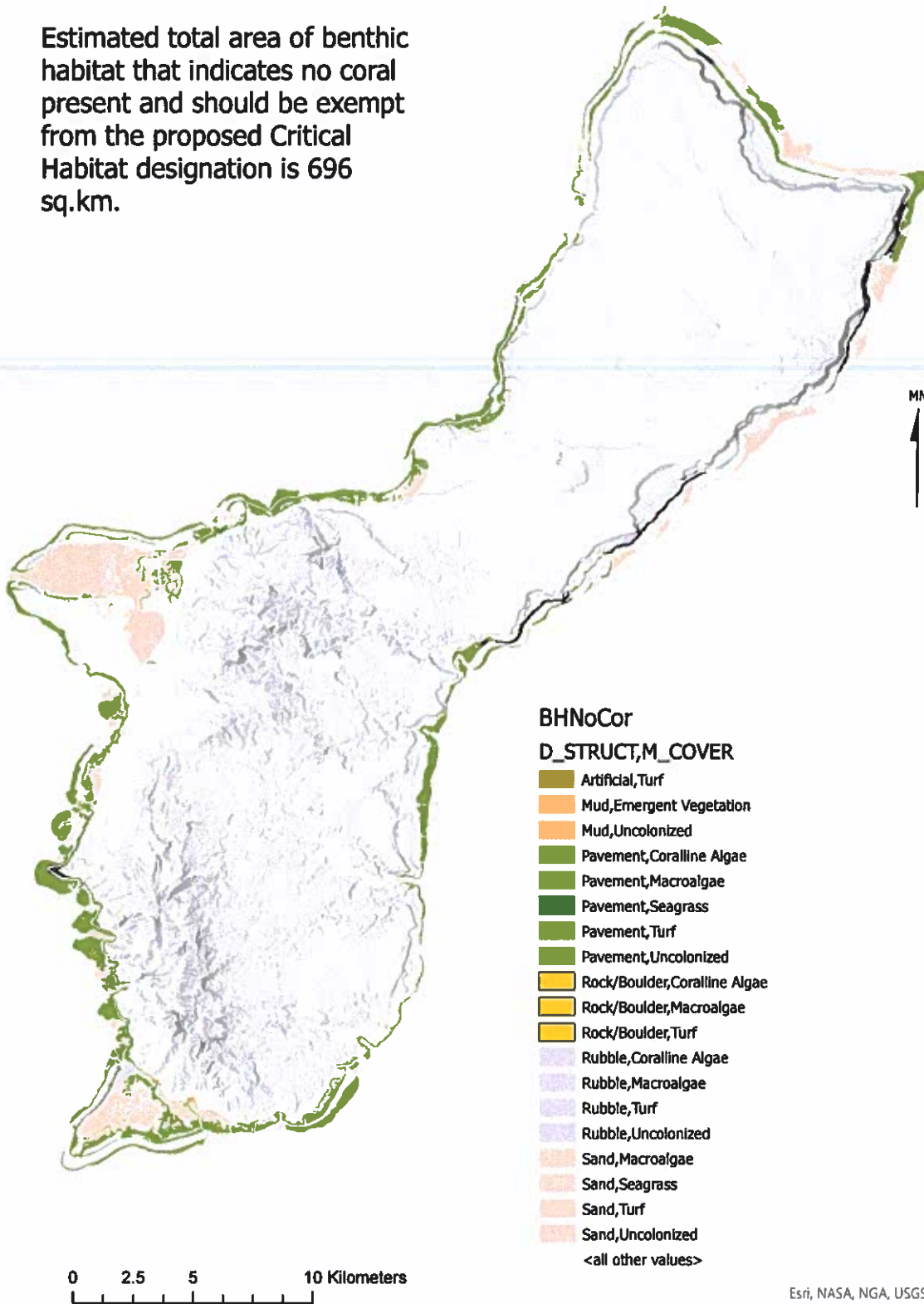
Estimated total area of benthic habitat that indicates no coral present and should be exempt from the proposed Critical Habitat designation is approximately 384 sq.km. This benthic habitat dataset was derived from 2001-2003 IKONOS imagery and classified by NOAA.



The map was created in ArcGIS Pro 2.7 by Romina King, in consult with Chelsa Muna-Brecht for the Department of Agriculture on 24 May 2021. Benthic habit dataset was created by NOAA in 2004 and based on 2001-2003 IKONOS imagery and may downloaded here: [https://products.coastalscience.noaa.gov/collections/benthic/e99us\\_pac/data\\_guam.aspx](https://products.coastalscience.noaa.gov/collections/benthic/e99us_pac/data_guam.aspx)  
Please note: IKONOS imagery is 4 m multispectral resolution @ 26 degrees NADIR. After extensive testing, DigitalGlobe has determined that the accuracy of IKONOS imagery does not meet DigitalGlobe's product quality specifications, and subsequently, the established A3C (Accuracy, Currency, Completeness, and Consistency) quality standards. It is strongly not recommended to use this dataset derived from 2001-2003 IKONOS imagery to determine areas of coral in 2021.

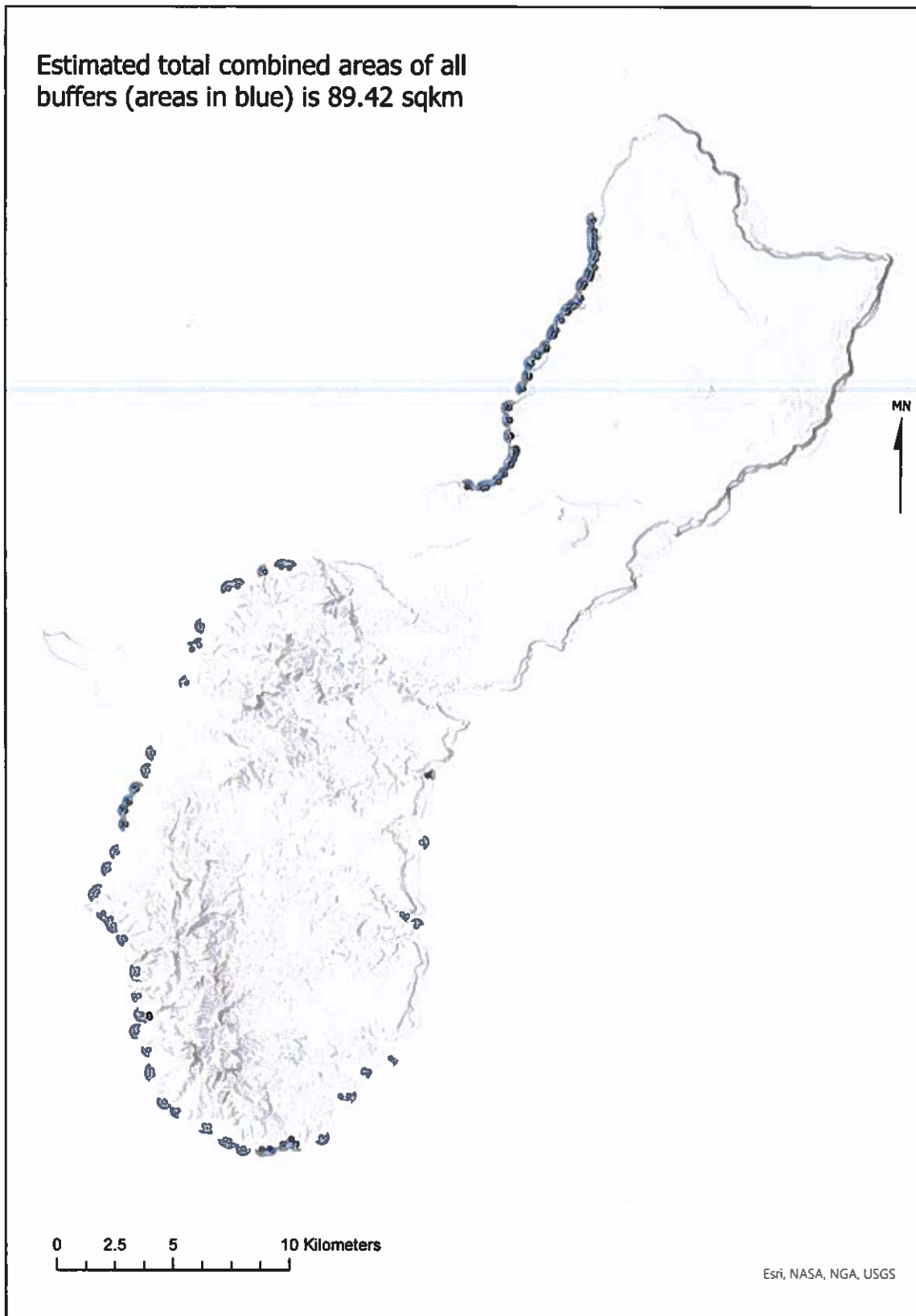
# Guam - Benthic Habitat for Exclusion from Critical Habitat Designation

Estimated total area of benthic habitat that indicates no coral present and should be exempt from the proposed Critical Habitat designation is 696 sq.km.



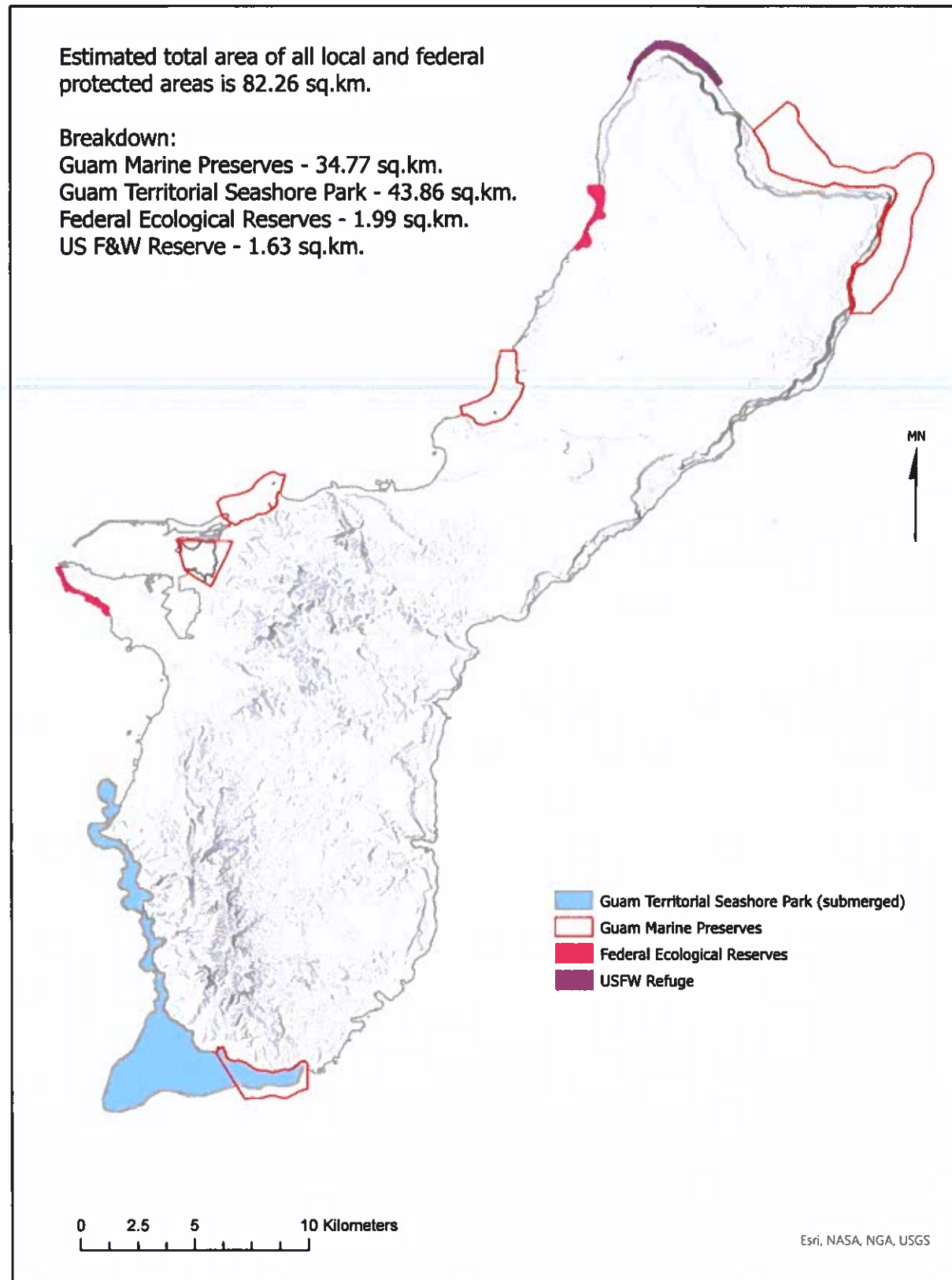
The map was created in ArcGIS Pro 2.7 by Romina King, in consult with Brent Tibbatts for the Department of Agriculture on 21 March 2021. Benthic habit dataset was created by Dave Burdick and downloaded here: <http://north.hydroguam.net/maps-gis-all/benthic-habitat-detailed.zip>.

# Guam - 1000 ft. Buffers around Coastal Discharge (Streams and Known Coastal Springs)



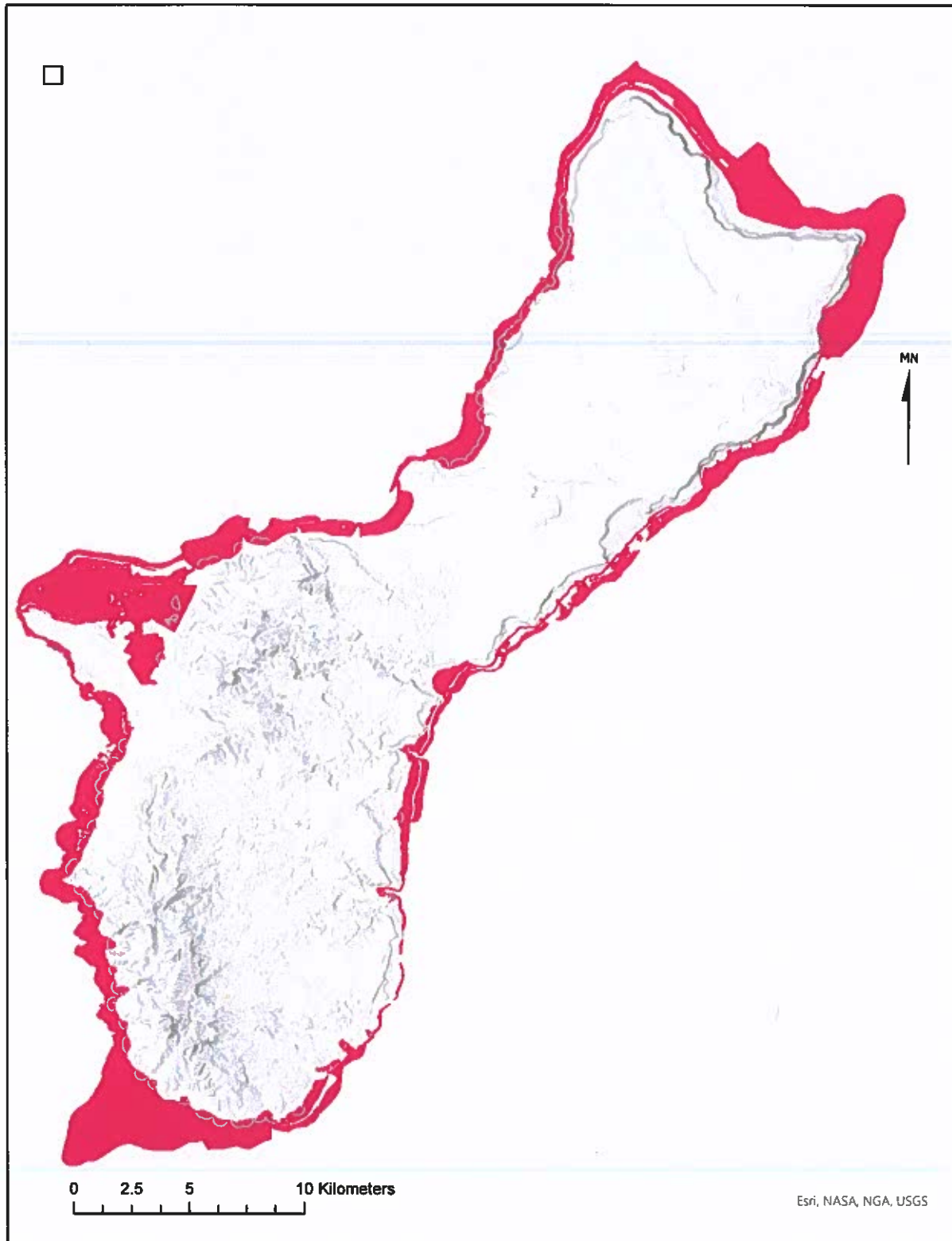
The map was created in ArcGIS Pro 2.7 by Romina King, in consultation with Brent Tibbatts for the Department of Agriculture on 21 March 2021. Stream discharge points and coastal springs was downloaded from hydroguam.net. 1000 ft (.3048 km) buffers were created around each point of discharge. All the buffers were clipped using the Guam shoreline to represent zones in the marine environment.

# Guam - Marine Protected Areas and Federal Reserves



The map was created in ArcGIS Pro 2.7 by Romina King, in consultation with Brent Tibbatts for the Department of Agriculture on 21 March 2021. Guam protected areas was downloaded here: <http://north.hydroguam.net/maps-gis-all/infrastructure-protected-areas.zip>. The shape files were modified to include only the areas that are submerged.

# Guam - Proposed excluded zones to the Critical Habitat Designation



The map was created in ArcGIS Pro 2.7 by Romina King, in consultation with Brent Tibbatts for the Department of Agriculture on 21 March 2021. Areas in pink represent benthic habitats with no coral coverage, locally and federally managed marine areas, 1000 ft (.3048 km) buffer zones around natural discharge areas.