



Commonwealth of the Northern Mariana Islands

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To Whom It May Concern,

The Commonwealth of the Northern Mariana Islands (CNMI) Bureau of Environmental and Coastal Quality (BECQ), established under Executive Order No. 2013-24 and consisting of the Division of Environmental Quality (DEQ) and the Division of Coastal Resources Management (DCRM), has reviewed portions of the 2020 Mariana Islands Training and Testing (MITT) Final Supplemental Environmental Impact Statement (EIS)/ Overseas Environmental Impact Statement (OEIS). BECQ submits these comments for your consideration for inclusion into the forthcoming "Record of Decision" (ROD) to support improved coordination and management outcomes for the MITT and future build up activities. The Final Supplemental EIS/OEIS was opened on June 5, 2020 and set for a 30-day review and comment period with no extension for review granted.

Through CNMI Public Law 3-47, the "Coastal Resources Management Act," DCRM is granted the ability to exercise regulatory authority towards activities within its jurisdictional territory that can impact the coastal resources of the CNMI. DCRM's mission is to protect and enhance the CNMI's coastal resources for residents and visitors through effective and adaptive resource management, interagency collaboration, and stakeholder engagement, in a manner that builds and sustains community resilience and well-being. Pursuant to the requirements of Section 307 of the federal Coastal Zone Management Act (CZMA) of 1972, as amended, and its implementing regulations found at 15 CFR 930, federal actions which may have reasonably foreseeable effects on uses or resources of the coastal zone must be undertaken in a manner which is consistent with the CRM enforceable polices as approved by the National Oceanic and Atmospheric Administration. The Commonwealth maintains its jurisdiction over the coasts and shorelines, broadly defined by law, for the safety and benefit of the general public. To that extent, we believe it mutually beneficial to establish better methods of communication and information-sharing. As outlined further in this comment, DCRM has concerns regarding the scope, extent of data sharing and lack of updated data, and the process itself that has been implemented for this MITT draft SEIS review.

From the initial release of the Mariana Islands Range Complex (MIRC) and MITT EIS, leading up to the final 2020 SEIS/OEIS, BECQ has strived to provide meaningful comments and collaborate closely with the Navy throughout the development of the proposed activities, including various extensive document reviews and consultation processes throughout the years. Relating to Department of the Navy actions, these include the 2010 Mariana Islands Range Complex EIS/OEIS (MIRC, 2010), 2015 Mariana Islands Training and Testing EIS/OEIS (MITT, 2015), the 2019 Mariana Islands Training and Testing Draft Supplemental EIS/OEIS (Draft MITT SEIS), and now, the 2020 Final SEIS/OEIS MITT, as well as the various CZMA Consistency Determinations. While BECQ appreciates this opportunity to work with the Navy and other Department of Defense (DOD) federal partners to achieve their missions, BECQ remains highly concerned that many larger questions are left unanswered and many data gaps remain, which are alarming given the magnitude and scale of the proposed activities. BECQ strongly urges the Navy to consider and aim for stronger mitigation measures, collaborative data gathering and analysis with CNMI resource agencies, more transparent and frequent sharing of information, and more careful planning and implementation of these large-scale undertakings moving forward. We hope to work together for the preservation and stewardship of the CNMI's fragile and susceptible natural and cultural resources for current and future generations.

Public Comment Responses

The public comment period on the 2019 Draft MITT SEIS raised numerous concerns from agencies and community members throughout the Marianas. While BECQ appreciates the responses that were provided, we do request more clarity and commitments to support our shared sustainability objectives. Improved information sharing, coordination regarding proposal review, and analysis that responds to best available science are acknowledged frequently throughout the Final EIS. However, important details are lacking that we hope can be clarified in the ROD. For example, the DOD issued a response in the public comment section that they, “[w]ill continue to communicate and coordinate with the CNMI government on future collaboration and information sharing” (K-48). However, no correspondence occurred regarding the pending MITT review, which had last been discussed at the “FDM Summit” held by Joint Region Marianas (JRM) the first week of March 2020. At that meeting, BECQ representatives again, requested more information about numerous subsections of the MITT, including information pertaining to water quality. The DOD should consider making commitments with realistic timeframes and establish processes to enable closer collaboration, especially when requesting for expedited review of new proposed activities with BECQ. Both sides could benefit from more open and consistent communication as they have in the past during MITT CZMA consistency determinations, and the extensions and coordination that were granted to provide time for meaningful review. Follow-up discussions and communication with the DOD regarding the December 2019 MITT CZMA consistency determination response, submitted in March 2020 upon the DOD granted extension, did not commence until May 2020. This was around the timeframe of COVID-19, when the DOD had also requested for an expedited CZMA review of a separate proposed activity, the Tinian Seabee Expeditionary Camp, to meet their timeline. BECQ completed review of permits, and expedited the CZMA request to accommodate the DODs timeline, despite office closure due to the pandemic.

In June 2020, the DOD issued their MITT Final Supplemental EIS/OEIS with a 30-day window for review. During this timeframe, they also released a Proposed Scope of Action for three

Valiant Shield/Forager Fury requests within a two-week period, despite the regulatory requirement of providing at least 60 days for review. These included several proposed actions requiring a CZMA Federal Consistency review, but the CZMA consistency determinations were not issued 90 days prior to the proposed actions beginning in September 2020. Additionally, while conducting consultations with the CNMI for the MITT Final Supplemental EIS/OEIS, they submitted supplemental information for the December 2019 CNMI CZMA consistency determination also requesting a two-week response window. Other actions initiated during the 30-day MITT Final Supplemental EIS/OEIS critical timeframe for review include proposed activities on Tinian for Seabees and Divert Infrastructure Improvements. The overload of information with highly demanding and rigid timeframes for review turnaround, lack of flexibility, and intermittent communication, attests to the fact that the DOD is clearly limiting meaningful and substantial collaboration with the CNMI. BECQ has regularly requested improved information sharing and early coordination that has yet to be realized. Therefore, the 2020 MITT ROD should make time bound commitments to support Joint Region Marianas in developing and adopting standard operating procedures that will streamline planning and project review processes.

Resource Areas: Affected Environment and Environmental Consequences

DCRM commented on the 2019 MITT Final Draft Supplemental EIS/OEIS in April 2019. Many of the concerns expressed in that document were in regard to the ongoing MITT activities conducted on Farallon de Medinilla (FDM) and at sea, those that have occurred over time, and those that may be associated with emerging technologies. Overall, these continue to be of significant concern as there are still numerous areas that remain unaddressed, either through lack of data, insufficient analysis, or inadequate mitigation. The 2020 Final Supplemental EIS/OEIS continues to utilize many outdated data references for several areas, in turn obscuring meaningful analysis and neglecting areas where substantial mitigation could be beneficially employed for both the Navy and the CNMI. In reference to the Navy response to BECQ's previous 2019 comments, larger questions remain unanswered. How will the Navy firmly address these issues moving forward to collaborate and work with the CNMI? Will there eventually be concrete wildlife and habitat monitoring plans, transparent sharing of data, necessary biological, archaeological, and geological surveys, ease of restrictions for public access and traditional use, and the suite of other issues surrounding FDM and at sea? How will all these large-scale issues be resolved and mitigated when the land lease expires and it is time for the Navy to return FDM back to the CNMI?

Resource Areas: Terrestrial Species and Habitats

The Navy states there will be an increase in frequency and quantity of events, munitions activities, and net explosive weight conducted on FDM. This will result in more ordnance expended, marine debris, potential for mass movement and erosion, habitat degradation, and exposure to stressors associated with ordnance use for wildlife including ESA-listed species. Moreover, the island has lost substantial forest area from decades of military activity, and loss of vegetation has accelerated erosion of soil and limestone weathering. The Navy asserts it has used the best available science to consider the direct and cumulative impacts on endangered species, nesting seabirds, and sedimentation on nearshore reefs. However, these studies are limited in sample size and duration and do not provide reliable datasets to support claims that no impacts are occurring or assess the significance of these impacts.

There continues to be large and emerging data gaps regarding the effects of increasing and concentrated activities, with insufficient detail about the numbers of people involved in activities and types of activities proposed to assess direct impacts or cumulative and spillover effects on terrestrial and marine habitats. There are still large data gaps for wildlife, as the data references for the Final 2020 SEIS/OEIS remain the same as the 2015 MITT Final EIS/OEIS despite numerous increases in explosive munitions on the island. This concern is applicable to flora, terrestrial avifauna, marine birds, mammals, reptiles and amphibians, invertebrates; and ESA-listed terrestrial species including the Micronesian Megapode and Mariana Fruit Bat. The lack of any new studies conducted on FDM to analyze the terrestrial cumulative and secondary impacts that have accumulated leading up to the Final SEIS, combined with continued reliance on outdated studies raise significant concerns about immediate and ongoing impacts to terrestrial species and habitats. Restrictions through designating impact zones provide only temporary solutions to large scale implications when thresholds are surpassed for these areas of concerns. Given the limited ordinance removal that occurs during biennial range assessments and cleanups, more extensive cleanups should be implemented regularly to allow for more meaningful study and assessment of terrestrial resources on FDM. In the process of future ordinance removal from FDM, there will have to be large scale planning efforts for detonation or other removal methods to avoid massive and lasting environmental and economic impacts such as those in Molokini, Kaho‘olawe, and other areas of Hawai‘i.

There still remains large data gaps to address the issue of mass wasting from bombing activities. Mass wasting is clearly visible from the bombing zone, but the semi-periodic underwater coral and invertebrate surveys do not accurately capture the status of terrestrial erosion and sedimentation. Aerial images and routine surveys do not provide in depth analyses of submerged lands and other areas for underwater evaluation, however through aerial images and routine surveys it is evident that mass wasting of FDM in various zones continues to occur. No geological assessment has ever been done for FDM although this would seem prudent to support range sustainability and use objectives. Despite ongoing articulation of CNMI’s concerns, there is no updated evaluation of mass wasting provided in the EIS, and no additional mitigation actions to clean up the range or reduce risks of large ordnance skipping off designated testing areas that can contribute to the problem. The Navy’s analyses of mass movement and erosion on FDM references historical photograph analyses and direct observations during dive surveys, however an updated historical photograph analyses and methodology is not included in the Final SEIS. Instead, the loss of the southern “land bridge” or arch is visible from old pictures and recent visual assessments, validating concerns that mass wasting is occurring and is likely to be causing impacts to water quality and marine habitat.

The Final SEIS routinely references old surveys that do not support current analysis of biological conditions. A 2005 dive survey¹ conducted post-Typhoon Ting Ting, does not present results representative of naval activity, but rather measures the amount of erosion from storm surge and other erosive forces present during Typhoon Ting Ting. The Navy could efficiently build a model of terrestrial sediment loss in the area using aerial and satellite imagery and other advanced technology. More thorough and frequent surveys modeling sediment loss conducted

¹ United States Department of the Navy (2005). Year 2004 Assessment of the Marine and Fisheries Resources, Farallon de Medinilla, CNMI. Prepared for the US Pacific Fleet Command, Pearl Harbor, HI. Prepared by TEC.

immediately after military activities on FDM would provide transparent monitoring results of FDM's physical conditions over time and help to evaluate how restoration could be conducted to return FDM back to its original state as outlined in the FDM lease agreement. At minimum, the ROD should reflect the Navy's commitment to completing much needed biological surveys on land and surrounding FDM when the much needed geological and cultural surveys are scheduled for the next range clean-up. If the Navy were truly committed to researching, understanding, and mitigating impacts, these surveys would be scheduled at least with the biennial range clean-ups rather than once every five years as the current expanded proposal suggests.

In the 2020 Final EIS/OEIS, the authors have come to multiple conclusions that there will be little to zero adverse environmental impacts associated with the various stressors. This conclusion is often juxtaposed with a series of paragraphs explaining in detail the possible pathways for adverse impacts to occur, leaving the reader to guess at how the Navy can both acknowledge the potential impact pathways yet claim "no adverse impacts." An example of this is in regards to section 3.10.2.1.1 Environmental Consequence when referring to stressors potentially impacting the ESA endangered Micronesian megapodes (MM). It is stated that four MM a year are killed as a result of exercises in the 2015 MITT Final EIS/OEIS, and yet in section 3.10.1.3.1 it is outlined that surveys only detect eleven individuals. There is no reference elsewhere explaining how only eleven individuals can be detected and four MM deaths per year would cause "no adverse impacts." Additionally, these last surveys are from 2013 meaning that there have been no surveys of the MM for seven years eliminating the ability to actually elucidate the impact that testing has had on this endangered species since 2015. The ROD should reflect commitments to continue at least annual monitoring, although monitoring before and after bombardment activities and comparing findings to similar monitoring at a neighboring island that is not being used for target practices would also be recommended to enable resource management planning that is based on sound science supported by long-term studies.

Furthermore, in section 3.10.3 the Navy acknowledges that many commenters have noted a lack of studies documenting conditions, yet the Navy's training exercises have led to dangerous conditions on land and reportedly in the surrounding waters making these surveys and studies hard to carry out and complete. This obfuscates the fact that they Navy did not do their due diligence to study the impacts on the MM before initiating testing, and has still reached a conclusion of "no adverse impacts" without ever having taken a "hard look" at what is there as NEPA requires. This section goes on further to dismiss insufficient data and lack of surveys by referring readers to the 2015 Final EIS/OEIS section 3.10.2.3.8.4 regarding MM surveys, again omitting the facts about the last surveys completed in 2013 where only eleven individual MM were detected. Regular surveys should be coordinated with local resource managers to ensure endangered species their habitats on FDM and in our vast coastal waters are not adversely impacted by these activities. Without regular monitoring data there is no basis to conclude that existing and new training and testing exercises are not resulting in significant impacts to the coastal resources of the CNMI.

Resource Areas: Socioeconomic Resources, Cultural Resources (& Environmental Justice)

It is a CNMI coastal zone policy that actions should be implemented in a way that "recognize and respect locations and properties of historical significance throughout the Commonwealth, and ensure that development which would disrupt, alter, or destroy these, is subject to

Commonwealth laws and regulations”² and “recognize areas of cultural significance, the development of which would disrupt the cultural practices associated with such areas, which shall be subject to a consultation process with concerned ethnic groups and any applicable laws and regulations.”³ Section 3.11.1.2.1 of the Final 2020 EIS/OEIS states that there are “no additional submerged cultural resources, land-based archaeological sites, or isolated non-modern artifacts” regarding current archaeological surveys of FDM. If the last reconnaissance archaeological field survey on FDM was conducted in 1996, how will the Navy feasibly address these decades of data gaps for cultural resources, especially when there was existing historical evidence from previous archaeological studies. This would be an opportunity, where moving forward, the Navy could collaborate with the CNMI through federally approved National Historic Preservation Act (NHPA) agencies to assess FDM and adjacent submerged lands and address these large-scale data gaps. Because surveys of these areas have not occurred, and because cultural and historical resources have been identified in neighboring islands, there is no credible way to conclude that continued bombardment at FDM and in our coastal waters will not disrupt, alter, or destroy these resources. Surveys must be completed in order to assess what resources are present and what avoidance, minimization, and mitigation measures might be most appropriate.

In 3.12.1.2 Commercial and Recreational Fishing, the Final 2020 EIS/OEIS notes that “[f]ishing is an integral part of the culture and way of life in the CNMI and Guam”⁴; and that, “[b]oth the CNMI and Guam are categorized as ‘fishing communities’ by the Western Pacific Regional Fishery Management Council.” This designation is based on the portion of the population that is dependent upon fishing for subsistence; the economic importance of fishery resources to the islands; and the geographic, demographic, and cultural attributes of the communities.”⁵ They also note that results of the survey conducted by Hospital and Beavers⁶ imply that waters around FDM were of particular interest to fishers and that activities at FDM were the primary source of impacts on fishing trips. Section 3.12.1.4.1 Traditional Fishing Practices then concludes that, “traditional fishing is more than an economic necessity; it is an important part of the cultural and social identity of indigenous peoples and Asian immigrant communities living in Guam and in the CNMI.”⁷ Lastly, Section 3.12.1.2.2 states that, “[h]aving a de facto protected area around FDM may benefit the reef fish fishery in the CNMI, beyond the restricted area around FDM; however, restricting access to nearshore areas (within 3 NM) around FDM where target species occur limits the ability for fishers to gain access to potentially productive fishing sites.”

² CNMI PL3-47 § 3(a)(11), as amended

³ CNMI PL3-47 § 3(a)(12), as amended

⁴ Hovland, C., J. Aversa, and T. H. Joshua. (2019a). Guam GDP Decreases 0.3 Percent in 2018. www.bea.gov: Bureau of Economic Analysis; Hovland, C., J. Aversa, and T. H. Joshua. (2019b). CNMI GDP Decreases in 2018. www.bea.gov: Bureau of Economic Analysis.

⁵ Western Pacific Regional Fishery Management Council. (2009). Fishery Ecosystem Plan for the Mariana Archipelago. Honolulu, HI: Western Pacific Regional Fishery Management Council; Western Pacific Regional Fishery Management Council. (2019). Annual Stock Assessment and Fishery Evaluation Report for the Mariana Archipelago Fishery Ecosystem Plan 2018. Honolulu, HI: Western Pacific Regional Fishery Management Council.

⁶ Hospital, J., and C. Beavers. (2014). Economic and Social Characteristics of Small Boat Fishing in the Commonwealth of the Northern Mariana Islands (Administrative Report H-14-02). Honolulu, HI: Pacific Island Fisheries Science Center.

⁷ U.S. Environmental Protection Agency. (2002). Fish Consumption and Environmental Justice. Seattle, WA: National Environmental Justice Advisory Council.

The depth with which the Navy has analyzed and concluded that fishing in the Marianas is of significance and thus culturally important is echoed throughout these citations by local, scientific, and federal groups as well as individuals that submitted comments expressing these concerns. Clearly these are indications of the value of fishing, fish habitat, and public access to FDM and in our coastal waters, especially for a culture with deep traditional fishing practices. While “best available data” can be captured from a variety of studies to reach a factual conclusion data relied on here is not sufficient to support meaningful assessment of fishing restrictions and potential contamination concerns. In this case, the Navy has gone through the process of citing various best available sources, reaching a valid conclusion that fishing is a significant cultural and economic activity, but still not making a change for the benefit of local communities. Mitigation does not mean the entire three nautical mile danger zone of FDM should be lifted, but suggests that based upon both the socioeconomic and cultural value of deeply traditional fishing practices, some mitigation for public access to FDM should be considered to reduce the significance of these impacts and ensure meaningful collaboration with local communities. This could take the form of possibly lifting the exclusion zone distance to one or two NM during non-testing seasons, or requiring permits and waivers for indigenous groups to fish. Any way to mediate the loss of fishing grounds and access from decades of full closure would be a step towards a better management outcome.

Section 3.12.1.4 Environmental Justice states, “[a]ccording to the (2010) census data, 2.9 percent of employed people in the CNMI also participated in a subsistence activity (e.g., fishing), and just 0.6 percent of people who were not in the labor force participated in a subsistence activity. Therefore, approximately 3 percent of the working age population in the CNMI reported participating in a subsistence activity in the year 2010.”⁸ While this may be true of the data captured in the 2010 census, the data set for subsistence is not captured in the questionnaire of the 2020 census currently being conducted, highlighting the need to develop improved data collection and monitoring to address this important and nuanced resource management issue. As the Navy has stated “Allen (2013) reported on the complicated issue of defining traditional fishers in the western Pacific region, including Guam and the CNMI. Many fishers identifying as traditional or subsistence fishers also participate in recreational and commercial fishing. It is not always clear when fishers are engaging in subsistence fishing, fishing for cultural or social reasons, fishing for financial gain or leisure, or some combination, which can occur even on a single fishing trip.” Creating a discrepancy between subsistence and traditional fishing, especially for indigenous people who have been historically stripped of their culture and heritage, for the purpose of satisfying a checklist for Environmental Justice, denies justice to those in need of it in the first place.

Section 3.12 Socioeconomic Resources and Environmental Justice states, “[e]nvironmental justice concerns that the people of Guam and the Northern Marianas are disproportionately impacted by military training and testing in relation to other training areas available to the U.S. Navy worldwide. The military conducts training and testing activities very similar to activities proposed in the MITT SEIS/OEIS in Hawaii, Southern California, the Pacific Northwest, off the Atlantic coast, and in the Gulf of Mexico. The level of activity in most if not all of these

⁸ U.S. Census Bureau. (2018a). *2010 Guam Summary File*. Washington, DC: U.S. Census Bureau; U.S. Census Bureau. (2018b). *2010 Commonwealth of the Northern Mariana Islands Summary File*. Washington, DC: U.S. Census Bureau.

locations is greater than in the MITT Study Area, and minority and low-income populations also occur in these areas.” There is no clear way to measure the disproportionate level of activity because of size variations with respect to concentrated resource areas in the coastal zone. The “level of activity” may be asserted as less in the Marianas, however there is much more coastal zone that is affected in proportion to the rest of the US coastal zone, including Hawaii and Alaska. Guam (125.5km) and the CNMI (1482km) have a total of 1607.5 km of coastline in comparison to the rest of the United States (19924km), which means that the coastline of the Marianas Islands is 12.4% the size of the whole United States.⁹ This means the impacted area is much higher in proportion in terms of land mass, coastline, critical habitat, and concentration of other natural, historical, and cultural resources. This should make a stronger case overall for the increase in protection of these fragile and limited areas that have to absorb massive amounts of direct and cumulative impacts, on top of the legacy of military activities from World War II. Additionally, the cultures and the populations of the CNMI are geographically unique, and are exposed to underlying stressors including past acts of colonialization, war, and ongoing training activities.

In the Draft SEIS comments, BECQ requested that the cumulative impacts to human health, including risks of heavy metal accumulation in fish and water be addressed. In the Final SEIS, the Navy responded that these concerns did not meet their definition of “truly meaningful” and thus did not require further analysis. Relying on reef surveys and a 2008 literature review from the Agency for Toxic Substances and Disease Registry (ATSDR) the Navy concludes that there is no likelihood of significant risks of water quality and sediment contamination or contamination of fish tissue that could increase already high rates of noncommunicable disease in our community. However, the 2008 ATSDR report was limited to the assessment of pelagic fish and concluded that these fish “would not contain high levels of explosive residues” or “pose an imminent public health hazard” and that “a seafood monitoring plan should protect people from ingesting these industrial chemicals that are known to accumulate.” We again request that the Navy provide the baseline data necessary to substantiate claims that there is no risk of heavy metal and toxin accumulation in the fish, soil, or water at FMD. In the ROD, BECQ encourages the Navy to outline commitments to developing this data and reports in collaboration with CNMI before the next reauthorization period.

Resource Areas: Fish (& Environmental Justice)

In 3.9.3 Public Comments: Direct and Cumulative Impacts on Fish Populations state that impacts on fish from acoustic and explosive stressors (Section 3.9.2.1, Acoustic Stressors, and Section 3.9.2.2, Explosive Stressors) may injure or kill a few individuals but are unlikely to have measurable impacts on overall stocks or populations, including ESA-listed scalloped hammerhead sharks, oceanic whitetip sharks, and giant manta rays. However, the Navy is not able to quantify the impacts because they have not provided baseline data assessments for these species, and thus are unable to measure the impacts to these fisheries stocks and ESA-listed species. They also have not provided substantial mitigation measures for these ESA-listed species or Essential Fish Habitat that will be affected by direct impacts such as underwater explosions, ship groundings, and anchor damage.

In regard to the bioaccumulation study of toxins in consumable pelagic fish, there continues to be

⁹ CIA World Factbook. <https://www.cia.gov/library/publications/the-world-factbook/fields/282.html>

many data gaps and data correlations that are insufficient to evaluate the entire scope of fisheries resources consumed within the region. The 2010 Preliminary Assessment of Pelagic Fish Caught in the Open Pacific referenced is limited in scope and action for evaluating a complete picture of the fisheries resources because it only assesses pelagic fish. Pelagic fish stay in the water column and migrate. Section 3.12.1.4.1 Traditional Fishing Practices states that, “[t]raditional fishers tend to consume non-commercial fish or shellfish at higher rates than other populations who fish, and for a greater percentage of the year, because of cultural customs or economic factors.” No data for bioaccumulation in crustaceans, reef fish, and bottom-fish are assessed and these are some of the common species that are consumed by the local communities that depends on these fisheries. The study by the Agency for Toxic Substances and Disease Registry (ATSDR) states that, “[w]e cannot draw a conclusion on fish that remain near a contaminated area for long periods of time,” and thus leaves a data gap for bioaccumulation with other types of vital fisheries that are consumed by the people of the Marianas. Because fish is a staple food that is consumed at higher rates and differently than assessed in non-regional studies, baseline data should be collected to verify conclusions that bioaccumulation does not pose significant health risks to our community.

The study does not evaluate information on other contaminants that may accumulate in fish including evaluation of analysis for Dioxin, Vinyl Chloride, Benzene, Ethylbenzene, Dichloroethylene, Mercury, Nitrites, Lead, and other heavy metals and chemicals of concern; or whether the contaminant concentration in fish that remain near the bombing range would be similar to fish captured in open water. Lastly, studies cited in the Supplemental EIS/OEIS are biased and utilize surrogate data from a suite of studies conducted elsewhere such as Vieques Island and Oahu, rather than data specific to the Marianas Archipelago. The Agency for Toxic Substances and Disease Registry also cite a recommendation that since chemicals such as PCBs, mercury, and arsenic accumulate in fish from multiple sources; a seafood monitoring program is recommended by various organizations. A seafood monitoring program focused on the various types of fisheries in the study area would be beneficial to addressing Environmental Justice issues outlined in Executive Order 12898 that directs “[f]ederal agencies... shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and... shall communicate to the public the risks of those consumption patterns.”¹⁰

None of the fish tissue studies presented by the Navy convey actual conditions and the types of fish that people typically eat in the CNMI. BECQ’s Division of Environmental Quality (DEQ), which implements environmental standards that include goals to protect water quality and support human uses of our coastal waters, has requested that the Navy provide studies conducted in the CNMI in concert with BECQ and our partners at the Division of Fish and Wildlife, on territorial reef fish and bottom fish which includes all parts of fish (skin, head, eyes, gills) not just fillets or pelagic fish. The study cited in the final SEIS “Preliminary Assessment of Pelagic Fish Caught in the Open Pacific”¹¹ does not account for territorial reef fish or bottom fish and does not address areas in close proximity to known munitions waste or testing sites where

¹⁰ 59 FR 7629: February 16, 1994. Executive Order (E.O.) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, President William J. Clinton.

¹¹ Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation (2008). Letter Health Consultation: Assessment of Pelagic Fish Contamination as a Result of Chemicals on Farallon De Medinilla, CNMI.

contamination of fish or shellfish tissue is likely.

Without localized data, studies used to support conclusions on fish and shellfish contamination are anecdotal and present incomplete findings. The Final SEIS cites qualitative environmental condition dive studies to support marine organism health, particularly the 2016 Smith and Marx article. These dive surveys did not collect any sediment or water quality samples around FDM. No samples of biota or regularly harvested food sources were tested for heavy metals or munitions constituents. The dive studies are no substitute for a scientifically defensible water quality, sediment, or biotic tissue analysis for assessment of potential human health impacts. The Navy has had many opportunities to conduct sampling and subsequent analysis, but has refused to do so, or to involve the CNMI Government in these studies or, in recent years, even to allow us access to the waters surrounding FDM so research can be conducted.

Studies on fish tissue should be done at areas in the CNMI in close temporal and geographic proximity to where recent testing has occurred to accurately reflect the conditions existing in the CNMI, not in other places with different conditions. Several studies conducted by University of Guam, WERI Lab have documented excessive contamination of fish, shellfish, seagrass, and other biota at WWII munitions dumpsites in and around Saipan. Therefore, it can be expected that sites around FDM contain excessive contamination. Studies of relevance that support this conclusion not included in the Final SEIS include:

- Denton, G.R.W., Brookins, Cruz, Duenas, Gawel, and Mills (2018). Heavy Metal Assessment of Sediments and Selected Biota from American Memorial Park Nearshore Waters, Saipan, Commonwealth of the Northern Mariana Islands (CNMI). WERI Technical Report, January 2018.
- Denton, G.R.W., Morrison, Bearden, Houk, Starmer, and Wood (2009). Impact of a coastal dump in a tropical lagoon on trace metal concentrations in surrounding marine biota: A case study from Saipan, Commonwealth of the Northern Mariana Islands (CNMI). *Marine Pollution Bulletin* 25 (2009) 424-455.
- Denton, G.R.W., Bearden, B.G., Houk, P., Starmer J.A. & Wood H.R. (2008). Heavy Metals in Biotic representatives from the Intertidal Zone and Nearshore Waters of Tanapag Lagoon, Saipan, Commonwealth of the Northern Mariana Islands (CNMI). WERI Technical Report No. 123: 50 pp.

Resource Areas: Marine Mammals

Mitigation measures currently proposed for the suite of possible impacts to Marine Mammals is concerning, particularly because of the history of military related activities affecting marine mammals and both alternatives having potential for risks and increased impacts. For example, simply stating that expended materials will not be ingested by marine mammals regardless of depth, without monitoring, is not sufficient. Sonar and explosives on marine mammals, specifically in the Marpi Reef Area and Chalan Kanoa Reef Areas (3.4-225) have not been fully addressed. Evidence presented in the MITT suggests that humpback whales have been sighted and recorded from December through April, with male humpback songs recorded from December through April, and in Tinian during June to October (p3.4-21). However, the Navy will conduct a maximum combined total of 20 hours of active sonar within the Marpi Reef Mitigation Area and Chalan Kanoa Reef Mitigation Area, and possibly more depending on national security (Table 5.19: Mitigation Areas for Marine Mammals and Sea Turtles). Data on

blast injury to marine mammals and sea turtles is limited or generally not available. Stating that there may be no mortalities due to explosives does not justify the possibility of this occurrence. It would be diligent on the Navy's end to thoroughly assess the impacts of explosives on marine mammals and to not engage in harassment activities in areas designated to mitigate for impacts from use of the rest of the MITT range.

Section 2.4.1.4 Alternatives Including Geographic Mitigation Measures within the Study Area states that “the Navy considered but did not develop an alternative based solely on geographic mitigation that would impose time or area restrictions on specific areas in the Study Area, such as areas associated with the presence of specific species.” Many species such as sperm whales, toothed whales, beaked whales, dolphins, and other cetaceans have been detected in the study area year-round (pp11 Cetacean Monitoring in the Mariana Islands Range Complex 2014), however humpback whales are seasonal. Considering the large scope of these areas and the presence of various species of marine mammals and sea turtles, it appears that the Chalan Kanoa Reef and Marpi Reef presents options for more meaningful mitigation if sonar was avoided during seasonal trends on presence of humpback whales during the December through April timeframe. Studies of relevance not included in the Final EIS include:

- Dolman, S. J., Weir, C. R., & Jasny, M. (2009). Comparative review of marine mammal guidance implemented during naval exercises. *Marine Pollution Bulletin*, 58(4), 465-477.
- Hill, M. C., Bradford, A. L., Steel, D., Baker, C. S., Ligon, A. D., Acebes, J. M. V., ... & Okabe, H. (2020). Found: a missing breeding ground for endangered western North Pacific humpback whales in the Mariana Archipelago. *Endangered Species Research*, 41, 91-103.
- Simonis, A. E., Brownell Jr, R. L., Thayre, B. J., Trickey, J. S., Oleson, E. M., Huntington, R., & Baumann-Pickering, S. (2020). Co-occurrence of beaked whale strandings and naval sonar in the Mariana Islands, Western Pacific. *Proceedings of the Royal Society B*, 287(1921), 20200070.

These studies confirm that marine mammals are likely to exhibit lasting effects from sonar exposure which includes “statistically significant” evidence that sonar is a major factor in recent beaked whale beaching events. Hill’s 2020 publication confirmed that humpback whale breeding grounds are indeed present in our region, suggesting biologically distinct and significant populations overwinter in our waters. Merely reducing sonar use in these areas does not reduce the risk of what could be devastating population impacts, particularly if rare and hard to visually detect whale calves are lost due to sonar use or vessel strikes. To address the substantial uncertainties regarding the abundance and extent of marine mammals, sonar and explosive training activities should not be conducted in CNMI’s coastal areas and in recorded breeding and feeding habitats until additional data to substantiate the significance of impacts to our resident whale populations are provided through long-term and localized assessments.

Resource Areas: Marine Invertebrates

On page ES-21 – Vol 1., Table ES.5-1, Section 3.8 (Marine Invertebrates): “The impact of physical disturbance and strike stressors on marine invertebrates is likely to cause injury or mortality to individuals, such as corals on nearshore reefs, but impacts on populations would be negligible because (1) the area exposed to the stressor is extremely small (localized) relative to most marine invertebrates’ ranges...” and also cited on pg. 3.8-14 – Vol 2., 3.8 Marine

Invertebrates: Section 3.8.2.4.1 Impacts from Physical Disturbance and Strike Stressors Under Alternative 1: “However, the combined consequences of all physical disturbance and strike stressors could degrade habitat quality at some locations. As stated above, combat swimmers and Marines may be required to walk through nearshore areas and reefs during these activities, potentially causing damage to coral species. As stated in the 2015 MITT Final EIS/OEIS and above, these activities could cause injury or mortality to individuals, but impacts on marine invertebrate populations, including ESA-listed corals, are unlikely.”

In response to the two quotations above concerning marine invertebrates, assessing species or population level impacts of marine invertebrate populations for shallow coral reefs provides an incomplete analysis on the environmental impacts for our region. We do share coral species that have a wide geographic range within the Indo-Pacific, however, the Marianas region is isolated in terms of genetic connectivity to the rest of Micronesia, where the majority of coral and fish larvae originate from Saipan and Tinian¹². This is due to the westward flow of the Northern Equatorial current that limits larval dispersal throughout the Marianas chain. Therefore, the conclusion that marine invertebrates at the population level will not be negatively impacted is inaccurate. The local population in the CNMI has suffered severe coral mortality from back to back bleaching events in 2013, 2014, 2016, and 2017.¹³ Any loss in marine invertebrates (especially for corals) can impede recovery for the coral reefs of the CNMI that are still recovering from mass bleaching events, two category 5 typhoons, and multiple crown-of thorns outbreaks.

Additionally: “The impact of fiber optic cables, guidance wires, and decelerators/parachutes on marine invertebrates is not likely to cause injury or mortality to individuals, and impacts would be negligible because (1) the area exposed to the stressor is extremely small (localized) relative to most marine invertebrates’ ranges, (2) the activities are dispersed such that few individuals could conceivably be exposed to more than one activity, and (3) marine invertebrates are not particularly susceptible to entanglement stressors.” Marine invertebrates, especially benthic organisms, are susceptible to entanglement stressors from a variety of sources (de Carvalho-Souza et al., 2018), including abandoned fishing gear, plastics, marine debris from storms, and military expendable materials. The statement that marine invertebrates are not particularly susceptible to entanglement is unsubstantiated.

Page 3.8-1 – Vol 2., 3.8 Marine Invertebrates states that “[c]oral reefs within the Mariana Islands are moderately impacted, and their overall condition is considered fair. Coral reefs in the

¹² Kendall, M. S., & Poti, M. (2014). Potential larval sources, destinations, and self-seeding in the mariana archipelago documented using ocean drifters. *Journal of Oceanography*, 70(6), 549–557. <https://doi.org/10.1007/s10872-014-0251-7>; Maynard, J. A., McKagan, S., Raymundo, L., Johnson, S., Ahmadi, G. N., Johnston, L., et al. (2015). Assessing relative resilience potential of coral reefs to inform management. *Biological Conservation*, 192, 109–119. <https://doi.org/10.1016/j.biocon.2015.09.001>; Randall, R. H. (1995). Biogeography of Reef-Building Corals in the Mariana and Palau Islands in Relation to Back-Arc Rifting and the Formation of the Eastern Philippine Sea. *Nat. Hist. Res.*, 3(2), 193–210.

¹³ Heron, S. F., Johnston, L., Liu, G., Geiger, E. F., Maynard, J. A., De La Cour, J. L., et al. (2016). Validation of reef-scale thermal stress satellite products for coral bleaching monitoring. *Remote Sensing*, 8(59), 1–16. <https://doi.org/10.3390/rs8010059>; Reynolds, T., Burdick, D., Houk, P., Raymundo, L., & Johnson, S. (2014). Unprecedented coral bleaching across the Marianas Archipelago. *Coral Reefs*, 33, 499. <https://doi.org/10.1007/s00338-014-1139-0>

northern islands are in good condition, while the southern islands such as Saipan had the most diverse types of coral reefs and associated habitats in the Mariana Islands.¹⁴ The final document listed coral reefs in the Northern islands as in good condition, which is a misrepresentation of NOAA's 2018 report. The coral and algae cover in the Northern Islands was rated as fair due to the detrimental impacts of ocean warming and acidification. The rating of 80% (good is rated between 80-100), was reported for fish in the Northern Islands. The final document also failed to cite important references documenting mortality and bleaching extent conducted in 2014:

- Heron, S. F., Johnston, L., Liu, G., Geiger, E. F., Maynard, J. A., De La Cour, J. L., et al. (2016). Validation of reef-scale thermal stress satellite products for coral bleaching monitoring. *Remote Sens.* 8, 1–16. doi:10.3390/rs8010059.
- Reynolds, T., Burdick, D., Houk, P., Raymundo, L., and Johnson, S. (2014). Unprecedented coral bleaching across the Marianas Archipelago. *Coral Reefs* 33, 499. doi:10.1007/s00338-014-1139-0.

The Navy also states, “The nearshore physical environment and basic habitat types at FDM have remained unchanged over the 13 years of survey activity.” Considering that the 13 years of survey activity on FDM summarized in the final document began after military activity had already been ongoing, no change in the benthic habitat structure does not validate the conclusion that no impact occurs. The military lease of FDM started in the 1970s, and any negative impact over the next 30 years would not be detected, especially if there was permanent loss in coral cover and damage to the substrate. Survey data is biased in that only already disturbed habitats are assessed on FDM with initial underwater surveys starting in 1997.¹⁵ It is not possible to ascertain the reef condition before military use began, however, halting activity and monitoring any recovery would be able to test if any impacts occur. The Carilli et al. (2020) study documented that much of the hardbottom habitat around FDM has coral cover below 10%. Maintaining coral cover above 10% is a critical threshold for sustaining reef function.¹⁶ Considering that most of FDM's reefs are below this critical threshold, signals that the reefs there may require new conservation management strategies to restore ecosystem function. The past documentation of severe bleaching events occurring on FDM and the rest of the Marianas supports halting activities to allow for recovery of the coral reef habitats.

On page 3.8-8 – Vol 2., 3.8 Marine Invertebrates, Section 3.8.2.2 Explosive Stressors it states that, “[a]lthough the vast majority of explosions occur at distances greater than 3 nautical miles from shore (where water depths are greater than the depths where shallow-water coral species occur), some explosions may occur close to marine invertebrates that would kill or injure those invertebrates. Explosions near the seafloor and very large explosions in the water column may impact shallow-water corals of any life stage, hard-bottom habitat and associated marine

¹⁴ National Oceanic and Atmospheric Administration – Coral Reef Conservation Program (NOAA CRCP) in collaboration with University of Maryland – Center for Environmental Science. (2018). *Coral Reef Condition: A Status Report for the Northern Mariana Islands*.

¹⁵ Smith, S. H., & Marx, D. E. (2016). De-facto marine protection from a Navy bombing range: Farallon De Medinilla, Mariana Archipelago, 1997 to 2012. *Marine Pollution Bulletin*, 102, 187–198. <https://doi.org/10.1016/j.marpolbul.2015.07.023>

¹⁶ Darling, E. S., McClanahan, T. R., Maina, J., & Gurney, G. G. (2019). Social–environmental drivers inform strategic management of coral reefs in the Anthropocene. *Nature Ecology & Evolution*, 3, 1341–1350. <https://doi.org/10.1038/s41559-019-0953-8>

invertebrates, and deep-water corals.” The exact footprint location of explosions needs to be outlined and detailed on a map in relation to coral reefs. Having some explosions near the sea floor that can impact shallow water corals is not acceptable. Information is needed on the depth range, and intensity of explosive devices to properly ascertain the level of impact.

Raising similar concerns, page 3.8-13 – Vol 2., 3.8 Marine Invertebrates, Section 3.8.2.4 Physical Disturbance and Strike Stressors states, “[s]uch widespread populations are difficult to evaluate in terms of Navy training and testing activities that occur intermittently and in relatively small patches in the Study Area.” Considering military activities occur in small patches within the study area, it is not difficult to assess impact on marine invertebrates. Detailed maps outlining the footprint of activities and location or overlap on coastal resources needs to be produced for proper assessment. The Final 2020 EIS/OEIS lacks these detailed maps, and simply listing activities and broad areas in a table is not adequate for an environmental impact statement. The section also states, “This would include amphibious and expeditionary events such as Amphibious Assaults, Amphibious Raids, Personnel Insertion/Extraction, and Underwater Surveys, which are proposed to continue in this SEIS/OEIS. These activities could occur at beaches at Babui, Chulu, and Dankulo on Tinian and could also occur at Dry Dock Island in Apra Harbor at Dadi Beach on Guam.” Unai Babui in Tinian is designated as a training area in the MITT EIS, and is one of DCRM’s long-term marine monitoring sites since 2001. Since 2009, Unai Babui has had a steady decline in coral cover with a large increase in macroalgae cover, and loss in crustose coralline algae (CCA). CCA is extremely important in strengthening reef structure and are resistant to ocean acidification.¹⁷ Coral cover at Unai Babui is hovering at less than 10% and for Unai Dankulo at less than 15% in 2018. Maintaining coral cover above 10% is a critical threshold for sustaining reef function.¹⁸ The shallow water reefs around Tinian are already vulnerable from past storm and bleaching disturbances, and decline in coral cover is now at a critical threshold where further loss can severely reduce chances of recovery. In addition, any damage to reef structure, whether live or dead coral, will degrade habitat quality by accelerating reef breakage and loss of structural complexity, resulting in loss of habitat for diverse species, potential loss of storm protection, and accelerated erosion of the reef. Therefore, proposed amphibious and expeditionary activities will put CNMI’s coastal resources at risk of further degradation.

Other notable areas for Marine Invertebrates include page 3.8-18 – Vol 2., 3.8 Marine Invertebrates, Section 3.8.2.7 Secondary Stressors which notes, “[e]ncrusting organisms residing on hard bottom can be impacted by persistent silting from increased turbidity. However, the impacts of explosive byproducts on sediment and water quality would be indirect, short term, local, and negative. Explosive ordnance could loosen soil on FDM, and runoff from surface drainage areas containing soil and explosive byproducts could subsequently enter nearshore waters. Impacts on marine invertebrates from erosion or sedimentation could occur.” Consistent

¹⁷ Nash, M. C., Opdyke, B. N., Troitzsch, U., Russell, B. D., Adey, W. H., Kato, A., et al. (2013). Dolomite-rich coralline algae in reefs resist dissolution in acidified conditions. *Nature Climate Change*, 3, 268–272. <https://doi.org/10.1038/nclimate1760>; Nelson, W. A. (2009). Calcified macroalgae - critical to coastal ecosystems and vulnerable to change: A review. *Marine and Freshwater Research*, 60(8), 787–801. <https://doi.org/10.1071/MF08335>

¹⁸ Darling, E. S., McClanahan, T. R., Maina, J., & Gurney, G. G. (2019). Social–environmental drivers inform strategic management of coral reefs in the Anthropocene. *Nature Ecology & Evolution*, 3, 1341–1350. <https://doi.org/10.1038/s41559-019-0953-8>

monitoring of sedimentation, turbidity, and other secondary stressors should be conducted to demonstrate what level of impact military activities have on marine invertebrates, and document the extent of sediment plumes or reduced water quality occurs before and after activities. Monitoring these secondary stressors can be included within the standard operating procedures and mitigation section.

The Public Comments section page 3.8-19 – Vol 2., 3.8 Marine Invertebrates Section 3.8.3 says, “As described in the 2015 MITT Final EIS/OEIS, corals throughout the Study Area may be exposed to non-impulse sounds generated by sonar and other transducers, vessels, and aircraft during training and testing activities. However, the vast majority of underwater acoustic sources would not be used in the shallow waters (less than 100 ft. [30 m.]) where the majority of coral species are known to exist.” The limit of 100 ft for where sonar activities will occur is not deep enough to avoid corals, as much of the hardbottom habitats extend beyond 100 ft with continuous reef habitat. The depth limit should be extended beyond where coral reef habitat occurs.

An additional Public Comment states, “[t]his information supports the conclusions from the 2015 MITT Final EIS/OEIS that secondary impacts on coral reefs from explosives and explosive byproducts could occur, while impacts on marine invertebrates from erosion or sedimentation are not anticipated.” Information was not provided that addressed how ESA-listed corals will be avoided around FDM. Carilli et al. (2020) documented presence of ESA listed corals in shallow waters. Although described as “rare”, which supports their endangered status, no plan was described to avoid further impacts on the shallow reef areas around FDM. Especially, since much of the reef has been impacted by bleaching and military activity since the 1970s, and identification of reef area with coral cover up to 30% warrants protection of FDM’s coastal resources. Since, no information is available prior to 1975, on the status of FDM’s coral reefs, surveys conducted between 1997-2012,¹⁹ would not be able to detect negative impacts that have accumulated over the past 45 years.

Healthy marine habitats and species are critical resources that are actively managed in the CNMI. While BECQ has regularly requested coordination to support involvement in pre- and post-operation surveys, and although this was referenced in prior MITT Federal Consistency discussions, the Navy has not extended opportunities to engage in these data collection and monitoring efforts. Local resource managers should be involved in assessing high value resource areas before and after operations. Lacking this data, it is unclear to what extent regular exercises may cause measurable impacts, and resource managers are ill equipped to monitor the health of these fragile systems and health to ensure impacts are not significant. Both water quality degradation from ongoing exercises as well as direct impacts from use of explosives and ship groundings should be assessed. Risks of significant direct and cumulative impacts should be avoided through implementation of invasive species management measures and mitigated through support of species studies and coral restoration programs ongoing in the Marianas. To minimize the impacts of ongoing actions the Navy should support preventative planning efforts to support the resilience of our valuable reef systems. For example, although the Navy has stated

¹⁹ Smith, S. H., & Marx, D. E. (2016). De-facto marine protection from a Navy bombing range: Farallon De Medinilla, Mariana Archipelago, 1997 to 2012. *Marine Pollution Bulletin*, 102, 187–198.
<https://doi.org/10.1016/j.marpolbul.2015.07.023>

that vessel groundings are not “reasonably foreseeable”, the 2017 vessel grounding caused by MITT operations on Guam triggered a need for additional response and assessment of damages. This analysis does not reflect the CNMI’s policy for corals, seagrass, and wetlands where, because these systems provide over \$120M in benefits to the people of the Marianas annually, we strive to undertake projects that ensure “no loss” of these resources. The Navy should establish collaborative, locally coordinated programs to assess and respond to reef damage caused by unanticipated events such as ship grounding and anchor damage to reduce the significance of the proposed actions.

Resource Areas: Marine Habitats and Marine Vegetation

As cited on page ES-9 – Vol 1., Table ES.5-1, Section 3.3 (Marine Habitats): “However, the impact of physical disturbance and strike stressors on marine habitats would remain inconsequential because (1) vessel and in-water activities that could come into contact with marine substrates would be located in previously disturbed areas (i.e., nearshore shallow waters), (2) military expended materials could be colonized by benthic organisms, and (3) seafloor devices would be used predominantly in previously disturbed areas and therefore would not be expected to affect marine substrates.” In response to reason 1 and 3 listed in the quotation above, having activities occur in “previously disturbed areas” does not support continued disturbance of marine habitats. This further supports that activities should be halted to allow for marine habitats to recover from past disturbances. In response to justification 2, colonization of artificial structures by benthic organisms does not confer the same ecological function as natural or carefully designed artificial reefs. An artificial reef can have reduced secondary production and diversity due to reduced surface area in comparison to a natural reef.²⁰ Military expended materials can cause more damage if not anchored to the substrate through movement from strong currents, surge, or storms that damage adjacent marine habitats and prevent benthic organisms from colonization. For example, off of Tinian there is a previous dumpsite of military expended materials (tires, vehicle parts, etc.) that for decades has not been colonized by benthic organisms and instead is a hazardous and biologically limited impacted zone.

According to Smith & Marx (2016), three inert bombs weighing 500lbs each caused a total of 51 m² damage off of FDM in 2007. Subsequent surveys were unable to locate the bombs, and was concluded that the bombs must have rolled downslope to greater depths. “Impacts, such as from ordnance that skipped or eroded off the island and rock and ordnance fragments blasted off the island, were detected every year. Direct impacts from inert ordnance were seen in four of 14 surveys. Evidence of in-water detonations was confirmed only twice between 1997 and 2012.”²¹ Mitigation efforts are required for any damage caused by military expended materials, especially off of FDM where previous reef damage has been documented from such activities. The Final SEIS estimates the proposed activities would result in an annual area of 32.80 acres per year

²⁰ Burt, J., Bartholomew, a., Usseglio, P., Bauman, a., & Sale, P. F. (2009). Are artificial reefs surrogates of natural habitats for corals and fish in Dubai, United Arab Emirates? *Coral Reefs*, 28(3), 663–675.

<https://doi.org/10.1007/s00338-009-0500-1>; Rouse, S., Porter, J. S., & Wilding, T. A. (2020). Artificial reef design affects benthic secondary productivity and provision of functional habitat. *Ecology and Evolution*, 10, 2122–2130. <https://doi.org/10.1002/ece3.6047>

²¹ Smith, S. H., & Marx, D. E. (2016). De-facto marine protection from a Navy bombing range: Farallon De Medinilla, Mariana Archipelago, 1997 to 2012. *Marine Pollution Bulletin*, 102, 187–198. <https://doi.org/10.1016/j.marpolbul.2015.07.023>

(Table 3.0-18, 3.3-32) although no further analysis or discussion of geographic location or species known or likely to be present in these impacted areas is provided.

As cited on page 3.3-5 – Vol 1., 3.3 Marine Habitats, Section 3.3.2.2.1 Impacts from Physical Disturbance and Strike Stressors Under Alternative 1: “As stated in the 2015 MITT Final EIS/OEIS, the impact of vessels and in-water devices on marine habitats would remain inconsequential because vessel and in-water activities that could come into contact with marine substrates would be located in previously disturbed areas (i.e., nearshore shallow waters), and seafloor devices would be used in predominantly soft bottom previously disturbed areas and therefore would not be expected to affect marine substrates.” The final MITT document lacks updated maps showing the exact footprint for where activities will occur to properly assess which marine habitats will be impacted by military activities. Nearshore shallow waters in the Marianas include consolidated reef framework and soft sediments that serve as an important habitat and coastal resource for the community. Past history of disturbance to marine habitats and military use does not validate future use and continued disturbance of these habitats.

Page 3.3-6 states that, “Various activities (such as amphibious assault and raid activities) that could involve personnel disturbance from walking, standing, and swimming in nearshore waters to shore would not increase under Alternative 1 on Tinian or Guam within the Mariana Islands Range Complex.” Maps displaying the exact footprint of activities for specific island sites, such as Tinian, are critically needed to properly assess impact to marine habitats. Disturbance to hard-bottom substrate is unacceptable due to the cumulative impacts of human stressors that marine habitats in the Marianas have undergone. Stating that damage to the reef will be avoided are not strong enough reassurances without detailed maps displaying exactly where activities will occur and establishing procedures to avoid, minimize, and mitigate impacts as well as support data collection and monitoring objectives of local resource managers should be considered and outlined further in the ROD.

Page 3.3-7 states that, “Impacts on the soft-bottom substrate are determined to be short term and minimal due to the mobile nature of soft-bottom substrates (i.e., sandy bottoms can be stirred up and settle relatively quickly when compared to impacts on hard-bottom substrates).” In order to determine the level impact on soft and hard bottom substrates, the depth at which activities occurred must be provided in relation to the marine habitat. This information has not included at what depth range activities will occur, or the exact footprint of the area and location in relation to marine habitats. Spatial restrictions including “no use” zones in known sensitive habitat areas should be established to minimize the risk of significant impacts to coastal resources of the CNMI.

To address DCRM concerns, the Navy needs to establish repeatable and comprehensive environmental survey methods in coordination with local resource managers, including setting up long-term monitoring of their live-fire sites. Random, intermittent sampling does not provide the CNMI government with consistent, repeatable, and trustworthy data. Considering insufficient data and intermittent surveying, the Navy should initiate pre- and post-activity Structure from Motion (SfM) surveys into their pre- and post-activity survey regime. SfM methodology is easily repeatable, affordable, and measures the impact of Navy activities. SfM surveys should be conducted after each round of training to address the impacts of live-fire, explosive, and

chemical training in a timelier and consistent fashion. SfM surveys can be completed for both terrestrial areas and marine benthic habitats. SfM surveys would be in the Navy's best interest to complete as visual and measurable evidence of the impacts from live-fire activities would be the most effective evidence in highlighting the activities are as harmless as the Navy suggests.

While the Carilli et al. (2018) paper identifies ESA-listed species in the study area, the diver transects do not cover nearly enough of the study area to collect representative population data of the corals present. Additionally, Carilli et al. (2018) lists some areas around FDM as "Type 1- Unconsolidated and uncolonized coarse sediment and rubble." However, from publicly available satellite imagery and personal communications with fisherfolk, fringe and patch reef structures are present in the ecosystem, previously labeled as "Type 1" habitat. If naval activities are to continue on FDM, a comprehensive benthic substrate survey must be conducted to accurately identify species and coral colonies present, particularly in areas in range of live-fire training.

Carilli et al. (2018) is not substantive, the scientific method of the surveyors is unrepeatable and it does not provide conclusive evidence. An example of this insufficient data collection methodology is cited such that, "Because water clarity was excellent, with visibility in excess of 100 feet on most dives, meaningful qualitative observations could also be made of the sea floor at depths below 70 feet." There is no room for qualitative observations in ecological assessments, the CNMI requests repeatable surveys that accurately capture the benthic composition of the training area, particularly in areas previously listed as "Type 1" habitat. In future surveys, divers should survey an area that is representative of the ordnance range and covers the full spectrum of the ecosystems present. The Habitat Types as categorized in Carilli et al. (2018) should also undergo quality assurance and quality control reviews for correctness, as there are clear errors in their habitat identification.

Page 3.7-5 – Vol 1., 3.7 Marine Vegetation, Section 3.7.2.3 Secondary Stressors states that, "Sediments entering the nearshore environment from FDM as a result of natural processes or explosives associated with strike warfare could cause temporary water quality impacts, some of which may be in foraging areas used by marine organisms." Military activities occurring on FDM that can result in impacts to marine vegetation and associated habitats requires routine monitoring to properly assess any negative impacts from water quality. Routine monitoring is needed to quantify any soil erosion on land, runoff, or disturbance of marine sediments that can increase turbidity and sedimentation to properly assess these impacts.

Concerning the mitigation of marine habitats, page 5-60 – Vol 2, 5 Mitigation, Section 5.4.1 Mitigation Areas for Seafloor Resources comments that, "Mitigation for military activities that include amphibious landings and expeditionary activities are not included in this section. In addition, Figure 5.4-2 does not outline the footprint of where activities occur on FDM and Tinian's exclusive military use areas. To properly assess the impact of military activities, detailed maps showing the footprint of the area for each activity is needed, and location in relation to coastal resources.

In Vol. 1, Table 2.3-1 and Table 2.5-1, lists amphibious assault craft and unmanned underwater vehicles for Tinian, and mine neutralization and exercises, underwater survey, and use of unmanned underwater vehicles in Mariana littorals. Littorals by definition includes the intertidal

zone from the high-water mark to submerged area, which is where shallow water coral reef would occur and may be impacted by the listed activities. Mariana littorals is too generic of a term to identify where activities will occur, as this describes the coastline for the entire Mariana Archipelago. Mitigation for the above-mentioned activities must be included based on location-specific assessment of seafloor resources, and detailed location and footprint of impacts need to be mapped for Tinian and Mariana littorals to support further mitigation dialogs.

Resource Area: Sediment and Water Quality

On page ES-7 – Vol 1., Table ES.5-1, Section 3.1 (Sediments and Water Quality) “Other materials expended”, plastic is listed as one of the materials that would break down into a benign product. Recent studies show that plastics continue to degrade into microplastics and are harmful to the environment. Microplastics can leach harmful chemicals, are consumed by wildlife and disrupt the food chain, can be carried over long distances in water/air, and persist in the environment indefinitely.²² To assume plastics in the environment will not have any affect is ignoring recent evidence to the contrary.

Since cleanup of CNMI areas have not been addressed, and lands are being leased by the military, there are concerns about legacy metal contamination that may be present indefinitely. Essentially, the CNMI should not be responsible for cleanup when the FDM lease concludes. Prior to issuance of the Final MITT SEIS, the Navy should agree to clean up all contamination and clean testing and training sites to their natural conditions prior to the expiration of the lease term and return to the CNMI Government.

New studies in 2016 and 2018 were conducted by Dr. Gary Denton at Water Environmental Research Institute of the Western Pacific (WERI) University of Guam (UOG) that clearly show the effects of legacy contamination on Saipan from World War II. This contamination is a serious concern for the residents of Saipan as it renders some waters as not attaining Aquatic Life and Fish/Shellfish Consumption Designated Uses in CNMI Water Quality Standards. The Navy has “cherry-picked” Dr. Denton’s studies; only citing one 1997 study on Guam that saw “light” contamination of sediment in Apra Harbor, Guam and ignoring many other studies by Denton showing excessive contamination of organisms and sediment around Saipan. Studies of relevance not included in the Final EIS include:

- Denton, G.R.W., Brookins, Cruz, Duenas, Gawel, and Mills (2018). Heavy Metal Assessment of Sediments and Selected Biota from American Memorial Park Nearshore Waters, Saipan, Commonwealth of the Northern Mariana Islands (CNMI). WERI Technical Report, January 2018.
- Denton, G.R.W., et.al, (2016). Impact of WWII dumpsites on Saipan (CNMI): heavy metal status of soils and sediments, Environ Sci Pollut Res, DOI 10.1007/s11356-016-6603-7.

²² Hall, N. M., Berry, K. L. E., Rintoul, L., & Hoogenboom, M. O. (2015). Microplastic ingestion by scleractinian corals. *Marine Biology*, 162(3), 725–732. <https://doi.org/10.1007/s00227-015-2619-7>; Saliu, F., Montano, S., Leoni, B., Lasagni, M., & Galli, P. (2019). Microplastics as a threat to coral reef environments: Detection of phthalate esters in neuston and scleractinian corals from the Faafu Atoll, Maldives. *Marine Pollution Bulletin*, 142, 234–241. <https://doi.org/10.1016/j.marpolbul.2019.03.043>

- Denton, G.R.W., et.al, (2014). Influence of Urban Runoff, Inappropriate Waste Disposal Practices and World War II on the Heavy Metal Status of Sediments in the Southern Half of Saipan Lagoon, Saipan, CNMI. Mar. Pollut. Bull.
- Denton, G.R.W., Starmer, J.A., Masga, R. (June 2013). Environmental Impacts of FUDS and Brownfield Sites in Watershed on the Eastern Side of Saipan, (CNMI). Phase 2: Impact on Aquatic Resources. WERI Project Synopsis Report.

Regarding CNMI Water Quality Anti-degradation laws: In Tier 3 waters, such as FDM, “[a]ctions which would lower water quality in such waters are prohibited” anti-degradation was not addressed in the Final MITT SEIS. Tier 3 maintains and protects water quality in outstanding national resource waters (ONRWs). Except for certain temporary changes, water quality cannot be lowered in such waters. ONRWs generally include the highest quality waters of the United States. However, the ONRW classification also offers special protection for waters of exceptional ecological significance, i.e., those which are important, unique, or sensitive ecologically. Decisions regarding which water bodies qualify to be ONRWs are made by States and authorized Indian Tribes. Much of the area of coastal waters where activities are proposed are Tier 3 waters including all Northern Islands, and non-port areas of Tinian and Rota (see 2018 Integrated Report, Table below for details).

Island	Water Body	Segment	Class	Tier	Reason for Designation
Saipan	Puerto Rico Industrial Area	19A	A	1	Commercial port / Municipal wastewater outfall
	Agingan Point	17A, 18B	A	1	Municipal wastewater outfall
	Kalabera	12	AA	3	High quality / Outstanding resource
	Talofoto	13	AA	3	High quality / Outstanding resource
	Kagman	14	AA	2	Support propagation of fish, recreation
	Laolao	15	AA	3	High quality / Outstanding resource
	DanDan	16	AA	3	High quality / Outstanding resource
	Isley	17A&B	AA	2	Support propagation of fish, recreation
	Susupe	18A&B	AA	2	Support propagation of fish, recreation
	W.Takpochao	19A,B&C	AA	2	Support propagation of fish, recreation
	Achugao	20A&B	AA	2	Support propagation of fish, recreation
	As Matuis	21	AA	2	Support propagation of fish, recreation
Managaha	All beaches	23	AA	3	High quality / Outstanding resource
Rota	East Harbor	3	A	1	Commercial port
	West Harbor	3	A	1	Commercial port
	All others	1-2, 4-5	AA	3	High quality / Outstanding resource
Tinian	San Jose Harbor	9H	A	1	Commercial port
	Aguigan "Goat Island"	6	AA	3	High quality / Outstanding resource
	All others	7 - 11	AA	3	High quality / Outstanding resource
Northern Islands	Farallon de Pajaros "Uracas"	33	AA	3	Marine National Monument
	Maug	32	AA	3	Marine National Monument
	Asuncion	31	AA	3	Marine National Monument
	Agrihan	30	AA	3	High quality / Outstanding resource
	Pagan	29	AA	3	High quality / Outstanding resource
	Alamagan	28	AA	3	High quality / Outstanding resource
	Guguan	27	AA	3	High quality / Outstanding resource
	Sarigan	26	AA	3	High quality / Outstanding resource
	Anatahan	25	AA	3	High quality / Outstanding resource
	Farallon de Medinilla	24	A	3	High quality / Outstanding resource / but ongoing military bombing exercises

The Final MITT SEIS does not account for 2018 CNMI Water Quality Standards to incorporate the updated 2018 EPA Aquatic Life Criteria to ensure that concentrations of toxic pollutants are not exceeded, especially for metals. Language from CNMI Water Quality Standards T65-130-450(d) states: BECQ hereby incorporates the U.S. Environmental Protection Agency’s National Recommended Water Quality Criteria. U.S. EPA, National Recommended Water Quality Criteria – Aquatic Life Criteria Table (2018), available at <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>. The concentration of toxic pollutants shall not exceed EPA’s aquatic life criteria for freshwater or saltwater, whichever is appropriate. Since baseline water quality data for FDM either does not exist or is not being shared by the Navy, the Navy cannot assume that effects on water quality are “insignificant.” Baseline water quality data and sediment data is needed from FDM to ensure that Aquatic Life Criteria are being met. If the Navy cannot sample and/or provide data, CNMI DEQ should be allowed to sample for metals and other munitions constituents at FDM.

Conclusion

BECQ hopes to continue additional coordination and collaboration with the Department of Defense in order to continue to build trust to work closely in resolving issues outlined here in moving forward. In doing so, we hope that where data and analysis are lacking, studies will be done working with CNMI resource management agencies to build trust and ensure we are answering research questions that should be resolved, rigorously assessing impacts, and ensuring mitigating actions are taken should significant impacts be identified. BECQ sincerely appreciates the opportunity to be involved throughout the development of the Mariana Islands Training and Testing through procedures outlined in the National Environmental Policy Act. We thank you for considering our comments on the 2020 Mariana Islands Training and Testing (MITT) Final Supplemental Environmental Impact Statement (EIS)/ Overseas Environmental Impact Statement (OEIS). We encourage that your ongoing efforts to achieve sustainable range management while minimizing environmental impacts be reflected by the incorporation of recommended mitigation actions in the 2020 Record of Decision. For questions or concerns, please do not hesitate to contact DCRM Director, Janice E. Castro at jcastro@dcrm.gov.mp or DEQ Director, Jonathan I. Arriola at jonathanarriola@becq.gov.mp.

Sincerely,



ELI D. CABRERA
Administrator
Bureau of Environmental and Coastal Quality

cc: CNMI Office of the Governor
CNMI Commonwealth Bureau of Military Affairs
CNMI BECQ-DCRM Director
CNMI BECQ-DEQ Director