

# BUREAU OF STATISTICS AND PLANS

(Bureau of Planning)

Government of Guam



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Director

FEB 17 2010

## Memorandum

To: The Governor  
From: Director, Bureau of Statistics and Plans  
Subject: DEIS Comments

Submitted for your information and review is the Bureau of Statistics and Plans' comments on the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) for Guam on Relocating Marines from Okinawa, Visiting Aircraft Carrier Berthing, and Army Air Missile Defense Task Force.

In addition, attached are the detailed comments by volume and chapter with the appropriate recommendations.

ALBERTO A. LAMORENA V

## Attachments

### RECEIPT ACKNOWLEDGED

By: \_\_\_\_\_  
(Signature)  
  
\_\_\_\_\_  
(Print Name)  
cfo  
\_\_\_\_\_  
(Department)  
Date: 2/17/10 Time: 2:39

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JGPO c/o NAVFAC Pacific  
258 Makalapa Drive, Suite 100  
Pearl Harbor, Hawaii 96860-3134  
Attention: GPMO

Hafa Adai:

Enclosed please find comments regarding the Draft Environmental Impact Statement (DEIS) for the re-location of the Marines from Okinawa to Guam, and the construction and dredging associated with increased aircraft carrier berthing. Specific comments referring to sections within the DEIS are enclosed along with specific recommendations accordingly. We urge you to consider addressing all of the major inconsistencies associated with the DEIS that impact proposed action alternatives. We recommend that alternatives previously dismissed (or not investigated at all) should be seriously considered. Guam is a relatively small island with high biological diversity, finite natural resources, and limited infrastructure. These considerations underpin many of the key points presented below.

## 1. Separate EIS Process

One of the Bureau's concerns is regarding the approach for this action. Each proposed action requires a separate EIS process for marine relocation, CVN Berthing, and Army Ballistic Missile Defense Task Force as they are significantly different projects, they do not appear to be interdependent, and do not appear to be restricted to the same timeframe. Combining all of these proposed actions into a single, massive DEIS document greatly limits the ability of government agencies and the public to review the document.

In addition, the Guam Coastal Management Program (GCMP) is requiring that DoD submit a Federal Consistency determination separately for each of the three proposed activities: 1) Relocation of Marines from Okinawa to Guam; 2) The construction and dredging associated with visiting Aircraft Carrier Berthing; and 3) Army Air and Missile Defense Task Force. The review documents should be submitted to the Bureau of Statistics and Plans, in compliance with the requirements of the Coastal Zone Management Act (CZMA), Federal Consistency regulations, 15 CFR Part 930, 16 USC, 1451 et seq.

The DEIS as referenced on Vol.8 chapter 2, page 2-1, Table 2.1-1 the Status of Compliance column pertaining to Coastal Zone Management Act (CZMA) must be corrected. *It is not true that "Consistency determination is prepared and submitted by Navy seeking concurrence from Guam Bureau of Statistics and Plans." The DOD/Navy*

*has not submitted the mentioned consistency determination to the Bureau of Statistics and Plans. Federal agency is required to follow the required timeline for the Federal Consistency review, 15 CFR Part 930.39.*

CZMA Regulations should indicate/include provision of 15 CFR 923.33(b) Federal consistency review requirement regarding excluded lands. Activities on federally controlled lands excluded from the coastal zone are also subject to BSP review if the Federal agency determines they will affect any coastal use or resource in the coastal zone (15 CFR Part 930.33). If it is found that such activities will not have an effect, the Federal agency may submit a negative determination to inform Guam of the proposed activity thus assuring Territory review of borderline cases, (15 CFR Section 930.35).

In addition, CZMA Regulations, Sec. 923.33 Excluded lands. (b) **The exclusion of Federal lands** does not remove Federal agencies from the obligation of complying with the consistency provisions of section 307 of the Act when Federal actions on these excluded lands have spillover impacts that affect any land or water use or natural resource of the coastal zone within the purview of a state's management program. In excluding Federal lands from a State's coastal zone for the purposes of this Act, a State does not impair any rights or authorities that it may have over Federal lands that exist separate from this program.

We are concerned that the extraordinarily large cumulative scope of the DEIS and the rapid timeline of the planned projects is unrealistic and inappropriate; it reduces the likelihood that the best possible information is integrated into the NEPA process and places an unreasonable burden on the already capacity-limited government agencies, other organizations/institutions, and the general public to conduct an adequate review within the given timeframe. The relocation of troops to Guam, and associated infrastructure demands, appear to be entirely separate from, and not dependent upon, the Army Air and Missile Defense Task Force, and the major construction and dredging operations required for the Carrier Vessel Nuclear (CVN). Consistent with our past position, we continue to strongly recommend that each of these projects be carried through the NEPA process separately, with separate EISs staggered in an order according to project priority.

It is unclear why the Army Air and Missile Defense Task Force and the Visiting Aircraft Carrier Berthing projects were included with the Marine Relocation in a single EIS document. While it is claimed that these activities - which seem capable of operating independently - collectively address treaty obligations with allied nations, the rationale for including all of these projects in a single EIS, and operating under a shared timeline, is not sufficient. Combining such large projects, each of which will have significant impacts to the island, into a single EIS document causes undue hardship for agencies and individuals reviewing the document and limits their ability to make well-informed, well-supported comments. The limited ability to provide substantive comments for the broad range of issues, especially given the large size, the information gaps, flawed data, errors and inconsistencies of the DEIS (likely a result, in part, of the rushed timeline for the DEIS preparers), greatly limits the effectiveness of the NEPA process and thus greatly

increases the chances that the full impacts of the buildup will not be adequately addressed and the costs (monetary and otherwise) will be absorbed by the people of Guam instead of by the action proponent. Each project should be analyzed separately, being sure to include the expected impacts of each project in the cumulative impacts analysis section of each EIS. If this is not possible, we recommend reducing the current DEIS to a programmatic or Tier 1 EIS, providing enough detail to analyze the overall socioeconomic impacts of each activity without delving into details about exactly where each project would be located and exactly what impacts will result. Such an action would significantly reduce the overwhelming size and scope of a single document, would allow DoD to focus on the most time-sensitive elements first, would result in a more thorough analysis of buildup's impacts and ultimately in achieving the best possible outcome. If such an action is not viable, we recommend clarifying why the carrier berthing and ballistic missile task force projects must occur at the same time as marine relocation and why delaying these projects would violate the terms of any treaties. The immense burden placed on local and federal agencies, and the general lack of capacity for local agencies to carry out required mandates in a timely manner would demand that a delay in these projects be very seriously considered. This is especially relevant to the CVN project, the progress of which is already facing substantial challenges resulting from significant information gaps, flawed data, etc. and would benefit by an extended timeline not tied to the timeline dictated by the marine relocation.

## **2. Need for baseline water and ecological data**

Need for a complete baseline water and ecological and sediment contaminant analyses for Guam (i.e., the entire island) upon which change can be detected as a result of build-up and construction activities. Guam's coastal zone is heavily relied upon for subsistence, tourism, and recreation, forming the backbone of life on Guam. Instead of waiting for the individual permitting process before these data are presented, a project of this magnitude necessitates that such an assessment and the associated recommendations be presented in the FEIS.

The existing data to characterize Guam's nearshore coastal waters and ecological assemblages provide a poor baseline upon which change can be detected. Because of the major increases in human population, land-based construction, training activities, and recreational uses, a quantitative study must be conducted to address the long-term impacts of the buildup and associated activities. We strongly recommend that the Department of Defense commit to supporting comprehensive, in-situ characterizations of ecological assemblages and sediment content characteristics around Guam, with adequate statistical power to detect change at the individual site-level.

Existing baseline data from NOAA habitat maps and NOAA Coral Reef Ecosystem Division datasets were not conducted with local-scale, site-specific questions in mind, and instead were designed to address pressing national and regional concerns. Further, Guam's local agencies are tasked with the continuation of their agency-specific data collection programs. Guam Division of Wildlife and Aquatic Resources currently monitors trends in ecological assemblages, namely fish, in the existing MPA's to examine their efficacy. They also conduct surveys of catch rates and composition to

assist fisheries management. Currently, their program does not have the resources to expand monitoring efforts to include site-specific investigations pertaining to build-up activities that will rapidly change Guam's environment. Guam's Environmental Protection Agency (Guam EPA) conducts weekly water quality assessments at numerous beaches, as well as annual assessments of several streams. The coastal work conducted by Guam EPA is limited by financial and personnel resources and granting agency requirements. The Government of Guam has recently initiated a multi-agency, long-term coral reef monitoring program with funding through a NOAA Coral Reef Initiative Monitoring Grant, but the scale of the effort remains limited due to major funding and capacity limitations and is not sufficient for the needs discussed here.

Because of the magnitude and speed of the proposed build-up, a holistic ecological monitoring design appropriate to detect site-specific change is imperative. DoD must develop a monitoring program to address this concern. The notable difference for the purpose of the DEIS is the need to move from 'assessment' type work to 'monitoring'. It will form the basis of individual project permitting requirements and identify when/where/if mitigation is needed in the future. Typically, these discussions wait until the individual permitting procedure; however, given the unique magnitude and speed of the build-up, relevant baseline ecological data with sufficient replication and scale to answer questions regarding change over time must be included in the FEIS. At the very least, the FEIS should mention a specific process to ensure that such a program will be undertaken and identify funding, logistics, and key constituents. In addition, it is imperative for this ecological baseline of Guam's coral-and-reef-associated assemblages be conducted in cooperation with local expertise.

Examples of methods used for question-driven, site-specific monitoring can be found within English et al. (1994), Brown et al. (2004), and Houk and van Woesik (2006). Calculations from the existing marine survey data presented in Volume 4 indicate that the data provided are very low in statistical power. The statistical power to detect a 20% change in coral cover (one dominant benthos within Apra Harbor) over time on the coral-rich 'direct-slope' reefs is only 6% (using data from Volume 9, Appendix J, Table 3, following calculations of Houk and van Woesik 2006). Similarly, only 20% statistical power exists for detecting a change of 50% in coral cover. These are unacceptable foundations upon which change can be assessed and provide a near meaningless *in-situ* ecological baseline. The argument presented in the DEIS that statistical power cannot be calculated (Appendix J, CVN marine survey, methods section) due to high ecological zonation is not valid; the study must account for this zonation and provide a baseline to detect change over time.

### **3. Climate Change**

Climate change is not mentioned once in the entire document. Shifting patterns of rainfall, air and sea temperature, storm events, and of many other events and processes will impact a multitude of resources upon which society depends. We strongly recommend that the FEIS include a section specifically addressing climate change, and that climate change be incorporated into the impact analyses of project alternatives for

each of the proposed actions. Adaptive Management Plans must be developed to address impacts relating to climate change and sea level rise.

Clearly, the change in global climate resulting primarily from anthropogenic forcing provides for much uncertainty for future climate regime predictions at the global, regional, and local scales; shifting patterns of rainfall, air and sea temperature, storm events, and of many other events and processes will impact a multitude of resources upon which society depends (Tebaldi et al. 2005). We strongly recommend that the FEIS include a section specifically addressing climate change, that climate change be incorporated into the cumulative impacts analysis, and that climate change also be incorporated into the impact analyses of project alternatives for each of the proposed projects. We also strongly suggest that the precautionary principle be adopted when considering the impacts of climate change (and for other impacts). It is well-known that the prevention of impacts is much less costly than the restoration of lost resources – and that in some cases the lost resources cannot be restored within time frame relevant to human societies. Examples of climate change-influenced factors affecting the outcome of impact analyses, include, but are not limited to 1) decreased recovery times for coral reef resources that will be impacted by DEIS activities, 2) the potential for ecosystem collapse as a result of synergistic influences associated with acute dredging and construction disturbances (Baker et al. 2008), 3) fluctuations in Guam's freshwater resources as influenced by changing rainfall patterns and the increased dependence on the Northern Aquifer from the increased human population, and 4) increased dependence upon Guam's power grid, sewer lines, roads, and other infrastructure given increasing future uncertainties.

There is no analysis of the impacts of sea-level rise on the fresh water lens of the Northern Guam Aquifer. The possibility of sea-level rise is never mentioned. Much of the problem associated with the discussion of potable water supplies in this DEIS comes from the fact that there has never been a state of the art understanding of the aquifer itself. No 3D models have been constructed, which have been identified as necessary to understanding the dynamics and the potential of the aquifer. To increase Guam's population by 44% based on a less than adequate understanding of potable water capacities is irresponsible. DoD must work with appropriate Government of Guam agencies to conduct a comprehensive study of the capacity of the aquifer to meet the demands of both civilian and military communities.

#### **4. Visiting Aircraft Carrier (CVN) Berthing**

There are major concerns with how Volume 4, and most of the associated supporting studies summarized within, assess the potential marine resource impacts of the CVN Berthing project. An overarching concern is the apparently systematic bias towards a major underestimation of the impacts to marine resources. This bias is evident in the misinterpretation and misuse of scientific literature, the use of questionable data collected using inadequate survey methods, the inappropriate use of coral cover and the lack of coral size frequency data for use in the HEA, and the lack of data for significant areas of coral reef habitat. These concerns are as follows:

- a. Apra Harbor is a unique coral reef environment within US jurisdictional waters and the Mariana Archipelago, and possesses unique assemblages and unique species of flora and fauna. The potential loss of biodiversity is not considered.
- b. Artificial substrates have been found to host significantly larger populations of non-native, introduced fauna, than natural substrate, but the DEIS authors extol the benefits of increased artificial substrate associated with the deep-draft wharf and continue to support the use of artificial reefs as a preferred mitigation method. Artificial substrate should not be considered beneficial, and artificial reefs must not be considered as compensatory mitigation for these and other reasons cited below.
- c. A comprehensive invasive species monitoring and response plan is currently lacking for Apra Harbor; such a plan must be completed, reviewed, and included in the FEIS.
- d. The existing habitat equivalency analyses (HEA) is based solely upon coral cover data and a coarse-scale “rugosity” measurement; such an approach does not provide a meaningful measure of the various ecological functions and services provided by the coral reef communities within the project area. HEA calculations must take into account ecosystem functions and services provided by non-coral invertebrates, unoccupied reef substrate, soft-bottom sediments, and coral reefs below 60 ft. Additionally, the HEA must take into account the services lost by blocking ~50% of the entrance to Guam’s nearby Sasa Bay Marine Protected Area that holds unique biodiversity and is a no-take fish preserve.
- e. Dredge plume models were only run for 24 hours under assumptions of 90-100% sediment removal efficiency. Both parameters are unrealistic and provide inaccurate estimates of sediment production, removal, and transfer to adjacent reefs. The FEIS must rigorously account for cumulative sediment dispersal associated with longer term dredging, and with more realistic removal efficiencies that will be present as a result of curtain breaks/failure, sediment escape below and between curtains, uncontrollable weather events, anomalously large tidal cycles, and other weather patterns. Existing current studies only encompassed two field days, which is not nearly sufficient to characterize the impacts to the project area given the magnitude of proposed activities.

There are major flaws with Volume 4 of the DEIS, many of the associated studies and appendices, and the assumptions that informed the Habitat Equivalency Analyses (HEA). While numerous specific examples are enclosed to support the above statement, several main points are discussed here, along with specific recommendations.

#### ***Uniqueness of Apra Harbor marine environment***

Apra Harbor is a unique coral reef environment within U.S. jurisdictional waters and the Mariana Archipelago and possesses unique assemblages and unique species of flora

and fauna. In a report to the Navy regarding the diversity of select marine invertebrate taxa within Apra Harbor, Paulay et al. (1997) state:

- *“A total of 60 species of sponges, 72 species of echinoderms and 47 species of ascidians were documented from the harbor. These represent 63% of the sponges, 37% of the echinoderms and 38% of the ascidians currently known on Guam. Thus the harbor has a thriving and rich marine biota, and is home to a large portion of Guam’s marine fauna. In addition to these selected taxa, 511 species of other invertebrates were also recorded from the harbor.”*
- *“About 80% of the sponges and 53% of the ascidians of Apra Harbor are not known outside the harbor on Guam, while only 18% of the echinoderms are so restricted.”*
- *“Three areas stood out in Apra Harbor for their especially diverse and unique biota: the central shoals and mounds, especially Sponge Mound, the Sasa Bay mangroves, and the mooring and navigational buoys.”*

Given the extremely high level of unique fauna not found elsewhere in the entire Mariana Archipelago, it becomes clear that the no action alternative should be very seriously considered, or that an alternative berthing (other than Guam) be investigated. No clear evidence is provided to support the oft-mentioned conclusion that the severe impacts to the large area of reef habitat within the project area will not have any significant impact on Essential Fish Habit, sea turtles, or other marine resources. Currently, the DEIS gives no consideration of biodiversity when calculation ecological functional losses, and rather focuses only upon coral cover and a crude measure of landscape rugosity. The information provided by Paulay et al. (1997) is not mentioned anywhere in the DEIS, despite the fact that it presents a great amount of biological knowledge specific to the harbor. The FEIS must account for the high degree of unique fauna that will be directly and indirectly removed, and mitigation measures must be presented in detail.

***The “benefits of artificial substrate” and the impacts of non-native species***

The findings of Paulay et al. (1997) indicate that a higher (statistically significant) prevalence of probable non-native species was found upon artificial substrates compared with natural reef substrate. Currently the DEIS provides no assessment of the potential damage of increased invasive species establishment due to increase man-made structure within the harbor, or increased vessel traffic as a result of the entire military build-up. Instead, the DEIS authors extol the benefits of increased artificial substrate associated with the deep-draft wharf and continue to support the use of artificial reefs as a preferred mitigation method. Artificial substrate should not be considered beneficial, and artificial reefs must not be considered as compensatory mitigation for these, and other reasons cited. The FEIS must include a full assessment of the impacts of the likely increase in non-native species introductions into Apra Harbor, a complete monitoring program description to detect changes in non-native species over time, and a complete response plan upon detection of potentially invasive non-native species. Further, the introduction of additional artificial substrata within the harbor should be minimized, as it represents a