EXECUTIVE SUMMARY

Introduction

The United States Environmental Protection Agency (USEPA), Region 9 proposes to designate an ocean dredged material disposal site (ODMDS) west of the Territory of Guam (Guam). The Guam location map is shown on Figure ES-1. It is USEPA's policy to publish and process a National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) for all ODMDS designations (39 Federal Register [FR] 37119, October 21, 1974), even if the action would not result in any potentially significant adverse impacts. This NEPA EIS discloses potential environmental impacts associated with disposal of dredged material at the alternative ODMDS locations.

By law, starting in 1997, ocean disposal may only occur at sites that have gone through a formal designation process to ensure that significant adverse impacts to the marine environment and human uses of the ocean would not occur. This EIS is part of the formal process to identify and designate an environmentally acceptable ODMDS for Guam.

Formal designation of an ODMDS in the FR does not constitute approval of dredged material for ocean disposal. Designation of an ODMDS provides an additional dredged material management option for consideration in the review of each proposed dredging project. Ocean disposal is only allowed when USEPA and United States Army Corps of Engineers (USACE) determine, on a case-by-case basis, that the dredged material: 1) is environmentally suitable according to testing criteria (40 Code of Federal Regulations [CFR] Parts 225 and 227), as determined from physical, chemical, and bioassay/bioaccumulation testing that is briefly described in Section 2.7 (USEPA and USACE 1991), 2) does not have a viable beneficial reuse, and 3) there are no practical land placement options available. This EIS only addresses management options for dredged material suitable for ocean disposal.

This document was prepared in accordance with the NEPA of 1969 (42 United States Code [USC] §4321 et seq.), as implemented by the Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508); and USEPA Procedures for Implementing the Requirements of the Council on Environmental Quality on the NEPA (40 CFR Part 6), as amended October 19, 2007 (FR Vol. 72, No. 181, pp 53652-53672).

Purpose and Need

The purpose of the proposed action is to provide an additional option for the management of suitable material dredged from Guam and surrounding waters. Dredged material is defined as "suitable" when it meets the standard criteria (40 CFR Parts 225 and 227), as determined by physical, chemical, and bioassay/bioaccumulation testing (USEPA and USACE 1991). After an ODMDS is designated, other management options for suitable material, including beneficial use, will continue to be preferred over ocean disposal when such options are practicable and would not have unacceptable adverse effects.

An "interim" ODMDS was designated 3 nautical miles (nm) offshore of Apra Harbor (Figure ES-1) in 1977, but was never used. The designation was never finalized, and the interim site expired (along with all other "interim" disposal sites in the United States (U.S.) and Pacific Territories) on January 1, 1997. Since then, there has been an increased need for dredging in Guam, and the lack of a designated ODMDS has complicated dredged material management.

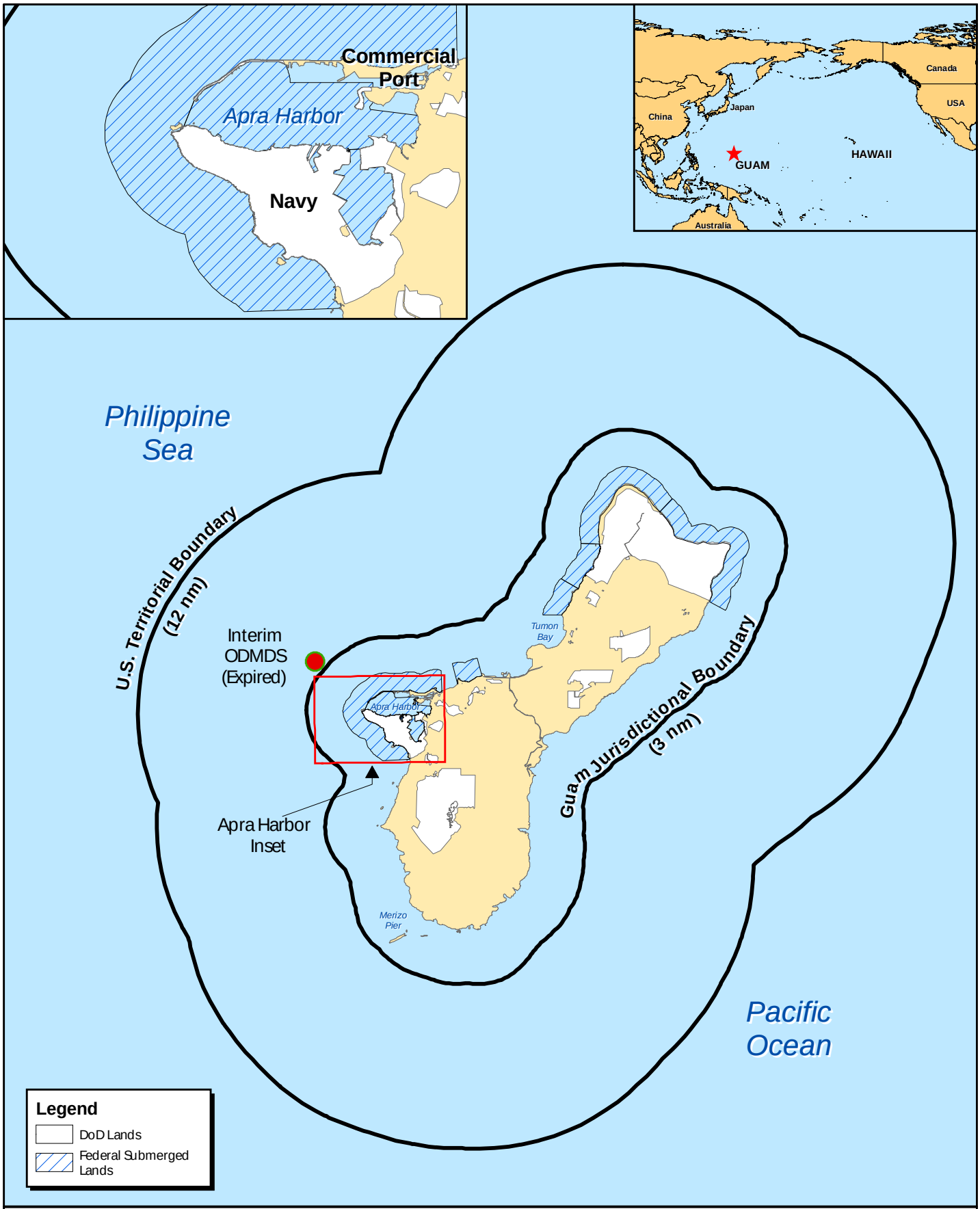

Figure ES-1.
Location Map

The anticipated volume of dredged material generated around Guam over the next 30 years would exceed the capacity of known or existing stockpile or beneficial use options. The need for additional dredged material disposal options is exacerbated by the planned increase in military presence on Guam, which requires Navy and Port Authority of Guam (PAG) harbor and navigation improvements. Assuming all existing upland dewatering facilities are used and all known beneficial use options are fully implemented, there would still be a substantial excess of dredged material to be managed.

ODMDS Alternatives

Ocean disposal is regulated under Title I of the Marine Protection Research and Sanctuaries Act (MPRSA) (33 USC 1401 *et seq*). USEPA has the responsibility for designating an acceptable location for the ODMDS (MPRSA Section 102).

In summary, the steps required to designate an ODMDS are:

1. Demonstrate a need for an ODMDS.
2. Conduct a constraints analysis (Zone of Siting Feasibility [ZSF] study), based on existing information to identify areas with the least conflicting uses and the least potential for any environmental impacts.
3. Evaluate the identified study areas in detail, to determine the most suitable location within each study area for a candidate ODMDS.
4. Evaluate the specific candidate site in each study area using the USEPA general and specific criteria (40 CFR Part 228) (see Table 2-1) and document the findings in the EIS.
5. Identify the preferred alternative (e.g., the site that best meets the criteria) and proceed with rulemaking published in the FR to formally designate the ODMDS.

Alternatives were eliminated from detailed impact analysis in this EIS if they did not meet specified USEPA siting criteria. The ZSF study for a Guam ODMDS, prepared by Weston and Belt Collins in September 2006, was a rigorous assessment used to identify any and all reasonable alternatives for potential ODMDS siting and the information is summarized in this EIS section. Based on the ZSF study, two study areas in the Philippine Sea met the siting criteria. Based on their location relative to Apra Harbor, these study areas are described as the North and Northwest Study Areas. Within these two study areas, field analysis was conducted to identify the most suitable ODMDS within each of the two study areas.

This process resulted in the two ODMDS alternatives carried forward through the EIS analysis. These two alternatives are referred to as the Northwest Alternative ODMDS and the North Alternative ODMDS (Figure ES-2). These alternative ODMDSs, along with the No Action Alternative, are discussed in detail in Sections 2.4, 2.5 and 2.6.

No significant adverse impacts were identified under either ODMDS alternative and no mitigation is proposed beyond the standard conditions and operating procedures presented in the site management and monitoring plan (Appendix C), including avoidance of dredging and disposal during coral spawning periods.

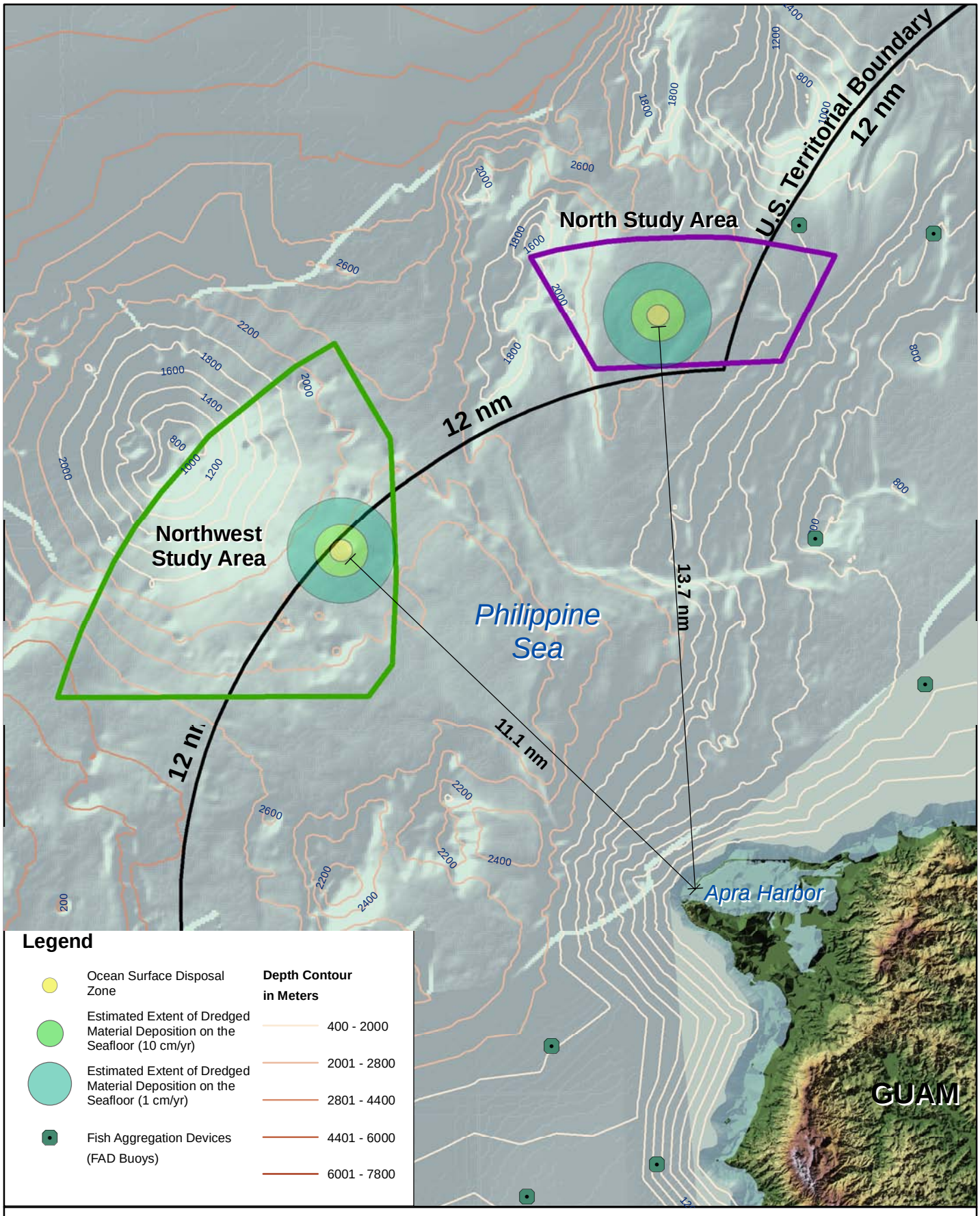

Figure ES-2.
ODMDS Alternatives - Showing Deposition on the Seafloor Following 1,000,000 cy of Disposal

Source: NAVFACPAC, 2006

Affected Environment

The following sections summarize the physical, biological, and socioeconomic environments of the preferred and other alternatives.

Physical Environment

Guam has warm and humid weather, typical of a tropical marine climate. The average daily temperature range is between 76 and 88°Farenheit (°F) (24 and 31°Celcius [°C]). Tradewinds are fairly consistent throughout the year with an average wind speed of 10 miles per hour (mph) (16 kilometers per hour [kph]) from the east. Guam has two primary seasons: wet and dry. The dry season occurs from January to April with a monthly average of 3.25 inches (in) (8.3 centimeters [cm]) of rain. July through October comprise the wet season with rainfall averaging approximately 12 in/month (0.3 meters [m]/month). Typhoons can occur at any time on Guam; however, they typically occur during the wet months.

Guam has "attained" the USEPA's air quality standards with the exception of two areas classified as nonattainment for sulfur dioxide (SO_2) as of September 1999. These areas are within a 2.2 mile (mi) (3.5 km) radius of the Piti Power Plant and the Tanguisson Power Plant (Figure 3-1, Chapter 3). None of nonattainment areas around Piti Power Plant or Tanguisson Power Plant encompass either of the proposed study areas.

Surface currents in the vicinity of Guam are dominated by the North Pacific Equatorial Current (NPEC), though coastal eddies may develop in the lee (westward side) of the island as a result of the NPEC flowing past Guam. The NPEC flows westward at an average speed of 0.33 to 0.66 feet (ft/s) (0.1 to 0.2 m/s, 0.2 to 0.4 kt) and reaching a maximum speed of approximately 0.98 ft/s (0.3 m/s, 0.6 kt) in response to tradewinds typically occurring between 10° North and 15° North. Deep water currents in this region are dominated by the North Pacific Deep Water (NPDW) and the Lower Circumpolar Water (LCPW). The NPDW flows westward from the northeastern Pacific Ocean and the LCPW, branches into two limbs, a northward flow into the Pacific Basin and a westward flow towards the West Marianas Basin. Regional current characterization varied between modeled and *in situ* measurements, with field-collected data showing more variability in direction. Therefore, dredged material will likely deposit on an even smaller area of the seafloor than predicted by the model.

The conventional and chemical characteristics of water collected from stations located in the North and Northwest Study Areas were similar. Overall, nutrients tended to increase in concentration with increasing water depth, whereas Total Organic Carbons (TOCs) tended to decrease in concentration with increasing water depth. Metals concentrations were relatively low compared to Criterion Continuous Concentration and Criterion Maximum Concentration values and were within the same order of magnitude of other deep ocean reference site water samples. Very few polycyclic aromatic hydrocarbons (PAH) or chlorinated pesticides were detected in any of the water samples.

The island of Guam is volcanic and not part of a continental land mass, and therefore does not have a continental shelf. In the absence of a shelf break, continental shelf can be defined as submerged land between shoreline and a depth of 656 ft (200 m). On Guam, this typically occurs within 1 nm (1.9 km) of shore. The slope tends to increase rapidly offshore of Guam and depths can reach 6,000 ft (1.829 km) within 3 nm (5.6 km) (Weston Solutions and Belt Collins 2006). The study areas that contain both ODMDS alternative sites are well beyond the continental shelf, with the closest center point being 11.1 nm (20.6 km) from the shoreline. In general, the physical, conventional, chemical and radiological characteristics of sediments collected from stations located in the North and Northwest Study Areas are similar with the exception of grain size and few trace metals.

Biological Environment

The invertebrate community was typical of the deep offshore environment in the in the vicinity of either alternative disposal site. Overall, polychaetes dominated the benthic populations, while crustaceans and molluscs were in low abundance. Echinoderms were absent at all of the collection stations. Meiofaunal organisms were absent throughout all of the study areas with the exception of the North study site where one nematode was found.

Deep-sea demersal species were typical of the deep offshore environment in the vicinity of either alternative disposal site. Sampling was done by three methods: Beam Trawling; Fish Traps; and Photo Surveys. In the North Study Area, one tripod fish (*Bathypterois longipes*), one Stomiiforme Stomiiforme (a mid-water column organism), two giant hagfish (*Eptatretus carlhubbsi*), three individual Ophidiform (cuskeel) specimens, one Anguilliform (likely from the family Halosauridae: *Aldovandria* sp., deep sea spiny eel), and possibly a small shark or an Ophidiiform were identified in samples.

In the Northwest Study Area one demersal cuskeel (*Bassogigas gillii*), three water column bristlemouths (*Cyclothone pallida*), one small Ophidiiform, two hagfish, and five Ophidiiforms were identified in samples.

Commercial and Recreational Fishery Species were typical of the environment in the vicinity of either alternative disposal site, including numerous representatives of the pelagic, bottomfish, coral reef, and marine invertebrate fisheries. The most common species in the Guam pelagic fishery are mahimahi (*Coryphaena hippurus*), ono (*Acanthocybium solandri)*, skipjack tuna (*Katsuwonus pelamis)*, yellowfin tuna *(Thunnus albacares),* and Pacific blue marlin (*Makaira mazara).* The deep water bortomfish species that are targeted include groupers and snappers of the genera *Pristipomoides*, *Etelis*, *Aphareus*, *Epinephelus*, and *Cephalopholis*. Essential Fish Habitat (EFH) for bottomfish includes the entire water column extending from the shore to depths of 1,310 ft (400 m). Due to habitat preferences, there is some overlap between the coral reef fish and bottomfish fisheries species. Common reef fish species that comprise the fishery in Guam include parrotfishes (Family *Scaridae*), surgeonfish (Family *Acanthuridae*), wrasses (Family *Labridae*), and groupers (Family *Serranidae*). The marine invertebrates that comprise the fishery in Guam include crustaceans, cephalopods, echinoderms, and shelled molluscs. The major focus of the marine invertebrate fishery around Guam is crustaceans (lobsters and crabs), including the green spiny lobster (*Panulirus penicillatus)* and slipper lobster (Family *Scyllaridae)*. At this time there is not a substantial crustacean fishery in waters surrounding Guam, so EFH has not been designated for this region (WPRFMC 1995 (Amendment 9).

Marine birds on Guam fall into three main groups: shorebirds (such as plovers, sandpipers), water birds (such as ducks, cormorants, and loons) and seabirds (such as albatross, petrels, puffins, penguins, frigate birds and boobies). Seabirds are those species that obtain most of their food from the ocean and are found over water for more than half of the year. All marine birds that occur in the vicinity of either alternative disposal site are protected under the Migratory Bird Treaty Act and Executive Order 13186.

The Marine Mammal Protection Act of 1972 protects all marine mammals from harvesting within the borders of the U.S., regardless of status. Therefore, all marine mammals encountered in the offshore region of Guam must be given due consideration. Previous reports were used as a reference for marine mammals that may be in the proposed ODMDS vicinity, and suggested that the sperm whale was the species that had the highest frequency of sightings, followed by the Bryde's and sei whales. Dolphins and green sea turtles are also commonly sighted in the region. There are 20 species of marine mammals listed as having regular occurrence in the vicinity of either alternative disposal site.

There are numerous Marine Protected Areas (MPAs) in the vicinity of Guam, which are shown on Figure 3-29 (Chapter 3).

Socioeconomic Environment

Commercial fishing contributes less than $1 million annually on average to the total economy of Guam, which was $3.4 billion in 2002. The military and tourism sectors are the major economic generators. Nonetheless, fishing is an important social and cultural activity for the people of Guam. Most small-scale commercial fishing on the western side of Guam takes place in shallower waters, near reefs and near Fish Aggregation Devices (FADs), all located within 6 nm (11.1 km) of the shore. The 200 nm Exclusive Economic Zone around Guam prohibits commercial fishing by foreign boats and ships. In addition, there is a prohibition on longline fishing in the waters 50 nm around Guam; this area is shown in Figure 3-30 (Chapter 3). No registered mariculture operations were identified offshore of Guam.

There are in-water military training areas established around Guam and ship traffic shares the shipping lanes with all other ocean going traffic. The majority of in-water training sites are located within or south of Apra Harbor, more than 9 nm distance from the ODMDS alternatives.

Tourism has become a $1.3 billion industry and is Guam's largest source of income after U.S. military spending. Guam tourism generates 60% of gross revenues and provides 20,000 jobs, approximately 35% of the island's employment. Japan and Korea comprise 90% of Guam's visitors.

Recreational fishing has been growing in Guam over the years. Fishermen focusing on areas of bottom relief not only catch reef-associated fishes but also coastal pelagic species that may be attracted to the habitat. Galvez Bank, located off the southeastern shore outside the military restricted area, is fished the most often due to accessibility and distance. White Tuna Bank and Santa Rosa Bank off the southern coast, and Rota Bank north of Guam are remote and only fished during good weather conditions. Although the banks make good fishing grounds due to the shallower depths, fishing is not limited to these areas. The entire western seaboard of Guam is recognized as having fishing potential and is used periodically where permissible by weather conditions.

Five surface ship safety lanes (shipping lanes) are used by commercial ship traffic approaching Guam and Apra Harbor (see Figure 2-3, Chapter 2). All ship traffic is restricted to these lanes. All ship traffic is subject to strict navigation regulations designed to ensure safe vessel separations and operating conditions. Moreover, the ODMDS Alternative study areas were located to avoid the shipping lanes and have been placed between those that approach from the north and west.

Although no underwater archaeological surveys have specifically been conducted for this study region, underwater archaeological sites are unlikely to be located within the project area given its distance from land and reefs and the depth of the ocean bottom. No oil or other mineral extraction platforms were identified offshore of Guam.

Environmental Consequences

Potential environmental consequences associated with the ocean disposal of dredged material corresponding to the alternatives evaluated in this EIS are summarized in Table 2-4.

Physical Environment

The potential impacts of dredging operations on air quality in the North and Northwest ODMDS Alternative Areas are expected to be transient during barge transport and localized in the disposal site during the disposal action. Under the No Action Alternative the ODMDS would not

be designated, and managing material in an upland setting would likely result in air quality impacts associated with the use of heavy equipment for rehandling and placement of the dredged material.

The disposal of dredged material at an ODMDS is not expected to have any measurable effect on the regional or site-specific physical oceanographic or geologic conditions. Additionally, there would be no affect of the No Action Alternative on physical oceanographic or geologic conditions.

Overall, potential impacts on water quality from suitable dredged material permitted for ocean disposal at the North and Northwest Study Areas are expected to be transient and localized (e.g., contained within the overall boundary of the disposal site) within four hours of the initial disposal activity, and no significant water quality impacts are expected outside of site boundaries. Therefore, there will be no overall unacceptable adverse impacts to water quality with ocean disposal. There would be no adverse impacts on the water column under the No Action Alternative (no ocean disposal site designated).

As only sediments determined to be suitable (non-toxic) for ocean disposal in accordance with USEPA and USACE protocols will be permitted for ocean disposal, there would be no unacceptable adverse impacts to the seabed outside the ODMDS disposal site boundary. There would be no adverse impacts on sediment characteristics under the No Action Alternative.

Biological Environment

Impacts to infauna, epifauna, invertebrates, and fishes are anticipated to be temporary and limited to the areas within the boundaries of the alternative disposal sites. Impacts to the benthic community are anticipated to be greatest as a result of smothering of some organisms and alteration of sediment characteristics. However, even these impacts are expected to be limited to areas receiving the greatest amounts of annual deposition thickness near the center of the disposal site.

Impacts on water column organisms such as plankton, pelagic fishes, and marine mammals are expected to be minimal, temporary, and limited to the area within the site boundaries. Suspended sediment plumes are expected to be confined to the disposal area and short in duration. The proposed disposal area is an extremely small percentage of the total regional area within which the pelagic fish are normally found. No significant impacts to seabirds are anticipated for any of the alternatives. Furthermore, the exposure of marine organisms and other fauna to dredged material is not expected to result in significant adverse effects given that the dredged material proposed for ocean disposal must be tested and determined suitable (non-toxic) for ocean disposal according to Environmental Protection Agency (EPA) and USACE testing criteria.

Socioeconomic Environment

Potential hazards to commercial, military, and recreational navigation resulting from the transport and disposal of dredged material at the sites are also expected to be insignificant. The commercial and recreational fisheries mirror the temporal and spatially dynamic ranges of pelagic fish occurring throughout the region and are not statically concentrated within the proposed disposal site. Vessel traffic in the region is highly regulated and conflicts with disposal barges are anticipated to be minimal. The disposal of materials that are considered hazardous is prohibited at an ODMDS. Dredged material proposed for ocean disposal will be subject to strict testing requirements established by the EPA and USACE. Material found not to be suitable for ocean disposal will be prohibited from disposal at either the North or Northwest

ODMDS Alternative sites. Therefore, the potential for human health and safety hazards is minimal and not significant for all of the alternatives.

There are no known cultural or historical resources within the North or Northwest ODMDS Alternative site boundaries. Potential impacts to human safety would be very small as the number of disposal barge trips, even under maximum possible trip scenarios, is small compared to the overall vessel traffic in the region. There are no existing or planned oil developments within the North or Northwest ODMDS Alternative site boundaries.

Comparison of the Alternative Ocean Disposal Sites with the 5 General and 11 Specific Site Selection Criteria.

Table ES-1 presents an assessment of the extent to which the two alternative ODMDS meet the five general site selection criteria 40 CFR 228.5 (a) to (e). Both sites meet the general criteria.

Table ES-1. Compliance with General Criteria (40 CFR 228.5)

Statute	Compliance
40 CFR 228.5(a) The dumping of materials into the ocean will be permitted only at sites or in areas selected to minimize the interference of disposal activities with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.	The ZSF specifically screened the marine environment to avoid areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.
40 CFR 228.5(b) Locations and boundaries of disposal sites will be so chosen that temporary perturbances in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.	Both alternative site boundaries are located sufficiently from shore (minimum 10.5 nm [19.5 km]) and fishery resources to allow temporary water quality perturbations caused by dispersion of disposal material to be reduced to ambient conditions before reaching environmentally sensitive areas.
40 CFR 228.5(c) If at any time during or after disposal site evaluation studies, it is determined that existing disposal sites presently approved on an interim basis for ocean dumping do not meet the criteria for site selection set forth in Sections 228.5 through 228.6, the use of such sites will be terminated as soon as suitable alternate disposal sites can be designated.	The interim ODMDS established for Guam does not meet current USEPA criteria. It was never used and the designation was terminated.
40 CFR 228.5(d) The sizes of the ocean disposal sites will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration, and location of any disposal site will be determined as a part of the disposal site evaluation or designation study.	The size and shape of the alternative ODMDS has been determined by computer modeling to limit environmental impacts to the surrounding area and facilitate surveillance and monitoring operations. The designation of the size, configuration, and location of sites was determined as part of this evaluation study.
40 CFR 228.5(e) USEPA will, wherever feasible, designate ocean dumping sites beyond the edge of the continental shelf and other such sites that have been historically used.	The island of Guam is volcanic and not part of a continental land mass and does not have a continental shelf. In the absence of a shelf break, continental shelf can be defined as submerged land between shoreline and depth of 656 ft (200 m). On Guam, this typically occurs within 1 nm (1.9 km) of shore. The slope tends to increase rapidly offshore of Guam and depths can reach 6,000 ft (1.829 km) within 3 nm (5.6 km) (Weston Solutions and Belt Collins 2006). The center points of both ODMDS alternative sites are well beyond the continental shelf, with the closest ODMDS being 11.1 nm (20.6 km) from the shoreline. No ocean dumping sites have been used for Guam dredging projects.

Table ES-2 summarizes the evaluation of the ODMDS alternatives against the 11 USEPA Specific Site Selection Criteria (40 CFR 228.6 (a)). More detail on the existing conditions and potential environmental impacts is presented in Sections 3 and 4.

Table ES-2. ODMDS Alternatives and USEPA Specific Site Selection Criteria

		ODMDS – North Alternative	ODMDS – Northwest Alternative
1	Geographical position, depth of water, bottom topography, and distance from the coast.	Centered at 13° 41.300' N and 144° 36.500' E and 13.7 nm (25.4 km) from Apra Harbor. The bottom topography at the site is flat and the depth is 7,415 ft (2,260 m) (see Figure 2-4, Chapter 2).	Centered at 13° 35.500' N and 144° 28.733' E and 11.1 nm (20.6 km) from Apra Harbor. The bottom topography at the site is flat and the depth is 8,790 ft (2,680 m) (see Figure 2-4, Chapter 2).
2	Location in relation to breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases.	This alternative site is located in a marine open water area away from any special or unique habitats and shares the same general characteristics of the study region.	Same as North Alternative
3	Location in relation to beaches and other amenity areas.	The site is greater than 8.0 nm (14.8 km) from the jurisdictional 3nm coastal zone boundary and unlikely to interfere with coastal amenities.	The site is greater than 10.0 nm (18.5 km) from the jurisdictional 3 nm coastal zone boundary and unlikely to interfere with coastal amenities.
4	Types and quantities of wastes proposed to be disposed of, and proposed methods of release, including methods of packaging the waste, if any.	Dredged material to be disposed will likely be fine-grained material (clays and silts) originating from the Inner Apra Harbor area and coarser-grained material (sands and gravels) originating from the Outer Apra Harbor area. Maximum annual dredged material volumes would be set at 1 mcy (764,555 m^3). Dredged material is expected to be released from split hull barges and no packaging of waste is proposed.	Same as North Alternative
5	Feasibility of surveillance and monitoring.	USEPA (and USACE for federal projects in consultation with USEPA) is responsible for site and compliance monitoring. USCG is responsible for vessel traffic-related monitoring. Monitoring of the disposal site is feasible and facilitated through use of a remote tracking system as specified in the SMMP.	Same as North Alternative
6	Dispersal, horizontal transport, and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any.	Oceanographic current velocities are greatest at the surface due to atmospheric circulation (e.g., wind) driven events while intermediate and bottom layer currents, driven by thermohaline circulation and influenced by tidal circulation, are variable resulting in a 2.86 mile diameter footprint of deposits greater than 1 cm.	Oceanographic current velocities are greatest at the surface due to atmospheric circulation (e.g., wind) driven events while intermediate and bottom layer currents, driven by thermohaline circulation and influenced by tidal circulation, are variable resulting in a 2.98 mile diameter footprint of deposits greater than 1 cm.
7	Existence and effects of current and previous discharges and dumping in the area (including cumulative effects).	No evidence of previous dumping activities was observed during field reconnaissance and there are no designated discharge areas in the vicinity.	Same as North Alternative

		ODMDS – North Alternative	ODMDS – Northwest Alternative
8	Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance, and other legitimate uses of the ocean.	Minor short-term interferences with commercial and recreational boat traffic due to the transport of dredged material along established shipping lanes to/from ODMDS. There is no oil or other mineral extraction platforms offshore of Guam. The site has not been identified as an area of special scientific importance. There are no fish/shellfish culture enterprises near the site. There may be recreational vessels passing through the site, but the area is not a recreational destination.	Same as North Alternative
9	Existing water quality and ecology of the site as determined by available data or by trend assessment or baseline surveys.	Water quality is excellent with no evidence of degradation.	Same as North Alternative
10	Potentiality for the development or recruitment of nuisance species in the disposal site.	Unknown, but due to the great water depth and temperature differences between the disposal site and the potential near shore dredge areas it is unlikely that any transported nuisance species would survive at the ODMDS.	Same as North Alternative
11	Existence at, or in close proximity to, the site of any significant natural or cultural features of historical importance.	No culturally significant natural or cultural features were identified in the vicinity of the ODMDS.	Same as North Alternative

Conclusion

The No Action Alternative does not meet the goals and objectives for the designation of an offshore site for the disposal of dredged material anticipated to be generated in Apra Harbor and elsewhere around Guam. Impacts resulting from disposal of suitable dredged material under the Preferred Alternative (Northwest Alternative) are expected to be minimal for the following reasons:

- The availability of an offshore disposal site provides more flexibility in managing the dredged material disposal needs for the region;
- Air quality impacts are anticipated to be potentially significant for the No Action Alternative. These potentially significant air quality impacts can be reduced through the designation of a dredged material disposal site. In contrast, air quality impacts associated with North and Northwest Alternatives are not anticipated to be significant;
- Computer simulations of regional and site specific ocean currents in conjunction with bathymetric and sediment surveys indicate that the North and Northwest Alternative sites are located in flat non-dispersive areas that are likely to retain dredged material deposited on the ocean floor;
- No significant impacts to other resources or amenity areas (e.g., marine sanctuaries, beaches, etc.) are expected to result regardless which of the alternatives is selected;
- Existing and potential fisheries resources within the North and Northwest Alternative sites are temporally and spatially dynamic with individual species having greater ranges than the area of the proposed disposal site, such that the relative percentage of the potentially impacted area in relation to the entire fishery (within an 18 nm [33 km] arc from Apra Harbor) is small (e.g., less than 1%). Furthermore, there were no uniquely

distinguishable characteristics of the upper water column (e.g., shallower than 656 ft [200 m]) within or near the proposed disposal sites that would concentrate the pelagic fishery or their prey in these areas;

- Potential impacts to benthic infauna and epifauna are anticipated to be temporary and limited to the area within the North and Northwest Alternative site boundaries and thus not significant; and
- Potential impacts to fishes, marine mammals, seabirds, and other midwater organisms are expected to be insignificant regardless which of the alternatives is selected.

Table ES-3 summarizes the potential impacts to resource areas for both the North and Northwest Alternative ODMDS locations. No significant adverse impacts were identified under either ODMDS alternative and no mitigation is proposed beyond the standard conditions and operating procedures presented in the site management and monitoring plan, including avoidance of dredging and disposal during coral spawning periods (Appendix C).

Table ES-3. ODMDS Alternatives, Summary of Impacts

		ODMDS – North Alternative	ODMDS – Northwest Alternative
1	Air Quality	Less than Significant	Same as North Alternative
2	Water Quality	Less than Significant	Same as North Alternative
3	Sediment Quality	Less than Significant	Same as North Alternative
4	Marine Birds, Mammals and Fish	Less than Significant	Same as North Alternative
5	Benthic Communities	Less than Significant	Same as North Alternative
6	Threatened and Endangered Species	Less than Significant	Same as North Alternative
7	Marine Protected Areas	Less than Significant	Same as North Alternative
8	Recreational Use	Less than Significant	Same as North Alternative
9	Commercial Use	Less than Significant	Same as North Alternative
10	Cultural Resources	Less than Significant	Same as North Alternative
11	Public Health and Welfare	Less than Significant	Same as North Alternative

The ODMDS alternatives are not readily distinguishable from each other based on water quality and sediment quality. Both ODMDS alternatives have similar physical and biological properties and there would be less than significant impacts to other resource areas evaluated in this Environmental Impact Statement (EIS) (see Table ES-3). However, the Northwest Alternative is closer to Apra Harbor and farther away from FADS and the Visual Resource Area defined in the ZSF than the North Alternative (see Figure 2-3, Chapter 2). By reducing the distance needed to travel to the ODMDS, the already less-than-significant potential impacts to air quality are further reduced in addition to reductions in fossil-fuel consumption, operational duration, and operating costs. Based on these differences, the Northwest Alternative is the Environmentally Preferred Alternative and the Proposed Action.