ENVIRONMENTAL IMPACT ANALYSIS

PROCESS

Department of the Air Force
Pacific Air Forces

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FINAL

ENVIRONMENTAL ASSESSMENT

Prepared by
DEPARTMENT OF THE AIR FORCE
PACIFIC AIR FORCES
633 CES/DEV
Andersen AFB, Guam
APO AP 96543-5000

ENVIRONMENTAL FLIGHT

SUMMARY

The Air Force proposes to designate a Marine Resources Preserve on Andersen Air Force Bases's coastline, for the protection and enhancement of critical island marine resources. Ocean currents at this northern location disperse larvae, molluscs, and corals to seed the Island's central and southern reefs. Fishing pressure is increasing on the north end of Guam as other areas become less attractive. The increased harvest and use in these waters makes it imperative for us to assess current and projected uses to take conservation actions and ensure resources won't be depleted for future generations.

Official designation of this unique marine ecosystem will provide the leverage needed to receive funding to develop and administer scientific, conservation, and public education programs for proper marine resources management.

A draft Environmental Assessment (EA) for the proposed marine preserve was forwarded to all cooperating agencies 24 Feb 92 for 30 day comment and review. A public meeting was held at the Mangilao Community Center 18 Mar 92. The comments received were considered and incorporated into this final EA for the proposed action.

The proposed action of the preferred Alternative 2 in the draft EA was to prohibit all fishing including trolling and bottom fishing in the area from the east side of Tarague beach to the tip of Pati Point, except hook and line fishing from the shoreline. Serious consideration was given to public comments and concerns expressed and significant changes to the original proposal have been made. Alternative 2 has been revised to allow trolling and bottom fishing from a boat, allow hook and line fishing from the shoreline, but to prohibit spear and net fishing. Spear and net fishing have historically been prohibited on Andersen AFB but not enforced regularily.

Fishermen opposed the proposal to prohibit fishing, particularily subsistence fishing in these waters. Although enforcement would be easier if all methods of fishing in the designated area were prohibited, trolling and bottom fishing would not interfere with the objectives of the preserve since fish taken by these methods are primarily migratory and deep dwelling fish.

The significant decline in actual numbers of fish and the numbers of species in the last five years can be attributed to spear fishing, particularily spear fishing while on scuba gear. Since this north part of the Island plays such an important role in dispersing juveniles and sub-adult size fish to southern parts of the Island, spear fishing will continue to be banned and supplemented with a strict enforcement program. The ban on net or spearfishing will be enforced within the northwest and southeast preserve boundaries, to any seaward distance that it is observed by enforcement officials.

Allowing one method of fishing and not another may be difficult to enforce, but to overcome this and taking into consideration the comments submitted by pro-marine conservation individuals and agencies, the preserve boundary will be extended around Pati Point to Andersen's southern most property boundary at Anao Point. These changes will allow trolling and bottomfishing to continue and still prevent the demise of large bottom-dwelling fish which are responsible for the numbers and species diversity of reef fish in virtually all other waters around the Island.

The University of Guam Marine Lab, Guam Division of Aquatic and Wildlife Resources, and Andersen's Environmental Management Office will work together, through assessment and monitoring of the marine ecosystem, to gain the knowledge needed to most effectively manage our marine resources. The findings will be used to produce a management plan which will be available to all for the enhancement of recreational and commercial resources throughout the Island, now and for future generations.

This environmental assessment has led to a Finding of No Significant Impact (FONSI). This EA is forwarded for public comment and review. The comment period will close 30 days after the date marked on the transmittal letter for this EA. Written comments may be forwarded to 633 CES/DEV, Unit 14007, Andersen AFB, Guam, APO AP, 96543-5000. Copies of the EA may be obtained at the locations mentioned in Section 5.0. Following the 30 day public comment period, concerns and comments submitted will be considered, revisions incorporated, followed by the official designation of the Marine Resources Preserve.

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1.0 PURPOSE AND NEED FOR ACTION

The Air Force proposes to designate a Marine Resources Preserve on Andersen Air Force Bases' coastline, for the protection and enhancement of critical island marine resources. A Marine Resources Preserve with the necessary baseline data will support a marine resources management plan for a portion of Guam's northern coastline. The application of resource and recreation management techniques, coupled with the routine monitoring of habitats and their ecosystems, will provide the knowledge needed to improve marine resources management. This knowledge or management plan will be available to all for the enhancement of recreational and commercial resources throughout the Island, now and for future generations.

With the ever increasing pressure on Guam's coastal reefs and related resources, the need for a marine preserve is evident. By protecting populations of fish, molluscs and coral, we ensure there will be seed produced to replenish areas which are presently being depleted and damaged. Ocean currents at this proposed northern location carry larvae and juveniles of fish and invertebrates to both sides of the Island. Establishment of a marine resources preserve is the most practical approach for protecting and enhancing populations of marine animals through their entire life cycle.

The need for preserve designation is shown by the severe pressure being exerted on Guam's inshore fisheries (Guam Division of Aquatic and Wildlife Resources (DAWR), FY 87-91 Annual Reports). The reports indicate a decline in both abundance and diversity of fish, invertebrate and coral species throughout the Island.

Designation of this particular proposed site is strongly endorsed by the University of Guam (UOG) Marine Laboratory. Professors of the Marine Lab conducted a survey of the proposed site and found a high diversity, abundance and presence of adults capable of breeding, making this area extremely valuable to the future of Guam's marine resources (Dr Richmond, Dr Amesbury, 1991, Appendix A).

Designation of a MRP is endorsed by the Guam DAWR. The Division has implemented a program to establish marine conservation areas (Project No. FW-2R-26, Job 12) on Guam. The focus of the program is to identify areas which have significant resource value worthy of establishing a managment program to enhance and protect Guam's resources. Eight marine areas, from Ipan to Tumon Bay, have been identified as candidate sites and are proposed to the Guam Legislature to be adopted as Marine Conservation Areas. Andersen AFB works closely with the Division and, in this spirit is paralleling the project by proposing the designation of a Marine Resources Preserve.

The need is further supported due to the fragile nature of the Island's reef ecosystems. Because tropical coral reefs host so many species of fish, molluscs, and corals, it is impossible to manage individual species. Individual listing of threatened or endangered species on the Federal Register is more often than not, too late to provide the protection necessary to sustain the species of concern. Species protection must begin with management of the entire habitat upon which species are dependent. Such preserves can

enhance reproductive output by providing populations an opportunity to reach densities high enough for spawning to be successful. In turn, species abundance and diversity will increase in the protected area as well as other areas around Guam.

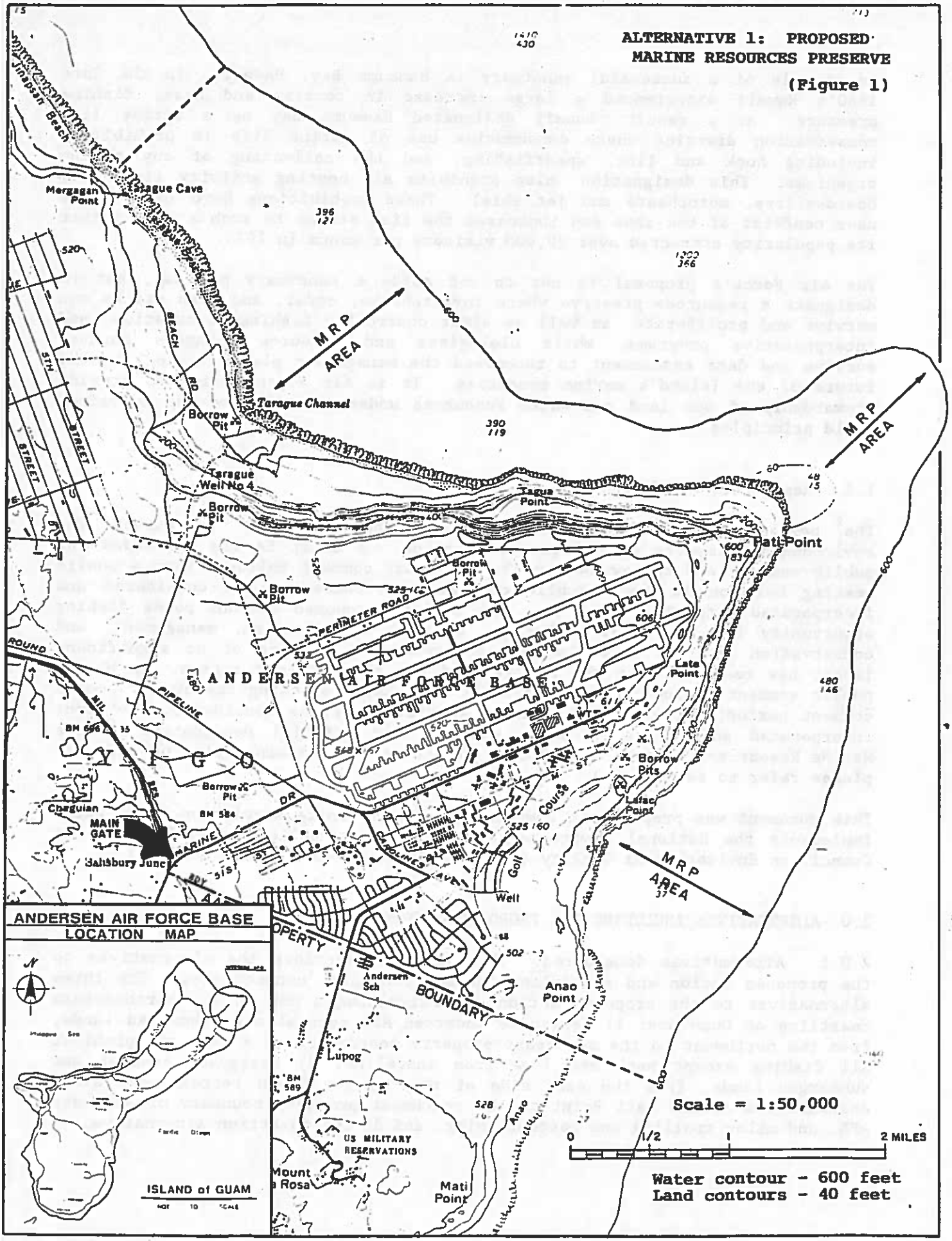
1.0.1 Site Selection. The proposed area under consideration for designation is located along the perimeter of the Andersen AFB property coastline on northeastern Guam, (fig 1, vicinity map). The proposed Marine Resources Preserve (MRP) site location was selected based on the following benefits and associated designation objectives: 1) the coastal currents at this location carry larvae to seed reefs on both sides of the Island, 2) the access requirements to base properties will continue to keep the molluscs, coral, fish and invertebrate harvest pressure at a minimum, 3) the present Andersen AFB regulations governing the safety, commercial fisheries, and recreational uses of the waters keep user conflict to a minimum, and 4) the area provides excellent research and educational opportunities through the inventorying and monitoring of the reef habitat condition, which will be of value to scientists, fishermen, and the residents of Guam and Micronesia.

1.0.2. Interagency Coordination. In considering the proposal to designate a MRP, the 633rd Environmental Flight consulted with the Guam DAWR, UOG Marine Lab, US Fish & Wildlife Service, National Marine Fisheries Service, and sea turtle expert from the Institue of Ecology, University of Georgia, Dr. James I. Richardson. The Guam DAWR, and the UOG Marine Lab provided background information, relevant biological data, future long-term management support, references, recommendations, and site investigations.

1.0.3. Issues - Scoping. Issues considered throughout this environmental assessment (EA) were primarily, conditions for use, impact of a reduction in waters open to recreational or commercial fishing, biologic and social impacts of the proposed designation, and funding and enforcement considerations. Funding for the baseline data gathering, monitoring, and enforcement of the proposed designation may come from the Air Force, through the DoD Legacy Resources Managment Program, or other environmental management/compliance funding sources. Manpower for monitoring, data assessment, expertise, and management recommendations would be contributed jointly by the Guam DAWR and the UOG Marine Lab.

1.0.3.1. Background Information. Other reef related management practices or actions taking place in the Pacific were considered. Public support has been received in the movement to create a Marine Life Conservation District for Waikiki, Hawaii. Marine Sanctuaries not only serve divers and snorkelers, but also allow fish, lobsters, etc., to grow to full reproductive size. Their larvae can then settle in areas that are overexploited. Fisheries biologists have long known that closing areas to fishing makes for better fishing overall (Honolulu Advertiser, 6 Feb 92). Currently there are no known marine conservation areas in Micronesia.

Marine sanctuaries have become an effective tool for managing tropical multi-species fisheries. A sanctuary reserves an area for the protection of marine resources for the enjoyment of non-consumptive recreational users and to provide refuge for breeding stocks that will replenish the island's reefs with juveniles (Sherwood, 1989).


ALTERNATIVE 1: PROPOSED MARINE RESOURCES PRESERVE
(Figure 1)
Jinapsan Beach
Mergagan Point
Tarague Cave
MRP AREA
Tarague Channel
Borrow Pit
Tarague Well No 4
Tagua Point
Mati Point
PERIMETER ROAD
ANDERSEN AIR FORCE BASE
Late Point
Borrow Pits
Lafac Point
Golf Course
Well
PIPELINE
MAIN GATE
Salisbury Junc
Chaguian
MARINE
BOUNDARY
Andersen Sch
Anao Point
Lupog
US MILITARY RESERVATIONS
Mount Rosa
Mati Point
Anao
ANDERSEN AIR FORCE BASE
LOCATION MAP
ISLAND of GUAM
Scale = 1:50,000
0 1/2 1 2 MILES
Water contour - 600 feet
Land contours - 40 feet

An example of a successful sanctuary is Hanauma Bay, Hawaii. In the late 1960's Hawaii experienced a large increase in tourism and heavy fishing pressure. As a result, Hawaii designated Hanauma Bay as a marine life conservation district where consumptive use of marine life is prohibited, including hook and line, spearfishing, and the collecting of any marine organisms. This designation also prohibits all boating activity (including boardsailers, motorboats and jet skis). These prohibitions have lowered the user conflict of the area and increased the fish stocks to such a degree that its popularity attracted over 20,000 visitors per month in 1975.

The Air Force's proposal is not to set aside a sanctuary per say, but to designate a resources preserve where invertebrate, coral, and fish stocks can survive and proliferate, as well as offer controlled fishing, recreation, and interpretative programs, while biologists and resource managers conduct surveys and data assessment to recommend the management plans critical to the future of the Island's marine resources. It is Air Force policy to provide stewardship of our land and water resources under multiple-use and sustained yield principles.

1.1. Regulatory Compliance

The purpose of this Environmental Assessment (EA) is to assess the environmental impacts of the proposed action. A draft EA was forwarded for public comment and review 24 Mar 92. A 30 day comment followed with a public meeting held on 18 May. Public comments and concerns were considered and incorporated into this final EA. The revised proposed actions poses fishing opportunity for the local fisherman, as well as education, management, and conservation for the Island marine ecosystem. A finding of no significant impact has resulted from the EA prepared for the proposed action. A 30 day public comment period is being held for this EA. Following the 30 day public comment period, concerns and comments submitted will be considered, revisions incorporated and, given no major changes, the official designation of the Marine Resources Preserve will become effective. To obtain copies of this EA, please refer to section 5.0.

This document was prepared in compliance with Air Force Regulation 19-2, which implements the National Environmental Policy Act, Public Law 91-190 and the Council on Environmental Quality (CEQ) regulations (40 CFR 1500 et seq.).

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION.

2.0.1. Alternatives Considered. This section describes the alternatives to the proposed action and summarizes the environmental consequences. The three alternatives to the proposed action of designating a MRP on the northeastern coastline of Guam are; 1) designate Andersen AFB coastal and submerged lands, from the northwest to the southeast property boundaries as a MRP, and prohibit all fishing except hook and line from shoreline, 2) designate coastal and submerged lands, from the east side of the Tarague Beach recreational area, eastward and around Pati Point to the southeast property boundary of Andersen AFB, and allow trolling and bottomfishing, and 3) the no-action alternative.

2.1. Alternative 1 - Considers designating Andersen AFB coastal and submerged lands, from the northwest to the southeast property boundaries. Designation would include the area from 20 meters landward beyond the mean high tide mark and extending seaward to the 600 ft depth contour (fig 1).

2.1.1. Conditions for Use. Designation would mean abiding to the existing Andersen AFB and the Government of Guam recreational use and taking and harvesting regulations. This includes no fishing with nets, spears, spear-guns, dynamite or chlorine, with the addition of prohibiting bottom-fishing. Fishing from boats would be illegal in these waters. With the exception of this addition, hook and line fishing from the shore would be the only means of fishing permitted. A fishing by permit program will be implemented which will provide monitoring data to the management plan.

2.1.2. Reduction of Uncontrolled Waters. Closure of bottomfishing, netting, and spearfishing within the proposed area would eliminate a portion of the Island's fishing resources to commercial and recreational fishing. The distance of the 600 ft depth contour from Taragüe to Anao Point is approximately 9.3 miles long. Boats themselves would be permitted in these waters although, fishing from them would be illegal.

2.1.3. Enforcement and Funding. A buoyage would be installed at the north and south MRP boundaries. This system of buoys would then extend along the 600 ft depth contour with buoys set at key locations so that boats operators would know when they were crossing into the MRP. A strong enforcement program would be required to meet the objectives of this proposed action.

Cost estimates for the installation this buoy system would be derived and submitted to the appropriate Air Force office for funding. Enforcement program options with associated cost estimates would need to be considered to meet the objectives of Alternative 1.

2.1.4. Biologic Impacts. Designation of a preserve this size would protect substantial populations of critical marine resources including fish, corals, decapods, crustaceans, and molluscs. Ocean currents at this north and northeastern location will move corals, larvae and invertebrate to seed the Island's central and southern reefs.

Large bottom-dwelling fish such as wrasses and parrotfish, which are primarily responsible for the genetic base and propagation of these species' population size (due to their logrithmic reproductive characteristics) are often found in the northern waters due to the relative inaccessibility and, are rarely observed elsewhere on Guam in recent years. Spearfishing, with use of scuba gear or by free-diving, targets these large fish and is primarily responsible for their demise. By prohibiting spearfishing the protection needed to insure successful recruitment of juveniles to seed the populations would be realized. With time, these species would begin to appear again in the waters around Guam, due to north to south movement of coastal currents which serve to disperse larvae.

2.1.5. Social Impacts. The protection of marine resources as proposed in Alternative 1 would increase species abundance and diversity on all areas of the Island. Non-consumptive recreationists, fishermen, and potentially the tourist industry, would enjoy the benefits of increased marine resources

abundance through the designation of a MRP as proposed in Alternative 1. Prohibition of spearfishing outside the reef margin may disappoint fishermen, but user conflict is common when recreational or biological management objectives are establishd in popular or unique areas. Conservation and management techniques are inevitable when consumptive use exceeds species population levels. Spearfishing has been banned in most other Pacific Islands, i.e., Hawaii, Phillipines, and Australia.

2.2. Alternative 2 - Considers designation of Andersen AFB submerged and coastal lands from the east end of Tarague Beach, eastward around Pati Point and south to the base's southeast property boundary as a MRP. Designation would include the area from 20 meters landward beyond the mean high tide mark, extending seaward to the point where spearfishing is unfeasible.

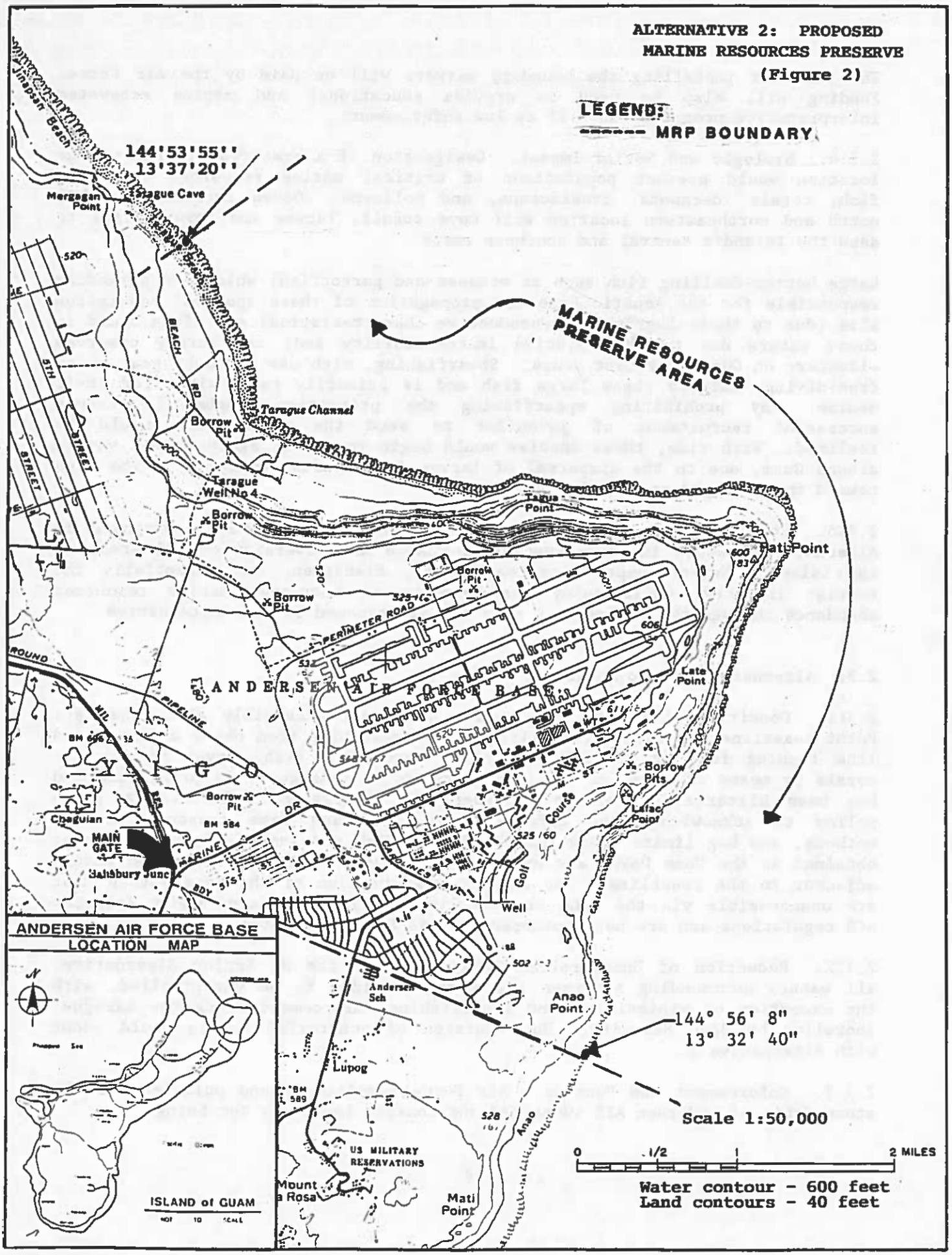
2.2.1. Conditions for Use. Designation would mean abiding to the existing Andersen AFB and the Government of Guam recreational use and taking and harvesting regulations. This includes no fishing with nets, spears, spear-guns, dynamite or chlorine. Fishing and scuba diving from boats in the area would be legal with the exception of spear fishing. Spear and net fishing on Andersen AFB have been prohibited historically but not enforced. Spear fishing of any kind at any location around Pati Point will be strongly enforced. Hook and line fishing from the shore which has been allowed historically on Andersen will continue. However, a fishing by permit program will be implemented which will assist with monitoring species response to application of conservation techniques.

2.2.2. Reduction of Uncontrolled Waters. This part of the island's coastline has historically prohibited spear or net fishing. There would be no further reduction of waters available for spear or net fishing to the subsistence or recreational fishermen. Strict enforcement of no spear or net-fishing within the proposed area should deter the illegal fishing that now occurs. Establishment of an area where species can reach densities high enough for successful recruitment to the population will serve to increase the numbers of fish found elsewhere in the waters around Guam. Eventually successful fishing harvest in waters south and west of the marine resources preserve should increase.

2.2.3. Enforcement and Funding. MRP boundary markers would be installed at the coordinates shown on fig 2. From Pati Point, a line of sight to Anao Point and to the east side of the Tarague Recreational can be established. With the installation of boundary markers at each end, boat operators would know exactly when they were in the MRP.

Extension of the MRP boundary around Pati Point will provide a buffer for enforcement. Enforcement officials will be able to observe both sides of the coastline to deter illegal fishers. This way there will be no question as to where spearfishing is allowed or not.

The waters inside the reef margin have historically been prohibited to any form of net or spearfishing, however, enforcement has been irregular and inadequate. Designation would serve to relieve the increasing fishing pressure through public notice of the MRP, education programs, and funding to strengthen enforcement of the regulations.


ALTERNATIVE 2: PROPOSED
MARINE RESOURCES PRESERVE
(Figure 2)
LEGEND:
------ MRP BOUNDARY
144'53'55''
13'37'20''
MARINE RESOURCES PRESERVE AREA
Jinapsan Beach
Mergagan Point
Tarague Cave
Tarague Channel
Borrow Pit
Tarague Well No 4
Tarague Point
Mati Point
Late Point
Lafac Point
Anao Point
ANDERSEN AIR FORCE BASE
PERIMETER ROAD
PIPELINE
YIGO
Chaguian
MAIN GATE
Salisbury Junc
Borrow Pits
Golf Course
Well
Andersen Sch
Lupog
Anao
US MILITARY RESERVATIONS
Mount a Rosa
144° 56' 8"
13° 32' 40"
Scale 1:50,000
0 1/2 1 2 MILES
Water contour - 600 feet
Land contours - 40 feet
ANDERSEN AIR FORCE BASE
LOCATION MAP
ISLAND of GUAM

The cost for installing the boundary markers will be paid by the Air Force. Funding will also be used to provide educational and marine ecosystem interpretative programs, as well as law enforcement.

2.2.4. Biologic and Social Impact. Designation of a preserve at this unique location would protect populations of critical marine resources including fish, corals, decapods, crustaceans, and molluscs. Ocean currents at this north and northeastern location will move corals, larvae and invertebrate to seed the Island's central and southern reefs.

Large bottom-dwelling fish such as wrasses and parrotfish, which are primarily responsible for the genetic base and propagation of these species' population size (due to their logrithmic reproductive characteristics) are often found in these waters due to the relative inaccessibility and, are rarely observed elsewhere on Guam in recent years. Spearfishing, with use of scuba gear or by free-diving, targets these large fish and is primarily responsible for their demise. By prohibiting spearfishing the protection needed to insure successful recruitment of juveniles to seed the populations would be realized. With time, these species would begin to appear again in the waters around Guam, due to the dispersal of larvae from coastal currents in the area toward the southern end of the island.

2.2.5. Social Impacts. The protection of marine resources as proposed in Alternative 2 would increase species abundance and diversity on all areas of the Island. Non-consumptive recreationists, fishermen, and potentially the tourist industry, would enjoy the benefits of increased marine resources abundance through the designation of a MRP as proposed in this Alternative.

2.3. Alternative 3 - No Action or Status Quo.

2.3.1. Conditions for Use. The waters which are accessible along the Pati Point coastline are open for trolling or bottomfishing from boats and hook and line fishing from the shoreline, only. Harvesting fish, invertrebrate, or corals by means of nets (of any kind), spears or spearguns, is prohibited and has been historically through Andersen AFB Regulations. It is Air Force policy to acknowledge and enforce State Fish and Game seasons, harvest methods, and bag limits. Government of Guam fish and game laws, which can be obtained at the Guam DAWR, are enforced on Andersen AFB properties and waters adjacent to the coastline. The eastern most portion of the base waters that are unaccessible via the land or coastline are not addressed under Andersen AFB regulations and are not monitored by Base Security Police.

2.3.2. Reduction of Uncontrolled Waters. Under the No Action Alternative, all waters surrounding Andersen AFB would continue to be uncontrolled, with the exception of minimal net and spearfishing enforcement along the Tarague shoreline by Base Security. No reduction of controlled waters would occur with Alternative 3.

2.3.3. Enforcement and Funding. Air Force Regulations and policies for the stewardship of Andersen AFB submerged and coastal lands are not being

fulfilled through status quo management. Unless budgets are increased to support management, preservation, and protection objectives, the resources will continue to deteriorate as the local economy grows. Educational and scientific values play an integral part in marine resources conservation, which are overlooked as a result of the military turnover and current management practices. Status quo management alone cannot provide the protection and conservation techniques needed at this time.

2.3.4. Biologic and Social Impact. Species abundance and diversity are slowly declining in the waters around Guam, partially due to lack of funding to develop and administer adequate scientific and public education programs for proper marine resources management. Boats are regularly seen within the proposed MRP, including considerable scuba/spear fishers at night. Fishing pressure within this proposed and relatively pristine area, will continue to increase as other fishing and/or recreational areas on Guam become less attractive. The no action alternative does not meet the objectives of protection and enhancment of the Island's marine resources.

2.4. Comparison of Alternatives.

2.4.1. Alternative 1. Biologic and Social Impacts. As fishing pressure moves to the northern end of Guam, this proposed action has the potential to afford the resources and people of Guam the greatest benefit. Alternative 1 is the "environmentally preferred" alternative to ensure species recruitment to the ecosystem for future generations.

Reduction of Uncontrolled Waters. This proposal would eliminate a portion of Guam's waters to recreational or commercial fishing. Even though boat access to these waters is limited to the summer months due to the tradewinds and associated rough seas from October through May, boats are seen in these waters virtually year round. Prohibiting fishing from these waters most likely would be felt by the fishing industry.

Prohibition of boats in the area received much opposition from fishermen the the public meeting. After much consideration and as suggested by public comments received, trolling and bottomfishing will be allowed. Trolling and bottom fishing primarily target migratory and deep dwelling species of fish, therefore objectives of the MRP designation will still be met.

Enforcement and funding. Requirements associated with enforcement of the conditions of Alternative 1 would difficult to meet. Due to the lack of public support, and limited access to these waters, coupled with the funding required to establish the MRP boundary bouyage, Alternative 1 was eliminated from further study.

2.4.2. Alternative 2. Air Force Preferred Alternative.

Biologic and Social Impact. The movement of ocean currents at this location makes it an important source area for reseeding Guam's central and southern reefs with larvae and juveniles of fish and invertebrates. The high

diversity, abundance, and presence of adults capable of breeding makes this area critical to the future of Guam's marine resources (Appendix A). The prohibition of sprearfishing in order to protect the large adult fish which are responsible for populations recruitment, will reap tremendous benefits for both the ecosystem and recreationists.

Reduction of Uncontrolled Waters. Enforcement of no spear or net fishing around Pati Point will be a minor reduction of controlled waters. Trolling and bottomfishing will continue to be allowed. Little impact will be felt by the commercial or recreational fisher due to the limited seasonal access (rough seas October through May) to these waters. This is in comparison to the remainder of the Island's uncontrolled and accessible fishing waters, open year round.

Enforcement and Funding. Enforcement of no spear or net fishing will be conducted primarily from the shore. If law enforcement personnel identify individuals spear or net fishing, they will be debarred from the base. Second time offenders will prosecuted on Federal trespassing charges. Illegal fishing from boats will also be enforced by means of obtaining boat numbers with follow-up notification of debarment from the base or Federal trespasssing charges.

Funding requirements to support the baseline inventory, interpretative and enforcement programs are to be received through the Department of Defense Legacy Resources Management Program.

2.4.3. Alternative 3. The no-action alternative would not meet the objectives of the proposed action. The contribution this area makes to the island marine resources is important and worthy of MRP designation. Interagency acknowledgement of the site characteristics would support the funding public education and enforcement requirements necessary to prevent the overharvesting of marine resources and degradation of reef quality that is forseen if no action is taken. Alternative 3 was eliminated from further study.

3.0 AFFECTED ENVIRONMENT

3.0.1. This section presents the existing environmental characteristics, uses, and regulations that govern the area within the proposed action of Alternative 2.

3.1. Location. The proposed MRP is located between coordinates 13° 37' 20''N, and 144° 53' 55 ''E at the east boundary of the Tarague Beach recreation area and coordinates 13° 32' 40''N and, 144° 56' 56''E at Anao Point. And, extending 20 m landward of the mean high tide mark, then seaward to the distance that spearfishing is unfeasible (fig 2).

3.1.1 MRP Size. The distance between the coordinates is estimated to be 9.3 miles. To provide protection for endangered and threatened turtles, the MRP includes 20 meters landward beyond the high tide water mark. To protect species of reef fish (i.e., wrasse, parrotfish) enforcement will extend to any distance that spear or net fishing is observed.

3.1.2. Conditions for Use (Current Uses). A minimal amount of aquatic activities can or are currently permitted to take place within the proposed MRP due to the hazardous surf conditions and safety concerns that occur here. Andersen AFB Regulations governing the safety, consumptive, and recreational uses of these waters, historically and currently prohibit; 1) reef walking, 2) wading in water greater than ankle depth, 3) swimming, 4) spearfishing, 5) net fishing and, 6) any other consumptive uses or taking of species not in accordance with the Government of Guam regulations (i.e., taking of live coral, spiny lobsters weighing less than 1 lb or carrying eggs, etc.).

Recreational and consumptive uses permitted at this time include hook and line fishing from the shore, scuba diving in accordance with base regulations, and boating outside the reef margin. Andersen AFB Regulation 126-1, Conservation and Management of Natural Resouces, prohibits spearfishing, net fishing, and chumming in waters that are under the control of Andersen AFB.

3.2 Description of Area. The coastline consists of benches, limestone outcrops, and rolling shores. Small portions lack a bench entirely. This entire stretch of coastline is extremely rugged and nearly inaccessible from October through May,

3.2.1 Coastal Currents. Surface currents, subtropical countercurrents, and nearshore currents have been surveyed in Guam and Micronesia (Huddell, Willett, Marchand, 1974). Reports indicate that the currents' movement, coupled with offshore winds and tidal action at the northern end of the Guam, flow in a southern direction. All evidence indicates that the coastal currents at the proposed MRP location move, carry, and disperse marine organisms such as coral, fish larvae, and invertebrate, to seed both sides of the Island.

3.2.2. Reef Zones. From Tagua Point westward to and including Tarague Beach, the coastline is bordered by a fringing reef. The seaward portion of the reef flat consists of a well-developed algal (Porolithon) ridge intersected and undercut by numerous surge channels. This algal ridge is interrupted at Tarague Channel, also known as Scuba Cut. The reef flat adjacent to Tarague Beach has a well-developed moat which contains up to a meter of water at the lowest tides. The inner portion of the moat consists of a sandy substrate which supports extensive stand of the seagrass (Halodule uninervis) which consolidates the sediment giving the bottom a somewhat uneven profile. The outer portion is primarily hard-bottomed consolidated limestone with scattered ramose Acropora and Pocillopora corals. Another shallower (perhaps 0.5 m deep at the lowest tides) moat stretches for about a kilometer on either side of Scuba Cut. This moat, unlike the Tarague Beach moat, lacks seagrasses and has only a thin veneer of sand. It also contains large thickets of staghorn coral, primarily Acropora aspera that are essentially absent in the Tarague moat. The deepest portions of this moat are at the head of Tarague Channel. Here water flow and coral development are the greatest and there are numerous patches of mixed corals and scattered ramose Acropora and Pocillopora coral heads.

The outer reef slope of Guam drops off steeply. Between Tagua and Pati Points the 100 fathom (182 m) contour comes to within 0.6 km of shore. To the west the bottom slopes more gradually with the 600 fathom (one fm = 6 ft) contour located approximately 2 to 2.2 km from the reef margin from Taragüe Channel to points west. The upper-most portion of the outer reef slope consists of an extensive "spur and groove" zone that is a seaward extension of the ridges and channels of the algal ridge (also known as the reef front). The shoreward floor of these channels typically consists of rounded rocks and boulders grading into coarse sand with increasing depth. On most of Guam's exposed reefs, these sand-bottomed channels extend perpendicular to the reef, some to depths of over 30 m. At the base of the reef front (typically at 4 to 8 m) there is often a gently-sloping shelf, the submarine shelf, that extends seaward to depths of 10 to 25 m or more, followed by a relatively steep slope (46-60) that sometimes ends on a sandy shelf at depths of 40 to 60 m. Most hard-bottomed areas of the outer reef slope at depths of less than 60 m normally support a luxuriant and diverse community of scleractinian corals. (Much of Guam's outer reef slope has recently been reinvaded by the crown-of-thorns starfish, Acanthaster planci resulting in deunidation of much of the coral cover). The extent of reef damage or recovery as a result of the invasion within the proposed MRP is unknown at this time. The flatter areas of the outer reef slope often contain large patches of sand or extensive areas of large coral mounds surrounded by areas of sand.

3.2.3. Accessibility. The inner reef flat and moats west of Tagua Point are accessible most of the year due to the protection of the outer reef flat and algal ridge. The cut at Taragüe Channel (and Taragüe Beach) remain treacherous during the months of October through May due to constant outflowing currents. Longshore currents flowing towards these breaks in the reef are present whenever there is significant surf. An outgoing tide can also produce the same currents when there is no surf. During the months of June to September, the surf dies down due to slackening of the trade winds and the disappearance of storms and associated cold fronts north of Guam. It is during this calm season that the outer reef slope becomes accessible to scuba divers and snorkelers entering through Scuba Cut or from the ocean side by boat.

3.2.4. Resources. An initial survey of the proposed Marine Resources Preserve was conducted by the UOG Marine Lab on 30 Jul 91 (Appendix A). Other than this recent preliminary assessment, the waters within the jurisdiction of Andersen Air Force base have never been studied specifically. However, numerous studies have been conducted elsewhere on Guam and the Marianas, which are representative of the proposed MRP. The findings of the three most comprehensive surveys (Jones and Chase, 1975; Molina, 1983; and Myers, 1982) conducted by the UOG Marine Lab and DAWR are combined with the 30 Jul 91 UOG Marine Lab initial assessment findings and are discussed in the following sections.

3.2.4.1. Fishes. As many as 863 species of fishes in 106 families have been recorded from the inshore and near-shore surface waters (to a depth of 200 m) of the Marianas (Myers, 1989). All but 22 of these have been recorded from Guam. The majority of these are associated with coral reefs and occur at depth of 30 m or less. With the exception of a few species identified with deep lagoons, all of these species characteristic of reef flats, shallow moats, and seaward reefs would be expected to be found within the proposed MRP.

The 30 Jul 91 UOG Marine Lab survey reports an impressive fish fauna within the base waters, to include a variety of trophic types, including herbivores, omnivores, carnivores and some planktivores. Of particular note was the presence of all three phases of the sequentially hermaphroditic wrasse Coris aygula, including immature juveniles, transition phase, and terminal phase fish. This fish is not abundant on Guam, and the presence of all three phases is a unique observation for the island. Fish size both in the lagoon and outside the reef was noticeably larger than on other reefs.

Major families containing species that are expected to be found within the proposed MRP, and which are currently heavily exploited around the island, include; holocentrids (squirrelfish), serranids (groupers), carangids (jacks), lutjanids (snappers), lethrinids (emperors), haemulids (sweetlips), mullids (goatfishes), kyphosids (rudderfish), labrids (wrasses), scarids (parrotfish), acanthurids (surgeonfishes), and siganids (rabbitfish). Certain species such as the giant humphead parrotfish, Bolbometopon muricatum are rare elsewhere on Guam but probably more common in the proposed area due to the inaccessibility.

Fish utilize a wide variety of habitats throughout their lifecycle, therefore protection is important to the survivability, maturity, and reproduction of the species. An example of a lifecycle is that of the locally known e'e' (Caranx sp.). E'e' are juvenile jacks that have newly recruited onto the reef. One reason for this recruitment is a change in diet, for micro-invertebrates (while at sea) to small crustaceans and fish (which are plentiful along the shoreline). As these fish mature, they move from the shoreline into deeper water and take up residence on the outer reef margin as adults. During the reproduction phase, eggs are released and sink. After a few days, larvae hatch from the reefs, drift to sea, and begin to feed on micro-invertebrates. The development of the larvae takes from 30 to 60 days after which these fish then return to the reef and start to feed on small crustaceans, thus, restarting the cycle (Sherwood, 1989).

In addition to the economically important fishes, numerous smaller reef fishes occur in the area. Major groups include apagonids (cardinalfish), chaetodontids (butterflyfish), pomacanthids (angelfish), pomacentrids (damselfish), blenniids (blennies), gobiids (gobies), balistids (triggerfish), monacanthids (filefish), and tetradontids (puffers) as well as smaller species mentioned in the previous paragraph.

3.2.4.2. Marine Fauna. The 30 Jul 91 UOG Marine Lab survey reports that the beach environment exhibits both infauna and epifauna, including several species of crabs. The lagoon contains a rich fish fauna, numerous coral species and growth forms (ecomorphs), several species of commercially valuable sea cucumbers (Holothuria nobilis, Bohadschia marmorata, Holothuria nobilis), echinoids, annelids (amphinomids, sabellids and serpulids), and representatives of virtually all shallow water invertebrate phyla.

3.2.4.3. Corals. The July 91 UOG Marine Lab survey reports the lagoon within the proposed MRP to contain a number of porites microatolls, as well as sizable patches of Acropora (staghorn corals). This is significant as they provide habitat for other species of invertebrates and fishes. The outer reef has a very diverse coral fauna, with over 45 species encountered within a 200 m transect. The abundance and diversity of Acroporid corals makes this area an important source of larvae for the synchronous spawning events that occur on Guam's reefs. During the survey, several coral species were found to contain mature eggs and sperm.

3.2.4.4. Turtles. Green sea turtles (Chelonia mydas) actively nest within the proposed MRP area. Hawksbill sea turtles (Eretmocheyls imbricata) nesting is suspected, but unconfimed. The turtles are protected under the Endangered Species Act, of 1973, and are listed as threatened and endangered, respectively.

4.0 ENVIRONMENTAL CONSEQUENCES.

4.0.1. The environmental consequences of the three alternatives were summarized in Section 2. Further discussion of why Alternatives 1 and 3 were eliminated from detailed study or further discussion of the environmental consequences of such actions is unnesessary.

4.1.1. Conditions for use. The environmental consequence of the preferred Alternative 2, strict enforcement of no spear or net fishing, will afford successful species recruitment. Protection of the large adult reef fish at this location is crucial to the continued existence of these species around Guam. Fishing pressure around Pati Point continues to rise, particularly as the experienced scuba diver population increases, and other fishing waters on Guam become less attractive. Spear/scuba targets the adult reef fish and is attributed for the decrease in species abundance and diversity observed around Guam in the last five years.

4.1.1.1. The U.S. Air Force and Department of Defense retain all title to U.S. owned property, submerged lands, affected by this agreement, as well as all easements, appurtenances and facilities belonging to or identified with the designation. No rights, privileges, uses, or other claims on the land, water, or property are hereby created, granted or waived by this agreement, unless expressly stated herein.

4.1.2. Reduction of Uncontrolled Waters.

The environmental impact of controlling the harvest of these waters would create a source area for reseeding the island's reefs. Fish and invertebrate would mature and reach full reproductive size giving populations an opportunity to reach densities high enough for spawning and recruitment to be successful. A refuge for breeding stocks to replenish the island's reefs would be established.

The long-term productivity of the proposed MRP outweighs the loss of fishing with the use of spears and nets. All other methods of fishing will be permitted. The irreversible and irretrievable committment of these resources would have no known unavoidable adverse effects.

4.1.3. Enforcement and Funding. The environmental consequences of enforcement of proposed MRP regulations would parallel those mentioned previously - increased species abundance and diversity in Guam's waters.

The environmental impacts of additional funding to meet the objectives of the proposed action could benefit science and education to:

- Provide outdoor laboratories for the study of natural processes in relatively undisturbed ecosystems.

- Provide benchmarks which both harmful and beneficial effects of mancaused changes can be assessed.

- Serve as a reservoir of genetic diversity.

- Serve as an outdoor classroom for the education of those interested in marine conservation.

In turn, more effective marine conservation programs would be learned.

4.1.4. Biologic and Social Impact. A marine preserve with adequate enforcement of harvest restrictions, would enhance fish, invertebrate, and coral recruitment, through the adult stages of their life cycle. Initially, fish populations in the area would increase to the limits of available food and space. Once a maximum is obtained, the conservation area could sustain these populations and provide a consistent supply of larvae which will be dispersed to both sides of the island by movement of ocean currents. In time, Guam's central and southern reefs should show an increase in recruited fish available for the fishermen, snorkelers, scuba divers, and students pursuing marine biology education, alike.

4.1.4.1. Turtles. Continued protection would be provided for the Federally listed threatend and endangered turtles that may be found in these waters and shoreline. Inclusion of turtle activity monitoring into the Marine Resource Preserve Management Plan would give the direction needed for protection and Endangered Species Act compliance. The expertise and guidance that would be contributed by the DAWR would provide greater insight into turtle behavior, habitat, and nesting characteristics specific to Guam, as well as promote public education and awareness of these popular reptiles.

5.0 LIST OF PREPARERS

5.0.1. This EA was prepared by Ms Heidi Hirsh, Natural Resources Planner, of the Andersen AFB 633 Civil Engineering Squadron, Environmental Management Branch. Background information, survey data, management recommendations and preliminary review of this draft EA were received from Mr. Gerald W. Davis, Fisheries Supervisor of the Guam Division of Aquatic and Wildlife Resources and Doctor's Steve Amesbury and Robert Richmond, Professors at the University of Guam Marine Laboratory.

5.0.2. Copies of this document may be obtained at the Andersen AFB Environmental Management Branch, 633 CES/DEV, Andersen AFB, Guam, 96543-5000. Copies are also available at the Government of Guam Division of Aquatic and Wildlife Resources, Fisheries Office, and the GovGuam Bureau of Planning Office, Adelup.

5.0.3. Written public comments may be submitted to this office. The public comment period will close 30 days after the date marked on this EA transmittal letter.

6.0 REFERENCES CITED.

1. Sherwood, Timothy S., 1989. Research project segment, Project No. FW-2R-26, Job 12. Establishing Permanent Marine Conservation Areas on Guam.

2. Huddell, Willett, and Marchand, 1974. Nearshore currents and coral reef ecology of the west coast of Guam, Mariana Islands Nav. Oceqnog. Off. Sp. Pub. 259, 185 P.

3. Jones and Chase, 1975. Community structure and distribution of fishes in an enclosed high island lagoon in Guam. Micronesia 11(1): 127-148.

4. Molina, 1983. Seasonal and annual variations of coral-reef fishes on the upper reef slope of Guam. 96 p [Thesis chairman: S. S. Amesbury].

5. Myers, R. F. 1982. Fishes. In Randall, R.H., and L.G. Eldredge (eds.), Assessment of the Shoalwater Environments in the Vicinity of the Proposed OTEC Development at Cabras Island, Guam. Univ. Guam Mar. Lab., Tech. Rept. No. 79. 208 P.

6. Myers, R. F. 1989. Micronesian Reef Fishes: A Practical Guide to the Identification of the Inshore Fisheries of the Tropical Central and Western Pacific.

7.0 AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT WERE SENT.

- Environmental Protection Committee - Distribution:

633ABW/CC	633ABW/CV	633ABW/CCL
633ABW/SE	633ABW/JA	633ABW/PA
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605/MASS	4th CCGP	

Det 2, 633 ABW/EOD
Det 1, 633 ABW/BVP
Det 5, 2 STG/CC
DRMO-WHB P.O. Box 190, USNSTA, GU 96910
HQ PACAF/DE, Hickam AFB, HI 96853

- Associated Organizations or Agencies:

- COMNAVMARIANAS - Commander

- NCTCAMS - Commander

- U.S. Fish & Wildlife Service, P.O. Box 50167, Honolulu, Hawaii 96850

- National Marine Fisheries Service, P.O. Box 3238, Agana, Guam 96931

- Guam Division of Aquatic and Wildlife Resources

- University of Guam Marine Lab, UOG Station, Mangilao, Guam, 96923

- Guam Clearing House, Bureau of Planning

- Marianas Audubon Society, P.O. Box 4425, Agana, Guam, 96910

- "kids for coral", 911 N. Marine Drive, Tumon, Guam, 96911

University of Guam
MARINE LABORATORY
UOG Station, Mangilao, Guam 96923

Initial Survey of Proposed Marine Resources Preserve Andersen Air Force Base

Dr. Robert H. Richmond and Dr. Steven S. Amesbury
Marine Laboratory
University of Guam
UOG Station
Mangilao, Guam 96923

On July 30, 1991, a preliminary survey of the marine environment adjacent to the Andersen "Scuba Cut" was performed. The purpose of this survey was to gain an overview of the area for future work, planning and establishing a functional database for reviewing the conservation area proposal. We observed an impressive abundance and diversity of marine species which confirms the value of this particular area for conservation designation.

Site Description

The area surveyed consisted of a variety of habitats including a shallow lagoon of approximately 30 - 50 meters width, a back-reef, a well-developed reef flat, a spur and groove reef face, and a sloping reef front. Each of these habitats appeared fairly pristine, with the exception of some cable and debris in one area of the lagoon. The transition area from reef flat to back-reef and lagoon was notable as have more vertical relief and habitat complexity than other such areas on Guam. As a result, there was a greater abundance and diversity of fish and invertebrates than one would encounter in Agana Bay, Gun Beach, or other similar exposures.

Marine Fauna

The beach environment exhibited both infauna and epifauna, including several species of crabs. The lagoon contained a rich fish fauna, numerous coral species and growth forms (ecomorphs), several species of commercially valuable sea cucumbers (Holothuria nobilis, Bohadschia marmorata, Holothuria nobilis), echinoids, annelids (amphinomids, sabellids and serpulids), and representatives of virtually all shallow water invertebrate phyla.

Corals

The lagoon contained a number of Porites microatolls, as well as sizable patches of Acropora (staghorn corals). These are significant as they provide habitat for other species of invertebrates and fishes. The outer reef had a very diverse coral fauna, with over 45 species encountered within a 200 m

Tel: (671) 734-2421; Fax: (671) 734-6767; Telex: 721-6275; Cable: UNIVGUAM

transect. The abundance and diversity of Acroporid corals makes this area an important source of larvae from the synchronous spawning events that occur on Guam's reefs. These species have been particularly hard-hit by the erosion and runoff encountered at other sites around the island. While there was evidence of recent wave damage from Typhoon Russ, the coral cover was still high, reaching 80 - 90% on some of the spurs. During the survey, several coral species were found to contain mature eggs and sperm.

Fishes

The fish fauna was also impressive. The lagoon contained a variety of trophic types, including herbivores, omnivores, carnivores, and some planktivores. Of particular note was the presence of all three phases of the sequentially hermaphroditic wrasse Coris aygula, including immature juveniles, transition phase, and terminal phase fish. This fish is not abundant on Guam, and the presence of all three phases is a unique observation for Guam. Fish size both in the lagoon and outside the reef was noticeably larger than on other reefs, perhaps due to lower levels of spear fishing.

Summary

In summary, the site is a perfect choice for a conservation area. Its location in the north makes it an important source area for seeding central and southern reefs with larvae and juveniles of fish and invertebrates. This is of critical importance to Guam at present, as we have documented reproductive failure of reef organisms due to runoff and sedimentation, especially on Guam's southern reefs. The high diversity, abundance, and presence of adults capable of breeding makes this area critical to the future of Guam's marine resources. From a biological point of view, we strongly endorse establishing this as a marine conservation area. Considering Guam's political and social situation, this area is also a good choice for conservation designation, as public access is already limited, but the products of this area can be enjoyed by all, as organisms disperse to other reefs from this source area.

Appendix B. - Glossary

Epifauna - Benthic. Lives on the top of the bottom layer of material (i.e., sediment, plants) which comprise the ocean floor. Species typical of epifauna include crynoid and starfish.

Infauna - Benthic. Lives within the bottom layer of material (i.e., sediment) that makes up the ocean floor. Species typical of infauna include worms and urchins.

Invertebrate - All kinds of animals lacking a backbone from protozoans to insects and starfish.

Lagoon - the term lagoon refers to the area enclosed by the low tide line of the inner edge of the barrier or atoll reef flat. The depth may vary from less than a meter at low tide to 90 m or more. Lagoons often contain numerous patch reefs ranging in size from a few small pieces of coral to massive pinnacles which may be topped with reef flats and islands (Myers, 1989).

Molluscs - A member of a large phylum of invertebrate animals (mollusca), characterized by soft, unsegmented bodies and usually have a calcareous shell.

Reef Zones: (Sherwood, 1989)

Inner Reef Flat - frequently retains some water during the lowest tides. This zone contains the moat, which is a subtidal area of inner fringing reef not quite deep enough to qualify as a lagoon but deep enough to retain adequate water to avoid overheating.

Outer Reef Flat - this area is exposed during low tide and is bounded on the shoreward side at low tide by water trapped in the moat and on the seaward side by the reef margin. The outer reef flat appears as a flat limestone pavement with scattered boulders and larger rocks that are broken from the reef margin and tossed up on the reef flat by storm waves (Sherwood, 1989).

Reef Margin - the seaward edge of the reef flat platform which is constantly awash even at low tide. The seaward edge is very irregular and it is cut at right angles by short surge channels. The inner portion of the reef margin is irregular due to the presence of small knobs, pinnacles, holes and pools. Shallow extensions of the longer surge channels cut through the inner half of this zone and terminate is small pools 1 to 2 meters deep.

Reef Front - the extreme seaward edge of the reef platform. This is where the reef margin abruptly increases in depth and degree of slope, giving way to the ocean floor.

APPPENDIX C

Introduction

This section responds to the written questions and comments received and to the public testimony, questions, and concerns raised at the 18 Mar 92 public meeting held at the Maniglao Community Center, for the Draft Environmental Assessment.

The comments/questions and responses are presented side-by-side.

WRITTEN COMMENTS

Name	Organization/Location	Comment No.
Environmental Protection Committee	Andersen AFB	1
Mr. Robert Smith	US Fish & Wildlife Service	2
Mr. Rufo Lujan	Guam Div of Aquatic & Wildlife Resources	3-8
Mr. Peter P. Leon Guerrero	Guam Bureau of Planning	9-16
Mr. Michael U. Camacho	Citizen of an Occupied Chamoru Nation	17-18
Local Fishermen of Guam	Indigenous Chamorros & Local Fishermen	19-23
Commander Moran	US Naval Forces Marianas	24
Ms. Valerie Paul	University of Guam Marine Lab	25
Kids for Coral	Saint John's Junior High School	26
Mr. & Mrs. Jim Brandt	PADI Course Director	27
Ms. Roberta Happy Rons	Agana	28
Ms. Cynthia Gorrez Schubert	Tumon	29
Mr. Gary Wiles	Guam	30

PUBLIC COMMENTS

Name	Organization/Location	Comment No.
Mr. Michael U. Camacho	Written comments submitted & discussed	17-18
Mr. Ronald T. Laguana	Written comments submitted & discussed	19-23
Mr. Jack Ray	Andersen Air Force Base	31-34
Mr. Frank Leon Guerrero	Castro Property Family Member	35
Mr. Ed Benevente	Not Stated	36
Mr. Angel Santos	Chamorro Rights Activist	37
Mr. Ken Orcutt	Marianas Audubon Society	38
Mr. Raul Santiago	Not Stated	39-40
Mr. Joe Parado	Not Stated	41
Ms. Vicki Loughran	Mangilao, Grade School Teacher	42
Mr Patrick Jennings	Master Diver	43

United States Department of the Interior

FISH AND WILDLIFE SERVICE
PACIFIC ISLANDS OFFICE
P.O. BOX 50167
HONOLULU, HAWAII 96850

APR 7 1992

Lieutenant Colonel William G. Schauz
Department of the Air Force
Headquarters 633D Air Base Wing
APO San Francisco, CA 96334-5000

Re: Draft Environmental Assessment, Marine Resources Preserve, Andersen Air Force Base, Guam

Dear Lieutenant Colonel Schauz:

The U.S. Fish and Wildlife Service (Service) has reviewed the February 1992 Draft Environmental Assessment (EA) for the establishment of a Marine Resources Preserve at Andersen Air Force Base, Guam. The Service offers the following comments for your consideration.

The two proposed alternatives for a Marine Resources Preserve at Andersen Air Force Base primarily differ in the size and location of the preserve. Alternative 1 is the larger of the two alternatives and approximately extends along the coastal area between Anao Point to Mergagan Point from approximately 65 feet landward from the mean high tide line along the shoreline offshore to the 600-foot isobath along the reef slope. Alternative 1 is identified in the Draft EA as the environmentally preferred alternative. Alternative 2 includes the marine and terrestrial areas contained within a line approximately extending from Pati Point to the east end of Tarague Beach and landward approximately 65 feet from the mean high tide line. Alternative 2 is the Air Force's preferred alternative because of the lower costs to manage the preserve.

The Service endorses the establishment of a Marine Resources Preserve at Andersen Air Force Base along the northeastern coastline of Guam. While the Service appreciates the concerns of the Air Force regarding the increased difficulty and cost of enforcing the boundaries of Alternative 1, the Service recommends that this environmentally preferred alternative be selected. Since the main function of the proposed preserve is to provide the larval stock of fishes and invertebrates to recruit onto reefs on Guam, the selection of the larger preserve (Alternative 1) may be more effective at meeting this objective than the smaller preserve (Alternative 2). While the Service recognizes that the coastal area between Pati Point and Anao Point may partially function as a de facto preserve because of limited access due to rough seas, the inclusion of this coastal area as a preserve would allow the

2. The recommendation that the environmentally preferred alternative 1 be selected was considered. Since the purpose of the preserve is to provide the larval stock of fishes and invertebrates to recruit onto reefs on Guam, the selection of the larger alternative 1 may be more effective in meeting this objective. Recommendation noted, refer to section 2.0, alternative 2 of the final EA.

Air Force to retain the option to manage this area for the benefit of fishery resources as funding becomes available in the future. However, the Service recognizes that the selection of Alternative 2 by the Air Force would result in a reduced conflict with commercial and recreational fishing interests because of the smaller area where fishing activities would be regulated. Thus, the Service would not object to your selection of Alternative 2 for the establishment of a Marine Resources Preserve at Andersen Air Force Base.

The establishment of the Marine Resources Preserve at Andersen Air Force Base would complement the Orote Ecological Reserve Area at Naval Station Apra Harbor and the Haputo Ecological Reserve Area at the Finegayan Communication Station, Guam. The Service supports the Air Force's efforts to conserve the productive and important marine resources at Andersen Air Force Base on Guam.

We appreciate the opportunity to review the proposal.

Sincerely,

Robert P. Smith

Robert P. Smith
Field Supervisor
Pacific Islands Office

cc: UOG - Marine Laboratory
NOAA - Fisheries
Guam DAWR
LPC
RW

Department of Agriculture
Division of Aquatic and Wildlife Resources
P.O. Box 2950
Agana, Guam 96910
Telephone Numbers (671)734-3403/3944/3945/5283
Fax Number (671)734-6570
E-mail:SUNIPORTALISUP.PORTAL.COMIGUAM-DAWR

DEV SDG

April 1, 1992

Lt. Col. William G. Schauz
Commander
633d Civil Engineering Squadron
Headquarters 633d Air Base Wing (PACAF)
Department of the Air Force
APO San Francisco, CA 96334-5000

Dear Lt. Col. Schauz:

After further review of the proposed Marine Resources Preserve, the Division of Aquatic & Wildlife Resources (DAWR) would like to recind the letter of March 24, 1992 and submit the following comments. We appreciate your consideration in accepting this request.

DAWR has itself been working toward establishing areas to conserve submerged land resources for a number of years and therefore fully supports the concept to establish such areas.

We recognize that Alternative 1, which includes all of the submerged land adjacent to Andersen Air Force Base would provide greater resource protection but agree that present and past use of the entire area make consideration of a smaller area more reasonable at this time.

Due to consideration for wise resource use and reducing user conflict, we support Alternative 2. We do, however, feel that extending the northeast boundary along the east coast to the southeast boundary of AAFB at Anao Point would further meet the objectives of this proposal without creating any additional user conflicts. This area also offers habitat which is beneficial to the conservation of some of the larger over the reef species. We also feel for the full benefit of this area to be realized, that several other measures will be required.

The proposal objectives intend to protect reef life and reef habitat. The exclusion of trolling and bottomfishing within the proposed area represents a loss of use without a significant benefit to the proposed objectives. We recommend that trolling, bottomfishing from a boat and hook and line from shore be the only methods allowed seaward from the recommended inland boundary. This would extend the ocean boundary to the seaward boundary of federal jurisdiction and minimize the enforcement problems associated with 3 while maximizing the use of the area. This recommendation would also eliminate the need to establish a marked ocean boundary.

The Sport Fish and Wildlife Restoration and Endangered Species Conservation Programs under the Department of Agriculture, Division of Aquatic and Wildlife Resources are funded in their entirety with federal money under the Sport Fish Restoration Act of 1950, as amended, the Wildlife Restoration Act of 1937, as amended, and the Endangered Species Act of 1973, as amended.

3. The support of alternative 2 and the recommendation to extend the northeast boundary along the east coast to the southeast boundary of AAFB at Anao Point was considered. Conservation of larger over the reef species and full benefit of this area would be realized. Refer to section 2.0, alternative 2 of this EA.

4. Recommendation to allow trolling and bottom fishing from a boat and hook and line from the shore only, noted. Fish taken by trolling, bottom fishing methods are typically migratory or bottom dwellers and would not interfere with program objectives.

5. Recommendation of extending marine preserve ocean boundary to the seaward boundary of federal jurisdiction to minimize enforcement problems, noted. Spear and net fishing is to be prohibited to any distance beyond the mean high tide mark where it is observed.

6. Recommendation to provide specific regulations that are enforceable against all parties and not just limited to base debarment or prosecution for trespassing, noted. Currently AAFB is limited to these enforcement penalties for civilians, until GovGuam establishes marine conservation controlling regulations that AAFB can execute. Penalties for active duty individuals who violate the marine preserve rules are to be strengthened via Andersen AFB Regulation 126-1, Conservation & Management of Natural Resources, which implements penalties for illegal take of resources.

7. The recommendation that US Fish & Wildlife should include submerged areas in the National Wildlife Refuge Overlay proposal is noted. Federal Fish & Wildlife regulations could be enforced by all agencies to provide the needed resource protection.

8. Comment noted, any effort taken by a Federal agency that impacts the resources be undertaken in consultation with the local jurisdictional agency. It is AAFB's full intent to work closely with Guam DAWR on all fish & wildlife matters.

Presently the enforcement of Air Force regulations within this area is dependent on limited staff under the Air Force and the development of a volunteer program. Also, the enforcement of Air Force regulations against civilians is difficult, and basically limited to disbarment or prosecution for trespassing. We do not see this as a limitation in establishing such an area but recommend a continued effort to provide specific regulations that are enforceable against all parties for the ensured protection of this area. The Government of Guam is hoping to establish other such Marine Preserves which will have implementing and controlling regulations. These regulations could possibly address the needed enforcement issues for the Andersen Marine Resources Preserve as well, which would allow the Government of Guam enforcement personnel such as the Conservation Officers to assist in the protection of this area.

Additionally, the proposed National Wildlife Overlay Refuge proposed by the U.S. Fish and Wildlife Service should include submerged areas which need protection. The Marine Resources Preserve should certainly be identified as one such area and by doing so, appropriate regulations could be developed under the Refuge proposal to aid in protection of the area. Such regulations could also be enforced by either refuge personnel or Government of Guam Conservation Officers

The DAWR acknowledges the need for continued consultation for such proposals through the existing Sikes Act Cooperative Agreement for the protection, development and management of fish and wildlife resources. The Sikes Act recognizes that fish and wildlife resources are a common resource belonging to the state/territory. We wish to emphasize that any effort by a federal instrumentality that impacts on that resource can be undertaken only in consultation with the local state agency with the jurisdiction over fish and wildlife. Ideally, such activities will be conducted cooperatively and jointly with the local state agency as well.

In summary we support Alternative 2 with revisions to allow trolling and bottomfishing and to consider the extension around the northeast coast. Our support for this alternative with the requested modifications is based on the unique reef and shoreline habitat which would be conserved and also because of the minimal user conflicts which will result. We also support this alternative because of the much needed resource protection, educational and research opportunities which will result. We look forward to the continued consultation and cooperation on a proposal that will be mutually beneficial to all.

Sincerely,

RUFO J. LUJAN
Chief, Aquatic & Wildlife Resources

cc: Bureau of Planning

Presently the enforcement of Air Force regulations within this area is dependent on limited staff under the Air Force and the development of a volunteer program. Also, the enforcement of Air Force regulations against civilians is difficult, and basically limited to disbarment or prosecution for trespassing. We do not see this as a limitation in establishing such an area but recommend a continued effort to provide specific regulations that are enforceable against all parties for the ensured protection of this area. The Government of Guam is hoping to establish other such Marine Preserves which will have implementing and controlling regulations. These regulations could possibly address the needed enforcement issues for the Andersen Marine Resources Preserve as well, which would allow the Government of Guam enforcement personnel such as the Conservation Officers to assist in the protection of this area.

Additionally, the proposed National Wildlife Overlay Refuge proposed by the U.S. Fish and Wildlife Service should include submerged areas which need protection. The Marine Resources Preserve should certainly be identified as one such area and by doing so, appropriate regulations could be developed under the Refuge proposal to aid in protection of the area. Such regulations could also be enforced by either refuge personnel or Government of Guam Conservation Officers

The DAWR acknowledges the need for continued consultation for such proposals through the existing Sikes Act Cooperative Agreement for the protection, development and management of fish and wildlife resources. The Sikes Act recognizes that fish and wildlife resources are a common resource belonging to the state/territory. We wish to emphasize that any effort by a federal instrumentality that impacts on that resource can be undertaken only in consultation with the local state agency with the jurisdiction over fish and wildlife. Ideally, such activities will be conducted cooperatively and jointly with the local state agency as well.

In summary we support Alternative 2 with revisions to allow trolling and bottomfishing and to consider the extension around the northeast coast. Our support for this alternative with the requested modifications is based on the unique reef and shoreline habitat which would be conserved and also because of the minimal user conflicts which will result. We also support this alternative because of the much needed resource protection, educational and research opportunities which will result. We look forward to the continued consultation and cooperation on a proposal that will be mutually beneficial to all.

Sincerely,

RUFO J. LUJAN
Chief, Aquatic & Wildlife Resources

cc: Bureau of Planning

SETBISION MAMPLANEHA
Bureau of Planning
GOVERNMENT OF GUAM
AGANA GUAM 96910

DEV

MAR 24 1992

William G. Schauz
Lt. Col, USAF
Commander, 633d Civil Engineering Squadron
Headquarters 633d Air Base Wing (PACAF)
Dept. of the Air Force
APO San Francisco, Ca. 96334-5000

Hafa Adai Colonel Schauz:

Thank you for the opportunity to review and comment on the proposal to establish a Marine Resources Preserve in the spirit of the consultative provisions contained in Executive Order 12373. While we generally agree with the intent to protect and enhance critical marine resources, there are a number of issues which we believe must be addressed in the final environmental assessment.

One of the most difficult issues to deal with, is also one of the most fundemental, that of resource ownership. We question the authority of the Air Force to be the establishing agent for this Preserve, as we contend that the Air Force does not own the submerged lands out to the 3 mile limit, and because of this, ownership cannot be used as the basis or supporting reason for MRP designation.

We are well aware of the so called "Territorial Submerged Lands Act of 1973", in which the United States Government would have us believe that they were releasing portions of the territorial waters to GovGuam while retaining others. In truth, however, because the Federal Government had prior knowledge of their ownership rights (Supreme Court decision of 1948), by the wording of the Federal Statute known as the Organic Act of Guam (1950), specifically Sections 28 (a) and (b), and the specific real property retentions as iterated in Executive Order No. 10178 (1950), it is clear to us that Guam was given de facto ownership of all submerged lands and resources within 3 nm of Guam. Any later action taken is viewed as a taking without due process or compensation.

In that we do not agree that the Air Force owns the submerged lands proposed for inclusion in the MRP, full, joint management authorities between agents of the Government of Guam and the Air Force could negate the need to contest legal ownership at this point. In our view, cooperative management of the MRP and shared criminal jurisdiction within the MRP are insufficient since GovGuam is not currently viewed as an equal partner in the decision-making process. We suggest that the concept of full, joint management be

Commonwealth Now!

9. The Bureau of Planning statement that joint management for the Marine Preserve between agents of GovGuam and the Air Force could negate the need to contest legal ownership of the submerged lands out to the 3 mile limit at this point is noted. The Air Force Environmental staff has worked very closely with Guam Division of Aquatic and Wildlife, and UOG Marine Lab personnel since the early planning stages of the proposal, and intends to do so in the years to come. The plan is to have UOG Marine Lab graduate students from the local community conduct the monitoring and report the findings in conjunction with their thesis'. This way, students from the community can learn and educate others how to best manage their islands marine resources. All resource, harvesting and management techniques will be planned and discussed with DAWR and UOG Marine Lab staff, based on inventory and monitoring findings. GovGuam is viewed as an equal partner in the decision making process.

10. Bureau of Planning (BOP) comment that designation is not necessary for stricter enforcement, since the Air Force has already taken the authority to increase resources allocated to enforcement without MRP designation, noted. At this time, AAFB Manpower Office has not increased manning for enforcement of natural resources programs, nor do they have authorization to so without justification. As BOP stated, protection of marine resources is clearly needed. AAFB finds this unique and critical habitat worthy of long-term protection, whereby funding would be allocated to host education, recreation, research, and enforcement programs. Designation will give the leverage needed to gain funding and interagency support to protect this unique reef habitat.

With the rate of increasing fishing pressure on island, preservation is needed now, and no other designation or protection/funding mechanism is available to do so in a timely manner. Possibly these waters could receive conservation management through the National Marine Fisheries Service, US Fish and Wildlife Service, the proposed GovGuam Marine Conservation Area Program, or the most recent presidential initiative, Coastal America, at a later date.

11. In response to potential impacts on development of adjacent lands as a result of MRP designation, establishment of a spawning area for fish, molluscs, invertebrate, and corals at this proposed location would serve to recruit species to adjacent waters by ocean currents. Impacts to adjacent lands are seen as favorable as a result in potential increase in marine species abundance and diversity.

12. The section 7 review will be initiated prior to designation. The proposed designation will only serve to further protect Threatened and Endangered Sea Turtles and their habitat, therefore we expect a favorable response from the US Fish & Wildlife Service. Conditions to be levied by USFWS may include those already adhered to on a day to day basis just by virtue of existing conditions, i.e.., controlled vehicle and human activity on the coastline when listed species are of concern.

13. In response to financial costs ascribed to each alternative: Until that time when GovGuam establishes a Marine Conservation Program with controlled harvesting methods, seasons, or techniques, we do not see how the financial costs of an enforcement program can be shared. Air Force is required to

included in the final EA and pursued if the MRP comes to fruition.

While protection of marine resources is clearly needed from an environmental perspective given the increased pressure for development and the increased consumption of marine resources on Guam, the need to set aside an MRP from a management perspective is not as clear. Currently, the Air Force controls all access points into the proposed MRP and controls all land uses within the area. How the formal designation of an MRP will improve an already strictly controlled area needs further explanation. We do not believe that designation is necessary for stricter enforcement since the Air Force has already taken the authority to increase resources allocated to enforcement even without MRP designation.

The final EA should devote greater effort to the analysis of impacts on development of adjacent lands. We wonder how such a designation would affect development of the nearby civilian landholdings at Jinapsan and Mergagan Points. We are also concerned whether such a designation would affect the planned relocation of naval activities from NAS Agana to AAFB. Although development of these areas has not been accomplished, the EA should address potential impacts. It is known that development of adjacent lands would probably be required to undergo Section 7 consultation due to the existence of endangered and threatened species. However, Section 7 review focuses on impacts on the species and not on the habitat. Designation of MRP may direct the Section 7 review process into an analysis of habitat impact in addition to species impact.

We suggest that the final EA also address the financial costs ascribed to each alternative. Without the economic analysis, the draft EA cannot arrive at the conclusion that alternative one, while being the environmentally preferred alternative, is too costly. We do not necessarily believe that increasing the size of the MRP will increase costs beyond affordability since the northeastern area is seldom frequented by the public. The pursuit of a joint management approach implies a degree of cost sharing, further reducing costs associated with managing a larger area. The purpose of this comment is to ensure that a thorough EA is developed.

Since we understand that the Pati Point Preserve boundaries extended into off-shore areas, we also suggest that the final EA provide an analysis of the Pati Point Preserve in terms of its success in protecting marine species, in propagating marine species and management experience gained. Documentation of this experience should assist in determining successful and unsuccessful management techniques.

We also recommend that the EA provide a more detailed analysis of the reasons for establishing the boundary line from Tarague to Pati. As mentioned in the draft, fisherman seldom fish in the area due to weather and ocean conditions. This seasonality probably results in relatively small catches which may not adversely affect

enforce local state fish and game laws, and Air Force harvest and take regulations effective for that particular base, but GovGuam does not receive authorization and funding to enforce Air Force regulations. Air Force will incur the cost of increased enforcement, whatever size the final MRP is designated, although we welcome a shared enforcement program.

14. The success in protecting and propagating marine resources can only be speculated until the baseline resource inventory is conducted with follow-on monitoring in response to manipulation of management techniques. The success of such conservation measures will be documented in the long-term management plan that is to be prepared for the proposed MRP following the designation. The marine resources management plan should provide recommendations and insight to citizens and resource managers around the island for improved reef protection and enhancement.

15. The reason the proposed MRP boundary extends from Tarague and around Pati Point is to provide protection for large over the reef fish which are responsible for the recruitment of juveniles to the fish populations. As stated throughout the EA, spearfishing targets these fish and is attributed for the demise of fish abundance and diversity on Guam during the past five years. Each year fishing pressure in the proposed MRP waters increases. Even though the major portion of the harvest is done seasonally, June through September, the life cycle of one fish is much longer. Fish populations are doomed unless conservation management is implemented now.

16. The BOP support of extending the MRP boundary to the reef margin is welcomed, but the objectives of the MRP would not be met. Fish recruitment to the population depends upon propagation over the reef. It is outside the reef margin where the fish flourish from the reef nutrients, grow, and continue to reproduce and sustain the cycle. Just over the reef margin is where the fish most crucial to sustaining the reproductive cycle are harvested, most commonly and successfully by spearguns while on scuba.

Trolling, bottomfishing, and hook and line fishing from the shore will be allowed to continue. Net and spearfishing will continue to be prohibited, from Tarague to Anao Point, extending seaward to any distance observed.

species in the area. The fact that fishing has traditionally, although occassionally, occurred in an area that is still worthy of MRP designation provides evidence that fishing, at least in areas beyond the reef, does not deplete such resources. We would support reduction of the MRP's seaward boundary or alternatively, the allowance of traditional spear fishing, bottom fishing and trolling in the area seaward of the reef.

Thank you for the opportunity to provide comments. We look forward to the same opportunity to review the final EA.

Si Yu'os Ma'ase',

PETER P. LEON GUERRERO
Director

Date: March 18, 1992

Time: 1830

Place: Mangilao Community Center
Mangilao, Guam

Issue: Public Hearing Regarding the Designation of a Marine Resources Preserve on Anderson Air Force Base

Good evening ladies and gentlemen:

My name is Michael U. Camacho. I am a resident of Dededo and a member of the Chamoru Tribal Council.

Before going into the subject matter of what this public meeting was organized for, I would like to state that I am not a fisherman nor a scientist. I humbly admit my handicap on not being very knowledgeable on oceanographic or marine terminology.

I am just a concerned citizen. I care about protecting our planet, our environment, our eco-system.

Our planet is all we have. We don't have anywhere else to go if we pollute it.

At the same time, I am very sensitive to any endeavors that lead towards stymieing the promotion and perpetuation of my culture - the Chamoru culture. I am especially concerned with issues relating to Chamoru sovereignty.

Ladies and gentlemen, fishing (be it: net-fishing, spear-fishing, bottom-fishing, or trolling) is part of the Chamoru culture. It is an activity that fathers pass on to their sons: It is an activity that provides sustenance for some families on Guam.

Generally speaking, most fishermen would not destroy our marine resources by fishing with non-traditional methods such as chlorinating the water or using dynamite. Doing so would be suicidal!

I mention this because there are some unscrupulous individuals who, regretfully, fish in that manner and manage to avoid capture. These individuals should be punished to the fullest extent of what the law allows. Fortunately, though, most fisherman have scruples. They don't destroy the environment and overfish. They just take what they need. These individuals should be allowed to fish anywhere (underscored for emphasis).

If anything, something should be done to monitor and end the activities of the large fishing boats that lay (to my understanding) 30 mile long and six mile deep fishing nets around our Island's territorial waters. The damage that local fishermen can do, using traditional fishing methods and relative to our Island's marine resources, is minuscule in comparison to what the commercial tuna boats do with their large nets.

17. To clarify "multiple-use and sustained yield" management principles, these definitions are taken from Air Force Regulation 126-1, Conservation and Management of Natural Resources, which gives policies, procedures, and responsibilities for managing and conserving soil, water, landscapes, forest, fish, wildlife, endangered species, and outdoor recreation resources on Air Force lands, nation-wide.

Mulitple-use. The integrated, coordinated and compatible use of various natural resources to derive the best benefit while perpetuating and protecting those resources.

Sustained yield. Management of renewable natural resources to provide an annual or periodic yield and perpetuation of the managed resource.

Multiple-use and Sustained Yield Management. The care and use of natural resources in the combination best serving the present and future needs of the United States and its people without impairing the productivity of the land and water.

It is Andersen's policy and intent to manage the coastal resources surrounding the base to allow safe and enjoyable water recreation sports such as swimming, snorkeling, fishing, scuba diving, and boating, with a minimum of user conflict, while promoting science, education, Federally listed sea turtle protection, without overharvesting or adversely affecting the resources.

18. Question: When has the US Government ever taken any interest in protecting the people of Guam or our environment? The US spends more than $100 billion a year on environmental protection. President Bush has said, "Recovery, Restoration, and Renewal of our environment is a moral imperative." Secretary Cheney in his memorandum of October 1989, said "I want the Department of Defense or be the Federal leader in agency environmental compliance and protection."

April 1991, Air Force Chief of Staff, General Merrill A. McPeak: "Despite steady improvements in environmental protection, the Air Force must do more, now. We must move past the study stage into the action phases--training, prevention, and cleanup." Specific goals follow:

a. Complete cleanup of the past....with all sites completed by 2000.

b. Ensure our present operations comply with all federal, state and local environmental standards. No notices of violation is the measure of merit.

c. Prevent future pollution by reducing generation of hazardous wastes to as near zero as feasible.

c. Use the Environmental Impact Analysis Process to support decision making and to protect the environment.

d. Protect and enhance our natural resources including wetlands, historic sites and endangered species through sound stewardship and management.

We all know that the commercial tuna boats overfish and waste our marine resources. To my understanding, turtles, dolphins, mahi mahi, wahoo etc... inadvertently get caught in the net, die, and are discarded.

Furthermore, I am confident that a lot of dumping (of who knows what) goes on within our Island's territorial waters. Again, something should be done about ending the commercial tuna boats' presence in the Pacific Ocean. They will eventually deplete our marine resources.

The discrepancies with the commercial tuna boats, however, is not the premise for my stand against the U.S. Government's proposal to establish a marine resources preserve (hereinafter referred to as "Preserve"). As previously stated, I am especially interested with any issues that relate to perpetuating American Colonialism and stymieing Chamoru Sovereignty.

The essence of my arguments are premised on the ironies (underscored for emphasis) that I find in the U.S. Military's concern to establish a Preserve. According to the first sentence in the first paragraph of section 1.0, of the Draft Environmental Assessment for the Designation of a Marine Resources Preserve on Anderson Air Force Base Property (hereinafter referred to as "Proposal"), "... The Air Force proposes to designate a Marine Resources Preserve on Anderson Air Force Bases' coastline, for the protection and enhancement of critical island marine resources...".

Additionally, the U.S. Government's claim that ". . .It is Air Force policy to provide stewardship of our land and water resources under multiple use and sustained yield principles. .". This quote is the last sentence in the last paragraph of section 1.0.3.1 of the Proposal.

The latter quote is rhetorical. I assume it means that they care. Moreover, I'm told that rhetoric is a communication technique to either impress or confuse the recipient of the message.

Ladies and gentlemen, I'm not impressed. I'm just confused!

Furthermore, when has the U.S. Government ever taken any interest in protecting the people of Guam or our environment?

Historically, the American Government abandoned (underscored for emphasis) the people of Guam during World War II. It is common knowledge that the "Americanos" removed all military dependents from Guam and left the Island defenseless to the Japanese.

Recently, Monsignor Oscar L. Calvo stated that some Chamorus - from the Commonwealth of the Northern Marianas Islands (CNMI) - tried to warn the Chamorus of Guam about the Japanese invasion. The Japanese sent them to warn us so that we could take cover. The Chamorus from the CNMI were detained by the "Americanos". The people of Guam never got word of the pending invasion.

General McPeak's letter goes on to state that "Every member of the Air Force community is responsible for the safe, efficient use of our scarce resources in meeting the Air Force mission. I expect the Air Force to lead the DoD in environmental protection and compliance."

Andersen AFB spent over $6 million on environmental compliance and restoration last year and is working harder than ever to transform our track record and implement the recent policy and direction given by DoD and Pacific Air Forces Leaders.

Monsignor Calvo mentioned this on the Jon Anderson talk show. I do not remember the exact date when Monsignor Calvo appeared on Mr. Anderson's talk show, but it was sometime in the third week of March 1992.

Historically, the American Government razed our Island on 21 July 1944 by indiscriminate bombing from American aircraft and indiscriminate shelling from American ships. The "Americanos" were more concerned about minimizing American casualties rather than minimizing injury to the Chamorus of Guam when they re-occupied (underscored for emphasis) our Island.

Historically, the American government sprayed our Island with who knows what when the Vietnamese Boat People came to Guam and lived in makeshift refugee camps. This occurred circa the early part of 1970, after the fall of South Vietnam.

To my understanding, the Island's bird, grasshopper, dragonfly etc... population abounded before the spraying. The situation is not the same today.

Additionally, Chamorus from Guam are beginning to wonder if the island-wide spraying contributed to some of the imported mainland diseases that currently plague many of our people. Examples of these imported diseases include cancer or "lytico-bodig".

Historically, the American Government is guilty of storing tons (underscored for emphasis) of various toxic-chemicals throughout our Island on military posts. I have some newspaper articles to substantiate my assertion. I could have gotten more to augment my sentiment that the concern of protecting and enhancing our Island's critical marine resources is "bogus" (underscored for emphasis).

I heard about the move to establish the Preserve on or about 12 March 1992. I just didn't have enough time to gather more evidence.

Be that as it may, I submit five different newspaper articles from the Pacific Daily News (PDN) to support my presentation. One article (exhibit 1) is captioned "Navy launches Operation Clean". Another story (exhibit 2) is titled "16 areas picked for investigation". The third evidence (exhibit 3) is subtitled Anderson to clean up its act by 2000". The fourth (exhibit 4) is dubbed "Trash expert directs Navy cleanup". Last, the fifth article (exhibit 5) is headlined "Anderson listed on Superfund". Respectively, the five articles are dated: 23 January 1992, 23 January 1992, 4 February 1992, 4 February 1992, and 12 February 1992.

Ladies and gentlemen, the spirit of the proposal is a "farce". It is a smoke-screen to perpetuate unmonitored control of Chamoru land and resources. The U.S. Air Force is a military institution. It is military oriented - not people nor environment. Don't kid yourselves!

I oppose alternative 1 and alternative 2 of the Proposal. Instead, I suggest that the U.S. Government do something about ending the presence of the commercial tuna boats within our territorial waters and allow local fishermen to fish (spear-fishing, trolling, bottom-fishing, or net-fishing) within the suggested Preserve area. Better yet, give the land back to the Chamorus.

"Vox Populi".

MICHAEL U. CAMACHO
Citizen of an Occupied
Chamoru Nation

MARINE RESOURCE PRESERVE TESTIMONY
March 18, 1992

We, as Indigenous Chamorro and local fisherman of Guam, strongly testify against this proposed Marine Resource Preserve Project by the Department of the Air Force - Anderson Air Force Base, Yigo; Guam Department of Aquatic and Wildlife Resource (DAWR) and U.O.G. Marine Laboratory - Mangilao.

This proposed Marine Reserve sounds like a good environmental project for future generational fisherman to come thus stated in your assessment reports. However, this project, which is one of your proposed eight other designated proposals is strongly denying our Indigenous local fisherman the right to fish in these waters in which we have been fishing for the past centuries.

For one, we have been denied land inaccessibility to this area by the Federal Government - United States Air Force at Anderson Air Force Base. This is one example of many other areas denying the local people of land access. The existing inaccessibility to this particular area is one thing, however controlling the outer coastal areas in this proposal is another. We for one will not tolerate such a proposal.

These areas have been ancestral fishing grounds for all fisherman of all types. The MRP report states that the Marine Wildlife Resources, predominately exist and begins at this northern part of our island and that "ocean currents at this northern location

19. Much consideration has been given to the opposition expressed by local fishermen. Therefore, the proposal has been revised to allow bottom fishing and trolling to continue. Net and spearfishing have always been prohibited in these waters, even though enforcement has not been consistent, and will continue to be prohibited. The goal of not allowing spearfishing in these waters is to ensure that there are fish to be caught, today, next season, and years from now. If some conservation measures are not taken at this northern location, it is inevitable that there will not be fish to be caught in the future, nor will species propagation be succesful to seed other waters around Guam.

20. Responding to the question "Where are we going to fish, when this is only one of eight proposed sites?" Fishing will be allowed to continue in the Andersen AFB proposed marine preserve. Although, it needs to be controlled fishing due to the increase in numbers of people who fish. Overharvesting and depletion of the earth's resources is occurring at nearly every location on the planet. In order for species to perpetuate, in this day and age of expounding population growth on the planet, controlled use of the resources is a must. Controlled fishing does not always mean no fishing.

21. Air Force agrees that conservation and preservation includes a realm of much larger magnitude. Fishing 200 miles off-shore, long-liners, oil spills, toxic waste dumping at sea, the Piti Bomb Hole Observatory, all have potential serious environmental impacts and, the Federal Government has assigned an agency with jurisdiction and authorization to monitor and control each of these mentioned activities for the protection and benefit to the resources and people. Andersen AFB is not tasked or authorized to control the activities mentioned, although, AAFB is required to manage, protect, and enhance the resources of which we are stewards.

22. Considering building an aquatic marine reproductive facility is not feasible, particularly for these waters. Natural reproduction is natures way by which all life flourishes. Allowing fish to live and eat the food from the very ecosystem that they are made up of also provides for the best tasting, nutrient rich fish, rather than through human intervention. There would be no need to build an aquatic marine reproductive facility if fishermen harvested with the limits of the resources.

23. In considering the local people's needs for survival or subsistence fishing, trolling and bottomfishing will be permitted. In order to allow fish populations to reach their fullest potential for subsistence fishermen, AAFB is to enforce no net and spearfishing on one small portion of the island's coastline (as stated, net and spearfishing have always been prohibited in the waters controlled by Andersen AFB, with inconsistent enforcement over the years).

dispose larvae, mollusks, and corals to seed the islands central and southern reefs. Species abundance and diversity would increase in the proposed area as well as other areas around Guam.

This sounds practical, however, the concern is not within only this particular area. It all begins 200 or more plus miles out into the sea. Coast Guard officials said the oil found on two dead sea turtles early this month, have been brought to the island by ocean currents, not from a spill close to Guam. (P.D.N. issue dated March 5, 1992, page 1.) According to Lt. Vance Bennett, it was determined by the Coast Guard Central Oil Identification Laboratory in Connecticut that the oil found off Tarague Beach, EOP Beach and on the turtles was a heavy fuel oil mainly found in larger ships that use boilers. "The researchers who did the examination said there have been documented cases of oil travelling more than 200 miles off ocean currents, and it is as fresh as when it was first discharged" said Bennett.

So the problem of conservation and preservation is not particularly concentrated in this area, this problem is of a larger magnitude rather than just of a secluded area or areas in which is endangered by just a few local fisherman providing their families with what we've survived on for centuries.

Where are we going to fish? When this is only one out of eight proposed sites. The near side Fish Markets along Marine Drive and in the road sides in Barrigada, which already have been occupied by

developers? Please reconsider!

Have you also considered other alternatives to preservation and conservation? How about considering erosion control efforts for the benefit of the entire island and not just a well controlled particular area such as our fishing grounds. Now, we speak on behalf of all fishermen, weather trollers, netters, or free divers of the northern districts. I'd like to see such a proposal considered implemented in Merizo, Inarajan, Umatac and see the southern fishermen's responses.

Now let's shift a bit to an even larger spectrum of control. What about the long liners who again illegally, at times fish and dump in our waters. You want comparison? Compare 30 miles and so many miles deep of fish nets, depleting many of our marine fishes, killing thousands of sea turtles, dolphins, whales and other species of fish, only to collect the selected tuna as cash fish to be canned and shipped away. We, as local fishermen carry our poles, spears and buckets, only to catch what is necessary to feed our families and friends, especially during our fiestas, fandangos, etc..

Let's shift into a much more extreme spectrum in terms of conservation efforts. What about all the unknown unrecorded nuclear waste dumping and other toxic waste being dumped out in sea as well? These among others, should be further monitored and closely be reconsidered by the Air Force and all others involved in

this project.

This extensive written proposal and with all ecological, Marine studies that you have done, have you considered again other alternatives? Why not consider building aquatic marine reproductive facilities to produce and to further flourish our existing waters with such numerous marine life that you've extensively discussed in your assessment project. A classic example would be on the island of Belau. There are other numerous existing projects throughout the world, why not study them and look into the feasibility of them on our island, rather than to manipulate and condemn our fishing rights throughout our island and particularly this area, not considering the local peoples needs of survival - not commercially but for daily substinence that we are highly depended upon by the local people diets. Remember, you share these diets in our village fiestas.

At this point, you're probably saying that this is an extra effort on your behalf for the betterment of future harvesting of fish and mollusks and other species for generations to come. But is it true? Or for the benefit of few, like what I have seen down at the Fena Lake Reservoir, where there are boats, used only for military personnel to fish in the lake. Are we - the local civilians allowed only to fish and enjoy two days out of the year on a catch and release programs? Such as the Fishing Derby scheduled for this weekend. The point here I am trying to emphasize is that we, outright have no problem with fish and marine control efforts when

it comes to the inner reef flat area - from the high water mark, and out towards the fringing reef where the waves makes it's impact- due to military land inaccessibility already in existance. However, to prohibit boaters, divers, trollers, netters, and particularly spear fishermen the right to fish in these waters along the reef and the outer reef flats, is quite an extreme measure of control considering we sail our boats thru these treacherous waters from Agana Boat Basin Marina or from the Pago Bay pier. Needless to say, only professional spear fishermen, scuba divers,and boaters know these waters like the palms of our hands. It is also quite inaccessible already, during the months of October through May due to constant outflowing currents. This is one way of control efforts already existing - naturally. Let we end our rebuttal, even though, probably this proposal is already in the process of approval like the Piti Bomb Hole Observatory Project which was very much opposed by the people of Guam, by saying this. Please, seek other conservation and reserve control measures, than to deny us our ancestral fishing heritages, particularly in the outer reef areas where boaters, divers, trollers, netters, and spear fishermen already enjoy, only to feed our families and not to abuse or exploit our ancestral fishing grounds for the past centuries. Please hear us now,for what we believe,and know, is our inherent right.

1 MAN PESKADOT TAOTAO GUAHAN

3/18/92

DEPARTMENT OF THE NAVY
U.S. PACIFIC FLEET
COMMANDER U.S. NAVAL FORCES MARIANAS
FPO AP 96540-0051

DEV 645 4H 4/

IN REPLY REFER TO:
11011
Ser N4E/ 0603
07 APR 1992

From: Commander U. S. Naval Forces Marianas
To: Base Civil Engineering, 633D Air Base Wing (PACAF), Andersen Air Force Base, Guam/DE/

Subj: DRAFT ENVIRONMENTAL ASSESSMENT FOR DESIGNATION OF A MARINE RESOURCES PRESERVE

Ref: (a) Your ltr DEV of 24 Feb 92

1. My department has reviewed reference (a), the draft Environmental Assessment on the proposal to designate a portion of Andersen Air Force Base coastal and submerged lands as a Marine Resources Preserve. I support your proposal and agree with your designation of alternative 2 as the preferred alternative. I commend you for taking a pro-active role in natural resources conservation.

2. I am confident that a Marine Resources Preserve at Andersen Air Force Base will be a valuable resource for both civilian and military personnel on Guam.

J. MORAN
By direction

UNIVERSITY OF GUAM
UNIBETSEDÅT GUAHAN
MARINE LABORATORY
UOG Station, Mangilao, Guam 96923
Tel: (671) 734-2421; Fax: (671) 734-6767

Feb. 28, 1992

Memorandum

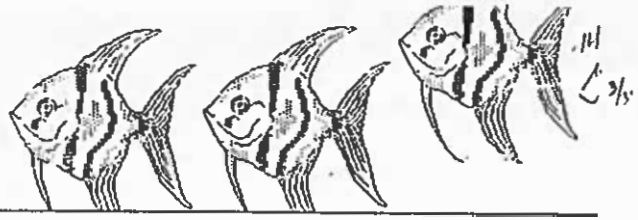
TO: Diractor, Bureau of Planning

FROM: Director, Marine Lab Valerie Paul

SUBJECT: Draft environmental assessment for the designation of a Marine resources preserve on Anderson Air Force Base Property

I have reviewed the document for the designation of a Marine Resources Preserve on Anderson Air force Base property. The Marine Lab supports this project, and I do not see any problems with the document.

"kids for coral"
911 N. Marine Drive
Tumon, Guam 96911
Phone 646-5626



March 23, 1992

Natural Resources Planner
633 AEW/DEV
Andersen AFB, Guam
APO 96543

Dear Ms Hirsh

Kids for Coral is a group of junior high school students dedicated to promoting awareness of the importance of preserving Guam's reefs. We were very interested to learn about the marine resources preserve on the Andersen Air Force Base property. Our organization strongly supports this project. There is an abundance of coral there capable of breeding which will, in turn, help in seeding central and southern reefs. We have studied the southern reefs and realize the destruction due to sediment from runoff. If there is a chance that these reefs can be restored, we strongly favor it.

We have spent the last two years learning about our reefs and participating in activities that bring awareness to the public on ways to save them. Please let us know if there is anything we can do to lend further support to this project.

Sincerely,

Janette Doyle

Project Coordinator
Kids for Coral

Jim & Bonnie Brandt
P.O. Box 10981
Tamuning, Guam 96914

March 17, 1992

Andersen Air Force Base
633 Civil Engineering Squadron
Environmental Management Branch

To Whom it May Concern:

As long time residents of Guam and active professionals in the scuba diving community, we would like to offer our support for the proposed designation of a Marine Resources Preserve on Andersen Air Force Base. The destruction of much of Guam's reef system and decline in populations of marine organisms is evident to those of us who have frequented Guam's waters over an extended period of time. Reclaiming our marine resources will require a coordinated set of conservation and education activities involving both the civilian and military communities. It is our belief that the AAFB Marine Resources Preserve is a very significant action towards this end.

The designation of the Marine Resources Preserve is only the first step. We believe that the preserve's management plan should include an aggressive educational program. Protection must go hand-in-hand with education. People will continue to use Guam's waters for recreation and commerce and because of this, conservation efforts will only be effective if people learn how to use their marine resources responsibly and safely.

In closing, we applaud the Air Force for its foresight in establishing Guam's first marine conservation area. It is our hope that this designation will focus public attention on the need for the Government of Guam to also pursue the establishment of marine preserves.

Sincerely,

Jim Brandt,
PADI District Course Director

Bonnie Brandt
PADI Instructor

23 March 1992

Lt. Col. William C. Schaur
Commander, 633d Civil Engineering Squadron
Department of the Air Force
Andersen AFB, Guam

RE: Designation of Marine Resources Preserve

Dear Lt. Col. Schaur:

This letter is to express my total support for the Air Force's proposal to designate a portion of the Andersen Air Force Base coastal and submerged lands as a Marine Resources Preserve.

In the four years that I have lived on Guam, I have been diving Guam's reefs, both from the shore, and the reefs further out, via boats. During this time I have witnessed significant degradation of the reefs, in large part due to uncontrolled development of the land, with concomitant siltation of the reefs occurring by way of said uncontrolled development. I have also witnessed some reef degradation from damage by reef users, such as divers, fishermen and other recreational users. As a direct result of reef degradation I have observed a significant decrease in the fish population that inhabits these reefs.

I believe that unless there are some marine resource preserves created on Guam in the near future, soon there will be a de minimus fish population in the Guam waters. Although the local government espouses marine conservation, it has been dragging its feet with regard to actually taking any action to effectuate conservation. My only hope for the future of Guam's fish and coral population is that the military will in fact take action.

Thus I unequivocally support the Air Force's proposal to establish a Marine Resources Preserve, and hope that it will go on to designate several in the immediate future.

Thank you for this opportunity to comment.

Sincerely,

R K Rona

Roberta Happy Rona
2-200 E, Judicial Center Building
120 West O'Brien Drive
Agana, Guam 96910
(671) 475-3324 (days)
(671) 789-3309 (even)

To whom this may concern,

The proposed Marine Reserve at Scuba Cut, Tarague Beach is an important project to implement on an island that is quickly and sadly being destroyed by rapid development. The depletion of our marine resources and the irreversible destruction of our reefs due to sedimentation should be of great concern to all of us who live on Guam. The Air Force, Col DiGiovanni and the Environmental Resources Management Branch are to be highly commended for taking the initiative to save what little there is left of these valuable resources.

Some people may be opposed to the idea of the Air Force creating a reserve which limits traditional and cultural activities. Therefore, it is important that this project be presented as a gift to the people of Guam by creating programs within the reserve that will allow community involvement. As a member of the community living on the "other side of the fence," I would like to see educational field trips to the site for all public and private schools, colleges and the university. Perhaps the project can sponsor an essay contest amongst school children on the importance of having a marine reserve on Guam. These essays can be published and used to promote the reserve and educate the community. Other important community groups should also be invited, especially the manamkos and members of Protehi I' Tanota. They can be extremely helpful in promoting the reserve once they see and understand that this is something their ancestors had done in the past and is therefore traditionally and culturally significant.

On a final note, I would also like to see the control of the scuba diving in this area removed from dive groups such as the South Sea Searchers Dive Club. In attending one of their meetings, I was appalled to hear that only members of this dive club had exclusive "rights" to dive, spear fish and collect shells at Scuba Cut. Due to the lack of environmental awareness from certain members and officers who pushed to retain their "rights", I decided that membership with this group contradicts the most basic preservation and conservation rules that all responsible divers must abide by. My purpose in diving is to appreciate what nature has created, not to kill and collect everything in sight. The regulations that protect reserves will take away exclusive "rights" from groups such as South Sea Searchers and allow access to divers who are more interested in passive interaction with marine life.

Again, I would like to thank all those responsible for this much needed sanctuary. It is comforting to know that some of our tax money is being spent to preserve our environment rather than on weapons that destroy it.

Respectfully yours,

Cynthia Gorrez Schubert

#211 [illegible]

Tumon, Guam [illegible]

Gary J. Wiles
PO Box 24[illegible]1 APO
Guam, GU [illegible]6921

20 March 1992

[illegible]

[illegible]:

I [illegible] to give my full support to the designation of a Marine [illegible] Preserve on Andersen Air Force Base. I think a preserve of this type is badly needed on Guam because of the severe overfishing occurring on the rest of the island. It is pleasing to see the Air Force moving ahead with this type of conservation project, as compared to the Government of Guam, which has spoken of marine preserves for years but has never acted to establish any. All of the experts in marine biology on the island agree that such a reserve is needed and will be beneficial in restoring our fisheries resources.

Sincerely,

Gary J. Wiles

PUBLIC COMMENT

PUBLIC RESPONSE

17 - 18. Mr Michael U. Camacho submitted the letter of comments, questions and concerns shown in the written response section. The concerns and questions were discussed and answered at the public meeting, as indicated in written responses 17 and 18.

19 - 23. Mr. Ronald T. Laguana submitted the letter shown in the written comment section. Concerns and questions were discussed and answered at the public meeting, as indicated in written responses 19 through 23 below.

Mr. Jack Ray, Andersen AFB.
31. Which way do the currents flow when they hit Guam?

31. Dr. Steve Amesbury of the UOG Marine Lab explained. He then cited an incident where a fish aggregate device, which broke free where it was tied on the west side of the island, was later found beached on the east side of the island.

32. Following discussion on recent decline in the Island's reef quality, species abundance and diversity, the question was asked "Why propose a MRP at this location when nothing has changed?"

32. Answers were given and additional information Provided in section 1.0 of the EA.

33. Is it illegal to kill sea turtles on Guam?

33. Yes, it is illegal, most species of turtles are Federally listed as threatened or endangered.

34. Will scuba diving be allowed to dive in the MRP?

34. Yes, scuba diving is encouraged during months of June through September as long as the diver is not spearfishing.

Mr. Frank Leon Guerrero
35. If the preserve is approved, would there be any time frame on the duration of the preserve, and will Tarague Beach ever revert back to the original landowners.

35. The proposed preserve designation would be effective for perpetuity and if Tarague was ever declared excess. Reversion to the original landowners would be a decision for GovGuam.

Mr. Ed Benevente
36. When did DoD begin protecting marine life?

36. The Air Force is legally required to manage the land, air and water resources for which it is steward, under multiple use and sustained yield principles according to numerous public laws, executive orders, Territorial cooperative agreements, and DoD Directives. The MRP proposal is a result of the recent policy direction given by DoD Secretary Cheney and Air Force Chief of Staff, General McPeak, for the Federal Government to be the leader in environmental protection.

Mr. Angel Santos

37. Numerous comments and concerns expressed regarding nuclear warheads on Guam, leaking chemicals, people dying of seaweed poisoning, raw sewage, concealment, etc., readings from many newspaper articles submitted.

37. These topics and many others were discussed. Comments noted.

Mr. Ken Orcutt, Marianas Audubon Society

38. Attended the meeting and submitted the following comments. No discussion.

38. Comments noted.

Marianas Audubon Society

P.O.Box 4425, Agana, Guam 96910, U.S.A.

I am Ken Orcutt, and I am here tonight on behalf of the 120 members of the Marianas Audubon Society to voice our support for the Department of the Air Force's proposal to designate a portion of Anderson Air Force Base coastal and submerged lands as a Marine Resources Preserve.

In the environmental assessment of this proposal, the Air Force considered three alternatives. The first was to create a preserve that included the northern and eastern shorelines and submerged lands of AAFB, the second is to create a preserve that included the northern shoreline and submerged lands only and the third was to do nothing. The second alternative is the alternative preferred by the Air Force.

The first alternative, which would protect the larger area, was rejected by the air force on the basis that it would prohibit fishing from too large an area, such that the fishing industry on Guam would be adversely affected, and that the larger area would be difficult to manage given the limited resources available for this purpose. Despite the fact that the environmental assessment notes that this alternative would be the environmentally preferred alternative, the Marianas Audubon Society believes that, at the present time, the alternative preferred by the Air Force is the alternative which strikes the proper balance between the short term economic and recreational interests of the people of Guam and the protection of the environment.

We believe as the fishing pressure increases on Guam in the future, that the long term interests of the people of Guam will be to preserve a larger marine preserve. That is , preserving a larger area will be required in order to insure that a sufficient number of fish, molluscs and coral will survive to reproduce and repopulate those areas of Guam in which the reefs are now dying or dead and those areas which are subjected to overfishing.

Whether this larger area will need to be on AAFB submerged lands remains to be seen.If the Government of Guam ever got its act together and created a series of marine refuges on territorial submerged lands, the Air Force would probably not need to set aside a larger preserve in the future. Sadly, that appears unlikely. The Government of Guam's proposal to create a number of marine preserves has been languishing in the governmental bureaucracy for years. Just a few weeks ago the Territorial Seashore Protection Commission approved the construction of an underwater observatory in the middle of one of the areas the territory had proposed to designate as a marine preserve. If this is marine preservation, we would hate to see what GovGuam's idea of the economic development of marine resources is.

Because of the failure of the Government of Guam to create a single marine preserve on this island, The Marianas Audubon Society believes that the future of Guam's marine and terrestrial flora and fauna rests in the hands of federal government, specifically in the hands of the Air Force and Navy. We find it ironic, with all the bashing of the federal government that goes on on this island, that it is the federal government that is taking the lead in preserving Guam's marine resources, and it is the federal government, through the United States Fish and Wildlife Service that is taking the lead in preserving Guam's endangered birds and bats, through its proposal to designate critical habitat for these animals and to establish a national wildlife refuge on Guam. The fact that the Air Force expects to eventually include this marine resources preserve as part of a Guam National Wildlife Refuge indicates to us that the Air Force cares about the environment and cares about the future of Guam.

We heartily endorse the Air force's proposal to create a marine resources preserve in northern Guam.

Thank you for this opportunity to speak to you tonight.

Ken Orcutt, president

Mr. Raul Santiago
39. "Where is the push to make the preserve coming from"

39. Secretary Cheney said "The real challenge is to build a new environmental ethic into the daily business of defense - make good environmental actions a part of our working concerns, from planning acquisitions to management." Partnership between military and natural resources professionals of state and local agencies and with private non-profit groups and individual volunteers is the key to a National Strategy for environmental quality - a comprehensive plan that properly balances public and private sector responsibilities.

General McPeak, Chief of Staff of the Air Force has directed Pacific Air Forces staff to implement these environmental protection policies. The Andersen AFB Environmental Management Office prepared this proposal with an integrated approach to natural resource management and mission planning to the benefit of the People of Guam, the resources, and to meet the Chief of Staff's goals.

40. "Are other areas under consideration for Marine Preservation programs?"

40. This is the only one being considered at the north end of the island. The Government of Guam Division of Aquatic and Wildlife Resources has a program underway that proposed eight different sites, from Ipan to Tumon Bay be designated as Marine Conservation Areas.

Mr. Joe Parado
41. "Will non-military individuals be granted access to the Preserve?"

41. Will non-military be granted access to the Preserve? Yes, controlled access will be permitted under the same requirements effective now, unless special public or group functions are hosted.

Ms. Vicki Loughran, Mangilao Grade School Teacher
42. Comments given in support of the MRP and how this initiative will be helpful for the students.

42. Comments noted.

Mr. Patrick Jennings
43. Stated that he thought the resources within the proposed marine preserve were not stressed at present and that there was only a miniscule among of fish being taken. He spoke favorably on allowing spearfishing.

43. Comments noted.