EVALUATION OF U.S. FISH AND WILDLIFE SERVICE OPERATIONS ON TERN ISLAND IN THE HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE: RECOMMENDATIONS FOR A LONG-TERM COURSE OF ACTION

TERN ISLAND, FRENCH FRIGATE SHOALS
HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE

EVALUATION OF U.S. FISH AND WILDLIFE SERVICE OPERATIONS ON TERN ISLAND IN THE HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE:

RECOMMENDATIONS FOR A LONG-TERM COURSE OF ACTION

A Report Submitted to the U.S. Fish and Wildlife Service

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DISCLAIMER

The perspectives and recommendations presented in this report are those of the author's and do not necessarily represent those of the U.S. Fish and Wildlife Service.

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Table of Contents

INTRODUCTION

This project was undertaken to develop an independent assessment of issues associated with U.S. Fish and Wildlife Service (Service, USFWS) operations on Tern Island in the Hawaiian Islands National Wildlife Refuge. The assessment was necessary because of competing demands for limited agency resources (i.e., funding and manpower) among Service programs and controversies associated with Tern Island such as shoreline deterioration and contamination caused by past U.S. Navy and U.S. Coast Guard operations on the island.

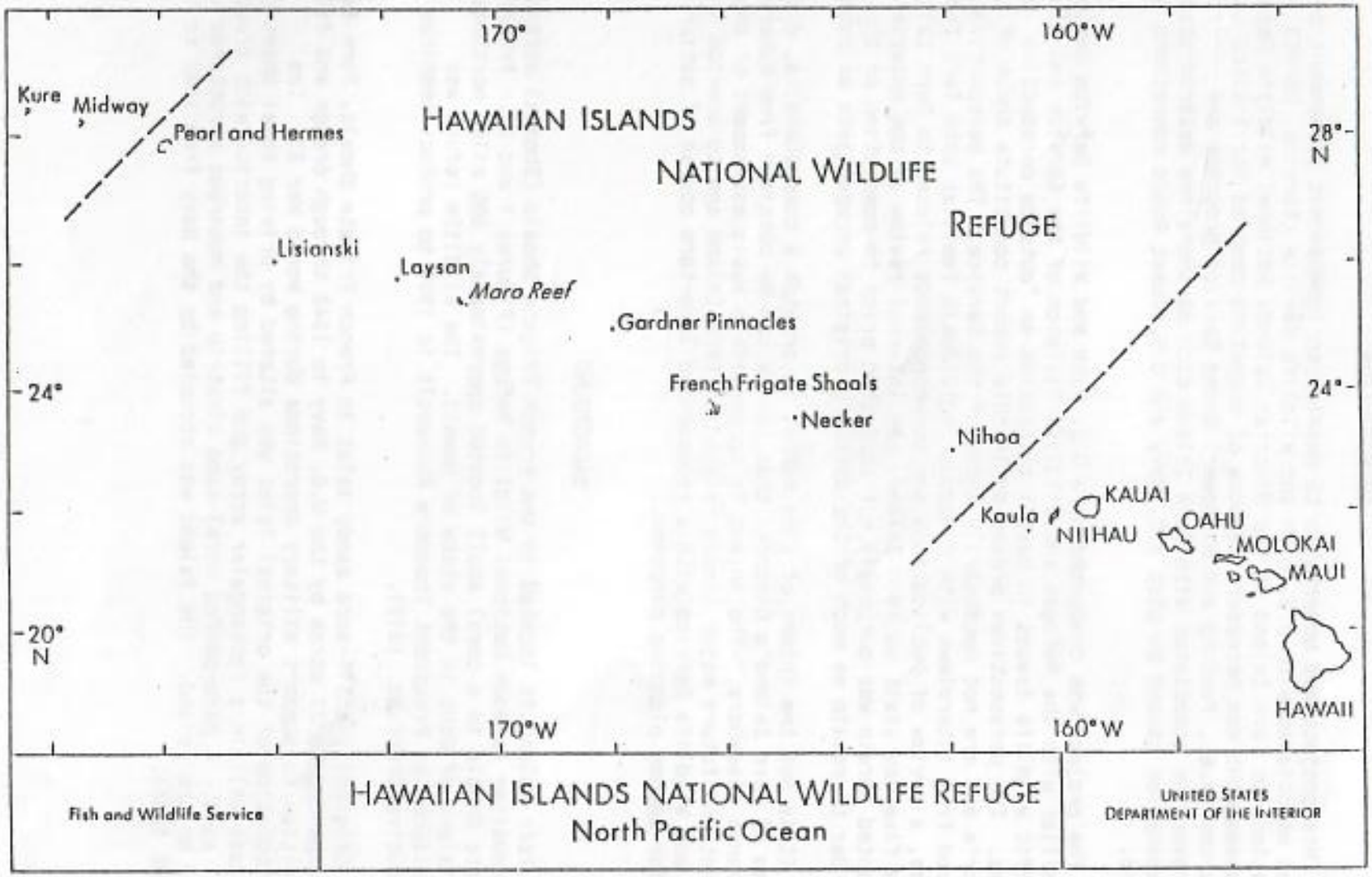
The project was conducted by a U.S. Fish and Wildlife Service employee unfamiliar with the Refuges and Wildlife Division of the Service and with specific wildlife issues in Hawaii to provide an "outside perspective" of the issues. The perspectives presented in this report constitute those of the author's and are not necessarily those of the Service. The perspectives were derived from interviews with numerous individuals familiar with Tern Island issues, a review of publications and correspondence related to Tern Island, and a five-day visit to Tern Island. An internal review of the material presented herein was purposely not conducted prior to completion of the report in order to retain as much of the author's original perspectives as possible.

It is not the intent of this report to provide a comprehensive, detailed review of Tern Island's history; that review can be obtained from numerous documents elsewhere. The intent is to provide a basic assessment of the current and future major issues related to Tern Island and to provide the U.S. Fish and Wildlife Service with a recommended long-term course of action as an aid for agency planning purposes.

BACKGROUND

Tern Island is located in the French Frigate Shoals (Shoals) portion of the Hawaiian Islands National Wildlife Refuge (Figures 1 and 2). French Frigate Shoals is a coral atoll located approximately 500 miles northwest of the island of Oahu in the state of Hawaii. The wildlife refuge was established by President Theodore Roosevelt in 1909 to protect seabirds (Executive Order No. 1019).

Originally an 11-acre sandy islet in French Frigate Shoals, Tern Island was expanded to 37 acres by the U.S. Navy in 1942 through dredge and fill activities to support military operations during World War II. The configuration of the original islet was altered by driving steel sheet piling as a sea wall in a rectangular array and filling the interior with dredged coral sand. A hard-packed coral sand airstrip and numerous structures were built on the island. The island was occupied by the Navy from 1942 to 1946 (USFWS 1986).


170°
160°W
Kure
Midway
Pearl and Hermes
HAWAIIAN ISLANDS
NATIONAL WILDLIFE
REFUGE
28°
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Maro Reef
Gardner Pinnacles
French Frigate Shoals
Necker
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KAUAI
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Fish and Wildlife Service
HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE
North Pacific Ocean
UNITED STATES
DEPARTMENT OF THE INTERIOR

Figure 1.

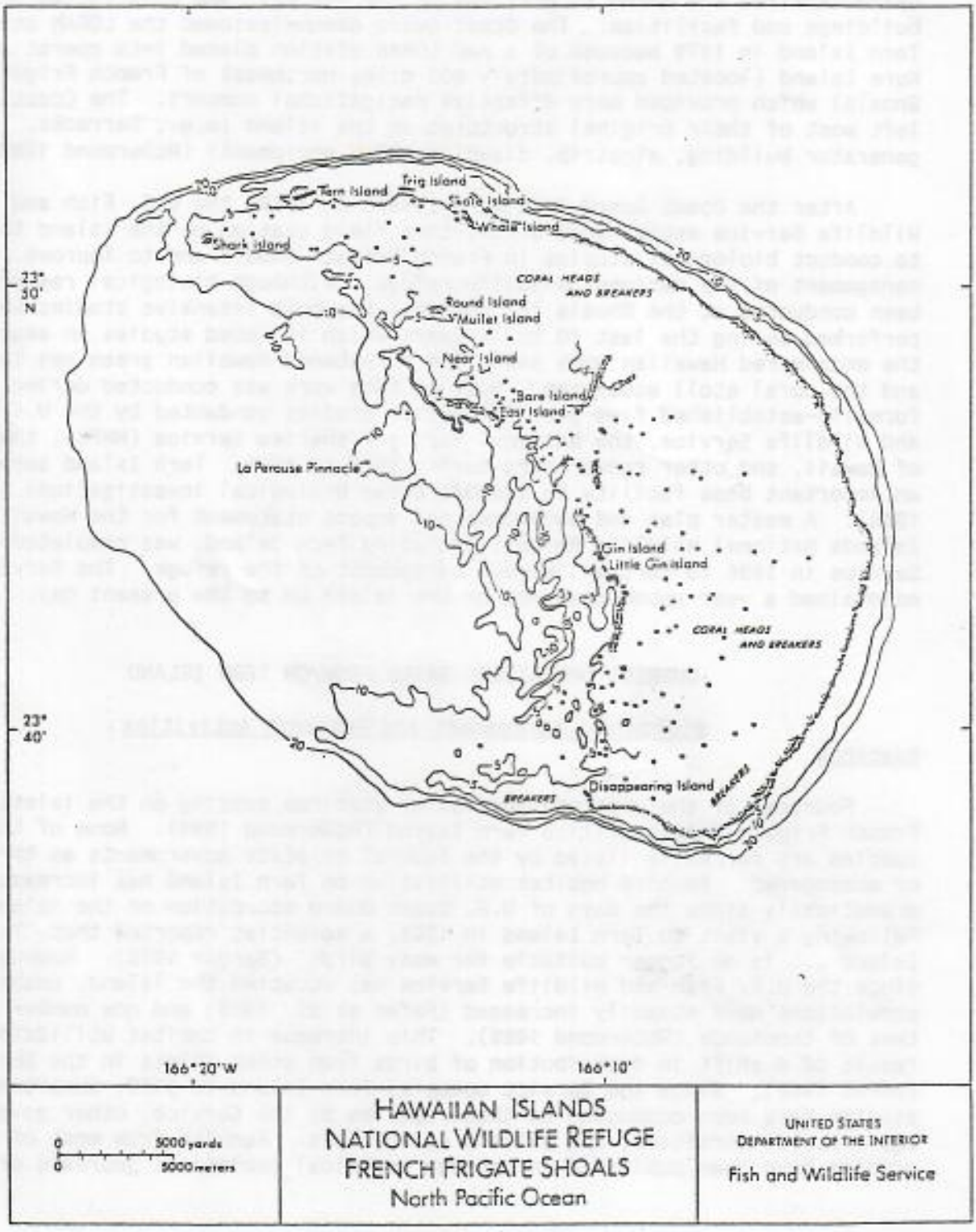
Tern Island
Frig Island
Skate Island
Whale Island
Shark Island
CORAL HEADS AND BREAKERS
Round Island
Mullet Island
Near Island
Bare Island
East Island
La Perouse Pinnacle
Gin Island
Little Gin Island
CORAL HEADS AND BREAKERS
Disappearing Island
BREAKERS
BREAKERS
23° 30' N
23° 40'
166° 20' W
166° 10'
0 5000 yards
0 5000 meters
HAWAIIAN ISLANDS
NATIONAL WILDLIFE REFUGE
FRENCH FRIGATE SHOALS
North Pacific Ocean
UNITED STATES
DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service

Figure 2

In 1952, the U.S. Coast Guard formally took over operations on Tern Island to provide navigational support with a LORAN (long-range navigation) station and occupied the island until 1979. During this period, the Coast Guard repaired and added to portions of the sea wall and constructed new buildings and facilities. The Coast Guard decommissioned the LORAN station on Tern Island in 1979 because of a new LORAN station placed into operation on Kure Island (located approximately 600 miles northwest of French Frigate Shoals) which provided more effective navigational support. The Coast Guard left most of their original structures on the island (e.g., barracks, generator building, airstrip, disabled LORAN equipment) (McDermond 1989).

After the Coast Guard left Tern Island in 1979, the U.S. Fish and Wildlife Service established a full-time field station on the island that year to conduct biological studies in French Frigate Shoals and to improve management of the national wildlife refuge. Although biological research has been conducted at the Shoals for decades, the most intensive studies were performed during the last 10 to 15 years which included studies on seabirds, the endangered Hawaiian monk seal, the threatened Hawaiian green sea turtle, and the coral atoll ecosystem. Most of this work was conducted during the formally-established five-year Tripartite studies conducted by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service (NMFS), the state of Hawaii, and other researchers during 1978 to 1983. Tern Island served as an important base facility to support those biological investigations (USFWS 1986). A master plan and environmental impact statement for the Hawaiian Islands National Wildlife Refuge, including Tern Island, was completed by the Service in 1986 to further improve management of the refuge. The Service has maintained a year-round presence on the island up to the present day.

CURRENT OPERATIONS BASED FROM/ON TERN ISLAND

Biological Management and Research Activities

Seabirds

Fourteen of the eighteen species of seabirds nesting on the islets in French Frigate Shoals utilize Tern Island (McDermond 1989). None of the species are currently listed by the federal or state governments as threatened or endangered. Seabird habitat utilization on Tern Island has increased dramatically since the days of U.S. Coast Guard occupation on the island. Following a visit to Tern Island in 1966, a scientist reported that "Tern Island ... is no longer suitable for many birds" (Berger 1970). However, since the U.S. Fish and Wildlife Service has occupied the island, seabird populations have steadily increased (Fefer et al. 1983) and now number in the tens of thousands (McDermond 1989). This increase in habitat utilization is a result of a shift in distribution of birds from other islets in the Shoals (USFWS 1986). Since the Service occupied Tern Island in 1979, numerous field studies have been conducted on those species by the Service, other government agencies, universities, and private researchers. Results from most of those studies have been published in various technical biological journals or non-

technical publications. Most of the ongoing research is performed by individuals conducting university research projects.

Results of Tern Island seabird studies have provided invaluable information on the status of portions of the ecosystem in the northwestern Hawaiian archipelago. Various biologists interviewed believe that results from seabird studies at Tern Island serve as an indicator of the "health" or quality of the local marine environment because of the birds' dependency on the forage in nearby waters. Measure of the ingestion of plastics by birds can also served as an indication of marine pollution present in that remote location. Biologists believe that monitoring seabird populations at French Frigate Shoals serves as a means of determining and understanding fluctuations in their populations caused by natural perturbations (e.g., diseases and alterations of ocean currents) or man-induced factors (e.g., effects of fishing and the introduction of exotic pests) (Sheila Conant, University of Hawaii, personal communication; Fefer et al. 1983; USFWS 1986).

Probably the most important result derived from recent and ongoing seabird research at Tern Island is the development of appropriate methodologies for conducting seabird research at remote locations. Because of the ability to study seabirds year-round at Tern Island, research at that locality has enabled continuous monitoring of seabird breeding, nesting, and rearing characteristics. Results of this monitoring have demonstrated that some species nest (breed) more often than previously believed. The significance of this finding is that it has increased the accuracy of population estimates generated from short-term monitoring. In some cases, these results have significantly improved data interpretation and the understanding of previous seabird studies. Much of what has been learned from studying seabird biology at Tern Island can and has been applied to other remote study locations where year-round monitoring is not feasible (Stewart Fefer, USFWS, personal communication).

Although all knowledgeable individuals interviewed believe seabird studies at Tern Island have yielded valuable information, most believe that the studies are rapidly approaching diminishing returns for the effort expended.

Hawaiian Green Sea Turtle

Over 90 percent of the nesting of Hawaiian green sea turtles in the Hawaiian Islands occurs in French Frigate Shoals. Approximately 55 percent of the nesting in the Shoals occurs on East Island (Figure 2). The green sea turtle has been fully protected in Hawaii since 1978 (NMFS 1989).

Jurisdiction over the protection, management, and research of the Hawaiian green sea turtle (a federally-listed threatened species) is shared between the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Separation of authority is at the water's edge; if the turtle is on land, the U.S. Fish and Wildlife Service is the responsible agency and, if in water, the National Marine Fisheries Service has jurisdiction. Even though

such separation of authority appears confusing, those responsible for sea turtle management and research believe that issues associated with the turtle have been handled satisfactorily, although some minor improvements may be warranted.

The National Marine Fisheries Service took the lead in developing the draft Hawaiian green sea turtle recovery plan presumably because that agency has the preponderance of expertise related to the biology of Hawaiian green sea turtles. A March 1989 draft recovery plan has been submitted to the National Marine Fisheries Service's Washington D.C. office for approval and publication in the Federal Register.

Studies of the green sea turtle at French Frigate Shoals have been conducted since 1973; most of this past research was performed by the National Marine Fisheries Service on East Island. The National Marine Fisheries Service and U.S. Fish and Wildlife Service have conducted studies of turtles on Tern Island from 1986 to 1988 (McDermond 1989). The research conducted at the Shoals has focused primarily on the breeding biology of the green sea turtle. The U.S. Fish and Wildlife Service currently collects most of the data on turtles in French Frigate Shoals and provides the information to National Marine Fisheries Service researchers in Honolulu.

Although a significant amount of research has been conducted on characteristics of green sea turtle nesting and hatching at French Frigate Shoals, it appears that a considerable amount of biological information necessary for the recovery of the turtle is lacking. There has been very little quantification and evaluation of density-independent and density-dependent factors affecting the turtle population. Factors limiting the population are not known. Furthermore, it appears that the basic methodology for population monitoring needs further refinement and verification. The draft Hawaiian green sea turtle recovery plan identifies numerous studies that should be continued or undertaken.

The Hawaiian green sea turtle is unique among sea turtles in its basking behavior of crawling out onto the beaches on the islets in the Shoals for extended periods. This behavior is not entirely understood although it is believed to serve either as a thermoregulatory function by absorbing solar radiation or to protect the turtles from predation by large tiger sharks which frequent the Shoals (NMFS 1989). This basking behavior makes the turtles highly vulnerable to human disturbance. For example, one fisherman harvested about 200 green sea turtles at the Shoals between 1946 and 1948 (Manta Corp. 1979 as referenced from Amerson 1971).

Most individuals interviewed believe that personnel stationed on Tern Island serve in capacity to protect turtles within French Frigate Shoals. By virtue of the year-round presence of Service personnel at Tern Island, a deterrent to illegal entrance onto the refuge at the Shoals has been established. This presence also prevents the accidental or intentional introduction of exotic animals which may be harmful to the sea turtles (e.g., mongooses, rats, dogs). It should be mentioned that the effectiveness of the

personnel presence serving as a deterrent is questionable by some individuals. They have indicated that unauthorized access to the Shoals is possible because personnel on Tern Island cannot see most of the area within the Shoals and do not patrol the region on a regular basis.

Personnel on Tern Island also serve in a capacity to prevent direct mortality of turtles on the island by preventing entanglement in debris and entrapment behind the corroded sea wall (discussed in a following section). There have been several documented cases where Tern Island personnel have successfully prevented sea turtle mortalities (McDermond 1989).

Hawaiian Monk Seal

The Hawaiian monk seal (a federally-listed endangered species) inhabits a limited area around the northwestern Hawaiian Islands. The population of Hawaiian monk seals is currently estimated at about 1,500 animals (Marine Mammal Commission 1989). Of the six coral atolls located in the northwestern Hawaiian Islands, only French Frigate Shoals has shown an increase in their local populations; the others have decreased (Gilmartin 1983). The population of monk seals at French Frigate Shoals may be at or near the carrying capacity for the local environment (William Gilmartin, NMFS, personal communication). As with the case of seabirds, monk seal utilization of Tern Island has increased significantly since the days of U.S. Coast Guard occupation (Figure 3) but is attributable to a shift in monk seal distribution from other islets in the Shoals (USFWS 1986).

Jurisdiction for the protection of the Hawaiian monk seal lies with the National Marine Fisheries Service under provisions of the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. The U.S. Fish and Wildlife Service shares much of the responsibility for protection of the seal and its habitat because most of the seal's terrestrial and early rearing habitat is within the boundaries of the Hawaiian Islands National Wildlife Refuge.

The monk seal is unique in that members of its genus are the most primitive among seals. Of the other two species within its genus, the Caribbean species is believed to be extinct and the Mediterranean species is declining rapidly (Marine Mammal Commission 1986). It is believed that due to its primitive nature, the monk seal is particularly susceptible to human disturbance as compared to other seal populations (Gilmartin 1983).

French Frigate Shoals is estimated to accommodate approximately 50 percent of the breeding population of Hawaiian monk seals. The sandy islets in French Frigate Shoals are particularly important habitat for seal pupping and weaning. The near-shore habitat is also critically important for the early life stage of young seal pups. For reasons not entirely understood, a significant portion of pups born at French Frigate Shoals are emaciated either from an unusually low birth weight or being prematurely weaned (William Gilmartin, NMFS, personal communication).

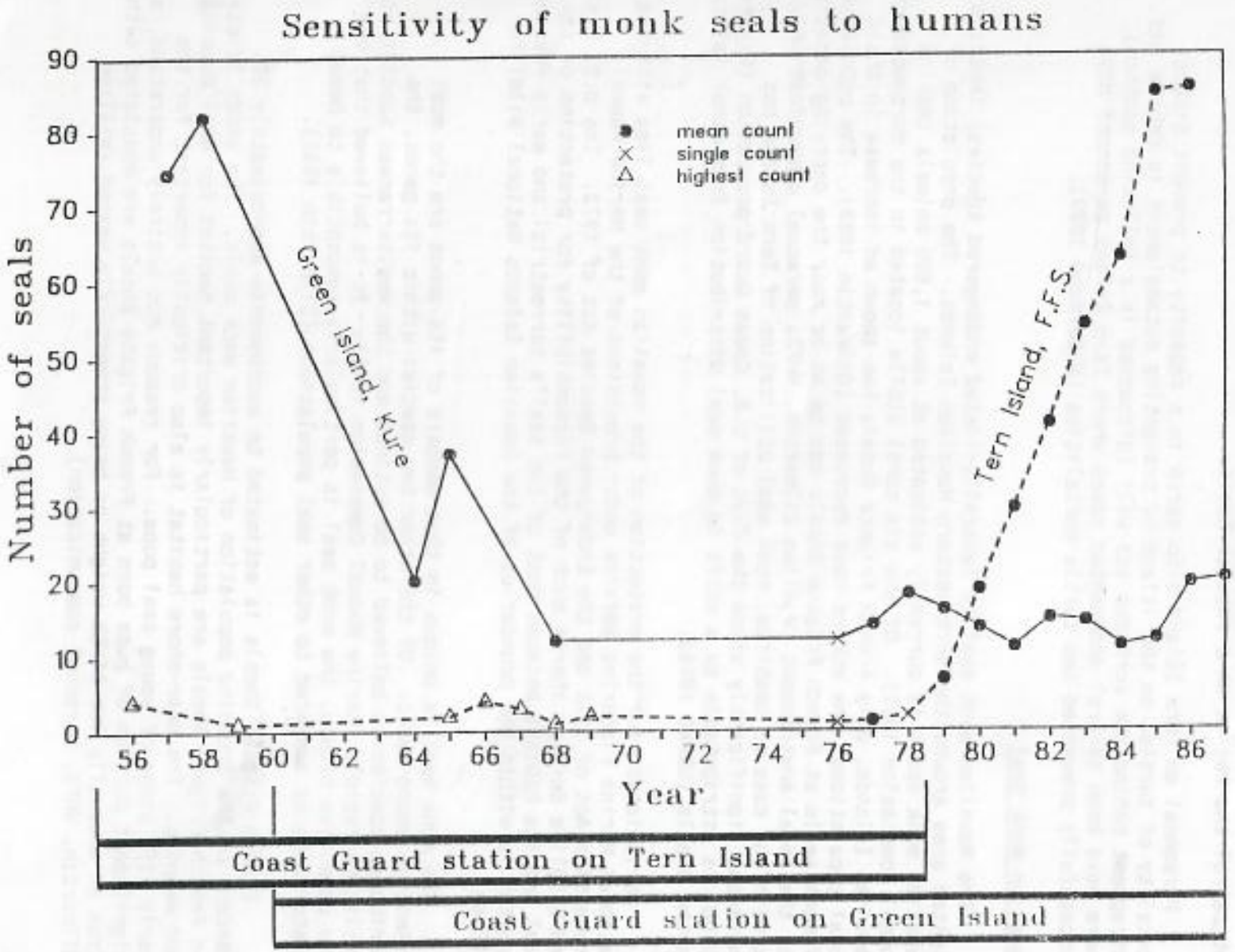

Figure 3. Sensitivity of Hawaiian monk seals to humans (graph obtained from William Gilmartin, National Marine Fisheries Service).

A considerable amount of research has been conducted on the basic biology and ecology of monk seals in recent years, much of which was performed at French Frigate Shoals. Factors limiting the population of the seal appear to be mortality in the seal's juvenile and sub-adult stages and the differential mortality in adults which results in skewed sex ratios toward males (Gilmartin 1983) with a presumed lower population fecundity. Causal agents are not entirely known or understood, but are believed to include: adverse effects from human disturbance, shark attacks, ciguatera poisoning, internal parasites, entanglement in nets and debris, and injury to females resulting from aggressive courtship by numerous males (Gilmartin 1983).

Service personnel stationed at Tern Island presently serve in an important capacity to provide support for monk seal management and research activities at French Frigate Shoals. These duties include: 1) the removal of marine debris that may entangle and kill seals, 2) prevention of seal entrapment behind Tern Island's corroded sea wall (discussed in a following section), 3) maintenance and utilization of the airstrip for removal and rehabilitation of emaciated seal pups, 4) year-round monitoring of seals in French Frigate Shoals, 5) prevention of illegal human disturbance, and 6) numerous logistical support efforts for the conduct of other seal research and management activities. The year-round presence of Service personnel on Tern Island is believed by most individuals to serve as a deterrent for unauthorized entry onto the refuge at French Frigate Shoals. Such unauthorized entry could be extremely harmful to the seals because of their particular sensitivity to human disturbance. However, as stated in the case of the green sea turtle, illegal entry into the Shoals may be possible without the knowledge of Tern Island personnel.

Coral Atoll Research

At the present time, very little research is being conducted on the coral atoll environment at French Frigate Shoals. Most of the past coral atoll research at the Shoals was conducted during the Tripartite studies in the late 1970's and early 1980's. One person interviewed indicated that research during this period "skimmed the cream off the top" of coral atoll investigations for the Shoals. During the summer of 1989, one non-governmental individual was conducting a study to determine if Acropora, a coral genus rare in the northwestern Hawaiian Islands, reproduces at the Shoals.

Other Activities

National Weather Service

The National Weather Service currently utilizes a weather reporting station on Tern Island. This remote transmitter station provides continuous information integral to National Weather Service operations such as: temperature, dew point, wind direction, wind speed, wind gust, precipitation, and barometric pressure (Ben Swafford, National Weather Service, Honolulu, personal communication). U.S. Fish and Wildlife personnel maintain the weather station for the National Weather Service. Without operation of the

station, short-term weather forecasting and winter storm warnings would be significantly compromised particularly because of presently limited satellite imagery (Ben Hablutzel, Deputy Meteorologist-in-Charge, National Weather Service, Honolulu, personal communication).

Sea Level Monitoring

As referenced by Wyrtki et al. (1988), the University of Hawaii installed a sea level gauge on Tern Island in 1975 as an integral portion of the Pacific Sea Level Network to monitor the large-scale, low-frequency sea level fluctuations of the tropical Pacific Ocean associated with the variations of the equatorial currents and with El Niño events. In 1987, the station was upgraded as a satellite transmitting station and the information is used by the Pacific Tsunami Warning Center. Funding for the Pacific Sea Level Network has been received from a variety of sources including: the National Science Foundation, the Tropical Ocean-Global Atmosphere Project, the National Oceanographic and Atmospheric Administration, and the National Aeronautics and Space Administration.

Public Awareness

Government Agency Programs. Present government agency programs to increase public awareness of wildlife issues associated with the Hawaiian Islands National Wildlife Refuge appear to be very limited. Many of the individuals interviewed indicated that this was primarily a function of limited agency funding and manpower for such programs, the remoteness of the refuge, and the fact that entry onto the refuge is severely restricted to protect the wildlife. At the present time, the Service has a slide/tape show available for local showings in Hawaii and several brochures describing the Hawaiian Islands National Wildlife Refuge. The National Marine Fisheries Service distributes several high quality brochures and posters describing sea turtle and monk seal biology and issues. Agency personnel periodically give presentations to inform the public of wildlife values in the northwestern Hawaiian Islands. The state of Hawaii also serves in a similar capacity.

Nature/Educational Film Crews. The Service presently allows public documentaries of wildlife and associated issues in the Hawaiian Islands National Wildlife Refuge to be filmed by professional film crews. Access to the refuge is very limited and is strictly controlled by special use permits issued by the Service. All activities on the refuge are closely monitored by Service personnel. During the spring and summer of 1989, footage for three films was taken for national or international presentations in 1991-1992.

Non-Governmental Publications. It has been estimated that during a recent 10-year period, one to two articles per year on the Hawaiian Islands National Wildlife Refuge appeared in major publications and were focused toward the general public (USFWS 1986). Many of these efforts were based from Tern Island. These projects are also restricted and closely supervised by Service personnel to protect refuge wildlife.

MAJOR ISSUES

Corroded Sea Wall, Buried Debris, and Contamination

By far the most significant current issue related to Tern Island is the severely corroded sheet pile sea wall on the north side of the island. The largest portion of this sea wall has corroded so severely that the sheet piling has lost much of its original integrity and now possesses large vertical gaps in the wall resembling a picket fence. A recent civil engineer's report on Tern Island's north sea wall referred to the sheet piling as "mostly a skeleton" (Graham 1984). Because of the gaps in the sheet piling, large waves can easily penetrate the wall and have already washed a tremendous quantity of the coral sand fill off the island. This erosion is rapidly approaching the northern perimeter of the island's packed coral sand airstrip. In addition, the erosion has revealed large quantities of previously buried debris remaining from the days of U.S. Navy and/or Coast Guard occupation on the island. Furthermore, 20 large underground fuel storage tanks have been recently discovered on the island's north side due to the erosion. Many of these tanks still contain either diesel or aviation fuel (McDermond 1989).

Disintegration of the northern portion of the island has created entrapment zones for sea turtles and seals behind the corroded sea wall. According to Service personnel, the situation is rapidly getting worse and will likely soon reach unmanageable conditions.

Service personnel also have expressed a serious concern that debris previously buried on the island from the days of U.S. Navy and Coast Guard occupation, which has begun to surface on the northwest side of the island, will soon create harmful conditions for the wildlife at French Frigate Shoals (e.g., entanglement in wire) if allowed to be released into the coral atoll environment. Some of this material will not readily decompose in the ocean environment (e.g., copper wire).

Additionally, Service personnel fear that significant quantities of polychlorinated biphenyl (PCB) remain in the abandoned U.S. Coast Guard LORAN building which could create harmful conditions to both humans and wildlife at French Frigate Shoals if allowed to be released into the environment. The extent of this problem has not been investigated.

Defense Environmental Restoration Account

The Defense Environmental Restoration Account or Program was established as a result of legislative actions to deal with potential threats to public health and safety at existing and formerly-used Department of Defense facilities. Commonly referred to as DERA, the Program was formally established in fiscal year 1984 under the Defense Appropriations Act (Public Law 98-212) and accomplishment of the Program depends on Congressional appropriations each year. The U.S. Army Corps of Engineers (Corps) is

responsible for administering DERA at formerly-used Department of Defense sites. The management plan for DERA at these sites includes the following three program categories:

1) Ordnance and explosive waste - Planning and execution of a program for removal and disposal of ordnance and explosive waste.

2) Building demolition and debris - Planning and execution of a program to demolish and remove unsafe, unsightly, and hazardous buildings and structures.

3) Hazardous and/or toxic waste - Comprehensive program to identify, investigate, and clean up contamination from hazardous and toxic substances and waste.

Each category is managed in up to three phases: inventory, engineering, and construction (U.S. Army Corps of Engineers 1984).

Tern Island has been determined to have been a formerly-used Department of Defense site and is presently in the inventory phase of DERA (Helene Takemoto, U.S. Army Corps of Engineers, Ft. Shafter, personal communication). The principal concern on Tern Island under DERA appears to be the diesel and aviation fuel remaining in the underground fuel storage tanks installed by the U.S. Navy during construction of Tern Island to support military activities during World War II.

Under the auspices of DERA, the U.S. Fish and Wildlife Service recently provided the Corps with a report on recommendations for cleanup of material and hazardous waste remaining on Tern Island (McDermond 1989). Those recommendations include repair or replacement of the sea wall.

Cleanup of the fuel remaining in the underground storage tanks on Tern Island clearly meets the provisions previously described for DERA. If the site is approved by the Office of the Secretary of Defense for restoration, the engineering phase of DERA will be implemented to determine the most cost-effective remedial action (U.S. Army Corps of Engineers 1984). This action could easily be nothing more than removal of the fuel, cleaning the storage tanks, and filling them with coral sand (Helene Takemoto, U.S. Army Corps of Engineers, personal communication).

Repair or replacement of the sea wall at Tern Island may not meet the criteria identified under DERA. Even if it does meet the criteria, this portion of the project would likely receive less consideration for funding because it does not present itself as a potential threat to human health and safety in the obvious manner that abandoned fuel tanks do.

Funding for Tern Island Operations

The provision of sufficient funding for Service operations on Tern Island became an obvious problem in 1987 when the Service proposed to change the

full-time operation on Tern Island to a seasonal operation. This measure was considered necessary to reduce operational costs (USFWS 1987).

Congressional support for the Service's full-time operation was clear when Congress provided the Service with a $200,000 add-on to the Service's budget in fiscal year 1987 in order to keep Tern Island in a full-time operational mode. Congress has continued to provide add-ons every year since then and preliminary indications are that they will do so again in fiscal year 1990 (Stewart Fefer, USFWS, personal communication).

It is difficult to determine the total cost to the Service for keeping Tern Island in a full-time operational mode. Estimates in recent years have varied from approximately $200,000 to $300,000 per year depending on how indirect costs (e.g., logistical support and supervision) are figured into the estimate. Although a detailed analysis of this topic was not conducted, I assumed, for the sake of discussion in this report, that the annual costs associated with full-time operations are approximately $250,000.

Most of the Service costs associated with Tern Island are salaries and the provision of logistical support to the island's operation (e.g., supplies and routine aircraft charters) (USFWS 1986). The 1986 master plan for the Hawaiian Islands National Wildlife Refuge anticipated that the support costs would become an increasingly important factor in keeping Tern Island in a year-round operational mode. The recent Congressional add-ons have helped defray the annual costs for Tern Island operations because of equipment upgrades and the conversion to solar power (Stewart Fefer, USFWS, personal communication).

Allocation of base funding for Service refuges in Hawaii is made by the Refuges and Wildlife Division within the Service's Portland, Oregon, Regional Office although the personnel in that division do not have line-management supervision over national wildlife refuge operations in Hawaii (Al Marmelstein, USFWS, personal communication).

Management/Research at French Frigate Shoals

Surprisingly, I found widely varying opinions among those individuals interviewed as to the principal purpose for full-time Service presence on Tern Island. Even more interesting was the fact that much of this variation was evident just within the Service. The following are some examples of opinions expressed by many individuals (Service and non-Service) as the primary purpose for the agency's presence on Tern Island: to study seabirds; to conduct law enforcement activities; to support National Marine Fisheries Service research and management activities on seals and turtles; to prevent entrapment and entanglement of seals and turtles on Tern Island; to conduct Service studies on seals and turtles; because Congress has dictated the presence; and because it's the best means to manage the Hawaiian Islands National Wildlife Refuge.

At the present time, the two agencies maintaining the highest level of effort at French Frigate Shoals are the National Marine Fisheries Service and

the U.S. Fish and Wildlife Service. Both agencies clearly have mandated needs to conduct biological activities on the refuge at French Frigate Shoals. The state of Hawaii also has a very necessary role in the activities at the Shoals, but apparently the state's level of effort was greatest during the Tripartite studies.

Although all persons interviewed expressed satisfaction with past and ongoing coordination of activities based out of Tern Island, I could not help but detect undercurrents that communication and coordination could be improved. Differences of opinion between agency personnel are probably present in any significant inter-agency program, particularly in one where major jurisdictional overlap occurs such as on the Hawaiian Islands National Wildlife Refuge. It is worth emphasizing that all individuals interviewed were very complimentary of the professionalism of other agency personnel and programs. I expected my assessment to reveal major "turf battles", but could find none.

Public Awareness/Constituent Support

It is apparent that the Service it not doing as much as it reasonably could to effectively display the biological necessity of their programs and increase public awareness of the agency's activities on the refuge. This is particularly evident when comparing the material presented in the Service's Hawaiian Islands National Wildlife Refuge master plan with existing Service activities. The master plan advocates strong programs for public awareness/environmental interpretation, yet existing activities demonstrate a very low profile. It appears that the Service is not following much of what was presented as the agency's "preferred alternative" in the refuge master plan as it relates to public awareness and environmental interpretation beyond that described in the previous section on existing operations. Service personnel indicated that the primary reason for this discrepancy is insufficient funding and staff for such activities.

DISCUSSION OF ALTERNATIVE ACTIONS

Numerous options for the Service's operations on Tern Island exist; many of those are discussed in considerable detail in the Manta Corporation's 1979 Tern Island Study (a contract report to the Service) and in the Service's master plan for the Hawaiian Islands National Wildlife Refuge. Depending on the detail, one could develop a tremendous amount of variation between options; I chose not to do so for purposes of this assessment. Instead, in the following discussion, I present three basic options for ease of presentation and understanding and which should encompass most scenarios.

Option 1 - Abandonment or Seasonal Operation

Abandoning operations on Tern Island or changing the present status to a seasonal operation are treated as one option because of similarities in the consequences of such actions.

This option is not considered a preferable course of action at the present time. An extensive description of the consequences of this option is presented in the Service's 1986 master plan for the Hawaiian Islands National Wildlife Refuge. Summarized, those major consequences in which I concur include the following:

1) Severe impairment of the research, monitoring, and protective actions required for recovery of the endangered monk seal and threatened green sea turtle populations (previously described in this report).

2) A reduction in the Service's ability to conduct research and monitor seabird populations for potential impacts associated with human activities.

3) A severe reduction in the ability to prevent illegal entry onto the refuge and the prevention of adverse impacts caused by human disturbance (e.g., poaching, introduction of harmful exotics, response to chemical or oil spills).

An extensive discussion of these consequences and other more minor consequences can be obtained from the refuge master plan.

An additional major consequence not discussed in significant detail in the refuge master plan [because the problem has increased in severity since the master plan was completed (Robert Shallenberger, USFWS, personal communication)] is the resultant adverse wildlife entrapment and entanglement conditions which will result from Tern Island's shoreline deterioration. The exposure of wildlife to major entrapment zones behind the sea wall will significantly increase (Gilmartin 1989), as will their entanglement in man-made debris (McDermond 1989) as the island deteriorates.

Implementation of this option will result in the loss of use of the existing airstrip on Tern Island. Without the continual presence of personnel on Tern Island, the airstrip cannot be satisfactorily maintained to ensure safe landing conditions for aircraft. The full-time presence of Service personnel on the island allows constant monitoring and maintenance of the airstrip. If the airstrip were allowed to deteriorate for extended periods (e.g., during the winter storm season), repairs could easily reach unmanageable proportions and become cost-prohibitive.

Use of the airstrip is essential to the safety of personnel conducting research or monitoring activities at French Frigate Shoals. In a medical emergency, existing constant radio communication between Tern Island and Honolulu and the use of the airstrip ensures that an injured or sick individual can be quickly evacuated from the Shoals to medical facilities on Oahu. Without the airstrip, the only other alternative is the utilization of sea-going vessels which would take many days to depart and return to Honolulu. The Shoals are beyond the range of Oahu-based helicopters and U.S. Coast Guard

personnel believe that landing a seaplane at the Shoals is too dangerous (Stewart Fefer, USFWS, personal communication).

At the present time, Tern Island's airstrip provides essential support for monk seal recovery efforts. In a relatively recent program, emaciated monk seal pups from the Shoals have been flown from Tern Island to Oahu and successfully rehabilitated. These pups are then released back into the wild in the northwestern Hawaiian Islands (other than French Frigate Shoals) which will aid monk seal population recovery efforts (William Gilmartin, NMFS, personnel communication).

In my assessment, the two most serious consequences resulting from implementation of this option would be the severe reduction in the Service's ability to deter illegal entry into French Frigate Shoals which would greatly increase the vulnerability of monk seals and green sea turtles to human disturbance and the "deathtrap" for wildlife created by Tern Island's deterioration.

It is difficult to determine any positive consequences in adopting this option. It is also questionable whether significant cost savings would result from this option assuming the Service would still maintain some basic level of monitoring and research at the Shoals (e.g., utilization of base camps). Assuming that the Service will continue to fulfill its responsibilities for just the Hawaiian green sea turtle alone, field camps and periodic surveillance and monitoring activities at the Shoals will be necessary. Although a detailed comparison between costs associated with field camp operations and current full-time operations on Tern Island has not been conducted to my knowledge, most individuals interviewed believe the actual cost of field camp operations would not result in significant savings compared to full-time Tern Island operations. At the time the master plan for the Hawaiian Islands National Wildlife Refuge was written, the costs for "substitute" field camps at the Shoals were estimated to be significantly higher than full-time operational costs for Tern Island (USFWS 1986).

Option 2 - Status Quo

Maintaining Service operations on Tern Island as they have been in recent years is not considered a preferred long-term course of action. Although this option is much more preferable than Option 1 (Abandonment or Seasonal Operation) because many beneficial year-round management and research activities could be continued for the near term, continuation of existing operations without additional actions will ultimately result in significant adverse impacts.

This option will not resolve the increasingly pressing problem of the deteriorating sea wall and the resultant consequences of the loss of existing structural integrity of Tern Island. In essence, the island is presently existing on "borrowed time". Prior estimates predicted that Tern Island's sea wall would have lost most of its integrity by the present day or in the very near future. Once it does so, severe entrapment zones for turtles and seals

will be created and entanglement losses in man-made debris on the island will be greatly exacerbated. A foothold (or literally a beach head) in preventing the problem from getting worse will be lost and could be cost-prohibitive to implement after significant island deterioration has occurred. Cleanup of man-made debris and contamination released into the Shoals fragile environment could also be cost-prohibitive or may not be logistically feasible. The resultant adverse impacts on the environment of the Shoals could be severe.

Upon examination of Tern Island's north side, even the untrained eye can easily predict with a high probability of accuracy that the island's airstrip will be severely damaged in the near future to the point that it will no longer be useable. Loss of the airstrip immediately places Option 1 (Abandonment or Seasonal Operation) as the only choice remaining. For the reasons described under Option 1, that option should not be considered viable at this time.

The existing funding for annual operations on Tern Island is tenuous. Although recent direct Congressional support for Tern Island has occurred, future changes in Congress could conceivably result in a very brief but significant loss of strong direct support. Loss of funding for any given year could immediately result in adoption of Option 1 (Abandonment or Seasonal Operation) by default. A brief period of a lack of presence by agency personnel on the island significantly increases the risks to wildlife in the Shoals primarily though potential illegal human intervention (e.g., poaching or harassment) or accidental human disturbance (e.g., slow response to ship groundings).

Option 3 - A 10 to 20 Year Plan (Recommended Course of Action)

This option, referred to as "A 10 to 20 Year Plan", is the recommended course of action the Service should take in resolving issues associated with Tern Island. This option will take an estimated 10 to 20 years to complete depending on results obtained within the first 10 years. This option is presented as separate components in the following discussion, but each item is integral to the success of the entire plan.

Sea Wall Repair/Replacement

The first and foremost problem requiring resolution at Tern Island is the repair or replacement of the sea wall. If the sea wall problem is not corrected, winter storms will soon permanently damage the structural integrity of Tern Island's present configuration. The advanced stage of corrosion within the existing sea wall will allow large waves to penetrate the island's interior, wash away its emergent coral sand, destroy the existing airstrip, and expose large quantities of buried debris on the island which will very likely create long-term hazardous conditions for the wildlife in French Frigate Shoals. During the years of this deterioration, it will most certainly result in the creation of significant entrapment zones for green sea turtles and monk seals at French Frigate Shoals. These animals will also be

subject to entanglement among large quantities of debris which will not readily decompose in the ocean environment (e.g., copper wire).

Tern Island's sea wall should be repaired or replaced as soon as possible. If it is not repaired in a timely manner, a "foothold" into the ability to feasibly implement repairs may not be possible. The costs associated with repairing the island after it has lost much of its original integrity could be prohibitive. Furthermore, if existing debris on and buried in the island were allowed to be strewn throughout the Shoals, cleanup activities may not be feasible or the associated costs would probably be prohibitive.

In actuality, the strategy for this plan is not to protect the island from the marine environment, but rather to protect the marine environment from the island. The initial phase would be to "containerize" the existing island before deterioration becomes too advanced and corrective measures become too large a task to handle. This will primarily require repair and replacement of portions of sheet piling on the island's northern perimeter which is most vulnerable to the prevailing winds and winter storms. At the same time, specific entrapment zones existing between sheet pile walls should be eliminated by either pulling the appropriate sheet piles or cutting them off at the substrate surface. New sheet piling should not be installed in a manner that could create obvious present or future entrapment zones.

Stabilizing the shoreline at Tern Island should be undertaken with the idea in mind that any replacement or repairs to the sea wall would be temporary in nature and would not be expected to last beyond 10 to 20 years. In a practical sense, repair or replacement of the sea wall should be viewed as the final attempt to keep Tern Island's structural integrity in place. The life span of the sea wall should only be long enough to ensure that total cleanup of man-made debris and contamination can occur and that management and research activities on the monk seal and green sea turtle requiring year-round presence of personnel on the island can be completed.

Repairing or replacing the sea wall and dredging activities to replace lost coral sand behind the sea wall would result in some short-term negative impacts to the wildlife and environment of French Frigate Shoals. However, those biologists interviewed believed that the short-term impacts would be heavily outweighed by the long-term benefits. Such a project would obviously have to be carefully planned to minimize any impacts. McDermond (1989) has presented some time frames when work of this nature could be conducted.

In 1984, a brief assessment by the Service estimated that it would cost $3.5 million (1984 dollars) to install 4,000 feet of new sheet piling at Tern Island (Graham 1984). A similar study by the U.S. Army Corps of Engineers that year estimated that 2,100 feet or 50 percent of the existing sheet piling needed repair or replacement (Maragos and Boc 1984) and would cost approximately $3.1 million (Cheung 1984). Conducting a project of this magnitude is beyond present Service funding (i.e., no existing authorization or appropriations) or the Service's likelihood of acquiring the necessary

funding. Furthermore, because the Service's and Corps' previous studies were only cursory in nature, a detailed engineering report with construction plans and specifications has to be completed first before specific proper corrective measures and costs can be determined. This type of study has not yet been conducted. Therefore, the following strategy is proposed.

Defense Environmental Restoration Account. As mentioned previously in this report, Tern Island has been identified under provisions of the Defense Environmental Restoration Account as a potential site for cleanup of fuel remaining on the island from the years of U.S. Navy occupation. The Service's Refuges and Wildlife Office in Honolulu recently submitted their portion of a U.S. Army Corps of Engineers report for the initial Inventory Phase of the DERA process which will be completed sometime this calendar year and submitted to the Corps' Huntsville, Alabama, office for approval and, if approved, the Engineering Phase of the project will be initiated (Helene Takemoto, U.S. Army Corps of Engineers, personal communication). The Service's report recommends that the Corps implement actions to clean up Tern Island and repair the sea wall (McDermond 1989).

The likelihood of funding the Tern Island cleanup and sea wall repair identified by the Service for the Defense Environmental Restoration Account is uncertain given the vagaries of the federal budgetary process, the federal deficit, and the likely intense competition among numerous projects identified elsewhere under DERA. Assuming the Tern Island DERA project reaches the Engineering Phase, engineering feasibility studies will be conducted to weigh alternatives and develop the most cost-effective remedial action. Because the main priority identified for the Tern Island DERA project will be the cleanup of the hazardous waste caused by the fuel remaining on the island, the Corps' Engineering Phase feasibility studies may determine that the most cost-effective remedial action for Tern Island will be to simply remove the fuel from the fuel storage tanks, clean the tanks' interiors, and fill them with sand. Such an action would eliminate the hazardous and toxic waste problem created by the military, but would do nothing for other associated problems (e.g., sea wall repair and cleanup of debris on the island).

Probably the most serious obstacle to implementing the Service's recommended course of action for the Tern Island DERA project will be the unlikelihood of acquiring appropriations for the project. Receiving appropriations are unlikely, in my opinion, because: 1) significant danger to human life and property resulting from past military presence on Tern Island is not apparent, 2) other DERA projects focused on protecting human life and property will take highest priority for DERA funds, 3) the remote location of Tern Island is an inherent factor to its probable low profile compared to other highly visible DERA projects nearer populated areas (i.e., out of sight, out of mind), and 4) the issue of the large federal deficit reduces the likelihood to obtain Congressional support for an expensive project.

However, even with the somewhat bleak picture painted for the Tern Island DERA project, the Service has an obligation to pursue actions to remedy the Tern Island issues because of the Service's mandated responsibilities to

protect wildlife and their habitat. Potential funding under DERA is one means of remedying those issues. Even if shoreline stabilization construction activities are not implemented under DERA, the development of detailed engineering designs for the sea wall will be extremely useful (discussed in the following section).

As stated previously, to date there has been no detailed assessment conducted to determine the exact engineering design for Tern Island shoreline stabilization. Following the Corps' 1984 superficial assessment of Tern Island stabilization, they indicated to the Service that the Corps had no funding authority to prepare a detailed technical report for Tern Island rehabilitation (Jenks 1984). Assuming the Tern Island DERA project reaches approval for the Engineering Phase of the project, the Corps would then have the funding authority to prepare such a report for detailed construction plans and specifications. For this reason, the Corps should be encouraged by the Service to pursue the Engineering Phase for the Tern Island project and develop specific engineering designs for shoreline stabilization.

Higher management levels of the Service (e.g., Regional Director) should apprise the Corps of the importance of the Tern Island DERA project by transmitting a letter to the Corps' Huntsville Office following submission of the Inventory Phase report. This letter should explain the need for the Engineering Phase report, the importance of implementing the Service's preferred action for wildlife resources at French Frigate Shoals, and describe the consequences of failure to implement that action. Because of the National Marine Fisheries Service's responsibilities for protection of the monk seal and the green sea turtle, that agency should also send a letter to the Corps, similar in content to the Service's, within the same time frame. The National Marine Fisheries Service Southwest Regional Director has expressed a willingness to do so (E. Charles Fullerton, NMFS Regional Director, personal communication, June 30, 1989).

Although no <u>detailed</u> evaluation describing which type of shoreline stabilization should be utilized at Tern Island has been conducted, I suspect that sheet piling should be the preferred option for the following reasons. Informal discussions with engineers knowledgeable with shoreline stabilization indicated that, given Tern Island's remote location, sheet piling would be less expensive in price, transportation, and installation than other alternatives (e.g., quarried rock revetment or pre-cast concrete structures). The retention of coral sand behind the shoreline stabilizing structure is imperative to prevent loss of the island's integrity; properly installed and maintained sheet piling has been proven to do so. Shoreline stabilizing structures such as rock revetment or pre-cast concrete could easily create major undesirable wildlife entrapment zones; if maintained properly, sheet piling will not. Lastly, and probably most importantly, sheet piling can be easily removed or destroyed in the marine environment without adverse effects on wildlife as compared to other options. This latter point is significant if Tern Island is allowed to revert back to dynamic equilibrium in the Shoal's environment (discussed in the following section on <u>Eventual Abandonment</u>).

Utilization of the U.S. Navy Seabees. Given the previously stated factors which will likely reduce the potential for repairing Tern Island, it is proposed that the Service enlist the support of the U.S. Navy Seabees [name designation from the transliteration of the initial letters of Construction Battalion; (U.S. Navy 1985)]. Utilization of the Seabees for the Tern Island project would be appropriate for several reasons. The first is that Tern Island was constructed and originally used by the Navy. In the author's opinion, the U.S. Navy has some obligation to correct the adverse conditions they created for wildlife at French Frigate Shoals. Secondly, the Seabees have the expertise and mobilization capabilities to conduct such a project (U.S. Navy 1985). Thirdly, it is unlikely that other means to have private contractors build such a project will be forthcoming for the previously stated reasons. And lastly, this project would be useful to the Seabees as a training exercise. The Navy has previously expressed an interest in conducting such an exercise at Tern Island (Marmelstein 1984). The training exercise could be conducted either by an active duty Construction Battalion Unit or the Reserve Naval Construction Battalion.

Naval documents indicate that priority for selection of training projects for the Reserve Naval Construction Battalion shall be:

> "(1) Naval Reserve Centers, Readiness Commands and active Navy and Marine Corps Facilities.
>
> (2) Contributory support projects for other military and federal agencies (emphasis added).
>
> (3) Civilian community support projects" (Smart 1988).

Because Tern Island was originally a Naval facility, the rationale for selection of the Tern Island project as a high priority would appear justified. Details for the submission of Reserve Naval Construction Battalion training projects are given in Appendix 1 and an initial contact in the Navy on this topic is:

COMRNCF/1st RNCB
ATTN: Captain Parker (Code N3SP)
Support Detachment, Bldg. 121
Construction Battalion Center
Gulf Port, MS 39501-5000
Phone: 601-865-2979

The Reserve Naval Construction Battalion would probably have a strong interest in implementing a project at Tern Island, particularly if it would entail sheet pile driving (UTCS Joe Johnson, Reserve Naval Construction Battalion, Lenexa, Kansas, personal communication). Apparently, the earliest date the Reserve Battalion could conduct the project would be in fiscal year 1991 (beginning October 1, 1990) because plans for fiscal year 1990 are already in place.

Because Tern Island is in close proximity to active Naval Construction Battalion Units (e.g., Pearl Harbor), it may be more appropriate to have active duty personnel conduct the training exercise depending on scheduling, equipment, and other necessary logistical support activities. In either case, the Navy could easily develop the logistical support required to implement the project even if it required coordination among different branches of the military (e.g., utilization of U.S. Army equipment in Hawaii) (Joe Johnson, Reserve Naval Construction Battalion, personal communication).

Specific construction plans and specifications for the training project could be derived from the Engineering Phase report for the Tern Island DERA project discussed previously.

Acquiring the necessary materials for the Tern Island project (mostly sheet piling) would be the most significant obstacle to overcome with this option. It is very unlikely that the Service could directly procure these items because of their expense [estimated at $2 million in 1984 (Marmelstein 1984)] and the probable lack of expertise within the Service for handling such project construction. Therefore, the military should be formally requested to provide the necessary supplies because of their previous involvement with Tern Island.

If the latter approach for materials procurement fails or cannot be implemented in a timely manner, a non-profit natural resources or environmental organization outside the Service should be enlisted to support project implementation. This organization could encourage private corporations to contribute the necessary materials for such a worthwhile project. The sheet piling would not necessarily have to be new material because sheet piling used and removed from temporary project construction (e.g., coffer dams) can be reused (Joe Hinton, U.S. Bureau of Reclamation, Willows, California, personal communication). The corporation(s)' motivation in donating materials for the project could be tax savings and an improvement in their public relations. Somewhat similar situations are handled by organizations such as the Nature Conservancy when they accept donations of land from corporations and then transfer them to the Service. The National Fish and Wildlife Foundation may be one such organization that could assist in enlisting military and private business support for repairing Tern Island (Whitney Tilt, National Fish and Wildlife Foundation, personal communication, June 28, 1989). If the Foundation is unable to provide assistance, other organizations such as the Nature Conservancy should be contacted to enlist their support. Appropriate media coverage (e.g., national press and network television) should be included to provide the opportunity for the U.S. Navy and contributing corporations to receive wide-spread positive recognition for their efforts to help wildlife resources in the northwestern Hawaiian Islands.

Debris and Contamination on Tern Island

Because there has been no quantitative assessment of the degree of debris buried under the island and the nature of PCB contamination, it's difficult to determine a proper course of action for the cleanup of Tern Island. An

additional complicating factor is that specific responsibility for a cleanup could lie with the U.S. Navy, the U.S. Coast Guard, the U.S. Fish and Wildlife Service, or any combination of these agencies; legal responsibility has not yet been determined.

For these reasons, it is recommended that the Service pursue the following course of action:

First, on-site studies should be initiated to determine the nature and extent of the debris and chemical contamination on Tern Island. The objective of the debris study should be to determine the buried debris location, type, and volume. Such a study should be funded by the U.S. Coast Guard and the U.S. Navy (because of their prior extensive involvement on Tern Island) via a memorandum of agreement initiated by the Service, or conducted as an extension of the existing DERA Tern Island project (engineering phase). This investigation could utilize core sampling, metal detectors, seismic equipment, or other sophisticated sensing devices as a potential means to achieve the objective. A study of potential PCB contamination will likely require involvement of the U.S. Environmental Protection Agency; the Service should pursue acquisition of funding for this project from the U.S. Coast Guard because of their abandoned LORAN facility. Results of these investigations would help determine the proper course of action.

Secondly, and on the same time track, the Service's Honolulu Office should request legal opinions from the Department of Interior Solicitor's Office to assist in a determination of agency liability for any corrective action. This request should state the nature of the existing problems, provide all available historical information on Tern Island ownership and occupation, and be phrased to determine the legal obligations of the U.S. Navy, U.S. Coast Guard, and the U.S. Fish and Wildlife Service. This information will be necessary to determine potential funding sources, if any, for cleanup activities.

Eventual Abandonment

At some point in the future, it will likely be entirely appropriate for the Service to abandon year-round operations on Tern Island. I estimate that period will probably be approximately 10 to 20 years from now for reasons explained in the following discussion. With abandonment, the forces of nature will unquestionably reclaim Tern Island into some unknown configuration and be in dynamic equilibrium within the coral atoll. It is entirely feasible that the island itself could ultimately disappear if allowed to deteriorate because of the previously dredged channel on the island's northern and western perimeter and the probable alteration of ocean currents in that vicinity of the Shoals. Because it's believed that the significant repopulation of wildlife on Tern Island following Coast Guard abandonment was only a result of redistribution of wildlife in the Shoals and did not result in noticeable population changes, physical habitat is probably not a significant factor limiting the populations of seals, turtles, and seabirds in the Shoals.

Therefore, the eventual loss of existing Tern Island habitat is not likely to be detrimental to the wildlife populations.

It's important to begin the process now to ensure that, as island deterioration occurs, no harmful effects will be created for the wildlife and habitat in the Shoals. Once the island has been "containerized" with the installation of new and/or repaired sheet piling, cleanup of the island interior should commence. Depending what the cleanup studies reveal, material should be collected and disposed of properly in areas determined not to be harmful to the environment. New materials which may ultimately be harmful to wildlife at the Shoals should not be allowed to accumulate on Tern Island. Depending on the volume and toxicity of material that will need to be removed from the island, it may be appropriate to remove the debris intermittently over a course of years to avoid short-term adverse effects to wildlife. All buildings and facilities not expected to be essential (within reason) over the next 10 to 20 years and which could ultimately be harmful to wildlife should also be removed and disposed of properly.

Once the decision is made to abandon Tern Island, all remaining buildings and materials on the island that may result in significant harm to wildlife should be removed. For example, because the sheet pile sea wall will eventually deteriorate in the ocean environment and wildlife entrapment zones will again be created, they should be either pulled and removed or severed at the sea floor to eliminate this hazard. Ultimately, with removal of man-made debris on the island, the forces of nature should be allowed to reclaim Tern Island into a natural setting even if that means loss of its integrity as a emergent islet within the Shoals.

Management and Research at French Frigate Shoals

The principal purpose for year-round Service presence on Tern Island is to conduct and support the many management and research activities associated with the protection and recovery of the green sea turtle and monk seal. This fact should be clearly conveyed to the appropriate agencies and the public. Although the National Marine Fisheries Service has the lead in recovery efforts for the monk seal and green sea turtle, the U.S. Fish and Wildlife Service has a major role in those efforts because most of the species' range occurs within the boundaries of the Hawaiian Islands National Wildlife Refuge.

With over 90 percent of the green sea turtle production and 50 percent of the monk seal production occurring at French Frigate Shoals, there is a tremendous opportunity to acquire necessary biological information and implement recovery actions because of the animals' presence within a national wildlife refuge and a locality where a remote field station is already present. Much more knowledge of factors limiting their populations has to be learned; between the collective efforts of the Service and the National Marine Fisheries Service, that knowledge can be acquired. In many instances, basic information on the general biology of these species has yet to be developed and understood. Without a reasonable understanding of their biology and the density-dependent and density-independent factors limiting their populations,

it will be difficult, if not impossible, for resource managers to implement appropriate actions to bring about their recovery.

It is appropriate to maintain a year-round Service presence at Tern Island during the next 10 to 20 years for several reasons. In my opinion, the primary reason is to serve as a deterrent to illegal entry onto the refuge at French Frigate Shoals. The green sea turtles and monk seals are far too vulnerable to human disturbance to allow such an occurrence. Because of the sea turtles' unique basking behavior on the beaches at French Frigate Shoals and their utter dependence on such geographically small habitat, a brief and easily conducted poaching effort or habitat disturbance (e.g., major oil spill) in the Shoals would in all likelihood severely damage the turtle population. Because of the monk seal's unusual primitive nature among species of seals and the resulting shyness toward human presence, uncontrolled human disturbance (e.g., persons from passing vessels visiting the beaches at the Shoals) would also likely create very harmful effects on the monk seal population. This would be particularly damaging in a locality where most monk seal production occurs, and within the one small area in the northwestern Hawaiian Islands where they may be at or near the carrying capacity of their local environment.

Whether or not it is a real or perceived problem, there is a valid concern that the mere presence of personnel on Tern Island year-round in itself may not serve as a deterrent for illegal entry into French Frigate Shoals. For this reason and to significantly increase the ability to deter illegal entry, it is proposed that radar be installed at French Frigate Shoals with the objective that it would be operated unmanned beyond the next 10 to 20 years. Such facilities would be relatively inexpensive considering the benefits derived from its use. This equipment could possibly be acquired from other governmental agencies (e.g., U.S. Coast Guard or U.S. Navy) as surplus property or by inter-governmental agency property transfer. Radar would have the ability to detect vessel traffic far beyond the refuge boundary and be utilized under restricted visibility conditions (e.g., inclement weather or night-time conditions). The best means of providing power for radar operation would have to be determined [e.g., utilization of solar power or wind power (screened or positioned to avoid seabird mortalities)]. If a supply of continuous power proved to be difficult, intermittent use of radar would still be worth the investment.

The Service should pursue a cooperative agreement with the U.S. Coast Guard for transfer funding to the Service to install and operate a radar facility because of the benefits the Coast Guard would derive from its use (e.g., monitoring vessel traffic in nearby waters, improvement in the safety of personnel on disabled or off-course vessels). Use of the existing radio communication facilities at Tern Island during the next 10 to 20 years would ensure the necessary direct contact with the Coast Guard as the need arises. There have been previous examples of Tern Island personnel working with the Coast Guard in providing assistance to disabled vessels at French Frigate Shoals which significantly reduced danger to human life and wildlife populations (USFWS 1986). Installation of radar at French Frigate Shoals

should be well publicized to ensure public knowledge which, in itself, will better serve as a deterrent for illegal entry into French Frigate Shoals.

With the plan in mind that the Service would eliminate full-time operations on Tern Island in 10 to 20 years, surveillance devices capable of being operated in remote locations and not requiring manned operation should be scheduled for deployment before departure of personnel. Although I did not explore options for such devices (or even if the technology presently exists) as part of this assessment, I am optimistic that, with sufficient initiative and proper planning, an unmanned remote sensing device or methodology could be in place in the next 10 to 20 years. This idea is presented simply to stimulate thinking toward the future.

A second high priority reason for year-round presence of personnel on Tern Island is to ensure the integrity of the existing airstrip until the island is abandoned in 10 to 20 years. Use of the airstrip greatly facilitates logistical support for management and research activities associated with the green sea turtle and monk seal. At the present time, the airstrip is integral to National Marine Fisheries Service's rehabilitation program for emaciated monk seal pups at French Frigate Shoals. Without the presence of personnel on Tern Island, it is too dangerous to human life to land on Tern Island's airstrip. Prior to aircraft landing, island personnel are required to ensure the airstrip is free of debris, no major irregularities exist on the airstrip surface, and the runway is reasonably free of nesting and juvenile birds.

A third reason for year-round presence on Tern Island is to minimize, if not eliminate, monk seal and sea turtle entrapment on portions of the island and entanglement in Tern Island debris (e.g., wire) and marine debris occurring in French Frigate Shoals (e.g., nets). Losses to wildlife by entrapment and entanglement on Tern Island and in abandoned fishing nets drifting in the Shoals can be very easily prevented by simple, direct intervention.

The occurrence of large quantities of fishing nets drifting into French Frigate Shoals is very alarming because of the potential damaging effects it can have on fish and wildlife within the Shoals and its wide-reaching significance beyond the refuge boundaries. Public concern over the foreign high-seas drift-net fisheries and "ghost nets" has achieved national significance. The Service should take every opportunity to convey field staff's observations and cleanup activities of this debris occurring within the Hawaiian Islands National Wildlife Refuge. Where possible, routine patrols throughout the Shoals should be initiated or escalated from present levels to locate, remove, and destroy fishing nets. Detailed data (including photographs) on these activities should be recorded and distributed to appropriate agencies and national conservation groups to ensure wide-spread awareness of the issue. This effort could be invaluable toward assisting international efforts to resolve this extremely severe problem.

Although important, seabird research should take much lower priority than management and research activities associated with the green sea turtle and monk seal. Due to limited resources, Service staff should not conduct seabird studies at Tern Island unless it can be determined that such work would not detract, in any manner, from activities that would be beneficial to the recovery of the green sea turtle and monk seal. In this context, the existing practice of utilizing volunteers and graduate students to conduct useful seabird research should continue.

Given the strategy that year-round operations on Tern Island would end in 10 to 20 years, the Service and the National Marine Fisheries Service should immediately prioritize those management and research activities for the monk seal and green sea turtle requiring year-round operations. The idea here would be that after 10 to 20 years, all remaining recovery efforts (if any) could be conducted solely and less expensively from seasonal field camps in the Shoals. Upon abandonment, the airstrip on Tern Island will become unusable, so any recovery effort requiring the airstrip should be completed in the next 10 to 20 years (e.g., monk seal pup rehabilitation program). Any risks from entrapment and entanglement should be removed within this period. All biological studies requiring year-round presence should be planned for completion within 10 to 20 years. Because year-round personnel presence would ultimately end, the necessary long-term protection mechanisms for the monk seal and green sea turtle (discussed previously) should be planned and scheduled to be in place prior to Tern Island abandonment.

Inter-Agency Coordination. A more concerted effort on behalf of the Service to improve inter-agency coordination should be initiated. Although coordination meetings have been held in the past and inter-agency cooperation appears to be adequate, meetings have apparently become less frequent in recent years. Regularly scheduled inter-agency coordination meetings are invaluable for maintaining or improving communication among and between agency personnel. Pre-planning and properly structured agendas with clearly defined items are imperative for productive coordination meetings. Attendance by all affected personnel should be vigorously encouraged.

Within the scope of the coordination meetings, Service staff should clearly display the fact that the primary reason for year-round Service presence on Tern Island is to conduct and support management and research efforts for the protection and recovery of the green sea turtle and the monk seal. The meetings should be undertaken with the objective of aggressively initiating a strong, pro-active approach to the recovery of the green sea turtle and the monk seal. The tone of the meetings should be to improve communication, facilitate information transfer, and resolve problems. Opportunities for pooling of agency resources should be explored. Brainstorming should be utilized where appropriate. Specific activities that each agency (and in some cases, individuals) will perform should be identified in considerable detail. Outcome of the meetings should leave no room for confusion as to who does what. Professional differences of opinion should be openly aired, everyone should have their say, and resolutions should be negotiated within the context of each agency's mission. Minutes of the

meetings should be taken and distributed to ensure mutual understanding of discussion items and to maintain a record of decisions.

Funding. Based on my interviews and visit to Tern Island, I was very impressed by the fact that Service personnel have conducted such a high degree of beneficial activity at French Frigate Shoals on such a relatively small budget. I strongly believe this is due to the staff's dedication and motivation to their jobs and their ingenuity in "doing more with less". Although no assessment of comparisons of the Hawaiian Islands National Wildlife Refuge's budget with mainland national wildlife refuge budgets was conducted as part of this project, I believe that the Hawaiian Islands National Wildlife Refuge's budget is small compared to many mainland refuges.

It is worth mentioning here that prior to my interviews with Service staff in Hawaii, I had the preconceived notion that all Service programs in Hawaii received ample funding because of the widely publicized tremendous values associated with the Hawaiian Islands. However, what I found was that all the wildlife programs receive surprisingly low funding. This was particularly astonishing when I learned of the extremely precarious nature of the Hawaiian Islands wildlife and their associated habitat and the need to intensively manage the refuges to protect the existing habitat (e.g., prevention of the introduction or encroachment of harmful exotic plants and animals).

Initially, it appeared that the acquisition of transfer funding from other agencies utilizing Tern Island would be one means of defraying direct Service costs in maintaining Tern Island in a year-round operation. The only agency that obviously has a major interest and is currently using Tern Island extensively to support their operations is the National Marine Fisheries Service; other groups or agencies have a relatively minor role on Tern Island. However, interviews with representatives from the National Marine Fisheries Service indicated that they have a great deal of difficulty in keeping their present level of effort at the Shoals intact because of similar fiscal problems. It would appear then that funding obtained from that agency may be counter-productive to recovery efforts because it's likely that fund transfers could reduce the level of intensity in other aspects of the monk seal and green sea turtle recovery programs. Furthermore, it appears that significant "in-kind trades" between the U.S. Fish and Wildlife Service and the National Marine Fisheries Service for operations at French Frigate Shoals help balance and perhaps enhance each agency's operations. For example, National Marine Fisheries Service provides logistical support by allowing the U.S. Fish and Wildlife Service to transport personnel, supplies, and materials to and from Tern Island via sea-going vessels whereas the U.S. Fish and Wildlife Service provides similar support to the National Marine Fisheries Service with aircraft charters and use of Tern Island's facilities. Specific details on what is fair and equitable can best be accomplished through the inter-agency coordination meetings discussed in the previous section.

The U.S. Fish and Wildlife Service should pursue the acquisition of funding through its regular budgetary process to continue year-round presence

of Service personnel on Tern Island until some point in the near future (10 to 20 years) when year-round presence will not be necessary. The need to maintain year-round presence for the near-term is clear based on the Service's responsibilities to protect the habitat and animals in the Hawaiian Islands National Wildlife Refuge. The costs for these operations is a necessary and well-justified expense. It's my opinion that if the Service does not pursue funding for Tern Island in this fashion, the agency's credibility in resource protection will erode.

The present Service process for budgeting refuge operations in Hawaii appears confusing and inefficient. Because Service Refuges and Wildlife staff in Portland allocate funding to national wildlife refuges in Hawaii and because that staff does not have line-management supervision over those refuges, it could easily be a complicating factor in ensuring equitable allocation of funding among the Regional national wildlife refuges. A suggested improvement in the Service's administration to avoid any such conflict would be to either allocate funding directly from Washington to the Service's Honolulu Office or assign line-management supervision over Hawaii's national wildlife refuges to Service Refuges and Wildlife staff in Portland.

Because the primary purpose for maintaining year-round presence on Tern Island is to protect the endangered monk seal and the threatened green sea turtle, one means of pursuing funding is through implementation of the recovery plan for each species. Each recovery plan should clearly reflect the high degree of importance for maintaining year-round presence over the next 10 to 20 years. If properly displayed, it should be relatively easy to garner public support for funding the recovery plans. As marine biologist Dr. John Culliney eloquently expressed in his book, Islands in a Far Sea, the Hawaiian monk seal and the Hawaiian green sea turtle "are special symbols of the rarity and fragility of their tiny, gemlike Hawaiian ecosystems lost in the immensity of the central Pacific" and "would receive high priority on any conservationist's protect-at-all-costs list for Hawaii." Based on my assessment, I agree with him.

Public Awareness/Constituent Support

Support for any U.S. Fish and Wildlife Service program is largely a function of the biological necessity of that program (in particular, as compared to other biological programs elsewhere in the United States) and the degree of public awareness and understanding of that necessity. It is obvious to me that Service operations on Tern Island serve an important biological necessity and support for that program exists as demonstrated by recent direct Congressional intervention to keep Tern Island in full-time operation.

However, public awareness and constituent support for Service activities in the Hawaiian Islands National Wildlife Refuge could be significantly improved. This awareness is critical to support Service activities in a remote setting such as Tern Island where access is severely limited. Several means to effectively do so have already been outlined in the Service's master plan for the Hawaiian Islands National Wildlife Refuge.

I strongly recommend that the Service allow limited, controlled access by national conservation and environmental groups at their own expense. The wildlife values at French Frigate Shoals are extremely high and conservation and environmental groups are usually much more effective at conveying that information to the general public than is the Service. For example, a 1980 U.S. Fish and Wildlife Service directory of national wildlife refuges in the Pacific States Region only discusses seabirds in the Hawaiian Islands National Wildlife Refuge with no mention of monk seals or green sea turtles. At least one environmental group based in Hawaii has expressed a desire to film a documentary at French Frigate Shoals (Sue White, Earthtrust, personal communication). I suspect that many of the national conservation groups would also do so if given the opportunity.

Within the past year, a considerable number of national conservation and environmental groups have established Hawaii-based offices all within the same building in Honolulu just a short walk from the U.S. Fish and Wildlife Service offices. I expect that these groups will soon organize in a sophisticated fashion as a coalition and become a very powerful voice on behalf of Hawaii natural resource issues. Service staff should make every opportunity to work with these groups and could easily do so given their close proximity.

Current programs of allowing limited access by nature/educational film crews and authors for non-Service publications should continue for the same reasons described above. However, the Service should make every effort possible to ensure that appropriate recognition is given to the Service and the Hawaiian Islands National Wildlife Refuge. For example, credits stated as "Department of National Fish and Game", "U.S. Wildlife Agency", or "Federal Wildlife and Parks Service" do little in achieving recognition to the U.S. Fish and Wildlife Service and its mission. A similar such title was presented at the end of a relatively recent film using footage obtained on the Hawaiian Islands National Wildlife Refuge.

Due to relatively recent improvements in video technology, high quality, easy-to-use, low-cost video equipment is now available. This equipment can be very useful for Service field staff in providing video briefing tapes internally and externally to the Service. Because of the remote location of Tern Island and its extremely limited access, video briefings would be very useful to refuge staff for conveying information on activities and issues associated with the Hawaiian Islands National Wildlife Refuge. I have recommended that Service staff in Hawaii procure the appropriate items for this use and it's my understanding they have done so (Stewart Fefer, USFWS, personal communication). As a simple demonstration to illustrate that field staff can easily and inexpensively produce video briefings, I prepared a short video tape on Tern Island in conjunction with this report.

Renaming the Hawaiian Islands National Wildlife Refuge

During the course of conducting this assessment of Tern Island issues, it became apparent that the name of the Hawaiian Islands National Wildlife Refuge

is, in of itself, a significant factor which complicates management and resolution of issues on Tern Island and elsewhere in the refuge. In the author's opinion, the present title of the refuge is not appropriate and if left as is, will create continual confusion in handling of refuge issues in the Hawaiian Islands. The present refuge title does not accurately convey to the uninformed individual any distinction between the Hawaiian Islands National Wildlife Refuge and other national wildlife refuges in the Hawaiian Islands. To illustrate this point, other national wildlife refuges in Hawaii (e.g., Kilauea Point, James Campbell, and Hanalei National Wildlife Refuges) are not part of the Hawaiian Islands National Wildlife Refuge although they are in the Hawaiian Islands. Conversely, all the land included in the Hawaiian Islands National Wildlife Refuge is not located within the main Hawaiian Islands. It is interesting to note that during casual conversations I had with numerous individuals on Oahu unrelated to this assessment (including both residents and tourists), none of them knew of the location of the Hawaiian Islands National Wildlife Refuge; most assumed it was "somewhere in the Hawaiian Islands". Even with nearly a decade and a half employment with the Service, I did not know the location of the refuge prior to this assignment other that it was somewhere in Hawaii. Furthermore, I didn't even know of the existence of the northwestern Hawaiian Islands. I found that the same misunderstanding was true for many of my Service colleagues outside of the Division of Refuges and Wildlife and acquaintances outside of the Service on the mainland.

The present title of the Hawaiian Islands National Wildlife Refuge violates the present Service policy and objective in naming national wildlife refuges. According to the Service's Refuge Manual for the National Wildlife Refuge System, the policy and objective for refuge naming are as follows:

> 5 RM 1.1 Policy. Each unit of the Refuge System will be assigned an official name which will be used to designate that unit from all other units of the system.
>
> 5 RM 1.2 Objective. The objective of naming refuges is to provide distinctive recognition for each unit both administratively and among the general public.

Because the present refuge title, "Hawaiian Islands National Wildlife Refuge", does not clearly designate that refuge unit from other refuge units in Hawaii and distinctive recognition for that unit is not provided to the public, I propose that the refuge be renamed as the "Northwestern Hawaiian Islands National Wildlife Refuge". This title would match the geographic description on commonly used maps and nautical charts and by itself serve to describe its location relative to the main Hawaiian Islands and distinguish it from other refuge units in the main Hawaiian Islands. The protocol for renaming existing national wildlife refuges is given in the Refuge Manual. A name change can be initiated by the refuge manager with proper documentation through the Regional Director and approved by the Director of the U.S. Fish and Wildlife Service. Short-term negative aspects of changing the refuge name (e.g., printing new brochures, directories, etc.) would be minor compared to

the benefits derived in the long term (e.g., increased public awareness of the refuge and improved internal and external communication of refuge values and issues).

CLOSING COMMENTS

It is rare when the U.S. Fish and Wildlife Service and the National Marine Fisheries Service have the opportunity to implement profound changes solely within their agencies to recover a threatened or endangered species. It seems that, more often than not, recovery of a threatened or endangered species is extremely complex and expensive because of major conflicting demands on the species' habitat. Oftentimes resolution of those conflicts is far outside the capabilities of either federal agency. Because most of the breeding range of the endangered Hawaiian monk seal and threatened Hawaiian green sea turtle is within the boundaries of the Hawaiian Islands National Wildlife Refuge, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service have a tremendous opportunity to recover those populations and use the example as a model for proper management of wildlife and their habitat. In a sense, this action is a unique and easy opportunity for the U.S. Fish and Wildlife Service to effectively display to the public the purpose of national wildlife refuges [i.e., wildlife and ecological conservation and rehabilitation (50 CFR 25.11, October 1, 1988)]. I am convinced that implementation of the recommended course of action presented in this report will accomplish that purpose.

* * * * * * * * * * *

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DEPARTMENT OF THE NAVY
HEADQUARTERS OF THE COMMANDER
RESERVE NAVAL CONSTRUCTION FORCE
FIRST RESERVE NAVAL CONSTRUCTION BRIGADE
8206 MARSHALL DRIVE
LENEXA, KS 66214-1532

COMRNCFINST 11100.1C
N3B1/0378I
14 SEP 1988

COMMANDER, RESERVE NAVAL CONSTRUCTION FORCE INSTRUCTION 11100.1C

Subj: RESERVE NAVAL CONSTRUCTION FORCE UNIT CONSTRUCTION TRAINING PROJECTS

Ref: (a) COMNAVRESFORINST 11100.1C
(b) OPNAVINST 1001.13A
(c) COMRNCFINST 1500.20

Encl: (1) Unit Construction Training Project Schedule
(2) Agreement between RNCF Unit and Civilian Organization

1. Purpose. To provide direction to Reserve Naval Construction Force (RNCF) units for construction training projects per reference (a).

2. Cancellation. COMRNCFINST 11100.1B

3. Background

a. Reference (b) states, "The RNMCB, as part of the Combat Unit Component of the Naval Reserve, have one primary mission; i.e., to train in order to attain readiness to meet mobilization requirements. This mission cannot be compromised." This guidance applies to all RNCF units. Effective training can be achieved in part through the careful use of unit construction training projects.

b. Unit construction training programs are aimed at construction, alteration and/or repair projects that enhance construction skills, personnel support, welfare or recreation facilities at military, federal, state, county, municipal or qualifying community organizations. This construction may be accomplished during Annual Active Duty for Training (ACDUTRA) or during weekend drills.

4. Policy

a. Unit construction projects, that enhance or maintain individual and/or unit construction skills identified by reference (c), will receive priority. Enclosure one is the schedule for all COMRNCF unit construction training projects.

b. Projects selected for ACDUTRA should be oriented towards direct fleet operations support. Overseas projects in this regard build morale and are encouraged. Each February the RNCF Operations Department will determine the amount of construction mandays available for unit construction training projects.

c. Weekend drill projects must be balanced with the unit's overall training and administration requirements as part of the unit's Fiscal Year Training Plan (FYTP).

d. Priority for project selection shall be:

(1) Naval Reserve Centers, Readiness Commands and active Navy and Marine Corps Facilities.

(2) Contributory support projects for other military and federal agencies.

(3) Civilian community support projects.

e. Community organizations are eligible for project assistance only if they are non-profit, non-sectarian and open to the public.

(1) The sponsoring organization is to ensure there is no competition with labor or contractors making it clear that the Navy is responding to a request.

(2) The project sponsor shall obtain all required permits and clearances.

(3) All materials, equipment or fuel used in the project will be supplied by the project sponsor.

(4) No liability will be assumed by the Navy.

(5) Prior to commencement of a community organization project the Agreement between RNCF Unit and Civilian Organization (enclosure (2)) must be executed by an authorized representative of the organization.

f. Approval authority:

(1) The Detachment Officer in Charge (DET OIC) can approve projects that will be completed in one weekend with the detachments's personnel and do not require use of RNCF equipment and do not conflict with other offered training or administrative requirements.

(2) The unit Commanding Officer (CO) can approve projects that can be completed within four drill weekends and involve no unusual logistics problems. The CO can delegate this approval authority in writing.

(3) The Field Commander can approve projects that can be completed within eight weekends. Multiple units can be involved. The Field Commander cannot delegate this approval authority.

(4) COMRNCF approval is required on all projects that will take more than eight weekends to complete.

g. Project requests must be submitted within the dates shown in enclosure (1). The requests will consist of:

(1) Project Description. A complete description of each project sufficient to support a labor and time estimate.

(2) Completion Date. Desired or required project completion date.

(3) Drawings and Specifications. Supporting drawing and specifications for the project.

(4) Labor Estimate. An estimate of direct man-days of labor required by rate.

(5) Material Take-Off. A complete material take-off (MTO) for the project (or a plan for submission).

(6) Equipment Requirements. The equipment needed and its source.

(7) Funding/Materials. The current status of funding for the project and the availability of materials.

(8) Support. Availability of messing, berthing, disbursing, medical and related support services for use by the RNCF unit. Availability of hand/shop tools and transportation, construction and materials handling equipment. Also facilities for materials storage, equipment, shops and administrative functions. Size, composition and sources of labor forces other than Seabees provided by the project sponsor.

(9) Safety. Designation of a safety contact and identification of safety or industrial health hazards.

(10) Liaison Officer. A local liaison officer with decision authority must be designated for the project such as the Public Works Officer, Staff Civil Engineer or Organization Representative.

5. COMRNCF Telephone Notification. Listed below are high visibility situations that require immediate telephone notification to COMRNCF with a follow-up message. Telephone contact with the COMRNCF Headquarters must be via the appropriate Field Commander and Commanding Officer. If time does not permit then the chain of command is to be notified at the earliest opportunity.

a. Dire Emergencies. Take positive corrective action when essential to prevent injury or loss of life.

b. Disaster Recovery. Advise requestor to contact the nearest Regional Office of the Federal Emergency Management Agency (FEMA).

c. Congressional Interest. Provide identity of interested office and surrounding facts to the RNCF Operations Office (Code N38).

6. Action. RNCF Unit Commanders shall comply with the policies of this instruction in undertaking unit construction training projects.

D. O. SMART

Distribution: (COMRNCFINST 5216.1L)
List I; PO
II; RH, RC, BH, BCO, SH, SCO, CBLH, CBLC, CBPH, CBPC, RDH, RDFC
III; CNRF
IV; BD, SHD, RHD

COMRNCFINST 11100.1C
14 SEP 1988

Enclosure (1)

UNIT CONSTRUCTION PROJECT PLANNING SCHEDULE FY-_____

ITEM	MILESTONE	RESP	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
1	CALL-FOR-WORK	CNRF RCBLANT RCBPAC	(#)															
2	PROJECT PROPOSAL	CUSTOMER			(#)													
3	MANDAY AVAILABILITY LTR	COMRNCF				(#)												
4	TASKING REQUEST	CNRF CINPACFLT CINCLANTFLT					(#)											
5	PROJECT SELECTION	COMRNCF							(#)									
6	TASKING ORDERS	COMRNCF							(#)									
7	TURNOVER CONFERENCE	RNCF									(#)							
8	PLANS, SPECS, MTO'S, TO OPCON REGIMENTS	CUSTOMER									(#)							
9	FINALIZED DEPLOYMENT DATES	OPCON REGMT											(#)					
10	OPORDER	OPCON REGMT											(#)					
11	CUSTOMER COORDINATION CONFERENCE	CNRF RCBPAC RCBLANT													(#)			
12	OPORDER	BATTALION													(#)	---------->		
13	ACDUTRA APPLICATIONS	BATTALION													(#)			
14	CONTINGENCY CONST. PROJ. ASSIGNMENT	RNCF													(#)			
15	ACDUTRA	DETS															MAR ----->	

AGREEMENT BETWEEN RNCF UNIT AND CIVILIAN ORGANIZATION

This Agreement made by and between _____, _____, of the _____, _____ hereinafter referred to as the "_____," and the Reserve Naval _____ hereinafter referred to as "SEABEES," WITNESS:

That, for and in consideration of this Agreement, the SEABEES will undertake the following description project at no cost for labor and complete all work specified in strict accordance with authorized time limits, provided said project scope is limited to the following:

_____

(DESCRIPTION)

_____

_____

_____

_____

(MATERIALS TO BE PROVIDED)

_____

_____

_____

along with the relevant specification, schedules of work, drawings, conditions and convenants.

That, for and in consideration of the aforementioned undertaking by the SEABEES, the _____ hereby agrees, represents, convenants, and certifies that:

(1) The _____ is a _____ _____ organization.

(2) Adequate funds of the _____ are not available for labor to undertake the aforementioned project and will not be available in the foreseeable future.

(3) The aforementioned project would not, in all probability be undertaken without SEABEES assistance.

(4) There is no known labor union opposition to SEABEE assistance in the referenced project. Should any known labor union opposition develop during the course of SEABEES assistance in the referenced project, all work undertaken hereby will cease immediately and the SEABEES shall not be bound to complete the project upon ascertainment of such opposition.

(5) All necessary supplies and materials will be provided by _____ at its sole expense and be available on (Date) and (Location) and will be so provided through the work on said project; it is specifically understood and agreed that should said supplies/materials not be provided or cease to be provided during the pendency of said project, the SEABEES are under no obligation to provide said supplies/materials and will not be called upon to provide such supplies/materials.

(6) _____ will obtain any necessary licenses and permits relevant to the project; and _____ shall take all precautions to protect persons or property against injury or damage and be responsible therfore.

(7) By its signature to this Agreement, _____ releases and agrees to indemnify and hold harmless the United States Government, its officers and members, agents, employees, and in particular the SEABEES, from any and all liability or claims for loss of or damage to any property owned by or in the custody of _____ arising out of the project undertaken and its attendant operations; and _____ further agrees to indemnify and hold harmless the United States Government, its members, agents, employees, and in particular the SEABEES from any and all damages, expenses, costs, charges, claims of any nature whatsoever, including the death of or injury to any person arising out of the project.

(8) Use of the facility, or the project, during the term of work thereon and upon completion, will not be denied to Naval personnel or their dependents, due to race, color, religious affiliation, geographic background, sex national origin, or other affirmative action basis.

(9) No member of or delegate to Congress, or any public official, shall be permitted to any share in any part of this project, or gain any benefit that may arise therefrom.

(10) _____ waives any claims or actions which it may have against the United States Government, its officers and personnel, agents and/or employers and in particular the SEABEES, for the failure of SEABEE personnel to complete said project or for the quality of the workmanship performed and/or the manner in which the work was performed. It is acknowledged that the United States Government, SEABEES, its officers or personnel, agents and/or employees do not warrant or guarantee the quality of any supplies or materials utilized or the workmanship performed.

(11) The _____ will pay for all petroleum, Oil and lubricants consumed on the project.

(12) The U.S. Government will be reimbursed for all costs associated with equipment including activation, de-activation, transportation to site, repairs, maintenance and parts.

(13) The _____ will provide specialized tools and equipment.

(14) The _____ will obtain all environmental permits.

IN WITNESS of the above agreements and convenants, we, the undersigned, hereby set our hands and seals, this _____ day of _____, 19___.

_____
COMMANDING OFFICER

_____
CUSTOMER NAME, TITLE

_____
ORGANIZATION

_____
WITNESS

_____
WITNESS

1 Nihoa
2 Necker
3 FFS
4 Gardiner
5 Laysan
6 Lisianski
7 Maro
8 P&H

exotic, intriguing, accurate and historically