NORTHWESTERN HAWAIIAN ISLANDS

BRIEFING DOCUMENT

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
Honolulu Laboratory
P. O. Box 3830
Honolulu, Hawaii 96812

To: All Participants

WELCOME TO THE NORTHWESTERN HAWAIIAN ISLANDS (NWHI) FIELD TRIP!

Here are some general information I wish to bring to your attention:

RECOMMENDED CLOTHING

Jacket or sweater, rain gear, tennis shoes or tabis for shipboard and ashore, zoris for shipboard lounging; casual clothing (T-shirts, shorts, etc.). Do not forget to take a hat along.

TRAVEL INFORMATION

The departure will be from the MAC Terminal at Hickam. The route to the terminal is indicated on the attached chart. Arrangements may be made for a central assembly point in Honolulu from which participants will be driven to Hickam in a group. If so, this information will be communicated to you well before departure date. Your travel coordinator is Dr. Robert Skillman (telephone: 946-2181).

ACCOMMODATIONS AT MIDWAY

You will be billeted at Midway courtesy of the U.S. Navy. Linens, soap, and towels will be provided. The Navy Exchange has very limited supplies of necessary items and even less of luxury items. On short-term overseas travel, you can bring back 1 quart of alcoholic beverage, 1 carton cigarettes, or $300 total exemption from import duty.

ABOARD TOWNSEND CROMWELL

Commander Ed Gelb of the Townsend Cromwell has provided a set of rules and regulations for guests aboard the ship. It is included in this briefing document. The ship will provide linens, soap, and towels.

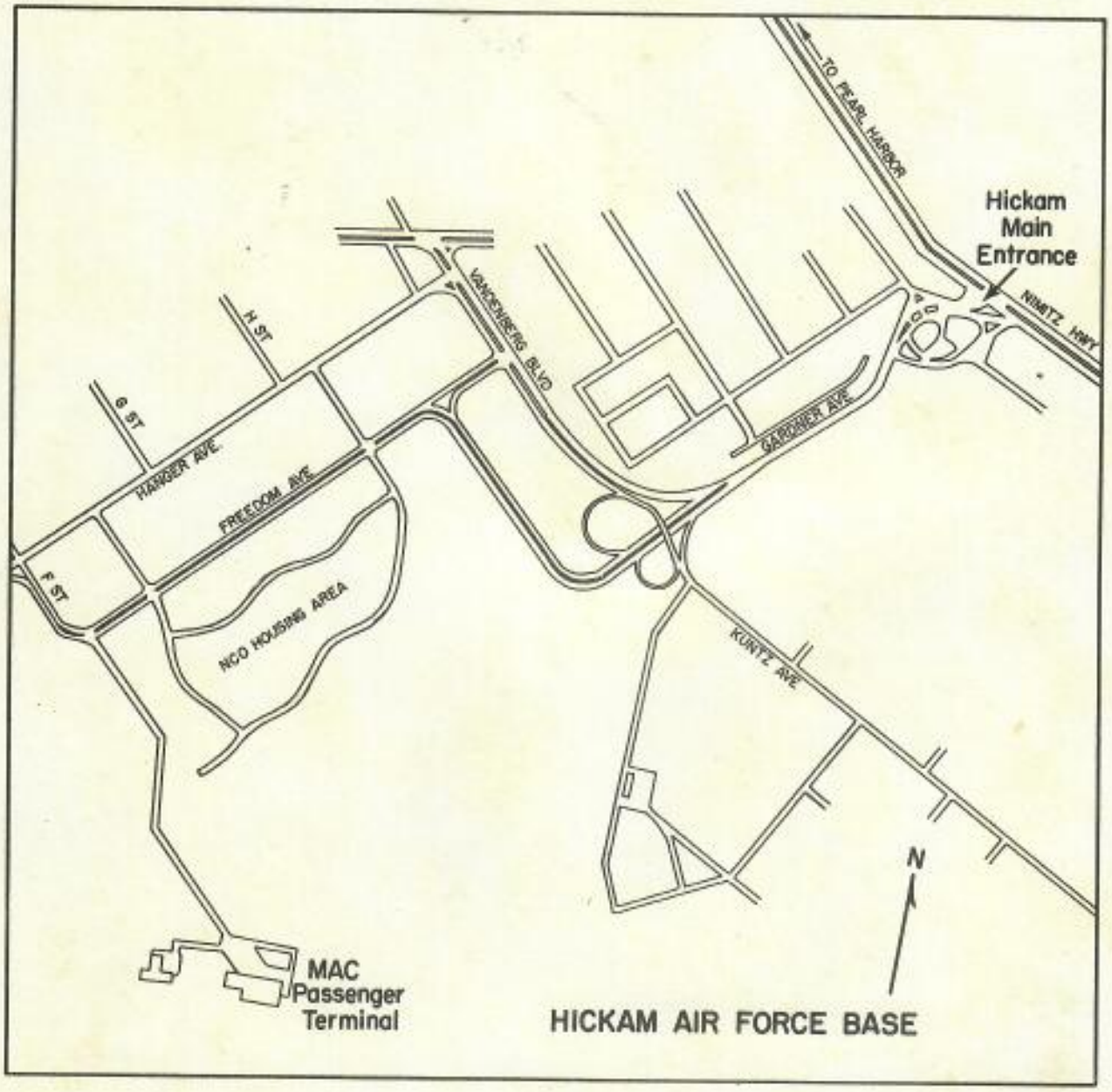
FIELD TRIP

The U.S. Fish and Wildlife Service has provided guidelines for visitors to Pearl and Hermes Reef. Please study these carefully before you go ashore.

I WISH YOU ALL A PLEASANT TRIP.

Richard S. Shomura
Director, Honolulu Laboratory

Attachments


TO PEARL HARBOR
Hickam
Main
Entrance
NIMITZ HWY
VANDENBERG BLVD
N ST
G ST
HANGER AVE
FREEDOM AVE
F ST
NCO HOUSING AREA
GARDNER AVE
KUNTZ AVE
N
MAC
Passenger
Terminal
HICKAM AIR FORCE BASE

TENTATIVE LIST OF PARTICIPANTS

GROUP A (5-9 December)

ROBERT A. SKILLMAN, Chief Scientist, HL, NMFS, SWFC
KENJI EGO, Cooperating Scientist, Director, Hawaii Division of Fish and Game
MARY GEORGE, Senator, State of Hawaii
HENRY A. HANSEN, Cooperating Scientist, Area Administrator, U.S. Fish and Wildlife Service
STANLEY I. HARA, Senator, State of Hawaii
BRIAN W. JOHNSON, Cooperating Scientist, Marine Mammal Division, Northwest and Alaska Fisheries Center, NMFS, Seattle
RICHARD A. KAWAKAMI, House of Representatives, State of Hawaii
MOSES W. KEALOHA, Member, Board of Land and Natural Resources, State of Hawaii
JEAN S. KING, Lieutenant Governor-elect, State of Hawaii
HIDETO KONO, Director, Department of Planning and Economic Development, State of Hawaii
HENRY Y. OKAMOTO, Cooperating Scientist, Aquatic Biologist, Hawaii Division of Fish and Game
JAMES W. PULLIAM, Cooperating Scientist, Deputy Associate Director for Wildlife, U.S. Fish and Wildlife Service
WILLIAM Y. THOMPSON, Chairman, Board of Land and Natural Resources, State of Hawaii
WADSWORTH Y. H. YEE, Senator, State of Hawaii

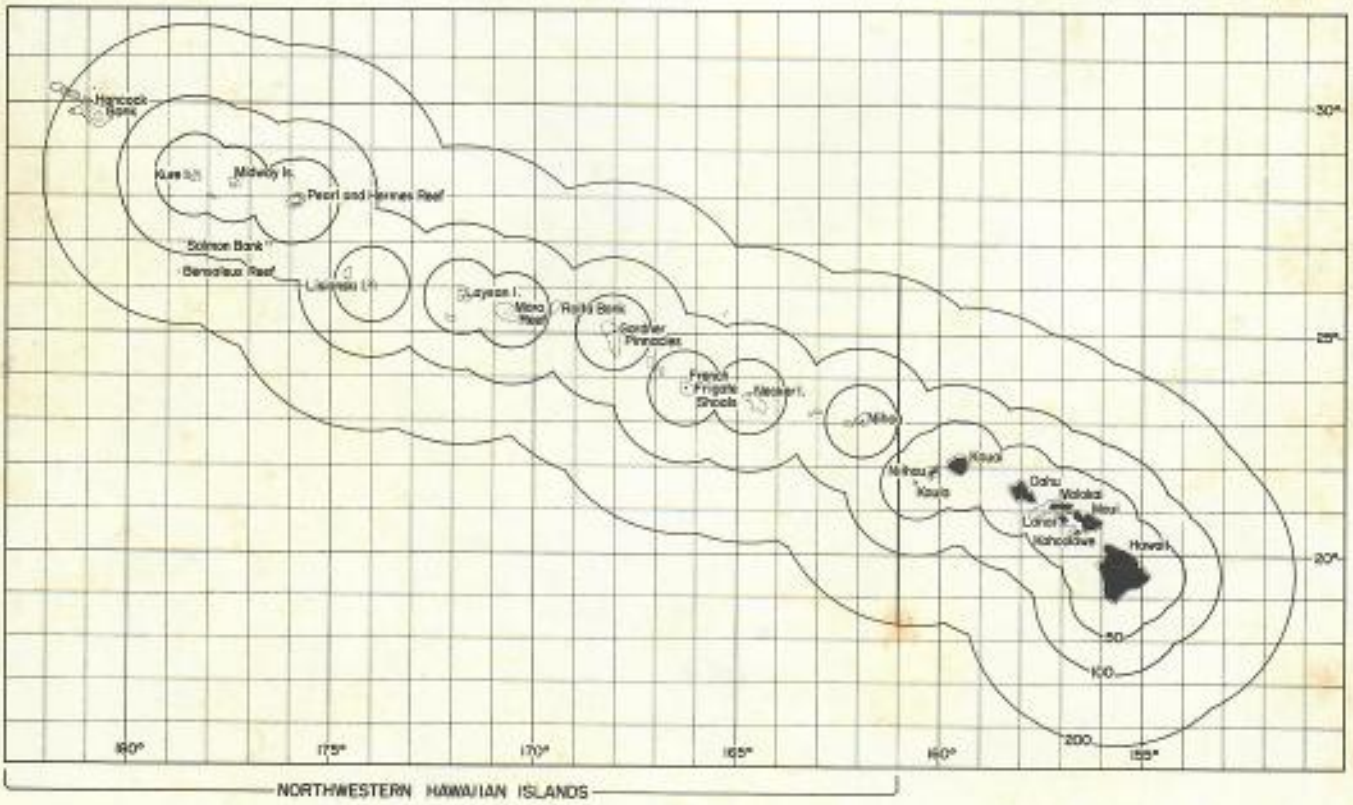
GROUP B (9-12 December)

ROBERT A. SKILLMAN, Chief Scientist, HL, NMFS, SWFC
JOHN S. CARROLL, House of Representatives, State of Hawaii
JOHN P. CRAVEN, Marine Affairs Coordinator, State of Hawaii
KENJI EGO, Cooperating Scientist, Director, Hawaii Division of Fish and Game
DOYLE E. GATES, Cooperating Scientist, Administrator, Western Pacific Program Office, NMFS, SWR
J. BRENT GIEZENTANNER, Cooperating Scientist, Manager, Hawaiian Islands National Wildlife Refuge, U.S. Fish and Wildlife Service
STANLEY W. HONG, Member, Board of Land and Natural Resources, State of Hawaii
JOSEPH T. KURODA, Senator, State of Hawaii
HENRY Y. OKAMOTO, Cooperating Scientist, Aquatic Biologist, Hawaii Division of Fish and Game
EDWARD J. SMITH, Cooperating Scientist, Chief, Operations Office for Refuges, Regional Office, U.S. Fish and Wildlife Service
CHARLES T. TOGUCHI, House of Representatives, State of Hawaii
JOHNSON H. WONG, Deputy Attorney General, State of Hawaii
T. C. YIM, Senator, State of Hawaii

Midway Islands and Pearl and Hermes Reef

The Northwestern Hawaiian Islands (NWHI), often called the "Leeward Islands" and which has been, with the exception of Midway, a National Wildlife Refuge since 1909, is part of the Hawaiian Archipelago which rises above an elongated submarine ridge that stretches roughly 1,700 nmi (3,200 km) in a southeast-northwest direction. The tiny islands and atolls, constructed of volcanic material that had erupted from a zone of fissures on the ocean floor, support only a limited assortment of animals and plants. For example, the flora is similar to that of a tropical beach with virtually all the plants near the shoreline with few exceptions. Furthermore, the NWHI chain consists not only of visible islands but also of several submarine peaks and numerous banks. Crowding these islands is a rich assortment of marine and shore birds.

The enactment of the Fishery Conservation and Management Act of 1976 extended jurisdiction over fishery resources to within 200 mi (370 km) from our nation's coastline. The immediate result of the Act was that we needed to know a great deal more about the resources in our waters, particularly those surrounding the NWHI. The State of Hawaii, pressured by growing demands for an assessment and rational utilization of its marine resources, recognizes the vital importance of the sea to its economic growth. Because of this the State entered into a Tripartite Agreement with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to jointly conduct the necessary field work to assess the available marine and terrestrial resources of the NWHI. This program is presently in progress.



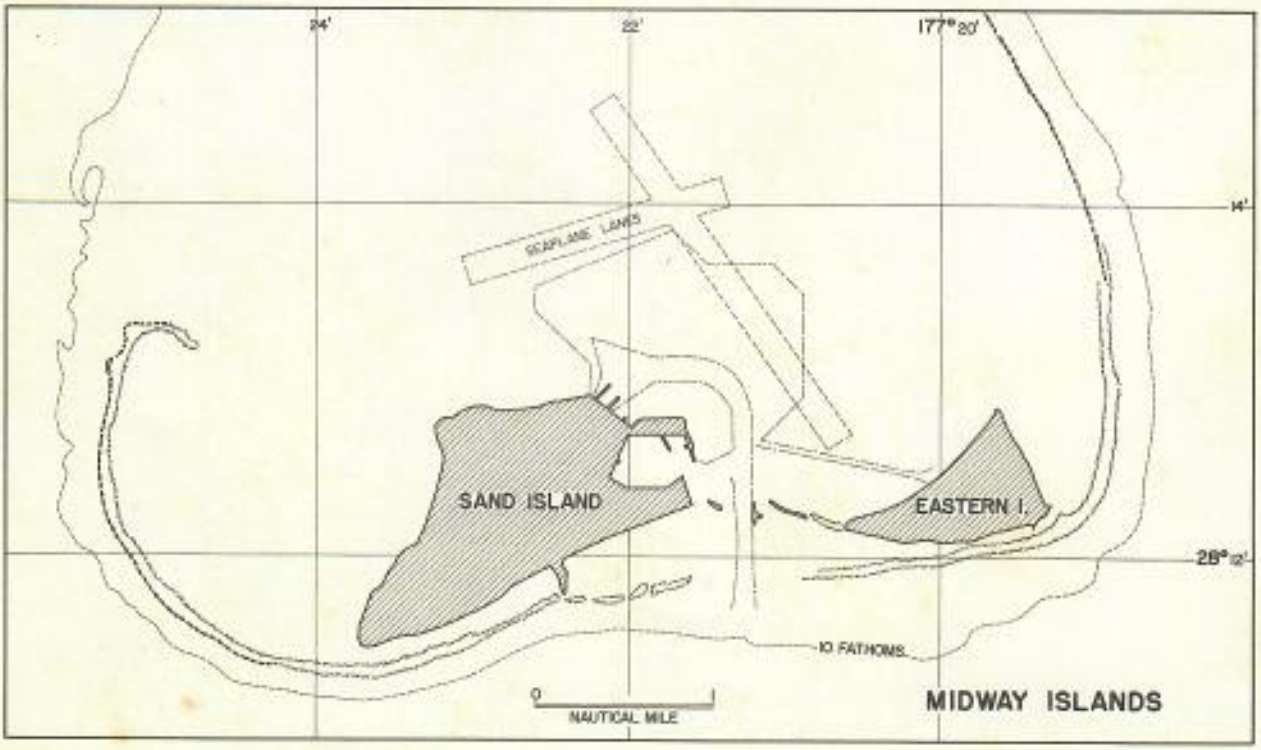
If the results of the multiagency assessment program should warrant it, then the State hopes to bolster its economic growth by expanding existing fisheries, or by developing new fisheries in the waters of the NWHI.

The sections that follow give a brief summary of the discovery, development, and natural history of Midway Islands and Pearl and Hermes Reef.

Midway Islands

Midway Islands, located 1,134 nmi (2,101 km) west-northwest of Honolulu at lat. 28°12'N and long. 177°23'W are located near the western end of the Hawaiian Archipelago. Only Kure Island, located about 49 nmi (91 km) away, is further to the west. Midway consists of two islands that crown the summit of one of the last peaks in the extensive Hawaiian chain. These islands are situated on the southeastern part of a lagoon, which is within a protected coral reef with a circumference of 15 nmi (24 km) and which is submerged in some places but about 4-5 ft (1.2-1.5 m) above sea level in other places. Of the two islands, Sand Island, on which the active runway is built, is larger. It measures 1.5 mi (2.4 km) long and 1 mi (1.6 km) wide. About 1 mi (1.6 km) east of Sand Island is the smaller Eastern Island, which is triangular and measures about 1.3 mi (2.0 km) long and 0.8 mi (1.2 km) wide.

Midway Islands were discovered on July 8, 1859 by Captain N. C. Brooks of the Hawaiian bark Gambia and was called "Middlebrook" or "Brooks" Islands. Captain William Reynolds of the U.S.S. Lackawanna, under orders of the Secretary of the Navy, took formal possession of these islands for the U.S. Government on August 28, 1867. In 1870, Congress appropriated $50,000 to construct a 600-ft (183 m) wide channel through the reef into the lagoon,



probably at the insistence of the Pacific Mail Steamship Company, which was interested in Midway as a mid-Pacific coal depot for its vessels traveling to and from the Orient.

In 1905, Sand Island was converted into a submarine cable station and in 1935 Pan American Airlines established a transpacific airport for the China Clipper. The establishment of the airport resulted in the construction of shops, warehouses, a power plant, water tanks, and a small hotel.

The single most outstanding feature with respect to the natural history of Midway is the change which Sand Island has undergone through the efforts of man. Because this island had no trees and scarcely any herbaceous plants to hold the shifting sand in place when the cable station was first established, a coarse grass, Ammophilia arenaria, was imported from the wind-swept beaches near San Francisco. To provide windbreaks, ironwood trees, Casuarina equisetifolia, were planted in 1907 as well as numerous other ornamental trees, shrubs, and herbs. Soil was also brought in from Honolulu to encourage growth of useful plants.

Converted into a U.S. naval base in 1937, Midway subsequently became a National Defense Area by Executive Order dated February 14, 1941. The islands were the focal point of a major air and sea battle between Japanese and American naval forces during World War II.

The presently existing naval station encompasses all of Sand Island which has an area of 1,201 acres (4.9 km^2). The terrain is generally flat and sandy and the maximum elevation is only 29 ft (8.8 m) above mean sea level. Groves of trees exist at several points around the island and may be as high as 70-100 ft (21.3-30.5 m). Thus, they play a significant role in altering local winds.

At Midway, the mean air temperatures vary from 66° to 69°F (18.9° to 20.6°C) in December-April and from 70° to 81°F (21.1 to 27.2°C) in May-November. Winter storms are relatively common and bring significant increases in wind and rain, especially in September-December. The prevailing wind is usually easterly in February-November but westerly in December-January. Wind speed averages 10 knots annually, but peak gusts during stormy weather may reach 77 knots in December. The annual precipitation average 42.59 in. (1,082 mm) with monthly maximum of 5.07 in. (129 mm) occurring in January and August, a secondary high of 9.92 in. (125 mm) occurring in October, and a minimum of 20.3 in. (52 mm) occurring in November.

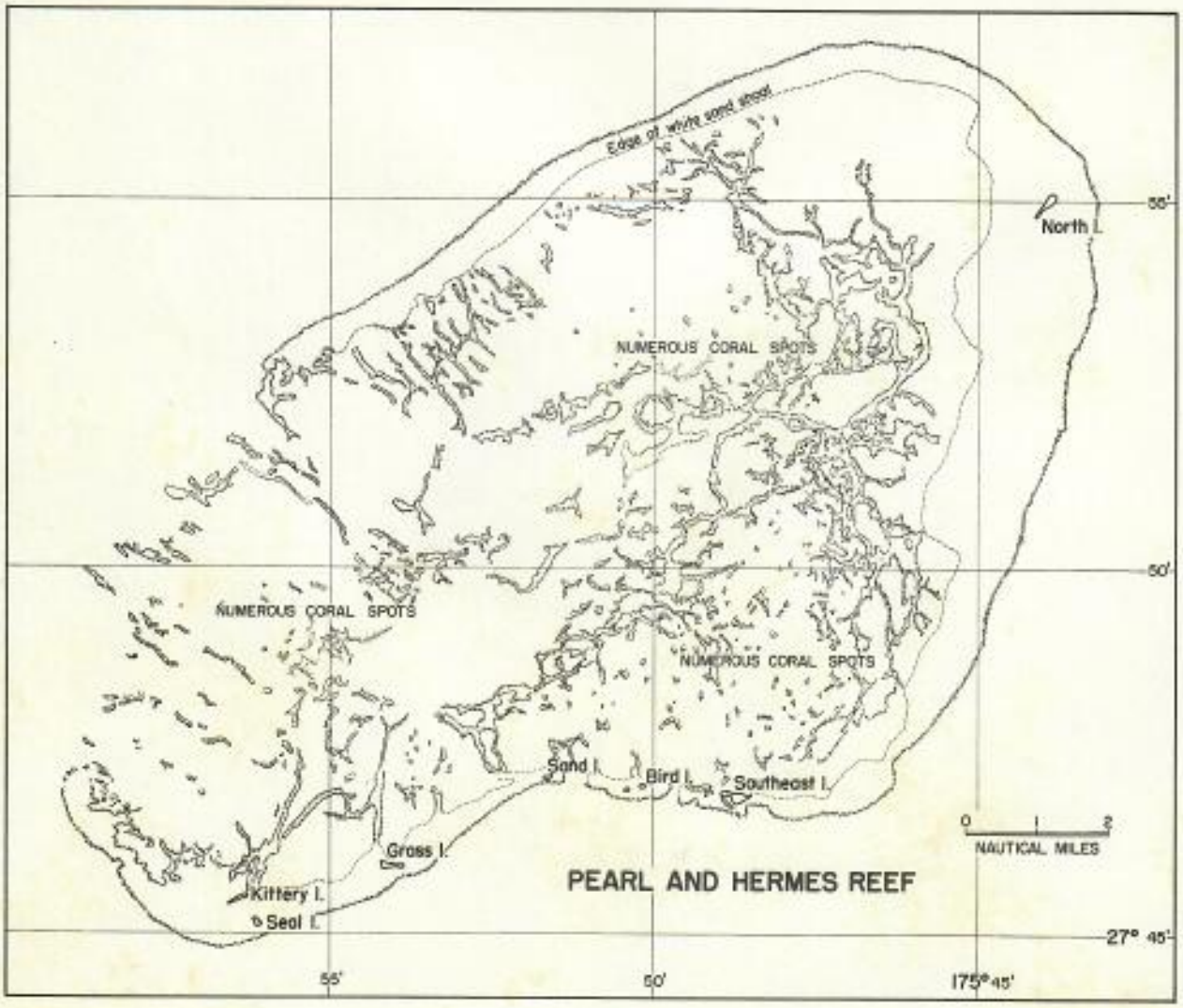
Pearl and Hermes Reef

Eighty-seven nautical miles (160 km) east-southeast of Midway Islands and about 1,042 nmi (1,931 km) northwest of Honolulu is Pearl and Hermes Reef, a low coral atoll near the northwestern end of the Hawaiian Archipelago. Given an official location of lat. 27°55'N and long. 175°45'W, this atoll has been known as Pearl and Hermes Reef since two ships bearing these names were wrecked there in 1822.

The fringing reef of this atoll has a circumference of 43 mi (69 km) and is open to the west. The long axis of the elliptical enclosed area, oriented in a northeasterly direction, is 20 mi (32 km) and the broadest point 12 mi

(18 km). It has been estimated that the area within this reef covers 143 mi^2 (370 km^2). Nine islands within the reef cover 85 acres (0.3 km^2). Grass, North, Seal, and Southeast Islands have established vegetation; Little North Island, which has continued to emerge since it was first reported as a sandbar awash at high tide, has limited vegetation. Kittery Island is low and subject to occasional inundation despite its size and relative permanency. The remaining three islands--Bird, Planetree, and Sand--are shifting sandbars. Historical and recent data suggest that considerable changes in the topography of Pearl and Hermes Reef have occurred in the past 100 years as a result of continuous shifting, splitting, and reforming of sandspits.

Pearl and Hermes Reef attracted little interest until 1927 when the discovery of the black-lipped pearl oyster, Pinctada galtsoffi, in the lagoon by Captain William G. Anderson of the auxiliary schooner, Lanikai, opened up a new but short-lived industry for the Territory. The pearl oyster also occurs in Pearl Harbor, Honolulu Harbor, and Kaneohe Bay. After the discovery, the Hawaiian Sea Products Co., Ltd., was organized and with permission from the Governor of Hawaii, gathered several tons of pearl shells which were sold to button manufacturers in San Francisco and New York.



To protect the newly discovered pearl oyster bottoms at Pearl and Hermes, the Hawaii Territorial Government requested the U.S. Bureau of Fisheries to assess the oyster resource. Dr. P. S. Galtsoff conducted the survey in 1930, concluded that the oyster stock at Pearl and Hermes was depleted, and recommended that no commercial fishing be allowed for 5 years. Thus ended the pearl oyster fishing at Pearl and Hermes.

In 1942, it was reported that pearl oysters still occurred at Pearl and Hermes but their abundance was not known. A recent survey by biologists of the Hawaii Division of Fish and Game did not turn up any evidence of pearl oysters in the lagoon; however, due to the murky condition of the water in many areas, the survey was restricted to only a portion of the lagoon.

Thirty-seven bird species have been recorded from this atoll. Seventeen seabird species are known to breed there and five migratory shore bird species have been recorded from there regularly. Three marine mammals--the Hawaiian monk seal, Monachus schauinslandi, the Hawaiian spinner dolphin, Stenella roseiventris, and the bottle-nosed dolphin, Tursiops truncatus--have been reported from Pearl and Hermes. The Hawaiian monk seal, found on most of the NWHI is a resident breeding species present at Pearl and Hermes the year-round. A visitor to the NWHI, the bottle-nosed dolphin appear to be regularly associated with shallow waters from French Frigate Shoals to Kure Island. One of the early sightings of this species was made in March 1956 when personnel aboard the Pacific Oceanic Fishery Investigations (presently National Marine Fisheries Service, Honolulu Laboratory) research vessel, John R. Manning, recorded three large bottle-nosed dolphin on the western side of Pearl and Hermes. The Hawaiian spinner dolphin, on the other hand, although common in Hawaiian waters, appears to be only an occasional visitor to Pearl and Hermes. Eight of them were sighted offshore from Southeast Island in March 1968.

Only one reptile, the black turtle, Chelonia agassizi, has been recorded from Pearl ahd Hermes. There is no substantiated record of sightings of the Pacific hawksbill turtle, Eretmochelys imbricata, from Pearl and Hermes. The black turtle, although uncommon, is a resident breeder at Pearl and Hermes and a few are probably present the year-round. The species has been reported to frequent Little North, North, and Southeast Islands.

The islands are devoid of trees. Attempts in the past to transplant ironwood trees have failed. Most of the vegetation growing there are bunch grass and low herbs. Marine life inside and outside the lagoon is prolific; terrestrial invertebrate life is limited to insects and a few arachnids.

There is no climatic data from Pearl and Hermes; however, one can expect the same general weather conditions experienced at Midway Islands to prevail in the Pearl and Hermes area.

CHARACTERISTICS

The Townsend Cromwell was designed and is outfitted to perform all types of oceanographic or fisheries work in any weather or climatic conditions. The vessel has six winches for jobs ranging from water chemistry profiles to stern trawl fishing. There are three scientific working spaces comprising biological, chemical, and hydrographic laboratories. Special scientific installations include underwater techniques, among them midwater and bottom trawling, pole-and-line fishing, longline operations, trawling, and purse seining.

The Townsend Cromwell is 163 ft long, 33 ft in beam, draws 12 ft of water, and has a displacement tonnage of 652 tons. Powered by two 400 hp Superior diesel engines, the ship has a top speed of 12-1/2 knots and cruises at 10-1/2 knots. Her cruising range is 10,000 nmi or 60 days' duration.

The research vessel is equipped with two auxiliary engines driving 175 kW generators. She carries 43,000 gal of fresh water. There are two evaporator units for distilling fresh water from seawater. Navigational equipment includes radar, loran, five sounding units with ranges up to 36,000 ft, and radios capable of maintaining communications throughout the world.

The Townsend Cromwell was designed by George C. Nickum and Sons of Seattle, Washington, and was built by the McDermott Company at Morgan City, Louisiana. The keel was laid on April 15, 1963, and launched July 27, 1963.

Construction and tests were completed by November 23 that same year. The ship reached the home port of Honolulu on Christmas day. Total cost of the vessel was $1.7 million. She was deactivated in 1973 due to budget restrictions and stored in Seattle, Washington, in Lake Union, a freshwater lake. She was reactivated in 1975 and returned to her home port, Honolulu, in July 1975.

SHIP'S NAME

The ship bears the name of a brilliant young oceanographer of the equatorial Pacific who died on June 2, 1958, in an airplane crash near Guadalajara, Mexico, while on his way to join an oceanographic expedition. He was, at the time of his death, Senior Scientist with the Inter-American Tropical Tuna Commission and Research Associate at the Scripps Institution of Oceanography.

He served in the Army Air Force during World War II. After receiving a B.A. degree from the University of California in 1947, he returned to La Jolla as a student at Scripps, where he received an M.S. degree in oceanography in 1949.

From 1949 to 1953 he was Oceanographer at the Pacific Oceanic Fishery Investigations, now the National Marine Fisheries Service, Honolulu Laboratory. He initiated a far-sighted and intensive study of the physical and biological characteristics of Pacific equatorial waters.

Cromwell confirmed the existence of upwelling at the Pacific Ocean equator, disproved the occurrence of upwelling at the northern edge of the Equatorial Countercurrent, and originated a reasonable model of wind-induced current transport in the equatorial zone. During these studies he recognized the significance of the unexpected drift of tuna longlines at the equator, and in 1952 led an expedition to measure the currents with drogues. Thus he was responsible for the discovery of the equatorial undercurrent to which his name has been given, the fourth member of the equatorial current system (the North Equatorial Current, Equatorial Countercurrent, and South Equatorial Current having been known for a century).

SHIP'S COMPLEMENT

Officers aboard the Townsend Cromwell are members of the National Oceanic and Atmospheric Administration (NOAA) commissioned corps, one of the seven United States Uniformed Services--the others being the Army, Navy, Air Force, Marine Corps, Coast Guard, and the commissioned corps of the Public Health Service. The NOAA corps officers hold degrees in engineering, oceanography, mathematics, physics, biology, and other scientific disciplines useful to the mission of NOAA. Current authorized strength of the corps is 347 with member grades ranging from Ensign to Rear Admiral. Pay, leave, and fringe benefits are identical with those accorded members of the other uniformed services.

This unit of the NOAA scientific research fleet of 25 ships is manned by a crew of 17: a Captain, Executive, 2d and 3d Officers; a Chief Engineer and two assistants, radioman, seven fishermen, a cook, and cook's helper. There are accommodations for nine scientists.

NOAA SHIP TOWNSEND CROMWELL

GUIDELINES FOR GUESTS

Welcome aboard NOAA Ship Townsend Cromwell! It is my hope that you will enjoy your time aboard our ship and that your cruise will be productive. In order to ease your transition to life aboard the Townsend Cromwell and to protect the vessel, its crew, and other embarked personnel, the following guidelines have been developed:

1. Guests should stay clear of the pilothouse when the ship is transiting channels and upon entering or leaving port.

2. When entering or leaving port, guests should stay clear of shipboard personnel engaged in line handling on the main weather deck. If you want to watch, use the boat deck (upper deck).

3. For safety reasons the pilothouse and bridge wings are not to be used for socializing; however, limited numbers of guests may observe pilothouse activities with the permission of the Bridge Watch Officer.

4. No smoking is allowed in the pilothouse or on the bridge wings. Unless an announcement is made that the smoking lamp is extinguished, smoking is permitted in all other locations except: (1) Emergency generator room, (2) gasoline storage area, (3) paint locker, and, (4) mess deck during movies. Please, do not smoke in bed!

5. Protect your feet. Go-aheads are not acceptable footwear for deck work, however, they may be worn about the ship when not engaged in activities on deck. For weather deck activities, embarked personnel should wear sneakers, boots, or workshoes as appropriate for the operation.

6. In the event of accident or illness, see the Executive Officer (XO); he has the responsibility for dispensing medication. Be sure to report accidents to the XO, OOD, and Chief Scientist.

7. Meal hours are posted on the mess deck. In conformance with standard practice by shipboard personnel, a minimum dress of a clean T-shirt, shorts, and go-aheads is required.

8. The XO will advise the Chief Scientist of bunks and rooms available for guests. All guest bunk and room assignments will be made by the Chief Scientist.

9. The Damage Control Officer will provide you with station billet information for emergency drills shortly after you report aboard. Know where your station is and the location of your life preserver. Be prepared to report for drills appropriately attired. A long sleeve shirt or jacket and hat should be brought to abandon ship drills.

10. Alcoholic beverages are not allowed aboard the ship nor is consumption allowed on piers to which the ship may be moored.

11. Permission of the Bridge Watch Officer shall be obtained before any fishing or scientific gear is placed over the side.

Edward M. Gelb, CDR, NOAA
Commanding Officer

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

REGULATIONS APPLICABLE IN THE NORTHWESTERN HAWAIIAN ISLANDS UNDER THE TERMS OF THE TRIPARTITE COOPERATIVE AGREEMENT

In view of the applicable laws and regulations summarized in Appendix B of the Tripartite Cooperative Agreement, the following specific restrictions are imposed upon persons using the area incident to the Tripartite Agreement.

GENERAL

Photography is encouraged while on or en route to the Northwestern Hawaiian Islands. Care should be taken not to disturb the wildlife, particularly the endangered Hawaiian monk seal.

Beach combing for glass balls and dead shells is permitted. Live shells and bird parts or products may not be taken.

Within the disputed boundary area of the Hawaiian Islands National Wildlife Refuge the following activities are prohibited:

1. The taking of any live fish, coral, or other aquatic organisms.
2. Fishing for sport or food purposes.
3. Dumping of garbage, rubbish, or any other debris.

FEDERAL

Pursuant to Federal authorities cited in the Tripartite Agreement, the following conditions apply within the Hawaiian Islands National Wildlife Refuge.

1. The taking of any plant or animal except for research purposes as specified in these appendices to the Agreement is prohibited, unless authorized by the Hawaii Administrator, U.S. Fish and Wildlife Service, or his representative.
2. No harassment or undue stress will be placed on any organism within the Refuge.
3. All clothing and gear must be checked before entry onto the islands and be free of all foreign plants, seeds, animals, or insects.
4. All trash and refuse brought onto the islands must be removed upon departure.
5. Camping will be allowed only in areas designated by the Hawaii Administrator, U.S. Fish and Wildlife Service.

6. Specific restrictions regarding activities affecting individual species:

   a. Monk seal

      (1) Persons must maintain a distance that will present no harassment of any kind to all monk seals.

      (2) At no time should a person come between a female and a pup, nor should a person pass close to a female when a pup is between them.

      (3) Persons should pass high on the beach (near vegetation line) when seals are near the water's edge, and vice versa.

   b. Sea turtles

      (1) Persons must maintain a distance that will present no harassment of any kind to all sea turtles.

      (2) Do not approach egg-laying females.

      (3) Do not approach or "inspect" turtle pits. Keep all activities near pits to absolute minimum.

      (4) Do not attempt to intercept newly hatched turtles.

      (5) Do not pass between basking turtles and the shoreline.

   c. Seabird colonies

      Island interior. Entry will be approved specifically by the Hawaii Administrator or his representative, otherwise no entry into the interiors will be allowed. When entry into the interior is approved, the following restrictions will then apply:

      (1) Nesting colonies will be avoided whenever possible.

      (2) Travel through the interior will be confined to designated routes to avoid damage to burrows and to minimize conflict with wildlife.

      (3) Incubating birds and colonies with downy young should be avoided whenever possible where Laysan or Nihoa finches may cause depredation problems.

7. The Hawaii Administrator or his representative may at his discretion remove any persons or equipment, or modify activities which he deems to be in conflict with the welfare of the Refuge and its resources, even if otherwise approved under this Agreement if experience demonstrates a need thereof. Likewise, if experience also demonstrates that certain of the above restrictions may be lifted or liberalized, the Hawaii Administrator may do so.