



*The*  
**CORAL CARRIER**

French Frigate Shoals,  
Northwestern Hawaiian Islands: A History

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## CHAPTER 11

# *POST WORLD WAR II NATURAL HISTORY VISITS*

## **Scientific Visits: 1940s and 1950s**

Beginning in the mid-1940s and continuing to the present, various ships and aircraft visited French Frigate Shoals on official scientific visits involving natural history studies. These have involved both terrestrial and marine studies.

As already detailed (pages 109-120), the Bureau of Commercial Fisheries, US Fish and Wildlife Service visited the atoll beginning in 1948 to learn more about the fishes of the area. During November or December 1948, Howard Wilder (1949)<sup>96</sup>, apparently a Coast Guardsman who visited French Frigate Shoals, found more than 100 nesting Black-footed and Laysan Albatross on East Island. Writing about the compatibility of the birds and the military, he reported: "the birds are given the right of way,... [but]... are continually in the way. There is a law against molesting them, and the penalty is about 15 or more extra hours duty if you are caught hurting them in any way or even scaring them. They seem to know they have the right-of-way, and... make the best of it. They aren't in the least afraid of anyone there, much less the dogs. There are even a few birds that go so far as to walk right into the kitchen... [as if to] beg for food. They build their nests right in the middle of the road and don't even move for the trucks as they go past. Most... have confined themselves to the one end of the island...." He also reported birds nesting in holes in the same area; these are probably Wedge-tailed Shearwater<sup>97</sup>.

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96. Wilder reported only adult albatross mating and on nests with eggs; no young were found. This indicates a November-December visit.

97. George C. Munro, in an editor's comment, thought these were Bulwer's Petrel.

On 25 July 1952 Dr. Joyce, an entomologist from Hawaii, visited Tern Island. He was the first land biologist to visit the Shoals since the end of World War II. He found a tick species, which had been the cause of numerous complaints by Coast Guard personnel, to be extremely abundant under trash and debris. The ticks were probably associated with Sooty Terns nesting around the old Navy buildings. The tick was identified by Dr. G. M. Kohls, Rocky Mountain Laboratory, US Public Health Service, as *Ornithodoros capensis* Neumann. Joyce also found a sarcophagid fly, *Goniophyto bryani* Souza Lopes, to be abundant on the tiny island (Anon., 1952).

The next year (26 October to 2 November 1953), Frank Richardson (1954a) of the University of Washington, accompanied by Ivan Rainwater of the Department of Agriculture, visited French Frigate Shoals aboard the fishing vessel *Osprey*.<sup>98</sup> They were given quarters on Tern Island by the Coast Guard. They visited six of the islands in the atoll (Tern, Trig, Skate, Whale, East, and La Perouse Pinnacle) and recorded 17 species of birds and a few Hawaiian Monk Seals. Richardson became the second ornithologist<sup>99</sup> to land on La Perouse Pinnacle; he swam ashore and examined the cliff faces around the west end, but was unable to climb to the top without taking serious chances. On Tern Island, Richardson found that Wedge-tailed Shearwaters were the only birds nesting. He had thought these and the Sooty Terns had been largely eliminated by the Coast Guard and by feral cats. He saw four or five wild, well-fed house cats. These discouraged bird nesting and killed Golden Plover.<sup>100</sup>

Richardson (1954b) again visited French Frigate Shoals 18-19 December 1953, while traveling on the *Buttonwood*. He visited Tern, Trig, Whale, East, Gin, and Little Gin Islands and La Perouse Pinnacle and recorded 15 bird species. He found the bird situation at Tern Island different from October. Nine bird species were on the island instead of only two, and, of the nine, the two albatross species were nesting. He wrote that they seemed willing to nest "in spite of some disturbance by man, an occasional truck or airplane near them, and the islands dogs and cats, indicating a strong tendency to return to their home island, and/or an indifference to such disturbance."

Richardson (1954b) made a third visit on 20 March 1954, again aboard the *Buttonwood*. On this trip he surveyed Tern, Trig, Whale, and Skate Islands for birds; he recorded 11 species. He also noted the presence of seals. He assumed that the high waves that washed over Tern Island

98. They had planned to go to Nihoa Island but rough seas forced them to go instead to French Frigate Shoals.

99. Wetmore (pers. comm.), in 1923, had been the first to explore the lower regions; he did not climb to the top.

100. Judging by the number of plover wings he found on the ground.

in January had destroyed all but two of 34 albatross eggs; there were only two nestlings present. He noted that Sooty Terns were circling high over the island as if they wanted to come to the ground and nest. On the other islands, which were only partly awash in the January heavy seas, the birds had not suffered. On the basis of his three visits to French Frigate Shoals and other Hawaiian Islands, Richardson (1957) published an extensive paper on the breeding cycles of Hawaiian sea birds.

From 11 to 21 February 1956, Arthur Svihla (1957, 1959) of the Bernice P. Bishop Museum, Honolulu, visited Tern Island to study the life habits, distribution, and abundance of the Hawaiian Monk Seal. He also made observations and collections of animals and plants of the island. He recorded six plant species, including *Casuarina* (Ironwood) trees (Figure 72) which were 15 feet high. He noted six insect species and seven bird species. Of the latter, only the Laysan Albatross was nesting. His records show two house cats (reportedly the same sex) which fed to a certain extent on the birds, two pet dogs, and four seals. From the air, on leaving, he sighted 32 seals as well as several large turtles on the other islands of the atoll.<sup>101</sup> Svihla stated that "soil from Honolulu had been brought to Tern Island...", "and speculated that arthropods may have been introduced in this way."<sup>102</sup>

On 3 August 1956, two civilian zoologists<sup>103</sup> arrived at Tern Island by Coast Guard plane. Nothing is known of their visit (Fed. Rec Cent. MD, FFS Log Book, August - September 1956, FRC 58A602, Box 101). On 12 September two *Honolulu Star Bulletin* reporters arrived and departed on the Coast Guard plane. Perhaps the seal for the Honolulu Zoo that accompanied them on the return trip was sent as a result of the earlier visit by the zoologists. The reporters subsequently wrote about the atoll (*Honolulu Star Bulletin*, 19 September 1956, 42:1).

On 31 January 1957 Vernon Brock, a US Fish and Wildlife representative, and Paul Breese, the Director of the Honolulu Zoo, arrived by Coast Guard Plane (Fed. Rec Cent. MD, FFS Log Book, January 1957, FRC 60A48, Box 56). Nothing is known about their visit. During the same year (28 May) a Mr. Fortin of Walt Disney Studios arrived to photograph the wildlife (Fed. Rec Cent. MD, FFS Log Book, May 1957, FRC 60A58, Box 56).

101.Svihla was unable to visit the other islands in the atoll, but did fly over most of them.

102.No records exist of soil being brought to the atoll by military or other entities; bits of soil with arthropods attached may have been brought in on some of the large pieces of earth-moving equipment that was used to construct the runway at Tern Island.

103.One of these may have been Dr. Archie F. Carr, turtle specialist from the University of Florida.



Figure 72. *Casurina* trees growing in front of barracks, Tern Island, 1957. Photograph by Robert T. Getman.

On 28 December 1957, Dale Rice and Karl Kenyon (1962) made a low-level flight over French Frigate Shoals to check the albatross population. They found an increase over the 1923 figures recorded by Wetmore. Their unpublished photographs show four bird species, as well as a drastic change in Whale and Skate Islands. Whale, the easternmost island, had been joined to Skate<sup>104</sup> by a sandy strip. This connection had been predicted by Wetmore in 1923. The eastern tip of Whale was, however, separated from the rest of the island by a narrow, very shallow stretch of water. Other islands showed slight change since 1923. Round had lost its vegetation and Disappearing was larger. The old East Island Coast Guard Station was in shambles. La Perouse Pinnacle still glistened in the sunlight.

Accompanying the *Matagorda* on its brief 26 May 1958 supply stop at Tern Island was Richard E. Warner of the University of California and three other scientists—G. D. Butler, Jr., Charles W. Daniel, and Miklos D. F. Udvardy. They were headed for Laysan Island. A quic-

104. The two islands remained connected (depending on wave action) and were known collectively as Whale-Skate Island during the 1963 to 1968 period. Storms in late 1969 apparently washed away both islands.

count of Tern Island's bird population revealed seven species. Of the Sooty Tern, Warner (1958) wrote that "only a few... carcasses remained of the once prolific colony..., relicts undoubtedly of the successful campaign to frighten or drive... [them] from the island."

Dr. Hubert Casper from Hamburg University, Hamburg, Germany, visited Tern Island via Coast Guard plane on 19 August 1959 (Fed. Rec Cent. MD, FFS Log Book, August 1959, FRC 61A275, Box 111). His purpose for visiting the atoll is unknown.

### Scientific Visits: 1960s

Chandler S. Robbins, of the US Bureau of Sport Fisheries and Wildlife, visited Tern Island by Coast Guard plane on 13 April 1960 to examine the status of the Bird Refuge. He recorded two species of birds and banded 28 young Laysan Albatross. Robbins was informed "that 1 Black-footed Albatross and 33 Laysan Albatross pairs nested on Tern Island this winter;" the number of young found in April indicated normal survival. "Station personnel explained that one of their dogs had a habit of running after each bird that attempted to take off;... [this] must discourage other birds from setting up nesting territories...." He also learned that "at certain seasons large numbers of petrels and albatrosses were killed... because of their habit of flying into the lighted buildings at night and causing a sanitation problem." Although local personnel knew of no other nesting species, Robbins found three incubating Red-Tailed Tropicbirds. He pointed out that his purpose was "not to criticize conditions at that tiny outpost; the birds have 4 other islands on the same atoll to which they can go" (HDFG: Robbins, unpublished 1960 report).

Upon flying over East Island, Robbins noted a third bird species. In his 1960 report he strongly recommended: (1) that our Bureau take steps to renew claim to East Island...; (2) that antenna poles (or at least guy wires and other obstacles to flying birds) be removed; (3) that... obsolete structures and equipment be disposed of; (4) that Refuge signs be erected; and (5) that a population estimate of nesting birds be reported...."

David H. Woodside and Joseph S. Medeiros, game biologists for the State of Hawaii, visited Tern Island for 3-1/2 hours on 19 October 1960 via a Coast Guard plane. Woodside (HDFG: unpublished 1960 report) recorded eight bird species and collected those he did not recognize. As to wildlife disturbance, he noted that many Wedge-tailed Shearwater burrows "had been dug out by dogs...." He did not recommend that the dogs be disposed of, "as they undoubtedly contribute much to the morale of the men on this isolated station. However, they should be asked to exert more effort in training dogs not to disturb the birds." As for the abandoned East Island structures which he flew over upon arriving, he recommended that "it may be desirable

to remove all... except perhaps the most sound...antenna poles... [which] must be of considerable aid to... mariners.”

David H. Woodside, Raymond J. Kramer, and R. Rogers, biologists of the Division of Fish and Game of the State of Hawaii, arrived via the *Planetree* on 3 March 1961; they departed on the night of the 5th. While at the Shoals, they visited Tern and East Islands, as well as La Perouse Pinnacle. They recorded 11 bird species. Rogers collected marine algae (Tsuda, 1966). Woodside and Kramer (unpublished 1961 report) noted that a truck in laying wires to radio vans on the east end of Tern “had run through the small remaining bird habitat on the island. Several shearwater and petrel burrows were caved in and nesting sites of the albatrosses were disturbed.” They noted that “the two dogs...kept as pets...appear to be more or less trained to ignore the birds. However, it seems...they are still digging out...petrels on occasion and chasing the albatrosses. Generally the personnel...appear to be very cooperative regarding bird preservation....” Two Refuge signs were placed on the island prior to leaving.

On East Island they noted 14-15 seals on the beach and two colonies of incubating Sooty Terns. Red-footed Boobies were nesting on the old fallen-down buildings and other rubble scattered about the island. They suggested “that all islands in the refuge should be left in a more or less ‘natural’ condition and that the structures are not only displeasing to the eye, [but] are ‘attractive nuisances’ to passing fishermen;...more or better nesting...could be developed by...planting...*Scaevola*...on this island.” They found many abandoned fish nets indicating illegal fishing activity. Two Refuge signs were posted.

On 2 September 1961, ten scientists<sup>105</sup> of the Coolidge Expedition spent an hour on Tern Island between disembarking from a Coast Guard plane for the *Ironwood*, anchored offshore, which was to take them to Laysan Island. In subsequent publications, Udvardy (1961) and Udvardy and Warner (1964) noted that they had observed six bird species on, or flying over, the island but saw no signs of birds nesting. A carcass of a hatchling green sea turtle was found on the north margin of the airstrip. Woodside (1961 unpublished manuscript) observed only three shorebird species. Since his March visit, he noted additional new towers and equipment vans of the Pacific Missile Range and a small HIRAN installation.

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105. George D. Butler, Jr. (University of Arizona, entomologist), Edward C. Testes (University of Hawaii, geologist), Charles H. Lamoureux (University of Hawaii, botanist), A. Starker Leopold (University of California, vertebrate zoologist), Michlos D. F. Udvardy (University of British Columbia, vertebrate zoologist), William Usinger (University of California, entomologist), Martin J. Vitousek (University of Hawaii, geologist), Ronald L. Walker (Hawaii, game biologist), Richard E. Warner (University of California, vertebrate zoologist), and David Woodside (Hawaii game biologist).

Lamoureux (1961) published notes on the plants he collected during this brief stop-over. He incorporated a list of those collected in October 1953 by Rainwater and listed 22 vascular plant species, 14 of them new records for the island. Lamoureux, repeating Svihla's 1957 error concerning imported soil, added that weed seeds were likely to have been imported with the soil. He noted other possible modes of introduction would have been: accidentally, via construction equipment, aircraft, and personnel; or naturally by wind, birds, and ocean currents. He stressed that "most of the weedy species were present in the main Hawaiian Islands for many years before 1923, but the species were not found on French Frigate Shoals then. Thus, the weeds appeared there only after man began to make frequent visits."

Three biologists<sup>106</sup>—David B. Marshall, US Bureau of Sport Fisheries and Wildlife, Portland, Oregon, Kramer, and Jack W. Beardsley, entomologist with Hawaii Sugar Planters' Association—visited French Frigate Shoals on 11-12 and 21-22 June 1962 via the USS *Stone County*, an LST commanded by Captain P. R. Walker. On Tern Island the group recorded three bird species. A helicopter survey was made of all islands in the atoll. Figure 73 shows the deteriorating buildings on the deserted Coast Guard facilities on East Island. Another aerial photograph taken of East Island reveals 26 adult seals and one pup. Both Kramer and Beardsley (1962 unpublished report) and Marshall (1962 unpublished report) noted that because of human activity on Tern Island by Coast Guard, Navy, Army, Pacific Missile Range, and Atomic Energy Commission personnel, this island should be "written off" as a productive bird breeding area. Marshall (1964), in describing Tern Island, later wrote: "this is a sad reminder of what could happen to other islands of the Hawaiian Islands Refuge if they are not carefully guarded." In his unpublished report, Marshall recommends that the Hawaiian "refuge be placed in the status which it deserves and be given a full time Federal Refuge Manager."

Fred C. Sibley and A. Binion Amerson, Jr., of the Pacific Ocean Biological Survey Program (hereafter referred to as POBSP), Smithsonian Institution, visited French Frigate Shoals 7-15 June 1963<sup>107</sup> while aboard the USS *Tawakoni* (ATF 114) in conjunction with an ecological survey of the wildlife on the various islands of the Central Pacific. Camp was set up on both East and Whale-Skate Islands, and all islands except Shark and La Perouse were visited. Twenty-six bird species were recorded and 4,425 birds of 12 species were banded. One previously banded bird was captured. Turtles and seals were common on most islands. The wildlife seemed to have reinhabited East Island (Figure 74) with no ill effects. Two species of sea bird ticks—*Ornithodoros capensis* and *Ixodes laysanensis*—and ten species of plants were col-

106. A fourth biologist, David Woodside, returned to Honolulu from Tern after the 11-12 June visit.

107. An earlier attempt to visit the atoll at 1630 on 9 February 1963 by POBSP personnel aboard the USS *Moctobi* (ATF 105) was cancelled because of 10-foot seas and 35 mph winds; the ship departed at 2000.





**Figure 73. East Island, June 1962. Deteriorating US Coast Guard LORAN Facilities; Sooty Terns flying over island. Photograph by David B. Marshall.**



**Figure 74. East Island, June 1963. Sooty Terns have reoccupied the abandoned US Coast Guard LORAN Station. Photograph by Binion Amerson.**

lected. A seven-man rubber assault craft with outboard motor was used to go from island to island until over-inflation caused a two-foot hole to blow out in the forward section (Sibley, unpublished June 1963 POBSP report, LCS#2; Amerson, 1971).

Eugene Kridler, who became Refuge Manager for the Hawaiian Islands National Wildlife Refuge in early 1964, started patrols of the Refuge which were paid for under contract with the US Bureau of Sport Fisheries and Wildlife. Kridler's first visit to French Frigate Shoals was 27 July 1964 while aboard the Bureau of Commercial Fisheries vessel, the *Charles H. Gilbert*. The ship anchored off East Island for approximately 24 hours. Kridler (unpublished July 1964 report) described the island as being "a mess; trash is scattered all over, and it is dangerous walking about the island...because of the large number of boards and nails sticking straight up." He recorded 10 bird species, as well as nine seals and two sea turtles. While they were anchored that night, hatchling turtles and a 20-foot tiger shark swam past the ship (Kridler, unpublished report, July 1964; Amerson, 1971).

Kridler, accompanied by Ronald L. Walker, Hawaiian Fish and Game biologist, John Beardsley, University of Hawaii entomologist, and Robert R. Fleet and Charles R. Long, both of the POBSP, visited French Frigate Shoals on 27 September aboard the *Basswood*; they departed for Honolulu on the 28th by Coast Guard plane. During their brief visit they recorded 13 bird species. Nineteen birds of one species were banded. Seals and turtles were counted and tagged, and plants and insects were collected (Fleet, unpublished POBSP September 1964 report, LS #5; Kridler, unpublished September 1964 report; Amerson, 1971).

On 16 March 1965, Kridler, accompanied by Walker and Robbins, US Bureau of Sport Fisheries and Wildlife, and Winston E. Banko, POBSP, stopped at the Shoals while aboard the *Blackhaw*. The ship anchored at 0830 and departed at 2100; the team did not go ashore because of bad weather (Kridler, unpublished March 1965 report; Banko, unpublished POBSP March 1965 report, LS #8; FFS Log Book, March 1965, FRC 78A1281, Box 38).

August-September 1965, Amerson and Lawrence N. Huber (POBSP) again visited French Frigate Shoals. They arrived on the morning of 4 August aboard the USNS *Shearwater* (T-AG-177) and left on 2 September via a Coast Guard aircraft. All islands, except Disappearing and Shark Islands, were surveyed for birds and terrestrial vertebrates; 23 bird species were recorded and 14,210 birds of 14 species were banded. Of 442 band returns from 8 species, 15 percent were banded on other islands. Eighty-six green sea turtles and 14 seals were tagged. Chiggers and ticks, including *Rhipicephalus sanguineus*, a new record for the atoll, were collected. The deteriorating remains of the old Coast Guard Station were burned<sup>108</sup> (Figure 75).



Figure 75. East Island, August 1965. Burning old US Coast Guard LORAN buildings. Photo by Amerson.

A 15-man rubber raft with a 9-1/2 h.p. motor was used to travel between the islands. When not camping on East or Whale-Skate Islands, the men were quartered at the Tern Island station. Field operations were slightly hampered when Huber got a metal sliver in his eye and a plane with an in-flight surgeon had to be sent for to get it out, and when Amerson dislocated a finger while tagging a turtle (Amerson, unpublished September POBSP 1965 report, LS #10).

Another visit on behalf of the Hawaiian National Wildlife Refuge was made 21-24 March 1966 by Kridler, Andrew Berger, University of Hawaii, and Rice, while aboard the *Buttonwood*. Most islands, except Disappearing, were visited. Twenty-one bird species were recorded and population estimates were taken. Birds of six species, totaling 328, were banded. Seals were numerous, but turtles were few; 11 turtles were tagged. Vegetation notes were also taken (Kridler, unpublished March 1966 report).

In June of the same year, the *Shearwater* transported Amerson and Jeffery P. Tordoff to Tern Island. They remained on the atoll from 8 June to 7 July 1966. Only Tern, East, Trig, and Whale-Skate Islands were visited. The POBSP campsite on the west end of East Island is

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108. Permission to burn the old East Island Coast Guard LORAN Station buildings was obtained from the US Bureau of Sport Fisheries and Wildlife and the US Coast Guard.

shown in Figure 76. Twenty-one bird species were recorded; 12,034 birds of 15 species were banded. Three turtles were tagged; seal and turtle populations were recorded (Amerson, unpublished June 1966 POBSP report, LS #12).

Another POBSP team of Brian A. Harrington and Robert W. Tuxson arrived via Coast Guard plane on 11 August 1966 for a vertebrate survey. Tuxson departed 1 September and Harrington 16 September. Tern Island was again used as a base of operation; trips, via rubber raft, were made to all islands except Disappearing. Eighteen birds were recorded: 10,422 birds of 15 species were banded, and 1,032 returns were taken. Seal and turtle population counts were made (Harrington, unpublished September 1966 POBSP report, LS #15).

Kridler, accompanied by Walker, Kenyon, Sherwin Carlquist (Claremont College ecologist), and Warren S. Roll (*Honolulu Star Bulletin* photographer) also visited the Shoals in September 1966 while aboard the *Ironwood*. They arrived on the afternoon of the 12th. Before they left on the 15th they had visited Tern, Trig, East, Gin, Little Gin, and Whale-Skate Islands. Only incidental bird observations were made because the POBSP team was doing a thorough bird survey, but a turtle and seal count was taken. Hatchling turtles were seen at East Island at night. Vegetation notes were recorded (Kridler, unpublished September 1966 report).

In 1967 a US Bureau of Sport Fisheries and Wildlife field team, composed of Kridler, John Maciolek (Cooperative Fisheries Unit), Ernest Kosaka (Hawaiian Division of Fish and Game biologist), Richard Wass (University of Hawaii graduate student), and C. Douglas Hackman (POBSP), visited French Frigate Shoals 11-14 March while aboard the *Basswood*. Tern, East,



Figure 76. 12 June 1966, East Island. Pacific Ocean Biological Survey Program campsite. Photograph by Binion Amerson.

Trig, and Whale-Skate Islands were visited. Twenty-two bird species were recorded; 106 birds were banded, while 81 bird band returns were obtained (2 interisland). The team released 42 Nihoa Finches on Tern and 10 on East as an experimental introduction. A seal and turtle count was taken on all islands. The visit was plagued by bad weather: driving rain and 3-knot winds blew down and rendered useless the team's tent on East Island; high winds also caused the Boston Whaler to break loose from its mooring at Tern. The boat and its two outboard motors, all of which were new, were extensively damaged (Hackman, unpublished March 1967 POBSP report, LS #18; Kridler, unpublished March 1967 report).

From 25 May to 22 June 1967 a POBSP field team composed of Amerson and T. James Lewis again visited French Frigate Shoals. Transportation to the Shoals was provided by the Army Tug *LT 2081*<sup>109</sup>. Using Tern Island as a base, the men camped on East, Trig, and Whale-Skate, and visited all other islands except Shark and Disappearing. A total of 27 bird species was recorded; 13,956 birds of 13 species were banded; 2,534 band returns of 17 bird species were obtained (66 of these were interisland birds). Turtle and seal populations were recorded; 34 sea turtles were tagged and six tag returns were taken (two were interisland). Aerial photographs were taken on departing the atoll (Amerson, unpublished POBSP June 1967 report, LS #20).

The US Bureau of Sport Fisheries and Wildlife team of Kridler, Walker, John Sincock (Bureau of Sport Fisheries and Wildlife, Kauai), and Robert Ballou (Bureau of Sport Fisheries and Wildlife, Washington, DC) visited Tern, Trig, Whale-Skate, and East Islands 16-19 September 1967. Fourteen bird species were recorded and seal and turtle populations were counted (Kridler, unpublished September 1967 report).

On 7 December 1967 Kridler returned to Tern Island by Coast Guard plane. He recorded 14 bird species on Tern, and during a helicopter aerial survey of the other islands on the 9th, observed four additional species. Turtles and seals were also counted. He departed on the 11th via the *Ironwood* (Kridler, unpublished December 1967 report).

In March 1968, Kridler, Kenyon, Kosaka, and Sincock (all Bureau Sport Fisheries and Wildlife) and Roger B. Clapp (POBSP) visited French Frigate Shoals between the 11th and 15th via the *Ironwood*. Because of inclement weather and choppy lagoon conditions, the field team spent its entire stay on Tern Island. Of the 13 bird species recorded, only 6 were breeding; 133 birds of 3 species were banded; 14 returns of one species were obtained. The Nihoa Finch population had become reduced to three individuals, two of which were nesting (Clapp, unpublished March 1968 POBSP report, LS #22).

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109. *LT 2086* and *LT 2087*, with other POBSP personnel, stopped briefly at Tern Island on 25 May 1967.

Another POBSP survey was conducted by Amerson from 29 May to 27 June 1968; he was joined by Ronald R. Amerson, USN, on 6 June. Both returned to Honolulu by air on the 27th. All major islands, except La Perouse, were visited; camps were established on East, Trig, and Whale-Skate. Twenty-four bird species were recorded; 7,936 birds of 15 species were banded and 1,474 band returns (22 interisland) were obtained from 11 species. Vegetation distribution maps were drawn for East, Whale-Skate, Trig, and Tern; no vegetation was found at Round, Mullet, Gin, or Little Gin (Amerson, unpublished POBSP June 1968 report, LS #23).

Kridler, accompanied by Kosaka, Sincock, and John Hendrickson (Oceanic Institute Director, Honolulu) arrived at Tern Island on 6 June to count and tag the turtle and seal populations on the atoll. Hendrickson and Sincock returned on the 14th, Kosaka returned on the 21st, and Kridler<sup>110</sup> departed on the 27th with the POBSP team.

Kridler accompanied by a National Broadcasting Company television crew visited French Frigate Shoals to photograph the wildlife of the Hawaiian Islands National Wildlife Refuge from 20 to 24 February 1969. Although bad weather hampered the operation, some film footage was taken. It was subsequently shown on KHON, Honolulu's NBC station; some footage was also shown nationally on the Huntley-Brinkley News Program. Kridler recorded 14 species of birds on Tern, Trig, and Whale-Skate Islands (Kridler, unpublished February 1969 report).

Kridler, accompanied by David L. Olsen (Assistant Refuge Manager), Sincock, Kenyon, and George Laycock (National Audubon Society, Cincinnati, Ohio) visited Tern Island on 23 March 1969 while aboard the *Buttonwood*. Seven bird species were recorded (Kridler, unpublished April 1969 report).

Olsen, with William Patzert, Karl Bathen, Tom Clark, Ronald Kent, and James McVay (University of Hawaii Cooperative Fishery Unit) visited French Frigate Shoals on 30-31 May 1969 via the USF&W ship *Mahi*. The *Mahi* anchored near La Perouse Pinnacle and the six members of the party engaged in scuba diving around the base of the rock; Olsen and McVay landed on the Pinnacle. Seven bird species were recorded; marine vertebrates and invertebrates were collected (Olsen, unpublished June 1969 report).

The last POBSP personnel—Amerson and Vernon M. Kleen—to visit French Frigate Shoals arrived on 2 June 1969 via an FAA chartered flight; they departed 26 June. Tern Island was again used as a base of operations; camps were set up at East, Whale-Skate, and Trig Islands;

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110. Kridler again visited Tern Island during August 1968, but nothing is known of his visit.

all islands in the atoll were visited. On a very calm day, La Perouse Pinnacle (Figure 77) was scaled<sup>111</sup> during the survey. A total of 23 bird species was recorded; 4,106 birds of 13 species were banded; 1,340 band returns were obtained (15 were interisland). Thirty-nine seals were tagged and 9 tagged ones were recaptured. Ten green sea turtles were tagged; one tag return was obtained (Amerson, unpublished June 1969 POBSP report, LS #24).

Avifaunal data collected by POBSP personnel resulted in four publications. Gould and King (1967) reported *Pterodroma ultima* as being accidental on French Frigate Shoals. Clapp and Woodward (1968) published a list of 11 species, seven of them new records for the atoll. Sibley and McFarlane (1968) recorded two gulls from the Atoll. Using all POBSP-gathered data and all previously published records, Amerson (1971) published the "Natural History of French Frigate Shoals, Northwestern Hawaiian Islands" as *Atoll Research Bulletin* Number 150. Figures 78 through 88 shows some of the wildlife species that utilize the islands at French Frigate Shoals. Amerson's 383-page monograph proved to be very beneficial as a baseline reference for all natural history and other scientific research studies at French Frigate Shoals since 1970. With the military still present on Tern Island, below is the status of major wildlife species in 1969 (Amerson, 1971):

- **Black-Footed Albatross.** Nests on East (1,544), Little Gin (504), Tern (14), Trig (102), and Whale-Skate (1,056).
- **Laysan Albatross.** Nests on East (678), Tern (400), Trig (88), and Whale-Skate (100).
- **Red-Tailed Tropicbird.** Nests on East (40), Tern (90), Trig (10), Whale-Skate (16), and La Perouse Pinnacle.
- **Blue-Faced Booby.** Nests on East (18), Gin (70), Little Gin (10), Round (50), Trig (137), and Whale-Skate (280).
- **Red-Footed Booby.** Nests on East (120), Trig (106), and Whale-Skate (28).
- **Brown Booby.** Nests on ledges of La Perouse Pinnacle (100).
- **Great Frigatebird.** Nests only on Whale-Skate (442).
- **Sooty Tern.** Nests on East (120,000), Tern (sparingly), Trig (1,400), and Whale-Skate (2,600).
- **Brown Noddy.** Nests at East (1,000), Little Gin (22), Trig (440), Whale-Skate (1,700), and La Perouse Pinnacle (1,000).
- **Black Noddy.** Nests only on La Perouse Pinnacle (600); roosts on other islands.
- **White Tern.** Nests on Tern (200) and La Perouse Pinnacle (1,000).
- **Hawaiian Monk Seal.** Maximum 171; present on beaches of all islands.
- **Green Sea Turtle.** Maximum 1,300; nests on all major sand islands except Tern.

For a comparison of wildlife status since the military left, see Chapter 12 (page 205).

111. The last known times anyone had climbed to the top were 1928 and 1930 when the rock was scaled by US Coast and Geodetic Survey personnel (see page 52).

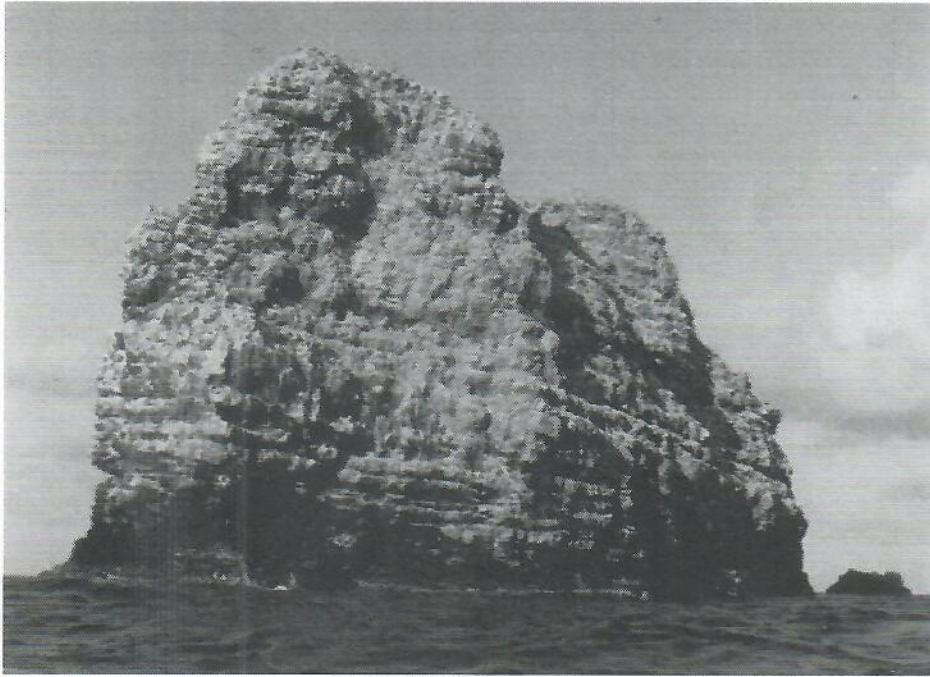


Figure 77. La Perouse Pinnacle, North Side, June 1969. Photograph by Binion Amerson.

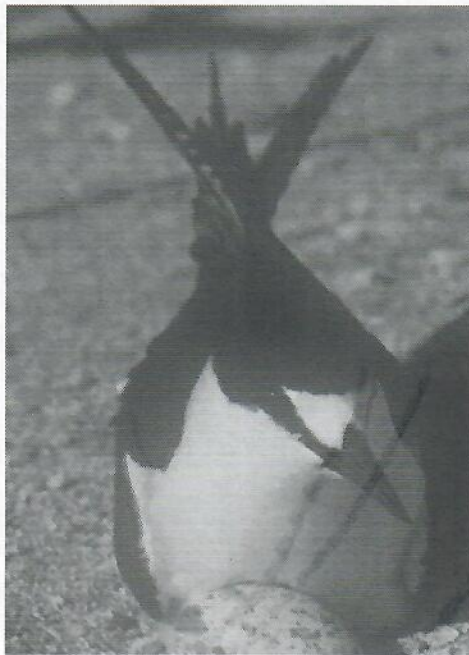


Figure 78. Sooty Tern (*Sterna fuscata*) nested on the ground primarily on East Island in the 1960s.  
Photograph by Binion Amerson.





Figure 79. Brown Noddy (*Anous stolidus*) nested on the ground in light vegetation (*Tribulus*) primarily on East Island in the 1960s; a few nested on Tern Island. Photograph by Binion Amerson.



Figure 80. Black Noddy (*Anous tenuirostris*) nested in low vegetation primarily on East Island in the 1960s; a few nested on Tern Island. Photograph by Binion Amerson.



Figure 81. Red-footed Booby (*Sula sula*) built its nest of sticks on trash and on low shrubs (*Scaevola*) primarily on East Island in the 1960s; a few nested on Tern Island. Photograph by Binion Amerson.



Figure 82. Female Great Frigatebird (*Fregata minor*) built its nest of sticks in low vegetation only on Whale-Skate in the 1960s. Photograph by Binion Amerson.



Figure 83. A few White Tern (*Gygis alba*) nested on bare limbs of *Casuarina* trees on Tern Island in the 1960s; most nested on the rock ledges of La Perouse Pinnacle. Photograph by Binion Amerson.



Figure 84. White Tern (*Gygis alba*) chick on bare limb of *Casuarina* tree on Tern Island in 1967. Photograph by Binion Amerson.



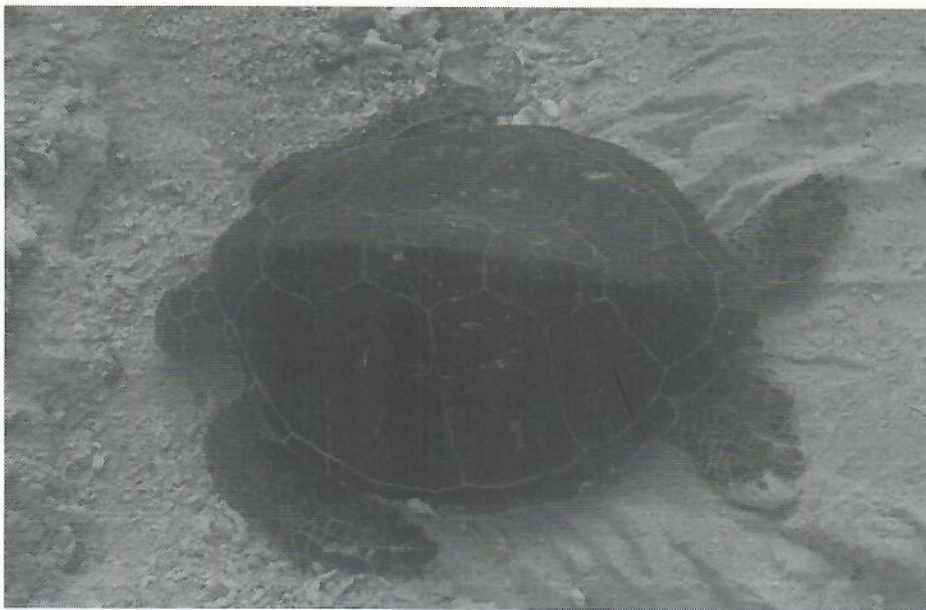
Figure 85. Laysan Albatross (*Diomedea immutabilis*) nested on the ground in vegetated portions of most sandy islands at French Frigate Shoals in the 1960s. Photograph by Binion Amerson.



Figure 86. A few Black-Footed Albatross (*Diomedea nigripes*) nested on the ground around the periphery of most sandy islands at French Frigate Shoals in the 1960s. Photograph by Binion Amerson.



**Figure 87.** A few Hawaiian Monk Seal (*Monachus schauinslandi*) were observed on all of the sandy islands at French Frigate Shoals in the 1960s. Photograph by Binion Amerson.



**Figure 88.** A few female Green Sea Turtle (*Chelonia mydas*) layed its eggs in the sand on most of the sandy islands at French Frigate Shoals in the 1960s. Photograph by Binion Amerson.

## CHAPTER 12

# ***THE FUTURE:***

## ***The Coral Carrier Sails On***

### **French Frigate Shoals On The Internet**

With the advent of the Internet and the World Wide Web in the mid-1990s, I cannot repeat all that has been recently posted about French Frigate Shoals. New sites appear almost daily. There is a wonderful Web Page called "French Frigate Shoals Today." That page was created 20 September 1997 by LT Jerry M. Lentz (USCG Retired) and is updated regularly at: (<http://www.radiojerry.com/ffstoday/>). Below are a few things that have recently happened.

### **Albatross Tracking And Turtle-Tagging**

Starting in January 1998, Wake Forest University began tracking albatrosses using satellites, transmitters, e-mail and the efforts of kids all over North America. The Albatross Project uses French Frigate Shoals and Kileaua Point for their field work. Check out their project at <http://www.wfu.edu/albatross>. Dr. Beth Flint is a Biologist with the U.S. Fish and Wildlife Service office in Honolulu, Hawaii. She and her colleagues are responsible for the Hawaiian Islands National Wildlife Refuge that the Laysan Albatross and Black-Footed Albatross use as their nesting grounds. Few predator-free nesting areas exist for albatrosses to use, and small oceanic islands are about the only really safe places for them. The Fish and Wildlife Service monitors the populations of albatross and other plants and animals in Hawaii. Flint's work to preserve the ecosystems of the Northwest Hawaiian islands is essential for albatross conservation. 1 June 1998, marked the 25th anniversary of the turtle-tagging program at French Frigate Shoals. The tagging program has been a magnificent success and to commemorate the anniversary, Peter Bennett and Ursula Keuper-Bennett, authors of the award-winning Turtle Trax web site, have created a special web page (<http://www.turtles.org/>). When you pay the Site a visit, also take a close look at some of their beautiful underwater photos of the Hawaiian Green Sea Turtle.

On 28 September 2000, Jan TenBruggencate (2000), Staff Writer for the *Honolulu Advertiser*, wrote the following in an article titled "French Frigate Shoals Project to Save Wildlife":

The 58-year-old steel plates that hold Tern Island at French Frigate Shoals together are collapsing and have become a threat to wildlife.

Biologists repeatedly have had to intervene to free seals, birds and other wildlife trapped by jagged, rusted plates.

Sometimes they don't find the animals soon enough.

"Monk seals, turtles, seabirds and even octopus are subject to starvation, dehydration or being impaled when they become caught between the wall and the eroding beach," said Tony Palermo, acting refuge manager for the U.S. Fish and Wildlife Service at French Frigate Shoals.

Palermo and service biologist Beth Flint Monday (September 25) saved a seal pup that had been trapped behind one of the steel plates.

There is an \$8 million federal appropriation to rebuild the wall. Although work will not start until summer, some site preparation could begin as early as next month (October).

Tern Island was converted from a six-acre sandbar in 1942 into a rectangular patch of coral with a 3,000-foot runway, providing the military with a mid-Pacific strip from which to conduct air surveillance missions and on which military planes could refuel during long trans-Pacific flights.

The 50th Naval Construction Battalion, the Seabees, built the island by erecting what resembles a giant sandbox, its sides built out of sheet-steel pilings driven into the atoll's coral and sand. They filled it with dredged coral debris from a channel cut through the French Frigate Shoal reef to provide ship access to the end of the island.

When the work was done, the old sandbar had been nearly doubled in length. On one side of the runway, a wider area was created to accommodate buildings, fuel tanks and other structures. From the air, the island looks like a giant coral-colored aircraft carrier.

For the past two to three decades, the interlocking steel plates have been breaking down, and the coral fill that creates Tern Island has been washing out through the rusted breaks. Turtles and seals that haul up on the shore sometimes have crawled through holes in the wall and become trapped. Other animals, like birds, can fall into the holes or become trapped between the interlocking plates.

"Because they often can't find their way out when the tide changes and recedes, these animals often die in the sun," Palermo said.

The rebuilding of the seawall that keeps Tern Island together is expected to take two years. Biologists will attempt to keep disturbance of the animals there to a minimum.

The Fish and Wildlife Service wants to keep the island operational because of its value as a monitoring station for wildlife on the Northwestern Hawaiian Islands.

The service had considered abandoning the seawall, thus giving up the airstrip, but concluded it would be too difficult to conduct needed biological studies without air access.

Tern, about 400 miles from Kaua'i has the only landing field on the 1,200-mile flight to Midway Atoll. It sits roughly halfway between O'ahu and Midway.

Concrete buildings and water-catchment facilities remain from the island's use by the Coast Guard as a navigation aid station through 1979. A small Fish and Wildlife Service crew has remained on the island since then.

"In order to fully understand the biology and ecology of both migratory and resident tropical animals, year-round data collection is crucial," Flint said.

"Some seabirds live as long as 50 years. To try and understand them and their behavior fully, it is important not only to have year-round data, but to also have data that spans over decades for comparison," Flint said.

Flint is part of a major scientific expedition to the Northwestern Hawaiian Islands to map for the first time the reefs of the islands.

### **Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve**

On 4 December 2000, President William Jefferson Clinton created the single largest nature preserve ever established in the United States. Calling the designation of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (NWHICRER) "a bold and visionary action," President Clinton recognized the work of an unprecedented coalition of government agencies, conservation groups and concerned citizens for, "a big step forward, not only for the United States, but for oceans around the world." The NWHICRER provided the strongest level of protections for the ocean ever enacted, and in the words of then President Clinton, "Set a new global standard for coral reef and wildlife protection." President Clinton called the NWHICRER "The Yellowstone of the Sea," and in 2000 considered the creation of the coral reef ecosystem reserve an important step on the road with much, much, more work ahead. Fast forward a decade and the list of protections, recognitions, and new discoveries (along with the sophistication of cooperative-ecosystem based management to protect the Northwestern Hawaiian Islands) is astounding.

### **Papahānaumokuākea Marine National Monument**

Following a tradition started by President Theodore Roosevelt in 1909, on 15 June 2006, President George W. Bush established the Northwestern Hawaiian Islands Marine National Monument, setting apart 139,793 square miles of federal lands and waters to protect the area's significant natural, cultural, and historic resources (Figure 89). The monument is to be managed by the Department of the Interior's U.S. Fish and Wildlife Service and the Department of Commerce's National Oceanic and Atmospheric Administration, in close coordination with



the State of Hawaii. Included within the National Monument are two National Wildlife Refuges: the Hawaiian Islands National Wildlife Refuge extending from Nihoa Island to Pearl and Hermes Atoll, and Midway Atoll National Wildlife Refuge. Midway Atoll also is designated as the Battle of Midway National Memorial. The National Monument also includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve administered by NOAA and the State Marine Refuge managed by the State of Hawaii.



**Figure 89. President George W. Bush signs proclamation creating the Northwestern Hawaiian Islands Marine National Monument at a ceremony Wednesday, June 15, 2006, in the East Room of the White House. Mrs. Laura Bush joined the President and distinguished guests on stage. From left to right, U.S. Rep. Neil Abercrombie, D-Hawaii; U.S. Rep. Ed Case, D-Hawaii; U.S. Sen. Daniel Akaka, D-Hawaii; U.S. Commerce Secretary Carlos Gutierrez; Hawaii Gov. Linda Lingle; documentary filmmaker Jean-Michel Cousteau; marine biologist Sylvia Earle; and U.S. Interior Secretary Dirk Kempthorne. Official White House photograph by Eric Draper.**

### **National Oceanic and Atmospheric Administration Studies**

2002. Depart Honolulu 8 September 2002. NOAA Research Vessel Rapture. Arrive FFS 11 September 2002. Depart 13 September 2002. Again visited 4-5 October 2002. Its mission was to study deep water marine processes in the Pacific Ocean. They also assessed the role of precious coral beds as foraging grounds for Hawaiian monk seals. Returned to Honolulu 7 October 2002 (<http://www.hawaiianatolls.org/research/NOWRAMP2002/index.php>).

2004. Depart Honolulu 13 September 2004. NOAA Research Vessel *Hi'ialakai*. Arrive French Frigate Shoals early a.m. on 16 September 2004. Conduct towed diver fish and habitat surveys and benthic and fish REAs. Recover and replace CREWS buoy and four existing STRs. Conduct shallow water CTD, PRRs, water sampling, and QTC acoustic seabed habitat

classifications, towed camera surveys, CTDs, ADCP and bioacoustic surveys, and bottom grabs during nighttime hours. Depart FFS 1800 on 19 September 2004 headed to the northwest. Returned to Honolulu on 12 October

(<http://www.hawaiianatolls.org/research/NWHIRAMP2004/index.php>).

2005. 16-18 May 2005 and one day early June 2005. NOAA's Research Vessel *Hi'ialakai* arrived at French Frigate Shoals. NWHI Maritime Archaeology, Ecosystem Connectivity, Mapping and Coral Disease Expedition 2005

(<http://www.hawaiianatolls.org/research/May2005/index.php>).

2005. 15-18 August 2005. NOAA's Research Vessel *Hi'ialakai* arrived at French Frigate Shoals 15 August 2005. NWHI Education Expedition. Visited La Perouse, East, and Tern Islands. Departed 18 August 2005. Returned to Honolulu 21 August

(<http://www.hawaiianatolls.org/research/NWHIED2005/index.php>).

2005. 17-19 September 2005. NOAA's R/V *Hi'ialakai* arrived at French Frigate Shoals 15 August 2005. NWHI Reef Assessment and Monitoring Expedition 2005

(<http://www.hawaiianatolls.org/research/NWHIRAMP2005/index.php>).

2006. 22-24 May 2006. NOAA's R/V *Hi'ialakai*. NWHI Ecosystem Connectivity, Apex Predator Movement, and Coral Health Assessment Expedition, May-June 2006. Arrived 22 May 2006. Departed FFS 24 May 2006 (<http://www.hawaiianatolls.org/research/May2006/index.php>).

2006. 10-23 October 2006. NOAA ship *Oscar Elton Sette*. Census of Marine Life, Census of Coral Reefs Expediting to French Frigate Shoals (October 2006). Arrived 1900 on 10 October

(<http://www.hawaiianatolls.org/research/CoML/index.php>).

2007. 28 September 2007. NOAA's R/V *Hi'ialakai*. NWHI Reef Assessment and Monitoring (RAMP) September - October 2007. During the expedition scientists performed annual monitoring of the coral reefs and surrounding shallow habitats of the Monument

([http://www.hawaiianatolls.org/research/Sept\\_Oct2007/index.php](http://www.hawaiianatolls.org/research/Sept_Oct2007/index.php)).

2007. 7 September 2007. NOAA's R/V *Hi'ialakai*. Maritime archaeology, predator tracking and tagging, and invertebrate studies (August-September 2007). Research included maritime heritage, predator tagging and tracking, studying the health of the coral reef and inhabitants, invertebrate studies, and studying how populations of marine organisms in different areas of the Monument are linked to each other and elsewhere. Returned to Honolulu on 10 September

([http://www.hawaiianatolls.org/research/Aug\\_Sept2007/index.php](http://www.hawaiianatolls.org/research/Aug_Sept2007/index.php)).

2008. In the summer of 2008, a team of NOAA maritime archaeologists made an exciting discovery at French Frigate Shoals. "Within minutes of the first tow, the divers spotted a large anchor in approximately 15 feet of water." The team suspected that this was the wreck of the *Two Brothers*, the Nantucket whaler wrecked in 1822 and described earlier through her ill-fated career of Captain George Pollard (see pages 7-8). But, they were not sure of the identity (<http://www.papahanaumokuakea.gov/maritime/twobrothers.html>).

2009. "In 2009, the maritime heritage team returned to the unidentified whaling shipwreck site at French Frigate Shoals (referred to by the team as the "Shark Island Whaler" for the sandy island nearby) in order to conduct an ecological survey at the site. At this time, the team came across an exciting new portion of the wrecksite. In addition to the discovery of a fourth try-pot, three blubber hooks, a grinding wheel, and a kedge anchor, the team found four small cast iron pots that resemble small trypots. There are records describing the sale of these type of cast iron pots in Nantucket for use on ships. The team also came across what appears to be the tip of a whaling harpoon, another exciting discovery with the potential to yield information about the identity of this site."

(<http://www.papahanaumokuakea.gov/maritime/twobrothers.html>).

2010. "It wasn't until May of 2010 when a small team was able to return to the site that maritime archaeologists began to believe they were indeed looking at the scattered remains of the Nantucket whaleship *Two Brothers*. At this time, the team uncovered an incredible collection of whalecraft (the tools of whaling) on the sea floor. Four more whaling harpoon tips (for a total of five), four whaling lances, ceramics, glass, and a sounding lead (among dozens of other artifacts) all date to an 1820s time period with an American provenance. The preponderance of evidence suggested to the team that they were looking at the *Two Brothers*, the only American whaler lost at French Frigate Shoals in the 1820s. Both the *South Seaman* and the *Daniel Wood* were lost much later than the *Two Brothers*, and reports of their losses place them far away from the location of the *Two Brothers* shipwreck site. The team completed a second site plan carefully documenting the location of these artifacts south of the initial site discovery area from 2008. These site plans help maritime archaeologists better understand the process of wrecking, and compare it to the accounts of the survivors of the *Two Brothers* tragedy. Survivors describe a wrecking event so violent and confusing the sailors barely had the time to launch small boats and paddle away before the vessel became a complete loss on the reef." (<http://www.papahanaumokuakea.gov/maritime/twobrothers.html>).

2010. In August of 2010, maritime archaeologists on the second expedition to the Northwestern Hawaiian Islands of the season acquired the permits to recover two more whaling harpoon tips, along with two whaling lances, ceramics, glass, and one of the cooking pots. These arti-

facts were thoroughly documented and will undergo conservation at the Heritage Resources Conservation Laboratory at the California State University at Chico under the direction of Dr. Georgia Fox. Once conserved and treated, the artifacts were analyzed and returned to Hilo, Hawaii to become part of the Monument's maritime heritage exhibit at the Mokupapapa Discovery Center in Hilo. "The *Two Brothers* is an exciting find and an important maritime heritage site in the Northwestern Hawaiian Islands. This and other American whaling ships lost in Papahānaumokuākea are the material remains of a time when America possessed over 700 whaling vessels and over one fifth of the United States whaling fleet may have been composed of Pacific Islanders. Dozens of vessels called upon Honolulu, and these ships, for better or worse, transformed the islands. Many of these vessels would travel up to two years and around the world to get to whaling grounds in distant places. The whaling shipwreck sites in the Northwestern Hawaiian Islands help us to tell this part of Hawaiian and Pacific history, and remind us about the way that this remote part of the United States is connected with small communities in New England half way around the world"

(<http://www.papahanaumokuakea.gov/maritime/twobrothers.html>).<sup>112</sup>

2011. NOAA Ship *Oscar Elton Sette* returned to port at Ford Island/Pearl Harbor on April 22, 2011 after a multi-faceted mission to Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands. Directed by NOAA's Pacific Islands Fisheries Science Center (PIFSC), one of the cruise's primary goals was to establish five field camps and deploy 14 scientists with the Hawaiian Monk Seal Research Program (HMSRP). Over the course of the next three to four months the researchers will build upon 28 years of field research into the critically endangered Hawaiian monk seal. The population of Hawaiian monk seals is declining about 4% annually, driven largely by poor juvenile survival; with fewer than 1 in 5 pups surviving to become adults in the Northwestern Hawaiian Islands. Dr. Charles Littnan, the Chief Scientist for HMSRP explained the field research camps help direct mitigation efforts to increase the survival of seals. Currently there are an estimated 1100 Hawaiian monk seals, with the majority of them in Papahānaumokuākea. Littnan said, "Our field camps have created one of the premiere population data sets for a species anywhere which allows us to understand the causes of mortality and develop strategies to increase monk seal survival." Monk seal field camps are located on five islands in Papahānaumokuākea: Laysan, French Frigate Shoals, Lisianski, Pearl & Hermes Atoll, and Kure Atoll. Some camps work on specific projects, aimed at enhancing monk seal survival rates. In addition to deploying people and equipment, field crews and personnel from the *Oscar Elton Sette* did extensive tsunami related clean-up and debris removal from camp sites on all five islands or atolls. At Kure Atoll, four PIFSC and Hawaii Department of Land and Natural Resources researchers rescued

112. Numerous newspaper articles and publications have been published about the wreck of the *Two Brothers*. I will not attempt to list them all, but the most important include: Simons, 2010; McKinley, 2011; and Than, 2011.

and freed a weaned Hawaiian monk seal pup that was caught in debris and was in danger of drowning. At Lisianski Island, crews monitored several seals with injuries that may have been a result of the March tsunami generated by a major earthquake off of Japan. At each of the camps, scientists are attempting to determine if the tsunami caused increased Hawaiian monk seal mortality. A known continuing entanglement threat to monk seals, turtles, and fragile coral reefs is marine debris. The *Oscar Elton Sette* returned to port with more than 16 tons of derelict fishing nets and other gear. Since marine debris removal efforts in the Northwestern Hawaiian Islands began nearly 15 years ago, more than 775 tons of debris has been removed from the reefs and shores of Papahānaumokuākea. The majority of this debris has been used to create electricity on Oahu. Numerous NOAA Offices; including Papahānaumokuākea Marine National Monument, the Pacific Islands Fisheries Science Center and the Marine Debris Program, along with a host of other public and private partners, fund and support continuing efforts to remove marine debris from the Northwestern Hawaiian Islands.

### Papahānaumokuākea Management

Papahānaumokuākea is cooperatively managed to ensure ecological integrity and achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Island ecosystems, Native Hawaiian culture, and heritage resources for current and future generations. Three co-trustees—the Department of Commerce, Department of the Interior, and State of Hawaii—joined by the Office of Hawaiian Affairs, protect this special place. Papahānaumokuākea Marine National Monument was inscribed as the first mixed (natural and cultural) UNESCO World Heritage Site in the United States in July 2010. Below is a list of the Tern Island US Fish and Wildlife Service Managers<sup>113</sup>.

Name	Month/Year Began	Month/Year Finished
John Andre	1981	1982
Steve Fairaizl	1982	?
Ken Neithhammer	1987	1991
Jen Megesi	1990	1991
Mark Weber	1991	1992
Chris Dipple	1992	1994
Steve Barclay	1993	1996
Anthony Viggiano	1997	1998
Brian Allen	1998	February 2000
Anthony Palermo	February 2000	February 2002
Deb Henry	February 2002	July 2002

Name	Month/Year Began	Month/Year Finished
Chris Eggleston	July 2002	August 2003
Jennifer Tietjen	August 2003	November 2005
Angela Anders	November 2005	September 2007
Dave Zabriske	September 2007	June 2009
Pete Leary	June 2009	September 2010
Paula Hartzell	September 2010	June 2012
Meg Duhr-Schultz	June 2012	Present (Spring/Summer Manager)
Chad Bell	October 2012	Present (Fall/Winter Manager)

2009. NOAA published "A Marine Biogeographic Assessment of the Northwestern Hawaiian Islands to Support the Papahānaumokuākea Marine National Monument." This comprehensive publication summarizes all that is know about the marine environment within the Papahānaumokuākea Marine National Monument and proposes future management (Friedlander, A., K. Keller, L. Wedding, A. Clarke, and M. Monaco, 2009).

2012. August 2012. The US Fish and Wildlife Service published "Biological Status and Trends, Terrestrial Component, 1986-2011" which summarizes all known information about the terrestrial biota know to date (Hartzell, Paula L., S. M. Youngren, and D. C. Rapp, August 2012). With the military absent from Tern Island since 1979, below is the status of major wild-life species in 2011:

- **Black-Footed Albatross.** The minimum number of nesting pairs on Tern Island has increased from 304 pairs in 1986, to 2,546 pairs in 2011.
- **Laysan Albatross.** Restricted primarily to Tern Island (3,000 breeding pairs), although there is also a small population on East Island.
- **Red-Tailed Tropicbird.** 400 to 600 breeding pairs.
- **Blue-Faced Booby.** 600 breeding pairs on Tern; some on East.
- **Red-Footed Booby.** 2,500 breeding pairs on Tern; some on East.
- **Brown Booby.** Estimated 20 to 100 breeding pairs only on La Perouse.
- **Great Frigatebird.** Tern population is about 600 breeding pairs; some on East.
- **Sooty Tern.** On Tern, 42,718 minimum breeding pairs in 1986, to over 110,000 in 2011.
- **Brown Noddy.** 10,000 breeding pairs on Tern; some 400 on East.
- **Black Noddy.** 1,100 breeding pairs on Tern; some on East and La Perouse.
- **White Tern.** Estimated 50 to 100 breeding pairs on Tern; a few on East and La Perouse.
- **Hawaiian Monk Seal.** Home to some 200 individuals (18% of the global population).
- **Green Sea Turtle.** Home to some 1,000 to 1,500 nesting females (over 90% of the global population).

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113. Information provided by Paula Hartzell (September 2012) and Meg Duhr-Schultz (October 2012).

In summary, the wildlife at French Frigate Shoals, especially on Tern Island, has remarkably increased since the military departed in 1979 (see page 190). Further, Hartzell recorded three seabird species—Short-Tailed Albatross (*Phoebastria albatross*), Lesser Frigatebird (*Fregata ariel*), and Tristram's Storm Petrel (*Oceanodroma tristrami*)—who now regularly visit or nest at FFS; a number of vagrant seabird and land bird species have been recorded.

Paula Hartzell, the senior author, writes in her final notes:

“We have accomplished two amazing things at FFS: (1) We've established a presence which has kept rats and mice from arriving by visiting vessels, and occurrence that would destroy the seabird colony entirely. (2) We've monitored seabird, seal, and turtle trends, and shared this with the world outside. Both accomplishments will have profound, long-term positive effect for this ecosystem. The backbone of wildlife conservation should be observation—and sharing these observations with those that cannot be there, so that the wildlife can remain largely undisturbed. Sharing information among the scientific community is important so that our understanding of the situation is as accurate and complete as possible. It is even more critical to share this information with the public at large, however. Without sharing the beauty, functions, and threats to this system with the public, we are robbing them of their rights, as well as reducing support for the wilderness in our future.”

“The value of FFS monitoring is in its longevity. As this volume begins to indicate, we have collected an amazing amount of information at FFS. A large part of this information has never been analyzed, or gleaned of all the information it holds. There is a huge amount of otherwise unknown natural history and basic science, such as lineage histories, longevity records, trends in incubation period, etc, available in the existing data at FFS. Both agencies and the public need to financially support those who can spend the time to compile, analyze, and share the results of studies based on the existing records at FFS. We can learn much from more in-depth studies.”

“The longevity of FFS monitoring will be wasted if it is not maintained. A thirty year record in the past is interesting; a 30+ year record that is maintained to present is invaluable. Maintenance of monitoring at FFS comes at a price: If we want long-term monitoring, we must make it a high management priority, and support that with both sufficient funding and personnel to get the job done.”

“Perhaps the single largest missing element in biological monitoring at FFS is ecosystems level work. At present and in the past, species have been considered almost in isolation of their environment, except perhaps on the broad scale of oceanic and climatological. Species are made up of populations and individuals, which live in a local environment, and whose fate

depends on the environment around them—particularly for those species that feed in the surrounding waters. Antonelis et al. (2003) noted a relationship between El Nino events with Hawaiian monk seal pup body condition. Baker et al. (2007) attempted to tie larger oceanic process with Hawaiian monk seal decline, but the scope of that work did not include tying larger oceanic trends with local conditions that seals must actually face, nor did it include examination of prey abundance which is the link between those physical conditions with local prey abundance. Schultz et al. (2011) compare trends across species, but again the scope of assessment did not include any analyses of functional relationships or causes. Studies in seabird population dynamics are similar: Relationships between large-scale oceanic trends and seabird trends are noted (Hyrenbach and Shaffer Labs, personal communication), but trends in local forage have not been examined. All miss examination of the relationship in local physical conditions, primary productivity, prey abundance and distribution, and higher level predators within our ecosystems. This is the missing link for effectively managing seabirds, seals, and other megafauna in the Monument. Only by considering the system as a whole, and examining critical inter-species and physical-biological dependences can we truly understand the status and trends of the biological community at this atoll.”

2012. 12 October 2012. Meg Duhr-Schultz (pers. corresp., 12 October 2012) revealed that the Tern Island Fish and Wildlife Service Research Facility now has two Acting Managers (see pages 204-205). Chad Bell, who arrived on Tern Island on Friday, 5 October 2012, will be the “Fall/Winter Manager” and she will return in March 2013 as the “Spring/Summer Manager.”

### **US Coast Guard French Frigate Shoals LORAN Station Reunions**

With the advent of the Internet and email, some of the former men who served at the USCG French Frigate Shoals LORAN Station Facility decided to hold a reunion. That first reunion, organized by Chief Marvin Johnson and others, was held 16-18 September 2011 at the Outback Roadhouse in Branson, MO

(<http://www.coastguardchannel.com/images/reunions/FrenchFrigateShoals2011.pdf>). In all, 18 former USCG men (and wives) who served at French Frigate Shoals attended. I was invited and attended. The event included a full day of talking about old times, showing old photographs and slides, looking through the FFS Scrapbook, and enjoying an evening banquet aboard the *Showboat Branson Belle* (Figure 90). These retired USCG French Frigate Shoals men, as are all the former men who served at the Facility, are proud to wear one or both of the USCG French Frigate Shoals LORAN Logo Patches (Figure 91). As a result of this reunion, LT Jerry M. Lentz added additional information to his Web Page devoted to the USGC French Frigate Shoals LORAN Station Facilities. I will not attempt to present all the material in this book that Jerry has assembled. Please visit the “French Frigate Shoals Web Page” at <http://radiojerry.com/frigate/>. A second reunion is planned for spring 2013 or 2014 in Hawaii.



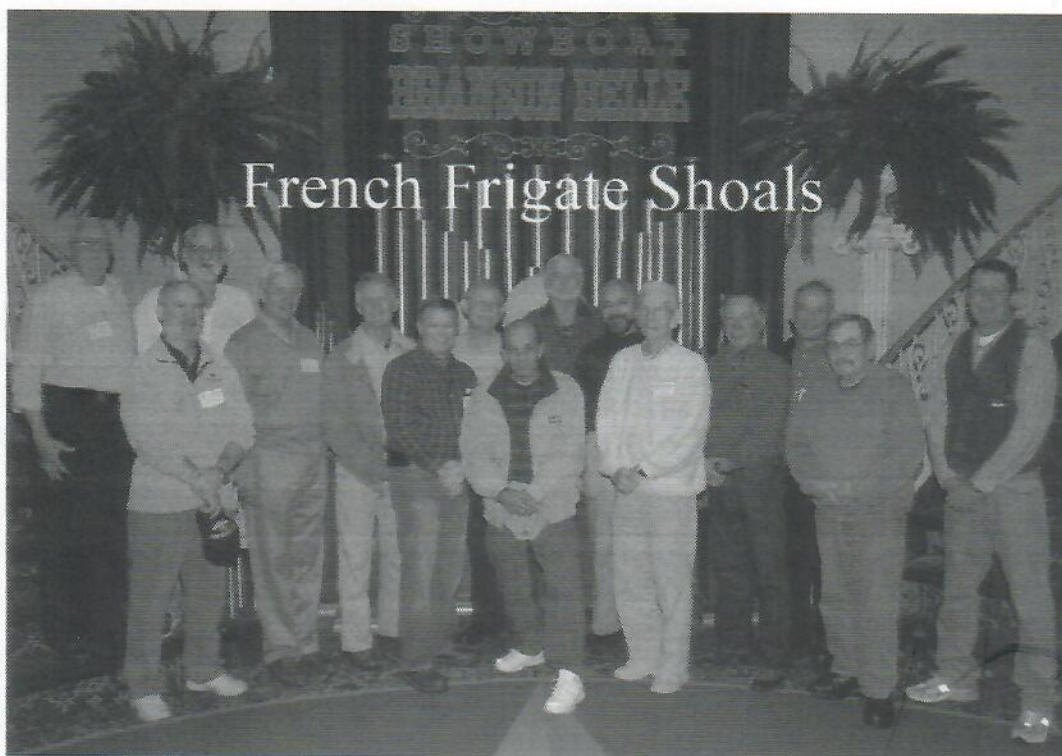


Figure 90. First US Coast Guard French Frigate Shoals LORAN Station Reunion Attendees, Branson, MO, 17 September 2011. L. to R.: Binion Amerson, Howard Schadt, Bob Popwell, Hank Kofron, Durrie Monsma, Ramon (Ray) Von Tersch, Marvin Johnson, Jerry Morales, Alan Haines, Joe Tirado, Bill Senn, Dennis Singer, Jim Lane, Don Venneri, and John Dalelstein. Photograph by Showboat Branson Belle Photographer Supplied by Howard Schadt.



Figure 91. Official USCG Patches and a Zippo Lighter available for those who served at the French Frigate Shoals LORAN Tern Island Facility.

## What Does The Future Offer?

I asked various government officials and scientists who manage or have visited French Frigate Shoals to share their thoughts on the future of the atoll. Below are their candid responses.

**Barry Stieglitz, Refuge Supervisor  
Hawaiian & Pacific Islands  
National Wildlife Refuge Complex**

“I think climate change and sea level rise are the big game changers especially for Tern. Congratulations on the book.” (Stieglitz, September 2012, pers. corresp.)

**Paula L Hartzell, Manager (2010-2012)  
Tern Island Field Station, French Frigate Shoals  
Hawaiian Islands National Wildlife Refuge  
Papahānaumokuākea Marine National Monument**

“The [Tern Island] runway only looks different in that it now has grass on it in the winter. It is not really ‘trashed’—but it does get puddles on it in the winter. So it is inactive because of the cost (>\$10 million) to repave versus using it for habitat; it is a wildlife refuge, after all :-)! It doesn’t really look any different other than the grass in winter; in summer it is dry and still looks pretty much the same. Eventually shrubs and other vegetation will grow there, but it will be many years before that happens.”

“As far as my personal opinion on what will happen at FFS, I would say things would continue as they are: FWS will continue to maintain a year-round camp with long-term seabird monitoring. There’s the possibly of that changing to a seasonal camp in the future, depending on funding—most of the FWS funds for the Monument go to maintenance of the airfield and contract/visitor accommodations at Midway—there’s not a lot left over for biology at Laysan and Tern. The only problem with that is that the facilities at Tern would deteriorate really quickly, and the probably the best service we can offer to wildlife in the Monument is presence, keeping unauthorized people from landing—not because people aren’t welcome, but because it would inevitably result in rat or mouse infestation, which would wipe out the seabird colony very quickly. FWS year-round presence probably also minimizes direct disturbance to wildlife by folks who have great intentions, but just don’t know any better. (I would certainly sail there, if it weren’t watched!)”

“NOAA will continue to maintain marine research operations for one to four cruises per year, depending on funding. They don’t really use Tern themselves, but bring supplies, and often

coordinate efforts. NOAA will most likely also maintain seasonal camps for monitoring Hawaiian Monk Seals and Hawaiian Green Sea Turtles in perpetuity.”

“The bummer thing to me personally is that funding biology is not a priority for the Pacific Island refuges. Maintaining the runway and buildings at Midway is their top priority. Not that isn’t worthwhile, it does seem to me (personally) that those may be better maintained by the FFA and commercial airlines (who the runway is really maintained for, so they can fly straight to Asia using Midway as their emergency landing field) rather than FFS. It also seems to me that the National Park Service would be better qualified than FWS to maintain historic properties and run tours at Midway. I think its a shame that biology and conservation takes up less than 10% of the refuge budget. Tern Island Field Station was such a productive field station in the 1960-1980’s!!! Ah, but that is my own whine...”

“Tern Island Field Station, and the Papahānaumokuākea Marine National Monument as a whole, really serves as a singular place for wildlife and learning about wildlife—because it is one of the most remote locations within the world’s most remote archipelago. Tern and the other islands (and waters) in the Monument serve as a refuge for species that have been ousted from the Main Hawaiian Islands. These islands house the majority or a major portion of so many species, and critically habitat least impacted by anthropological activities. It is an honor and responsibility to protect these islands and waters both from commercial fishing, but also from accidental harm from parties with the best of intentions—like visitors who may unintentionally introduce rats, anchor in coral, or unknowingly harass breeding Hawaiian monk seals. At the same time, we absolutely need to share this amazing place with the public, through video, outreach, educational cruises, documentaries, and books like yours.... Nothing you don’t already know, of course!” (Hartzell, September 2012, pers. corresp.)

**Mark J. Rauzon, Author**

*Isles of Refuge: Wildlife and History of the Northwestern Hawaiian Islands*

Laney College, Geography Department

900 Fallon St., Oakland, CA 94607

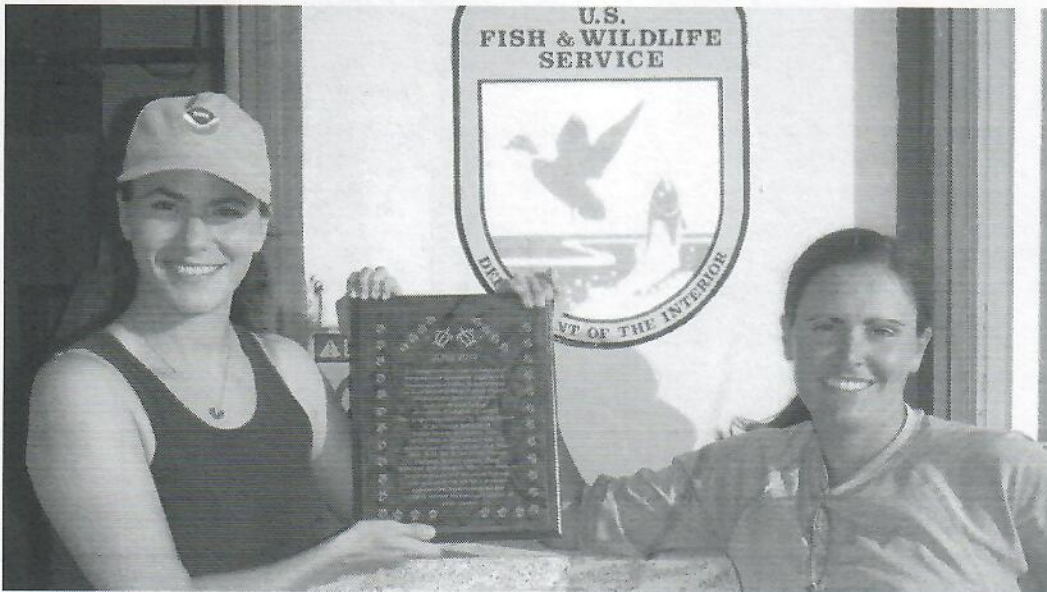
[mjrauz@aol.com](mailto:mjrauz@aol.com)

“You got me thinking about the future of FFS. As I have witnessed the disappearance of Whale-Skate in my lifetime, the other islands are extremely vulnerable. Tern Island is of course least vulnerable (after La Perouse Pinnacle) so consideration must be given to managing it as an ark for the atoll. It could become time to consider abandoning the runway for planes and converting it to more seabird and perhaps land bird habitat.”

“FFS was and will always be core monk seal and sea turtle habitat so keeping beaches available is critical. I think the marine station at Palmyra takes the pressure off this site as a sea change research venue, but certainly, Hawaiian process are important to monitor here. Finally, FFS is an historic WWII site, so managing Tern Island insures preserving this war legacy.” (Rauzon, September 2012, pers. corresp.).

**Meg Duhr-Schultz, Acting Manager (June 2012 - Present)**  
**Tern Island Field Station, French Frigate Shoals**  
**Hawaiian Islands National Wildlife Refuge**  
**Papahānaumokuākea Marine National Monument**

Meg (pers. Corresp. September 2012) writes: “I’ve read your Natural History of FFS several times by now and it has been a tremendous resource out here. I can’t tell you how many times we refer back to it for important historical information on plant presence, bird distribution, military use, and everything else. I am very, very excited about your new book and I have passed on the information to all the folks I know with a connection to or interest in this place.... I recently resumed a blog/website for the field station.” You can check out the Meg’s blog at: [frenchfrigateshoals.org](http://frenchfrigateshoals.org). Figures 92 to 100 show recent and current photographs of events and wildlife on French Frigate Shoals.



**Figure 92. 12 June 2012, Meg Duhr-Schultz (Refuge Manager left) accepts award plaque from Irene Nurzia-Humburg (NOAA Field Team Leader right). Plaque reads: “In Commemoration and Celebration of 40 seasons of systematic tagging and counting of green sea turtles (honu) nesting on East Island (Hikina)....” Plaque presented on behalf of George Balazs (NOAA Turtle Team Leader).**

**Photograph provided by George Balazs.**

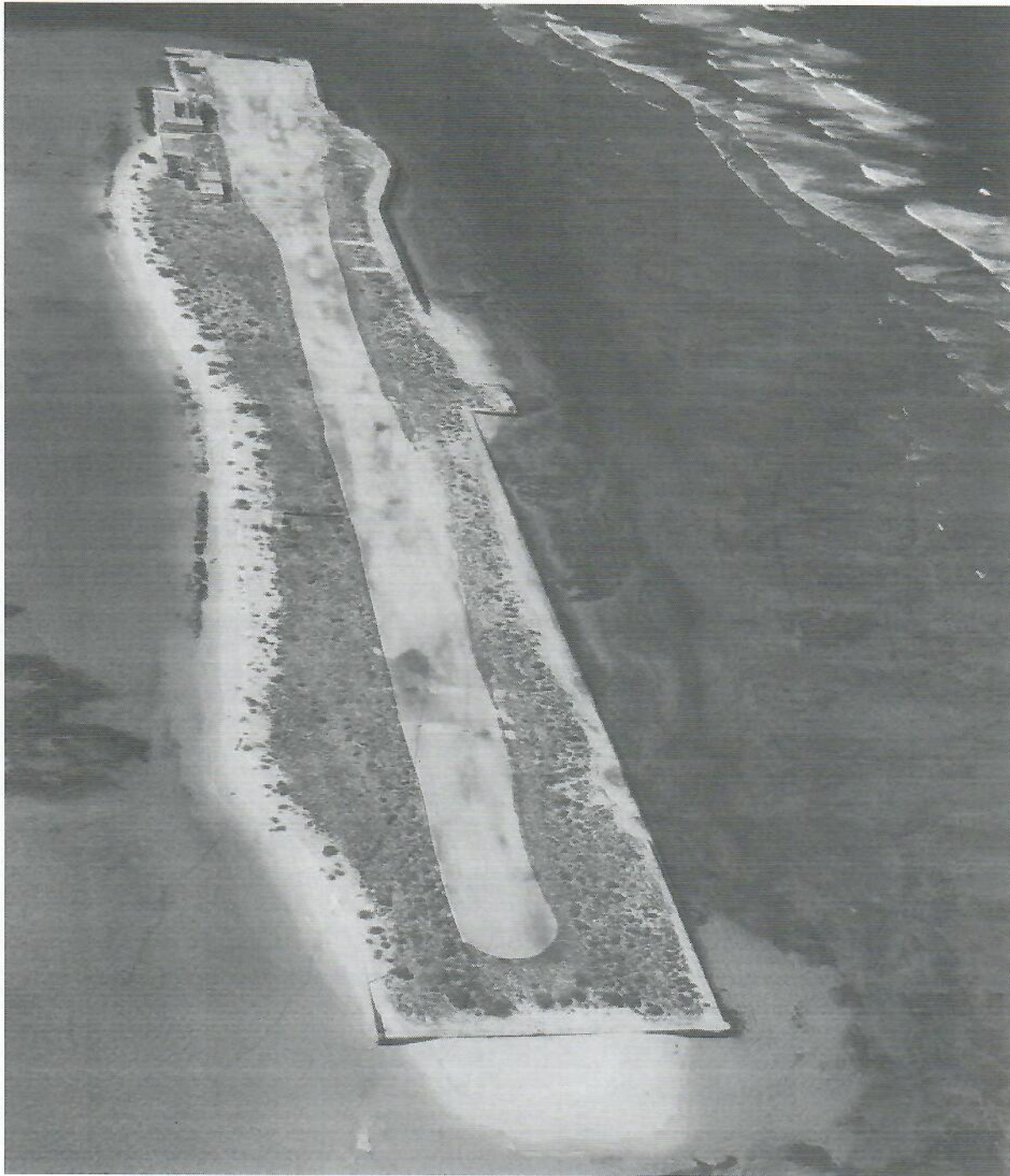


Figure 93. Tern Island 2006. The Airstrip Was Still Operational. Photograph by Morgan Gilmore.



**Figure 94. Thousands of Sooty Tern now nest in the Spring on Tern Island.  
Spring 2007 Photograph by Morgan Gilmore.**



**Figure 95. Sooty Terns now nest on the Runway (Black-Footed Albatross in foreground).  
Spring 2012 Photograph by Meg Duhr-Schultz.**



Figure 96. Brown Noddies and Sooty Terns nest on ground among *Tribulus* on east end of Tern Island. Spring 2012 Photograph by Meg Duhr-Schultz.



Figure 97. Tern Island, East Beach, Green Sea Turtles basking in Sun. Photograph by Meg Duhr-Schultz.



**Figure 98. Some 100 to 150 Tristram's Storm Petrel pairs now nest on Tern Island.  
2011 Photograph by Sarah Youngren.**



**Figure 99. Adult Female Lesser Frigatebird (right); Lesser Frigatebird/Greater Frigatebird chick (left) in  
*Tournefortia* shrub. April 2007 Photograph by Morgan Gilmore.**





Figure 100. Juvenile Short-Tailed Albatross visited Tern Island, 31 January to 1 February 2012 (Laysan Albatross on left and Black-Footed Albatross on right). This threatened and endangered species has visited the Atoll several times since the Military left in 1979. Photograph by Abram Fleishman.

## A Final Word From The Author

There you have it—my version of the complete history of French Frigate Shoals from 1786 to 2012. Hope you have enjoyed reading about all the details and trivia of the various historical events. My apologies to people and events I have left out since much information is now available on the Internet and World Wide Web and I cannot repeat everything. Hope you will visit all the links provided in the text and in Appendix C so as to learn more about French Frigate Shoals. And I wish the present and future Tern Island French Frigate Shoals Fish and Wildlife Refuge manager, workers, and volunteers success in their all-so-important terrestrial and marine scientific and archeological investigations. For sure, French Frigate Shoals is unique and I am pleased to have been a part of its remarkable and varied history.

**Yes, The CORAL CARRIER Sails On!**

*Binion Amerson*  
October 2012

## APPENDIX A

## ***US COAST GUARD COMMANDING OFFICERS***

### EAST ISLAND LORAN TRANSMITTING STATION

<b>Name</b>	<b>Dates of Service as Commanding Officer</b>
LTJG John J. Rashti Temp. CO: LTJG Herrick T. Wilson	16 September 1944 - 5 September 1945 5 September 1945 - 11 October 1945
LTJG Alexander Zovelle (sp? Zavelle)	11 October 1945 - December 1945 (Advanced to LT 26 November 1945)
LTJG Morgan R. Wright	December 1945 - March 1946
LT C. W. Jackson	March 1946 - June 1946
LT Fred T. Coombe Temp. CO: LTJG A. L. Preston LT Fred T. Coombe	June 1946 - 24 November 1946 24 November - December 1946 December 1946 - March 1947
LTJG Earl H. Adams	March 1947 - May 1947
LT Paul E. Burhorst Temp. CO: RELE John Ribarich	May 1947 - 13 August 1948 13 August 1948 - 1 September 1948
LTJG Walter O. Henry Temp. CO: LTJG Edward H. Lambert LTJG Walter O. Henry	1 September 1948 - 30 April 1949 30 April 1949 - 4 May 1949 4 May 1949 - 1 September 1949
LTJG Thurston L. Willis Temp. CO: HMI S. H. Ramagos Temp. CO: RELE B. E. Howell LTJG Thurston L. Willis	1 September 1949 - 31 December 1949 31 December 1949 - 2 January 1950 2 January 1950 - 19 January 1950 19 January 1950 - 8 September 1950

US COAST GUARD COMMANDING OFFICERS

Name	Dates of Service as Commanding Officer
ENS. Edward L. Hauff Temp CO: ETC W. A. Cooper LTJG Edward L. Hauff	8 September 1950 - 11 February 1951 11 February 1951 - 18 February 1951 18 February 1951 - 13 August 1951
LTJG Norman P. Ensrud Temp. CO: LT Harley E. Dilcher LTJG Norman P. Ensrud Temp. CO: ENS. Thomas A Clingan LTJG Norman P. Ensrud	13 August 1951 - 16 September 1951 16 September 1951 - 13 October 1951 13 October 1951 - 11 February 1952 11 February 1952 - 2 March 1952 2 March 1952 - 13 August 1952
ENS. Frederick P. Schubert	13 August 1952 - 3 November 1952

TERN ISLAND LORAN TRANSMITTING STATION

Name	Dates of Service as Commanding Officer
LTJG Thomas E. Hawkins Temp. CO: LTJG Clarence C. Hobby LTJG Thomas E. Hawkins Temp. CO: ENS. John W. Dredge LTJG Thomas P. Hawkins	14 October 1952 - 29 January 1953 29 January 1953 - 18 February 1953 18 February 1953 - 19 April 1953 19 April 1953 - 26 May 1953 26 May 1953 - 4 October 1953
LTJG Raymond H. Wood Temp. CO: ET1 L. R. Whittle LTJG Raymond H. Wood Temp. CO: ET1 L. R. Whittle LTJG Raymond H. Wood Temp. CO: ETC C. D. Martinson LTJG Raymond H. Wood	4 October 1953 - 7 January 1954 7 January 1954 - 22 January 1954 22 January 1954 - 4 May 1954 4 May 1954 - 14 May 1954 14 May 1954 - 10 September 1954 10 September 1954 - 16 September 1954 16 September 1954 - 8 October 1954
LTJG Melvin W. Hallock Temp. CO: ETC C. D. Martinson LTJG Melvin W. Hallock	8 October 1954 - 5 May 1955 5 May 1955 - 11 May 1955 11 May 1955 - 3 October 1955
LTJG Edward H. Bragg, Jr. (R) Temp. CO: ETC K. R. Bruhl LTJG Edward H. Bragg, Jr. Temp. CO: BMC B. D. Archer LTJG Edward H. Bragg, Jr. Temp. CO: BMC B. D. Archer	3 October 1955 - 16 January 1956 16 January 1956 - 23 January 1956 23 January 1956 - 12 June 1956 12 June 1956 - 16 June 1956 16 June 1956 - 16 August 1956 16 August 1956 - 10 September 1956

Name	Dates of Service as Commanding Officer
LTJG Robert T. Getman Temp. CO: BMC B. D. Archer LTJG Robert T. Getman Temp. CO: HMC G. H. Wilkinson LTJG Robert T. Getman	10 September 1956 - 12 January 1957 12 January 1957 - 24 January 1957 24 January 1957 - 10 May 1957 10 May 1957 - 15 May 1957 15 May 1957 - 26 July 1957
LTJG Jerome R. Cronk (R) Temp. CO: BMC T. M. Styron LTJG Jerome R. Cronk	26 July 1957 - 23 January 1958 23 January 1958 - 6 February 1958 6 February 1958 - 24 July 1958
LTJG John J. Dirschel Temp. CO: BMC R. L. Wall LTJG John J. Dirschel Temp. CO: ETC A. P. Wouters LTJG John J. Dirschel Temp. CO: LT Harold R. Brock LTJG John J. Dirschel	24 July 1958 - 4 September 1958 4 September 1958 - 11 September 1958 11 September 1958 - 9 January 1959 9 January 1959 - 15 January 1959 15 January 1959 - 5 March 1959 5 March 1959 - 21 March 1959 21 March 1959 - 22 July 1959
LTJG David A. Sumi Temp. CO: ETC G. S. Rall LTJG David A. Sumi	22 July 1959 - 6 January 1960 6 January 1960 - 20 January 1960 20 January 1960 - 20 July 1960
LTJG Edward B Holtzman Temp. CO: BMC R. J. Weihelt LTJG Edward B Holtzman	20 July 1960 - 2 November 1960 2 November 1960 - 4 November 1960 4 November 1960 - 31 July 1961
LTJG Bryson S. Randolph Temp. CO: RELE W-1 G. H. Briggs LTJG Bryson S. Randolph	31 July 1961 - 8 January 1962 8 January 1962 - 10 January 1962 10 January 1962 - 27 July 1962
LTJG Bruce A Patterson Temp. CO: BMC W. B. Sparks LTJG Bruce A. Patterson	27 July 1962 - 2 March 1963 2 March 1963 - 6 March 1963 6 March 1963 - 25 May 1963
LTJG Walter T. Leland	15 May 1963 - 25 May 1964
LTJG Brent C. Mills Temp. Co: ETC D. E. Flynn LTJG Brent C. Mills	25 May 1964 - 4 March 1965 4 March 1965 - 11 March 1965 11 March 1965 - 25 May 1965
LTJG George E. Archer, Jr. Temp. CO: BMC D. D. Smith LTJG George E. Archer, Jr.	25 May 1965 - 24 November 1965 24 November 1965 - 9 December 1965 9 December 1965 - 9 June 1966

US COAST GUARD COMMANDING OFFICERS

Name	Dates of Service as Commanding Officer
LTJG Robert G. Bates Temp. CO: BMC P. Flaherty LTJG Robert G. Bates	9 June 1966 - 1 December 1966 1 December 1966 - 8 December 1966 8 December 1966 - 13 April 1967
LTJG Jack E. Rader Temp. CO: BMC B. Bennett LTJG Jack E. Rader	13 April 1967 - 7 December 1967 7 December 1967 - 14 Decembe 1967 14 December 1967 - 11 April 1968
LTJG Calvin W. Dail (not Dale) Temp. CO: BMCP Marvin Johnson LTJG Calvin W. Dail Temp. CO: BMCP Marvin Johnson LTJG Calvin W. Dail Temp. CO: BMCP Marvin Johnson LTJG Calvin W. Dail	11 April 1968 - 11 September 1968 11 September 1968 - 11 October 1968 11 October 1968 - 12 December 1968 12 December 1968 - 26 December 1968 26 December 1968 - 30 January 1969 30 January 1969 - 6 February 1969 6 February 1969 - March 1969
LTJG Henry J. Kofron	1 April 1969 - April 1970
LT H. F. (Kelly) Hirsch, III	April 1970 - March 1971
LTJG Durham (Durrie) J. Monsma	March 1971 - April 1972
LTJG Mark Andrew O'Hara	April 1972 - 1973
LTJG Walter Martin	1973 - 1973
LTJG Robert Trainer	1973 - 1974
LTJG Douglas Hertz	1974 - May 1975
LTJG Tom Marquette	May 1975 - June 1976
LTJG Dale E. Hower	June 1976 - 1977
LTJG Lancaster	1977 - 1978

## APPENDIX B

*SHIP VISITS*

The following is a list of ships visiting French Frigate Shoals from 1786 to 1985<sup>1</sup>.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
<b>1786</b>		
6 November	French Frigate <i>Broussols</i> and <i>Astrolabe</i>	Discovery of the Atoll by Jean Francois de Galaaup Comte de la Perouse (did not land).
<b>1823</b>		
11-12 February	Nantucket whaling ships <i>Two Brothers</i> and <i>Martha</i>	CAPT George Pollard, Jr. of the <i>Two Brothers</i> . Ship wrecked on reef on 11 February. Crew saved by <i>Martha</i> .
<b>1836</b>		
3 December	US <i>Porpoise</i> and <i>Oregon</i>	US Exploring Expedition (did not land).
<b>1859</b>		
3-7 January	US Schooner <i>Fenimore Cooper</i>	LT John Mercer Brooke, John Kern, and ship personnel. Sounding route from California to Japan; landed and claimed the atoll for the United States.
March	USS <i>Gambia</i>	CAPT. N. C. Brooks. guano diggers.
March	Hawaiian Schooner <i>Kamahameha IV</i>	Mr. Beatty. Sealing and guano diggers.
13 March	American Whaler <i>South Seaman</i>	CAPT. Thomas H. Norton; ship wrecked at FFS; crew saved.
April or May	USS <i>Gambia</i>	CAPT. N. C. Brooks; guano diggers.
April - May	American Clipper <i>Modern Times</i>	CAPT Overson. guano diggers
1 September	Brig <i>Wanderer</i>	CAPT Gregory; ship wrecked; crew saved by <i>Kamahameha IV</i> .
<b>1859</b>		
Date unknown	sloop <i>Travis</i>	found dog.
<b>1867</b>		
14 April	Bark <i>Daniel Wood</i>	CAPT. J. Richmond. Ship wrecked; crew saved

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
29 April	USS <i>Lackawanna</i>	CAPT. William Reynolds; save crew of <i>Daniel Wood</i> .
May	Schooner <i>Malolo</i>	CAPT Bent; searched for ship wrecks; turtle hunters.
<b>1872</b>		
4 July	Hawaiian Schooner <i>Kamahameha IV</i>	CAPT. E. Wood; found two hogs
<b>1882</b>		
3-5, 27 February - 1 May	Japanese-owned American-chartered schooner <i>Ada</i>	Master Harry Hardy; fishing for shark and turtle hunting
<b>1886</b>		
Fall	Schooner <i>General Seigel</i>	CAPT. Adolph Jorgensen; sharking.
<b>1887</b>		
Early 1888	Schooner <i>Wasnering Minstrel</i>	CAPT. F. D. Walker and wife (first woman to visit FFS).
<b>1891</b>		
30 May - 5 June	Schooner <i>Kaalokai</i>	CAPT. F. D. Walker; Rothschild Expedition; first biological survey of Northwestern Hawaiian Islands with George C. Munro and Henry C. Palmer.
<b>1894</b>		
spring/summer	Yacht <i>Ebon</i>	CAPT John Cameron; shark fishing
<b>1895</b>		
13 July	Revenue Cutter <i>Lehua</i>	CAPT Berry; took possession for Republic of Hawaii
<b>1896</b>		

1. Symbols and abbreviations: BBS - Bureau of Biological Survey; BPBM - B.P. Bishop Museum; BSFW - Bureau of Sport Fisheriew and Wildlife; CC - Claremont College; FAA - Federal Aviation Administration; HU - Hamburg University; HDFG - Hawaiian Division of Fish and Game; HSPA - Hawaii Sugar Planters' Association; HSB - Honolulu Star Bulletin; HZ - Honolulu Zoo; NAS - National Audubon Society; NBC - National Broadcasting Company; OI - Oceanographic Institute; POBSP - Pacific Ocean Biological Survey Program; POFI - Pacific Ocean Fisheries Investigation; UA - University of Arizona; UBC - University of British Columbia; UC - University of California; UF - University of Florida; UH - University of Hawaii; USCG - U.S Coast Guard; USDA - U.S. Department of Agriculture; USFW - U.S. Fish and Wildlife Service; USN - U.S. Navy; USRC - U.S. Revenue Cutter; UW - University of Washington; VU - Vienna University; \* Biologist-in-charge. Ship visits between 1876 and 1969 were obtained from US National Archive Records; after that date the listings may not include all ship visits.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
22 February	Schooner <i>Mattie E. Dyer</i>	CAPT Mockler; ship wrecked; all were saved.
<b>1902</b>		
28-29 May	USS <i>Albatross</i>	CAPT Chauncey Thomas; Albatross Scientific Expedition with Charles H. Gilbert, Walter K. Fisher, and John O. Snyder.
<b>1903</b>		
10 October	French Ship <i>Connetable de Richmond</i>	CAPT Rault; ship wrecked on reef; all hands survived.
Late October ?	Steamer <i>Kauai</i>	Searched for <i>Connetable de Richmond</i> wreck.
<b>1910</b>		
28 January	USRC <i>Thetis</i>	CAPT W.V.E. Jacobs and <i>Thetis</i> personnel
August or September	USRC <i>Thetis</i>	CAPT W.V.E. Jacobs and <i>Thetis</i> personnel
<b>1912</b>		
19 December	USRC <i>Thetis</i>	Haw. Gov. Walter F. Frear, D. T. Fullaway, A. C. Lindsay; BBS: Alfred M Bailey, CMDR G. R. Salisbury, William S. Wallace, George Willett.
<b>1914</b>		
25 August - 30 September; 10 October - 4 November	USS <i>Rainbow</i>	LCDR F. J. Horne and <i>Rainbow</i> personnel.
9 September	USRC <i>Thetis</i>	<i>Thetis</i> personnel
<b>1915</b>		
20-21 March	USRC <i>Thetis</i>	CAPT Joseph H. Brown, LT W. H. Munter and <i>Thetis</i> crew.
<b>1916</b>		
28 January	USRC <i>Thetis</i>	CAPT Joseph H. Brown, LT W. H. Munter and <i>Thetis</i> crew.
<b>1918</b>		
4-5 September	USS <i>Hermes</i>	LT J. T. Diggs and <i>Hermes</i> personnel.
<b>1919</b>		
24 September	?	David T. Fullaway.
<b>1923</b>		



## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
22-28 June	USS <i>Tanager</i>	<i>Tanager</i> Expedition: William G. Anderson, Edwin H. Bryan, Jr., Edward L. Caum, Erling Christophersen, Chapman Grant, George Higgs, C. S. Judd, H. S. Palmer, Eric L. Schlemmer, Ditlev Thaanum, and Alexander Wetmore*.
<b>1924</b>		
8 May	USS <i>Pelican</i>	LT Doile Greenwell, Gerritt P Wilder.
<b>1928</b>		
4-5 March	Schooner <i>Lanikai</i>	William G. Anderson; VU: Victor Pietschmann.
11-19 May 5-23 July 3-21 August 8-29 September	USCGSS <i>Guide</i>	LCDR Thomas J. Maher (May only); LT K. T. Adams, V. M. Gibbons, F. B. Quinn, and <i>Guide</i> survey personnel.
<b>1930</b>		
1 May	USCGSS <i>Pioneer</i>	CAPT O. W. Swainson and sounding party.
<b>1931</b>		
9-10 February	USRC <i>Itasca</i>	CAPT J. Pine and inspection party.
4 October	USCGSS <i>Pioneer</i>	Sounding team..
<b>1932</b>		
22-25 June	USS <i>Quail</i>	US Navy aerial reconnaissance survey party.
<b>1934</b>		
20, 27 June	USRC <i>Itasca</i>	CAPT J. S. Baylis and inspection party.
<b>1935</b>		
9 December	USRC <i>Itasca</i>	Inspection party.
<b>1936</b>		
4-6 March	USCGC <i>Reliance</i>	Boatswain B. L. Bassham; BBS: A. D. Trempe.
<b>1948</b>		
21 January - 1 February	USFW M/V <i>Oregon</i>	M. B. Schaefer; POFI: O. R. Smith
13-14 August	USCGC <i>Iroquois</i> (WTG-43)	Station supplies and personnel.
14-16 August	USFW M/V <i>Oregon</i>	POFI: Howard H. Eckles.
28 August	USCGC <i>Iroquois</i>	Station personnel.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
11-13 September	USCGC Buttonwood (WAGL-306)	Station supplies and personnel.
22 September	USCGC <i>Iroquois</i>	Station supplies and personnel.
6 October	USCGC <i>Iroquois</i>	Station supplies, Board of Survey
9-12 October	USCGC <i>Kukui</i> (WAK-186)	Station supplies, repairs, and annual inspection.
24 October	USCGC <i>Iroquois</i>	Station supplies and personnel.
21-24 November	USCGC <i>Iroquois</i>	Station repairs due to storm.
8 December	USCGC <i>Iroquois</i>	Station personnel
17 December	USCGC <i>Basswood</i>	Station personnel and repaired.
<b>1949</b>		
6 January	USCGC <i>Iroquois</i>	Station personnel.
22 January	USCGC <i>Iroquois</i>	Station supplies and personnel.
12-13 February	USCGC <i>Basswood</i>	Station personal and Special
5 March	USCGC <i>Iroquois</i>	Station personnel.
13-15 March	USCGC <i>Kukui</i>	Station supplies and repair.
6-7 April	USCGC <i>Iroquois</i>	Station personnel.
23 April	USCGC <i>Iroquois</i>	Station personnel.
4 May	USAT <i>Sylvester Antolak</i>	Transfer patient to SAR plane.
18 May	USCGC <i>Iroquois</i>	Station personnel.
8-9 June	USCGC <i>Iroquois</i>	Station supplies and personnel.
22 June	USCGC <i>Iroquois</i>	Station supplies.
8 July	USCGC <i>Iroquois</i>	Station supplies and personnel, Board of survey.
17-18 July	USCGC <i>Kukui</i>	Station supplies and dental treatment.
21 July	Fishing Boat (converted crash boat)	Unknown.
11 August	USCGC <i>Walnut</i>	Station personnel, no mail
24 August	USCGC <i>Walnut</i>	Station personnel.
11 September	USCGC <i>Basswood</i>	Station supplies and personnel.
25-26 September	USCGC <i>Iroquois</i>	Station supplies and personnel.
12 October	USCGC <i>Iroquois</i>	Station supplies and personnel.
30 October	USCGC <i>Basswood</i>	Station supplies and personnel.
18-19 November	USCGC <i>Planetree</i> (WAGL-307)	Station supplies.

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
25 November	USCGC <i>Basswood</i>	Station personnel.
8 December	USCGC <i>Basswood</i>	Station movies.
20 December	USCGC <i>Basswood</i>	Station supplies and personnel.
31 December	<i>USS Deal</i> (AG-131/AKL-2)	Unknown
<b>1950</b>		
2 January	USCGC <i>Winnebago</i> (WPG-40)	Station personnel.
19 January	USCGC <i>Basswood</i>	Station supplies and personnel.
19-26 January	USFW M/V <i>Hugh M. Smith</i>	At anchor; POFI: M. B. Schaefer; lewft due to bad seas.
9 February	USCGC <i>Basswood</i>	Station supplies, western inspection.
22 February	USCGC <i>Iroquois</i>	Station supplies and personnel.
6 March	USCGC <i>Basswood</i>	Station supplies and personnel.
2-4 April	USCGC <i>Kukui</i>	Station construction work.
3-4 April	USCGC <i>Winnebago</i>	Station supplies and personnel
19 April - 6 May	Sampan <i>Alika</i>	Supplies
27 April	USCGC <i>Walnut</i>	Station supplies and personnel.
9-10 May	USCGC <i>Iroquois</i>	Station supplies and personnel
19 May	USFW M/V <i>Henry O'Halley</i>	At anchor
19 May	USFW M/V <i>Hugh M. Smith</i>	POFI personnel.
19-21 May	Fishing Vessel <i>Naia</i>	East and Tern Islands
16 June	Fishing Vessel <i>Naia</i>	Tern Island
19 June	USCGC <i>Nettle</i>	Station supplies and personnel.
19-21 June	USFW M/V <i>Hugh M. Smith</i>	POFI: Ole J. Heggen
23-24 June	USCGC <i>Kukui</i>	Station fuel oil
13 July	USCGC <i>Basswood</i>	Station personnel.
3 August	Fishing Vessel <i>Joyita</i>	At anchor.
5 August	USCGC <i>Basswood</i>	Station personnel.
16 August	USS <i>Winnemucca</i> (PC-1145)	Evacuated Coast Guard personnel.
24-25 August	USCGC <i>Basswood</i>	Returned Coast Guard personnel.
8 September	USCGC <i>Walnut</i>	Station supplies and personnel.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
5 October	USCGC <i>Buttonwood</i>	Station supplies and personnel.
4 November	USCGC <i>Basswood</i>	Station supplies and personnel.
16-17 December	USCGC <i>Basswood</i>	Station supplies and personnel.
<b>1951</b>		
17 January	USCGC <i>Basswood</i>	Station personnel.
27 January	Unknown Vessel	Lookout sighted lights on vessel northeast of station at 2130.
11 February	USCGC <i>Basswood</i>	Station personnel.
18 March	USCG <i>Walnut</i>	Station personnel.
15-16 April	USCGC <i>Basswood</i>	Station supplies and personnel.
8-10 May	USFW M/V <i>Hugh M. Smith</i>	At anchor; POFI: Ralph Johnson
12 May	USCGC <i>Walnut</i>	Station supplies and personnel.
16 June	USCGC <i>Walnut</i>	Station personnel.
12-13 July	USCGC <i>Buttonwood</i>	Station supplies and personnel.
16-18 August	USCGC <i>Buttonwood</i>	Station supplies and personnel.
4 September	USCGC <i>Buttonwood</i>	Station supplies and personnel.
16 September	USCGC <i>Buttonwood</i>	Station supplies and personnel.
13 October	USCGC <i>Buttonwood</i>	Station supplies and personnel.
17-18 November	USCGC <i>Buttonwood</i>	Station personnel.
8-10 December	USCGC <i>Buttonwood</i>	Station supplies, personnel, and repairs.
<b>1952</b>		
14-15 January	USCGC <i>Basswood</i>	Station supplies.
8-11 February	USCGC <i>Nettle</i>	Station personnel.
2-3 March	USCGC <i>Basswood</i>	Station personnel; evacuated all Coast Guard Station personnel.
4 March	USCGC <i>Basswood</i>	Returned all Coast Guard personnel.
4 April	USCGC <i>Basswood</i>	Station supplies.
1 May	USCGC <i>Kukui</i>	Station supplies and personnel.
10 June	USCGC <i>Kukui</i>	Off Tern Island. East Island, stores and personnel.
25 June	USCGC <i>Kukui</i>	Station personnel.
26 June	Fishing Vessel <i>Osprey</i>	Needed fuel.
11-15 July	USCGC <i>Kukui</i>	Station supplies.

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
25 July	USCG plane	POFI: C. R. Joyce
8 August	USCGC <i>Basswood</i>	Medical evacuation of Coast Guard man.
10-13 August	USCGC <i>Kukui</i>	Station supplies and personnel.
14 September	Fishing Vessel <i>Taihei Maru</i>	Medical evacuation case; boat with Tiger Fisheries.
16-18 September	USCGC <i>Kukui</i>	Station personnel and fuel.
11-14 October	USCGC <i>Kukui</i>	Station stores and personnel; both Tern and East Islands.
3-6 November	USCGC <i>Kukui</i>	East Island LORAN Station personnel departed (on 3rd) due to decommission of unit; stores moved to Tern Island.
18-19 December	USCGC <i>Basswood</i>	Station supplies and personnel.
<b>1953</b>		
25-30 January	USCGC <i>Kukui</i>	Station mail and personnel.
8 February	Fishing Vessel <i>Osprey</i>	Moored at Tern Island.
17-18 February	USCGC <i>Kukui</i>	Station supplies, personnel, work party, and inspection.
4-5 March	Fishing Vessel <i>Osprey</i>	Moored Tern and East Islands.
19-23 March	USCGC <i>Buttonwood</i>	Station supplies.
12 April	Fishing Vessel <i>Osprey</i>	Moored Tern Island for gasoline and oil.
18-19 April	USCGC <i>Forster</i> (WDE 434)	Station supplies and personnel.
8 May	Fishing Vessel <i>Kaku</i>	Moored Tern Island.
25-27 May	USCGC <i>Basswood</i>	Station supplies and personnel.
27 May	USCGC <i>Forster</i>	Station personnel.
6 June	Fishing Vessel <i>Niana</i>	Moored Tern Island.
16-17 June	Fishing Vessel <i>Osprey</i>	Moored Tern Island.
2-9 June	Fishing Vessel <i>Naia</i>	Moored Tern Island.
4-6 July	USCGC <i>Buttonwood</i>	Station personnel.
9 July	Fishing Vessel <i>Osprey</i>	Moored Tern Island.
22 July	Fishing Vessel <i>Naia</i>	Moored Tern Island.
28 July	Fishing Vessel <i>Osprey</i>	Moored Tern Island.
29 July	USCGC <i>Richey</i>	Station supplies.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
3-5 October	USCGC <i>Basswood</i>	Station supplies and personnel.
19 October	USCGC <i>Basswood</i>	Station mail.
26 October	Fishing Vessel <i>Osprey</i>	Brought two scientists for bird studies; UW: Frank Richardson; USDA: Ivan Rainwater.
2-3 November	Fishing Vessel <i>Osprey</i>	Picked up two scientists.
18-19 December	USCGC <i>Buttonwood</i>	Station supplies and personnel; UW: Frank Richardson
<b>1954</b>		
22 January	USCGC <i>Basswood</i>	Station supplies and personnel.
10 February	USCGC <i>Iroquois</i>	Station supplies and personnel.
18 February	USCGC <i>Basswood</i>	Station supplies.
26 February - 2 March	USCGC <i>Kukui</i>	Station supplies and repair.
19-20 March	USCGC <i>Buttonwood</i>	Station supplies; UW: Frank Richardson
20 May	USCGC <i>Kukui</i>	Station personnel.
24 May	USS <i>Pictor</i>	Offshore: picked up survivors of Fishing Vessel <i>Osprey</i> .
20 October	SS <i>Steel Seafarer</i>	Medical patient aboard.
November-December		Coast Guard Log Books missing for this period.
<b>1955</b>		
3 January	USCGC <i>Chautauqua</i> (WPG-41)	Station supplies.
17-18 January	USCGC <i>Buttonwood</i>	Station supplies.
7 March	USCGC <i>Matagorda</i> (WAUP-373)	Station personnel.
17 March	USCGC <i>Chautauqua</i>	Station supplies
14-16 April	USCGC <i>Kukui</i>	Station supplies and fuel.
2 May	USS <i>Tunny</i>	Transferred medical patient to plane.
4-5 May	USS <i>Cusk</i>	Rendezvous with visiting Navy personnel.
5-6 May	USFW M/V <i>J. R. Manning</i>	POFI personnel.
28 May	USCGC <i>Blackhaw</i> (WAGL-390)	Station supplies
19 June	USCGC <i>Chautauqua</i>	Station supplies.

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
12-15 July	USCGC <i>Ironwood</i> (WAGL-297)	Station supplies and fuel.
3-4 September	USCGC <i>Buttonwood</i>	Station supplies
12 September	USCGC <i>Bering Strait</i> (WAVP-381)	Transfer medical patient to plane.
23 September	Fishing Vessel <i>Kayo Maru</i>	Patient for medical treatment and transfer to plane.
28 September	USCGC <i>Kukui</i>	Station supplies and fuel.
1-7 December	USCGC <i>Kukui</i>	Station supplies and personnel.
24 December	USS <i>General Howze</i>	Transfer medical patient to plane.
<b>1956</b>		
24 February	USCGC <i>Butonwood</i>	Station supplies
11-21 February	USCG plane	BPBM: Arthur Svihla.
9-11 April	USFW M/V J. R. <i>Manning</i>	POFI: Herbert S. Shippen, Daniel Yamashita*.
9-10 May	USCGC <i>Blackhaw</i>	Station supplies.
3-6 June	USFW M/V J. R. <i>Manning</i>	POFI: E. C. Jones*, T. S. Hida
22 July	US Submarine (unknown name)	Surfaced two miles NW Tern Island, course East..
23 July	USCGC <i>Matagorda</i>	Transfer medical patient to plane.
3 August	USCG plane	UF: Archie F. Carr; 1 other zoologist.
5 August	USCGC <i>Kukui</i>	Station fuel.
17 August	USS <i>Zelima</i> (AF-49)	Transfer medical patient to plane.
8 September	USCGC <i>Planetree</i>	Station supplies
20 September	USCGC <i>Planetree</i>	Station supplies.
3-11 October	USCGC <i>Kukui</i>	Station supplies.
5 November	USCGC <i>Chautauqua</i>	Transfer medical (German merchantman) patient to plane.
<b>1957</b>		
31 January	USCG plane	USFW: Vernon Brock; HZ: Paul Breeze.
7-15 February	USCGC <i>Kukui</i>	Station supplies and personnel.
16 February	Fishing Vessel <i>Koyo Maru</i>	Honolulu based; requested repair assistance.
30 February	Fishing Vessel <i>Koyo Maru</i>	Medical treatment of crewman.
11-14 April	USCGC <i>Buttonwood</i>	Station supplies and personnel.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
23-26 April, 10-13 May	USFW M/V <i>Hugh M. Smith</i>	POFI personnel.
30 May	USNS <i>General Daniel I. Sultan</i> (T-AP-120)	Transfer medical patient to plane.
24 June	USCGC <i>Matagorda</i>	Station supplies and personnel.
11 July	USCGC <i>Basswood</i>	Station personnel.
15 July	USCGC <i>Bering Straights</i>	Station supplies and personnel.
26-27 August	USCGC <i>Kukui</i>	Station repair and fuel.
15 September	USCGC <i>Winnebago</i>	Station supplies.
26-31 October	USCGC <i>Basswood</i>	Station supplies.
9 December	USCGC <i>Matagorda</i>	Station supplies and personnel.
28 December	USN plane	USFW: Karl W. Kenyon, Dale W Rice (aerial photographic survey).
30 December	USCGC <i>Berine Straits</i>	Station supplies.
<b>1958</b>		
16 January	USS <i>Nemasket</i> (AO G-10)	Transferred medical patient for evacuation by plane.
21-25 February	USCGC <i>Kukui</i>	Station supplies.
21-22 April	USCGC <i>Balsam</i>	Station supplies.
26 May	USCGC <i>Matagorda</i>	Station supplies; UC: Richard E. Warner; UBC: Miklos D. F. Udvardy; UA: G. D. Butler, Charles W. Daniel.
9 June	HMAS <i>Melbourne</i>	Australian aircraft carrier anchored at sea buoy.
16 June	USCGC <i>Bering Strait</i>	Station fuel and personnel.
26 July	Fishing Vessel <i>Taihei Maru</i>	Engine trouble at 167°22' W, 24°38' N; parts dropped by CG SAR plane.
18-20 August	USCGC <i>Kukui</i>	Station supplies, fuel, and construction material.
18-21 September	USCGC <i>Basswood</i>	Station supplies and buoy repair.
10 November	USCGC <i>Matagorda</i>	Station personnel.
16-19 November	Fishing Vessel <i>Taihei Maru</i>	Moored because of bad weather.
1 December	USCGC <i>Bering Strait</i>	Station Supplies
<b>1959</b>		
6-11 February	USCGC <i>Kukui</i>	Station supplies, personnel, and repair.
12 March	USCGC <i>Buttonwood</i>	Station personnel.



## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
19-20 March	USS <i>O'Bannon</i> (DD-450)	Naval air and surface operations.
21 March	USCGC <i>Buttonwood</i>	Transferred personnel to plane
7-8 May	USS <i>John S. McCain</i> (DL-3)	Photographic mission.
26 May	USCGC <i>Basswood</i>	Anchored but left on SAR mission.
27 May	USCGC <i>Basswood</i>	Station personnel.
10-12 June	Yacht <i>Koalua</i>	Mrs. Truman and son en route Honolulu from Japan.
21-22 July	USFW M/V <i>Charles H. Gilbert</i>	Moored; POFI: William Tanaka
29-30 July	USCGC <i>Kukui</i>	Station supplies.
19 August	USCG plane	HU: Hubert Casper.
5-10 October	USCGC <i>Planetree</i>	Station supplies; ship ran aground on the 8th.
9-10 October	USS <i>Lipan</i> (ATF-85)	Assisted <i>Planetree</i> .
9-10 October	USCGC <i>Basswood</i>	Picked up supplies.
3-9 December	USCGC <i>Blaskhaw</i>	Station supplies.
<b>1960</b>		
8-9 February	USCGC <i>Kukui</i>	Station refueling.
13 April	USCG plane	USFW: Chandler S. Robbins
6 May	USCGC <i>Buttonwood</i>	Station gasoline.
23-25 May	USCGC <i>Buttonwood</i>	Station supplies.
20-25 August	NSTS <i>Haiti Victory</i>	Operating in area.
21-25 August	NSTS <i>Dalton Victory</i>	Operating in area.
11-30 September	USCGC <i>Kukui</i>	Maintenance and repair.
19 October	USCG plane	HDFG: Joseph S. Medeiros, David H. Woodside.
3 December	USS <i>Skagit</i> (AKA-105)	Offloaded PM Facility and personnel.
<b>1961</b>		
9, 18-19 February	USFW M/V <i>Charles H. Gilbert</i>	POFI personnel
3-5 March	USCGC <i>Planetree</i>	Station supplies; HDFG: Raymond J. Kramer, R. Rodgers, David H. Woodside.
6 March - 4 April	USS <i>Duval County</i> (LST-758)	Military personnel and equipment.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
8, 21-25 April	USFW M/V <i>Charles H. Gilbert</i>	POFI personnel.
9 April	Tug <i>Malia</i> and tow	PMR supplies.
23-25 April	Tug <i>Maloma</i> and tow	PMR supplies.
11-16 July	Tug <i>Mahala</i> and tow	PMR supplies.
17-18 July	USCGC <i>Kukui</i>	Station fuel.
1 August	USCGC <i>Bering Straits</i>	Station supplies
20 August	USS <i>Saint Clair County</i>	Anchored
22-24 August	USS <i>Saint Clair County</i>	Anchored
2 September	USCG plane and USCGC <i>Ironwood</i>	Station supplies and personnel; Coolidge Expedition: UA: George D. Butler; UH: Edward C. Jests, Charles H. Lamoureux; UC: A. Starker Leopold; UBC: Miklos D. F. Udvardy; UC: William Usinger; UH: Martin J. Vitousek; HDFG: Ronald L. Walker, David Woodside; UC: Richard E. Warner.
14-16 September	Tug <i>Mohala</i> and barge (YC-1414) in tow	PMR supplies.
17 September	USS <i>Saint Clair County</i>	Anchored
2 November	USS <i>Floyd County</i>	Anchored
3 November	USS <i>Longview</i>	Anchored
<b>1962</b>		
26-31 January	USS <i>Churchill County</i> (LST-583)	Anchored
5-6 February	USCGC <i>Kukui</i>	Station supplies
25-27 February	USCGC <i>Ironwood</i>	Station supplies
5-7 March	USS <i>Churchill County</i>	Anchored
30 March	USS <i>Churchill County</i>	Anchored
14-15 April	Tug <i>Mohala</i> and barge (YC-1414) in tow	PMR supplies.
8-10 May	USS <i>Stone County</i> (LST-1141)	Unknown.
8-9 May	Tug <i>Mohala</i> and barge (YC-1414) in tow	Holmes and Narver supplies.

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
31 May	Tug <i>Mohala</i> and barge (YC-1414) in tow	PMR supplies.
11-12, 21-22 June	USS <i>Stone County</i>	HSPA: Jack W. Beardsley; HDFG: Raymond J. Kramer; USFW: David B. Marshall.
24-30 June	USS <i>Longview</i>	In vicinity.
13-14 July	USFW M/V <i>Charles H. Gilbert</i>	POFI personnel.
27 July	USCGC <i>Kukui</i>	Station fuel.
27 July - 17 August	USS <i>Stone County</i>	In vicinity.
20 August	Tug <i>Mohala</i> and barge (1397) in tow	PMR supplies.
2 September	Tug <i>Mohala</i> and barge in tow	PMR supplies.
27-28 September	Tug <i>Mohala</i> and barge in tow	PMR supplies.
6-8 November	Tug <i>Mohala</i> and barge (YC-1415) in tow	PMR supplies.
21 December	USCGC <i>Kukui</i>	Station supplies and personnel.
<b>1963</b>		
24 January	USS <i>Outagamie City</i> (LST-1073)	Transferred Aerial Survey Team
17 February	USS <i>Outagamie City</i> (LST-1073)	Transferred Aerial Survey Team
6 April	USCGC <i>Ironwood</i>	Station cargo.
30 April	USS <i>Bolster</i> (ARS-38)	Transferred Navy personnel to plane.
7-15 June	USS <i>Tawakoni</i> (ATF-114)	Transported and supported Smithsonian POBSP personnel: A. Binion Amerson, Jr., Fred C. Sibley*.
25-26 June	USCGC <i>Kukui</i>	Station supplies and fuel.
3-6 August	Tug <i>Mohala</i> and barge	Removal of PMR equipment.
13-14 August	Tug <i>Mohala</i> and barge	Removal of PMR equipment.
21-22 August	Tug <i>Mohala</i> and barge	Removal of PMR equipment.
25-26 September	USCGC <i>Blackhaw</i>	Station cargo and buoys.
7 October	USS <i>Longview</i>	In vicinity.
<b>1964</b>		

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
10-15 March	USCGC <i>Basswood</i>	Station equipment
11-12 March	USCGC <i>Kukui</i>	Station fuel.
6-11 April	USCGC <i>Ironwood</i> with barge (YC-1420) in tow	Station cargo and personnel.
18 May	USCGC <i>Matagorda</i>	Station supplies; unable to deliver because of bad weather.
28 May	USCGC <i>Chautauqua</i>	Station supplies.
4-8 June	USCGC <i>Kukui</i>	Station cargo and fuel.
25 June	USCGC <i>Basswood</i>	Station cargo
9 July	USS <i>Higbee</i> (DD/DDR-806)	Medical transfer to plane.
27 July	USFW M/V <i>Charles H. Gilbert</i>	BSFW: Eugene Kridler; POFI personnel.
9-10 August	USCGC <i>Kukui</i>	Station cargo and fuel.
21 September	USCGC <i>Basswood</i>	Station supplies.
21 September	Fishing Vessel <i>Taihei Maru</i>	Vessel with crew stayed for approximately 1 week.
27-28 September	USCGC <i>Basswood</i> and USCG plane	Transferred BSFW personnel: Eugene Kridler*; HDFG: Ronald L. Walker; UH: Johns Beardsley; POBSP: Robert R. Fleet, Charles R. Long.
11 November	USCGC <i>Kukui</i>	Working party ashore
8 December	USCGC <i>Ironwood</i>	Picked up cement mixer.
<b>1965</b>		
19-22 January	USCGC <i>Planetree</i>	Station Cargo
20 February	USCGC <i>Kukui</i>	Station fuel.
16 March	USCGC <i>Blackhaw</i>	Transported Personnel. BSFW: Eugene Kridler*, Chandler S. Robbins; HDFG: Ronald L. Walker; POBSP: Winston E. Banko.
16 March	USTS <i>Sunnyvale</i>	In vicinity; helicopty transferred patient to plane.
7 April	USCGC <i>Chautauqua</i>	Transferred patient to plane.
26 May	USCGC <i>Ironwood</i>	Station supplies and personnel
19-20 July	USCGC <i>Ironwood</i>	Station supplies and fuel.
4 August	USNS <i>Shearwater</i>	Transported Smithsonian POBSP persone to atoll: A. Binion Amerson, Jr., and Lawrence N. Huber.

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
2 September	USCG plane	Picked up Smithsonian POBSP personnel.
25-27 August	USCGC <i>Kukui</i>	Station fuel.
1-3 October	USCGC <i>Ironwood</i>	Station cargo and buoy repair.
27-28 October	USCGC <i>Buttonwood</i>	Station cargo.
<b>1966</b>		
18-19 February	USCGC <i>Kukui</i>	Station cargo and fuel.
21-24 March	USCGC <i>Buttonwood</i>	Station supplies; transported personnel from BSWF: Eugene Kridler*; UH: Andrew J. Berger; HDFG: Nelson Rice, Ronald L. Walker
12-13, 16(?) May	USFW M/V <i>Charles H. Gilbert</i>	POFI personnel.
28 May - 6 June	Ketch <i>Via Jera</i>	Informal visit.
8 June	USNS <i>Shearwater</i>	Transported Smithsonian POBSP personnel: A. Binion Amerson, Jr.*, Jeffery P. Tordoff.
9 June	USCGC <i>Buttonwood</i>	Station cargo.
7 July	USCG plane	Picked up Smithsonian POBSP personnel.
27 July	USCGC <i>Planetree</i>	Station cargo.
11 August - 16 September	USCG plane	POBSP: Brian A. Harrington*, Robert W. Tuxson.
12-15 September	USCGC <i>Ironwood</i>	Station supplies; Transported BSWF: Karl W. Kenyon, Eugene Kridler*; CC: Sherwin Carlquist; HSB: Warren S. Roll.
<b>1967</b>		
26-27 January	USCGC <i>Kukui</i>	Station fuel.
11-14 March	USCGC <i>Basswood</i>	Station supplies; transported personnel from BSWF: Eugene Kridler*; HDFG: Ernest F. Kosaka; UH: John Maciolek, Richard Wass; POBSP: C. Douglas Hackman.
25 May - 22 June	US Light Tug 2081 US Light Tug 2086 US Light Tug 2087	Transported Smithsonian POBSP: A. Binion Amerson, Jr.*, T. James Lewis (25 May only: Robert L. DeLong, David L. Burckhalter, Dennis L. Stadel, F. Christian Thompson, and Robert W. Tuxson).
3 June	USCGC <i>Mallow</i>	Station supplies.
23 August	USS <i>Fort Marion</i> (LSD-22)	Transferred patient to plane.

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
16-19 September	USCGC <i>Buttonwood</i>	Station supplies; Transferred personnel from BSWF: Robert Ballou, Eugene Kridler*, John L. Sincock; HDFG: Ronald L. Walker.
4-12 October	USCGC <i>Kukui</i>	Station supplies.
23-25 October	USCGC <i>Kukui</i>	Station supplies.
7-11 December	USCG plane	BSFW: Eygene Kridler.
9-11 December	USCGC <i>Kukui</i>	Station supplies.
<b>1968</b>		
2 February	USCGC <i>Blackhaw</i>	Anchored.
11-15 March	USCGC <i>Ironwood</i>	Anchored; Supported BSWF: Karl W. Kenyon, Eugene Kridler*, John L. Sincock; HDFG: Ernest F. Kosaka; POBSP: Roger B. Clapp
20 April	USCGC <i>Planetree</i>	Anchored.
29 May - 27 June	USCG plane	POBSP: A. Binion Amerson, Jr. *, Ronald R. Amerson.
6-27 June	USCG plane	BSFW: Eugene Kridler*; HDFG: Ernest F. Kosaka; OI: John R. Hendrickson.
25-27 August	USCGC <i>Kukui</i>	Anchored.
2 September	USCGC <i>Buttonwood</i>	Anchored.
<b>1969</b>		
22-24 February	FAA plane	BSFW: Eugene Kridler*; NBC television camera crew.
23-24 March	USCGC <i>Buttonwood</i>	Station Supplies; transported personnel from BSWF: Karl W. Kenyon, Eugene Kridler*, David Olsen, John L. Sincock; NAS: George Laycock.
30 April	USCGC <i>Kukui</i>	Anchored.
30-31 May	USFW M/V <i>Mahi</i>	BSFW: David L. Olsen*, John L. Sincock; HDFG: Ernest F. Kosaka; UH: Karl Bathen, Tom Clark, Ronald Kent, James McVay, William Patzert, Douglas Yen.
2- 26 June	FAA plane	POBSP: A. Binion Amerson, Jr. *, Vernon M. Kleen.
21 August - 7 September	USCGC <i>Buttonwood</i>	BSFW: Eugene Kridler*, David L. Olsen, John L. Sincock; UH: George Losey, John Maciolek
1977		

## SHIP VISITS

Date(s) of Visit	Ship Name	Personnel and Reason for Visit
23 February 1977	Liberian-registered oil tanker <i>Hawaiian Patriot</i>	Tanker carrying 99,000 tons of light crude oil exploded and sank 125 miles south (not 200 miles north as reported by Rauzon, 2001) of FFS releasing a swarth of oil at sea; no oil reached FFS (Butler, 1978; International Maritime Organization, 2007).
1980		
10 March 1980	<i>Santa Ines</i>	80 ft. steel hull vessel ran aground at FFS
27 April 1980	Greek Freighter <i>Anangel Liberty</i>	Vessel ran aground at FFS carrying 2,200 tons of kaolin; damage to coral communities (Rauzon, 2001; International Maritime Organization, 2007).
1982		
18 January 1982	Fishing Vessel <i>Keola</i>	Vessel hit the reef at Gin Island stranding the crew of four for 11 days and releasing 8,000 gallons of fuel; crew rescued (Rauzon, 2001; International Maritime Organization, 2007).
1985		
5 February 1985	United States Fishing Vessel <i>Carolyn K</i>	Wrecked 1.5 miles south of Tern Island, FFS; 200 gallons diesel fuel spilled (International Maritime Organization, 2007).

## APPENDIX C

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### **Tern Island & French Frigate Shoals Links:**

[http://en.wikipedia.org/wiki/Tern\\_Island\\_\(Hawaii\)](http://en.wikipedia.org/wiki/Tern_Island_(Hawaii)) French Frigate Shoals information on Wikipedia.

<http://www.fws.gov/pacific/ecoservices/envicon/pim/Cleanup/TernIsland.htm>

<http://www.radiojerry.com/frigate/> French Frigate Shoals Website. Informative and thorough pages on the recent history of Tern Island and details of life on the island during the Coast Guard days. Great information and photos.

[http://www.hawaiianatolls.org/images/maps/ffs\\_map\\_lrg.gif](http://www.hawaiianatolls.org/images/maps/ffs_map_lrg.gif) Map of the French Frigate Shoals, within which Tern Island is located.

[http://www.hawaiianatolls.org/research/NWHIRAMP2004/journals/j0916\\_visit\\_to\\_tern\\_island.php](http://www.hawaiianatolls.org/research/NWHIRAMP2004/journals/j0916_visit_to_tern_island.php) Report by Dan Suthers about his September 2004 visit to Tern Island for the NOWRAMP education program.

<http://www.wfu.edu/albatross/hawaii/history.htm> covers the history of Tern Island prior to 1923, from its discovery, to the guano wars, to the first scientific survey.

[http://members.tripod.com/airfields\\_freeman/HI/Airfields\\_W\\_Pacific.htm](http://members.tripod.com/airfields_freeman/HI/Airfields_W_Pacific.htm) Information on little-known airfield on French Frigate Shoals, and other abandoned and little-known airfields

<http://starbulletin.com/2004/06/03/news/story2.html> Article by Honolulu Star-Bulletin columnist Susan Scott examines wildlife on Tern Island in the Northwest Hawaiian chain.

#### **Pacific Seabird Links:**

[http://migratorybirds.pacific.fws.gov/Seabird\\_Conservation\\_Plan\\_Document\\_pdf\\_files.htm](http://migratorybirds.pacific.fws.gov/Seabird_Conservation_Plan_Document_pdf_files.htm) USFWS published its Seabird Conservation Plan for the Pacific Region. The plan includes a thorough review of habitat, threats, management issues, and population status of 60 species of seabirds breeding in the Pacific Region.

<http://www.pacificseabirdgroup.org/> The Pacific Seabird Group. Dedicated to the study and conservation of Pacific Seabirds.

<http://www.fws.gov/midway/> Birds of Midway, USFWS. Contains detailed natural history information and photos for many of the bird species that nest on Tern Island.

<http://kms.kapalama.ksbe.edu/projects/2003/albatross/> Marine Debris: Cigarette Lighters and Plastic Problem on Midway. This website details how plastic is threatening the health of the thousands of albatross chicks that hatch on Midway every year. Plastic and cigarette lighters are also a problem for the albatross chicks of Tern Island and the French Frigate Shoals.

[http://www.absc.usgs.gov/research/seabird\\_foragefish/seabirds/index.html](http://www.absc.usgs.gov/research/seabird_foragefish/seabirds/index.html) USGS. Photos, biology, and conservation issues about albatrosses.

<http://magazine.audubon.org/features0101/albatross.html> Albatross Wanderings by Carl Safina. Wonderful article about the life of an albatross that nests on Tern Island.

#### **Hawaiian Monk Seal links:**

<http://www.earthtrust.org/wlcurric/seals.html> comprehensive site on Hawaiian monk seal biology, history, taxonomy, conservation, etc. From curriculum written by Emily Gardner, M.S. May 1993 for Earthtrust and the Hawaii State Department of Education.

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<http://www.fws.gov/pacificislands/fauna/Hlmonkseal.html> U.S. Fish & Wildlife site on Hawaiian Monk Seals with links to current news and information on the wildlife refuges.

<http://www.aloha-hawaii.com/3issue/monk.shtml> Artist Patrick Ching's book on Monk Seals and a brief description of monk seals.

[http://www.pifsc.noaa.gov/psd/mmrp/natural\\_hist.php](http://www.pifsc.noaa.gov/psd/mmrp/natural_hist.php) Natural history information on monk seals provided by the Pacific Islands Fisheries Science Center of the National Marine Fisheries Service (NMFS), part of the National Oceanic and Atmospheric Administration (NOAA).

<http://www.pifsc.noaa.gov/psd/mmrp/monkseals.php> information on Hawaiian Monk Seal Research from the Pacific Islands Fisheries Science Center of the National Marine Fisheries Service (NMFS), part of the National Oceanic and Atmospheric Administration (NOAA).

### **Hawaiian Green Sea Turtle Links:**

<http://www.turtles.org/hawgrnd.htm> The webpage for more information about the Hawaiian Green Sea Turtle. Amazing photographs, histories, links, and much more.

<http://www.earthtrust.org/wlcurric/turtles.html> comprehensive information about the biology, taxonomy, and conservation of green sea turtles.

<http://www.turtles.org/ffs/migrate/ffsmigrt.htm> Reprint of Satellite telemetry of migrant male and female green turtles breeding in the Hawaiian Islands by George H. Balazs and Denise M. Ellis. Tracked and mapped the routes of three sea turtles traveling between feeding grounds off of Oahu and Maui, and nesting grounds in the French Frigate Shoals.

<http://www.fws.gov/midway/turtle.html> FWS page on Green Sea Turtles at Midway.

[http://www.fpir.noaa.gov/PRD/prd\\_green\\_sea\\_turtle.html](http://www.fpir.noaa.gov/PRD/prd_green_sea_turtle.html) Green Sea information from the Pacific Islands Fisheries Science Center of the National Marine Fisheries Service (NMFS), part of the National Oceanic and Atmospheric Administration (NOAA).

<http://starbulletin.com/2004/01/05/news/index1.html> Comeback: The Hawaiian green sea turtle rebounds from precariously low population levels thanks in large part to a Hawaii researcher. Honolulu Star-Bulletin. January 5, 2004.

### **Marine Life Links:**

<http://hawaiireef.noaa.gov/about/welcome.html> Comprehensive site on the coral reef ecosystem surrounding Tern Island. Checklist of the near shore fishes of Tern Island is available as a pdf and was prepared in 2002 by a volunteer and scientist on Tern Island.

# A History of French Frigate Shoals



Home for seabirds, seals and turtles



Sailing vessel shipwrecks, 1823-1907



Tanager Expedition - 1923



East Island military activities,  
1924-1942



Original Tern Island, 1923



East Island USCG LORAN Station  
1943-1952



Tern Island Naval Air Station  
1943-1945



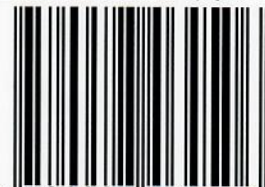
POBSP Expedition, 1963-1969



Tern Island USCG LORAN Station,  
Tern Island 1952-1979

Today, the atoll is part of the Hawaiian Islands National Wildlife Refuge, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, and Papahānaumokuākea Marine National Monument. Although the airfield is in shambles because of recent storms, a permanent field station on Tern Island allows for various land and marine research projects. The waters and islands in and around the reefs are the home for thousands of marine fishes, invertebrates, seabirds, seals, and sea turtles. The Coral Carrier sails on...

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