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Mr. Lynn A. Greenwalt, Director
Fish and Wildlife Service
U. S. Department of the Interior
Washington, D. C. 20240

Dear Mr. Greenwalt:

This is in response to the notice which appeared in the August 16, 1974 Federal Register concerning the status review of the green, loggerhead and Pacific Ridley sea turtles that is being undertaken by the Department of the Interior and the Department of Commerce. As both of the Departments are aware, I have on a number of previous occasions provided relevant background information and data on the status of the Pacific green turtle (Chelonia agassizi or Chelonia mydas agassizi) in the Hawaiian Archipelago. Comprehensive investigations which I have now conducted throughout two successive seasons (1973 and 1974) at French Frigate Shoals in close cooperation with the U. S. Bureau of Sport Fisheries and Wildlife are of direct importance to the review. French Frigate Shoals hosts the last remaining green turtle nesting colony in both the Archipelago and the United States, therefore, its status is of national and international significance to the survival outlook of the species. Results of my 1973 investigation were recently (September 10, 1974) presented to a meeting of the American Fisheries Society in Honolulu. A copy of this paper has been enclosed for reference purposes.

Major topics of immediate concern to the survival of the green turtle in the Hawaiian Archipelago and to the related issue of affording the species "endangered status" protection include:

1. the past and present nesting sites utilized by the green turtle in the Hawaiian Archipelago;
2. the present status of the French Frigate Shoals nesting colony;
3. the past and present status of green turtle feeding populations around the major inhabited Hawaiian Islands;
4. the past and present green turtle management practices of the State of Hawaii; and
5. the official position of the Acting Governor of the State of Hawaii in response to the August 16, 1974 Federal Register notice. I would like to comment on each of these areas.

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As you are aware, there is considerable evidence to demonstrate that green turtles return to the same general nesting beaches for reproduction at periodic intervals throughout their adult lives. Evidence further suggests that the location utilized is in fact the beach where embryonic development and hatching originally took place. Through a series of not yet fully explained navigational abilities, the animals are able to relocate their natal beach and perpetuate the species. Probably the single most important factor leading to the decimation of the green turtle has been the killing of animals at the nesting beaches and/or the destruction of the beach habitat itself. I make reference to these points in order to better illustrate what has occurred in the Hawaiian Archipelago over the past 100 years. During the late 1800's and up until the 1920's numerous beaches in the major islands were known to host green turtles. Polihua (literally "egg nest") on the island of Lanai is said to have been the most productive, with turtles so large that at the turn of the century ranch workers had to use mules to haul them away. Remoteness at one time helped to protect this area, however today an improved road leads right to the shoreline. During 1973 I surveyed the entire northwest shore of Lanai in search of nesting signs, with no success. In addition to the loss of the animals from exploitation, much of this coast has become unsuitable for nesting due to soil erosion and uncontrolled growth of the introduced Algaroba tree. The native habitat of Lanai has therefore been severely altered by man since the late 1800's.

Other former green turtle nesting sites in the major islands included beaches along the Na Pali coast of Kauai, Mokapu and Lanikai on the island of Oahu, and several beaches on the island of Molokai. Although sporadic nesting was still reported in the 1950's, today no green turtles nest in the major islands. The actual percent reduction in population and nesting habitat lost over these years will never be known, but all evidence suggests that it has been considerable.

The only nesting site remaining in the Archipelago is French Frigate Shoals, a small atoll containing several low sand islets 480 miles northwest of Honolulu. Although nesting formerly took place on the islands of Laysan and Lisianki and at Pearl and Hermes Reef (all in the Northwestern Hawaiian Islands), U. S. Bureau of Sport Fisheries and Wildlife personnel report that little, if any, occurs today. Animals that have migrated to French Frigate Shoals for reproduction have been partially protected because of the area's remoteness, hazardous reefs and National Wildlife Refuge status. However, even these factors have, as I shall later relate, been periodically overcome by man's greed.

The true population status of the nesting colony using French Frigate Shoals has been unknown until recently. This dearth of reliable information has existed because up until 1973 no intensive investigations were conducted in the area throughout a reproduction season. Previous population censuses, behavioral observations and taggings were all carried out during relatively brief and infrequent scientific visits to the atoll. Results of my comprehensive 1973 investigation revealed that fewer than 180 adult females were present on all of the islets

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combined during the entire season. As most green turtles nest on a three-year cycle, it was at first thought that 1973 could possibly have been a bad year and not representative of the true seasonal population. Unfortunately, the 1974 study, from which I only returned last month, found an equivalent or even fewer number of nesters with population shifts occurring only between islets. These data are being further analyzed, however, the dangerously small size of the nesting colony is now a proven fact. One wonders if a level has not already been reached where inbreeding, disease or a natural disaster will eliminate viability.

Although studies at a nesting site can amply demonstrate the status, structure and dynamics of a nesting colony, a definitive analysis of populations in the feeding grounds is more difficult. Feeding areas for green turtles are known to exist at many near shore areas in the major Hawaiian Islands. Exploitation of these animals over the past ten years became both intense and methodical due to the higher prices paid by the tourist industry. In an appraisal of the population trends around the inhabited islands, long term observations by SCUBA divers, fishermen, pilots and other individuals who frequent or observe the turtle's feeding habitat must be taken into consideration. Although these personal surveys are, to a certain extent, subjective rather than of a "hard data" nature, it is nevertheless difficult to refute the diver who has mentally noted the number of turtles sighted per dive in a certain area over several years, or the fisherman who states that in the late 1940's he caught a significant number of turtles in a specified area and today he can find none. The vast majority of the literally scores of people who have testified at numerous public and legislative hearings over the past 18 months concerning the status of the green turtle in Hawaii have indicated that the populations are down, down in such an obvious amount that one wonders why steps were not taken years ago to halt the decline. Many of these documentations are on file at the State Division of Fish and Game in the form of written testimonies and tape recordings. I would, however, like to quote to you directly the observations of one such individual. The report came from Mr. Jack Harter, a pilot for Hawaii Helicopters International on the island of Kauai. Mr. Harter states:

"My ten year observation of the Kauai turtle population probably covers the period of greatest hunting pressure. As tourism grew, so did the demand and price for meat.

During 1966, I became involved in a study that included the decline of turtles. It was conducted as a master's thesis by a Berkeley graduate student. Since that time, I've made careful note of sighting frequency and size. I could sum up a ten year, almost daily observation of Na Pali, with one statement.....the population of Sea Turtles, has declined by at least 90%.

There are some who say that such observations are not meaningful because the turtles migrate in cycles. They suggest that there is really an abundance of turtles at sea or outside the area I usually fly. That is debateable since no one really knows or can find out.

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However, Na Pali does provide an excellent measure of decline through hunting. There are no resorts or noteworthy human activity there. Actually, the turtles should be congregating there from other parts of the island.

Ten years ago, it was not uncommon to count 50 turtles between Haena and Nualolo Aina. These were the big ones that could be seen from 1,000 feet. Now, we see a few turtles and seldom any big ones."

Management practices for the green turtle by the State of Hawaii can only be honestly described as mismanagement, or more appropriately, nonmanagement. The State Division of Fish and Game has jurisdiction over turtle populations around the major islands and, until 1963, held the responsibility of administering the Hawaiian Islands National Wildlife Refuge (most of the Northwestern Hawaiian Islands) for the federal government. It is interesting to note that between 1909, when the Refuge was established, and 1963, when the first representative of the U. S. Bureau of Sport Fisheries and Wildlife was assigned to administer the area, it was not uncommon for fishermen to enter the Refuge and illegally remove large numbers of turtles. Between 1946 and 1948 one company alone was known to have killed 200 turtles at French Frigate Shoals and shipped them to markets in Honolulu. Such destruction within the National Refuge also occurred as recently as 1959. A description of this tragic event appeared in the Narrative Report of the Charles H. Gilbert Cruise 45, which was conducted by the U. S. Bureau of Commercial Fisheries. Excerpts of this report read as follows:

"On East Island 33 sets of fairly fresh hand-out tracks were found in a circuit of the island. Also found were three large turtles dead on their backs near nesting areas, and a fourth turtle was found dead on its belly on a nest, with its skull crushed from a blow. None of these turtles was butchered, but instead seemed to have been killed wantonly." "On Whale-Skate Island the shell of 12 large turtles were found. In each case the carapace and plastron were cut apart, and the flippers and head were frequently lacking. All shells contained rotting meat or eggs, indicating the slaughter to have been recent, probably within one month." "Lt. (j.g.) John Dirschel, the commanding officer of the Coast Guard's Loran Station on Tern Island, informed me that 25-50 turtles had been taken from French Frigate by air during the past few months."

Although this incident was reported to the authorities at the time, no legal steps were ever taken at the State level to prevent a reoccurrence.

Until May of 1974 turtles around the major islands were completely unprotected. No past regulations have ever existed to conserve these unique reptiles or ensure their continued survival. During May, 1974, under considerable public pressure and after a year of deliberation, the first regulation giving partial

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protection to the green turtle was adopted by the Division of Fish and Game. This measure bans commercialization and places a 36-inch size limit on animals taken for home consumption. Unfortunately, the regulation was enacted in lieu of a complete moratorium on turtle fishing. I am convinced now, more than ever, that a ban on all turtle fishing is needed if survival in the Archipelago is to be assured. There are those administrators who would apparently gamble in this matter and consider the situation to be not as serious as it looks on paper. Past history tells us that many other species and populations have been treated in a similar manner and, as we are all aware, it is usually the animal that loses. The new State regulation provides an improvement over the previous situation, however in view of the available evidence it must be considered as being too little, too late. Serious enforcement problems have already arisen in the ban on selling which threatens to destroy the protective value.

It may also be worthwhile to note that the only research programs conducted on green turtles in Hawaii have been initiated either by U. S. Bureau of Sport Fisheries and Wildlife personnel or myself as a representative of the Hawaii Institute of Marine Biology. The Division of Fish and Game has never shown any real interest in turtles nor do they have anyone on their staff with more than an elementary understanding of marine turtle biology.

On September 6, 1974 I had the opportunity to meet with the Director of the Division of Fish and Game, Mr. Michio Takata, and four of his staff members concerning problems related to the new regulation. At the completion of this meeting Mr. Takata informed me that the Department of the Interior and the Department of Commerce had requested the Acting Governor of the State of Hawaii to officially comment on the matter of listing the green turtle as an endangered species. The request had been passed on to the Division of Fish and Game for a response. I was further informed that a reply had been sent stating in essence that 'the green turtle in Hawaii was considered to be a manageable resource and therefore not endangered.' I am, of course, quite perplexed by this decision as I know that the Division has no information or data to support this claim. In view of the overwhelming evidence to the contrary, all of which has on numerous occasions been brought to the Division's attention, the status of our green turtle must be considered as endangered. Considering that the only remaining nesting site both in the Archipelago and the United States is located in the National Refuge, that the colony size is by any means of evaluation dangerously small, and that the greater portion of the animals' lives is spent feeding around the major Hawaiian Islands under State jurisdiction, the importance of our green turtle would seem to take on a national significance in which all citizens may claim concern. It indeed seems truly unfortunate that officials in our State government have made the decision to gamble with this national trust.

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Throughout this discussion I have referred only to the green turtle as this animal has been central to my work and is the only species that still occurs in any numbers in Hawaiian waters. I hope that the information I have presented will be useful to your status review.

Sincerely,

George H. Balazs
Jr. Marine Biologist

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Enclosure