

Kealia Pond

National Wildlife Refuge
Maui, Hawaii

Final Environmental Impact Statement

00370

ENVIRONMENTAL CENTER
University of Hawaii
2550 Campus Road
Honolulu, Hawaii 96822

KEALIA POND NATIONAL WILDLIFE REFUGE
FINAL ENVIRONMENTAL IMPACT STATEMENT

LEAD AGENCY: U.S. Fish and Wildlife Service, Department of the Interior.

PROPOSED ACTION: Federal fee acquisition of Kealia Pond as a National Wildlife Refuge for endangered Hawaiian waterbird management with State option to purchase.

AGENCY CONTACT FOR FURTHER INFORMATION:

Dale T. Coggeshall,
Pacific Islands Administrator, U.S. Fish and Wildlife Service,
300 Ala Moana Boulevard, Room #5302, P.O. Box 50167,
Honolulu, Hawaii 96850. Telephone: (808) 546-5608

STATUS: Final Environmental Impact Statement
(DES 78-7, filed March 15, 1978)

STATEMENT NUMBER: FES 81-30

DATE FEIS FILED WITH EPA: AUG 14 1981

ABSTRACT: The U.S. Fish and Wildlife Service proposes to acquire fee title to Kealia Pond with State option to purchase, an approximate 500-acre pond and wetland area located on the Island of Maui in the State of Hawaii. Purpose of the acquisition is the preservation of habitat essential to the survival of the Hawaiian stilt and the Hawaiian coot, two waterbirds which are threatened with extinction.

The original Service proposal for Federal acquisition generated considerable controversy. The key issue centered on immediate environmental preservation needs versus future economic development of the pond. Project opponents believed that options other than Federal acquisition were available to protect wildlife resources and that Federal acquisition would foreclose future use opportunities for the pond. Project proponents felt that other protection options would not provide adequate protection for the pond's endangered waterbird resources.

Recently a cooperative agreement was consummated between the U.S. Department of Interior and the State of Hawaii concerning Federal acquisition with State option to purchase. The agreement recognizes the mutual interests of the State and the Service in the recovery and perpetuation of these endangered waterbirds, the need for immediate protection and improvement of waterbird habitat at Kealia Pond, and current State fiscal constraints. The agreement eliminated the need to pursue the original alternative that proposed Federal acquisition alone.

It is the conclusion of the State and the Service that fee acquisition by the Federal Government with option for the State to purchase represents the best alternative for insuring the long-term protection and perpetuation of the pond's endangered waterbird resources.

SUMMARY

The U.S. Fish and Wildlife Service proposes to acquire fee title to Kealia Pond with State option to purchase, an approximate 500-acre pond and wetland area located on the Island of Maui in the State of Hawaii (Figure 1). Under an existing cooperative agreement, the State would retain the option to purchase the site in fee from the Federal government at a later date when funds become available and cooperatively manage the area with the Fish and Wildlife Service. The purpose of the acquisition is to preserve and develop the pond as a National Wildlife Refuge for two species of Hawaiian waterbirds which are threatened with extinction. The Service proposal is intended to secure habitat considered vital to the continued survival of the Hawaiian stilt and the Hawaiian coot, resident subspecies of the black-necked stilt and American coot of North America. Both subspecies are classified as "endangered" by the U.S. Department of the Interior under the Endangered Species Act of 1973, as amended (P.L. 93-205) and designated as migratory species under the Migratory Bird Treaty Act and its implementing regulations (42 Federal Register 59358-59362, November 16, 1977) affording them international protection under the Act.

The acquisition proposal has been controversial. The key issue involves conflicting environmental and economic values. Direct acquisition by the State has been suggested as a desirable alternative for preserving the pond's wildlife values, but present funding, priorities and constraints prevent this action.

Maui County administration has expressed opposition to Federal acquisition. County officials question the need to preserve Kealia Pond when Kanaha Pond located only 12 miles distant, is currently managed by the State as a wildlife sanctuary for use by stilt and coot. The County favors retention of the area to meet port expansion needs projected 15-20 years in the future and suggests that Federal funds allocated for the acquisition of Kealia Pond be reallocated for the improvement of facilities at Kanaha Pond. This alternative would leave open the option to expand existing aquacultural developments at Kealia in the near-term future and provide for possible development of an industrial harbor complex in the longer-term future. County officials supported both of those use opportunities.

The Service has analyzed a range of alternatives for preserving, protecting and enhancing the endangered waterbird resource. Alternatives were evaluated against five criteria which were considered critical to the Service's decision-making process. They included: degree of protection for endangered waterbirds, degree of consistency with the Hawaiian Waterbirds Recovery Plan, immediacy of action, the current State fiscal priorities and limitations, and implementability. In addition, alternatives were evaluated in terms of their environmental and economic consequences. Based on this analysis, the Service has concluded that Federal fee acquisition of Kealia Pond with State option to purchase represents the best alternative for ensuring the long-term protection and perpetuation of endangered waterbird resources.

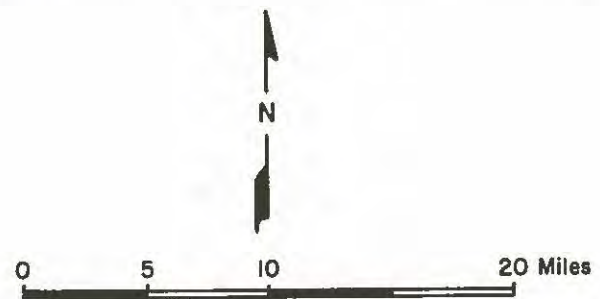
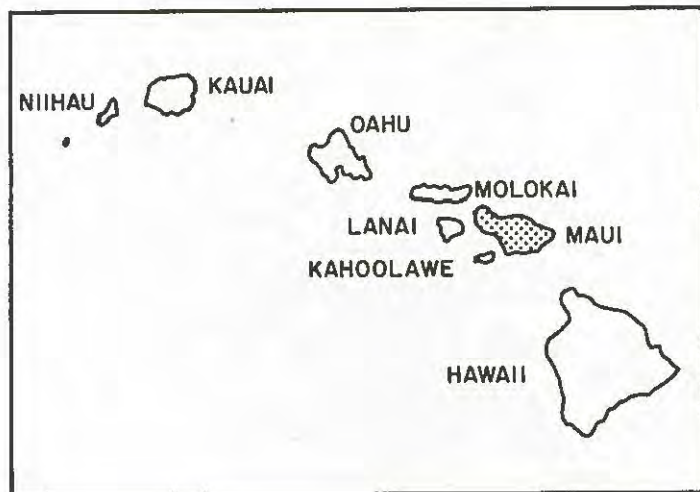
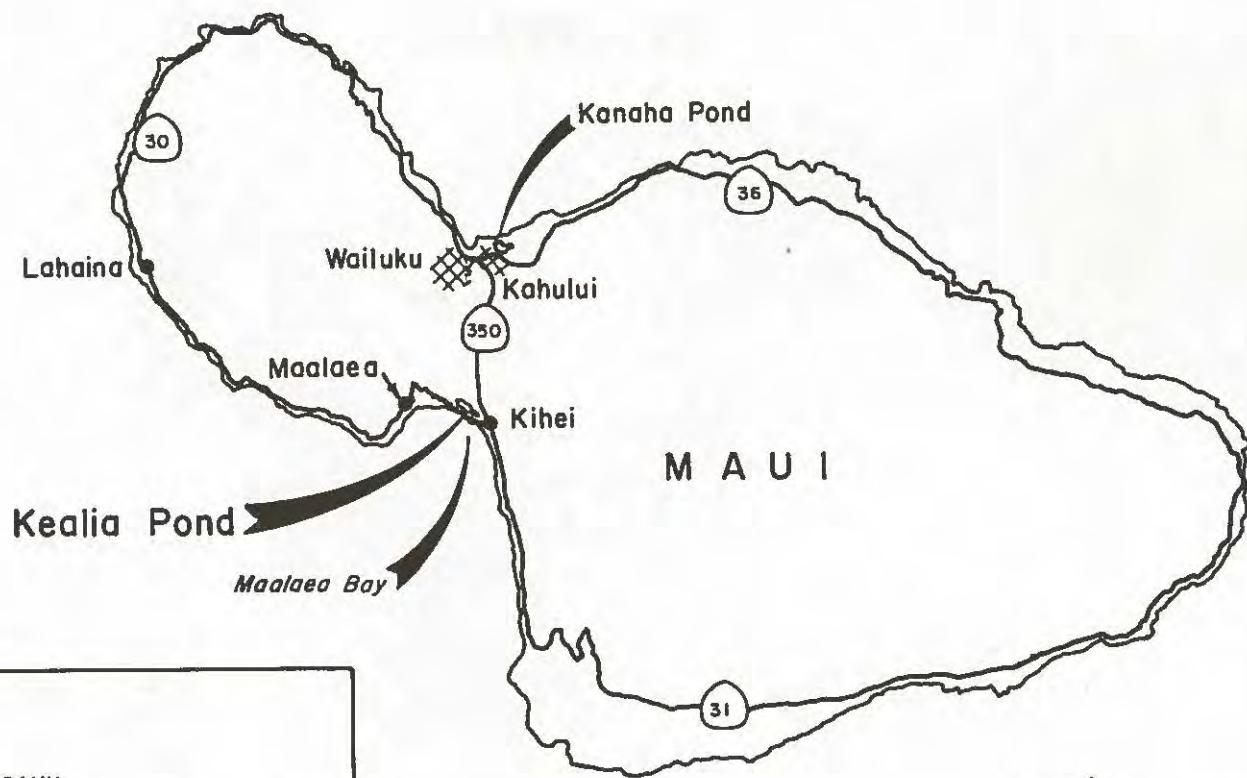


FIGURE 1
Location Map

TABLE OF CONTENTS

<u>Item</u>	<u>Page</u>
Cover Sheet	i
Summary	ii
Section I. PURPOSE AND NEED	1
Section II. ALTERNATIVES, INCLUDING THE PROPOSED ACTION	3
A. No Action	3
B. Federal Acquisition with State Option to Purchase (Preferred Alternatives)	6
C. Federal Acquisition with State Management	10
D. State Acquisition	11
E. Delayed Federal Acquisition	13
F. Improvement of Kanaha Pond with Federal Funds	13
Section III. AFFECTED ENVIRONMENT	15
A. Location	15
B. Physiographic Conditions	15
C. Flora and Fauna	16
D. Use by Endangered Hawaiian Waterbirds	18
E. Relationship with Kanaha Pond	20
F. Existing Pond Uses	21
G. Potential Pond Uses	25

TABLE OF CONTENTS (Cont)

<u>Item</u>	<u>Page</u>
Section IV. ENVIRONMENTAL CONSEQUENCES	28
A. No Action	28
B. Federal Acquisition with State Option to Purchase	31
1. Environmental Consequences Associated with Refuge Development and Management (O&M)	32
2. Impacts on Water Quality	32
3. Impacts on Adjacent Land Uses	33
4. Impacts on Wetlands/Floodplains	34
5. Impacts on Recreation	34
6. Impacts on Cultural Resources	35
7. Impacts on Coastal Zone Resources	35
C. Federal Acquisition with State Management	36
D. State Acquisition	36
E. Delayed Federal Action	38
F. Improvement of Kanaha Pond with Federal Funds Allocated for Acquisition of Kealia Pond	39
G. Summary of Alternatives	40
LIST OF PREPARERS	41
MAILING LIST	42

APPENDICES

<u>Appendix No.</u>	<u>TITLE</u>	<u>Page</u>
Appendix A	Bird List, Kealia Pond, Hawaii	A-1
Appendix B	July/August Statewide Counts for Hawaiian Stilt and Coot, 1970-1980	B-1
Appendix C	Hawaiian Stilt Counts, Kealia and Kanaha Ponds, 1976-1978	C-1
Appendix D	Hawaiian Coot Counts, Kealia and Kanaha Ponds, 1976-1978	D-1
Appendix E	Hawaiian Stilt & Coot Counts, Kealia and Kanaha Ponds, Fall 1978 to Summer 1980	E-1
Appendix F	Projected Increases in Stilt Populations Under Kealia Pond Federal Acquisition Proposal	F-1
Appendix G	Projected Increases in Coot Populations Under Kealia Pond Federal Acquisition Proposal	G-1
Appendix H	Projected Increases in Avifaunal Use- Days under Federal Acquisition	H-1
Appendix I	Natural History of Hawaiian Stilt and Hawaiian Coot	I-1
Appendix J	Cooperative Wildlife Habitat Protection Agreement, Kealia Pond, Maui	J-1
Appendix K	Cultural Resources Clearance from State Historic Preservation Officer	K-1
Appendix L	Federal Coastal Zone Management Consistency Determination	L-1
Appendix M	Comments and Responses on Draft EIS	M-1
Appendix N	References	N-1
Appendix O	Decision Matrix of the Alternatives	O-1

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>	<u>Page</u>
Figure 1	Location Map	iii
Figure 2	U.S. Army Corps of Engineers Section 404 Permit Zone	4
Figure 3	Proposed Acquisition, Kealia Pond, Maui County, Hawaii	8
Figure 4	Vegetation Map	17
Figure 5	Flora and Fauna of Kealia Pond	19
Figure 6	State Land Use Map	23

SECTION I: PURPOSE AND NEED

Many of the varieties of wildlife unique to the Hawaiian Islands have become extinct, or are threatened with extinction. When Captain James Cook discovered the Islands in 1778, there were at least 70 different kinds of birds found nowhere else in the world. The birds, isolated from the continental land masses by thousands of miles of open ocean, had evolved into unique species or subspecies. Within the past 150 years, 25 of those types of birds have become extinct; another 30 are on the verge of extinction (44 Federal Register 3636-3654, Jan. 17, 1979). The causes vary. Essential habitat has been destroyed or altered. Animals have been introduced which preyed upon native wildlife or competed with native forms for food and living space. Some species have been decimated for feathers, food or sport. Mosquitoes and other exotics, introduced and disseminated disease for which native species had little or no immunity.

The survival of a number of wetland dwelling species has been jeopardized by continuing loss of habitat. These birds depend on lowland ponds and marshes for food and a place to raise their young, but these areas also provide attractive opportunities for urban development. Many former wetlands have been filled and are now occupied by hotels, subdivisions and shopping centers. The numbers of wetland-dependent birds have declined as wetland areas were destroyed. All five species of endemic Hawaiian waterbirds (stilt, coot, gallinule, Laysan duck and Koloa) are now in danger of extinction because of this loss. The two endemic species, stilt and coot, which use Kealia Pond were officially listed as "endangered species" by the Secretary of Interior in October 1970 (35 FR 16047, October 13, 1970).

Through the Endangered Species Act, the U.S. Fish and Wildlife Service has been given responsibility for overseeing protection of threatened and endangered species. In carrying out that responsibility, the Service formulates "recovery plans" which provide specific measures for effecting the preservation or "recovery" of such species. The Service published its recovery plan for three endangered Hawaiian waterbirds--the coot, stilt and gallinule in 1978. The primary objective of that plan is to "...provide and maintain populations of at least 2,000 Hawaiian stilt, 2,000 Hawaiian coots and 2,000 Hawaiian gallinules in, at a minimum, the habitats and island distribution existing in 1976 and to remove these endangered species from endangered and threatened status lists." (Hawaiian Waterbirds Recovery Plan, 1978).

To achieve this objective, the Hawaiian Waterbirds Recovery Plan identifies specific land and water areas as "primary habitat," areas essential to the survival of the birds for preservation and enhancement. The Recovery Plan indicates that "... (Kealia) Pond possesses great potential (for waterbirds)

and if fully developed, could well be the best area in the State for stilt and possibly coot." It recommends "...that five hundred acres, including a buffer zone around the water area of Kealia, should be acquired, developed and managed as a national wildlife refuge by the U.S. Fish and Wildlife Service." (HWRP, 1978). In addition, the Recovery Team has submitted recommendations for designation of critical habitat at Kealia Pond. Critical habitat has been administratively defined by the Service to mean "...any air, land or water area... and constituent elements thereof, the loss of which would appreciably decrease the likelihood of the survival and recovery of a listed species..." (43 FR 875, January 4, 1978). Service protection alternatives as described in the following section were structured around the recommendations of the Recovery Team.

SECTION II: ALTERNATIVES, INCLUDING THE PROPOSED ACTION

In view of the documented value of Kealia Pond to Hawaii's endemic waterbird resource, the Fish and Wildlife Service has considered a wide range of alternatives for preserving the site and enhancing the habitat. Of major significance in the Service's evaluation, were the legislative mandates contained in the Endangered Species Act. Those mandates gave rise to three criteria which were critical to the process of identifying a preferred agency alternative. These criteria included: degree of protection for endangered waterbirds, degree of consistency with Hawaiian Waterbirds Recovery Plan, and feasibility of implementation. The discussion below evaluates various alternatives against these criteria.

A. No Action

Under this alternative, the Service would take no action to acquire Kealia Pond. The degree of protection for the endangered waterbird resources would depend on allowable uses of the pond--both present and future. Those uses, in turn, would be governed by land use regulations operating at the Federal, State and County levels of government. Present land use controls, particularly those at the Federal level, are conservation oriented. The Army Corps of Engineers, under Section 404 of the Clean Water Act of 1977 (as amended) regulates the placement of dredged or fill material in wetlands. Any development involving placement of such fill occurring within the area shown in Figure 2, would require a Corps' 404 permit. In addition, the Corps regulates construction activities in adjoining coastal waters such as Maalaea Bay. Under Section 10 of the River and Harbor Act of 1899, any development such as structures for harbors, jetties, wharves, docks and the like would be subject to a Section 10 permit. In reviewing permit actions, the Corps balances the anticipated public benefits of a project against its foreseeable costs, including environmental costs that cannot be clearly defined in economic terms. Corps' regulations place strong emphasis on protection of biologically valuable wetlands and encourage full exploration of alternatives where a proposal could jeopardize environmental values.

The Fish and Wildlife Service also exerts an influence over future uses of the pond through the Endangered Species Act. Section 7 of that Act requires that all Federal agencies, in consultation with the Service, insure that any actions they fund, authorize or implement, do not jeopardize the continued existence of an endangered or threatened species, or result in the destruction or adverse modification of habitat determined to be critical to the survival of the species. Any proposal at Kealia Pond requiring a Corps' permit or other actions by Federal agencies would activate the Section 7 requirements--thus, ensuring that endangered wildlife resources would receive appropriate consideration.

U.S. ARMY CORPS OF ENGINEERS
SECTION 404 PERMIT ZONE (SHADED)

(404 ZONE APPROXIMATE ONLY)

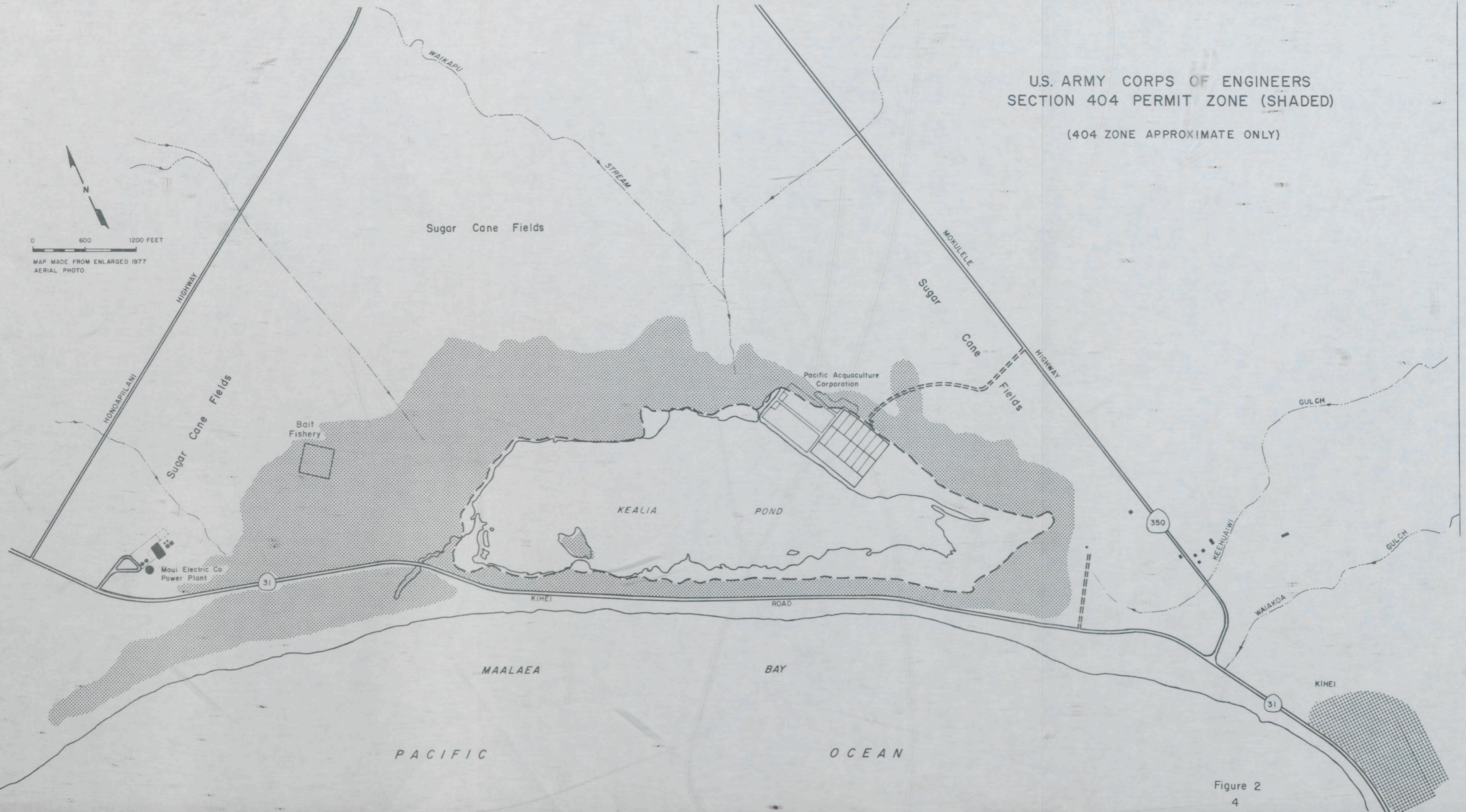
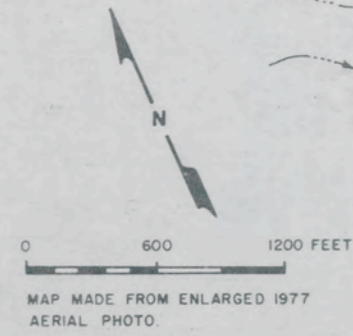


Figure 2
4

Under such controls, permissible uses of the pond are theoretically limited to conservation and open-space uses--uses which should be compatible with the use of the pond by Hawaiian endangered waterbirds. In reality, however, the degree of compatibility is far from perfect.

A number of existing conditions at the pond detrimentally impacts endangered waterbirds and their habitat. Mammalian predation has greatly limited the reproductive success of endangered waterbirds. There are no feeding or nesting areas that are inaccessible to predators such as mongoose, rats, dogs and cats. Seasonal fluctuation in pond water levels has placed severe limitations on habitat availability. Finally, the pond is slowly filling with mud and silt and, eventually, could lose most of its capacity for water storage--at which time, its wildlife habitat value would be greatly diminished. As the value diminishes, application of the Endangered Species Act to the regulation of land use would diminish as well.

Long-term future uses of the pond under the no action alternative are difficult to predict, since uses depend upon such unquantifiables as future wildlife values, regulatory constraints and future economic needs and priorities. The no action alternative would allow development of pond uses consistent with land use controls existing at the time. One present use which would probably expand under this alternative is aquaculture. The pond area currently supports two aquaculture facilities--a commercial catfish farm and a bait-rearing facility which is testing the feasibility of culturing topminnows for the commercial tuna fishing industry. Aquaculture presently enjoys the support of local, State and Federal governments, which see the fledgling industry as a possible key to diversifying the heavily tourist-dependent economy of the State.

Under existing land use constraints, expansion of aquacultural uses would likely be regulated in a manner consistent with the existing endangered waterbird values of the pond. Large-scale conversion of the pond to aquaculture, which could adversely impact these values, would be effectively prevented by the Corps' 404 permit program and the Section 7 requirements of the Endangered Species Act. However, in the absence of effective habitat development, the wildlife values of the site are likely to diminish to a point where these regulatory controls would be significantly less constraining.

Another future use opportunity which has generated widespread interest and has the support of both the Maui County administration and the State Department of Transportation (DOT) is the development of an industrial harbor at Kealia Pond. County officials believe that Maui's vigorous population and economic growth will eventually necessitate construction of a second major harbor on Maui; however, exactly when and where a second harbor would be required is open to question. A recent DOT study (DOT, 1977) indicates that a second harbor on Maui would probably not be needed before the year 2000. A re-study of the deep draft harbor project for south Maui

by the Corps of Engineers in 1979 was terminated due to lack of economic justification and public opposition. However, the option for a harbor continues to remain open in the DOT and County planning process (Ishikawa and McCormick, 1980).

In summary, under the no action alternative, the Section 7 requirements of the Endangered Species Act and the Corps' permit program would likely provide a reasonable degree of protection against uses that would be incompatible with the pond's endangered waterbird resources. Although offering protection against incompatible uses, this alternative would do nothing to remedy existing conditions which now limit both the quality and availability of waterbird habitat. Also adverse actions such as uncontrolled water supply and introduction of exotic plants and animals which have occurred under private ownership would continue to be inadequately regulated. Actions on peripheral lands which impact the pond area (i.e. sediment, pesticide use) would continue to contribute to habitat degradation. In that sense, the alternative would be inconsistent with the recommendations of the Recovery Plan, which call for habitat enhancement. Under this alternative, less-than-optimal habitat conditions for waterbirds would likely be perpetuated. There would be no monetary or administrative obstacles associated with implementation of this alternative, but the survival of endangered waterbirds, particularly the Hawaiian stilt, would be jeopardized.

B. Federal Acquisition with State Option to Purchase
(Preferred Alternative)

The realization of a National Wildlife Refuge at Kealia Pond would meet a major Service objective for endangered Hawaiian waterbirds. Since 1972, the Service has incorporated five wetland areas in Hawaii into the National Wildlife Refuge System, in order to ensure the survival of endangered waterbirds. The refuges comprise approximately 1,325 acres of open water and wetland habitat, distributed over the Islands of Kauai, Oahu and Molokai. They include Kakahaia NWR on Molokai, Hanalei and Huleia NWRs on Kauai, and James Campbell and Pearl Harbor NWRs on Oahu. These refuges are currently under further development or in planning for additional habitat enhancement. Kealia Pond on Maui and Opaepala Pond on the Big Island (Hawaii) are under consideration for acquisition. Kealia Pond and Opaepala Pond were identified as the first and second acquisition priorities respectively in the Recovery Plan (HWRP, 1978).

In September 1980 a Cooperative Wildlife Habitat Agreement for Kealia Pond was completed between the U.S. Department of the Interior through the Fish and Wildlife Service and the State of Hawaii by its Board of Land and Natural Resources (see Appendix J). The agreement sets forth conditions and commitments concerning both agencies for the development and management of the area. In addition the agreement provides the option for State purchase of the area when monies become available. Although the State has

expressed a willingness to acquire the Pond, current funding constraints prevent this action. The agreement will accomplish mutual objectives of Federal and State governments for the preservation and enhancement of Hawaii's endangered waterbirds.

Under the Federal acquisition with State option to purchase alternative, the Fish and Wildlife Service would acquire fee simple title to approximately 500 acres of Kealia Pond and surrounding marsh (see Figure 3). Acquisition may need to be in stages because of dollar allotment limitations in any given fiscal year. The goal of approximately 500 acres, therefore, may not be reached immediately because of these funding limitations. Kealia Pond would be developed as a National Wildlife Refuge to protect, preserve and enhance the pond's waterbird resources for the continuing benefit of the public.

Acquisition estimates, based on recent appraisals, have not been finalized. However, the property owner, Alexander and Baldwin, Inc. (A&B), has indicated willingness to negotiate a purchase agreement with the Service. The Service would utilize funding from the Land and Water Conservation Fund (LWCF) under authority of Section 5b of the Endangered Species Act. Initial development costs associated with habitat enhancement, fencing, administrative office and visitor facilities are estimated at \$800,000 to \$1,000,000 in 1980 dollars. Annual O&M costs, which would include salaries for refuge staff personnel, maintenance and rehabilitation of equipment and habitat, are estimated at \$100,000.

Acquisition costs would include the Pacific Aquacultural Corporation's 25-acre leased catfish farm area. Once the entire property is acquired, the Service would lease back the facility to Pacific Aquaculture Corporation and allow continued operation of the facility. Future expansion of the aquaculture facility would also be allowed, provided there was no encroachment on the pond property or its adjacent wetlands. The tentative plans of the Aquaculture Corporation to expand by 50 acres into the adjacent kiawe thicket would be compatible with anticipated refuge development and management.

Once acquired, the Service in cooperation with the State would develop the pond to enhance habitat for endangered waterbirds. The refuge management plan, as presently conceived, would provide for development of independent water sources and full management of water through a series of diked impoundments. Water levels within impoundments and water circulation between impoundments would be regulated by means of pumps and water control structures. Small mud islands (islets) would be created within the pond's interior to encourage predator free waterbird nesting. Marsh vegetation would be planted to improve feeding, resting and nesting opportunities for the birds. A predator control program would be implemented to reduce predation by mongoose, rats, dogs and cats. Methods of control would include construction of moats to prevent predator access to bird nesting areas. Similar measures have proven successful in the management of other refuges on Hawaii and the mainland.

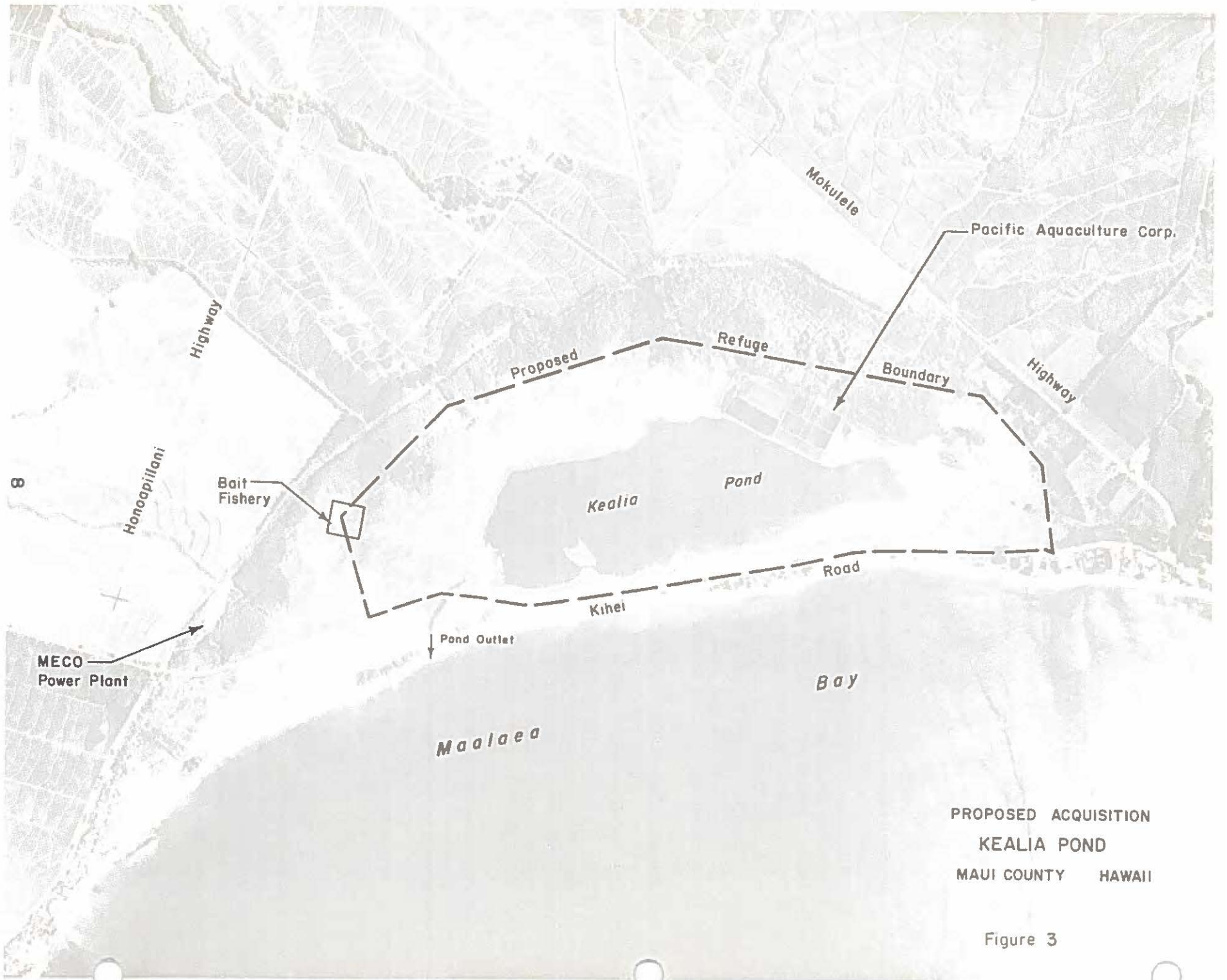


Figure 3

In addition to habitat enhancement measures, modest public use facilities would be constructed to provide wildlife-oriented observation and study opportunities. Possible facilities include a visitor contact point with refuge leaflets, a viewing platform, a boardwalk and a paved pull-out for parking. Administrative facilities and boundary fencing/posting would complete the development features.

In April 1978 the Maui County Council passed a resolution in opposition to the Service's acquisition proposal. County officials opposed this alternative on grounds that it conflicted with present and potential future aquaculture uses of the pond and conflicted with local land use designations of the area for open space, recreation and industrial uses. In the resolution, the County proposed that funds earmarked for Kealia Pond be reallocated for the further development of Kanaha Pond, a State-operated wildlife sanctuary located 12 miles from Kealia Pond. Finally, the County suggested that any proposal for the Kealia Pond area must contain provisions reflecting the programs and policies of the County of Maui--including the further development of aquaculture. In 1980 the Mayor of Maui stated that the Pond area should be reserved for future (15 years hence) industrial harbor needs. Commitment to the waterbirds would not be in the best interests of the people of Maui.

The Federal acquisition with State option to purchase alternative would meet some of the concerns voiced by the County. Operating the pond as a refuge, the Service would continue to allow operation of the catfish farm and would permit planned expansion of the facility into the kiawe thicket. Proposed Service refuge policies would likely have little impact on the experimental baitfish operation, provided there were no significant encroachments of facilities on the pond property or its adjacent wetlands. Some loss of baitfish to waterbirds would continue to occur. This alternative would conflict with the intent of County land use designations for the pond. The County has zoned the pond in an "Open" category which is intended to create a holding zone for future land use needs. A refuge would foreclose future land use needs incompatible with the wildlife objectives of the refuge. This alternative would, however, be compatible with State Conservation zoning of the pond which designates the pond for natural, open-space uses.

In 1978 both the State Department of Land and Natural Resources (DLNR) and the State Department of Transportation (DOT) opposed the Service acquisition proposal on grounds that it would result in single-purpose management of the pond and foreclose future multiple use opportunities. These agencies favored a mix of wildlife, public recreation and aquaculture uses for the near-term future and a possible industrial harbor for the longer-term future. However, the recent cooperative agreement signed by the Governor indicates acceptance of Federal purchase with State option to purchase (Appendix J). Both the agreement and the Service's proposal would, in effect, provide for a variety of uses including wildlife, public recreation

and aquaculture. In these respects the proposal would meet the needs expressed by the State. The proposal would, however, foreclose future development of an industrial harbor within the refuge boundaries, but not necessarily within the Maalaea Bay area.

The U.S. General Accounting Office (GAO) has also opposed the Service acquisition proposal. The GAO charged that the FWS failed to adequately consider non-acquisition alternatives for preserving the habitat values of Kealia Pond. Additionally, GAO noted that the Service lacked justification for acquiring Kealia Pond because the Hawaiian stilt and Hawaiian coot are not considered "high priority" species, based on FWS's endangered species recovery priority system. On those grounds, the GAO recommended discontinuance of the acquisition proposal. As documented in correspondence with GAO, the Service has considered a number of non-acquisition alternatives and believes that the decision to acquire Kealia Pond with State option to purchase when funding becomes available is fully justified and entirely consistent with applicable FWS acquisition policies and endangered species criteria. Kealia Pond is considered Hawaii's number one priority for acquisition by the Service as recommended by the Hawaiian Waterbirds Recovery Team (HWRP 1978). In addition, the Service noted that GAO had not adequately considered the habitat enhancement and management requirements necessary to the recovery and perpetuation of the waterbirds.

In summary, this alternative would provide a high degree of protection for the pond's endangered waterbird resources and would be fully consistent with the recommendations of the Hawaiian Waterbirds Recovery Plan and plans by the State to purchase. A comprehensive management program would be aimed at developing and maintaining a self-sustaining population of waterbirds capable of withstanding normal mortality factors. Pond acquisition would secure nesting, feeding and loafing areas, and management measures would seek to minimize mortality and increase productivity. Funds have been earmarked for acquisition, and the landowner has indicated a willingness to negotiate a purchase agreement. This alternative would meet most of the concerns expressed by the State and County governmental agencies by providing a mix of wildlife, educational, recreational and economic uses consistent with refuge objectives to protect, preserve and enhance endangered Hawaiian waterbird resources. The Federal acquisition alternative would, however, preclude construction of a future industrial harbor in the refuge boundaries since such a development would be inimical to the waterbird values of the pond.

C. Federal Acquisition with State Management

Under this alternative the Federal government would also acquire fee simple title to the pond. The pond would then be managed by the State under agreement with the Fish and Wildlife Service. Implementation of this alternative would relieve the Service of operational and maintenance (O&M) costs. Before the management of the pond could be transferred to

the State, however, the Service would need to receive firm assurances through a cooperative agreement that the pond would be managed in a manner consistent with endangered species objectives. At a minimum, the Service would require a legally binding commitment negotiated with the State guaranteeing (1) permanent protection of the pond, (2) adequate development of waterbird habitat and management for endangered species, (3) the required annual operation and management costs, and (4) restrictions on uses incompatible with refuge objectives. This alternative, if fully implemented, would provide essentially the same degree of protection for the resources as the Federal acquisition alternative.

The feasibility of implementing this alternative has some questionable aspects. Although the State has indicated a willingness to acquire, develop, manage and protect Kealia Pond, current funding constraints prevent such action. However in the event that State funding did become available, the Service would be required to resubmit the Federal acquisition proposal through congressional appropriations committees to seek approval for State management of the pond. Successful implementation of this option would necessitate the incorporation of the technical knowledge, skills, abilities, and experience of both the State and the Service in the planning, enhancement and management of the project.

D. State Acquisition

Under this alternative, the State would acquire the pond and manage it under a multiple-use plan intended to preserve valuable wildlife habitat while, at the same time, allowing public use activities and economic activities compatible with wildlife values. Precisely what economic activities, or what levels of development would be considered compatible have not been defined.

The feature which distinguishes this alternative from the Federal alternative is the potentially greater range of uses to which the pond might be subjected under the State alternative. Whereas either of the Federal alternatives would imply protection of the wildlife resources now and in the future, protection for the resources under the State alternative would be largely dependent on future land use policies. Although conservation-oriented land use policies in effect today would provide reasonable protection for the pond from uses that would be incompatible with its wildlife values, there is no guarantee that conservation-oriented policies would still be in effect in the long term. State management of Kealia Pond in the future could be dictated by an entirely new set of problems, policies and priorities that might have little relationship to preservation of the pond's wildlife values.

A variety of alternatives are theoretically available to the State to acquire the pond, including fee simple acquisition, long-term lease, trade or dedication. The State has not formally pursued any of these alternatives

with the property owner, Alexander and Baldwin, Inc. State officials recognize that fee acquisition is beyond the fiscal capabilities of the State at this time but have suggested that with fiscal assistance from the Federal Government, it may be possible for the State to acquire Kealia Pond.

There are presently two Federally-funded programs which the State could use to acquire Kealia Pond. They are the Cooperative Agreement Grant-in-Aid Program established under the Endangered Species Act and the Federal Aid to Wildlife Restoration Program--more commonly known as the Pittman-Robertson Program.

Section 6 of the Endangered Species Act allows the Secretary of the Interior to enter into Cooperative Agreements with any State, thereby qualifying that State to receive Federal funds for the preservation of endangered species resident within the State. Funding amounts are dependent on the national allocation that is apportioned to qualifying states. The State endangered species act is more liberal than the Federal act permitting take of endangered species for educational purposes. This difference prohibits the State from qualifying for grants under the Federal act.

Assuming, however, that the State eventually qualifies for Endangered Species' monies, there is still a cost-sharing requirement that must be met. The Act provides that Federal funds be allocated on a two-thirds Federal/one-third State matching basis. Thus, if Kealia Pond, as an example, was valued at \$5 million and acquired by the State with the assistance of Endangered Species' funds, the State would need to raise an approximate \$1.6 million counterpart to the Federal Government's \$3.3 million share. Whether the State would be willing or able to appropriate this sum in the future is questionable. However, at the present time the State's current funding restraints prohibit the purchase. Additionally, Section 6 funding is limited, and the Service cannot guarantee that Hawaii would receive \$3.3 million even if the State qualified for the funds.

The Pittman-Robertson Program offers another source of Federal assistance for State acquisition of the pond. Under that program, States are apportioned funds for enhancement and acquisition of wildlife habitat. The size of the apportionment is based upon the number of licensed hunters in the State and upon the area of the State. Funds are derived from the Federal excise tax on sporting arms and ammunition. Under the P-R Program, the State is required to provide one-fourth matching funds with the Federal Government supplying the balance. In fiscal year 1977, the State of Hawaii's Federal apportionment amounted to \$474,500; however, due to insufficient counterpart funds, the State was forced to return \$107,000 in Federal funds. Fiscal years 1978, 1979 and 1980 saw Hawaii revert \$181,000, \$89,000 and \$119,000 respectively in P-R funds. Those reversions place Hawaii in a small minority of States which have reverted funds to the Federal Government in recent years.

In summary, the State acquisition alternative is not considered feasible as current State funding constraints prevent this action.

E. Delayed Federal Acquisition

Under this alternative, the U.S. Fish and Wildlife Service would exercise its acquisition prerogative only in the event that an imminent threat to the pond was to develop, and all other means to protect the pond had been exhausted.

Delaying Federal acquisition would do nothing to prevent future physical and/or societal changes from occurring that would tend to modify habitat for other uses nor correct those present conditions that seriously limit productivity of waterbirds at the pond. For example, mongoose and other predators would continue to take their high toll on waterbirds. If an imminent resource threat did not develop over a long period of time, conceivably, habitat-limiting factors such as uncontrolled water levels and sedimentation would cause further serious declines in waterbird populations. Delayed acquisition would not solve the present problems caused by inability to control water levels. Generally, therefore, this alternative would result in environmental consequences similar to the no action alternative.

Delaying Federal acquisition has and would continue to result in major cost increases to the Federal Government if the pond were to be acquired at some future date. The cost of land has risen dramatically throughout the Islands in recent years. Land values on the south central Maui coast have escalated greatly because the entire area has been undergoing rapid development for residential and resort purposes. During the past ten year period since the Service initiated the refuge proposal, land values have increased as much as ten fold. In summary, cost effectiveness would be reduced under this alternative since dollar costs of acquisition would be expected to escalate rapidly over time.

F. Improvement of Kanaha Pond with Federal Funds Allocated for Acquisition of Kealia Pond

An alternative suggested by Maui County (Appendix M) involves expenditure of Federal funds to upgrade facilities at Kanaha Pond--the 143-acre State-managed wildlife sanctuary on the north side of the Maui isthmus. Under this alternative, funds allocated for acquisition of Kealia Pond would be allocated instead for habitat enhancement and improvement of public use facilities at Kanaha Pond. Kanaha Wildlife Sanctuary exists under State DLNR lease from State DOT. State DOT opposes transfer of these lands to the State DNLN for waterbird habitat enhancement on the grounds that:

- increase bird use increases bird-aircraft hazards, and,
- future airport expansion/improvement may require these lands.

However, studies to date have shown birds using the Kanaha area fly lower than aircraft on approach. There is no record of bird strikes occurring over Kanaha. Consequently these internal differences have inhibited the State DLNR from receiving appropriations for long term improvements.

Budget limitations and increasing costs have curtailed State management abilities. Neighboring industrial developments are significant potential threats to the birds and their habitat. Taken together, these aspects tend to perpetuate the current situation in which the future of Kanaha Pond as a Wildlife Sanctuary is tenuous at best, appropriate habitat development is very restricted, and the protection, operations and management of the area do not fully meet waterbird recovery needs at this location.

Since the sanctuary is located within the highly-urbanized Kahului-Wailuku area and is in close proximity to the Kahului Airport, the principal visitor entry point, the County views Kanaha as a logical site for expanded public use opportunities. The County questions the need for two waterbird preserves on Maui, believing that an equitable balance between environmental values and developmental interests could be achieved by upgrading Kanaha --thereby retaining the option to develop a deep-draft commercial harbor or other urban/industrial facilities at Kealia Pond.

Although implementation of the suggested alternative of upgrading Kanaha Pond with Federal funds would enhance habitat at Kanaha (and thus presumably increase the carrying capacity of the pond for waterbirds), the alternative would not meet the objectives of the Recovery Plan--which identifies both Kanaha and Kealia Ponds as primary habitats for endangered waterbirds necessary for distribution and increased production of the species.

The Service currently has no legislative authority to reallocate funds for Kealia Pond acquisition to habitat enhancement at Kanaha Pond. Land and Water Conservation funds can only be used for acquisition purposes, and not for operation and management of existing State wildlife sanctuaries. The Pittman-Robertson program is the only source of federal funding for which the State presently qualifies to effect wildlife improvements at Kanaha Pond. Since use of P-R funds is limited to habitat preservation and enhancement, public use developments would require other funding sources. For reasons discussed above and under the State acquisition alternative, there is no assurance that the State can appropriate sufficient matching funds to take full advantage of Federal funding.

In summation, this alternative was determined to be unfeasible because it failed to confer an adequate degree of resource protection, was inconsistent with recommendation of the Recovery Team, and was not implementable.

SECTION III: AFFECTED ENVIRONMENT

A. Location

Kealia Pond is located adjacent to Maalaea Bay, along the south central part of the Island of Maui, County of Maui, Hawaii (Figure 1). It is separated on the south side from the Pacific Ocean beach by Kihei Road and a narrow band of coastal dunes. It is on the south side of the Maui isthmus and less than 1 mile north of the community of Kihei. The old airport road is situated near the eastern boundary of the pond.

B. Physiographic Conditions

Kealia Pond is believed to have been formed by the combined natural action of the wind, waves and erosion. The pond was formerly six-to-eight feet deep, but cultivation of the watershed during the first part of the century accelerated sedimentation of the pond. The pond was filled further as a rubbish dump between 1925 and 1930. Present water depths average about one foot during winter months. Surface area varies between 225 and 500 acres, depending on seasonal precipitation, which averages 10-15 inches per year.

The pond acts as a natural sump within the floodplain for a watershed of approximately 56 square miles. The watershed has been significantly altered by agricultural activities. The great majority of the land surrounding the pond is planted in sugar cane. Alexander and Baldwin, Inc., owns most of the lands drained by Kealia Pond. A&B's 32,000-acre Hawaiian Commercial Sugar Company is the single largest sugar cane plantation in the State.

Principal streams in the watershed have all been diverted to irrigate sugar cane field. During the dry summer months virtually all the flow is used for irrigation purposes, and the drainage channels feeding the pond go dry. In the winter rainy season, however, precipitation run-off floods the shallow pond and adjacent lowland areas. Silt-laden run-off from agricultural fields swells the pond to between 400 and 500 acres, making it the largest remaining natural pond in the State.

The pond is gradually being filled with water-borne and wind-borne sediments, and its holding capacity is therefore being reduced. Until very recently it was believed that a dynamic equilibrium had been established, in which sediment inflow was approximately in balance with sediment loss (Maciolek, 1971). Losses occurred through wind erosion. During the dry summer season, the pond's water would evaporate completely. Without a protective covering of water, the dried pond sediments would be subject to wind erosion. The wind-caused annual "deflation" of the pond would create additional storage capacity for sediment deposition in the subsequent rainy season. However, approximately three years ago, the Pacific Aquaculture

Corporation began releasing residual water from its catfish operation into Kealia Pond. During periods when their pumps are operating, a permanent water surface of 150-200 acres is maintained, even during the summer months. As a result, wind erosion of sediment has been retarded, and it is now believed that the pond's holding capacity is being gradually reduced because sediment deposition exceeds sediment loss through wind erosion.

The pond acts as a silting basin, effectively removing most of the silt which is carried to it because the outlet to Maalaea Bay is usually plugged by a sand berm. During heavy rains the sand plug is usually breached, and silt-laden waters flow directly into the bay. If the outlet fails to open naturally, then water is backed up in the channel with resulting flooding of Kihei Road and vicinity. During a storm in January 1971, a short but intense period of rainfall resulted in flood conditions which inundated Kihei Road to a depth of 1-to-2 feet. This storm inundated properties in the Kihei area to depths of 5-to-6 feet.

In addition to flash flooding, the pond is also subject to flooding by high seas and tsunami inundation. According to the recent Maui County Flood Insurance Study prepared by the Federal Insurance Administration, the pond area is subject to tsunami waves estimated to range between 6 feet and 16 feet above mean sea level. As a result, any refuge development proposed for the area would take into consideration guidelines established by local governing bodies concerning construction within the flood prone area.

The dark, reddish-brown soils immediately surrounding the pond are of poor productivity. They exhibit poor drainage characteristics and are highly saline. Generally, the soils are reflective of the conditions of a silting basin, an area of low seasonal rainfall and high evaporation with resulting high soil salinities.

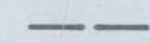
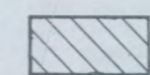

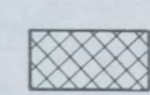
The pond area has a relatively shallow water table which varies from sea level to 5-to-6 feet below mean sea level. This water is brackish due to the close proximity to the seacoast, high evaporation rate and porosity of the pond bottom. The pond comprises a zone of mixing of seawater and freshwater, the latter originating from runoff, seepage and percolation of water from the surrounding agricultural lands.

C. Flora and Fauna


The rigorous soil, water and climatic conditions limit the vegetative diversity of the pond. The dominant species is salt-tolerant pickleweed (Batis maritima) which covers extensive flats surrounding the pond. The pickleweed marsh is periodically inundated by seasonal flooding, but the dense thicket of kiawe trees which fringes the marsh normally remains dry. The vegetation map in Figure 4 depicts the major vegetative communities surrounding the pond. A more complete description of the pond vegetation can be obtained in the reference on Wetlands and Wetland Vegetation of Hawaii (Elliott and Hall, 1977).

VEGETATION MAP

LEGEND

-  PROPOSED REFUGE BOUNDARY
-  KIAWE COMMUNITY
-  PICKLEWEED COMMUNITY
-  PLUCHEA-PICKLEWEED COMMUNITY

N



0 600 1200 FEET

MAP MADE FROM ENLARGED 1977 AERIAL PHOTO.



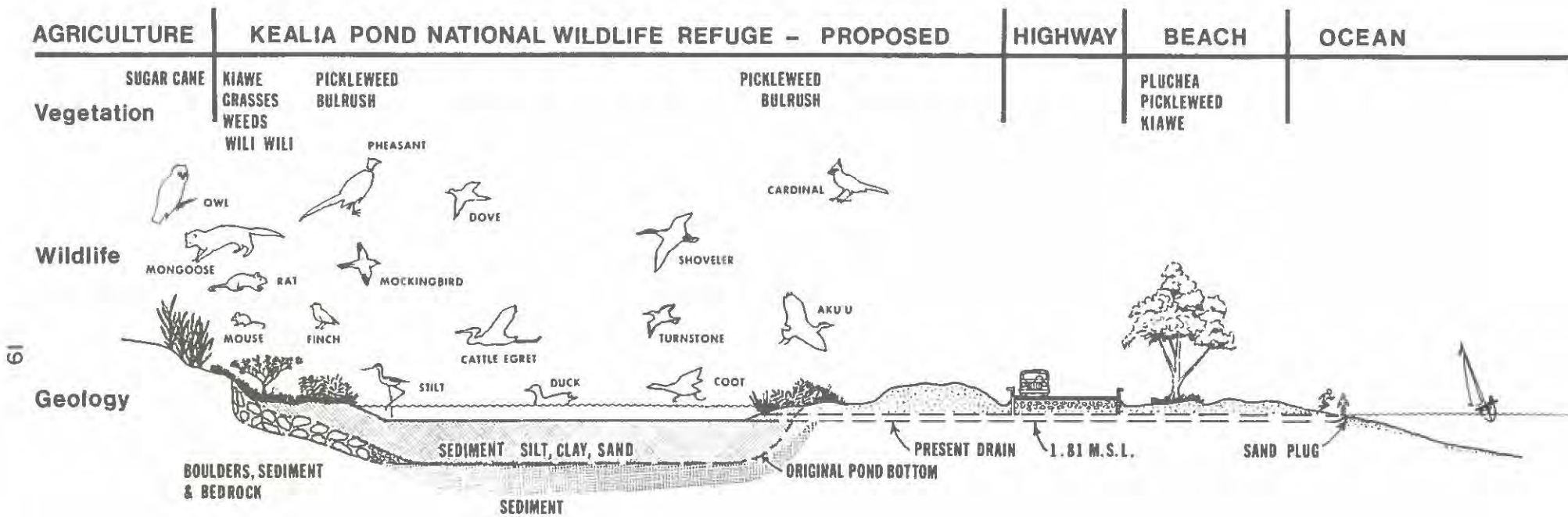
Figure 4
17

The pond supports diverse resident and migratory bird populations. It is one of the most important areas in the State for wintering migratory waterfowl--principally, the northern shoveler duck. Migratory shorebirds may also be observed in large numbers during the winter months. Most common species include the golden plover, ruddy turnstone and sanderling. The dense kiawe forest surrounding the pond also supports a diverse avifauna including such species as spotted dove and barred dove, ring-necked pheasant and gray francolin. A bird list for the pond is contained in Appendix A, and a diagrammatic composite of the pond's flora and fauna is provided in Figure 5.

D. Use by Endangered Hawaiian Waterbirds

Of primary importance for the purposes of this report is the value of the pond for endangered Hawaiian stilt and coot (Appendices G and I). The intermittent flooding and siltation have created shallow mud flat areas, pickleweed flats and expanses of open water which provide suitable resting, feeding and nesting habitat for endangered waterbirds. The values of the pond for endangered waterbirds, migratory waterfowl, shorebirds and other wildlife have long been recognized by both Federal and State wildlife management agencies. As early as 1952, the Territory of Hawaii negotiated a 15-year cooperative agreement with the landowner to set the pond aside as a wildlife sanctuary (Smith/Medeiros, 1952). The agreement was subsequently extended six years, but it was tenuous at best since either party could terminate the agreement on 30 days' notice. The State constructed some artificial nesting islets at the east end of the pond but was unable to implement a comprehensive wildlife management program due to lack of funding. The cooperative agreement expired in 1973 and has not since been renewed.

Ten-year census data recorded over the period 1967-1977 indicate that Kealia Pond supports an average population of 128 Hawaiian stilt and 36 Hawaiian coot (HWRP, 1978). Over the 1970-1980 period, statewide summer populations averaged 1,140 stilt and 1,267 coot (Appendix B). The average population figures for Kealia Pond reflect typical rainfall conditions which, prior to the operation of the fish farm, limited waterbird occupancy of the pond to the wet months of the year. During the rainless summer months when the pond was normally dry, waterbirds would migrate to Kanaha Pond or other sites which retain water on a year-round basis. With the onset of autumn rains, water levels in Kealia Pond would again rise slowly. At these times, the pond would be utilized by many stilts and coots as well as a large variety of other shorebirds. A high count of 465 stilt was recorded at the pond by Service biologists in August 1972. The period of heavy waterbird use would sometimes be prolonged, but more often would be of rather short duration since the pond filled rapidly during late fall and winter storms. When Kealia Pond was full, more waterbirds would be found at Kanaha. Waterbird use peaked again at Kealia Pond when water levels were dropping off with the approach of the dry season in summer.



19

Figure 5

FLORA AND FAUNA OF KEALIA POND

This typical use pattern with waterbirds shifting between the two ponds to take maximum advantage of favorable habitat conditions is documented by Service data which indicate that when waterbird populations peak at Kealia, populations are at a low point at Kanaha. Conversely when populations peak at Kanaha, they are at low levels at Kealia. These data suggest that the two ponds function as integral parts of a single ecological system (Appendices C and D).

The impact of fish farm water releases on waterbird movements is not fully understood at this time. The availability of this water during the normally dry summer months has had mixed effects on waterbird use at Kealia Pond. Monthly counts by Service biologists between January 1976 with the fish farm releasing excess water and April 1978 also showed an average of 161 stilt and 64 coot, a significant increase from the ten-year average of 128 stilt and 36 coot. Since mid-1978, however, abnormally heavy precipitation--combined with the discharge from the fish farm--has generally kept the pond at flood stage and greatly limited available habitat for both coot and stilt. Stilt and coot counts have declined sharply in consequence (Appendix E).

Documented evidence of waterbird nesting at Kealia Pond is sparse. There are few comparative data on either stilt or coot nesting for earlier years. Nesting surveys in 1976 by State of Hawaii wildlife biologists located nine stilt nests in the area of the original nesting islets constructed by the State. Additionally, 1976 surveys by the State showed 49 coot nests built from pickleweed and/or sedge along the pond's shoreline (DLNR, 1976). Although no nesting surveys were undertaken at the pond during 1979, several stilt broods were observed (DLNR, 1979).

E. Relationship with Kanaha Pond

As previously noted, Kanaha Pond complements Kealia Pond in supporting waterbird populations on Maui. Kanaha Pond is described in the Hawaiian Waterbirds Recovery Plan as the most productive site in the State for stilt (HWRP, 1978). State and Federal counts over the years indicate that the pond supports an average population of more than 200 stilt. The recent construction of artificial nesting islets and predator control moats by the Hawaii Division of Fish and Game (HDF&G) has had a positive impact on stilt reproductive success. During the 1979 nesting season, HDF&G biologists found 103 stilt nests with eggs. Fifty were built on artificially constructed nesting islets.

Kanaha Pond is of lesser importance to the Hawaiian coot. Recovery Plan census data indicates that the pond supports an average population of 85 coots. Shallenberger (1977) reports that observations of young birds at the pond indicate successful breeding, but notes that observed evidence of nesting is sparse. More recent census at Kanaha by Service biologists show that average populations of both stilt and coot have fluctuated (Appendices C and D), presumably in response to the changes in habitat conditions at Kealia associated with the fish-farm water releases and periodic flooding.

Environmental interests are concerned that Kanaha Pond is being threatened by encroaching development. The pond is located in Kahului, within airport controlled property and in close proximity to industrial and commercial facilities. Strong protests were raised by environmentalists to the recent construction of a sewage treatment plant which injects effluents into the substratum beneath the pond. They feared that effluents would eventually seep up through the capstone layer lining the pond bottom and contaminate the pond. Also, there are concerns that polluted runoff from adjacent industrial and upland urban development could inadvertently enter the pond causing additional contamination.

Another threat to Kanaha Pond is posed by the possible expansion of the airport. The pond is presently under the control of the State Department of Transportation (DOT). The State Department of Land and Natural Resources (DLNR) only manages the pond as a wildlife sanctuary under a cooperative agreement with DOT. Efforts by the DLNR to secure control of the pond and to insure its future as a refuge have proven unsuccessful. DOT has opposed any change in management in the belief that increased concentrations of birds so near the airport would pose a serious bird strike hazard for planes. Environmentalists fear that future economic and political pressure may be brought to bear to extend the airport runways into the pond and its adjacent wetlands. Given the degree of threat posed to Kanaha Pond, environmental interests believe it is imperative that at least the Kealia Pond portion of the two-pond system be preserved, insuring that a "safety valve" is available in the event that waterbird habitat at Kanaha Pond is seriously impaired.

F. Existing Pond Uses

The conditions which have created a haven for waterbirds and other wildlife forms have also made Kealia Pond suitable for a variety of other uses. The pond area presently supports two aquaculture operations which offer strong promise for future expansion. Additionally, the pond's protected location on the leeward side of the Island has made it an attractive site for the development of a future industrial harbor. Other uses considered for portions of the site in the past include a marina, hotel development, power plants, flood control structure and a park.

Land use controls are expected to strongly influence the ultimate uses of the pond. Conservation and open-space uses of the pond are supported by existing land use controls. Both the Army Corps of Engineers' 404 permit program, the Endangered Species Act and Executive orders concerning wetland/floodplain policies contain strong provisions for safeguarding the natural environmental values of the pond (see No Action Alternative). In addition, the State recognizes the natural values of the pond through the Hawaii Land Use Law (Chapter 205, Hawaii Revised Statutes). Under that law, all lands and waters within the State's jurisdiction are classified into four land use districts: urban, agriculture, conservation, and rural. Approximately 300 acres of Kealia Pond have been designated by the State as a Conservation District, a land use classification intended to protect and


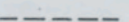





preserve "...natural and scenic resources attendant to land...so as to ensure optimum long-term benefits for the inhabitants of the State of Hawaii." (Regulation No. 4, DLNR). Within the Conservation District, the State has placed Kealia Pond in a protective "P" subzone, which restricts permissible uses to such activities as establishment and operation of sanctuaries and refuges, wilderness and scenic areas, and historic and archaeological sites. The State Land Use Law also classifies 150 acres buffering the pond as an Agricultural District. This classification would permit such uses as crop cultivation, game and fish propagation, livestock raising, open-space recreation, and small agricultural developments, such as two, five or twenty-acre farm house lots. Additionally, the western portion of the State's Conservation zone has been subzoned for "Limited" (L) uses. The objective of this subzone is to limit uses where natural conditions such as flood and tsunami flood hazards place constraints on human activities. Bounding the pond to the east is a State urban zone, which includes the resort and condominium developments that have expanded along the beach front in the Kihei vicinity. The DLNR zoning designations are shown in Figure 6.

The recently approved State Coastal Zone Management Program also contains provisions intended to protect the pond's wildlife resources. The Program contains two objectives relevant to protection and preservation of endangered waterbirds. They include the "Coastal Ecosystems" objective and the "Economic Uses" objective. The "Coastal Ecosystems" objective calls for protection of valuable coastal ecosystems through resource management efforts, preservation efforts, regulation of land and water uses, and water management efforts. The "Economic Uses" objective calls for providing public or private facilities and improvements important to the State's economy in suitable locations. One important policy for realizing the latter objective is to "...Insure that coastal dependent development such as harbors and ports...are located, designed and constructed to minimize adverse social, visual and environmental impacts in the coastal zone management area." (Hawaii CZM Program, 1978). Such provisions would, theoretically, limit uses of the pond to those compatible with its status as a valuable coastal ecosystem.

A number of local land use plans also exert some influence on the future uses of Kealia Pond. The Maui County General Plan, the Kihei Civic Development Plan, and the County Zoning Plan all classify the pond and the immediately surrounding area in an "Open Zone" status. Lands which are classified as "Open" are considered to be "largely unplanned" by the Maui County Planning Department (John Child & Co., 1978). The Director of the Maui County Planning Department stated in a January 1978 interview that the County would prefer to keep future planning options open for Kealia Pond. In particular, the County favors the expansion of aquaculture and has helped to fund the topminnow bait-fish operation at the west end of the pond. The "Open" zone in local land use plans reflects the current use of the pond as a silting basin but also is intended to create a holding zone for future planning and land use needs (Hastings, et al., 1978).

STATE LAND USE MAP

LEGEND

-  PROPOSED REFUGE BOUNDARY
-  EXISTING ACCESS ROADS
-  STATE CONSERVATION ZONE
-  STATE AGRICULTURAL ZONE
-  STATE PROTECTIVE "P" SUBZONE
-  STATE LIMITED "L" SUBZONE
-  STATE URBAN ZONE

MAP MADE FROM ENLARGED 1977 AERIAL PHOTO.

0 600 1200 FEET

N

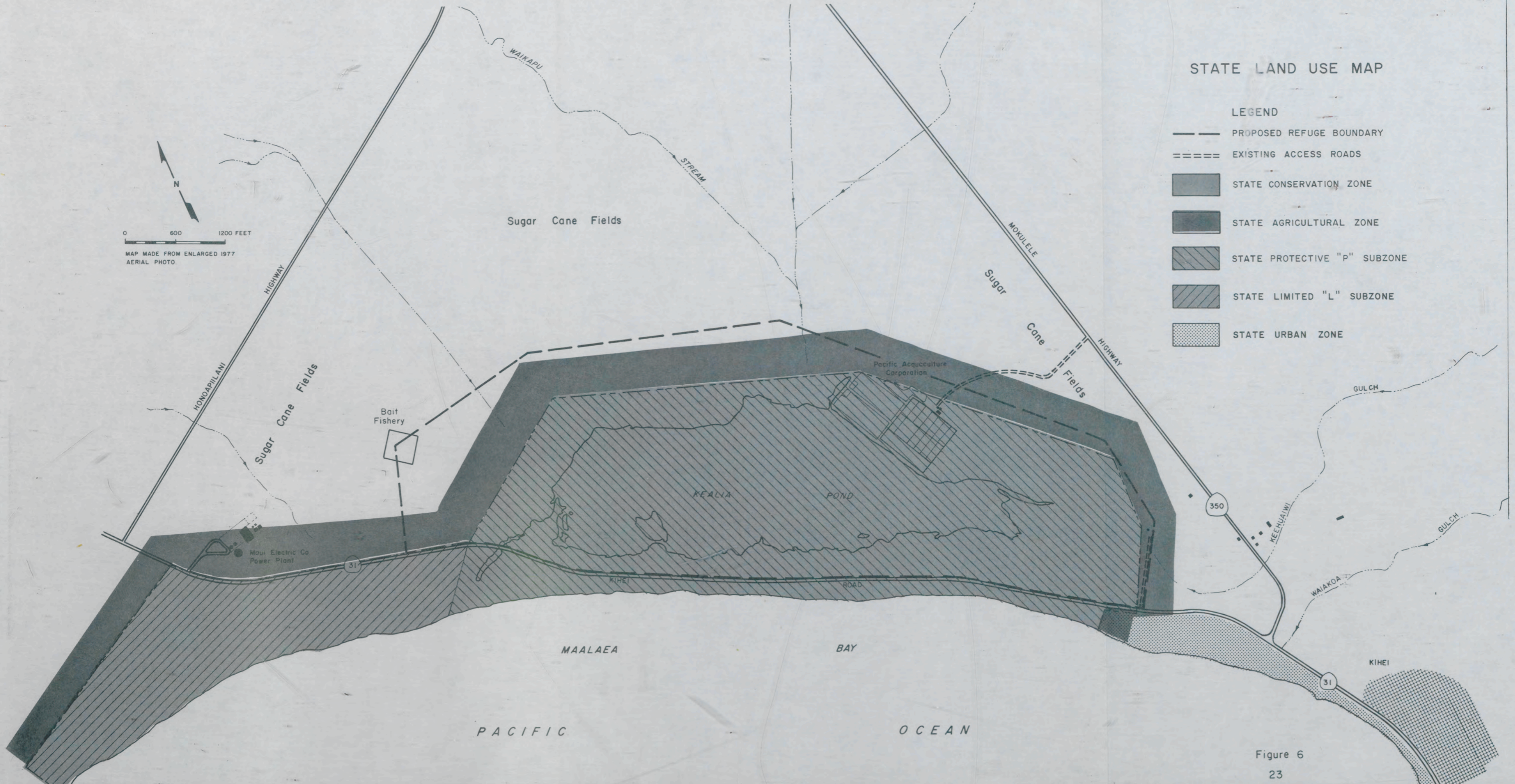


Figure 6
23

Existing land use controls do permit certain economic uses of the pond, such as aquaculture. The State of Hawaii is closely studying the economic potential of aquaculture. At the present time, aquaculture is a fledgling industry; however, the industry is considered a legislative priority and is viewed as a possible future substitute for the declining sugar and pineapple industries. The industry offers much potential for growth, both in terms of local markets and export markets. Those species identified for first priority development include brine shrimp, catfish, oysters and clams, mullet and freshwater prawn. Many of these species may be suitable for culture in the Kealia Pond area.

The pond was identified in a recent State study (DPED, 1978) as a potential site for aquaculture but was ranked in a "secondary priority" status on the basis of its soil characteristics which are not considered optimal for aquacultural development. Currently, the pond supports two aquaculture operations, a 25-acre commercial catfish farm operated by Pacific Aquaculture Corporation and a 12-acre experimental bait-fish project jointly sponsored by Maui County and the State. Pacific Aquaculture Corporation operates under a 75-acre lease option with Alexander and Baldwin, Inc. Although their catfish production has temporarily ceased, with only brood ponds being maintained, the facility has produced in the order of 100,000 pounds of catfish per year. This is far below the estimated local market demands of 600,000 pounds (Gibson, 1978), and Pacific Aquaculture Corporation intends to expand when acquisition efforts are finalized in order to better meet the demand. Tentative plans call for a 50-acre expansion of the fish farm into the adjacent kiawe thicket.

The experimental bait-fish project at the far west end of the pond, which has been in operation since September 1977, is designed to test the feasibility of raising live bait for the commercial tuna fishing industry. The bait fishery presents a promising direction for the young aquaculture industry in Hawaii. The project is intended to address one of the main obstacles facing the Hawaiian skipjack tuna (aku) fishing industry. Growth of the industry has been constrained by the unavailability of an abundant supply of low-cost live bait. It is hoped that topminnows (*Poecilia* sp.) raised under controlled conditions will survive for longer periods than wild nehu bait-fish harvested from the ocean. Hardier topminnows would allow commercial tuna fishermen to travel further out to sea to access larger schools of skipjack tuna. If the pilot project was to demonstrate the economic feasibility of culturing bait fish with superior survival characteristics, economic effects could be highly beneficial. The facility is designed to produce 15,000 pounds of topminnows to conduct sea trials under Hawaii aku fishing conditions.

Under the terms of the initial Corps of Engineers' 404 permit issued to the bait-fishery operators, the facility was to be dismantled and the area restored to its original condition when the permit expired on December 31, 1979. However, the County has obtained a three-year extension of their Corps permit. The December 31, 1982 expiration date will allow the County to conduct sea trials with their stock bait fish. Permit extension will also allow time for construction of a larger, permanent facility on Molokai, to begin in 1980, which would be stocked with fish reared at the Kealia facility (DPED, 1980).

G. Potential Pond Uses

Although existing land use regulations would tend to limit the course of present and near-term development to conservation and open-space uses, future long-term uses of the pond are much more difficult to predict. Since land use regulations tend to reflect changes in societal needs and priorities over time, present conservation-oriented regulations are not necessarily valid indicators of future land uses. The central uncertainty would appear to be what changes if any, might be made to the strong Federal environmental constraints that effectively limit the use of the pond today. If those constraints are either nullified or significantly weakened in the future, it is entirely conceivable that Kealia Pond would be subject to a much broader range of uses than presently dictated by existing environmental controls.

Surrounding land uses provide indicators of the uses to which the pond might be subjected in the absence of environmental land use constraints. To the south of the pond is the growing resort community of Kihei. Hotel and condominium developments extend northward along the beach front to within a half-mile of the pond. There is speculation that Kealia Pond could eventually be developed as a small boat harbor for residential owners in Kihei if environmental constraints permit.

Immediately north of the pond is the Maui Electric Company (MECO) power plant. Existing facilities include eleven diesel generating units with a total electrical output of approximately 75 megawatts (MW). This output amount appears adequate for the near-term future as there are no current plans for additional units for the next ten years (O'Connell 1981). However, MECO has previously reserved acreage to the east of their existing facility for future generation needs. In the event expansion is required, the Service would review any future plans to insure compatibility with refuge operations. Under MECO's existing operation the power plant has had little, if any, adverse impact on the environment of Kealia Pond.

The future possibility of an industrial harbor at Kealia Pond has received considerable attention over the years. Because of its protected location on the leeward side of the Island, its ready access to the ocean and its proximity to commercial and population centers, Kealia Pond has been viewed as a logical site for the development of a second major industrial/recreational harbor on Maui. At present, Kahului Harbor, on the north side of the Maui isthmus, serves all the shipping needs of the Island. The Maui County administration believes, however, that the County's rapidly growing economy and population will generate increased shipping needs that will eventually exceed the capacity of the harbor facilities at Kahului.

Demographic projections lend some support to the County's beliefs. The State Department of Planning and Economic Development has estimated that Maui County's resident population will top 124,000 between 1990 and 2000, an 84% increase over the current estimated 67,400 population. In the 1970 decade alone, the Maui County population has increased 47% from a population of 46,000 in 1970. The projections indicate that Maui will continue to be the fastest growing County in the State.

The economy of Maui is dominated by agriculture with sugar and pineapple as the principal crops. Since 1970, however, Maui's tourist industry has expanded at a rapid rate. The visitor industry together with the sugar and the pineapple industries employ about 87% of Maui's labor force (Child, 1978). Of these three primary industries, only the tourist industry has grown significantly in terms of employment. Growth of the visitor industry on Maui relative to the rest of the State has been rapid, as Maui continues to be first choice of visitors for a Neighbor Island destination. During 1978, visitors to the County totaled 1.4 million--an increase of 11.6 percent over 1977 (DPED, 1980). The visitor growth rate for Maui during 1980 to 1990 is projected to increase 6.0 percent (DPED, 1979). The Kihei area located just southeast of Kealia Pond is one geographical focus of the economic boom. Hotel and resort condominiums have mushroomed in this area in recent years.

Such economic and demographic characteristics have led to forecasts that Maui County and, specifically, the Kihei area will continue to show strong economic and population growth (Child, 1978). The economic forces which could ultimately generate the need for a second harbor on Maui are evident, but there is some uncertainty as to when and where a second harbor would be economically justified. The latest Statewide Transportation Study (DOT, 1977) concluded that with expansion and improvement, Kahului Harbor should be adequate to accomodate projected increases in waterborne commerce through the year 2000. However, the same study cautioned that the possibility of a second harbor at Kealia should not be foreclosed since economic development on Maui could occur at a greater rate than forecasted.

In 1971, the Army Corps of Engineers studied the feasibility of constructing a second harbor on Maui. The study was deferred because of lack of economic justification, lack of local support and strong environmental opposition. At the State's request, the study was reinitiated in 1979 although this most recent study again surfaced considerable opposition and questionable economic justification. Corps studies have now been deferred pending results of a Statewide study of commercial navigation needs by the Maritime Administration. It is clear, however, that Corps studies could be reinitiated at any time in the future. In any event, the Corps estimates a 15-20 year time frame for planning and construction of a major harbor facility (Sullivan, 1979-1980).

As indicated under the No Action discussion in Section II, development such as a harbor in the wetland or marine environment would be subject to various land/water use regulations. The placement of any dredged or fill material or construction of any structure such as docks and wharves in navigable waters will require permit review by the Corps of Engineers under the Clean Water Act of 1973 (as amended) and/or the River and Harbor Act of 1899. These Acts place strong emphasis on protection of biologically valuable wetlands and navigable waters and would require a full exploration of alternatives in the event a proposal could adversely impact the environment. In addition, Section 7 of the Endangered Species Act requires all Federal agencies, in consultation with the Service, to ensure that any actions they fund, authorize or implement do not jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adversely modify habitat determined to be critical to the survival of the species.

In summary, Kealia Pond offers a number of use opportunities ranging from natural uses to heavy industrial uses. Land use regulations, particularly those at the Federal level, presently favor conservation and open-space uses. Thus, aquaculture development and refuge development are both compatible with existing land use controls. However, Maui County's strong economic and population growth in recent years has kept alive the possibility of an industrial harbor. Present State Conservation District designation of the pond, theoretically, precludes an industrial harbor, but County designation of the pond in an "open" or "unplanned" category would appear to leave the County the future option to zone the pond for whatever use might be deemed appropriate, including a harbor. Precisely when and if an industrial harbor might be needed at Kealia continues to remain an open question. Although present land use regulations would, in all likelihood, preclude development of a Kealia Harbor, the long-term future is unpredictable, and conceivably changing societal needs and priorities could eventually result in land use regulations that would allow harbor construction.

SECTION IV: ENVIRONMENTAL CONSEQUENCES

A. No Action

The primary environmental consequence associated with taking no action would be perpetuation of those conditions which presently limit both the quality and availability of waterbird habitat at Kealia Pond. One major factor limiting the reproductive success of waterbirds is mammalian predation. There is presently no feeding or nesting area that is inaccessible to predators such as mongoose, rats, dogs, and cats. Under the no action alternative, predation would continue to be a primary resource management problem.

Another factor which has severely limited habitat availability has been the seasonal fluctuation in pond water levels. As discussed in the previous section, water levels fluctuate with seasonal precipitation. Since mid-1978, abnormally heavy rainfall combined with residual runoff from the catfish farm has inundated the mud flats that provide prime foraging areas for stilt and flooded the pickleweed flats that coot use for feeding and nesting sites. Habitat could be greatly enhanced if water levels could be artificially controlled. However, under the no action alternative, wildlife management agencies have no authority to implement a water control system in the pond. Conditions would continue to vary, subject to the vagaries of weather and the activities of the catfish farm.

A third factor, which is reducing available habitat, is pond sedimentation. As discussed in the Affected Environment Section, sediment in-fill of the pond is out of balance with sediment loss because wind deflation processes have been retarded. As a result, the pond is slowly filling with mud and silt and eventually could lose all capacity for water storage.

When habitat conditions at Kealia are unfavorable, waterbirds migrate to Kanaha. An adverse spin-off effect associated with habitat-limiting factors at Kealia is potential overcrowding of birds at Kanaha. Although the carrying capacity of breeding birds of Kanaha has been increased through the recent efforts of the Hawaii Division of Forestry and Wildlife (previously the Division of Fish and Game), it is unlikely that Kanaha would be capable of supporting all the nesting, feeding and loafing habitat needs of the total waterbird population on the island of Maui. One investigator has cautioned that overcrowding of birds at Kanaha increases the potential for an avian botulism outbreak (Shallenberger, 1977). Shallenberger points out that both Kealia and Kanaha exhibit characteristics common to other waterbird habitats that have been affected by this disease: low water levels, slight alkalinity, dense concentrations of birds, and regular movement of potentially infected birds (primarily migratory waterfowl). Inability to regulate water levels, in the absence of an effective habitat management program, aggravates this problem.

Under this alternative, the most likely near-term economic use of the pond would be expanded aquaculture development since this use is generally consistent with existing land use controls and policies. However, much remains to be learned about the effect of aquaculture on the pond ecosystem. Aquaculture may be of some benefit to waterbirds. There is evidence that escapement of juvenile catfish and topminnows contribute to the food supply of stilts. Personnel of the catfish farm and the bait fishery have observed black-crowned night herons and stilts foraging along the dikes of the fishponds. Workers at the catfish farm report that during periods when the rearing ponds are drawn down, the ponds attract heavy concentrations of herons and stilts, which feed on dead and dying fish. Finally, surveys by biologists of the Hawaii Division of Forestry and Wildlife have shown evidence of stilt nesting on the exposed mud dikes of the topminnow rearing ponds.

Aquaculture has also resulted in changes with uncertain implications for waterbirds. Surveys by Service biologists have shown significant increases in the population of black-crowned night herons, particularly in the vicinity of the catfish ponds. The herons have been observed feeding on catfish and tilapia. Prior to operation of the catfish farm, rarely more than a dozen herons were recorded on surveys at the pond. Since early 1973, however, semiannual counts by State game biologists have averaged over 60 birds with a high recorded count in 1974 of 233 birds. Since January 1976, Service biologists have recorded a monthly average of more than 100 herons. The manager of the fish farm has reported counting as many as 500 night herons feeding on stranded fish when the fishponds are evacuated (Yachida, 1978). What impact excess numbers of herons could have on endangered waterbird populations is uncertain at this time although observations of predation on stilts by herons have been observed (Coleman, 1980).

Aquacultural expansion at Kealia Pond offers promising economic potential. Commercial pond production of catfish in Hawaii was initiated at Kealia Pond in 1974. By 1977, Pacific Aquaculture Corporation had 16 acres of ponds in catfish production with yields of 7,000 pounds of catfish per acre per year (DPED, 1978). However, the production of approximately 100,000 pounds per year falls far short of the local demand for catfish which is estimated at 600,000 pounds annually (Gibson, 1978). The recent State aquaculture study projects that production of catfish will increase more than tenfold over the next 20 years and that wholesale revenues by the year 2000 could total in excess of \$1.5 million (DPED, 1978).

The topminnow bait fishery at the far west end of the pond is another potential growth industry. The State and County view the bait fishery as a possible solution for satisfying the demand for a hardy baitfish for the skipjack tuna fishing industry. If the Kealia pilot project is successful, the State projects a possible doubling in the size of the tuna fleet by 1985 and a doubling in the value of tuna fish landings from \$3 million to

\$6 million. Tuna fishing and tuna cannery employment are projected to more than double from the present 400 employees to 850 employees (DPED, 1977). State officials believe that such benefits can only be realized through an active experimentation program such as that ongoing at Kealia Pond.

The State estimates that by the year 2000, aquaculture on a statewide basis could contribute \$336 million to the State's economy. The chart below shows how this amount compares with projections made for other major sectors of the Hawaiian economy for the year 1990.

1990 Economic Projections for State of Hawaii (DPED, 1977)

<u>Economic Sector</u>	<u>Dollars Generated</u>
Visitor Industry	\$2.5 billion
Civilian (Government) Expenditures	\$1.7 billion
Military Expenditures	\$1.4 billion
Sugar Industry	\$274 million
Pineapple Industry	\$140 million

Long-term future uses of the pond are more difficult to predict. If present constraints on economic development were removed or relaxed, the pond could be subject to uses considered incompatible with its wildlife values. The reverse, of course, is also true. If environmental constraints remain unchanged or perhaps are even further tightened in the future, it is unlikely that uses incompatible with the pond's wildlife values would be permitted. The Service has no way of accurately predicting the nature of environmental constraints five, ten, or twenty years in the future--and hence, has no sure way of assessing the future degree of protection for the pond under the no-action alternative.

One of the unknowns relative to future pond protection continues to be the possibility of a deep draft harbor at the site. Given the conclusions of the Statewide Transportation Plan (DOT, 1977) and the extended time frame required for planning and construction (see Potential Pond Uses under Affected Environmental Section), it is questionable whether a harbor could materialize before the year 2000. Barring repeal or severe weakening of the Endangered Species Act, it would appear unlikely that a harbor could be permitted at Kealia Pond now or in the foreseeable future. Harbor development within the wetland area would displace habitat essential for endangered species as identified by the Hawaii Waterbird Recovery Team; however, development nearby would not necessarily be precluded as a result of waterbird concerns. In addition, harbor operation resulting in increased shipping traffic in Maalaea Bay would conflict with the activities of endangered humpback whales, which utilize the bay as a calving and nursing area. The Marine Sanctuary Office, Office of Coastal Zone Management is currently studying the possibility of marine sanctuary status for the bay. Thus, the realization of an industrial harbor, harbor support facilities and the industrial subdivision which would likely be spawned by the harbor, remains a purely speculative future possibility at this time.

The no-action alternative would leave the pond and bay vulnerable to such future developments, but because they are only speculative, the concern from a wildlife standpoint is not as urgent. The more immediate and significant concern centers on those conditions which now contribute to resource and habitat degradation. Predators, unregulated water levels and sedimentation continue to take their toll on waterbirds. Unless wildlife resource management agencies can actively manage the habitat, it is anticipated that habitat will continue to be marginal, and as a consequence the pond will be unable to achieve full potential for waterbird production. Anticipated loss or alteration of other unprotected wetlands will increase the importance of habitat at Kealia to the survival of endemic waterbird species.

B. Federal Acquisition with State Option to Purchase

The Federal acquisition with option for State purchase alternative would ensure the protection and preservation of approximately 500 acres of pond and marsh area considered vital to the survival of endangered waterbirds. Habitat enhancement measures under this alternative would be designed to remedy conditions which severely limit both habitat quality and habitat availability. Estimated increases in populations of stilt and coot that would result from these measures are given in Appendices F and G. Other avifauna which frequent the pond would also benefit. Appendix H provides a comparison of avifaunal use-days under existing conditions and under this alternative. These projections indicate a significant increase in avifaunal use of the pond resulting from an active habitat management program.

The primary adverse economic impact of this alternative is preclusion or limitation of those economic uses which would be incompatible with the wildlife values of the pond. Refuge development would, in all likelihood, preclude any possibility of developing a future industrial harbor at Kealia Pond but not necessarily nearby. However, certain wildlife compatible forms of economic use, such as limited aquaculture, would be permitted. Aquaculture would be considered a "good neighbor" with the refuge provided that any expansion of the existing catfish farm or bait-fishery does not encroach on the pond property or its adjacent wetlands. Thus, under this alternative only limited aquaculture development would be possible. However, as discussed previously, Pacific Acquaculture Corporation has planned to eventually expand their operation by 50 acres into the adjacent kiawe thicket. The higher elevations here will promote gravity flow of water within the rearing ponds thus reducing electrical pumping costs. Pacific Acquaculture has no desires or intentions at present to expand into the pond proper, and therefore the company's ultimate 75-acre operation would be considered compatible with planned refuge development, operation and management. Additionally, the extension of the Corps permit for the bait-fish farm to December 31, 1982 presents no special problems with this alternative because the facility would continue to function.

Other economic consequences of this alternative include benefits that would be received by Maui County under the terms of the Refuge Revenue Sharing Act of 1964 as amended (P.L. 88-523). The Act provides that three-fourths of one percent of the appraised market value of lands acquired be paid annually to the County. The annual amount is subject to periodic review, and adjustments are made based on changes in the assessed value of the land. Assuming the market value would be approximately \$5 million, the County would receive approximately \$37,500 in annual revenues. By comparison, current County tax revenues from the Kealia Pond property were estimated at \$500 (Hastings, et al. 1978; John Child, 1978). However, in the event the State purchases the area at a later date, the requirements of the Revenue Sharing Act would not apply, and therefore, payment to the County from Federal sources would cease.

With the State's eventual purchase there would be potentially additional funds available through the Cooperative Agreement Grant-in-Aid Program established under the Federal Aid to Wildlife Restoration Act (see State Acquisition discussion). Funding would be available on a matching basis whereby the State would be required to provide one-fourth matching funds with the Federal government providing the balance. Funds could be used for the acquisition and enhancement of wildlife habitat. Acquisition funding would also be available from Section 6 of the Endangered Species Act. However, at the present time there continues to be a question whether State matching funds would be adequate, as discussed under the State Acquisition section.

1. Environmental Consequences Associated with Refuge Development and Management (O&M).

Implementation of management plans for the refuge would undoubtedly have environmental consequences. Master planning for all NWR wetlands is currently in progress and would be expanded to incorporate Kealia if Federal acquisition occurs. As management plans for Kealia are only conceptual at this time, a detailed impact assessment is not possible. When plans are finalized, a separate environmental assessment will be prepared. In the interim period and because a number of concerns were raised regarding the operational impacts of the refuge, a conceptual treatment of those impacts is summarized below.

2. Impacts on Water Quality.

One principal concern is the possible adverse effects of refuge operations on the aquatic inshore biota of Maalaea Bay. Water levels and water coverage would be artificially manipulated to enhance waterbird habitat. It is likely that a large percentage of the 500 acres proposed for acquisition would be permanently inundated as part of the refuge water control system. As explained in the Affected Environment Section, the pond acts as a sump and siltation basin, but its holding capacity is being gradually reduced.

Operation of the pond as a wildlife refuge would further reduce the silt storage capacity since a greater surface area of the pond would be permanently inundated, eliminating the wind erosion which previously resulted in the annual "deflation" of the pond. In a 1971 study, one researcher (Maciolek 1971) expressed the fear that if Kealia Pond were converted to a permanent rather than intermittent pond, then the highly-productive and diverse aquatic ecosystem of Maalaea Bay could be directly threatened. As the pond's storage capacity is reduced, the inflowing silt load would tend to channelize directly to Maalaea Bay where heavy silt deposition could result in perpetually turbid waters and smothering of marine productive coral communities.

Tentative plans by the Service to construct diked sub-impoundments would increase the pond's silt storage capacity, but eventually, it is anticipated that sediments would require mechanical removal. This practice is not uncommon to other refuge facilities and would require periodic drainage of sub-impoundments followed by mechanical removal of sediments. As a result, periodic controlled releases of impounded waters into the bay may be necessitated. In order to meet State water quality standards for discharges, design of facilities would likely include provisions for sedimentation basins prior to discharge.

An alternative means of periodically flushing the silt accumulation would be mechanical removal of the sand plug at the pond outlet. This alternative would not be environmentally feasible since it could result in heavy siltation of coral communities. However, removal of the sand plug occurs naturally at present, and such removal will likely continue in the future despite actions by the Service to mechanically increase the pond's holding capacity. Given the proper combination of runoff and storm tide conditions, the sand plug will wash out, and some siltation of coral communities is inevitable.

3. Impacts on Adjacent Land Uses.

Alexander and Baldwin has expressed the concern that if the Service converts Kealia Pond to a National Wildlife Refuge, that action could adversely affect their use of pesticides and herbicides on their surrounding sugar cane fields. Because Kealia Pond acts as a natural drainage sump for the cane fields, there is concern that toxic residues may be accumulating in the pond which could eventually prove detrimental to the pond's wildlife resources. Although the Service has no direct control over adjacent land use practices, the Hawaii Department of Health has developed a "208 Plan" that would control, to a degree, so-called "non-point" sources of pollution including agricultural run-off

through best management practices (BPM's). Sedimentation and chemical run-off would be evaluated under the State 208 Plan. Such would be the case, however, whether or not the Service was to acquire Kealia Pond for a National Wildlife Refuge. Therefore, it is not anticipated that the acquisition proposal would have any impact on agricultural practices beyond those impacts already expected from implementation of existing State water quality programs.

4. Impacts on Wetlands/Floodplains.

Executive Orders 11988 and 11990 issued by President Jimmy Carter in May 1977 set forth requirements intended to avoid direct or indirect federal support of new construction or development in biologically productive wetlands and hazardous floodplain areas. Construction of dikes and nesting islets could result in minor wetland losses, but it is expected that the large amount of new wetland habitat that would result from full refuge development would far outweigh the losses.

Because the pond is subject to both tsunami and flood hazard, the Service does not anticipate construction of any elaborate public use facilities within the pond area. Only modest facilities oriented toward environmental education and wildlife interpretation are foreseen at the present time. If more permanent visitor or staff facilities are planned, these structures would take into consideration required flood and tsunami design elevations in compliance with the Federal Flood Insurance Program (see Affected Environment). Therefore, in the view of the Service, acquisition and planned development of Kealia Pond as a National Wildlife Refuge are in compliance with the above Executive Orders. The requirements set by the Executive Orders will be addressed in greater detail in the Master Planning Process and in future assessments of habitat development and management programs.

5. Impacts on Recreation.

The Service recognizes that a refuge would offer an excellent opportunity for transmitting to the visiting public a better understanding of, and greater appreciation for the endangered and migratory waterbird resources of the pond. The principal public use development presently foreseen is a turnout along the Kihei Road providing seven parking spaces and covering about 12,000 square feet. Because the pond presently is barely visible from the road, there is little incentive now for tourists to stop. Should the turnout and proposed observation points be added, it is estimated that up to 10,000 visits annually could result; however, as pointed out by the State of Hawaii Office of

Environmental Quality Control (see Appendix M), these visitation figures may be low since parking turnouts would also be possible on the north side of the pond following the northern edge of the kiawe thicket. Any development involving public parking will be coordinated with the State Department of Transportation.

Educational use originating from local schools is estimated at 1,000 visits per year with activities centered on wildlife observation and observation of the catfish aquaculture operation. Consistent with refuge objectives to preserve and enhance waterbird habitat, the Service would seek to provide opportunities for wildlife and ecological studies, environmental education and wildlife interpretation. Such programs would augment existing educational use.

6. Impacts on Cultural Resources.

Federal acquisition, in and of itself, will have no effect on any cultural resources which may occur within the 500 acres proposed for refuge designation. A Service archaeologist conducted a three-day reconnaissance survey of the pond in 1979. The survey indicated that it would be highly unlikely that the pond or immediately surrounding area retain any resources of historical or archaeological significance.

Nevertheless, following Service acquisition of the pond and prior to any development that would involve surface-disturbing activities, the Service would implement measures necessary to comply with the Advisory Council's regulations, "Protection of Historic and Cultural Properties" (36 CFR, PART 800). Specifically, prior to any Refuge construction activity, the construction site and area of potential environmental impact would be surveyed to determine if 1) there were any cultural properties either included in or eligible for inclusion in the National Register of Historic Places; or 2) the undertaking would affect any such property. All surveys would be conducted in close coordination with the Hawaii State Historic Preservation Office (SHPO). The Service has obtained formal clearance from the SHPO to proceed with the acquisition, provided that Advisory Council regulations will be implemented once the land is acquired and prior to any development of the pond (see Appendix K).

7. Impacts on Coastal Zone Resources.

In compliance with the Federal consistency requirements of the Coastal Zone Management Act of 1972, as amended (P.L. 92-583), the Service has submitted to the State of Hawaii a statement demonstrating that, to the maximum extent practicable, the Service acquisition proposal is

consistent with the State's approved Coastal Zone Management Program. The State Coastal Zone Management Office (CZMO) has been consulted and has offered specific guidance regarding the preparation of the consistency statement (see Appendix L). Those deficiencies indicated by CZMO in the Service's initial consistency analysis have been addressed and corrective action incorporated within the text. As plans proceed for development, operation and management of the refuge, further coordination will be initiated with the State CZM Office to insure consistency of Service actions.

C. Federal Acquisition with State Management

The environmental consequences of this alternative would be similar to the Federal acquisition with State option to purchase alternative, since State management would be subject to legally-binding guarantees intended to insure permanent protection of the pond and adequate development and management of waterbird habitat (see Alternative Section). Generally, any development action considered incompatible with wildlife resource values would not be permitted under this alternative (Appendix J). The primary objective would be enhancement of the waterbird resources and their habitat.

Compatible uses under this alternative would include environmental education, wildlife interpretation, wildlife research and limited commercial aquaculture. All activities would be evaluated in light of their consistency with refuge objectives. Future possibilities for an industrial harbor would likely be precluded as inconsistent with those objectives.

Under this alternative, the Service would be relieved of direct O&M costs. Initial acquisition and development costs would be paid by the Federal government.

Other environmental consequence associated with operation and management of the refuge would be similar to the Federal Acquisition alternative.

D. State Acquisition

At the present time, it appears unlikely that the State will be able to purchase Kealia Pond because of funding constraints. However, should funding become available in the very near future, a number of environmental impacts could be anticipated.

Under this alternative, it is presumed that the State would acquire the pond without Federal assistance and utilize it for a mix of uses including, but not necessarily limited to, a wildlife sanctuary, public recreation and aquaculture. The environmental consequences associated with such a multiple-use plan would depend upon the extent to which recreation and aquaculture could be made compatible with wildlife uses. With careful planning to minimize use conflicts, this alternative could offer protection for the wildlife resources.

The State has not formulated in sufficient detail the uses or use levels which might be allowed under this alternative. However, there are recent indicators of the State's and County's interest in expanding aquaculture developments in the pond. The State Department of Planning and Economic Development (DPED), in a recent study of the potential for aquaculture in Hawaii, identified Kealia Pond as a "secondary" site for aquaculture development (DPED, 1978). Under this alternative, it is likely that the State would be a proponent of expanded aquaculture development at Kealia Pond with waterbird use of the pond as a coexisting use. Emphasis on each use would distinguish the environmental consequences of this alternative from either of the two Federal alternatives. Under the Federal acquisition alternatives, the primary emphasis would be given to management of the pond for endangered waterbirds. However, the same would not necessarily apply under the State management alternative as indicated by the State's recent emphasis of aquaculture in the form of several legislative bills to promote aquacultural development in the State.

The long term future consequences of the State acquisition alternative are much more difficult to predict. The environmental consequences associated with potential future uses of the pond are speculative in nature since such consequences would depend, in part, on future Federal, State and local laws, policies and mandates. However, a number of present State land use regulations and past land use changes do provide some general indicators of future environmental consequences that might be associated with State acquisition of the pond.

First, existing State Conservation District zoning of the pond designates only about 350 acres of Kealia as conservation land. This constitutes only the water area of the pond. There is no allowance for a buffer zone, and consequently, there is no zoning protection for the ecological integrity of the marsh.

Second, the Conservation District zoning would presently permit "...any Government facility where the public benefit outweighs any impact on the Conservation District." (DLNR, Regulation No. 4). Thus, for example, if an industrial harbor were determined to result in public benefits that outweighed the public benefits associated with the Pond's endangered waterbird and other wildlife values, then the harbor could be considered a permitted use of the Conservation District. However, under existing Federal constraints, even if the State were to grant a "variance" for construction of a harbor, it would appear highly unlikely that a harbor would be possible.

Third, the State's conservation zoning of the pond provides no assurance of permanent protection. The history of conservation-zoned lands in Hawaii points out the rather limited protection afforded by zoning alone. Wetlands in conservation status in other parts of the State have been filled for golf courses and condominiums (Salt Lake, Oahu).

Fourth, as discussed under the Affected Environment, the Corps, with the cooperation of the State, has recently explored the possibility of developing a second harbor on Maui. The State Department of Transportation and the County have taken the position that the future option to develop a harbor at Kealia Pond should not be foreclosed. Environmental interests point out that there is a basic inconsistency between DOT's position and the State Conservation District zoning of the pond, an inconsistency which raises serious questions regarding the permanency of the Conservation designation.

The above facts point to the general conclusion that if environmental constraints, particularly those at the Federal level, were either removed or significantly weakened today, State Conservation Zoning alone could be inadequate to prevent development of the pond for economic uses. It is unlikely, however, that Federal constraints would be weakened now or in the near-term future. Therefore, State acquisition would probably imply development of those uses permissible within the existing Federal constraints, principally aquaculture at the present time. Whether the State could put significant funds into management of endangered waterbird resources appears doubtful--particularly, in light of present State funding constraints and limited expenditures being made under the Federal Pittman-Robertson Aid to Wildlife Restoration Program (see State Acquisition alternative).

The State DOT argues that State Conservation District zoning, the Corps 404 permit and the EIS process would be adequate to protect the pond against environmentally destructive developments, and that, therefore, there is no need for Federal acquisition of the pond. By retaining control over the pond, State and local governments would have the option to develop the pond for other uses if and when the opportunity presented itself. Under the Federal acquisition alternatives those options would be lost.

The environmental consequences of the State acquisition alternative are, therefore, dependent on a number of unpredictable variables that include funding constraints, the nature of future environmental constraints and land use controls, the future course of endangered waterbird populations in Hawaii, and the future needs, priorities and goals on national, regional, State and local levels of government. This alternative would not automatically ensure long-term protection for the waterbird resources but would, in fact, make that protection contingent upon presently unpredictable variables.

E. Delayed Federal Action

Delayed Federal Acquisition would undoubtedly result in additional costs to the Federal government as a result of escalating real estate value. Land values have constantly increased in Hawaii over the past ten years and are anticipated to continue in the short-term future. However, of equal, if not greater, importance is the impact of delayed acquisition on

the endangered species. Delayed acquisition would forestall development of habitat improvement measures necessary for enhancing and specifically maintaining endangered Hawaiian stilts and coots. The action would be comparable to the "no action" alternative in that the existing conditions of predation, nest destruction by unregulated water levels, etc. all contributing to the endangered status of the birds would continue. In the event these adverse conditions increased, this action could be a contributing factor to the further decline of the species. The urgent need to maintain and improve habitat and increase bird population numbers was recognized by the Hawaiian Waterbird Recovery Team. As a result, the Recovery Team recommended acquisition and development of Kealia Pond (HWRP, 1978).

In summation, the Delayed Federal Acquisition alternative is not considered desirable as a result of the uncertainty of time period for purchase and the failure of the action to confer an adequate degree of resource protection for endangered species.

F. Improvement of Kanaha Pond with Federal Funds Allocated
For Acquisition of Kealia Pond

The alternative to improve Kanaha Pond with Federal funds allocated for acquisition of Kealia Pond was recommended by Maui County (Appendix M). However, as indicated in the Alternatives section, acquisition funding for Kealia Pond can only be used for acquisition under the Land and Water Conservation Fund Act; therefore, no acquisition funds for Kealia Pond could be used for the operation and management of Kanaha Pond.

Kanaha Pond is managed by the Department of Land and Natural Resources (DLNR), Forestry and Wildlife Division, under an agreement with the Federal Aviation Administration (FAA) and State Department of Transportation (DOT) who administer the pond. The agreement is designed to manage endangered waterbirds yet control bird population numbers compatible with Kahului Airport operations and thus, control potential aircraft/bird strikes. The concern regarding increased bird numbers and potential strikes has been voiced by the FAA and DOT over the years. Therefore, any substantial improvement of habitat that would significantly increase bird population numbers would be regarded as unsafe by FAA and DOT.

The Hawaiian Waterbird Recovery Team has recommended acquisition of Kealia Pond to supplement the habitat of Kanaha Pond. The one area, Kanaha Pond, is not considered sufficient in habitat size to permit an increase in population numbers to any substantial degree. It is also not considered sufficient to afford adequate survival protection in the event of a catastrophic condition occurring at Kealia. Additional information on the relationship of the two ponds can be obtained in the discussion on Relationship to Kanaha Pond under Section III.

In summation, this alternative is considered unimplementable because of Federal funding constraints, potential hazard to aircraft operations at Kahului Airport, failure to confer an adequate degree of resource protection and inconsistency with recommendations of the Recovery Team Plan.

G. Summary of Alternatives (Matrix)

A summary of the six alternatives has been prepared in a matrix in Appendix O. The matrix evaluates the key criteria as high, medium or low for the protection, development and operation of each alternative.

LIST OF PREPARERS

Preparation of this EIS was accomplished through the combined efforts of individuals from the Pacific Area Office of the Fish and Wildlife Service in Honolulu, Hawaii and the FWS Regional Office in Portland, Oregon. Three people were directly involved in preparing the EIS text. They are:

<u>NAME</u>	<u>TITLE</u>	<u>QUALIFICATIONS</u>
Harvey Lee	Environmental Specialist	B.A. Biological Sciences; M.A., M.S. Environmental Science Education; 8 years' experience as environmental specialist with Corps of Engineers and FWS.
Maurice H. Taylor	Habitat Protection Coordinator	B.S. Fish and Wildlife Management; Habitat Biologist 10 years, Oregon; Wildlife Biologist 4 years, Guam; Fish and Wildlife Biologist 13 years, New York, Oregon and Hawaii.
John B. Vanden Akker	Wildlife Biologist	B.S. Biology; 30 years' experience with FWS, primarily in refuge management.

MAILING LIST

Copies of the final environmental impact statement were sent to all parties who commented on the draft environmental statement (see Appendix M). Those parties, plus a number of additional parties, are listed below:

<u>Federal Agencies</u>	<u>Draft</u>	<u>Final</u>
Agricultural Stabilization and Conservation Service U.S. Department of Agriculture Honolulu, HI	X	X
Department of Health, Education, and Welfare San Francisco, CA	X	X
Department of Housing and Urban Development Honolulu, HI	X	X
Environmental Protection Agency Region IX San Francisco, CA	X	X
Environmental Protection Agency Honolulu, HI	X	X
Federal Highway Administration U.S. Department of Transportation Region Nine San Francisco, CA	X	X
Fish and Wildlife Service U.S. Department of Interior National Fishery Research Center Seattle, WA		X
Geological Survey U.S. Department of the Interior Honolulu, HI	X	X
Geological Survey U.S. Department of the Interior Wailuku, HI	X	X
Heritage Conservation and Recreation Service U.S. Department of Interior San Francisco, CA	X	X

<u>Federal Agencies</u>	<u>Draft</u>	<u>Final</u>
National Oceanic and Atmospheric Administration U.S. Department of Commerce National Ocean Survey Honolulu, HI	X	X
National Park Service U.S. Department of the Interior Haleakala, HI	X	X
National Park Service U.S. Department of the Interior Honolulu, HI	X	X
National Park Service U.S. Department of Interior Washington, D.C.	X	X
Soil Conservation Service U.S. Department of Agriculture Honolulu, HI	X	X
Soil Conservation Service U.S. Department of Agriculture Wailuku, HI	X	X
U.S. Army Corps of Engineers Honolulu District Fort Shafter, HI	X	X
U.S. Attorney Office of the United States Attorney Honolulu, HI	X	X
U.S. Department of Commerce Kihei, HI	X	X

<u>State and Local Agencies</u>	<u>Draft</u>	<u>Final</u>
John Farias, Jr., Chairman State of Hawaii Department of Agriculture Honolulu, HI	X	X
State of Hawaii Department of Agriculture Wailuku, HI	X	X
State of Hawaii Director, Department of Health Honolulu, HI	X	X
Mr. Susumu Ono, Chairman State of Hawaii Department of Lands and Natural Resources Honolulu, HI	X	X
State of Hawaii Director, Division of Fish and Game Department of Land and Natural Resources Honolulu, HI	X	X
State of Hawaii Director, Division of Forestry & Wildlife Department of Land & Natural Resources Honolulu, HI		X
State of Hawaii Chief Wildlife Biologist Division of Forestry and Wildlife Honolulu, HI	X	X
State of Hawaii Division of Forestry and Wildlife Department of Land and Natural Resources Wailuku, HI	X	X
State of Hawaii Department of Land and Natural Resources Wailuku, HI	X	X
State of Hawaii State Historic Preservation Officer Department of Land & Natural Resources Honolulu, HI	X	X

<u>State and Local Agencies</u>	<u>Draft</u>	<u>Final</u>
Mr. Robert Chuck, Manager State of Hawaii Division of Water and Land Development Department of Land & Natural Resources Honolulu, HI	X	X
State of Hawaii Office of Environmental Quality Control Honolulu, HI	X	X
Mr. Hideto Kono, Director State of Hawaii Department of Planning and Economic Development Honolulu, HI	X	X
State of Hawaii Coastal Zone Management Program Department of Economic Development Honolulu, HI	X	X
Franklin Y. K. Sunn, Director State of Hawaii Department of Social Services and Housing Honolulu, HI	X	X
State of Hawaii Department of Transportation Division of Land & Water Transportation Facility Honolulu, HI	X	X
Dr. Jim Parrish Cooperative Fishery Unit University of Hawaii 2538 The Mall Honolulu, HI 96822		X
Environmental Center, Director University of Hawaii Honolulu, HI	X	X
Dr. Stephen Lau University of Hawaii Water Resources Research Center Honolulu, HI	X	X
The Honorable Daniel K. Akaka The House of Representatives Washington, D.C.	X	X

<u>State and Local Agencies</u>	<u>Draft</u>	<u>Final</u>
The Honorable Cecil Heftel The House of Representatives Washington, D.C.	X	X
The Honorable Daniel K. Inouye The United States Senate Washington, D.C.	X	X
The Honorable Spark M. Matsunaga The United States Senate Washington, D.C.	X	X
The Honorable Mark J. Andrews Representative 5th District Wailuku, HI	X	X
The Honorable Gerald K. Machida Representative 5th District Senator 2nd District Kahului, Maui, HI	X	X
The Honorable George R. Ariyoshi, Governor State of Hawaii State Capitol Honolulu, HI		X
The Honorable William W. Monahan The Honorable Richard L. Caldito Representatives 5th District Makawao, Maui, HI	X	X
The Honorable Hannibal Tavares Mayor of Maui Wailuku, HI	X	X
The Honorable Mamoru Yamasaki Senator 2nd District Kahului, HI	X	X
County Council of Maui, Chairman Wailuku, HI	X	X
County of Maui Department of Economic Development Wailuku, HI	X	X

<u>State and Local Agencies</u>	<u>Draft</u>	<u>Final</u>
County of Maui Department of Parks and Recreation Wailuku, HI	X	X
County of Maui Department of Planning Wailuku, Maui, HI	X	X
County of Maui Department of Public Works Wailuku, Maui, HI	X	X
 <u>Organizations</u>	 <u>Draft</u>	 <u>Final</u>
Alexander and Baldwin, Inc. Wailuku, HI	X	X
Mr. Bob Sasaki Alexander and Baldwin, Inc. Honolulu, HI	X	X
Mr. Dick Cox Alexander and Baldwin, Inc. Honolulu, HI	X	X
Conservation Council of Hawaii P.O. Box 2923 Honolulu, HI	X	X
Conservation Council of Hawaii Maui Chapter Haiku, HI	X	
Hawaii Audubon Society Hawaii Chapter Honolulu, HI	X	X
Hawaii Audubon Society Hawaii Island Representative Volcano, HI	X	X
Hawaiian Electric Co., Inc. Box 2750 Honolulu, HI		X

<u>Organizations</u>	<u>Draft</u>	<u>Final</u>
Dr. Kenneth N. Kato Pacific Aquaculture Corp. Kihei, HI	X	X
Maui Electric Co., Ltd. Kahului, HI		X
Mr. Colin Cameron Maui Land and Pineapple Co. Kahului, Maui, HI	X	X
Life of the Land 404 Piikoi Honolulu, HI		X
The Nature Conservancy Honolulu, HI		X
The Nature Conservancy San Francisco, CA	X	X
Hastings, Martin, Hallstrom and Chew, Ltd. Honolulu, HI	X	
Hawaiian Waterbird Recovery Team ATTN: Mr. Ronald L. Walker Division of Forestry and Wildlife Department of Lands and Natural Resources Honolulu, HI	X	X
Trust for Public Land San Francisco, CA	X	X
Mr. Robert Vernon John Child and Co. Honolulu, HI	X	X

Citizens

Robert Bruce
Maalaea, Maui, HI

Draft

Final

X

X

Hugo H and Kyung Ja Huntzinger
Maui, HI

X

X

Anne Vorderbruegge
Ketron Inc.
Arlington, VA

X

Media, Libraries and Others

Draft

Final

Hawaii State Library
Main Branch
Honolulu, HI 96813

X

X

Hawaii State Library
Wailuku Branch
Wailuku, Maui, HI 96793

X

X

Honolulu Advertiser
P.O. Box 3110
Honolulu, HI 96802

X

Honolulu Star Bulletin
605 Kapiolani Boulevard
Honolulu, HI 96813

X

Maui News
Wailuku, Maui, HI 96793

X

Maui Sun
1924 Main
Wailuku, Maui, HI 96793

X

APPENDICES

APPENDIX A

BIRD LIST

KEALIA POND, HAWAII

	Sp	Su	F	W
Great Blue Heron				X
Cattle Egret		r		r
Black-crowned Night Heron	c	c	c	c
Snow Goose				X
Mallard	r		r	r
Pintail	c		c	c
Green-winged Teal			r	r
American Wigeon				r
Northern Shoveler	c	u	a	c
Canvasback	x			x
Lesser Scaup	r			r
Osprey			x	x
Common (Japanese) Quail	r	r	r	r
Ring-necked Pheasant	r	r	r	r
Gray Francolin	u	u	u	u
Hawaiian Coot	c	c	c	c
Semipalmated Plover			r	
American Golden Plover	u	u	c	u
Greater Yellowlegs			r	
Lesser Yellowlegs		r	r	
Wandering Tattler	u	u	u	u
Ruddy Turnstone	u	u	u	u
Sharp-tailed Sandpiper			r	
Pectoral Sandpiper			u	
Least Sandpiper			x	
Dowitcher <u>sp.</u>			r	
Dunlin			r	
Western Sandpiper			x	
Willet			x	x
Sanderling	u	u	c	c
Hawaiian (Blk-necked) Stilt	c	c	c	c
California Gull				
Ring-billed Gull	r		r	r
Franklin's Gull		x		

	<u>Sp</u>	<u>Su</u>	<u>F</u>	<u>W</u>
Common Tern			x	
Barred Dove	c	c	c	c
Spotted Dove	c	c	c	c
Short-eared Owl	u	u	u	u
Mockingbird	u	u	u	u
Japanese White-eye	u	u	u	u
Common Myna	u	u	u	u
House Sparrow	u	u	u	u
Cardinal	u	u	u	u
House Finch	u	u	u	u
(44 Species)				

Sp - Spring (March - May)
 Su - Summer (June - August)
 F - Fall (Sept. - Nov.)
 W - Winter (Dec. - Feb.)

a - abundant (501 + birds observed per visit)
 c - common (26-500 per visit)
 u - uncommon (0-25 per visit)
 r - rare (0-5 per year)
 x - accidental

APPENDIX B

AVERAGE JULY/AUGUST STATEWIDE STILT COUNTS, 1970-1980 ^{1/}

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>AVERAGE</u>
OAHU	264	292	515	469	427	507	738	390	396	533	588	429
KAUAI	57	78	101	122	158	381	372	326	322	346	116	216
NIIHAU	128	42	94	*	51	37	25	31	38	14	34	49
MAUI	469	426	644	391	522	523	305	137	189	333	234	379
MOLOKAI	18	*	*	8	5	11	24	0	9	32	20	14
HAWAII	27	19	16	17	22	17	15	26	22	18	20	20
TOTALS	<u>963</u>	<u>857</u>	<u>1370</u>	<u>1007</u>	<u>1215</u>	<u>1476</u>	<u>1477</u>	<u>910</u>	<u>976</u>	<u>1276</u>	<u>1012</u>	<u>1140</u>
*Count not made												

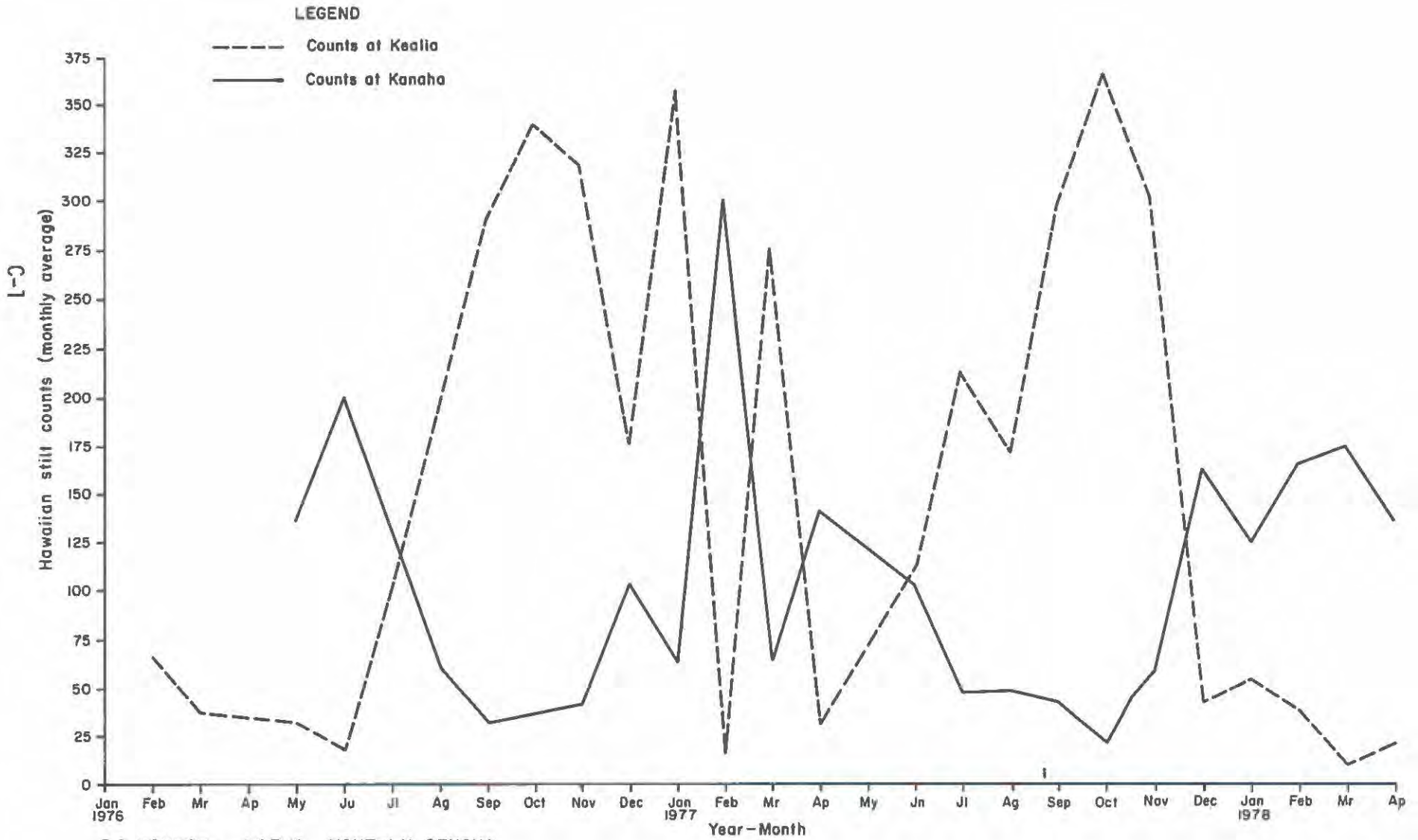
AVERAGE JULY/AUGUST STATEWIDE COOT COUNTS, 1970-1980

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>AVERAGE</u>
OAHU	491	369	81	97	56	156	143	122	77	269	296	196
KAUAI	217	114	206	158	241	1727	1510	1321	655	1429	505	735
NIIHAU	*	28	742	*	40	155	91	6	4	63	6	126
MAUI	171	176	232	137	144	160	123	111	75	77	80	135
MOLOKAI	13	*	28	31	27	32	34	48	43	18	20	29
HAWAII	39	55	52	30	84	130	75	102	62	59	93	71
TOTALS	<u>931</u>	<u>742</u>	<u>1341</u>	<u>453</u>	<u>592</u>	<u>2360</u>	<u>1976</u>	<u>1709</u>	<u>916</u>	<u>1915</u>	<u>1000</u>	<u>1267</u>
*Count not made												

^{1/} SOURCE: DLNR, Division of Forestry and Wildlife, Annual PR Reports 1970-1980

HAWAIIAN STILT COUNTS
 KEALIA AND KANAHA PONDS
 1976-1978 ^{1/}

APPENDIX C

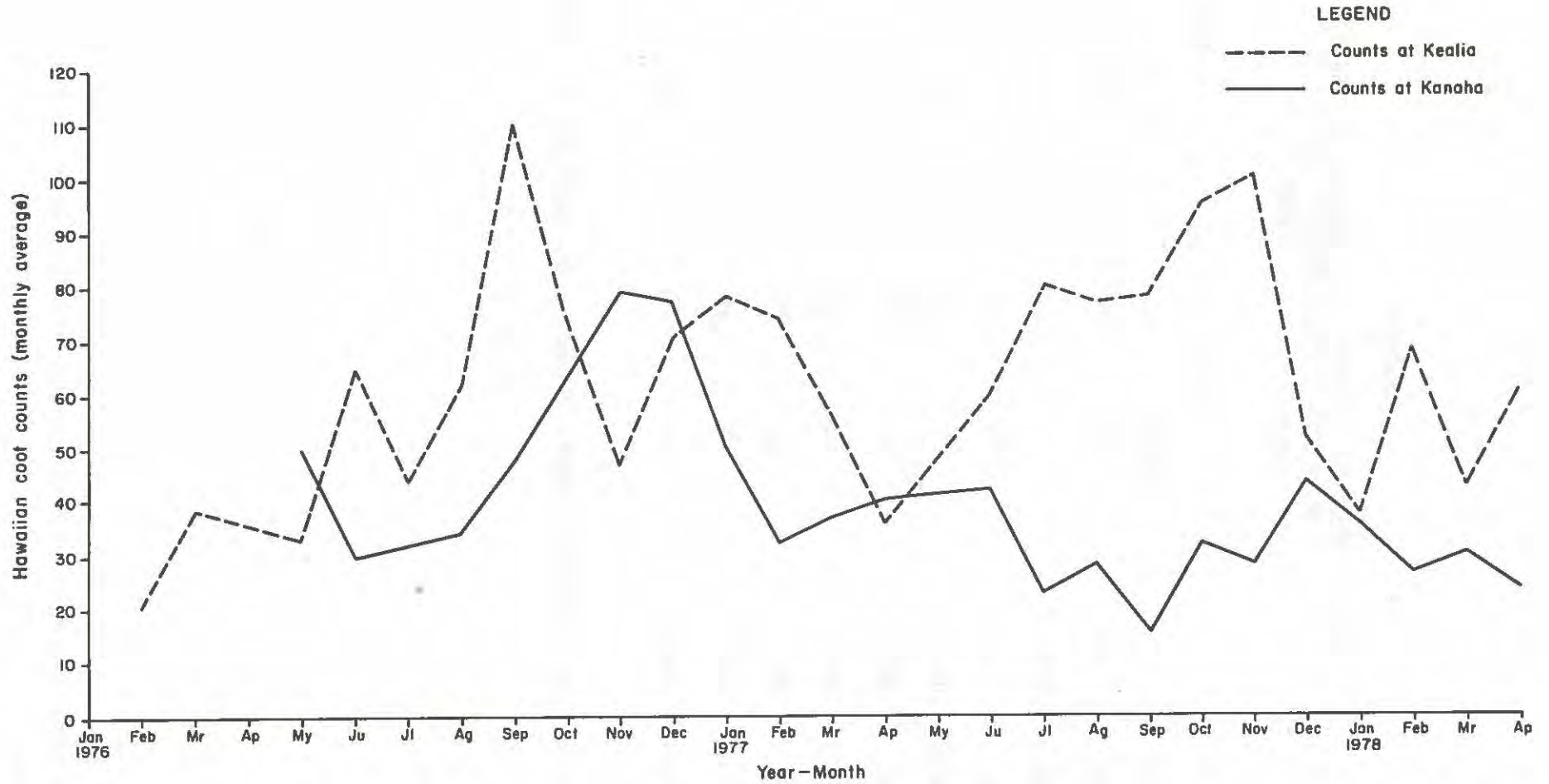


^{1/} SOURCE: USFWS, MONTHLY CENSUS
 (Discontinued in 1978)

APPENDIX D

HAWAIIAN COOT COUNTS KEALIA AND KANAHA PONDS 1976-1978 ^{1/}

D-1



^{1/} SOURCE: USFWS MONTHLY CENSUS

APPENDIX E

STILT AND COOT COUNTS FOR KEALIA & KANAHA PONDS
 FROM FALL 1978 TO SUMMER 1980
 (Source: Kepler, 1980)

Date	Kealia		Kanaha	
	Stilt	Coot	Stilt	Coot
Sept. 15, 1978	23	10	128	21
Dec. 4, 1978	41	59	152	21
Dec. 23, 1978	75	46	--	--
Jan 24, 1979	13	31	121	47
Mar. 17, 1979	40	22	140	44
Apr. 24, 1979	55	14	51	162
Oct. 30, 1979	108	39	251	36
July 31, 1980 [*]	<u>33</u>	<u>56</u>	<u>189</u>	<u>24</u>
(Average Count)	49	35	147	51

* Data from Statewide Count, Division of Forestry and Wildlife.

APPENDIX F

ESTIMATED NUMBERS OF HAWAIIAN STILTS AT KEALIA POND

	<u>Under Existing Conditions</u>	<u>Projected Under Federal Acquisition Proposal</u>	
	Dry Year* (1970)	Wet Year** (1976)	
Jan.	57	80	250
Feb.	66	66	250
Mar.	51	51	250
Apr.	40	40	250
May	31	31	250
June	57	18	250
July	147	100	250
Aug.	326	206	300
Sept.	69	291	400
Oct.	0	340	400
Nov.	0	316	400
Dec.	45	177	300

* Considered a "normal" unmanaged year.

** Due to wet weather cycle and operations of Pacific Aquaculture Corp.

APPENDIX G

ESTIMATED NUMBERS OF HAWAIIAN COOTS AT KEALIA POND

	<u>Under Existing Conditions</u>		<u>Projected Under Federal Acquisition Proposal</u>
	Dry Year* (1970)	Wet Year** (1976)	
Jan.	26	26	125
Feb.	20	20	125
Mar.	47	47	125
Apr.	37	37	125
May	33	33	125
June	91	65	125
July	37	44	125
Aug.	1	67	150
Sept.	0	110	200
Oct.	0	75	150
Nov.	10	47	125
Dec.	15	71	125

* Considered a "normal" unmanaged year.

** Due to wet weather cycle and operations of Pacific Aquaculture Corp.

APPENDIX H

AVIFAUNAL PROJECTED USE-DAYS WITH AND WITHOUT
THE FEDERAL ACQUISITION PROPOSAL

The following estimates reflect present avifaunal use and increases projected with acquisition, development and management of Kealia Pond as a National Wildlife Refuge. For statistical purposes, "use-days" are determined by multiplying the number of birds present by the number days they occur on the area. Periodic observations were the basis for estimates and projections. For comparison of use under difference conditions, 1970 was considered a normal dry year; 1976 a normal wet year, affected by natural run-off and drainage from the Pacific Aquaculture Corporation catfish farm. Projections are given full development of the refuge, including both shallow and deep pond areas, construction of nesting islets, and implementation of a predator control program.

	<u>Under Existing Conditions</u>		<u>Projected Under Federal Acquisition Proposal</u>
	Normal Year (Dry in summer)	"Wet" Year (Water throughout)	
Stilt:	27,195	52,333	108,000
Coot:	9,628	19,583	49,425
Heron:	29,640	27,510	82,000
Ducks:	26,670	101,200	150,000
Shore Birds:	10,890	14,250	21,500
Gulls:	<u>0</u>	<u>250</u>	<u>250</u>
TOTAL			
Use-Days:	104,023	215,126	411,175 (Projected)

APPENDIX I
NATURAL HISTORY OF HAWAIIAN STILT
AND HAWAIIAN COOT

NATURAL HISTORY OF HAWAIIAN STILT⁽¹⁾

NAMES: Hawaiian Stilt (Black-necked Stilt, Hawaiian Black-necked Stilt)
ae'o kukuluae'o ("one standing high")
Himantopus mexicanus knudseni
(formerly Himantopus himantopus knudseni)

DESCRIPTION: Derived from the Black-necked Stilt of North America, although distinct. 16 inches; sexes similar; black above and white below, with white forehead. Straight bill is black and legs are pink. Downy chicks are tan, blotched with black and later turning gray. Older juveniles resemble parents, although back feathers are browner and legs are paler in color. Eggs are olive-brown with dark brown or black speckling and blotching over the entire surface.

BREEDING BIOLOGY: Stilts nest in or close to fresh or brackish water ponds, mudflats and marshlands. The nesting season extends from late March-July, yet most breeding activity is concentrated in May-June. The nest is usually a scrape in the ground, but may be a shallow bowl of vegetation and other debris. It is lined with pebbles, twigs, mollusc shells and debris. Breeding success is greatest where nests are built on islets surrounded by water, protected from predation. Nests are typically 75-100' apart in nesting colonies. "False" nests or "symbolic" nests may be built close to the actual nest. Typical clutch has four eggs, incubated approximately 24 days. Both parents share in the incubation duties. Nests are vigorously defended by parents and they may engage in a "distraction display" when approached by possible predators. Chicks leave the nest within 24 hours, yet are brooded by parents for several days. Young are capable of limited flight in approximately 30 days.

FEEDING ECOLOGY: Stilts seek food in a wide variety of natural and man-altered lowland habitats. These include mudflats, settling basins, marshes, reservoirs, taro fields, fish ponds, drainage ditches and flooded pastures. Stilts will flock, often with other shorebird species, when food is localized and temporarily abundant. They are known to take polychaete worms, crabs, aquatic insects and various small fishes, and probably consume a wide variety of other aquatic organisms opportunistically.

MORTALITY: Eggs and young, and possible adult stilts, are subject to predation by mongooses, dogs, cats, and rats. Predation may be severe where nesting sites are not isolated by water. Nests are also destroyed by changing water levels, either through flooding or by resulting increased predator access. Human disturbance causes birds to leave nests, exposing eggs and young to high temperatures and predation. Feeding birds appear more tolerant of nearby human activity than are nesting birds. Stilts may also be susceptible to changes in water quality, disease and parasites.

STATUS AND DISTRIBUTION: Stilts are still present on all islands for which there are historical records (Niihau, Kauai, Oahu, Molokai, Maui, and Hawaii). Regular movement between Kauai and Niihau, and less often between other islands, has been recorded but the extent of this movement is unknown. The species was hunted legally until 1939. Population counts over the last 20 years show unexplained fluctuations, sometimes exceeding 200%. Maui and Oahu usually account for approximately 80% of the Statewide population. The total population in the Islands was estimated at 1,185 birds in January 1981.

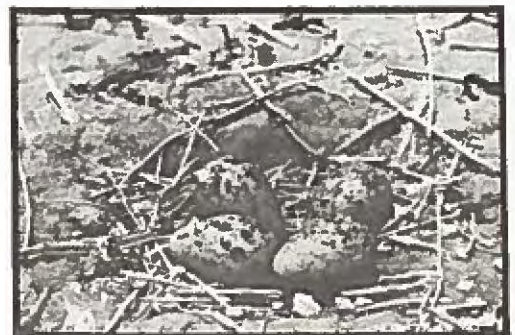
(1) Adapted from: SHALLENBERGER, R.J. (1977).



Hawaiian Stilt

ae'o

Himantopus mexicanus knudseni



NATURAL HISTORY OF HAWAIIAN COOT⁽¹⁾

NAMES: Hawaiian Coot (American Coot, mudhen)
'alae ke'o ke'o, 'alae-kea, 'alae-awi (red-shielded variety)
Fulica americana alai

DESCRIPTION: Derived from the American Coot. The Hawaiian race is smaller in size but has a larger frontal shield and slight differences in plumage. 14 inches; sexes similar; solid grayish-black except for white patches under tail; white bill and frontal shield. In a small percentage of the population, the bulbous lobe at the top of the frontal shield is red and black markings are visible at the tip of the bill, somewhat similar to the mainland race. The feet are lobed. Downy young are black with red on the head, bill and frontal shield. Juvenile birds are brownish gray; frontal shield is yellow-brown, turning to white. Eggs are light tan or cream, heavily spotted brown or black.

BREEDING BIOLOGY: Coots prefer open fresh and brackish water ponds, nesting along fringes or in small open areas in marsh vegetation. The nesting season is concentrated from March-September, although active nests and young chicks are observed in all months of the year. Coots build large floating nests of aquatic vegetation (e.g. cattails, bulrush, grasses, pickleweed). Nests may have a well-defined walkway onto the rim. New nest material is added during incubation. The clutch size varies from 3-10 eggs, averaging 4-6. Additional "false" nests, often used as resting platforms, may be constructed close by the actual nest. The incubation period is poorly known, but limited data indicates 23-27 days. Both parents share in incubation and territorial defense. Chicks may swim from the nest soon after hatching, yet remain close to parents through exchange of calls, often for several weeks.

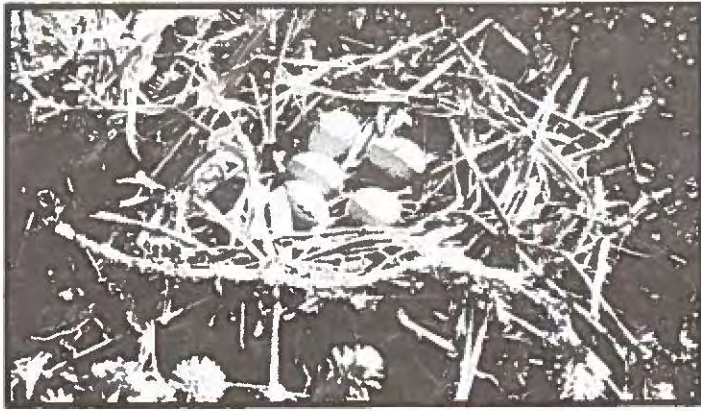
FEEDING ECOLOGY: Coots typically feed close to nesting sites, but may gather in large concentrations (1,00 or more) where food is available, and often long distances from nesting habitat. They prefer fresh or brackish water sites, surrounded by dense vegetation. Data on food taken by the Hawaiian race are limited, but food probably includes seeds and green parts of aquatic plants, many invertebrates, tadpoles and small fish. Coots typically feed at the surface, but will dive regularly if there is suitable food below the surface.

MORTALITY: Fluctuations in water levels can cause nest destruction and egg loss. Predators include mongooses, cats, dogs and possibly rats, largemouth bass and herons. Illegal killing occurs, particularly

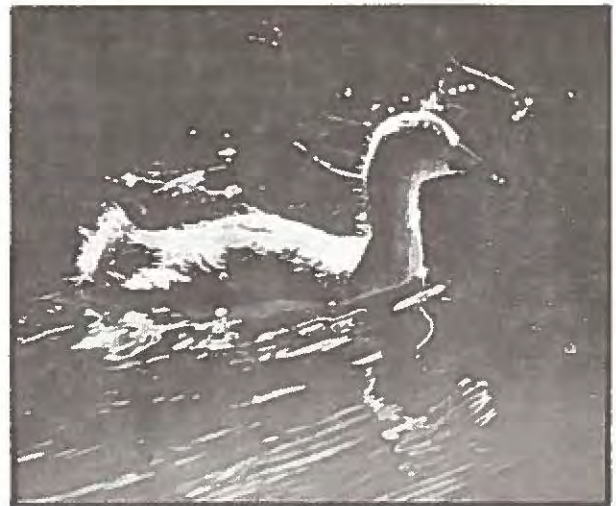
in taro fields where many farmers consider these birds a nuisance. Poisoning of algae in irrigation ditches destroys a potential food source. Coot losses have been documented in botulism outbreaks. Coots are easily disturbed from their nests or from feeding areas by humans, yet will adapt somewhat to regular, non-threatening presence of humans.

STATUS AND DISTRIBUTION: Coots are found on all the larger inhabited islands except Lanai. The species was hunted as a game bird until 1939. Estimated population is 1,243 birds, based on January, 1981 statewide count. Abnormally large concentrations have been recorded and probably result from interisland movement. Largest numbers of coots have always been found on Oahu, Maui and Kauai. Coots that winter on Kauai are believed to breed in large numbers on Niihau. Drought conditions in Niihau may cause coots to remain on Kauai throughout the summer months, but nesting on Kauai is rarely recorded.

(1) Adapted from: SHALLENBERGER, R.J. (1977).



Hawaiian Coot
'alae ke'o ke'o
Fulica americana alai



APPENDIX J

COOPERATIVE WILDLIFE HABITAT PROTECTION AGREEMENT

Kealia Pond, Maui

This Agreement made this 5th day of September, 1980, by and between the U.S. DEPARTMENT OF THE INTERIOR through the Fish and Wildlife Service, hereinafter called the "Service" and the STATE OF HAWAII, by its Board of Land and Natural Resources, hereinafter the "Board",

WITNESSETH:

(Whereas) WHEREAS, the Service has been authorized under provisions of the Endangered Species Act of 1973 (87 Stat. 884) to preserve and protect endangered species and their habitat and, where necessary to affect said protection, to acquire said habitat; and

(Whereas) WHEREAS, the (State is authorized and willing to protect the endangered species resource of Hawaii) Board may acquire interests in lands to carry out programs for endangered species and their habitats pursuant to Chapter 195-D, Hawaii Revised Statutes; and

(Whereas) WHEREAS the Service has identified Kealia Pond on the Island of Maui as an essential habitat for the preservation of endangered Hawaiian waterbirds as recommended by the Hawaiian Waterbird Recovery Plan approved by the Director of the Service on June 19, 1980; and

(Whereas) WHEREAS, it is the policy of the Service to encourage cooperative acquisition efforts with States and other governmental units whenever feasible; and

(Whereas) WHEREAS, the (State) Board has expressed its willingness to acquire, develop, manage, and protect Kealia Pond on Maui but cannot because of current funding constraints; and

(Whereas) WHEREAS, te Service has identified fee acquisition, for inclusion in the National Wildlife Refuge System, as the preferred alternative for preservation of Kealia Pond;

NOW THEREFORE, it is mutually agreed that:

1. The Service will attempt to acquire all private interests within the proposed boundaries of the Kealia Project as delineated on the attached map designated Exhibit "A". It is understood that it may be necessary for the Service to file a complaint in condemnation to clear certain defects in the title to said lands.
2. When any or all of the private ownerships have been acquired by the Service within said project boundary, the Service-owned lands will be available for purchase by the (State) Board in their entirety at any time during the period of this Agreement in accordance with adequate management authority (Section 6(b) Endangered Species Act of 1973, 16 U.S.C. 1531-1543: 87 STAT. 884, as amended.)
3. The Service and the (State) Board are committed to develop and manage the area in accordance with a comprehensive plan developed cooperatively based on the following criteria:
 - a. (provide) (p) Permanent protection of this valuable waterbird habitat will be provided.
 - b. (develop) (t) The habitat will be developed to correct fluctuating and debilitating water levels, siltation and mammalian predation; development needs include dikes and water levels, access routes, nesting islands, anti-predator moats, diversions to bypass excess water, and some means (for) of removing silt and controlling siltation.
 - c. (operate and maintain) (t) The area will be operated and maintained to insure optimum productivity and protection of the waterbirds and their supporting habitat; (envisioned is) to be included will be vegetation management, water level control, production and population surveys, research, and physical facility maintenance.
 - d. (control) (p) Populations/individual mammalian predators (mongoose, rats, dogs and cats) which can severely limit the reproductive success of the waterbirds will be controlled.

- e. (provide for) (1) Low level compatible uses (by others, e.g.,) including scientific research, birdwatching, environmental education, and wildlife interpretation will be allowed.
 - f. (restrict) (n) Non-compatible uses; i.e., those detrimental to the primary purpose of the refuge will not be allowed.
4. Any purchase by the (State) Board of National Wildlife Refuge System lands within said boundary will be subject to provisions of the National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. 668dd(a) (2), (a) (3), which requires approval of Congress and reimbursement of the Service's purchase price or current fair market value whichever is greater.
 5. The (State) Board will participate in Service acquisition of Kealia Pond by supporting and where possible, expediting various required State (and County) permits.
 6. At such time following any sales of said lands to the (State) Board, if the use of the same does not support the purpose for which they were acquired title to said lands shall revert to the Service with reimbursement of the Board's purchase price or current fair market value whichever is greater.
 7. The terms and conditions herein shall be in effect for a period of ten years from the date of this Agreement. This Agreement can be extended an additional 10 years based on mutual agreement in writing between the two parties.
 8. Both parties to this Agreement acknowledge that the terms and conditions set forth herein are subject to the availability of appropriated and released funds.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written above.

Attachment

U. S. DEPARTMENT OF THE INTERIOR

By its *Lyman B. Greenwalt*
Director U. S. Fish and Wildlife Service

STATE OF HAWAII

By *Susumu Ono*
Chairman and Member
Board of Land and Natural Resources

And by *Paul Hays*
Member
Board of Land and Natural Resources

APPROVED:

George R. Rye
Governor, State of Hawaii
Date: 7-16-80

APPROVED AS TO FORM:

Don L. Hanaike
Deputy Attorney General
Date: July 9, 1980

UNITED STATES DEPARTMENT OF INTERIOR
FISH AND WILDLIFE SERVICE
KEALIA POND NATIONAL WILDLIFE REFUGE
ALEXANDER & BALDWIN, INC. TRACTS
(10, 11)
500 000 ACRES, TOTAL
ISLAND AND COUNTY OF MAUI, HAWAII

LUKE MERIDIAN
0 500 1000 1500 Feet

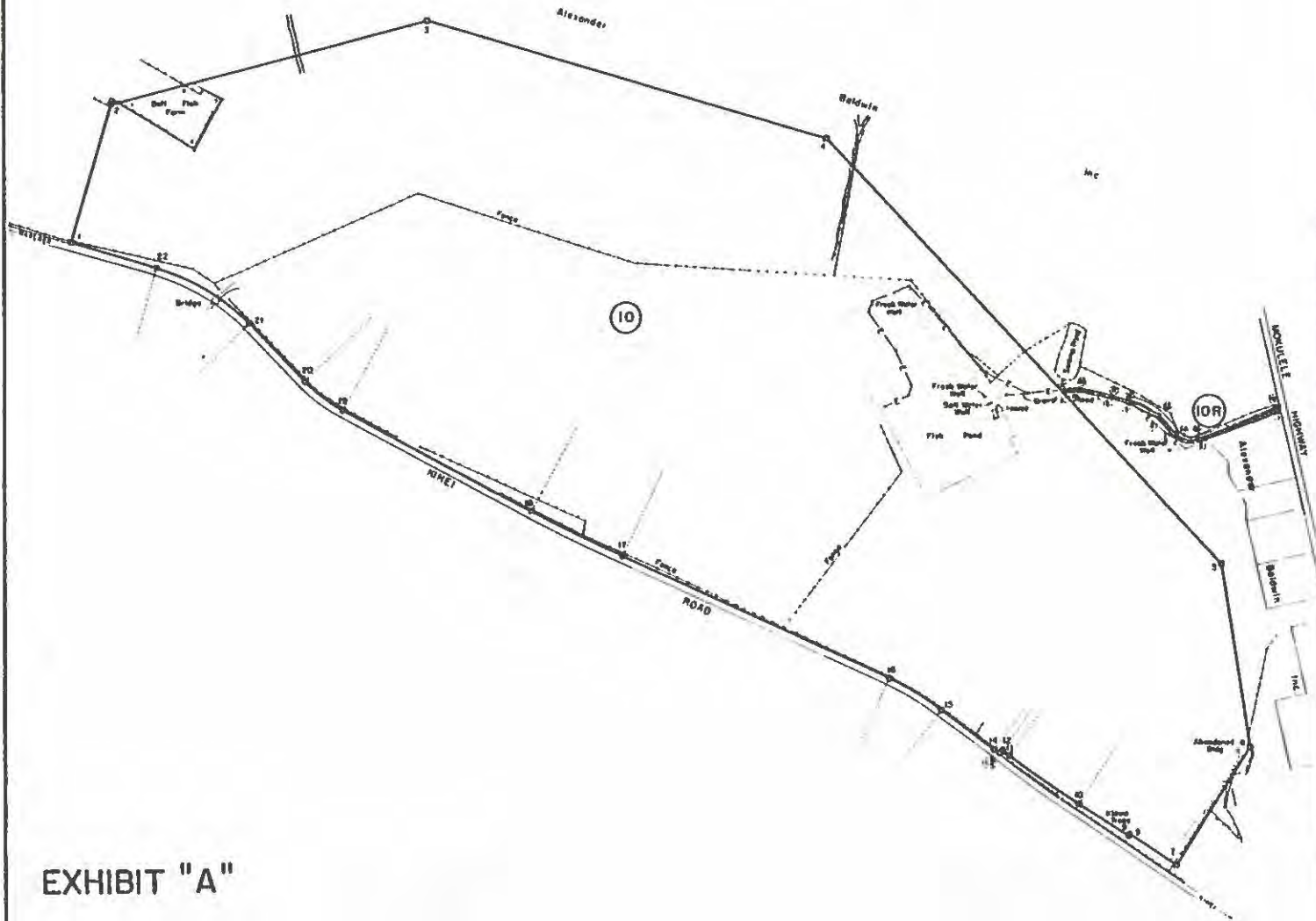
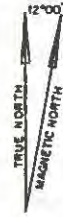


EXHIBIT "A"

J-5

APPENDIX K

CULTURAL RESOURCES CLEARANCE FROM
STATE HISTORIC PRESERVATION OFFICER



GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

DIVISIONS:
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

May 28, 1980

Mr. Larry DeBates
Assistant Regional Director
Refuges and Wildlife Resources
U.S. Fish and Wildlife Service
500 N.E. Multnomah Street
Portland, OR 97232

Dear Mr. DeBates:

Subject: Kealia Pond (Maui) Acquisition by
U.S. Fish and Wildlife Service

In response to a telephone request from your office to clarify portions of our letter of March 9, 1979, pertaining to the Kealia Pond Draft E.I.S., the following information and amended recommendations are submitted for your review and consideration.

1. E.O. 11593, Section 2(a), requiring Federal agencies to locate and nominate significant historic sites on lands under their control would not seem to be applicable until the Kealia Pond property is acquired by the U.S. Fish and Wildlife Service.
2. Under 36 CFR Part 63, procedures are established for making eligibility determinations. Section 1 clearly states: "Federal agencies request determinations of eligibility in considering properties . . . on lands to be affected by proposed actions." This is a reasonable requirement. Suppose Congress appropriated funds to acquire a pond for purposes of wildlife conservation only to discover after acquisition that the cultural resources in the pond's area precluded its development and use in the intended manner.
3. The draft E.I.S. proposes ground disturbing activities including habitat manipulation, public use, parking lot construction, fencing, excavation of shallow ponds, island construction, signing, building renovations, and construction of a storage building. Clearly, it proposes much more than mere purchase of land.

4. Our concern for the preservation of Hawaiian fishponds (including Kealia which is a former, active fishpond) derives from their importance as a part of our Hawaiian heritage. They are unique to Hawaii, occurring nowhere else in Polynesia. They are a symbol of the wealth and power of the Hawaiian ali'i (ruling chiefs) who built the ponds and controlled their use.

We encourage their restoration and rehabilitation, whenever possible. Hawaiian ponds have a kind of scenic heritage value in that they are more representative of the traditional Hawaiian landscape than condominiums, hotels, and high-rises. They have an educational potential in that they are good places to learn about and study Hawaiian water resources. Thus, it would seem that the proposal to acquire Kealia Pond for preservation as a wildlife refuge contributes to our historic preservation goals here in Hawaii.

5. Previous research has shown Hawaiian ponds to have minimal research potential, however, Hawaiian ponds at Kualoa Beach Park are associated with sub-surface archaeological deposits that include rarely found perishable materials such as wooden tapa (bark cloth) beaters. Such deposits could exist at Kealia Pond, and proposed ground-disturbing activities should not proceed until an inventory of the pond's cultural resources has been made, including sub-surface testing.
6. If and when the lands of Kealia Pond are acquired by U.S. Fish and Wildlife Service, the procedures for the protection of historic and cultural properties established in 36 CFR 800 need to be included as an integral part of the land management plan.

All properties appearing to meet the criteria for nomination to the National Register that may be affected by the policies, plans, programs, or other undertakings of the U.S. Fish and Wildlife Service at Kealia Pond need to be identified in accordance with the Advisory Council's procedures.

Plans and programs that contribute to the preservation of cultural resources need to be implemented.

Funding should be provided concurrently with other funds to mitigate potential adverse impacts to cultural resources.

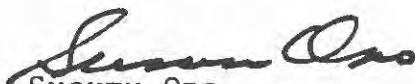
Procedures should be provided for discovery situations (when artifacts and deposits are encountered during development) to comply with the Archaeological and Historic Preservation Act and the Advisory Council's regulations.

Mr. Larry DeBates
Page 3
May 28, 1980

7. Section 106 of the National Historic Preservation Act clearly states: "The head of any Federal agency having . . . jurisdiction over a proposed Federal . . . undertaking shall prior to the approval of the expenditure of any Federal funds on the undertaking . . . take into account the effect of the undertaking on any . . . site . . . that is . . . eligible for inclusion in the National Register." In our opinion, Section 106 applies to the acquisition of known historic properties such as Kealia Pond. Our office is not opposed to the acquisition of Kealia Pond by the Fish and Wildlife Service, nor its proposed development as a wildlife refuge as described in the draft E.I.S., but we recommend that Federal regulations pertaining to the preservation and protection of cultural resources be adhered to in the future.

It is our understanding, based on our phone conversation, that your current plans call for the acquisition of the pond property only, and that the regulations of the Advisory Council on Historic Preservation for the "Protection of Historic and Cultural Properties" will be implemented once the land is acquired and prior to any development of the pond. With this understanding, we concur with your proposal for the acquisition of Kealia Pond and its development as a wildlife refuge.

Sincerely yours,



Susumu Ono
State Historic Preservation
Officer

Response to Department of Lands and Natural Resources, State Historic
Preservation Officer, Hawaii

Prior to any development within the pond area, the Service would implement measures necessary to comply with the regulation of the Advisory Council on Historic Preservation. All surveys would be conducted in close coordination with the Hawaii State Historic Preservation Office (see Environmental Consequences, Part 6).

APPENDIX L

FEDERAL COASTAL ZONE MANAGEMENT
CONSISTENCY DETERMINATION



United States Department of the Interior

FISH AND WILDLIFE SERVICE

LLOYD 500 BUILDING, SUITE 1692
500 N.E. MULTNOMAH STREET
PORTLAND, OREGON 97232

January 8, 1979

In Reply Refer To ARW-PRO

Mr. Richard G. Poirier
Program Manager
Hawaii Coastal Zone Management Office
Department of Planning and Economic Development
Honolulu, Hawaii

Dear Mr. Poirier:

As you may be aware, the U.S. Fish and Wildlife Service is proposing to acquire fee simple title to Kealia Pond, a 500-acre pond and marsh area located on the Island of Maui, Hawaii. The purpose of the action is to preserve, protect, and enhance habitat for two endangered Hawaiian water birds--the Hawaiian stilt and Hawaiian coot. Kealia Pond would become a unit of the National Wildlife Refuge System.

In compliance with the Federal consistency requirements of the Coastal Zone Management Act of 1972, the Service has evaluated the proposal against the State of Hawaii's recently approved coastal zone management program. The results of that evaluation are attached for your review.

The proposal has been thoroughly coordinated through a draft Environmental Impact Statement released in March, 1978. Comments received on the draft have been extremely helpful in identifying issues of concern. Those issues have received in-depth analysis in the Service's final EIS, which will soon be released. The conclusion reached, however, is identical to that of the draft--fee acquisition of Kealia Pond represents the most feasible alternative for insuring the long-term security of the pond for endangered water birds.

Based on our evaluation of the Kealia proposal with the objectives and policies of the State management program, it is our conclusion that the proposal is consistent--to the maximum extent practicable--with the program. We, therefore, request a certification of consistency from your office. As we are under tight time constraints, your expeditious processing of this request would be greatly appreciated. If additional information is required in support of our consistency determination, please contact Mr. Harvey Lee of my staff at (503) 231-6171, or FTS 429-6171.

Sincerely yours,

William H. Meyer
Acting William H. Meyer
Regional Director

Attachment

DEMONSTRATION OF CONSISTENCY
BETWEEN FWS KEALIA POND PROPOSAL AND
HAWAII CZM PROGRAM

The Fish and Wildlife Service (FWS) proposes to acquire fee simple title to Kealia Pond on the Island of Maui, Hawaii, as a National Wildlife Refuge for endangered Hawaiian water birds. In compliance with the Federal consistency requirements of the Coastal Zone Management Act of 1972, the Service has evaluated the proposal against the objectives and applicable policies of the State of Hawaii Coastal Zone Management (CZM) Program. The results of that evaluation, as presented below, indicate that the proposal is consistent--to the maximum extent practicable--with Hawaii's approved CZM program.

Hawaii CZM Objectives, Policies and FWS Consistency

1. **Recreational Resources:** Provide coastal recreational opportunities accessible to the public by a) protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas; b) providing and managing adequate public access consistent with conservation of natural resources, to and along shorelines with recreational value; c) encouraging expanded public recreational use of ... Federally owned or controlled shoreline lands and waters having recreational value; d) developing new shoreline recreational opportunities...

FWS Consistency: As part of the plan to develop a National Wildlife Refuge at Kealia Pond, the Service would construct public use facilities intended to provide wildlife-oriented observation and study opportunities. A visitor contact point with refuge leaflets, a viewing platform, a boardwalk and a paved pull-out for parking are currently under consideration. A conceptual scheme for the visitor turnout and parking platform is shown on the attached figure.

The principal public use development would be the turnout along the Kihei Road, including six parking spaces covering about 10,000 square feet. Since the pond presently is barely visible from the road, there is little incentive now for tourists to stop. Should the proposed turnout and observation points be added, it is estimated up to 10,000 visits annually could result. As pointed out by the State of Hawaii Office of Environmental Quality, these visitation figures may be low, since parking turnouts would also be possible on the north side of the pond, following planned construction of the Piilani Highway.

The pond presently receives minimal use from tourists because of the poor visibility from Kihei Road. Educational use originating from local schools is estimated at 1,000 visits per year with activities centered on wildlife observation and observation of the catfish aquaculture operation on the north side of the pond. Consistent with fundamental refuge objectives to preserve and enhance water bird habitat,

the Service would seek to provide opportunities for wildlife and ecological studies, environmental education and wildlife interpretation. Such programs would augment existing educational use and are expected to result in an estimated 50 percent increase over present use levels.

The Service proposal would protect a unique coastal resource while, at the same time, provide the public an educational opportunity to observe endangered water birds in their natural habitat. Public access would be provided to an area which offers significant environmental education and wildlife interpretation potential. The Service recognizes, however, that public access requires careful planning in order to insure that the biological integrity of the pond is preserved. Thus, access would be encouraged, but only to the extent compatible with the well-being of the endangered wildlife resources which the Service is trying to preserve.

2. **Historic Resources:** Protect, preserve and, where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

FWS Consistency: The Service has coordinated the Kealia Pond proposal with the State Historic Preservation Office (SHPO). Based on studies performed by the National Park Service, the SHPO has concluded that Kealia Pond was not a fishpond used by ancient Hawaiians. The pond, therefore, has not been identified as a site likely to be eligible for nomination to the National Register of Historic Places. References supporting the SHPO's conclusion include:

- (1) Apple and Kikuchi, "Ancient Hawaiian Shore Zone Fishponds, An Evaluation of Survivors for Historic Preservation", July, 1975.
- (2) Kikuchi, "The Hawaiian Aquacultural System", Ph.D. dissertation, University of Arizona, 1973.

The Service, therefore, does not anticipate that the Kealia proposal would conflict with the CZM historic resources objective, or any of the stated CZM policies to insure achievement of that objective.

3. **Scenic and Open Space Resources:** Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

The Service proposal would be fully consistent with this objective, since implementation would result in the protection and preservation of approximately 500 acres of pond and marsh area for use by endangered Hawaiian waterbirds and related wildlife resources. The area would be improved to enhance its capabilities for supporting endangered water birds. Wells, low-level dikes and tide gates may be required to allow for artificial manipulation of water levels. Also, as noted above, the pond would be improved by the addition of public use facilities intended to encourage low-density wildlife-oriented observation and educational activities.

These man-made features would optimize both wildlife and human uses of Kealia Pond. It is anticipated, however, that the basic open-space, natural character of the pond would be retained and that the man-made features would represent only minimal intrusions on the natural environment. The low-key development plan is consistent with the objectives of the Service to preserve the habitat in essentially its natural state. Minimal development will also insure compliance with the CZM policy that new developments be compatible with their visual environment and minimize alteration of natural landforms.

4. Coastal Ecosystems: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

FWS Consistency: The Service proposal is entirely consistent with the coastal ecosystems objective and the action-forcing policy of that objective to preserve valuable coastal ecosystems of significant biological or economic importance.

The Service has identified Kealia Pond as primary habitat essential to the survival of the endangered Hawaiian stilt and Hawaiian coot. Acquisition of the pond and development as a National Wildlife Refuge would effectively preclude future disruption and adverse impacts arising from potential economic development of the pond.

At the present time, the Corps of Engineers, at the request of the State Department of Transportation (DOT), is restudying the feasibility of constructing a second major commercial harbor on Maui. Based on the results of earlier feasibility and economic studies performed by the Corps and DOT, it is likely that Kealia Pond will be one of the primary sites considered for the second harbor. An industrial harbor at Kealia, together with associated upland support facilities, would--in all likelihood--drastically reduce, if not eliminate, the pond's capabilities for supporting endangered water birds. The Service believes that an industrial harbor at Kealia would, for all practical purposes, result in the irreversible and irretrievable loss of a coastal ecosystem essential to the continued survival of two endangered species.

5. Economic Uses: Provide public or private facilities and improvements important to the State's economy in suitable locations.

FWS Consistency: Although the primary purpose for the Service refuge proposal is not economic in nature, the Service would continue to permit existing economic uses of the pond. Currently, Fish Farms of Hawaii, a private enterprise, raises catfish in a 25-acre operation on the north side of the pond. The Service would acquire that operation as part of the refuge but would lease the property back to the owner for continued aquaculture purposes. Contemplated expansion of the facility into the adjacent kiawe thicket would be permissible. The Service anticipates no conflict between aquacultural and refuge activities, provided the former is appropriately regulated.

The Service recognizes the potential importance of aquaculture to Hawaii's economic base and views regulated aquacultural activities within

Kealia Pond as a compatible coexisting use with refuge activities. Recently, the Service expedited approval of a Corps permit authorizing development of an aquaculture test project in Kealia Pond. The project is intended to assess the feasibility of artificially raising top minnows as live bait for the commercial tuna industry. It is hoped that the pond-reared minnows will prove hardier than their ocean-caught counterparts. Ocean-caught bait only has a limited survival time in the live bait tanks of commercial tuna trawlers. Hardier cultured minnows would allow fishermen to access richer schools of yellow-fin tuna, located offshore. Thus, the Service has attempted to promote those forms of economic use compatible with the wildlife uses of Kealia Pond.

6. Coastal Hazards: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion and subsidence.

FWS Consistency: Kealia Pond is located in an area subject to natural hazards. Due to its shallow depth and limited holding capacity, the pond has experienced flash-flooding in the past. It is gradually being filled with water and wind-borne materials and its holding capacity is, therefore, being reduced. The drainage channel to the sea, as shown on the attached "Development Concept" figure, also has limited capacity. During periods of intense rainfall, the drainage channel cannot accommodate all of the inflow which enters the pond from streams to the north, east and west. Additionally, the narrow Kihei Road bridge spanning the outlet channel acts as a bottleneck, backing up water in the pond and causing flooding adjacent to the pond. During the intense rains which fell in January 1971, flooding in the bridge vicinity inundated Kihei Road to a depth of one to two feet.

Because of its low elevation and proximity to the sea, Kealia Pond is also subject to flooding by high seas and tsunamis. Only a narrow band of low coastal dunes separates the pond from the sea, as is apparent in the attached figure. The pond has experienced tsunami wave heights estimated to range between eight and ten feet in the recent past. The area, therefore, presents a potential hazard to all forms of development.

By maintaining the pond in natural open-space uses, however, hazards to life and property are minimized. The Service refuge proposal would essentially retain the open-space character of the area. Only modest development features, as noted above, are planned. Low-level dikes, water control structures and observation platforms could all sustain damage in a major flood or tsunami event; however, replacement or rehabilitation costs for these structures are very small in comparison to the large costs involved in loss of life or property associated with residential/commercial development of the Kealia floodplain.

7. Managing Development: Improve the development review process, communication and public participation in the management of coastal resources and hazards.

FWS Consistency: The Service has attempted to facilitate communication on the Kealia proposal through the distribution of a draft EIS in March 1978, which described the agency proposal, alternatives considered and associated environmental impacts. Comments received on the draft from Federal, State and local governmental agencies--as well as interested groups and individuals--have been extremely helpful in identifying issues of concern. These issues have been analyzed in-depth by the Service. The analysis will appear in the final EIS to be released in the near future. The conclusion reached, however, is identical to that of the draft EIS - fee acquisition of Kealia Pond represents the most feasible alternative for insuring the long-term security of the pond for endangered water birds.



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKRIVANEK
Deputy Director

Ref. No. 8397

February 27, 1979

	Initial
ARDE	
ECE	
EC	
LWRDP	
POD	<i>[Handwritten Initials]</i>
OBS-C	
-B	
-W	
-P	

Mr. William H. Meyer
Acting Regional Director
Fish and Wildlife Service
U.S. Department of the Interior
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

Dear Mr. Meyer:

Subject: Coastal Zone Management (CZM) Consistency Statement
for Acquisition of Fee Simple Title to Kealia Pond,
Maui, Hawaii

Upon our initial review of the subject consistency statement, we have identified certain deficiencies with respect to the mandatory policies of Hawaii's CZM Program.

The following is an account of these deficiencies:

Recreational Resources

Policy 1) Improve coordination and funding of coastal recreation planning and management

Information should be provided regarding the manner in which the project complements existing or planned coastal recreational facilities and services on the island of Maui, including any interpretive or educational facilities or services planned for Kanaha Pond.

Historic Resources

Policy 1) Identify and analyze significant archaeological resources

As noted in your analysis, the State Historic Preservation Officer has determined that Kealia Pond was not a fish pond used by ancient Hawaiians. Therefore, it is not likely to be eligible for nomination to the National Register of Historic Places. Given the subject policy, however, we question if the pond or adjacent areas possess any archaeological resources of value and request that this be discussed in your statement.

Coastal Ecosystems

Policy 2) Preserve valuable coastal ecosystems of significant biological or economic importance

A discussion of Kealia Pond's value to the preservation and enhancement of the Hawaiian Stilt and Coot should be provided and include a description of the habitat and its various species of wildlife. The pond's relationship to other water bird habitats on Maui such as Kanaha Pond should be addressed.

Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations

The consistency statement only alludes to the impacts and history of the catfish aquaculture operations and fails to discuss its economic contributions and importance to the State's economy. In addition, there is a lack of information regarding any aquaculture projects proposed for Kealia Pond and possible limits to expansion of the industry in this area.

Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion and subsidence

Sufficient information has not been provided concerning the construction design of the proposed facilities and their impacts relative to existing coastal hazard conditions in the area.

Policy 3) Ensure that developments comply with requirements of the Federal Flood Insurance Program

The statement fails to discuss how the project will comply with the Federal Flood Insurance Program and the National Flood Insurance Act of 1956, as amended.

Chapter 2, Hawaii CZM Program, Supporting Policies and Mandates

Scenic and Open Space Resources, Item 5) - The DLNR (State Department of Land and Natural Resources) shall regulate land use within the Conservation District, and in establishing permitted uses within the Conservation District subzones shall maintain, improve, protect, limit the future use of, or otherwise conserve open spaces and areas for public use and enjoyment. (Chapter 183-41, HRS, and DLNR Regulation 4).

Mr. William H. Meyer
Page 3
February 27, 1979

Coastal Ecosystems, Item 5) - The DLNR shall establish subzones, regulate uses, and enforce the provisions of the regulation governing the Conservation District including environmental preservation. (Chapter 183, HRS, and Regulation 4).

Coastal Ecosystems, Item 12) - The DLNR is responsible for carrying out a program to protect and conserve endangered species of wildlife and plants.

The Hawaii CZM Program's enforceable policies include supporting statutory policies and mandates cited in Chapter 2. The consistency statement should therefore address those which are relevant to the subject proposal. As noted above, this would include the impacts of the proposed purchase and development upon existing management authorities.

In conclusion, we reference the regulations governing Federal Consistency with Approved Coastal Management Programs (15 CFR 930.39) which require "a detailed description of the activity, its associated facilities, and their coastal zone effects and comprehensive data and information sufficient to support the Federal agency's consistency statement." With this in mind, we have determined that your application for consistency certification is incomplete and that we are, therefore, unable to adequately evaluate the subject proposal's consistency with Hawaii's CZM Program.

Please be assured that upon receipt of the requested information and any other relevant documentation which will clarify the consistency statement, we will proceed with our formal review in a timely manner.

Your assistance and cooperation in complying with the substantive and procedural requirements of the Hawaii CZM Program are very much appreciated.

Sincerely,

Frank Skrivansk
for HIDETO KONO

RESPONSE TO DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT, HAWAII

1. **Recreational Resources:** Planned recreational facilities and services at the proposed interpretive center at Kealia Pond have been incorporated into the text. The relationship of the Pond to Kanaha Pond will be included in a refuge brochure. In addition, the Division of Forestry and Wildlife (DLNR), administrators of the Kanaha Wildlife Sanctuary, conducts guided field trips and has provided a viewing area and covered structure for general public use concerning wildlife observation at the Pond.
2. **Historic Resources:** A discussion of the archaeological resources has been included in the text under Section IV 6. Impacts on Cultural Resources.
3. **Coastal Ecosystems:** The EIS has been expanded to include the value of Kealia Pond to the preservation and enhancement of endangered species and its relationship to Kanaha Pond. (See Section III parts C. Flora and Fauna and D. Use by Endangered Hawaiian Waterbirds.)
4. **Economic Uses:** Discussions of the economic uses of the pond have been included in Sections III, part F and Section IV, part A & B (Refuge Revenue Sharing Act of 1964).
5. **Coastal Hazards:** A discussion of coastal hazards and compliance with the Federal Flood Insurance Program and National Flood Insurance Act of 1956 is included under Section III, part B. Physiographic Conditions.
6. **Hawaii CZM Program, Supporting Policies and Mandates:** The Service's plan to comply with the CZM program has been incorporated within the EIS. A Cooperative Wildlife Habitat Protection Agreement for Kealia Pond (Appendix J) has been consummated between the State and Service. The agreement identifies the dual responsibilities and objectives for developing and maintaining Hawaii's endangered wildlife and critical wetlands in compliance with CZM mandates. As plans for the refuge proceed, further coordination will be initiated with the State CZM Office to insure consistency of Service actions.

APPENDIX M
 INDEX TO COMMENTS AND RESPONSES
 KEALIA POND EIS

FEDERAL AGENCIES

Page

Army Corps of Engineers	M-6
Environmental Protection Agency	M-13
Department of Interior	
National Park Service, Washigton, D.C.	M-15
National Park Service (Haleakala National Park). . .	M-17
Heritage Conservation and Recreation Service	M-19
Department of Transportation	
Federal Highway Administration	M-22

STATE OF HAWAII

Gerald K. Machida, State Rep. (5th Dist.)	M-24
Office of Environmental Quality Control	M-29
Dept. of Land and Natural Resources	M-34
Dept. of Transportation	M-38
Dept. of Transportation, Water Transportation	
Facilities Div.	M-44
University of Hawaii at Monoa, Environmental Center	M-50
University of Hawaii Water Resources Research Center. . . .	M-55

LOCAL GOVERNMENT AGENCIES

County of Maui, County Council	M-57
County of Maui, Planning Department	M-61
County of Maui, Dept. of Parks & Recreation	M-64
County of Maui, Dept. of Public Works	M-66

PRIVATE ORGANIZATIONS

Alexander & Baldwin, Inc.	M-71
Hawaii Audubon Society	M-75
Hawaiian Electric Company, Inc.	M-80
Hawaiian Water Birds Recovery Team	M-84

INTERESTED/CONCERNED INDIVIDUALS

Huntzinger, Hugo H. and Huntzinger, Kyung Ja.	M-86
---	------



PODED-PV

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858

19 May 1978

Mr. Roland R. Schulz
Chief, Branch of Environmental
Coordination
US Department of the Interior
Fish and Wildlife Service
Washington, DC 20240

Dear Mr. Schulz:

We have reviewed the Draft Environmental Statement for the Acquisition, Development and Operation of Kealia Pond, National Wildlife Refuge, Maui, Hawaii. The Draft Environmental Statement was forwarded to us on 15 March 1978, and received on 20 April 1978.

A Department of the Army permit will be required under Section 404 of the Federal Water Pollution Control Act of 1972 for any discharge or dredged or fill material into the pond and surrounding wetlands associated with the construction, development or operation of the wildlife refuge. We note that the Draft Environmental Statement is deficient in construction and operation details necessary for processing of the Department of the Army permit application; thus, the statement does not satisfy the requirements for a federal environmental statement for the permit action. However, the Draft Environmental Statement addresses the general effects of acquisition and overall management concept. We assume that more detailed plans will be developed later, and request that these plans be coordinated with us as soon as possible to expedite processing of the Department of the Army permit. We would favorably consider issuing a general permit to the US Fish and Wildlife Service authorizing the discharge of dredged or fill material provided a refuge management plan, which satisfies our regulatory requirements and concerns, is developed.

The proposed wildlife refuge is located within the 100-year tsunami and riverine flood inundation zones. The Draft Environmental Statement anticipates continued flooding, but flood damage costs have not been estimated as part of the refuge operating costs. Flood damage costs could be derived if more specific refuge management and operation details were known. These costs could include expenses to replace or repair damaged habitat and refuge structures.

PODED-PV

19 May 1978

Mr. Roland R. Schulz

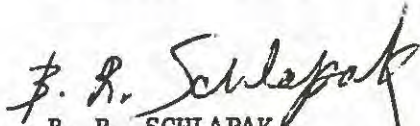
The most probable future for Kealia Pond could involve aquaculture development. The US Army Corps of Engineers issued a temporary permit to the County of Maui on 20 December 1977 authorizing an aquaculture pond for the experimental raising of bait fish for the tuna fishing industry. The County of Maui recently withdrew a Department of the Army permit application for the maintenance clearing of the pond outlet. The County had not been able to demonstrate the need to do the work or the existence of a hazard to human life and property.

The Maalaea Small Boat Harbor project is a federal project authorized under the River and Harbor Act of 1965. During the early coordination of this project, the US Fish and Wildlife Service indicated that the refuge and the harbor could be compatible provided that the harbor is placed outside the pond and that an adequate buffer zone could be maintained between the harbor and the refuge. This planning approach could also be true with other light industrial uses on the lands (see figure II-9) northeast of Kealia pond that are zone for industrial use.

Comments on the contents of the draft environmental statement are provided on the attached pages. We do not object to the development of Kealia Pond as a National Wildlife Refuge, but find that the Draft Environmental Statement needs to emphasize the importance of Kealia Pond to the maintenance and enhancement of endangered Hawaiian waterbirds.

We thank you for the opportunity to review and comment on the Draft Environmental Statement for the Proposed National Wildlife Refuge at Kealia Pond, Maui, Hawaii.

Sincerely yours,



B. R. SCHLAPAK
Lt Col, Corps of Engineers
District Engineer

1 Incl
Comments

COMMENTS ON THE DRAFT ENVIRONMENTAL STATEMENT
NATIONAL WILDLIFE REFUGE
KEALIA POND, MAUI, HAWAII

1. The draft environmental statement needs more documented evidence to emphasize the importance of Kealia Pond as a habitat for waterbirds, particularly the maintenance and enhancement of endangered Hawaiian waterbird populations. Bird counts document use of the pond, but do not emphasize the importance of the pond in relation to other habitat in the State. Data on nesting at the pond would emphasize the pond's importance to the maintenance and enhancement of wildlife populations. The relationship of Kealia Pond and other ponds on Maui to migratory patterns of the waterbirds could also be used to emphasize the pond's importance to wildlife. Discussions in the project history and environment setting do not provide any information to indicate whether Hawaiian waterbird populations are increasing or decreasing at Kealia Pond, and do not evaluate the effect of the Kealia Pond waterbird population trends on total waterbird population in the State.

4

2. The Draft Environmental Statement needs to emphasize the potential of developing both Kanaha Pond and Kealia Pond as wildlife refuges. The statement claims that Kealia Pond would provide substitute habitat for waterbirds displaced from Kanaha Pond, developed for uses other than wildlife refuge, but does not provide evidence to substantiate migratory movement between the two ponds.

5

3. The Draft Environmental Statement does not relate the creation of the Kealia Pond wildlife refuge to other wildlife refuges in the State, and does not relate the proposed Kealia Pond refuge to the overall effort in the State to maintain and enhance endangered Hawaiian waterbird populations.

6

4. We note that Kealia Pond is an artificially maintained habitat, and that prior to the fish farm operation, Kealia Pond periodically dried up. Presently, the fish farm provides a constant source of freshwater to the pond, maintains a constant water level in the pond, provides nutrients to the pond affecting its trophic level and provides a food source for some waterbirds. Bird predation on future fish farms, developed as part of the refuge plan, may conflict with aquaculture efforts and may result in efforts to control predator losses.

7

5. The evaluation of financial impacts has not included estimates of monetary losses or gains. The income to be obtained under the Refuge Revenue Sharing Act should be compared against property taxes based on estimated assessed property values and appreciation. This financial assessment could include estimated revenues expected for landowners under existing land use plans.

8

6. Retention of permanent water would disrupt the setting and deflation process believed to be critical to preservation of reef quality in Maalaea Bay. With this in mind, the impacts of controlled water input and output in the pond cannot be assessed without knowledge of specific improvements planned for the pond.

9

7. The No-Action alternative does not provide an analysis of the overall effect of no wildlife refuge on the future population of endangered Hawaiian stilt or coot in Hawaii. With respect to the other wildlife refuges in the State, does the loss of Kealia Pond as a wildlife refuge, affect the maintenance and enhancement of endangered Hawaiian waterbird populations on Maui?

10

8. Implementation of other alternatives, such as relocation and breeding or raising in captivity have not been considered as alternatives to the proposed action.

11

9. Because of the value of the fish farm operation to Kealia Pond, refuge development may include increased fish farm operations. However, the discussion of alternatives does not consider the development of other successful aquaculture ponds elsewhere as an alternative to the proposed Kealia Pond refuge.

12

Responses to U.S. Army Corps of Engineers (Honolulu District)

1. At this writing, specific plans for the development, operation and management of the refuge have not been formulated. The Service anticipates the need to develop full capability to regulate water levels in the pond. Low-level dikes are envisioned to create subimpoundments containing 6"-12" of water, which is thought to be optimum for stilts. Deeper areas at the eastern end of the pond would be developed for coot. Water control structures, including pumps and tidegate facilities, would be necessary to regulate water inflow and outflow. A diversion channel to accommodate freshet flooding is believed to be uneconomical at this time, in light of the fact that proposed low-level dikes, tidegates and pumps could be easily replaced after a flood event at a fraction of the cost of constructing a by-pass channel. Specific flood damage costs cannot be estimated at this time without more detailed development plans. When detailed construction plans are developed for these facilities and a comprehensive plan of operation and management has been formulated, the Service will make application to the Corps for a Section 404 general permit.
2. FWS registered the following objections to the permit application:
 - (a) FWS did not want pond levels reduced without control and recommended the installation of some type of a structure at the outlet to assure that pond levels did not drop below the optimum for the birds.
 - (b) FWS also requested installation of tidegate structure which would prevent saltwater intrusion into the pond.

Both of these features would likely be incorporated into the FWS facilities design plan with development and management of the area.

3. The Service felt in 1971 that wildlife and harbor uses of the pond could both be accommodated in a multi-purpose project, provided that the entire Kealia Pond area (600-700 acres) was acquired in fee title by the Corps; the harbor facility was developed at the western end of the pond; and the remainder of the area (approximately 550 acres) was developed and managed as a National Wildlife Refuge by the Service for endangered Hawaiian stilt and coot.

The recommendations of the Hawaiian Water Birds Recovery Plan have resulted in an effective reversal of the Service's earlier position on the harbor. The Recovery Plan calls for the acquisition of 500 acres of the pond for a National Wildlife Refuge. Since the Corps' harbor, as conceived in the early Seventies, would fall within the proposed refuge boundary and thus destroy essential water bird habitat, the Service can no longer support the multi-purpose project which it conditionally approved in 1971. Additionally, the construction of

the Maui Electric Power Company turbine generating facility west of the pond has further restricted the amount of space available for a harbor. With the refuge boundary as proposed, it is doubtful whether a harbor could be constructed outside the boundary with provisions for an adequate buffer between the harbor and the refuge.

Other "light industrial uses" on the lands northeast of the pond, as referenced in this comment, could pose serious problems for Hawaiian waterbirds in terms of water pollution, noise and disruption. Such uses would require careful evaluation on a case-by-case basis to insure conflicts with wildlife values do not occur.

4. The section on the Affected Environment has been revised to include documentation on the importance of Kealia Pond as habitat for endangered waterbirds.
5. "Substitute habitat" is, perhaps, a poor choice of terms. Although Kealia would be developed to accommodate the monthly populations noted above, whether Kealia could accommodate the combined waterbird populations of Kanaha and Kealia Ponds is questionable. The two ponds presently complement one another by providing alternate sources of waterbird habitat. Recent data would appear to substantiate movement of birds between the two ponds (see Appendices C & D). By providing permanent water at Kealia and constructing nesting islets, it is conceivable that a larger number of birds will be drawn to Kealia from Kanaha. Assuming food, nesting and loafing sites are not presently limiting factors at either site, the Service expects to see an overall increase in the total Maui waterbird population, with both sites supporting numbers of birds commensurate with the carrying capacity of the habitat.
6. The Affected Environment Section has been revised to place the acquisition of Kealia Pond in context with the Statewide effort to preserve endangered waterbird habitat.
7. The Service recognizes the bird predation problems associated with aquacultural operations on the proposed refuge. Previous surveys by Service biologists have shown significant increases in the population of black-crowned night herons, particularly in the area of the existing fish ponds, but whether stilt and coot contribute significantly to fish predation is uncertain. The Service would cooperate fully with the owners of the aquaculture operation to seek a mutually satisfactory solution to the predation problem. Possibilities include screening of ponds or, perhaps, economic compensation for an assumed level of fish loss from predation.

8. Based on an appraisal report of Kealia Pond (Hastings, Martin, et al., 1978), property taxes for the proposed acquisition parcel were \$439.00. Property owners could probably expect little in the way of revenues generated by the land, since economic development is presently constrained by existing land use controls--primarily, the Corps of Engineers' 404 permit regulations and the Endangered Species Act. Under the Refuge Revenue Sharing Act, it is estimated that \$22,500 in revenues would be generated for Maui County, based on the Service's appraised value of the property at that time. Although more recent appraisal figures are not available at this time, potential tax increases may have occurred. In that event, the Refuge Revenue Sharing Act payment would increase at a corresponding rate.
9. The Service recognizes the potential threat to Maalaea Bay which would accompany conversion of Kealia to a permanent, rather than intermittent pond. Maciolek (1971) has hypothesized that permanent inundation would preclude wind erosion of depositional sediments; accumulating silt would fill the pond, and Batis would likely invade the entire pond surface. Inflow drainage would have no place to deposit sediments and would tend to channelize directly to the bay, resulting in perpetually turbid waters and destruction of the marine ecosystem. Maciolek acknowledges the waterbird refuge would require a permanent pond and suggests several methods of avoiding silt discharge into the bay, including:
- (1) Creation of subimpoundments within the pond, with periodic drainage of water from subimpoundments and removal of silt by mechanical means;
 - (2) Elimination or reduction of silt run-off from the surrounding cane fields;
 - (3) Creation of artificial settling basins to remove silt before it is discharged into the bay.

At this time, the Service would view the first alternative as most feasible. Subimpoundments would be created by pushing up low dikes. These would allow settling of waterborne silt. Periodic drainage and mechanical removal of silt would be required to maintain the subimpoundments. As development concepts are refined, it is anticipated that detailed solutions will be developed for the siltation problem.

10. The Environmental Consequences Section points out some of the potential adverse effects of the No Action alternative on endangered waterbirds. At this time, however, the available data does not permit quantification of impacts on waterbird populations.

11. Relocating and breeding birds in captivity would not meet the HWRP objective of maintaining populations and habitats in the island distribution existing in 1976. Furthermore, it would make little biological sense to raise the birds in captivity, only to find that there is no habitat available for release of the birds. In order to assure that populations reach self-sustaining levels, preservation and enhancement of habitat and predator control are viewed as essential management measures.
12. FWS has assured the present fish-farm operator that the aquaculture operation can be continued if the Service should acquire it. FWS will consider expansion of this use, provided such expansion does not encroach on the pond or adjacent wetlands. Limited expansion into the buffer area is viewed as feasible at this time. The Service has not considered alternative locations for the aquaculture operation which is viewed as compatible with the operation of a waterbird refuge.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

Project # D-SFW-K64002-HI

J. Brent Giezentanner
Regional Manager
Hawaiian Islands
National Wildlife Refuge
300 Ala Mona Blvd.
P.O. Box 50167
Honolulu HI 96850



MAY 31 1978

Dear Mr. Giezentanner:

The Environmental Protection Agency has received and reviewed the Draft Environmental Statement for the Kealia Pond, Maui, Hawaii.

EPA's comments on the draft environmental statement have been classified as Category LO-1. Definitions of the categories are provided on the enclosure. The classification and the date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequence of the proposed action and the adequacy of the environmental statement.

To improve on the air quality analysis, we suggest that the final statement include a description of existing ambient levels in relation to the National Ambient Air Quality Standards (NAAQS). Also, the project's related emissions (construction, vehicular) should be quantified and describe the effect on ambient pollutant levels.

EPA appreciates the opportunity to comment on this draft environmental statement and requests three copies of the final environmental statement when available.

-2-

If you have any questions regarding our comments, please contact Betty Jankus, EIS Coordinator, at (415)556-6695.

Sincerely,

David L. Calkins

David L. Calkins, Director
Office of External Relations

Enclosure

cc: Council on Environmental Quality

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

Response to U.S. Environmental Protection Agency (Region IX, San Francisco, CA)

1. Consultation with the Hawaii Department of Health and examination of air quality data provided by the Department indicate that the only pollutant of concern at the present time is suspended particulates (dust). Data from the Kihei monitoring station located five miles downwind of the pond indicate that suspended particulate counts occasionally exceed National Ambient Air Quality Standards (NAAQS) during the summer months, when the exposed pond silts are subject to wind erosion. By retaining water in the pond on a year-round basis, FWS would likely reduce the suspended particulate problem.

NAAQS are not expected to be exceeded as a result of development, operation and maintenance of Kealia Pond as a National Wildlife Refuge. Heavy equipment may be necessary to construct low-level dikes and nesting islets and to periodically remove accumulated silt from subimpoundments. However, only minor, short-term equipment emissions and suspended particulates should be associated with this work.



United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
L7617(460)
(WR)REQ

MAY 12 1978

Memorandum

To: Director, Fish and Wildlife Service
From: Acting ^{ASSOCIATE} Director

Subject: Review of Draft Environmental Statement for Acquisition
of Lands for the Kealia Pond National Wildlife Refuge,
Hawaii (DES 78-7)

We have reviewed the draft environmental statement and offer the following comments for your consideration.

The obligation of the U.S. Fish and Wildlife Service to survey lands under its jurisdiction in order to identify properties eligible for inclusion on the National Register of Historic Places is recognized in the draft environmental statement, page II-32. There is no evidence, however, that the National Register criteria has been applied in consultation with the State Historic Preservation Officer. Evidence of such consultation and its findings should be included in the final environmental statement.

To assist Federal agency officials and the State Historic Preservation Officer to determine eligibility of Hawaiian fishponds, the Hawaii State Office, National Park Service, sponsored an inventory and evaluation of known surviving fishponds in Hawaii in 1974. The results were published in the following year in a report by Russell Anderson Apple and William Kenji Kikuchi titled Ancient Hawaii Shore Zone Fishponds: An Evaluation of Survivors for Historical Preservation. Kealia fishpond, identified as F-12, is not included in the 56 ponds believed to possess the necessary significance and integrity to qualify under the criteria for listing on the National Register. The State Historic Preservation Officer has a copy of the book. One is also believed to be in the Departmental library.

Response to National Park Service, Washington, D.C.

1. Results of consultation with the State Historic Preservation Officer are discussed under the environmental consequences of the Federal Acquisition alternative.



IN REPLY REFER TO:

L7619

United States Department of the Interior

NATIONAL PARK SERVICE
HALEAKALA NATIONAL PARK
P. O. BOX 537
MAKAWAO, MAUI, HAWAII 96768

May 10, 1978

Chief, Branch of Environmental Coordination
U.S. Fish and Wildlife Service
United States Department of the Interior
Washington, D.C. 20240

Dear Sir:

Regarding your March 15, 1978 letter (received April 18) on the DES 78-7 Draft Environmental Statement - A Proposal for Acquisition, Development and Operation of the Kealia Pond National Wildlife Refuge, on the Island of Maui, HI:

1. I find no serious problems with the basic proposal.
2. There is considerable pressure for continued expansion of the visitor industry and agriculture which may increase pressures upon the refuge in future years. To deal with this I feel that additional buffer lands would be desirable around the key nesting areas.

Sincerely yours,

Hugo H. Huntzinger
Superintendent



Response to National Park Service, Haleakala National Park, Maui, HI

1. The Service had initially considered acquisition of approximately 700 acres--including the entire kiawe buffer north of the pond. A buffer zone would be beneficial in preventing disturbance to wildlife, but whether the buffer could be considered habitat essential to the survival of waterbirds was the subject of intense debate on the part of the Recovery Team. The final boundary recommended by the Recovery Team represented the area, which in the judgment of the Team, was that which could legitimately be considered essential habitat. The FWS acquisition proposal reflects the boundary recommendations of the Recovery Team.



United States Department of the Interior

BUREAU OF OUTDOOR RECREATION
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
DES-78/7

Memorandum

To: Chief, Branch of Environmental Coordination, U.S. Fish and Wildlife Service

From: Director, Heritage Conservation and Recreation Service

Subject: Draft environmental impact statement -- acquisition of lands for the Kealia Pond National Wildlife Refuge, Maui, Hawaii

no Conf to BR 5-5

In accordance with your transmittal memorandum, dated March 13, 1978, we have reviewed the subject statement and have the following comments.

On page III-11 of the statement, under Impact of Recreation, you indicate that present State Refuge status of the proposed acquisition prohibits non-wildlife oriented recreation and that this policy would continue under Federal status. The beach area, fronting but separated from the proposed acquisition by the existing highway, has the potential for use as a public beach park if it were to be included in the project. Inclusion of this beach in the proposed acquisition could serve a dual function. Acquisition could enhance public benefit from the project by providing a public recreation area which would be buffered from the main refuge by the highway. Secondly, this acquisition could provide an additional buffer zone to the refuge proper from activities which are less compatible to refuge operation. On a recent field survey, we noticed that motorcyclists are actively present in the vicinity of Kealia Pond. Management of a public beach park allowing only compatible recreation opportunities (i.e. swimming and fishing) could reduce the incidence of any incompatible activities (i.e. motorcycling). Recreation facilities on the beach strip could be operated either by the Fish and Wildlife Service, the State, or as is the case for Kahahaia Pond on Molokai, by the County under a cooperative agreement. Accordingly, we recommend that this alternative acquisition plan be considered for your project.

1

for *Mey Maguire*
Chris Therral Delaporte

Response to Heritage Conservation and Recreation Service

1. During early project planning, the beach was considered a part of the proposed acquisition in order to provide a buffer area for the refuge. However, the beach has never been considered habitat vital to the continued survival of endangered waterbirds. Given the Service's budgetary constraints on this project, a decision was ultimately made to acquire only those areas which could legitimately be considered essential habitat for the birds.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE

Two Embarcadero Center, Suite 530
San Francisco, California 94111

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

April 26, 1978

IN REPLY REFER TO
HED-09

Mr. Roland R. Schulz
Acting Chief
Branch of Environmental Coordination
Fish and Wildlife Service
Department of the Interior
Washington, D.C. 20240

Dear Mr. Schulz:

We have reviewed the Draft Environmental Impact Statement for the proposed land acquisition for the Kealia Pond National Wildlife Refuge, Island of Maui, Hawaii, and provide the following comment.

The Final Environmental Impact Statement (FHWA-HI-EIS-73-D2-F) for the Piilani Highway, Kihei to Makena Road/Kula Highway was approved by the Federal Highway Administration on February 15, 1977, and transmitted to the Council on Environmental Quality. The FHWA Final Statement addresses possible impacts to Kealia Pond and concludes that the Piilani Highway project will not cause any adverse effects on this habitat. The project's northern terminus at Kihei is located approximately 3,000 feet southeast of Kealia Pond.

However, the Kealia Pond EIS appears to include the northern terminus of the Piilani Highway within the proposed National Wildlife Refuge. To avoid possible conflict between these two projects, the Fish and Wildlife Service should contact and coordinate their proposal with the following agencies prior to finalizing the Environmental Statement.

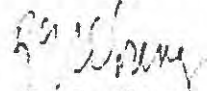
Land Transportation Facilities Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Water Transportation Facilities Division
Department of Transportation
79 South Nimitz Highway
Honolulu, Hawaii 96813

Department of Public Works
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

We appreciate this opportunity to review the subject Draft EIS and would like to receive two copies of the Final Statement when it becomes available.

Sincerely yours,



R. G. S. Young, Director
Office of Environment and Design

Response to U.S. Department of Transportation (Region Nine, San Francisco, CA)

1. See response to comments from State of Hawaii, Department of Transportation.

HOUSE OF REPRESENTATIVES
THE NINTH LEGISLATURE



Speaker
JAMES H. WAKATSUKI
Vice Speaker
DANIEL J. KIHANO
Majority Leader
RONALD Y. KONDO
Minority Floor Leader
JANN L. YUEN

STATE OF HAWAII
STATE CAPITOL
HONOLULU, HAWAII 96813

May 11, 1978

First District
JACK K. SUWA
Second District
HERBERT A. SEGAWA
*KATSUYA YAMADA
Third District
YOSHITO TAKAMINE
Fourth District
MINORU INABA
Fifth District
*RICHARD L. CALDITO Jr.
GERALD K. MACHIDA
Sixth District
RONALD Y. KONDO
*MEYER M. UFOKA
Seventh District
*ROBERT D. DODS
‡DONNA R. IKEDA
Eighth District
*STEVE COBB
JACK LARSEN
Ninth District
*TED T. MORIOKA
CALVIN K. Y. SAY
Tenth District
KEN KIYABU
LISA NAITO
Eleventh District
JOHN S. CARROLL
**KINAU BOYD KAMALII
Twelfth District
CARL T. TAKAMURA
CLIFFORD T. UWAINA
Thirteenth District
NEIL ABERCROMBIE
HIRAM L. FONG Jr.
CHARLES T. USHIJIMA
Fourteenth District
RUSSELL BLAIR
KATHLEEN STANLEY
Fifteenth District
BYRON BAKER
RICHARD IKE SUTTON
Sixteenth District
*TED MINA
TONY NARVAES
Seventeenth District
CHARLES M. CAMPBELL
RICHARD GARCIA
Eighteenth District
MITSUO UECHI
JAMES H. WAKATSUKI
Nineteenth District
BENJAMIN J. CAYETANO
NORMAN MIZUGUCHI
Twentieth District
DANIEL J. KIHANO
MITSUO SHITO
Twenty-First District
JAMES AKI
*HENRY H. PETERS
Twenty-Second District
*OLLIE LUNASCO
*YOSHIRO NAKAMURA
Twenty-Third District
CHARLES T. TOGUCHI
Twenty-Fourth District
*RALPH KANICHI AJIFU
‡FAITH P. EVANS
Twenty-Fifth District
JOHN J. MEDEIROS
ANDREW K. POEPOE
Twenty-Sixth District
JANN L. YUEN
Twenty-Seventh District
*RICHARD A. KAWAKAMI
*JONY T. KUNIMURA
DENNIS R. YAMADA

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

Re: Draft Environmental Impact Statement
Kealia Pond, Maui, Hawaii - FWS/RF

Dear Mr. Greenwalt:

First of all, I am sorry for the delay in my response to you on this matter. However, I wish to make my feelings known to you and placed on record.

In review of your draft E. I. S, I cannot at this time in good conscience make any responsible and objective decisions and/or comments. This proposed document as presently written is extremely subjective with a highly unusual amount of typographical and factual errors. I would have assumed that these errors would have been corrected before submittal to us for comments.

I suggest that this present draft be "thrown out the door" and a new draft written that will be as objective and factual as possible. Possibilities for various alternatives in this area should be adequately addressed with maximum in-put from all parties concerned.

It appears to me that the Service is working entirely independent on this project without regard to State and County feelings. Furthermore, the Service also appears to be working for its own benefit contrary to the President's directive for less bureaucracy at the federal level.

Should you desire further clarification on this matter, I will be more than happy to comply.

Sincerely yours,

Gerald K. Machida
Representative, Fifth District

*Assistant Majority Floor Leader
†Minority Leader
**Minority Floor Leader
‡Assistant Minority Floor Leader

GKM:jyh

Responses to Mr. Gerald K. Machida, Representative Fifth District, State
House of Representatives, Honolulu, HI

1. The final EIS has been rewritten to provide an objective consideration of the alternatives evaluated by the Service to meet the recommendations contained in the Hawaiian Water Birds Recovery Plan.
2. Service files indicate the FWS proposal has been coordinated closely with other Federal, State and local governmental agencies from the outset. Preparation of a new draft could only be justified if significant new alternatives were identified which would fulfill the objectives of the Hawaiian Water Birds Recovery Plan to the same degree as the FWS proposal. At this time, none of the alternatives discussed in the FEIS represent a significant departure from any of the alternatives discussed in the DEIS.
3. The Service is fully aware of the intensity of feeling at the State and County levels which has been generated by this project. FWS files on Kealia Pond, which date back to the early 1950s, demonstrate that the FWS proposal has been thoroughly coordinated with the State Division of Fish and Game and later with the Division of Forestry and Wildlife within the Department of Land and Natural Resources and with the Mayor of Maui County. The Division of Forestry and Wildlife has acted as a cooperating partner with the FWS in the acquisition proposal. Among the more recent coordination efforts was the Cooperative Habitat Protection Agreement (see Appendix J) that recognized both the State and Federal governments' objective in maintaining and improving Hawaii's endangered waterbird status. However, due to personnel changes within various agencies, it is very possible that new individuals within those agencies may not be totally familiar with all aspects of the FWS proposal. The Service, however, has made a good-faith effort to coordinate with other affected governmental agencies.



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST
ROOM 301
HONOLULU, HAWAII 96813

May 31, 1978

Greenwalt 6/24
Mr. Lynn A. Greenwalt, Director
Fish and Wildlife Service
U.S. Department of the Interior
Washington, DC 20240

Dear Mr. Greenwalt:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR KEALIA POND
NATIONAL WILDLIFE REFUGE, MAUI, HAWAII (FWS/RF)

We have reviewed the subject environmental impact statement and herewith provide our comments.

For your information, at least four guidelines of the State Environmental Policy Act, Chapter 344, Hawaii Revised Statutes, relate to the proposed project. They are:

Establish and maintain natural area preserves, wildlife preserves, forest preserves, marine preserves, and unique ecological preserves (2,E);

Protect endangered species of indigenous plants and animals and introduce new plants and animals only upon assurance of negligible ecological hazard (3,A);

Establish, preserve, and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses (4,A); and

Encourage federal activities in Hawaii to protect the environment (5,C).

We note that there is no discussion on how the proposal relates to the current coastal zone management and 208 planning programs being conducted in Hawaii. The 208 program may affect upland management practices relating to sediment production that affects Kealia Pond. We recommend a discussion in the eis of how these programs relate to the planning for Kealia Pond as a wildlife refuge. Our specific comments on the subject EIS are enclosed.

Mr. Lynn A. Greenwalt
Page 2
May 31, 1978

Copies of comments made by other state and local reviewers are enclosed for your information and use. For brevity and fairness, this Office did not attempt to summarize comments made by other reviewers. However, we request that careful consideration be given to each of their comments. We also request that a copy of the final EIS be provided to those persons and agencies, including this Office, that have provided substantive comments on the EIS.

We trust that our comments will be helpful to you in the preparation of the final statement. Thank you for the opportunity to review this EIS.

Sincerely,



Richard L. O'Connell
Director

Enclosures

cc: U.S. Fish and Wildlife Service, Region 1
(w/enc.)

WASHINGTON, D.C.
DIV. OF REFUGES
USFWS

JUN 29 10 29 AM '78

RECEIVED

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
COMMENTS ON THE EIS FOR KEALIA POND NATIONAL WILDLIFE
REFUGE, MAUI, HAWAII (U.S. FWS/REGION I)

P. I-10

If the highway is constructed inland (mauka) of the pond, the potential exists for placing turnouts at elevations above the pond. Consideration should be given in the design of any turnout for parking spaces for tour buses as the site lies between the major resorts on Maui. Because of the possibility of tour buses using a turnout, the 10,000 person figure appears too low.

2

P. II-3

The hydrofoil service recently went out of business.

3

P. I-12

Utilization of natural energy sources for providing power for the pump (wind and solar) should be investigated since the area receives high insolation and winds.

4

P. II-16

Maalaea Bay's biota includes the seasonal usage of the endangered Humpback whales as a nursery for their young. The area is, we believe, being considered as a national marine sanctuary in order to protect the valuable Humpback nursery area.

5

P. II-38

The mongoose was recently found on Kauai and not Maui as stated on the first line.

6

P. II-40

Maui County includes the islands of Maui, Lanai, Kahoolawe, and Molokai. We note that the population figures vary throughout the text. We recommend that the latest figure be used.

7

P. II-45

The Army Corps of Engineers section 404 permit program affects Kealia Pond with relation to any potential dredging and filling of the wetland. Their wetlands survey report of September 1977 should be included in the list of references. (Wetlands and Wetland Vegetation of Hawaii.) On page 176 of that report, it states that the eastern edge of the pond contains three well-developed trees (8 to 15 feet tall) and numerous seedlings of

8

mangrove (Rhizophora mangle), heretofore not believed to exist on Maui. Consideration of this species in management of the biotic resources of the pond will have to be given.

8

P. III-18

The first sentence on this page states, "the proposal would not conflict with existing zoning or land uses contained in relevant city, county, and regional plans." The specific plans referred to should be identified.

9

General:

The EIS should be carefully proofread to remove the numerous typographical and grammatical errors which abound in the text. The statement in its present form is too repetitious in its presentation and evaluation of the proposed action.

10

Responses to Office of Environmental Quality Control, Office of the Governor,
Honolulu, HI

1. The Service has carefully coordinated the Kealia Pond acquisition proposal with the State Office of Coastal Zone Management. In the Service's judgment, the proposal is consistent, to the maximum extent practicable, with the State's CZM Program. A Consistency Determination was submitted to the State in January, 1979 in compliance with the State's CZM procedural requirements. The Determination has been reprinted in its entirety in Appendix L. State comments on the Service determination are also reprinted in Appendix L. All comments have been addressed within the text of the final EIS.

The Hawaii Department of Health has prepared Water Quality Standards (Public Health Regulations, Chapter 37-A) which are intended to be consistent with the goals and objectives of the 208 Program. Kealia Pond waters have been designated for scientific and educational purposes, protection of genetic stock, base line references, and other non-consumptive water uses which will not degrade or modify the water ecosystem. Examples of permitted water uses include wildlife sanctuaries and refuges. The FWS proposal would appear to be entirely consistent with these uses.

One aim of the 208 Program is to reduce sedimentation. Reduction of sediment inflow to Kealia Pond from surrounding sugar cane fields would not only enhance the pond's water quality, but also beneficially affect the water quality of Maalaea Bay. During intense winter storms, heavy run-off into the pond normally breaches the sand berm which plugs the pond outlet. At these times, the bay sustains heavy siltation. An effective 208 Program could reduce the severity of such events. The State Department of Health views the method of irrigating the sugar cane fields as one important tool for reducing sediment run-off. Sugar cane growers are in the process of converting from conventional furrow irrigation to drip irrigation. In drip irrigation, pipes buried just beneath the ground surface supply a metered volume of water to the fields. Water savings are significant--a 1,000-acre sugar cane field requires one million gallons of water per day with furrow irrigation, whereas drip irrigation requires only 3/4 million gallons per day. With more efficient water uptake, sediment losses should be reduced (Parnell, 1978).

2. The possibility of constructing additional parking turnouts along the alignment of the proposed Piilani Highway will be considered during detailed refuge planning. The Service recognizes that if properly planned, such turnouts could greatly enhance the interpretive and educational benefits of the proposed refuge.
3. Reference to the hydrofoil service has been deleted from the text of the final EIS.

4. If permanent residential or office facilities are eventually planned for the pond site, utilization of wind and solar energy sources would likely be considered in line with the Federal Government's energy conservation objectives. Wind or solar sources to energize water pumps would also be compared against conventional electrical energy sources in terms of initial and long-term costs.
5. FWS recognizes the use of Maalaea Bay by endangered humpback whales and will take appropriate measures to insure that refuge development and operational actions do not conflict with whale use. (See Section on Environmental Consequences.)
6. Mongoose are believed to be largely responsible for the low reproductive success of waterbirds at Kealia Pond. As many as 14 mongoose have been observed during one short visit by Service biologists.
7. The current population (64,700) for Maui County, as estimated by the State Department of Planning and Economic Development, has been used in the text of the final EIS.
8. The Corps Wetlands Survey has been included in the list of references. Mangrove seedlings (Rhizophora mangle) have the potential to invade the pond and reduce habitat values for stilt and coot. If such invasion is assessed to be a real threat on the pond, the Service would initiate measures to control the spread of mangrove.
9. A discussion of the land use plans and controls which could affect the Service acquisition proposal is presented under the No Action alternative and the section on the Affected Environment.
10. The final EIS has been revised to eliminate repetitious material.

Comments by State Historic Preservation Officer and Coastal Zone Management Office

Comments and responses to letters from the Hawaii State Preservation Officer and Coastal Zone Management Office have been incorporated in Appendices K and L respectively and within the text.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



W. Y. THOMPSON, Chairman
~~CHRISTOPHER CORBETT, Chairman~~
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

April 21, 1978

Mr. Roland R. Schulz
Department of the Interior
U.S. Fish and Wildlife
Service
Washington, D. C. 20240

Dear Mr. Schulz:

We have read the draft EIS for the Kealia Pond Refuge with interest.

Figure I-2 shows how well the fish farm has helped to keep water in the pond, stabilizing the depth, area and fringe. This achievement would be more impressive when examined against evaporation rates in this sunny and windy area. The fringe is of special interest because of its import to wading species. The same figure also shows how the cane fields are contoured to retard, if not prevent, erosion. We are also very aware that irrigation of the fields on this isthmus with water imported into the area helps to sustain the ground water table from which the fish farm draws its supply.

Figure II-6a beautifully sums up the virtual intertidal habitat. Closeness to both fresh and salt water presents a rare opportunity to maintain a variety of habitat by controlling water and invert elevations. The fish farm, raises freshwater species. The three acre County bait fish facility, which the EIS overlooks, is a freshwater facility with pond bottoms above sea level.

Figure II-8 neatly shows why the pond is not subject to tidal flushing, to being filled with sand, and to possible hypersalinity.



Mr. Roland R. Schulz
Page 2
April 21, 1978

The early experience of the fish farm with flooding suggests that not all of the 500 acres are suitable for aquaculture. We at once regret the absence of data to support this impression but are relieved no further mishaps have occurred.

4

Aside from the flood hazard, other risks attend the use of Kealia as a refuge. Sedimentation has already been mentioned -- both from the sea as well as from upland -- as indicated by core samples shown in pp. AP. 6-5ff. (Stratification of the cores should be related to mean sea level and site elevation as well as "seasonal high water table").

5

The sump function also means that water quality will be affected by run-off from the uplands.

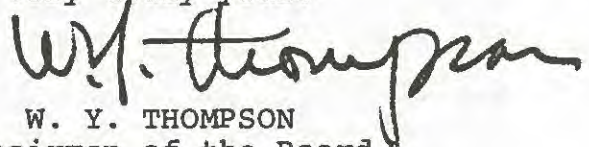
6

We believe that Kealia Pond area should be purchased by the State for its multiple uses and functions and that the feasibility of acquiring this area should be investigated.

We realize that acquisition cost may be prohibitive and that purchase may be beyond the fiscal capabilities of the State at this time. But with Federal help, it may be possible to acquire Kealia Pond area whether it be through fee, long-term lease, trade, or dedication.

7

Very truly yours



W. Y. THOMPSON
Chairman of the Board

cc: Hon. George R. Ariyoshi
Hon. Abraham Aiona
Hon. Thomas S. Yagi
Hon. Hideto Kono
Mr. Wesley Wong
Mr. Joe Medeiros

Responses to Hawaii Department of Land and Natural Resources, Honolulu, HI

1. The Service concurs with these observations.
2. The final EIS provides a detailed discussion of the County baitfish facility.
3. The pond is not subject to being filled with sand because a sand berm normally plugs the outlet to the sea. When the berm is breached by heavy storm run-off, the high discharge rate of run-off effectively prevents inflow of sand from the ocean. The strong influence of freshwater from the watershed prevents hypersaline conditions developing in the pond. As discussed in the Affected Environment, the waters of the pond are brackish. Seawater percolates through the porous soils of the pond bottom and mixes with the freshwater.
4. We concur that the entire 500-acre area would not be suitable for aquaculture from a flood hazard standpoint. The most recent floods in the Kealia Pond area occurred in 1967 and 1971. During the March 24, 1967 storm, it was reported that 4" of water were flowing over a 1500-foot section of Kihei Road. Flood damage in the Kealia Pond area was estimated to be \$5,000. The January 27-28, 1971 storm resulted in 3.8 inches of rainfall over a two-hour period. A one-half mile stretch of Kihei Road at the outlet of Kealia Pond was covered with water about one-to-two feet deep during the flood peak. Within Kealia Pond, the banks of the aquaculture facility were overtopped.

Kealia Pond does not have a natural storage capacity or even a possible dike capacity for storage of floodwaters of the magnitude occurring in 1967 and 1971. The outlet channel from the pond to the sea has a present estimated capacity of only 1,200 cfs compared with an estimated 1,600 cfs discharging into the pond during the 1971 flood. To divert, contain and route damaging floodwaters through the Kealia Pond and into the ocean would require a large and costly diversion channel (drain). Estimates are that such a drain would have to carry 7,000 to 8,000 cfs of water to protect against a five-year frequency flood and 37,200 cfs for the 100-year flood (U.S.F.W.S., 1971).

5. Sediment accumulation in the pond is expected and will be addressed by the Service in its operational planning. By creating a year-round pond for waterbirds, wind erosion of sediments will be reduced, thus creating a situation where the pond may fill over time with sediments. Currently, the Service anticipates the need to periodically drain diked subimpoundments within the pond in order to allow for mechanical removal of sediments. These sediments could be used for repair of dikes or could be made available to local farmers to replenish topsoil washed down from the surrounding cane fields.

6. The Service recognizes the potential water quality problems associated with sediment run-off from surrounding cane fields. (See response to Office of Environmental Quality regarding the State 208 Program.) Concern rests not only with the detrimental impacts of sediment loading on waterbird habitat, but also effects associated with silt inflow into Maalaea Bay, where coral communities could be seriously impacted.

Other potential water pollutants include nutrients derived from fertilizer run-off (nitrates and phosphates) and heavy metals derived from pesticides. According to the State Department of Health, however, fertilizer and pesticide run-off do not create significant water quality problems in Hawaii. Based on data obtained from agricultural watersheds similar to that drained by Kealia Pond, the Department believes that the main water quality problem will be sedimentation (Parnell, 1978).

7. The final EIS addresses this comment under the State acquisition alternative and the environmental consequences associated with its implementation.



MADE IN HAWAII
PRINTED IN HAWAII

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
549 BUCKENBURY STREET
HONOLULU, HAWAII 96813

May 30, 1978

LT-D
2.44551

Mr. Lawrence W. De Bates
Assistant Regional Director
Refuges & Wildlife Resources
Fish and Wildlife Service
U. S. Department of the Interior
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

Dear Mr. De Bates:

We have reviewed the Draft Environmental Impact Statement for the proposed land acquisition for the Kealia Pond National Wildlife Refuge, Island of Maui, Hawaii. As indicated by the April 26, 1978 communication from Mr. Young, Director of Environment and Design of Region Nine of the Federal Highway Administration to Mr. Schulz, Chief, Environmental Coordination Branch, Fish and Wildlife Service, the final Environmental Impact Statement for the Piilani Highway project was approved on February 15, 1977. As part of this project, the northerly right-of-way line of existing Kihei Highway will be adjusted slightly at the Mokulele (easterly) end and will result in a slight reduction in the proposed refuge area. The total area involved, none of which affecting the pond itself, is approximately 1.5 acres as compared to the estimated 500 acres proposed for acquisition for the refuge. Acquisition of the property required for the highway is already underway.

It is requested that the boundary of the refuge area be revised to be coincident with the adjusted right-of-way line of Kihei Highway. This can be accomplished by coordinating the land surveys with our agency.

The effect of the designation of the refuge area on the proposed highway northerly of the Kealia Pond as shown on the County Regional Plan can best be answered by the Maui County Department of Public Works.

Mr. Lawrence W. De Bates
Page 2
May 30, 1978

LT-D 2.44551

Thank you for giving us the opportunity to review the
draft document.

Very truly yours,



T. HARANO
Chief
Land Transportation
Facilities Division

Response to State Department of Transportation

1. The Service is willing to adjust the boundary of the refuge to coincide with the adjusted right-of-way line of the Kihei Road. However, it is not anticipated that the adjusted right-of-way line will have an impact on the refuge proposal.



DEPUTY DIRECTORS
WALLACE AOKI
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
WATER TRANSPORTATION FACILITIES DIVISION
79 SO. NIMITZ HWY. • HONOLULU, HAWAII 96813

IN REPLY REFER TO:

May 26, 1978

WT-EP 5117

U. S. Department of the Interior
Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N. E. Multnomah Street
Portland, Oregon 97232

Attention Mr. Lawrence W. De Bates
Assistant Regional Director
Refuge and Wildlife Resources

Gentlemen:

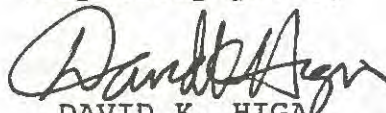
Subject: Draft EIS - Kealia Pond National
Wildlife Refuge, Maui, Hawaii

Reference is made to your letter of May 9, 1978 (ARW-RF),
requesting comments on the subject draft EIS.

For your information, the State Clearinghouse Agency, the
Office of Environmental Quality Control (OEQC), made the EIS
available earlier to our department. After reviewing the
document, our comments were incorporated into a departmental
response to the OEQC. They, in turn, will forward it along
with others to your office for consideration.

Thank you for allowing us the opportunity to provide
comments.

Very truly yours,


DAVID K. HIGA
Chief



RYOKICHI HIGASHIONA, F.R.E.
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

IN REPLY REFER TO
STP 8.4828

May 9, 1978

Office of Environmental
Quality Control
550 Halekauwila Street, Rm. 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Impact Statement
Kealia Pond National Wildlife Refuge

Thank you very much for giving us the opportunity to review and comment on the above-captioned document. While we find ourselves in general accord with the intent of the proposed action, we have serious reservations regarding acquisition by the Federal Government and the loss of local control of the area.

We recognize the two major factors that support the acquisition of Kealia Pond area. First, the preservation of a natural habitat to enhance the survival rate for two endangered native Hawaiian birds and, second, Kealia Pond represents the last of these natural habitats of any significance--aside from Kanaha Pond--remaining on Maui. Certainly, any protection which could be afforded the endangered species and their habitat are worthy of serious consideration.

Maui County is by no means a static community. There will be future growth trends with a concomitant need for increased goods and services. Lahaina and Kihei are excellent examples of areas experiencing expansion. Future projections indicate the possible need for a second commercial harbor for Maui.

As noted in the statement, Kealia Pond was envisioned for a medium-draft commercial harbor by the Corps of Engineers a few years ago. However, public and other opposition to the project have necessitated the Corps to classify the project as "deferred". The Department of Transportation has never ruled out Kealia Pond as a possible commercial harbor site. Reasons for choosing this site were mainly because of its central location on the lee side of the Island and the low lying characteristic of the area which would substantially reduce dredging costs.

We envision the need for another commercial harbor on Maui as quite a few years away but feel the day will come when Kahului Harbor will be inadequate to meet the needs of future demands. Although we have looked at the Kealia Pond site as one of the most promising for the reasons alluded to above, we also recognize the environmental and social consequences involved if such a development were to be implemented. Hence, we consider Kealia Pond as one option that should remain open so that at some future date when a second harbor needs become a reality, all viable alternatives could be explored at that time. To assure that this option remains open, local control of the area is considered essential.

Our position, then, is that while we support the intent of the proposed action, we recommend against the Federal Government acquiring the pond area for a wildlife sanctuary. The statement notes that a protected wildlife sanctuary could be achieved at the local level with a strong reservation: future pressures for development could destroy the valuable habitat. Notwithstanding, we support the concept of local control of the area as it would provide more flexibility in determining the best future use of the pond area. We have great respect and faith in our local officials to provide the necessary leadership and direction in protecting the interests of the community.

Acquisition by the Federal Government would preclude any local control over the area to be acquired which is quite substantial, 500 acres. We disagree that Kealia Pond would succumb to development pressures since present regulations and statutes such as the DLNR's Conservation District Use Application, the Corps of Engineers' permit, the EIS process would virtually rule out any proposed action which would significantly adversely affect the environment--both physically and socially. On the other hand, should the Kealia Pond area become less attractive to wildlife for one reason or another such as other habitats being favored, water problems, uncontrollable predators, etc., the County could then decide to put the area in more productive use, such as a harbor complex. As a matter of record, the County has supported a port in this vicinity in the past and our Hawaii Statewide Harbor System Plan also recommends keeping the Kealia Pond option open. A port facility on the south side of Maui will be an essential element of the inter-island ferry system, once it is developed.

We realize a commercial port facility is a major undertaking and the impacts of such a venture are significant indeed. We will be considering other alternate sites for this complex. However, our opposition to the acquisition proposal will leave the option open to use the pond area should circumstances in the future dictate that such a development is in the best interest of the State and all concerned. We feel that responsible local government, working with other Federal agencies as necessary, should be able to best determine the future disposition of Kealia Pond.

In regards to highways, the implementation of the proposal for Kealia Pond will severely limit the options for future highway improvements, both "mauka" and "makai" of the pond. In any event, we strongly recommend that the "makai" boundary of the sanctuary coincide with the "mauka" boundary of the new Piilani Highway and the existing Kihei Road.

Currently, the new Piilani Highway, designed to improve congestion on Kihei Road, is set to begin near Mokulele Highway (east of Kealia Pond) and end at Ulupalakua. Construction of the first segment is expected in the near future. There are no current road improvement plans for the segment from Mokulele Highway to Honoapiilani Highway, the section which includes Kealia Pond. As Kihei grows and proposed resort and other developments are realized, the demand to improve this segment will be inevitable. The County 701 General Plan calls for the ultimate routing to be around the pond on the mauka or north side. The implementation of this proposal with its attendant restrictions on highway intrusions will limit the alignment corridor and with added conditions on drainage, could effectively delay if not preclude this alignment.


Additional comments in regards to roadway alternatives follow:

1. P. III-14. "The existing highway would not be affected by the proposal;". This assumption is made also for all the alternate proposals. While the current general plan calls for a mauka realignment, future conditions may warrant consideration of improving the existing highway as a viable alternate. The proposed southern boundary of the Refuge appears to be the highway. Therefore, any improvement to the highway such as widening or realigning, will be subject to the same restrictions and conditions as in the mauka relocation.

2. Alternate E. Enlarged Area will further limit alignment corridor for the re-routing. | 11
3. Alternate C - Alternate Site. Besides the effects mentioned above, the straddling of the highway will cause additional traffic concerns for pedestrians and possibly vehicles crossing from one side to the other. | 12
4. Alternate D - Reduced Area. While this will ease somewhat the corridor limits of the mauka realignment, other conditions such as passage of drainage ultimately into the pond may effectively limit such realignment. | 13

We request that our comments and recommendations be given serious consideration.

Sincerely,


J. R. Higashionna

Responses to State of Hawaii, Department of Transportation

1. The Service concurs with this statement.
2. The Service recognizes the likelihood of continuing strong economic and population growth in Maui County (see Affected Environment Section). The final EIS acknowledges that such growth could eventually necessitate the need for a second harbor on Maui, but precisely when the harbor might be required is subject to question. The Statewide Transportation Plan concludes that Kahului Harbor, if expanded and modernized, could accommodate shipping needs on Maui to the year 2000.
3. The Service is aware of the facts cited in this comment.
4. The Service concurs that retention of local control of Kealia Pond would maximize future use options, particularly in the context of future potential harbor and industrial uses. The Service views such uses as inimical to the wildlife values of the pond and, therefore, believes that local control of the pond would not assure preservation and enhancement of the pond as essential habitat for endangered waterbirds.
5. The Service would not disagree that local officials are in the best position to provide leadership and direction in protecting local community interests. However, since the DEIS, the Service has continued to coordinate endangered species efforts with State officials. As a result a Cooperative Habitat Protection Agreement was signed between the U.S. Department of Interior and the State of Hawaii, approved by Governor George R. Ariyoshi (see Appendix J). The agreement sets forth means and measures for protection and enhancement of the State's endangered waterbirds and Kealia Pond in concert with Federal and State objectives and laws. The Endangered Species Act of 1973 mandates protection of endangered wildlife and their habitat for the benefit of all the people. In Section 2 of the Act, "...Congress finds and declares that (endangered species) are of esthetic, ecological, educational, historical, recreational and scientific value to the Nation and its people;" (P.L. 93-205, Endangered Species Act of 1973, as amended, Section 2(a)(3).) From this larger perspective, the Service believes that acquisition of the pond as a wildlife refuge with State option to purchase would best protect the National and State interest.
6. The Service concurs that present land use constraints would discourage economic development of the pond. The Corps' 404 Permit Program and the Endangered Species Act are presently viewed as major hurdles to any development effort. Despite these constraints, the Service is concerned that

future changes in either State or Federal land and water use policies could adversely affect waterbird habitat. (See Affected Environment and Environmental Consequences of the No Action alternative.) In a sense, the Service's proposal to acquire the pond guarantees protection for the birds and their habitat, now and in the future.

7. See Response No. 5 above.
8. The Makai (seaward) boundary of the refuge would coincide with the northern right-of-way boundary of Kihei Road. The mauka (landward) boundary of the refuge is estimated to be located at least 400 feet south of the proposed Piilani Highway right-of-way at the nearest point (see also Response No. 9).
9. The proposed alignment of the Piilani Highway, as shown in the Kihei Civic Development Plan, is located far enough north of the northern boundary of the refuge to eliminate any conflict. Ortho-aerial photographs indicate that the new highway would be located at least 500 feet from the refuge boundary. Taking into account a 100-foot right-of-way on either side of the highway would still place the highway right-of-way 400 feet from the refuge boundary at the nearest point. Drainage may, however, present problems. Highway construction would necessitate culverting of inflow drainages that enter the pond from the north, west and east. Culverts would need to be sized to accommodate the heavy run-offs associated with intense winter storms. The principal concern from the Service standpoint would be that the highway is designed to allow adequate inflow of water to the pond. Oils and greases from highway run-off could potentially impact the water quality of the pond. We assume these problems will be addressed by the Federal Highway Administration during planning for the highway relocation and that an EIS will be circulated for comment. The Service will be in a better position to address potential impacts on the pond at that time.
10. The southern boundary of the refuge actually coincides with the existing northern right-of-way boundary of the Kihei Road. Widening of the Kihei Road would necessitate encroachment on the proposed refuge and on areas recommended for critical habitat designation. If the critical habitat designation, when finalized, coincides with the proposed refuge boundaries, then consultation under Section 7 of the Endangered Species Act would be required--assuming Federal involvement through funding programs. Depending on the impact, a determination would be made whether or not the development was severe enough to require an objection, recommend mitigation to offset the losses, or indicate that the plan had little or no impact on the pond habitat. The Service will be in a better position to analyze the impact when plans are presented.

11. The entire Kiawe buffer zone will not be designated as critical habitat, therefore, a highway alignment outside the proposed refuge boundary (see Figure 3) should not be a major problem subject to drainage concerns (response #9). However, in the event a corridor was proposed within the northern refuge boundary, the plans would be subject to the same wildlife constraints as noted in the previous comments.
12. Pedestrian hazards would not necessarily develop, given the current low-key interpretive and educational public facilities foreseen for the refuge. With only a visitor turnout and observation platform, pedestrians would be concentrated at specific points--thus minimizing the need to make roadway crossings. If interpretive trails are eventually planned that would straddle the highway, the potential pedestrian safety hazard associated with this alternative would be given full consideration.
13. Again, the Service's principal concern is that inflow drainages to the pond remain unaltered in order to ensure that adequate supplies of water reach the pond. The Service stands ready to offer full cooperation to the State Department of Transportation in developing environmentally acceptable alternatives for the highway alignment and design.



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

Office of the Director

May 17, 1978

Mr. Richard O'Connell, Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Review of Draft EIS for Kealia Pond
National Wildlife Refuge, Maui, Hawaii

The Environmental Center has been assisted in the review of this DEIS by Charles Lamoureux, Botany; John Walters and William Kimmerer, Oceanography; Richard Mayer, Maui Community College; and Doak Cox, Jacquelin Miller, Margaret Kimmerer, and Barbara Vogt, Environmental Center.

In general, the document covers many of the known and potentially significant environmental impacts that can be expected to occur as a result of this project. Unfortunately, it also contains wasteful repetitions of essentially irrelevant information, distracting and numerous typographical errors, misspellings, and confusing sentences.

The areas in which our reviewers would suggest clarification or expansion are the following:

Page I-9, II-34

Reference is made to the relationship between Kanaha and Kealia Ponds. If Kealia Pond is developed as a national wildlife refuge, how will this affect Kanaha Pond? What factors make Kanaha Pond uninhabitable to birds and how often do they exist? Is Kanaha Pond subjected to heavier winds than Kealia?

| 1

Page I-10, III-11

How realistic are the tourism figures (10,000/year on Page I-10, 1,500/year on Page III-11)? What effect will the tourists have on the refuge area? What agency will be responsible for maintaining the refuge after the land is acquired by the federal government?

| 2

Page I-11 Construction Items

What will be the effects of the construction of the small islets and the observation platform on the waterfowl? The DEIS states that development of low islands readily overtopped by floods "will improve the habitat." Will nesting time be taken into consideration when flooding occurs? Experience of Kanaha Pond suggests that construction of an anti-mongoose ditch or other form of positive predator control should be considered rather than the chemical control methods mentioned on page III-5. Have such ditches been considered?

3

Page I-14, III-17

The DEIS mentions "17 small inholdings" (kuleanas) on page I-14 and "15 unlocated kuleanas" on page III-17. How many actual kuleanas are involved? What is an "unlocated kuleana"? Have the kuleana owners been consulted about this proposal? What is a "cadastral" survey?

4

Page I-15 Aquaculture--Project

The aquaculture project should be described in more detail. Reference is made to the compatibility of the refuge and the aquaculture project. If the water levels in the refuge are dependent upon the aquaculture project, what provisions are available to assure a continuous water supply in the event of termination of the aquaculture farm. Will the black-crowned night heron and other predatory waterbirds affect the aquaculture business? What will be the impact of the refuge on the aquaculture farm in terms of future expansion and economics.

5

I-21 Table 3

Does the category labelled "gulls" really mean gulls, or all other stray birds?

6

Page I-23

In the discussion of interrelationships with other projects and jurisdictions there is no mention of the relationship of the project with the Coastal Zone Management effort of the State, of which the Department of Planning and Economic Development is the local agency. The State Division of Fish and Game is erroneously identified as a Department. It is part of the Department of Land and Natural Resources (also incorrectly identified throughout the DEIS) which as a whole has an important role in the management of areas within the Conservation Land Use District within which Kealia Pond lies.

7

Page II 1-4

Not all the information on these pages is relevant to the project.

Page II-1

There seems to be a discrepancy in population figures in the report.

8

Page II-1 lists Maui's population as 40,000, II-4 states it as 45,000 +, and II-42 lists the 1973 population figures of 45,620. One figure should be used. It is not necessary to include this kind of information more than once.

8

Page II-3 Transportation

The modern jetfoil system is no longer in operation.

Page II-10-13

The DEIS recognizes that low sand dunes and the Kihei highway separate Kealia Pond from the sea. It does not recognize that the separation is by a beach bar, nor discuss the instability of this bar.

9

The ability of Kealia Pond to trap sediment is recognized. The importance of this trapping and the water quality and biota of Maalaea Bay is not discussed; nor is any effect of the proposed use of the Pond in the sediment trapping efficiency of the Pond.

10

The DEIS mentions that increasing the amount of water flowing into the pond would prevent its seasonal drying, thus preventing wind erosion and allowing further build-up of silt. Are there any possibilities for alleviating the build up of silt in the pond? Will the pond be dredged initially?

How will maintenance of water levels affect Maui's apparently limited water supply? Is fresh water necessary, or can salt water be pumped in? What is the salinity level in the pond and does it fluctuate throughout the year?

11

Will the chemically laden run-off from the cane fields present any problems in the refuge?

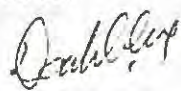
12

The probable expense of this document could not be overlooked. It is unfortunate that better direction could not be given to the drafters of this EIS so that it could be more concise and only address the points essential to the environmental concerns.

We appreciate the opportunity to have reviewed this EIS.

Yours very truly,

Doak C. Cox
Director



DCC/lmk

cc: U.S. Fish and Wildlife Service
Charles Lamoureux
William Kimmerer
Jacquelin Miller

Richard Mayer
John Walters
Barbara Vogt
Margaret Kimmerer

Responses to University of Hawaii at Manoa (Honolulu, HI)

1. Development of Kealia Pond as a refuge is not expected to have any significant effect on Kanaha Pond. With development of habitat at Kealia, it is expected that initially some of the birds from Kanaha may be attracted to Kealia because of more favorable habitat conditions. When Kealia reaches carrying capacity, however, it is presumed that the distribution of birds between the two ponds would remain more or less constant, consistent with the respective carrying capacity of each pond. Kanaha Pond is not presently "uninhabitable" by birds. In fact, with the permanent water supply and the Forestry and Wildlife's recent efforts at constructing waterbird nesting islets, habitat conditions at Kanaha are superior to those existing at Kealia. The HWRP states that Kanaha Pond now...constitutes the most productive single area in the State for stilt... (HWRP, 1977). However, a number of factors currently pose potential threats to wildlife at Kanaha Pond. Shallenberger (1977) noted that the recently constructed injection sewage treatment plant could result in serious pollution of the pond unless more effective means were employed to raise, lower or flush the pond. Shallenberger also noted evidence of pond pollution by industrial chemicals. (A more complete description of the ecological relationship between the two ponds is provided in the "Affected Environment" Section of the EIS.)

Kealia Pond is generally subjected to heavier winds than Kanaha Pond. Velocities of the northeasterly blowing tradewinds are increased by the funneling effect created by the two volcanic masses comprising east and west Maui. As a result, 20-25 mph wind velocities are frequently experienced in the vicinity of Kealia Pond, peaking during the afternoon and calming during the early morning and evening hours.

2. The Piilani Highway final EIS (U.S. Department of Transportation, 1977) indicated that the 1973 average daily traffic (ADT) along Kihei Road was 2,300 vehicles per day. With completion of the Piilani Highway, ADTs are projected to increase to 4,400 vehicles per day. Not all of these vehicles, of course, would by-pass the refuge on Kihei Road; but assuming that 2,500-3,000 vehicles per day pass the refuge, it is not unreasonable to anticipate 10,000 visits per year. The figure is even more plausible when recent tourism statistics are taken into account. Since 1970, the visitor count for Maui Island has increased from 495,000 annual visitors to an estimated 1,257,000 visitors in 1977 --a 155 per cent gain (Hastings, Martin, et al., 1978).

Interpretive and educational facilities would be provided for tourists to the extent that such facilities are compatible with the underlying objectives of the refuge to preserve and enhance waterbird habitat. As noted above, only "low-key" facilities--such as visitor turnouts or observation platforms--are presently contemplated.

The Service would develop, operate and maintain the pond as a National Wildlife Refuge following acquisition of the property. In the event the State option to purchase is realized, a cooperative management program would be carried out (see Appendix J).

3. The small islets are intended to provide nesting habitat for waterbirds. Similar islets have been constructed at Kanaha by the Forestry and Wildlife with notable success in increasing waterbird production. Flooding at Kealia Pond usually occurs during winter Kona storms. Water will persist in the pond until April during a dry year and until June in a wet year. The breeding season for the stilt extends from early April through June. The coot nesting season is thought to extend from March to September, but nesting may actually occur year-round (HWRP, 1977). Therefore, no conflict is anticipated between flooding and waterbird nesting activities on artificially constructed islets.

With respect to mongoose predator control, the Service would certainly consider "anti-mongoose" ditches preferable to the use of chemicals. As noted in the EIS, use of approved toxicants to control predators is viewed as a "last resort" measure. Further coordination with the State Division of Forestry and Wildlife will be undertaken prior to FWS establishment of predator control methods.

4. Service appraisal reports (Hastings, Martin et al., 1978, and John Child and Co., 1978) provide evidence for the existence of approximately 14 kuleanas believed to be located within the proposed acquisition boundary. The word "kuleana" implies a small land ownership, usually a homesite given through Hawaii's ancient feudal land tenure system or by royal patent to the land's occupant who resided on and/or farmed the parcel. Most recorded kuleanas are fragmented in ownership because of large family size and infrequent sales. Most of the kuleanas are under the ownership of Alexander and Baldwin, but several so-called "unlocated kuleanas" are under other ownerships. "Unlocated kuleanas" designate those for which boundaries have not been positively verified by land surveys. Final determinations of the location and ownership of these kuleanas will eventually require a court hearing. East and west alternative locations for the "unlocated kuleanas" have been provided to facilitate appraisal purposes. Known kuleana owners have been consulted on the FWS proposal. A "cadastral survey" is a survey employed to determine property boundaries, subdivision lines, building lines and related details.
5. Both aquaculture projects at Kealia Pond have been given more detailed treatment in the final EIS. (See especially Affected Environment Section.) The Service anticipates developing independent water sources by drilling shallow wells to assure a continuous supply of water. Unquestionably, black-crowned night herons prey upon catfish. According to the fish-farm manager, however, predation by the birds is not a significant mortality

factor. In fact, the birds may actually be making a beneficial contribution to the fish-farm operation. The catfish which are most vulnerable to heron predation are those found near the pond surface. These fish are unhealthy specimens which are trying to obtain more oxygen near the surface. Thus, the birds--by removing "sick" fish--may be minimizing the spread of fish diseases.

6. The category refers to gulls.
7. The Service has carefully coordinated the acquisition proposal with the State CZM Office. Evidence of that coordination is provided in Appendix L and within the text.
8. These comments are addressed in the Affected Environment Section.
9. The text has been revised to include a discussion on the beach bar and resulting flood conditions (see Affected Environment).
10. This comment is addressed in the Affected Environment and under the discussion of the No Action alternative. Engineering studies done prior to the pumping of well water by the catfish farm showed that 73 percent of the sediments entering the pond were trapped and that average annual deposition amounted to 10.5 acre-feet. However, spilling of residual water from the fish farm has kept a portion of the pond continuously inundated, thus reducing wind erosion of sediments and increasing sediment trap efficiency. To maintain ponding capacity, the Service anticipates the need to periodically dry up subimpoundments and mechanically remove sediments. This should constitute a net benefit to the biota of Maalaea Bay where coral communities are especially susceptible to siltation. As noted previously, however, the pond has insufficient storage capacity to contain run-off waters associated with storms comparable to those of 1967 and 1971. It is uncertain, at this time, how much silt would be contained in storm run-off. Conversion to drip irrigation in the surrounding sugar cane fields is expected to reduce sediment losses, but the argument has also been advanced that without the conventional deep-contoured furrows in the cane fields, floodwaters will not be slowed down, and the full force of these waters will be directed to the existing drain channels, carrying greater sediment loads to Kealia Pond and the ocean. Whatever the case, during major storm events, some sediment would be expected to be deposited in the bay. During normal run-off conditions, the pond should function as a highly efficient sediment trap, reducing sediment input into the bay.
11. The Service estimates that a minimum continuous flow of 3.35 cfs would be required to inundate 300 acres of the pond to a depth of one foot. Shallow wells 40-100 feet deep are expected to provide water of sufficient quality and quantity to maintain desired water levels in the pond.

Ground water development within the immediate area of the Kealia Pond is not encouraging, due to the unknown thickness of fine sediment accumulations and the probability of highly saline waters. A brackish water table occurs at depths of from 12 to 40 inches. It fluctuates with the tide and is generally shallow near the ocean and deeper farther inland. Permeability is moderately rapid, but because of the high water table and very slow run-off, ponding occurs in low areas after a heavy rain.

The minimal flows required to maintain the pond are not expected to have any measurable impact on the ground water supplies for the Island of Maui. However, since the Service has no quantitative data on the local ground water supply, it is uncertain at this time what impact the proposed refuge wells would have on surrounding development. The nurseries and condominiums east of the pond also draw on the available ground water and, therefore, the potential for future conflicts over water use does exist.

No recent salinity data is available for Kealia Pond. Measurements made in 1952, however, indicate that the pond was only slightly brackish near the opening to the sea and almost fresh over the major pond area (Smith and Medeiros, 1952). Similar conditions exist at Kanaha Pond. Since the predominantly freshwater ponds now support significant populations of stilt and coot, a reasonable inference would be that the birds and the organisms they feed upon are dependent upon waters of low salinity. As noted above, wells will be sunk to 40-100 feet in order to avoid saline or brackish waters at shallower levels.

12. Pesticide and herbicide run-off from the surrounding sugar cane fields have the potential for adversely affecting the pond's wildlife resources. The State has completed development of the "208" Water Quality Program to control "non-point" sources of pollution. It is expected that this program will establish environmentally acceptable standards for chemicals contained in agricultural run-off.

UNIVERSITY OF HAWAII

Water Resources Research Center

Office of the Director

April 25, 1978

Director
Fish and Wildlife Service
FWS/RF
Washington, D. C. 20240

Dear Mr. Schulz:

We have reviewed the Draft EIS for Kealia Pond, Hawaii, and have the following brief comments for your consideration:

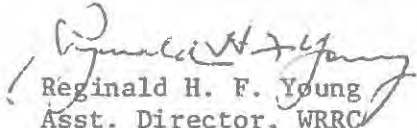
1. The EIS should be reviewed by the State of Hawaii Department of Transportation in order to ascertain potential impact on plans for any prospective harbor or small-boat facilities in the Maalaea area. | 1

2. What will the cost per unit area be for this project, including land acquisition, and how will these costs be financed? | 2

3. The State of Hawaii should buy this pond because, once the federal government gets this logistic-strategic land for wild life use, no other alternate uses for the state can be planned. (Or the state has to pay a bundle for this land--many examples can be cited.) | 3

Thank you for the opportunity to participate in this EIS review.

Sincerely,


Reginald H. F. Young
Asst. Director, WRRC

RHFY:jmn

cc: Y. S. Fok

M-54

Responses to University of Hawaii Water Resources Research Center (Honolulu, HI)

1. The final EIS provides detailed discussions regarding the impacts of the acquisition proposal on a prospective industrial harbor in the Maalaea area. DOT's comments are included in this section of the final EIS.
2. Cost per unit acre have not been finalized at this time but could most likely be in excess of \$5,000. Negotiations are currently underway with the landowner, and actual costs will depend upon the outcome of these negotiations.
3. The feasibility of State acquisition of the pond is discussed under the State Acquisition alternative and Federal Acquisition with State option to purchase. The Service concurs that if the land is acquired for a National Wildlife Refuge, other future potential uses of the pond would likely be precluded.

Council Chairman
Goro Hokama

Council Vice Chairman
Abraham Aiona

Councilmen
Alvin T. Amaral
Toshi Ansai
E. Loy Cluney
Rick Medina
Gordon Miyaki
Bob Nakasone
Calvin S. Nemoto



Harold S. Mizomi
Director of Council Services

Manuel S. Molina
Administrative Assistant

COUNTY COUNCIL
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

April 21, 1978

Director
Fish & Wildlife Service
Dept. of the Interior
Washington, D. C. 20240

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT
STATEMENT - KEALIA POND FWS/RF

Gentleman:

The draft EIS as presently written does not warrant a review and comment for adequacy. As a suggestion, the document should be withdrawn and a "back to the drawing board" movement be made. The movement should include full provision for an adequate consultation process with the "public", prior to the actual re-writing of the document.

Our conclusion and suggestion is based on the following:

1. As written, it is a one-sided document intended to justify the action.
2. As written, it is difficult to comprehend because it is poorly written, repetitious, contradictory and contains numerous typographical errors.
3. As written, the document contains so many factual errors, that the integrity and veracity of the entire statement becomes suspect. Extrapolated, the Service, the Department and the entire Federal Government is placed under a cloud.

Sincerely,

Goro Hokama
GORO HOKAMA
Council Chairman

GH:ja

Responses to County of Maui, County Council

1. The Service proposal to acquire Kealia Pond has been thoroughly coordinated with State and County governmental agencies and affected landowners. The proposal has been widely publicized in local newspapers. Redrafting of the document could only be justified if major new alternatives were identified with strong potential for meeting the objectives established in the Hawaiian Water Birds Recovery Plan. The final EIS discusses a range of alternatives, including those suggested by State and County agencies, for preserving the wildlife values of Kealia Pond. The Service conclusion is that fee acquisition by the Federal Government with State option for future purchase represents the best alternative for ensuring the long-term protection and perpetuation of the pond's endangered waterbird resources.
2. The final EIS has been written to provide substantially equal treatment to those alternatives judged by the Service to have potential for meeting the objectives in the Recovery Plan.
3. The final EIS focuses on relevant issues, as raised by reviewers during public circulation of the draft EIS. Factual errors noted by reviewers of the draft have been corrected in the final. The final EIS uses a shortened four-section format to reduce bulk and enhance comprehensibility.

PLANNING COMMISSION
Shiro Hokama, Chairman
Charles Ota, Vice Chairman
Patrick Kawano
Marvin Romme
Harlow Wright
Rojelio Taddol
Wesley Wong
Wayne Uemae, Ex-officio
Tatsumi Imada, Ex-officio



Elmer Cravalho
Mayor
Tosh Ishikawa
Planning Director
Yoshikazu "Zuke" Matsui
Deputy Planning Director

COUNTY OF MAUI
PLANNING DEPARTMENT

200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

April 12, 1978

Mr. Roland R. Schulz
United States Dept. of the Interior
Fish & Wildlife Service
Washington, D.C. 20240

Dear Mr. Schulz:

In accordance with your communication addressed to Mayor Elmer F. Cravalho, dated March 15, 1978, relative to the Draft Environmental Statement for a proposal for acquisition, development and operation of the Kealia Pond National Wildlife Refuge, our comments are as follows:

1. The subject document contains numerous errors pertaining to the planning function role and responsibilities of the County of Maui. For example, the Planning Director is not appointed by the Maui Planning Commission (p.11-4).

2. There is an apparent misunderstanding of the State Land Use Legislation and land use regulatory processes at the State and County levels. We strongly object to the statement that:

"While present local zoning regulations provide conservation status for part of the area, there is concern that increasing pressures for Urban related activities would lead to rezoning not compatible with natural values" (emphasis added).

We submit that the laws of the State of Hawaii, the County's General Plan and land use controls provide adequate safeguards to prevent rezoning resulting from "pressures for urban related activities". More importantly, the governmental processes at the County and State level allows ample public input, through public hearings, to assure that the concerns of the community are taken into consideration, whenever zoning, general plan amendments and other land use changes are contemplated.

3. We believe the best approach to wildlife preservation is to maintain a minimum of interference by the activities of man in the preservation area. Accordingly, we disagree strongly with the proposal to establish tourist oriented facilities at Kealia. We believe this is contrary to good conservation, preservation practices and could lead to an intensification of activities leading to a

Mr. Roland R. Schulz - 2
April 12, 1978

3 degradation of the conservation area. An example of this syndrome is the effort of the National Park Service to expand and increase the visitor oriented activities at the Seven Sacred Pools at Kipahulu, Maui.

4 4. The report fails to recognize the potentials of aquaculture at Kealia. The County of Maui in conjunction with the State of Hawaii has established a "bait fish" propagation project at Kealia that may contribute significantly and positively to the betterment of the tuna fishing industry. This project and other new aquacultural programs will be directly dependent upon the availability of Kealia Pond, without any restriction, for experimental and permanent aquaculture projects.

5 5. Kanaha Pond in Kahului, Maui which is less than eight miles away serves as a viable wildlife refuge in an area of greater encroachment by "urban related activities", than at Kealia Pond and should receive more support, funds and assistance by the U.S. Fish and Wildlife Services.

6 We suggest that funds appropriated for Kealia Pond be used at Kanaha Pond to upgrade and provide appropriate protective measures to preserve the said pond as a valuable wildlife resource.

7 It should be noted that public viewing and educational oriented facilities compatible with the concept of a wildlife refuge would be highly desirable at Kanaha Pond. Numerous reasons attest to this need, including but not limited to:

Close proximity to urban areas and educational facilities; reduced wind and other favorable climatic conditions; and adequate highway system; and close proximity to the point of entry of visitors to Maui.

8 6. We feel the report is deficient in not considering alternatives that provide the participation by the County of Maui in any proposed at Kealia Pond. Whether separately or jointly, the County, State, Federal approach to Kealia Pond has not been addressed adequately, if at all. Is it appropriate to preclude County involvement in the said program? We think not.

9 The County of Maui has not been consulted, except on a very preliminary basis, in the preparation of the subject document. More importantly, the County was not consulted nor advised of any of the various options pertaining to Kealia Pond as suggested by the said draft report. We believe this is an undesirable practice and method of pursuing Federal programs which adversely impact upon the prerogatives of local government decision-making and wishes of the local community.

Mr. Roland R. Schulz - 3
April 12, 1978

Based on the above comments we strongly oppose the proposal for Kealia Pond and the draft environmental statement thereto.

Thank you for the opportunity to comment on the subject document. Please contact my office should you have any questions.

Yours very truly,



TOSH ISHIKAWA
Planning Director

cc Mayor Cravalho

Responses to County of Maui, Planning Department

1. The discussions relating to the County planning functions have been limited to the County Zoning Plan, County General Plan, and Kihei Civic Development Plan.
2. The EIS is accurate in stating that concern does exist within the Service that Kealia Pond could be rezoned in the future to allow urban development. Although land use controls at the State and County levels would presently make urban development of the pond unlikely, such controls do not guarantee long-term protection of the pond. The Service's proposal would ensure continued protection for the wildlife resources by making future conservation uses of the pond independent of State and local land use controls.
3. Public use of the modest interpretive and educational facilities proposed would not, in the opinion of the Service, conflict with the wildlife objectives of the proposed refuge. If public use of the refuge is found to be detrimental to waterbirds or their habitat, appropriate changes would be made to ensure achievement of the primary wildlife objectives.
4. The final EIS provides detailed consideration of the economic potential of the County-sponsored bait-fish facility at Kealia Pond. The Service believes that the facility would be compatible with proposed refuge operations, provided that there is no future expansion on the pond proper or adjacent wetlands. As discussed under the Environmental Consequences of the No Action alternative, unlimited expansion of aquaculture at Kealia Pond would be detrimental to endangered water bird resources.
5. This comment is addressed under the alternative entitled, "Improvement of Kanaha Pond with Federal Funds Allocated for Acquisition of Kealia Pond."
6. The final EIS considers a State acquisition alternative, a Federal acquisition with State management alternative and a Federal acquisition with State option to purchase alternative. The first two alternatives would currently appear infeasible in terms of the monetary outlays required from the State. Provided the State and/or County could demonstrate adequate fiscal capability for managing the pond in accordance with the recommendations set forth in the Recovery Plan, the Service would be entirely willing to consider such an alternative management strategy. To date, however, the Service has received no assurances from either the State or the County that funds would be forthcoming for a joint Federal, State, County management alternative. Therefore, in the interests of the waterbird resources, the Service believes Federal acquisition with State option to purchase, develop and manage the pond to be the most feasible alternative at this time.

7. Our records indicate that as early as 1973, FWS personnel had met with Mayor Cravalho to inform him of the Service's intention to acquire the pond for preservation of waterbirds. Our files provide no indication that the County was consulted during formulation of the alternatives described in the environmental statement, and the Service agrees that it would have been more desirable to coordinate alternatives prior to their publication in the draft EIS. We must point out, however, that the purpose of circulating a draft EIS is to provide the public the opportunity to formally comment on agency alternatives and to suggest new alternatives, as appropriate, for agency consideration.



DEPARTMENT OF PARKS AND RECREATION

COUNTY OF MAUI
HONOLULU, HAWAII 96791

April 27, 1978

Director
Fish and Wildlife Service
U. S. Dept of the Interior
Washington, D. C. 20240

Dear Sir:

Subject: Draft Environmental Impact Statement
Kealia Pond
FWS/RF

Our review of the Draft EIS indicates a document that appears very one-sided in support of the proposal. The document also contains numerous typographical and factual errors.

1 Our first suggestion is that the document should be re-drafted to be as objective as possible.

Failing that route, we then suggest that the draft be thoroughly edited to enhance its credibility.

2 More specifically, in the area of parks and open space, the proposal would be in direct conflict with the County's general plan. There are possibilities for various alternatives in this area. This conflict should be adequately addressed. This can only be accomplished by adequate and open discussion.

3 In addition, we feel that the alternative section could be expanded by the addition of alternatives to paying more attention to Kanaha Pond in the area of joint pooling of resources. Perhaps Maui just might be too small to support three levels of government working independently. The adverse impact section should also address this question because only by working together can the ultimate beneficiary, the environment, benefit.

In closing, we feel that the interests of all concerned can best be served by all concerned working together for their own self-interest and not by each concerned independently.

Sincerely,

WILLIAM H. AMORAL
Deputy Director of Parks

Responses to County of Maui, Department of Parks and Recreation

1. The final EIS attempts to provide substantially equal and objective treatment to all alternative means for ensuring the protection and perpetuation of the pond's wildlife resources.
2. The County General Plan designates most of the area immediately surrounding the pond in an "Open" category, whereas the pond itself is left undesignated. As discussed under the Affected Environment, such designations leave the pond vulnerable to uses that could be incompatible with the wildlife resources. However, one of the listed objectives of the General Plan is to "...protect and preserve Maui County's unique and fragile environmental resources." (Maui County General Plan, Dec. 28, 1977). The Service proposal to convert Kealia Pond into a National Wildlife Refuge to protect and enhance wild populations of endangered stilt and coot would appear to be entirely consistent with that objective.
3. The alternative section has been expanded to consider use of Federal financial resources for improvements at Kanaha Pond.

ELMER F. CRAVALHO
Mayor

WAYNE UEMAE
Director of Public Works

FELIX PASCUAL
Deputy Director of Public Works



DIVISIONS
Engineering
Highway Construction
and Maintenance
Land Use and
Codes Enforcement
Sewers

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS

200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

May 26, 1978

Mr. Lawrence W. DeBates
Assistant Regional Director
Refuge and Wildlife Resources
Fish and Wildlife Service
Department of the Interior
Lloyd 500 Building, Suite 1692
500 N. E. Multnomah Street
Portland, Oregon 97232

Dear Mr. DeBates:

Subject: Kealia Pond
Environmental Impact Statement
ARW - RF


Thank you for providing us with this extended opportunity to comment on the subject EIS. Our comments in general are in full accord with the earlier comments submitted by the County's Departments of Planning and Parks and Recreation.

More specifically in our area of responsibility, our concerns on the adequacy of the EIS are as follows:

1. Further discussion on the proposal's impact on our maintenance operations on Mokulele and Kihei Highways. | 1
2. Further discussion on the proposal's impact on any future improvements to the two highways - e.g., widening or multilaning or capacity improvements related to safety requirements. | 2
3. Further discussion on the proposal's impact on the County's plan to divert Waiakoa Stream and other streams into the pond in accordance with the County's Drainage Master Plan. | 3

Your consideration of our concerns is appreciated.

Very truly yours,


WAYNE UEMAE
Director of Public Works

Responses to County of Maui, Department of Public Works

1. The proposed refuge boundary, as shown in Figure 3 indicates that the eastern boundary is sufficiently distant from the Mokulele Highway to preclude any conflict with highway maintenance operations. The proposed southern boundary of the refuge follows the northern right-of-way line of the Kihei Highway. Again, normal highway maintenance should pose no conflicts with refuge operations.
2. Northward widening of Kihei Road would encroach on kiawe and Batis (pickle-weed) vegetative communities and upon the Pond proper. The area designated within the refuge boundary area has been proposed for critical habitat for endangered waterbirds (see Figure 3 for boundary area), therefore, the Section 7 consultation requirements of the Endangered Species Act would be invoked. A westward expansion of the Mokulele Highway would encroach upon agricultural lands and upon the kiawe buffer. The latter provides habitat for a variety of game and perching birds. Shallenberger (1977) observed or heard the following game birds at the site: Spotted dove, barred dove, ring-necked pheasant and gray francolin. Perching bird species observed included Japanese white-eye, northern cardinal, mockingbird, house finch, common myna and house sparrow. To the extent that the highway expansion would remove kiawe vegetation, habitat for the above species would be lost--with a resulting decrease in the populations of these birds. To avoid conflicts, the Service would recommend coordination and consultation at an early stage in project formulation.
3. Diversion of Waiakoa and other streams into Kealia Pond could adversely impact refuge structures and operations and lead to higher maintenance costs associated with dike repair and replacement. Additionally, a large volume of in-flowing water could result in loss of habitat for stilt, which require extensive shallow-water mud flat areas for feeding. Any plans to divert additional flows into the pond would require careful coordination between the Service and the County to ensure that no harmful effects are incurred by the waterbird resources.



ALEXANDER & BALDWIN, INC.

ROBERT K. SASAKI
Vice President

April 27, 1978

The Director, Fish and Wildlife
Service
United States Department of the Interior
Washington, D. C. 20240

Attention: Mr. Rolland R. Schulz, Acting Chief
Branch of Environmental Coordination

Gentlemen:

Re: WFS/RF: Proposed Environmental Impact
Statement re Acquisition of Kealia Pond,
498.784 acres. Island of Maui, State of
Hawaii

In response to your letter dated March 15, 1978, inviting comments to the above matter, we should first state that the proposed Environmental Impact Statement contains innumerable erroneous statements and distortions in an apparent effort to justify the proposed acquisition. Supporting data is sadly absent. We will not attempt to correct all the foregoing, but we do wish to make the following observations, and we further reserve the right to make supplemental comments from time to time.

The Kealia Pond site is most suitable for, and needed as, a harbor, industrial, marina, residential and resort development. These uses represent real needs for the people of Maui. Both the Army Corps of Engineers and the County of Maui have proposed that the Kealia Pond area be developed for harbor and industrial purposes. Private companies and persons have also shown interest in such development. Meetings and negotiations concerning the foregoing plans are continuing to date. In recent years the adjacent lands have been developed for industrial, residential, apartment and resort usages. As you may know, 14.5 acres of nearby land were sold to Maui Electric last year for industrial use at a price of \$195,000, and it has indicated a need for further expansion.

We point out that A&B gave a license to use this pond area to the State for wildlife sanctuary purposes for the period from 1952 through 1973. This usage was compatible with the needs of our company's agricultural operations, the largest in the State, which surround the pond and which include drainage, plowing and burning and the use of agricultural chemicals such as ripeners and herbicides. During the earlier years of this period, Maui experienced a relatively quiet growth, but recently development have expanded to the Kealia Pond vicinity and the land is required for urbanization needs. The U. S. Fish and Wildlife Service indicated to us early in the 1970's that it wished to acquire the Kealia Pond area for a wildlife sanctuary. We call your attention to the foregoing because these governmental plans for acquisition of Kealia Pond have blighted the pond area and have necessarily curtailed specific development plans being implemented by our company.

We note that in the appraisal prepared for the U. S. Fish and Wildlife Service in August, 1973, by its staff appraiser R. W. Satre, it is concluded that the highest and best use of the pond area would include 300 acres for harbor and urban purposes and 395 acres for pond purposes. We submit that there is no need for any designated wildlife refuge at Kealia. As you may be aware, the pond in its present state is only a few feet deep at any time during the year, and dries up on a seasonal basis. It should be mentioned that, as set forth on page 4 of Appendix 5 to the proposed Environmental Impact Statement, by 1925 the Kealia Pond served as a rubbish dump, and from 1936 on "it became an intermittent pool that filled during the winter storms and dried up during the summer months." This is contrary to the erroneous statement on page I-7 that Kealia Pond is the largest low land pond left in the State containing water the year-round. The very minimal year-round water available at Kealia is due solely to the recent aquaculture farm. Moreover, Kanaha Pond, located just 7 miles north of Kealia Pond, affords a more adequate wildlife sanctuary for many more birds; and we are of the opinion that Kealia Pond at the most simply functions as an inconstant secondary sanctuary. The fact that from 1952 to 1973 the State made no efforts to improve the condition of the pond as a wildlife habitat certainly indicates that this site was not considered of major importance for wildlife. In addition, our proposed usage of some of the adjacent area as a harbor and marina has been proven to be compatible with a wildlife sanctuary.

As indicated on page I-25 of the proposed Environmental Impact Statement, it was not until after 1974 that the Fish and Wildlife Service considered Kealia Pond as an endangered species critical habitat, and the Fish and Wildlife Service had no objections to the proposed harbor development prior to

1974. Indeed, the site is a geographic confluence of roads, utilities and development and will therefore attract more urbanization. It is questionable whether a wildlife sanctuary should exist in the center of such urbanization, considering the predictable economic and geographic burdens which it would impose on land owners and occupants alike.

You should be aware that Open Zone classification on the Kihei General Plan is a holding zone and does not indicate that any area so designated should be used only for conservation related uses (as erroneously indicated on page III-17 of the EIS). This general plan is presently under review, and it is anticipated that it will be revised to permit further development in the vicinity.

It seems illogical and inequitable for the Fish and Wildlife Service to condemn the proposed 498-acre site without also taking the narrow strip of land between the site and the ocean; since it is evident that the Fish and Wildlife Service will need to use and control the narrow strip, including such usages as providing drainage facilities and flood controls. This would also result in substantial severance damages as the potential usage of this strip of land would be severely constrained.

The proposed Environmental Impact Statement lacks sufficient consideration of alternative sites, both on the Island of Maui and throughout the State of Hawaii. The nearby Kanaha Pond is presently used as a wildlife refuge. The Service has already acquired numerous other sites within the State. We should also mention that although we have not engaged an ornithologist to study the needs of the subject wildlife, the proposed EIS appears to contain many erroneous statements about their habitat requirements.

We wish to point out some of the errors on pages I-14 and 15 concerning the present usage of the subject lands. First, A&B owns most of the subject 17 small parcels, or Kuleanas. The lease to Pacific Aquaculture Corp. presently includes approximately 75 acres, and the option to expand the operation has been terminated. Finally, we reiterate that there is no agreement with the State involving the surrender of the Pond or restricting it to conservation usage. Page I-15, and II-22 and 40 should be corrected to reflect the foregoing. A&B has given a short-term right of entry to the County of Maui covering approximately 12 acres for a tunafish-bait farm.

The jetfoil service mentioned on page II-3 is no longer in operation, so the need for the proposed harbor has been increased.

The Director, Fish and
Wildlife Service
Page 4
April 28, 1978

Should you so wish, we would be pleased to discuss any of the foregoing with you, as well as furnish supporting data to substantiate our statements.

Very truly yours,

ALEXANDER & BALDWIN, INC.

R. K. Sasaki

R. K. Sasaki, Vice President

Responses to Alexander and Baldwin, Inc.

1. The final EIS provides data and information in support of the Federal acquisition proposal with State option to purchase.
2. The Service does not question the strong local interest to develop the pond for port and industrial purposes. The section on the Affected Environment in the final EIS describes some of the population and economic growth pressures which may eventually necessitate a second harbor on Maui. At issue is whether Kealia Pond is the most suitable site for the harbor. From the viewpoint of the Service, the pond's outstanding wildlife values should clearly preclude any future industrial uses of the pond. This viewpoint is amplified under the discussion of the Federal acquisition with State option to purchase alternative and its consequences.
3. As pointed out in the final EIS, there are a number of constraints to urban development of the pond--of which the FWS proposal is but one. The Corps of Engineers' 404 Permit Program, the Endangered Species Act, and the State's Conservation District designation would all seem to pose obstacles to urban development of the pond. Therefore, it is perhaps misleading to attribute curtailment of development plans solely to FWS plans to acquire the pond.
4. The August, 1973 report was prepared prior to the Hawaiian Water Birds Recovery Plan recommendations and prior to implementation of the Corps' 404 Program. It is the Service's opinion that if these constraints to urban development had existed in 1973, the Satre Report would not have included harbor and urban developments among the "highest and best uses" of the pond.
5. While it is true that Kealia Pond has functioned in the recent past as an intermittent pond, the introduction of the catfish aquaculture facility has produced a permanent water source and enhanced habitat, particularly during the normally dry summer months. As described in the section on the Affected Environment, the pond's surface area varies with seasonal precipitation. Maximum water surface is about 500 acres, and minimum surface is between 150 and 200 acres. On the average, the pond's water surface is estimated at 300 acres, making it "the largest remaining lowland pond in the State." (HWRP, 1978)

Regarding the greater suitability of Kanaha Pond for a wildlife refuge, it must be pointed out that the Recovery Plan designates both Kealia and Kanaha Ponds as primary habitat for endangered Hawaiian waterbirds and, as such, recommends that both ponds be preserved and enhanced for waterbird use.

That the State took no action to improve Kealia Pond for wildlife values between 1952 and 1973 is not necessarily an indication that the State did not consider the site of major importance for wildlife. Limited budgets were more likely the reasons behind the minimal management program over this period. Service files indicate strong support from the State Division of Forestry and Wildlife for Service acquisition of the pond as a refuge with State option to purchase. The Service has considered the Division as a partner in the acquisition undertaking since its inception.

Until the Service has an opportunity to review documented evidence that a harbor and marina would be compatible with refuge proposal, the position of the Service will continue to be that such developments would result in irreversible and irretrievable detrimental impacts on proposed critical habitat for stilt and coot and, as such, would be incompatible with the refuge concept.

6. The history of the Service's earlier position on the Kealia Harbor proposed by the Corps in the early Seventies is discussed in Response No. 3 to Comments of the Army Corps of Engineers. The Service recognizes the likelihood of future urbanization in the Kealia Pond area, but whether "economic and geographic burdens" would be imposed on adjacent urban dwellers, as a result of refuge development, is debatable. By providing natural areas reserved for the public enjoyment of wildlife, refuges have--in some instances--enhanced the values of adjacent properties. Refuge development would likely preclude future industrial development of the pond, as pointed out in the EIS; however, given current land use constraints, it would appear unlikely that the pond could be developed for harbor, marina or other urban/industrial purposes.
7. The Service concurs with the interpretation of the "Open Zone" designation provided in this comment. It is recognized that this designation could permit future industrial uses of the pond, as discussed under the Affected Environment.
8. The referenced strip of land was not included in the proposed acquisition because it was not considered to be habitat essential to the survival of the endangered waterbirds. The beach strip could, conceivably, provide a greater protective buffer for the pond habitat, but it is believed that Kihei Road would adequately perform the buffer function.

A tide gate may be installed at the pond outlet to regulate water outflow from the pond and to prevent seawater intrusion into the pond. Such facilities would hardly justify acquisition of the entire beach strip. Appropriate easements from the landowners are the most feasible method for gaining the necessary access to the pond outlet.

9. Only two sites on the Island of Maui were recommended for essential habitat designation in the HWRP--Kanaha and Kealia. Since Kanaha is currently being managed by the State DLNR as a waterfowl refuge, Service waterbird preservation efforts have focused on Kealia Pond. Other sites throughout Hawaii have already been acquired for water bird habitat, based on the areas identified in the 1970 publication, Hawaii's Endangered Water Birds, authored jointly by FWS and the State Division of Fish and Game. The document recommended key areas throughout the State to be preserved and developed as wildlife refuges. Based on those recommendations, the Service has acquired approximately 1,400 acres in private ownerships for the future development of five waterbird refuges: Hanalei and Huleia NWRs on Kauai; Kakahaia NWR on Molokai, and Pearl Harbor and James Campbell NWRs on Oahu.

The HWRP further refines the 1970 recommendations by listing a schedule of priorities, responsibilities and costs for land acquisition and development.

At this time, the Service considers Kealia Pond number 1 and Opaulea Pond on the Big Island number 2 acquisition priorities for the endangered Hawaiian waterbirds.

10. Comments noted. Appropriate changes made in text.
11. Reference to the jetfoil service has been deleted from the text. It is recognized that if an interisland ferry system is eventually put into operation, a harbor on Maui's south coast would be advantageous both in terms of fuel savings and protection from winds.



For the Protection of Hawaii's Native Wildlife

HAWAII AUDUBON SOCIETY

25 April 1978

P. O. Box ~~206~~ 22832
HONOLULU, HAWAII ~~96804~~ 96822
P. O. Box 275
Volcano, Hawaii 96785

Mr. Roland R. Schulz, Acting Chief
Branch of Environmental Coordination
U.S. Fish and Wildlife Service
Department of the Interior
Washington, D. C. 20240

Re: Draft EIS on A PROPOSAL FOR ACQUISITION, DEVELOPMENT AND OPERATION OF THE
KEALIA POND NATIONAL WILDLIFE REFUGE, HAWAII

The degradation and direct loss of waterbird habitat on the main islands has been a major continuing concern of the Hawaii Audubon Society since its founding almost forty years ago. It is a rare and refreshing occasion to respond to a comprehensive environmental statement for a proposed project that aims to protect and preserve the critical habitat of endangered Hawaiian birds.

The Society gives its enthusiastic endorsement to the proposal for acquisition and improvement of Kealia Pond as part of the National Wildlife Refuge System. We offer a few suggestions to strengthen the final statement.

Should greater emphasis be given to the vital importance of the two Maui ponds for the survival of the Hawaiian Stilt and the Hawaiian Coot? Supporting significant proportions of surviving populations, both Kanaha Pond and Kealia Pond are critical habitat for these endangered species -- the only such acreage on Maui and the largest remaining year-round habitat State-wide. Yet both ponds are threatened by encroaching industrial or commercial developments. These threats are understated in the draft document. The fact that Kanaha Pond is a State wildlife sanctuary has not protected it from the construction of an adjacent sewage treatment plant and the placement of wastewater injection wells under the pond. The impact of this facility will not be fully known until it is in operation. Industrial development almost encircles Kanaha and the risk of pond contamination by toxic substances puts the long-term viability of that essential habitat under a cloud.

If Kanaha becomes inhospitable habitat, could Kealia Pond alone meet the needs of Maui's endangered and indigenous birds, even with its enhancement as a wildlife refuge? The waterbird populations would almost surely be reduced. A similar reduction seems likely if Kanaha survives and Kealia succumbs to development. The two ponds complement each other in providing security as temporary retreats and exchange feeding grounds -- as well as supporting a larger total population than either could do alone. Kanaha Pond should be located on maps in the statement, and the key relationship between the two ponds could be pointed up.

Construction of the optimum amount of pond edges for shorebird feeding and the creation of nesting islands for the endangered resident birds top the list of planned improvements (p. I-11). Could the discussion of water management to meet these goals be more specific -- on the location, construction and capacity of potential wells and pumps for a dependable water supply? Would the shallow wells of the compatible aquaculture operation be available for refuge use?

The Society appreciates the opportunity to express its firm support of the overall proposal.

M-74

Mae E. Mull
Island of Hawaii Representative

Responses to Hawaii Audubon Society (Honolulu, HI)

1. The important ecological relationship between Kealia and Kanaha Ponds has been discussed in detail in the Affected Environment Section of the final EIS. The threats posed by encroaching industrial development to Kanaha Pond are also amplified in the final EIS.
2. At this time, the Service cannot determine whether the future Kealia Pond NWR could accommodate the combined populations of stilt and coot that presently utilize Kanaha and Kealia Ponds. It is clear, however, that loss of Kanaha Pond would mean non-attainment of a prime objective of the HWRP--to maintain, at a minimum, stilt and coot populations in the habitats and island distributions existing in 1976.

Since the HWRP has allocated lead responsibility to DLNR for preservation and enhancement of Kanaha Pond, it is hoped that the State efforts at Kanaha, in combination with Federal efforts at Kealia, will result in more total habitat for waterbirds than is presently available.

3. Specific development plans and operational and management details for the proposed refuge are currently being formulated. When a master plan is prepared, the public will be provided an opportunity to comment through the NEPA process. At this writing, excess run-off from the wells of the aquaculture operation would be available for refuge use.

HAWAIIAN ELECTRIC COMPANY, INC.

Box 2750 / Honolulu, Hawaii / 96840
May 1, 1978



JOHN C. McCAIN, Ph.D.
MANAGER, ENVIRONMENTAL DEPARTMENT

United States Department of the Interior
Fish and Wildlife Service
Washington, D. C.

Dear Sirs:

Subject: Comments on Draft Environmental Statement (DES 78-7)
"A Proposal for Acquisition, Development and Operation
of the Kealia Pond National Wildlife Refuge, Hawaii"

I am writing to express some of my company's concerns and those of our subsidiary, Maui Electric Company, Ltd. regarding the draft EIS for the Kealia Pond, National Wildlife Refuge, Maui, Hawaii. These concerns are detailed below:

The Maalaea Generating Station site was not chosen primarily because of the surrounding flatlands nor because barge and tanker access provides economical fuel supplies (p. II-23 & 24). Fuel is brought to the site by tank trucks from Kahului Harbor and, therefore, a site on the windward, Kahului side of the island, would be better for fuel supply. As the EIS indicates, the power station site at Maalaea is not in a densely populated area but it is located near a center of generation load growth. The proximity of the site to this load growth center and the fact that it is located on the leeward side of Maui where the air emissions are generally blown out to sea, were perhaps the primary reasons the site was selected.

As of April, 1978, the Kahului Generating Station has 40 MW of generating capability and the Maalaea Generating Station has 39 MW. It is, therefore, misleading to state that "The entire electrical generating capability of Maui Electric Company is located near the proposal area."

The company has not proposed a 200 MW plant adjacent to the proposed refuge (see also pp. II-44 & 45). Discussions of a steam electric station of approximately this size occurred in later 1972 and 73. This plan was abandoned in favor of a diesel-combustion turbine facility with a peak of 71.4 MW as shown in the Westinghouse report "Environmental Impact Analyses for the Proposed Diesel-Combustion Turbine Generation Facility for Maui Electric Company" dated September 1975. [Note: Reference in draft EIS for refuge cites Westinghouse Electric

HAWAIIAN ELECTRIC COMPANY, INC.

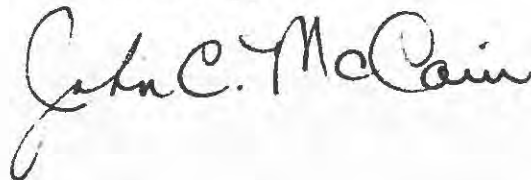
United States Department of the Interior
May 1, 1978
Page 2

Corporation, "Environmental Impact for the Maalaea Bay Generating Facility (draft)", 1976 -- we do not have such a document]. Current development plans for the Maalaea site call for 13 units with a combined output of 100.21 MW to be in operation by December, 1983. Development of the site after 1983 has not been firmly established; however, one plan calls for the ultimate development of the site to 325 MW of diesel power by 1996. This development plan does not call for encroachment on the refuge area but rather, allows for an adequate buffer between the refuge and the generating station.

Diesel stations do not have water emissions and, therefore, the draft EIS objections to water and temperature pollution from the station are not appropriate (see also pp. III-13, 15 & 16). The station is designed and operated in a manner consistent with all applicable Federal and State regulations, therefore, noise and air pollution from the station will not interfere with the objectives of the refuge. We have attempted to keep the profile of the station as low as possible and to landscape the area around the station. I can assure you that visual "pollution" from the refuge area will be minimal. Except for stacks of a height (maximum about 70 ft.) necessary to meet air pollution regulations, there should be little of the station visible from the pond area.

It was by accident that we stumbled on the draft EIS for the refuge. We were quite surprised that the local utilities were not involved in the review coordination (p. IX-1) even though the draft EIS states that Hawaii Electric Company (Maui) [sic] had an influence on the proposal. At least it seems that a copy of the draft EIS should have been sent to either Hawaiian Electric Company or Maui Electric Company for review and comment. In the future, we would appreciate receiving any such EIS dealing with projects on Oahu, Maui, and Hawaii.

Yours truly,



JCMc:cm

cc: Maurice Taylor (U.S. Fish and Wildlife Service)

Send to Refugees

GENPP-2-2 (Maalaea)
NV/G/NV
XR: MECO GENERAL
ENVIRON 2-1

HAWAIIAN ELECTRIC COMPANY, INC.

Box 2750 / Honolulu, Hawaii / 96840
May 18, 1978 **MAY 24 1978**

JOHN C. McCAIN, Ph.D.
MANAGER, ENVIRONMENTAL DEPARTMENT

Regional Director
U. S. Fish and Wildlife Service
P. O. Box 3737
Portland, Oregon 97208

Dear Sir:

Subject: Further Comments on Draft Environmental Statement
(DES 78-7) "A Proposal for Acquisition, Development
and Operation of the Kealia Pond National Wildlife
Refuge, Hawaii"

	Initial
ARDE	
ECL	
EC	
LWRDP	
OBSC	
B	
-W	
P	

ENGINEERING	
BERGREN	OYEN
CATION	POE
CHEEVER	RAINEY
FLORY	RISDAL
GRAHAM	STRIPLIN
HOLMES	WAHLIN
JOHNSON	WINCZ
LEWIS	
MACK	
MAIER	
M. VEH	
ONE	

DATE
MAY 23 1978

Attached you will find a letter which I recently sent to the Department of Interior in Washington, D. C. expressing some of our concerns about the draft environmental impact statement entitled "A Proposal for Acquisition, Development and Operation of the Kealia Pond National Wildlife Refuge, Hawaii" (DES 78-7). These comments may have already found their way to you by now.

In addition to the comments contained in the attached letter, I am concerned that the draft EIS did not adequately address the effects of the proposed refuge on adjacent uses such as the power station, small draft harbor, etc. For example, will the establishment of the refuge lead to designation of the area as Class I under the Prevention of Significant Deterioration section of the Clean Air Act Amendments of 1977 (P.L. 95-95, Part C)? If so, what effect will this have on development of the power station? Does the refuge provide an adequate buffer zone between the power station and Kealia Pond so that noise from existing and future power station units will be at a sufficiently low level so as to protect the purpose of the refuge?

When preparing an EIS, industry must detail the effects of its proposed action on adjacent land uses. I feel that the same attention to detail should be included in any EIS regardless of the nature of the action. The Maalaea Generating Station will soon become the major electric generating site on Maui. If the power station and the proposed refuge are not compatible uses of adjacent properties, this should be set forth explicitly in the EIS.

HAWAIIAN ELECTRIC COMPANY, INC.

Regional Director
U. S. Fish and Wildlife Service
May 18, 1978
Page 2

I would greatly appreciate it if you would advise me of the date, time, and location of any public hearings on this matter. Also, I would like to receive a copy of the final EIS when it is available. //

Yours truly,

John C. McLean

JCMc:cm
Attachment

cc: Maurice Taylor (U.S. Fish and Wildlife Service)
Richard O'Connell, OEQC

Responses to Hawaiian Electric Company, Inc. (Honolulu)

1. The MECO Maalaea generating plant is described in the Affected Environment and incorporates the latest information supplied by the Hawaiian Electric Co.
2. The referenced "misleading statement" has been deleted from the text of the final EIS.
3. Future expansion plans of the MECO Maalaea facility and their relationship to the proposed refuge are discussed in the Affected Environment section.
4. The referenced comments from the draft EIS have been deleted from the text of the final EIS. The Service would anticipate future close cooperation and coordination with the Hawaiian Electric Company to ensure that any future expansion of MECO would not adversely impact wildlife resources of the Refuge.
5. The Service inadvertently omitted the Hawaiian Electric Company from the mailing list for the draft EIS and regrets the oversight.
6. Establishment of the refuge would effectively preclude development of a boat harbor of the scope and in the location considered by the Corps of Engineers in the early Seventies. An expansion of the Maalaea power plant along the lines described by Hawaiian Electric-- i.e., phased development culminating in a 325 MW facility by 1996-- may be compatible with provision of an adequate buffer between the refuge and the generating station. However, the Service will withhold judgment on an expanded power plant facility, pending review of specific development plans and appropriate environmental documents for the expanded MECO facilities.

Regarding the question of Class I redesignation of the area, establishment of the refuge is not expected to have any effect on the air quality designation of the area under the Clean Air Act Amendments of 1977. Under that Act, the Kealia Pond area is classified as an "attainment area" for all pollutants, meaning that existing air quality does not exceed National Ambient Air Quality Standards established for various air pollutants. All attainment areas have been designated Class II by the U.S. Environmental Protection Agency. Under Section 164 of the Act, a State may redesignate such areas as it deems appropriate as Class I areas. Recent discussions with the State Department of Health indicate that the State has no pending plans to redesignate any Class II areas to Class I status. Therefore, for all practical purposes, refuge establishment would likely not influence the Class II designation. In the future event that the State redesignates the area to Class I, whether such redesignation would preclude future expansion of the Maalaea generating plant is, of course, directly dependent on whether the plant sulfur dioxide and particulate emissions would fall within the standards prescribed in the Act.

Air quality data obtained from the Department of Health provides base line data for suspended particulates in the Kihei area. Sulfur dioxide has not been monitored in the Kealia Pond area because of the absence of stationary sources of SO₂. The Department of Health believes, therefore, it would be safe² to assume that SO₂ base line conditions would be zero (Aki, 1978). Particulate and sulfur dioxide emissions are not viewed as major problems by the Department of Health.

7. This comment is addressed in the Affected Environment section, part G of the EIS.

HAWAIIAN WATERBIRDS
RECOVERY PLAN TEAM

Fred Zeilemaker
Gerald Swedberg
Thomas Teller
Joseph Medeiros
Ralph Saito
David Woodside
Ronald Walker
(Leader)



1151
Punchbowl Street
Honolulu, Hawaii 96813
Phone - 548-5917

COOPERATORS
U. S. Fish & Wildlife Service
Hawaii Department of Land and
Natural Resources
University of Hawaii
U. S. Navy

April 13, 1978

Mr. Roland R. Schulz, Acting Chief
Branch of Environmental Coordination
Fish and Wildlife Service
U.S. Department of the Interior
Washington, DC 20240

Your Reference: FWS/RF

Dear Mr. Schulz:

Your letter of March 15, 1978 covering a copy of the draft environmental statement for the acquisition, development and operation of the Kealia Pond National Wildlife Refuge has been received.

Generally, as a disclosure document, the draft E.S. is comprehensive and accurate. However, in the interests of clarity and consistency which will contribute to "adequacy" I would suggest the following:

1. Page I-3, paragraph 1., Last sentence. Although the Hawaiian Waterbirds Recovery Team is composed of representatives of State and Federal agencies, this in no way implies that these agencies have officially recommended inclusion of Kealia Pond in the National Wildlife Refuge System. The statement should be re-worded to state that the team made this recommendation. | 1
2. Pages I-5, I-6 and I-7. Much of this material is almost verbatim from the Hawaiian Waterbirds Recovery Plan which is also cited frequently elsewhere in the text. Logically, the draft HWRP should be listed in the "References" section, pages R-I to R-5. | 2
3. Page I-25, paragraph 2, third sentence. The statement is made that "... Kealia is now considered endangered species critical habitat and compliance with the 1974 (Act?) is required." On page I-4, second paragraph, however, it states that "...the proposal area has not yet been formally designated critical habitat under the Endangered Species Act of 1973, Sec. 7." This inconsistency should be rectified. | 3

Mr. Roland R. Schulz
April 13, 1978
Page Two

With the above exceptions, I believe that I speak for the team when I state that the draft environmental statement is adequate as a disclosure document for the proposed action.

Thank you for the opportunity to review the draft.

Sincerely yours,



RONALD L. WALKER, Leader
Hawaiian Waterbirds Recovery Team

RLW:rfm

cc: Team Members
Eugene Kridler
Regional Office, USFWS

Responses to Hawaiian Water Birds Recovery Plan Team

1. The final EIS clarifies that the recommendations contained within the Hawaiian Water Birds Recovery Plan are those made by the Recovery Team to the Service and do not reflect the views of State.
2. The Plan has been added as a reference.
3. The proposed designation of critical habitat at Kealia Pond is clarified under the section on Purpose and Need.

Received - EC/ES // FWS
on 5/16/78

May 4, 1978

Chief, Branch of Environmental Coordination
U.S. Fish and Wildlife Service
United States Department of the Interior
Washington, D.C. 20240

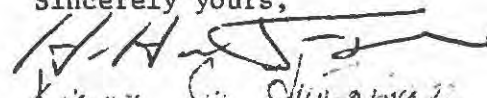
Dear Sir:

As permanent residents of Maui my wife and I wish to offer the following comments "for the record" on your DES 78-7 Draft Environmental Statement - A Proposal for Acquisition, Development and Operation of the Kealia Pond National Wildlife Refuge," on Maui, Hawaii:

1. We strongly support the basic concept of establishment.
2. We feel that 500 acres is inadequate. Alternative E, covering 700 acres is preferred. A buffer will be very important in future years.
3. We also favor inclusion of the open flats on the ocean side of the highway near Maalaea, Maui.
4. We suspect that habitat improvement of these flats as well as selected areas within the proposed 500 acre refuge can significantly expand the available nesting area.

Thank you for the opportunity comment.

Sincerely yours,


Kyung Ja Huntzinger
Hugo H. Huntzinger
Box 537
Makawao, Maui, HI 96768

Responses to Interested/Concerned Individuals

1. Expansion of the refuge to 700 acres plus inclusion of the open flats west of the pond on the ocean side of Kihei Highway would, perhaps, be desirable in terms of providing additional buffer area for the pond. However, the Service is basically adhering to the boundary recommendation established by the Recovery Team. In the judgment of the Service, that boundary encloses the minimum area necessary to meet and sustain life requirements for Hawaiian stilt and coot populations that utilize the pond. Habitat improvements within this area including water management and building of nesting islands--coupled with predator control--is expected to increase the waterbird support capabilities of the pond. At this time, the Service would see no need and could provide no convincing biological justification for expansion to the degree described above.

APPENDIX N

REFERENCES

- Aki, Paul, Hawaii Department of Health, Pollution Investigation and Enforcement Branch. (Personal Communication, July 28, 1978).
- Coleman, Richard A., Acting Assistant Refuge Manager, Hawaiian Island NWR. (Personal Communication, September 9, 1980).
- Clean Water Act of 1977 as amended. PL 95-217.
- Elliott, Margaret E. and Ering Marie Hall, Wetlands and Wetlands Vegetation of Hawaii, Sept, 1977 (Corps of Engineers Wetland Report).
- Federal Register, Vol. 35, No. 199, Page 16047, (Listing of Hawaiian coot and Hawaiian stilt as Endangered Species).
- Federal Register, Vol. 43, No. 2 Page 875, (Interagency Cooperation Regulations) Jan. 4, 1978.
- Federal Register, Vol. 44, No. 12, Pages 3636-3654, (List of Endangered and Threatened Wildlife and Plants) Jan. 17, 1979.
- Gibson, Richard T., Manager, Aquaculture Development Program, Hawaii Department of Planning and Economic Development. (Personal Communication, Sept. 22, 1978.)
- Hastings, Martin, Hallstrom and Chew, Ltd., Realty Appraisal Report for Proposed Kealia Pond NWR, Honolulu, July, 1978.
- Hawaii Department of Land and Natural Resources, Division of Fish and Game, Statewide Pittman - Robertson Report, Limited Study Of Nesting By Stilt On Islands Of Maui, Oahu, and Kauai, 1976. Project No. W-18-R-1.
- Hawaii Department of Land and Natural Resources, Regulation No. 4, A Regulation Providing for Land Use within the Conservation District, 1978.
- Hawaii Department of Land and Natural Resources, Division of Fish and Game, Statewide Pittman - Robertson Report, Limited Study of Nesting Stilt On The Islands Of Maui, Oahu, and Kauai, 1979. Project No. W-18-R-4.
- Hawaii Department of Planning and Economic Development, 1980 Annual Overall Economic Development Program, 1980.

- Hawaii Department of Planning and Economic Development, Aquaculture Development for Hawaii, 1978.
- Hawaii Department of Planning and Economic Development, Revised Population and Economic Projections 1975 - 2000, March 1978.
- Hawaii Department of Planning and Economic Development, The Hawaii State Plan. The Economy, Analysis of Economic Growth in The State of Hawaii: 1960 to 1990, 1977.
- Hawaii Department of Planning and Economic Development, The Economy of Hawaii 1979. (Annual Economic Report and Outlook, 1979).
- Hawaii Statewide Transportation Council and the Hawaii Department of Transportation, The Statewide Transportation Plan, December, 1977.
- Hawaii Water Birds Recovery Team, Hawaiian Water Birds Recovery Plan, June, 1978.
- Ishikawa and McCormik, Maui County Planning Department and Hawaii Department of Transportation, Harbors Division. (Personal Communication, October, 1980).
- John Child and Company, Inc. Kealia Pond National Wildlife Refuge Appraisal Report. (Prepared under contract to the U.S. Fish and Wildlife Service) July, 1978 (in 3 volumes.)
- Kepler, Cameron, Wildlife biologist, Hawaii Island NWR. (Personal Communication, March, 1980).
- Maciolek, J., Aquatic Ecosystems of Kealia Floodplain and Maalaea Bay, Maui, Hawaii Institute of Marine Biology, TR #27, Nov., 1971.
- O'Connell, Richard, Mgr. of Environmental Dept., HECO. (Personal Communication, April 9, 1981).
- Office of Coastal Zone Management, NOAA, and Hawaii Department of Planning and Economic Development, State of Hawaii Coastal Management Program and Final EIS, 1978.
- Parnell, Jacqueline, Hawaii Department of Health. (Personal Communication, July 25, 1978).
- Shallenberger, R.J., An Ornithological Survey of Hawaiian Wetlands. (Prepared under contract to U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii). December, 1977 (2 Volumes, 406 pp.)

Smith, J.D. & J.S. Medeiros, Kealia Pond Report, Hawaii Division of Fish and Game, February, 1952.

Sullivan, Scott, Project Manager, Corps of Engineers. Feasibility Study for Harbor Improvements on Maui. (Personal Communication, January 14, 1979, June and Sept. 1980).

Yachida, Ron, Hatchery Manager, Fish Farms Hawaii, Inc. (Personal Communication, September, 1978).

APPENDIX O

DECISION MATRIX - ENDANGERED SPECIES
PROTECTION, DEVELOPMENT AND OPERATION
 OF
KEALIA POND MAUI, HAWAII

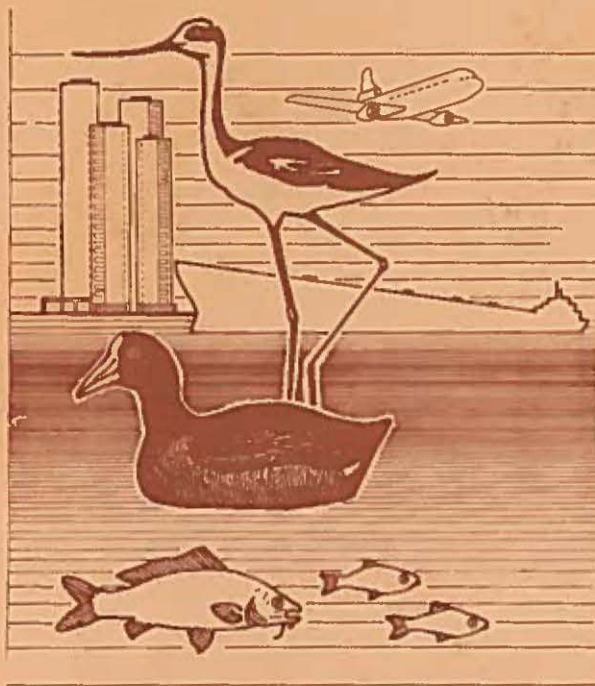
ALTERNATIVES

CRITERIA	NO ACTION	FWS ACQ. WITH STATE OPTION TO PURCHASE	FED. ACQ. WITH STATE MGT.	STATE ACQUISITION	DELAYED FEDERAL ACQUISITION	IMPROVE KANAHA POND WITH FED. \$ IN LIEU OF KEALIA
1. Degree of Protection	L-1,5,6	H	M	M-4	M-6 L-5	L-1
2. Degree of Consistency with Hawaii Waterbird Recovery Plan	L-1	H	M	M	M	L-1,2,7
3. Immediacy of Action	L-1	H	M	L	L	L-1,7
4. State Fiscal Priorities and Limitations	L	H	L	L	L	L
5. Implementability	L-2	H-3	L-3	L	M-3	L-2,7

1. Inconsistent with Hawaii Waterbird Recovery Plan
2. Infeasible per ESA
3. May Require Court Action
4. Reflects Lower Level of Funding Assurance as State Refuge Compared to Federal Refuge

5. Decreases Overtime
6. Habitat Decline and Escalating Land Values
7. Existing Authorization and Appropriation of Federal Portion of LWCF Does Not Permit

SYMBOL
 Goal Compatibility
 H = High
 M = Medium
 L = Low



DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE