

Department of Land and Natural Resources

Sustainability Hotspot

1

KAWAINUI MARSH

~Island of Oahu~



Top to bottom: Kawainui Marsh is habitat for a community of rare fishes, snails and birds; Ulu Po Heiau, with a commanding view over the marsh, is one of the cultural resources ringing the Kawainui Marsh.

Kawainui Marsh, in the *ahupuaa* (land division) of Kailua, was once an inland sea approximately 4,000 years ago. The dancing sands in the waters off Kailua, in concert with soil coming from the Maunawili Streams and the Kahanaiki Stream, formed a sandbar approximately 700 years ago which is now Coconut Grove and Kailua town. This is probably how Kailua was named because *kailua* in Hawaiian means “two seas.” There was the inner sea of Kawainui and the outer sea of Kailua Bay.

Kawainui (literally the big water), estimated at 830 acres in size, was once the largest cultivated freshwater fishpond on Oahu. Rimming the district are numerous *heiau* (religious temples) mentioned in oral history. Some *heiau* have been known for years, others have yet to be found. The pond is home to four endangered marsh birds and over 60 other birds, fish and aquatic animals that use this area.

DLNR’s focus at Kawainui Marsh is protection of Coconut Grove and Kailua town from flooding and sustaining and enhancing the natural and cultural resources of Kawainui Marsh. In the past, the drainage and the sediment from Kawainui flowed out along two large passageways, one located where Kawainui Canal is now and the other led into Kaelepulu Bay which is now called Enchanted Lakes along the area we call the Hamakua Canal. These passages have been modified by man over the years to where the system can only flush out through the Kawainui Canal. This modified flow pattern creates unique problems for managing flood conditions and water circulation for a healthy marsh.

DLNR’s Sustainability Hotspot Team for Kawainui Marsh:

Cecil B. Santos - Land Division, Oahu, 587-0433;

Sara Collins - Historic Preservation;

Paul Conry - Forestry and Wildlife;

William Gorst - State Parks;

Ryan Imata - Water Commission;

Muffet Jourdane - Historic Preservation;

Mahi Pekelo - Conservation and Resources Enforcement;

David Smith - Forestry and Wildlife;

Mike Yamamoto - Aquatic Resources;

Sterling Yong - Land Division;

is charged with the management and sustainability of this resource.

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Top to bottom: DLNR is working to improve drainage in the marsh and improve wetland habitat for the Gallinule and other rare species. Cecil Santos and Sterling Yong plan flood control maintenance to protect Kawainui's neighboring communities of Coconut Grove and Kailua town.

DLNR's Vision for the Future and How to Attain It

In DLNR's vision for the future, improvements need to be made at Kawainui Marsh in order to manage the passage of water through its system and to keep the vegetation from clogging its arteries to Kawainui Canal. By doing this, the department will maintain the flood storage capacity and flood control structures in the marsh and thereby protect lives and property in the flood plain. These activities will also help protect and maintain the bird habitat and *kalo loi* (taro fields) in the *mauka* (inland) area that can be used for taro cultivation. DLNR is studying the feasibility of installing sediment basins at the *mauka* end of the marsh to collect a portion of the sediment before it can get out into the marsh.

Flood Control

In DLNR's plan for flood control, the department's Land Division will:

- keep the Oneawa Canal open;
- keep the canal along the levee and other interior channels open;
- remove trees beginning to root in Kawainui Marsh;
- maintain the condition of the 6,850-foot long levee that has recently been raised 4.5 feet;
- maintain the 4-foot high flood-wall recently constructed on the raised levee;
- clear and maintain vegetation along streams flowing into the marsh.

To accomplish these tasks, the Engineering Section of DLNR's Land Division requested and was appropriated \$750,000 in the 1997 Legislature. Within two years these funds will be used to:

- acquire maintenance equipment;
- fund seven maintenance positions;
- construct a maintenance baseyard.

Work is scheduled to be in operation by January 1, 1999. The Army Corps of Engineers is finalizing a maintenance manual for the levee and will, in the near future, turn the project over to DLNR. The levee will be maintained by DLNR strictly according to these standards.

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Top and middle: Improvements DLNR hopes to make to the marsh includes a visitor center for education and interpretation of natural and cultural resources. Bottom: Paul Conry of Forestry and Wildlife, a member of the Kawainui Marsh Hotspot Team, surveys the area for endangered species.

Wildlife Habitat Restoration and Sanctuary Development

DLNR's Division of Forestry and Wildlife is working with the Army Corps of Engineers to develop a \$5,952,000 habitat restoration project. A total of \$4,464,000 will be provided by the Federal government for restoration of over 70 acres of waterbird habitat in the *mauka* section of Kawainui Marsh. The restoration includes:

- excavation of four mudflat/shallow ponds in the *mauka* region;
- construction of a fence around the perimeter of the habitat restoration area to control predators and control illegal dumping;
- controlling predators within the wildlife sanctuary areas;
- plans for a follow-up project to enlarge the open water area to twice its current size for a total of 200 acres.

These actions will enhance habitat for endemic Hawaiian waterfowl such as the Hawaiian Coot, the Hawaiian Stilt, the Hawaiian Moorhen, and the Hawaiian Duck. DLNR is planning infrastructure development that would allow for regular maintenance and operation of these facilities.

Public Recreation, Education and Community Involvement

For the public, the heart of this action plan will be the development of ongoing interpretive programs on the natural and cultural resources of Kawainui Marsh. Through interpretive, educational programs planned with the community, visitors and especially our youngsters will be enriched by the knowledge of Kawainui's significant natural history, how early Hawaiians used its rich resources and how DLNR expects to sustain this heritage. DLNR envisions a visitor facility at the Kawainui Canal end of the levee and marsh. This facility would be located right at the entrance to the levee where students and visitors can meet and be briefed by tour leaders. DLNR is also planning for the development of the Ulu Po Heiau Cultural Park and an ethnobotanical garden.

The community has already enlisted some trail development and monthly interpretive tours. DLNR's State Parks division will explore private funding sources and work with the community in the planning and development of interpretive programs and related facilities. Community groups have also expressed interest in developing an education center. The facilities are expected to be located on a portion of Knott's Ranch below Castle Hospital.

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Steve Lau of DLNR's Land Division, a member of the Kawainui Hotspot Team, inspects the marsh's dike.

Acquisition of land along the north side of Ulu Po Heiau and between the *heiau* and the marsh is being pursued. This would allow the land to be cleared, restoring access to the marsh as well as providing future trail linkage.

After the levee is transferred to the State from the City and County of Honolulu, it will be opened as a public trail. Traditionally, this was used by walkers, joggers and bikers prior to the recently completed reconstruction. Additional trails linking visitor facilities and tying into a perimeter trail are included in long-range plans and will be pursued as facilities are developed.

The Division of Conservation and Resources Enforcement (DOCARE) of DLNR will monitor Kawainui Marsh and enforce the wildlife and State Parks rules and any other applicable rules promulgated by DLNR. Two additional full-time equivalent DOCARE positions are needed for the windward district in order to take on this added coverage at the marsh.

The main obstacle to carrying out DLNR's vision is a lack of funding. Federal programs are available to partially fund many of the planned projects, but implementation of these projects will require a commitment of State funds for the matching share. **Total budget to implement DLNR's plan for the future comes to \$2.25 million plus additional funds for the hiring and equipping of two enforcement officers for the Windward district.** 🌿



DLNR's Hotspot Team for Kawainui Marsh: (standing, l-r) Gorst, Yamamoto, Smith, Imata, Pekelo, (seated) Jourdane, Collins, Santos, Yong.