



UNIVERSITY OF HAWAI'I

TESTIMONY

UOH-881 Aquaria

Testimony Presented Before the
House Committee on Higher Education
Senate Committee on Higher Education

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by

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Program I.D. and Title: UOH-881, Aquaria

I. Introduction

The mission of the Waikiki Aquarium is ‘to inspire and promote appreciation, understanding and conservation of Pacific marine life’. This it does through outstanding exhibitry and education programs, and by undertaking and supporting research. It plays a unique and crucial role in introducing to the local community and to visitors some of the ‘hard science’ done on campus, and in educating them about Hawaii’s marine life.

When measured in terms of increasing visitor attendance, positive visitor approval ratings, and various national awards for exhibitry and for education, the Waikiki Aquarium has achieved a remarkably high level of success in recent years. However, there exist major shortcomings in its infrastructure and in the physical condition of its aging facility. It is unknown as to how much longer this apparent paradox can be maintained.

Perhaps most revealing is the fact that, despite the decrepit physical structure of the building, despite the substandard and dated infrastructure, and despite the relative lack of investment afforded to it, in 2005 the Waikiki Aquarium was selected by its aquarium peers as being among the top four US aquariums. In December 2005, it was featured nationally as part of a PBS documentary to this effect, bringing welcome positive attention to the Aquarium, to the University and to Hawaii in general. We strongly urge the Legislature to continue to support the State Aquarium - this jewel of a facility in Waikiki - and not let its 100-year old reputation for excellence in education, entertainment, research and exhibitry become tarnished.

A. Summary of Program Objectives

Act 184 (SLH 1995) designates the Waikiki Aquarium as the State Aquarium, and further provides that the objective of the UOH-881 program is to enrich the lives of people of all ages by providing public programs, education, research, and exhibits of the aquatic life of Hawaii and other regions. The State Aquarium at Waikiki is administered through the University of Hawaii-Manoa Chancellor’s Office.

B. Description of Program Objectives

1. Education Programs

Last year 36,654 school students, teachers, families with children and individuals utilized Waikiki Aquarium marine science education programs. Modest tuition fees are charged

for most programs, but Aquarium admission for Hawaii school students remains free. The primary emphasis of Aquarium education programs is science literacy and conservation education. Programs were given by four full time staff, five University of Hawaii student workers, 23 affiliate staff from Hawaii's research, education and conservation communities, and more than 30 trained volunteers.

Many more people were reached though on-site interpretation at our outdoor reef exhibit staffed by approximately 40 volunteers, statewide through collaborations with DOE teacher training initiatives, environmental media coverage, as well as internationally through research collaborations and through our highly popular web site.

Included among the education programs are:

- Docent-assisted school visits and outreach programs, that last year served over 8,000 local school children and teachers
- Self-guided school and community tours, last year attended by over 23,000 participants
- Classes and activities for young learners, enjoyed by over 200 one to three year-olds with their care-givers each year
- Classes, activities, and marine natural history tours for families and adults, each year enjoyed by over 1,700 participants, of all ages
- Exhibit Interpretive Programs (Edge of the Reef exhibit, Shark gallery, Corals are Alive exhibit, Coral Reef Conservation at the Outrigger Reef interpretive programs)
- Educational Video Programs (three teacher/ educator marine science training videos are available for loan or purchase)
- Outreach to Community Fairs and Events; last year over 1,700 children and adults participated in marine science activities at our Education booths
- In-service teacher workshops and education; a yearly workshop on shoreline safety and light touch fieldtrips, and all DOE schools schedule with the Aquarium before doing a tidepool outing.
- Public information services, which last year responded to over 1,800 questions about marine life from various sources, from professional consultations through to school children and public information requests from within Hawaii and internationally
- Online education resources; the Aquarium maintains a popular on-line library of natural history information on local and Pacific marine life

The most-recent accreditation team from the American Zoo and Aquarium Association reported that our *“education program is particularly good: Waikiki dedicates more staff with many more programs than many larger facilities.... (and) the University acts as a resource in providing students, forums, and consulting staff that many zoos and aquariums can only hope to acquire.”* The Aquarium's designated status as a national Coastal Ecosystem Learning Center promises greater access to national education resources for Hawaii residents.

The Education program continues to research stingray activity through several programs at the Hawaii Institute of Marine Biology. Education staff have also contributed towards the design of exhibits and programs for the Hanauma Bay Educational Center and the

Northwestern Hawaiian Islands Ecosystem Reserve Interpretive Center in Hilo. Each year, in May, we hold an annual Sunset Observance event. This is open to the public, and highlights the importance of the traditional seasonal calendar of native Hawaiians and their interactions with the sea. In 2005 we were invited to operate a trial interactive education program 'Coral reef conservation' at the Outrigger Reef Hotel. This proved very successful, and an expanded program to educate visitors there about this important aspect of reef visitor behavior will be implemented in 2006.

The quality of the Waikiki Aquarium education program was evidenced in August 2005 through the awarding of the first prize in the education category by the State-sponsored 'Living Reef Program'.

2. Exhibits

A \$500,000 renovation of the Aquarium's signature South Pacific Marine Communities exhibits opened in June 2002. The entire costs associated with this renovation project were covered by sponsorships from local and mainland contributors. This new gallery incorporates computer-based graphics with state-of-the-art life support for marine life, including giant clams and corals that have been in our collections for >20 y, as well as 140+ other species displayed nowhere else in Hawaii and in only very few places elsewhere. This was awarded the 2003 national prize for aquarium and zoo exhibitry.

The Aquarium pioneered the display and propagation of living corals, and is world renowned for its research in this area. Its exhibits include one of the largest and most diverse collections of living corals in any aquarium worldwide. It also houses endangered Hawaiian monk seals; endemic Hawaiian coastal plants; and many species exhibited nowhere else in the United States, including Hawaiian freshwater fishes and endemic fishes from Midway Atoll. The Aquarium continues to display nautilus, and weedy and leafy seadragons. This year we are displaying several species not seen in any other aquarium worldwide; including pink precious coral and rare deep-water animals, a new undescribed Hawaiian butterflyfish, several species of jellyfish, and red-tailed cardinalfish. We continue to expand the diversity of our collection by also showing fresh water stingrays, threadfin cardinalfish, medusa worms, deep-water wrasses and the popular, flamboyant cuttlefish. In November 2005 we opened a new jellyfish gallery, made possible thanks to a generous donation by a family from the mainland.

Ecology, natural history, biological diversity, and conservation are emphasized throughout the Aquarium, in exhibits and programs. Exhibit concepts, design and execution are carried out entirely by staff, whose skills have been recognized by the Aquarium achieving national awards for excellence.

3. Research Programs

The Hawaii Revised Statutes stipulate that the University maintains a research laboratory at the State Aquarium. The proximity of the Aquarium to the Manoa campus provides easy accessibility for UH researchers in need of running seawater, holding tanks, and life

support for unique species. One of the priorities of the new Director has been to strengthen and diversify the research collaborations between the Aquarium and UH.

Undergraduate and graduate students from UH-Manoa, community colleges, HPU, and Chaminade utilize aquarium facilities for individual research projects. The Aquarium's filtered seawater supply is used freely by many university programs for their research projects on campus. The seawater is also dispensed to hundreds of home aquarists on Oahu who reserve pick up times each week.

Ongoing research conducted by aquarium staff includes:

- **Shark and Ray Ecology**
- **Plankton Culture for Research Feeds and Community Supply**
- **Propagation of Chambered Nautilus and other Cephalopods**
- **Jellyfish Husbandry**

Externally funded research projects include:

- **Coral propagation:** The Waikiki Aquarium has received several grants to develop culture methods for stony corals in order to promote conservation. For the past few years the Aquarium has distributed over 3,000 South Pacific coral propagules to numerous major aquariums around the world, thereby reducing collecting pressures on natural populations. We are in the final stages of a 3-year study with Israeli colleagues to study micro-propagation and growth of model coral systems.
- **Hawaiian monk seal research program:** This is a comprehensive and diverse joint effort with various researchers at UH, and at provincial, private sector and federal organizations. Aspects investigated include how physiology and reproduction of monk seals vary with diet, age, and season. The Aquarium's objective is that the research findings can be applied toward conservation of these animals
- **Pacific giant clam propagation:** This joint research effort with the Oceanic Institute is investigating the function and inheritance of color in clams. Owing to overharvesting, Pacific clams are now threatened throughout much of their natural range. The project is therefore also examining aquaculture and captive propagation techniques, with a conservation/ reintroduction goal.

Included among the other, diverse research topics undertaken at the Aquarium by colleagues at UH are the reproductive ecology of damselfish, breeding behavior of seadragons, and culture of primitive animals called placozoans, and a planned investigation on the toxic effects on corals of leachate from antifouling marine paints.

In 2005, as a collegial gesture to help replace and replenish stocks destroyed in the 2004 flood, we donated our entire library collection of scientific journals and publications to the Hamilton library. We still maintain a comprehensive reference collection of still images of marine life, underwater digital video footage, reprints, archives of the Waikiki

Aquarium's history since 1904, original artwork used in exhibits and publications, replicas of Hawaiian fishing artifacts, and numerous marine life artifacts.

C. Meeting our objectives in the upcoming fiscal year

Education programs, exhibit development, and maintenance are funded almost exclusively through earned revenue sources, supplemented by a State appropriation. These earned income sources include admission fees, membership dues, class tuition fees, gift shop proceeds, special events and fund-raisers, gifts and donations, and rental of the Aquarium facilities for evening functions. All general operating expenses are now paid from earned revenue sources. State general funds cover the salaries of 13 state employees including the education staff and the building maintenance department. An additional 20 employees are hired through the Aquarium's S-fund and the Research Corporation and are paid from earned revenues.

II. Program Performance Results

Despite the shortcomings in its infrastructure and the physical condition of its facility (see Section 3, #2), the Waikiki Aquarium has achieved a remarkably high level of success in recent years, as measured by increasing visitor attendance, positive visitor approval ratings, and various national awards for exhibitry and for education. However, how much longer this apparent paradox can be maintained is questionable.

A. Program performance results achieved

Program effectiveness is measured by visitor satisfaction, total admission numbers, earned revenues, and effectiveness in achieving educational goals.

Visitor ratings:

	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Excellent:	65%	59%	67%	69%	56.4%
Good:	25%	27%	23%	19%	22.7%
Average:	6%	9%	6%	9%	12.8%
Poor:	4%	5%	4%	3%	8.1%
TOTAL	n = 1,498	n = 1,314	n = 1,314	n = 1,521	n = 1,284

Attendance:

	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
General	291,359	276,871	267,736	299,804	309,934
Rentals	13,519	13,490	13,890	20,116	17,767
Education	31,393	36,805	34,532	36,106	36,354
Events	4,227	3,706	1,008	1,749	1,030
TOTAL	340,498	328,622	317,166	357,775	365,385

Revenues:

	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Revenues	\$1,899,667	\$1,672,826	\$1,839,835	\$2,142,960	\$2,423,618
G-funds	<u>506,001</u>	<u>510,388</u>	<u>513,716</u>	<u>506,604</u>	<u>601,411</u>
TOTAL	\$2,405,668	\$2,183,214	\$2,353,551	\$2,724,846	\$3,025,029

B&C. How these results relate to objectives and how effectiveness is measured

Attendance and revenue:

The Waikiki Aquarium experienced a substantial decrease in attendance and associated admissions revenues in the aftermath of September 11, 2001. FY 2004 shows an increase in revenue reflecting the recovery in the economy as well as success in additional marketing efforts for our 100th anniversary in March 2004. In August 2004 admission rates were increased with no slowdown in attendance, leading to the most successful fiscal period since reopening in 1994.

According to the DBEDT 2004 Databook, the Aquarium improved its rank from # 5 to the #4 paid attraction on Oahu, behind the Polynesian Cultural Center, Atlantis Submarines and the Honolulu Zoo, but ahead of Sea Life Park, Bishop Museum, Waimea Falls Park, the Honolulu Academy of Arts and other local attractions and museums.

Exhibits:

Visitor satisfaction has been consistently favorable, with >79% of visitors reporting “good” to “excellent” on voluntary exit surveys in FY04. This percentage would be significantly higher but for the significant number of negative comments during the summer directly relating to the inadequate air conditioning in the exhibit galleries at that time.

Education:

Attendance in the Education Program remains strong with 36,654 students, adults, families, and other participants in FY2005. This figure is slightly less than previous years due to a change in the offerings provided by the Education Program.

Research:

Aquarium staff published or presented 13 papers during FY2004 based on research conducted at the Waikiki Aquarium. The Aquarium continues to perform research in the following areas: plankton culture; coral propagation and conservation; jellyfish taxonomy and husbandry; shark research and husbandry; Chambered Nautilus and other Pacific cephalopods; Monk Seal research and husbandry; Pacific Giant Clam propagation, and reef fish aquaculture.

C. Recent Performance-Enhancing Initiatives:

1. A contract for the Waikiki Aquarium to operate a gift shop as part of the recently completed Hanauma Bay Educational Center was negotiated with the City and

County of Honolulu to generate a new revenue stream for joint educational endeavors.

2. New exhibits, renovations, and other improvements have enhanced the Aquarium as a destination, as evidenced by favorable comments from visitors. With a goal of renovation, replacement and renewal, the new Director has implemented several refreshing changes and new exhibits in the galleries. Work on a master plan for an Aquarium renewal will begin in earnest in early 2006.
3. An audio tour wand (English, Japanese and German languages) included with each paid admission has significantly increased the educational value of the Aquarium. Visitors have overwhelmingly approved this addition. A new version of the wand will be introduced in December 2005. It is planned to add a children's tour version and other languages as soon as funding has been secured.

III. Problems and Issues

A&B Current issues and suggested remedies

Issue #1: Aftermath of September 11, 2001

Waikiki Aquarium attendance is about 67% tourists and 33% residents and, accordingly, the Aquarium is very sensitive to changes in tourism. This fact was reinforced recently due to the affect of terrorism, SARS and, in the past, lesser issues such as airline strikes. Since 2001, the Aquarium has recovered in terms of attendance but we are ever vigilant about growing complacent. Our 100th anniversary celebration in March 2004 welcomed a new era in the Aquarium's history with a new Director. Over the next few years we anticipate a number of physical improvements both externally in new exhibits and internally with additional infrastructure support, in line with the Director's vision to consolidate and improve the Aquarium's education and exhibitry components.

Issue #2: Compliance issues and aging facilities

The Waikiki Aquarium building opened in 1955. In essence, it currently comprises two distinct parts; the excellent award winning exhibits that form the public face of the aquarium, and the decrepit infrastructure and below par physical conditions behind the scenes. The latter situation is a product of decades of underfunding, and a concomitant inability to undertake regular and adequate maintenance and upkeep.

Extensive renovations to the public side of the building in 1994 brought the Aquarium into compliance with regulations regarding access for persons with disabilities, and corrected other deficiencies. However, significant deficiencies remain unresolved in this 50-year old building, including several potentially dangerous structural and systemic conditions. The Aquarium recently (2004) applied for funding to rectify some of these problems, but the application was not supported. These issues include:

- Electrical system upgrade. Our current demand exceeds capacity and we are not in complete compliance with OSHA and Fire Department guidelines. (\$350,000)

- Roof repairs done in 1992 have proven inadequate. Minor repairs have been performed using Aquarium revenue, but rainwater continues to leak into public areas and exhibit spaces, the classroom, and staff work areas, causing inconvenience to visitors and staff, damage to equipment and furnishings, and shorting electrical systems. (\$300,000)
- Central Air Conditioning system was last updated in 1992 and needs to be replaced due to corrosion of the existing system. During summer, visitors often complain about the inadequate or absent air conditioning. Cases of visitors fainting in the galleries have been reported. This situation thus constitutes both an image-related and a health and safety issue. (\$380,000)
- Public restrooms upgrade. The public restrooms were added to the original building in 1971 and are in need of an upgrade due to age-related deterioration and to damage sustained during the 1992 CIP renovation. The drain lines clog frequently, there is no hot water supply, the electrical system is insufficient and the lighting and ventilation are inadequate. (\$90,000)

These essential renovations and emergency repairs impact public areas and should therefore be funded by state funds. Any failure of these systems will significantly impact the access of the public to the Aquarium.

The issues relating to electrical supply and air conditioning have recently been appended to the supplementary CIP budget application, and we hope that a positive response will be forthcoming from the legislature regarding these issues.

We foresee additional significant repair work being required in coming years as the Aquarium ages. It is an old building and in many areas no longer meets current building code requirements; this has become a chronic problem and in a State that depends on tourism and quality visitor attractions this situation should be unacceptable.

Issue #3: Kaka’ako Aquarium proposal:

In 1996, then Governor Cayetano proposed the creation of a new world-class aquarium to be built in Kaka’ako. Therefore, since 1996, the Waikiki Aquarium was in limbo until a decision was made as to whether its future would be in Kaka’ako or in Kapiolani Park. In October 2004 the negotiations between the state and the developer were abandoned.

Subsequently, in September 2005 a development plan for Kaka’ako was approved, with no aquarium component included. With this issue now behind us, it is hoped that revenue flow via donations, state support, and investment will show a significant increase, and that this revenue source will ultimately allow the State Aquarium of Hawaii to achieve its plans for renewal, renovation and diversification of its facilities and infrastructure.

Issue #4: Support of Aquarium research:

Consolidating and expanding upon existing research capacity is vital to the Aquarium.

The 2003 wastewater renovations resulted in the construction of two large (20'x20') concrete pads in the Aquarium's back area (as covers for two deep freshwater holding tanks) that have been developed into a coral research and propagation area. A proposal to build a new two-story research deck is currently in preparation. This area will be dedicated toward the propagation and research of corals, clams and reef fish, research that is currently undertaken in very cramped and unsuitable spaces.

Issue #5: Remaining viable:

We are working toward establishing a new master plan for our renovation and renewal. It is our vision that the Waikiki Aquarium will continue to entertain and educate visitors, residents, students, and school groups through the next century, if not beyond. Therefore, we need to continue marketing to target audiences and raising funds for new exhibits, exhibit renovations, and programs.

We have been invited to become a founding aquarium member of the International Union for the Conservation of Nature (IUCN), the premiere conservation organization worldwide. Paperwork pursuant to our application is currently in preparation and we hope to submit this in early February.

Despite its small size, the Waikiki Aquarium is highly productive, even when compared to larger institutions on the mainland U.S. The Aquarium now offers more kinds of programs to more people on a per capita basis than any of the mainland U.S. Aquariums. There is no other aquarium in the U.S. with the same diversity of educational programs and offerings, none with the same impact in the development of unique new displays of marine life, and few which can boast the same degree of success in research programs or publications. This is particularly significant when it is realized that the Waikiki Aquarium is among the oldest and smallest aquariums in the United States.

Perhaps most revealing is the fact that, despite the decrepit physical structure of the building, despite the substandard and dated infrastructure, and despite the relative lack of investment afforded to it, in 2005 the Waikiki Aquarium was selected by its aquarium peers as being among the top four US aquariums. In December 2005, it was featured nationally as part of a PBS documentary to this effect. If the aquarium can achieve this despite all its hardships and hurdles, imagine what heights it might reach were the Aquarium to be afforded appropriate investment and attention. We strongly urge the Legislature to continue to support the State Aquarium - this jewel of a facility in Waikiki - and not let its 100-year old reputation for excellence in education, entertainment, research and exhibitry become tarnished.

IV. Expenditures for FY 2005–2006:

	Appropriation FY 2006	Collective Bargaining	Transfers In/Out	Restriction	Estimated Total Expenditures
	20.00				20.00
Personal Services	867,300	16,059	26,086		909,445
Current Expenses	2,392,716				2,392,716
Equipment					0
Motor Vehicles					0
Total	3,260,016	16,059	26,086	0	3,302,161
By MOF:					
	13.00				13.00
General Funds	541,327	16,059	26,086		583,472
	7.00				7.00
Special Funds	1,718,689				1,718,689
	0.00				0.00
Revolving Funds	1,000,000				1,000,000

A. Transfers within program ID:

No transfers

B. Transfers between program ID:

Transfers of general fund CB from UOH 900

C. Restrictions:

None

V. Supplemental Budget Changes for FY 2007:

	Budget Request FY 2006-2007
	20.00
Personal Services	867,300
Current Expenses	2,392,716
Equipment	
Motor Vehicles	
Total	3,260,016
By MOF:	
	13.00
General Funds	541,327
	7.00
Special Funds	1,718,689
	0.00
Revolving Funds	1,000,000

There are no supplemental budget adjustments requested.

VI. Restrictions/Reductions:

None

VII. and VIII. Capital Improvements Request/Lapsing in CIP:

The CIP is discussed in a separate part of the testimony.