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## Sustainable Use Management of Hanauma Bay

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Hanauma Bay, with its adjoining beach park, is one of Hawaii's most popular recreation areas. Bishop Estate deeded the beach park to the City and County of Honolulu in 1928 for the use and enjoyment of all. The area is now part of the larger Koko Head Regional Park. The bay is controlled by the state and became a Marine Life Conservation District in 1967 and an Under Water State Park in 1970. The area was renamed the Hanauma Bay Nature Preserve in 1992 to remind users that the area is a marine reserve (see Gardner 1999, under *Literature cited*). Thus the city manages the land area for recreation, while the state manages the bay as a marine area and an underwater park.

### The problem

Hanauma Bay is what economists call a scarce, open-access resource. This type of resource is overused because it is hard to fairly allocate it among all users. Daily use of Hanauma Bay increased from 1370 users in 1975 to 6808 users in 1999. Wilson, Okamoto, and Associates, Inc., in the 1992 Hanauma Bay Nature Park Master Plan, reported that 68 percent of the users interviewed in 1975 were Hawaii residents; by 1990, only 13 percent of the users were residents. This means that use by Hawaii residents has remained constant at about 1,000 people per day. The 1977 Hanauma Bay Beach Park Site Development Plan estimated the recommended optimal use level or "capacity" at 1363 people per day using the Bureau of Outdoor Recreation and U.S. Corps of Engineers' beach capacity standards. However, some experts argue that "capacity" can be increased by investment in educational activities and physical improvements.

Overuse occurs when actual use exceeds the capacity level. As shown in Figure 1, the actual use of Hanauma Bay has increased from about capacity in 1975 to about five times capacity in 1999. Overuse of a resource will damage it and decrease its value in the future. Use issues include near-shore murky water, sunscreen in the water, litter, increased nutrients in water,

unhealthy and aggressive reef fish, and, most importantly, loss of much of the near-shore coral reef.

### Hanauma Bay use management

Interest in managing the use of Hanauma Bay started when over 10,000 people per day—over seven times capacity—visited in 1984 and again in 1987. Managing a resource to reduce over-use is done by decreasing the use level and/or by increasing the capacity. Keeping the area an open-access resource for Hawaii residents has always been a high priority. Therefore, use limits have focused on reducing nonresident use to 363 people per day.

The City and County of Honolulu's Department of Parks and Recreation (DPR) implemented the Hanauma Bay General Plan in June of 1990 after voluntary use reduction did not get the desired results. The Plan called for restricting access, educating users, and improving facilities. Use decreased slightly for a short time, then started to increase again. The impacts of DPR's specific measures to increase capacity are not known. Either the measures have not yet been implemented or their effects have not been evaluated.

In May of 1995 the City and County of Honolulu Council passed Ordinance No. 95-36 to charge nonresident users. However, some thought the fee was a new

Figure 1. Hanauma Bay capacity and use.



tax because the excess revenue was going into the general fund. The city cannot legally have a new tax without getting authority from the state, and the fee was dropped. A new 1997 user fee calls for the deposit of all fees into the Hanauma Bay Park upkeep fund, with any excess being used for the Koko Head Regional Park.

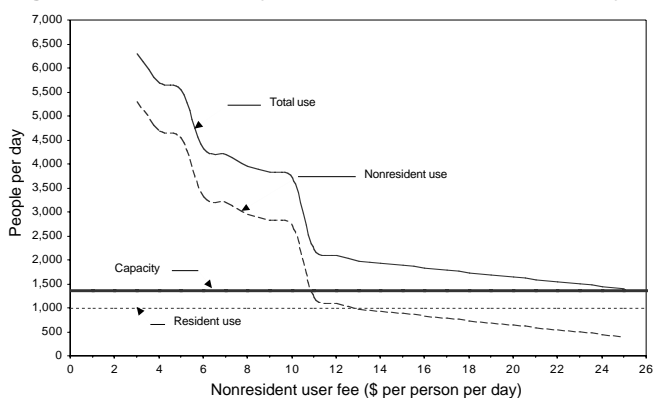
A user fee appears to be the most promising solution to Hanauma Bay overuse. The level of the fee is still in question. At the same time, the use of excess funds for Koko Head Regional Park rather than for Hanauma Bay only may remain an issue.

**Effect of a nonresident user fee**

Students in a University of Hawaii at Manoa class\* asked 43 U.S. mainland residents who visited Hanauma Bay how much they would be willing to pay for the visit. While the sample is small, it can be used to show the value of such information. If all nonresidents are similar to those in the sample, user fees would have to increase to around \$25.00 per person to reduce nonresident use to 363 people per day. Another survey found that it would take fees between \$30 and \$40 to discourage people from using the bay (Gardner 1999, p. 85). The relationship between a nonresident user fee and Hanauma Bay use is shown in Figure 2. Total use declines as the nonresident fee increases.

Use estimates, from Figure 2, are multiplied times the fee to obtain the revenues reported in the following

**Figure 2. Hanauma Bay use with user fee and capacity.**



discussion. At any user fee between \$3.00 and \$25.00, total user fees collected will be larger than the upkeep expenses of \$1.2 million per year (Mak and Moncur 1998). At \$3.00, the user fee would generate \$5.4 million per year in revenues. A \$25.00 fee would generate revenues of \$3.4 million. A user fee of \$10.00 would generate the maximum yearly revenue of \$9.2 million.

**Conclusions**

Nonresident user fees, if they are high enough, can be used to reduce the actual use of Hanauma Bay to capacity. However, the equity of not charging Hawaii residents needs to be addressed. The effects of reducing nonresident use on the tourist industry must also be taken into account, since Hanauma Bay is second only to Waikiki as Hawaii’s most-used beach.

Reducing Hanauma Bay use to capacity without having major adverse impacts on either residents or nonresidents may be the preferred management goal. Hanauma Bay is popular because there are no alternatives near Waikiki. Possibly, the revenues from a Hanauma Bay fee could be used to develop an underwater park near Waikiki. The new underwater park could perhaps provide marine-based recreation to all users for a fee.

The legal issues of using excess Hanauma Bay fees for the new park, rather than the Koko Head District Park, would have to be resolved. A management plan that jointly considers fees and use for Hanauma Bay and a new underwater park would also be needed. The city and the state must reach agreement on an overall management plan because underwater parks on Oahu require waterfront access.

**Literature cited**

Gardner, Emily A. 1999. Can user fees be used to save Hanauma Bay? *Ocean and Coastal Law Journal* 4(8): 81–111.  
 Mak, James, and James E.T. Moncur. 1998. Political economy of protecting unique recreational resources: Hanauma Bay, Hawaii. *Ambio* 27(3): 217–223.

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