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PERSONAL RECREATION BOATING INDUSTRY IN HAWAII PHYSICAL CHARACTERISTICS AND ECONOMIC CONTRIBUTION

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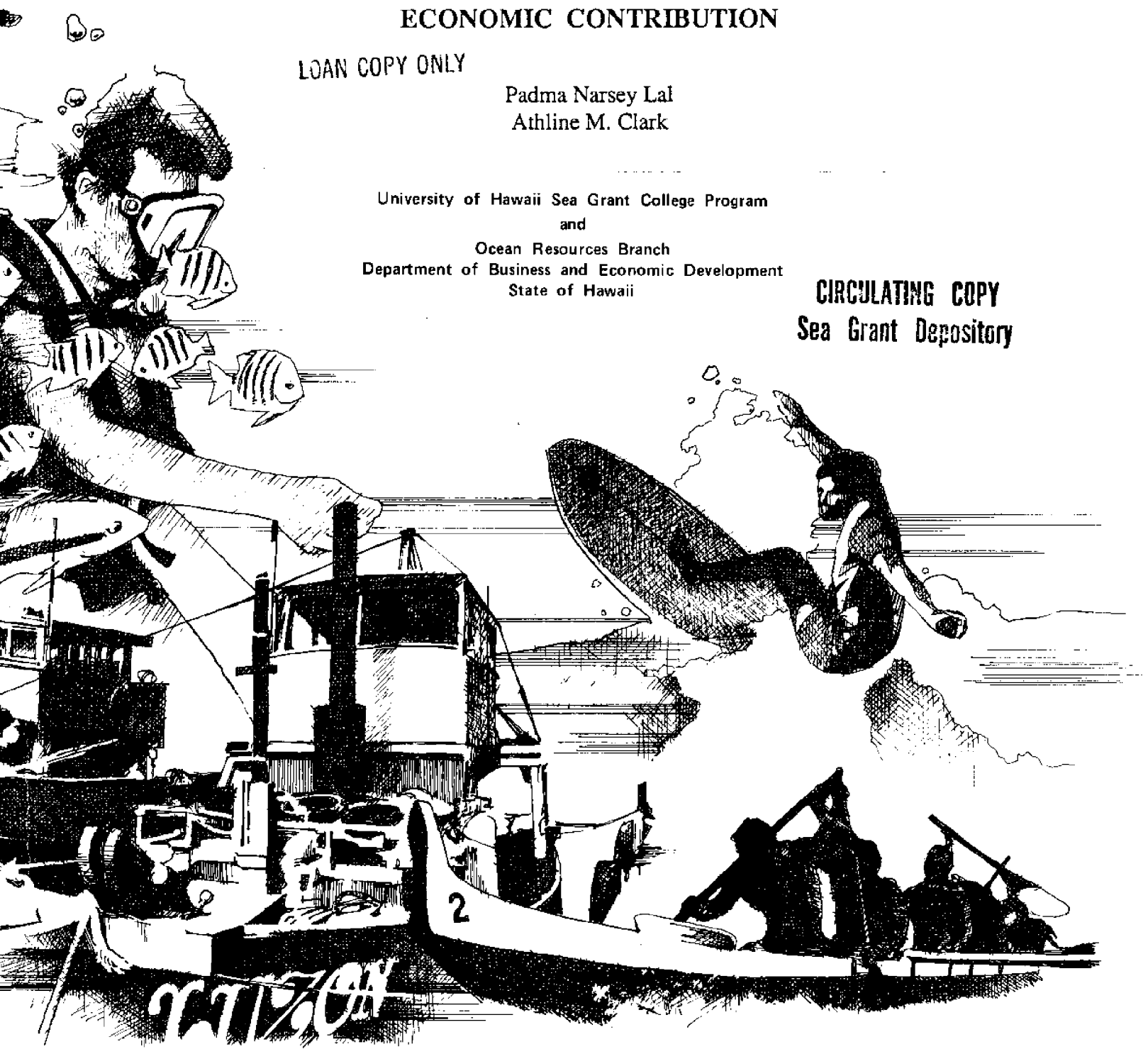

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INTRODUCTION

PURPOSE OF THE STUDY

In 1986, the estimated value of Hawaii's ocean industries was $893 million[1]. Ocean recreation, the second largest ocean industry sector following the maritime industry (ocean transportation), contributed about 30% or $269 million to the total. In terms of employment, ocean recreation was the leading ocean industry providing an estimated 2,970 jobs. At the time of this earlier analysis, the economic contribution of personal boating to the ocean recreation sector was not known and could only be roughly estimated to be about $21 million in direct revenues and 81 jobs. This estimate was considered to be on the conservative side. Personal boating is defined as boats that are used primarily for recreation and are not registered as commercial.

The present study was undertaken to better identify the economic contribution of the personal boating subsector to the Hawaiian economy and to understand the type of income generating activities carried out within its various components. More specifically the objectives of this study were to identify: (a) the economic contribution of the personal boating sector, its principal components and major characteristics; (b) the socioeconomic characteristics of the personal boat owners, as well as the types of boats and boating facilities utilized; (c) perceptions of the major constraints and problems which might hinder further expansion of the personal boating sector in Hawaii; and (d) some of the ways that the State government could better serve the needs of boaters.

DATA SOURCES AND METHODOLOGY

The data for this study came primarily from the following four sources: (1) vessel registration data base of the State of Hawaii Department of Transportation (DOT), Harbors Division, Boating Branch; (2) surveys of the commercial firms that service personal boaters and marina managers that provide berthing and launching facilities (both private and public); (3) available secondary literature; and (4) U.S. Army Corps of Engineers, Planning Branch Honolulu Office, data from 1985 and 1989 provided by Mr. Dave Swenson.

Registered Personal Boats, Vessels and Boater Characteristics

The Boating Branch of the Department of Transportation, Harbors Division maintains a register of all undocumented vessels in the State. As of March 1990, there were 14,857 vessels registered, 12,690 of which were classified as personal boats.[2] There were approximately 1,600 additional vessels registered with the U.S. Coast Guard and referred to as documented[3] vessels. Of

[1]MacDonald C.D. and H. E. Deese "A Comprehensive Analysis and Overview of Hawaii's Ocean Industries" In: *Coastal Zone '89 Proceedings, Sixth Symposium on Coastal and Ocean Management.* pp. 3481-3493. Vol. 4. American Society of Engineers, New York.

[2]Data for 1989 could not be used because of some discrepancies. Instead, data as of March 1990 is used in subsequent computations as a close approximation for the number of vessels for the year 1989.

[3]A pleasure vessel of 5 tons or more in size may be documented with the Coast Guard and may not carry state registration; a commercial vessel of this size must be documented with the US Coast Guard.

these documented vessels, 25% were used for pleasure, and the rest for commercial purposes (Larry Migita, Documentation Office, U.S. Coast Guard, pers. comm.). However, the documented vessels represent a small fraction (3%) of all recreational vessels in Hawaii and are not included in this study. The State Boating Branch also maintains records on the type and size of boats and engines, storage and mooring patterns, and principal use. Vessel records were analyzed in this study to determine the physical characteristics of vessels used for personal recreation. The boater characteristics, such as the age of boaters, their educational background and income distribution, were determined using data from the U.S. Army Corps of Engineers (Dave Swenson, U.S. Army Corps of Engineers, Honolulu, pers. comm.)

Shore-Based Facilities

Information relating to the existing shore-based berthing and launching facilities in Hawaii was obtained from the State Boating Branch, private and commercial marina managers, private clubs, and home-owner marina associations. A questionnaire was mailed out to private sector managers, and supplemented by subsequent telephone contacts and visits with the respondents. The questionnaire sought information about the physical characteristics of the facilities and services provided, the number of people employed on a full-time or part-time basis, revenues generated and costs of labor and other expenses incurred. The perceptions of these managers about the constraints facing the personal boating industry and how these could be ameliorated were also noted.

Similar information about State facilities was obtained from the Boating Branch. Later, various small boat harbor agents were contacted for further clarification. Information was also obtained from the Boating Branch's quarterly and annual reports and unpublished data available on file. The waiting list of applicants for the mooring facilities kept by the Boating Branch provided an indication of the demand for such facilities.

The level of public expenditure on facilities for costs of repairs and maintenance, the number of personnel employed, and the revenues generated from the provision of harbor facilities as of October 1989 were made available by Mr. David Parsons, State Boating Manager, DOT Harbors Division.

Business Sector

A master list of firms servicing the personal boating community was prepared on the basis of the firms listed in the *Marine Directory 1988-89* (State of Hawaii Department of Business and Economic Development and UH Sea Grant College Program, 1988). The list included boat and yacht sales/brokerage firms, surveyors, sail makers, insurance companies, and a miscellaneous category of firms that provide multiple services. Activities undertaken by the latter include engine repairs and maintenance, sale of boating equipment and electronic gear, sale and repair of boats, boat yards, postal services, sale of ice, life support systems, fuel, etc.

With the assistance of Mr. Earl Hinz, Chairman of the Ala Wai Small Boat Harbor Advisory Committee and former editor of *Boating Magazine*, firms known to service the recreational boating population on Oahu were selected for our commercial sector economic survey. The list was cross-

checked with the entries in the yellow pages of the telephone directory, and further expanded to include those firms which confirmed by telephone that they provided services to recreational boaters.

The primary objective of the commercial sector economic survey was to determine the numbers and types of these firms and their revenues, costs and employment figures. The commercial sector servicing recreational boaters in Hawaii was divided into various subgroups according to the principal service provided. A total of 5 different subgroup questionnaires were sent out to 86 commercial firms. Of these firms, 13 had gone out of business, 3 of the insurance firms did not handle recreational boats, and 3 yacht sales companies had merged. Forty-three out of the remaining 65 firms were willing to provide information, giving an overall rate of return of about 66%.

Information obtained from the Oahu survey was used to estimate the economic contribution of the industry on the neighbor islands. There would naturally be some differences between the islands in the nature of services provided, but since Oahu represents about 70% of all the recreational boaters in the State of Hawaii, average services provided is taken as a first reasonable approximation.

Support Services

A number of services are provided by individuals who are not associated with any commercial firms but who work out of their homes or boats at various harbor facilities. An effort was made to estimate the magnitude of these services based on an analysis of such activities at the Ala Wai Small Boat Harbor on Oahu. During the months of September and October 1989, an attempt was made, with the assistance of Mr. Hinz (who lives at the harbor and is familiar with its operation) to estimate the number of hours spent by persons of different skill categories working regularly at the harbor. These support workers included painters, mechanics, electricians, carpenters, refrigeration mechanics and general maintenance workers. Average hourly wages earned and the proportion of time spent on recreational vessels were approximated. Using the average revenues earned and the average number of persons employed per vessel moored at the Ala Wai Harbor, the economic contribution of such support services was estimated for the total number of berths available on each island and in the state as a whole.

An effort was also made to determine the extent of work undertaken by individuals working on their own or on their friends' and relatives' vessels. Mr. William Alia, the Waianae Small Boat Harbor Agent, made these estimates. The average time spent by the boat owners or their friends and relatives was used to make a statewide estimate of these services. These estimates are given in Appendix A where they are referred to as "shadow value"but these values are not included in the overall assessment of the economic contribution of the recreational boating industry to the Hawaiian economy.

Chapter 2

RECREATIONAL VESSEL DISTRIBUTION, TRENDS AND VESSEL CHARACTERISTICS

DISTRIBUTION BY ISLAND

The majority of vessels registered with the Boating Branch are used for recreational purposes. As of March 1990, 12,690 (85.4%) of the vessels registered with the State were classified as pleasure craft (Table 1). The remaining registered vessels include those classified as commercial fishing, charter fishing, commercial passenger, and others including; livery, dealer, manufacturer, government, etc.

TABLE 1. UNDOCUMENTED VESSEL REGISTRATION WITH THE HARBORS DIVISION, DEPARTMENT OF TRANSPORTATION, STATE OF HAWAII

Activity	1988	1989
Pleasure	12,163	12,690
Commercial fishing	1,131	1,203
Charter fishing	25	29
Commercial passenger	239	264
Other commercial	61	74
Others	631	597
TOTAL	14,250	14,857

Source: Harbors Division, DOT, report of undocumented vessel registration March 1990.

The majority of the recreational vessels 8,943 (71%) are from the island Oahu. The island of Hawaii accounted for an additional 1,588 vessels (13%), with Maui, Kauai, Molokai and Lanai making up the rest (Figure 1). The greater number of vessels on Oahu is due to its larger population

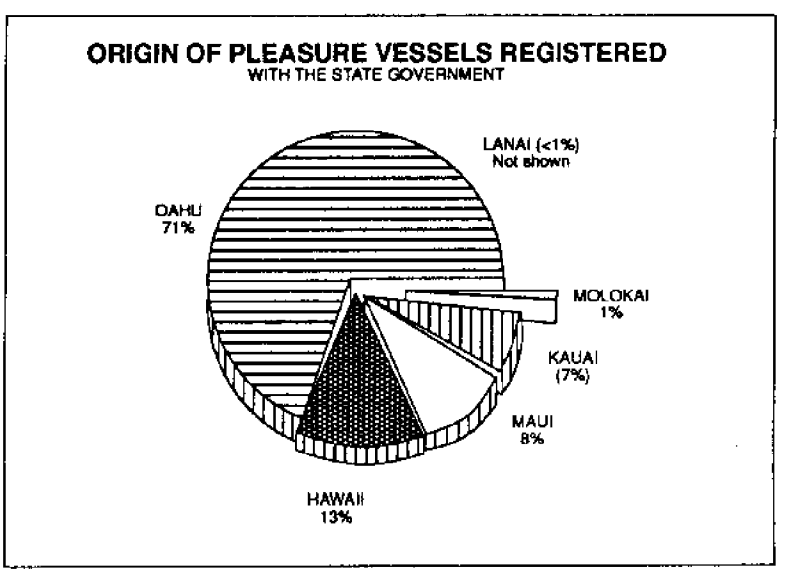


Figure 1

as well as the availability of facilities. In terms of the number of recreational vessels per thousand residents, Oahu, has the fewest vessels with about 10 vessels for every thousand individuals. Kauai has the largest number with 18 recreational vessels per thousand, with Maui and Hawaii having 14 and 13 vessels per thousand individuals respectively (Table 2).

TABLE 2. NUMBER OF RECREATIONAL VESSELS/RESIDENT POPULATION BY COUNTY

County	# Recreational Vessels+	1989 Pop Estimate*	# Vessels/ '000 Pop
Hawaii	1,588	118,090	13.4
Kauai	8,716	49,135	17.7
Maui	1,265	92,800	13.6
Honolulu	8,943	857,392	10.4

+ March '90 records from the DOT, Vessels Registration Data
* 1989 population estimated from the 1987 data of population by county and 1980-87 annual average increase figure (State of Hawaii Data Book 1988)

The percentage of boats registered as recreational vessels also varies between the islands. On Oahu, 8,943 (91%) of the vessels were for recreational use, as compared with 871 vessels (74%) in Kauai , 1,052 (76%) in Maui and 1,588 (74%) in Hawaii. Molokai had 161 vessels (85%) and Lanai 52 (84%) under the category of pleasure craft (Table 3). The smaller relative proportion of recreational boaters on the islands of Kauai, Maui and Hawaii corresponds with the existence of well-established charter fishing and commercial passenger enterprises on those islands, as well as a general lack of facilities.

TABLE 3. PROPORTION OF REGISTERED PERSONAL RECREATIONAL VESSELS BY ISLAND IN THE STATE OF HAWAII, 1989

Island	Recreation vessels	All vesssels
Oahu	8,943	9,839
Island of Hawaii	1,588	2,143
Kauai	871	1,181
Lanai	52	61
Maui	1,052	1,376
Molokai	161	189
TOTAL	12,690	14,857

Source: Vessel Registration Data, March 1990, Harbors Division, DOT

RECREATIONAL BOATING TREND

There seems to be a slight decline over time in the **proportion** of boats registered for personal use as compared with all registered vessels in Hawaii, even though their **actual** numbers have increased (Figures 2 and 3). Between 1980 and 1989, the percentage of vessels registered as

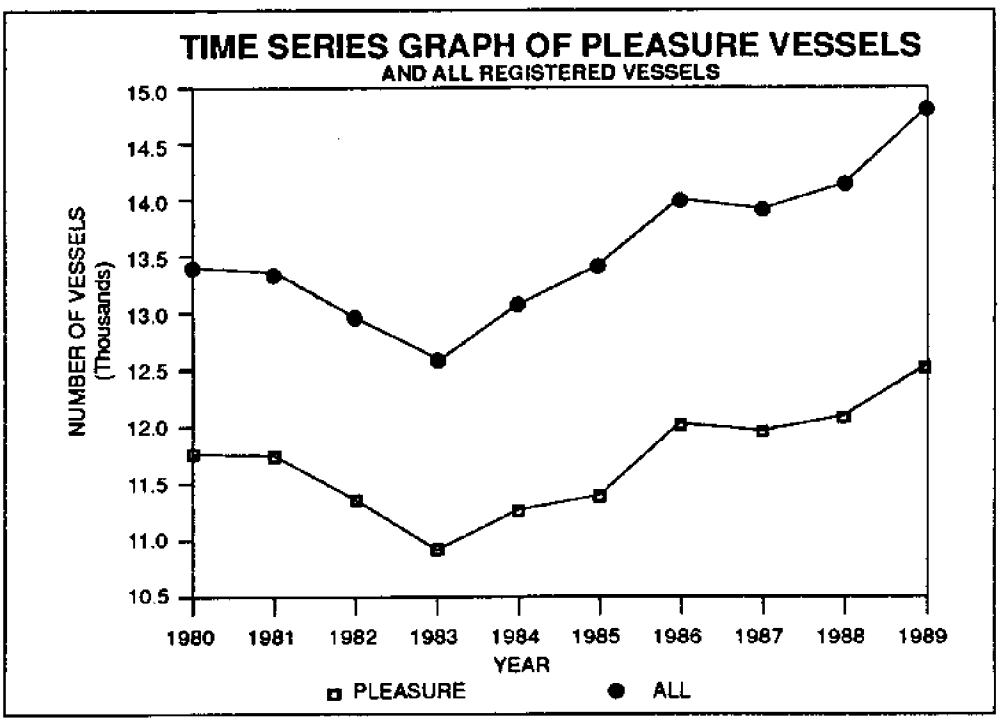


Figure 2

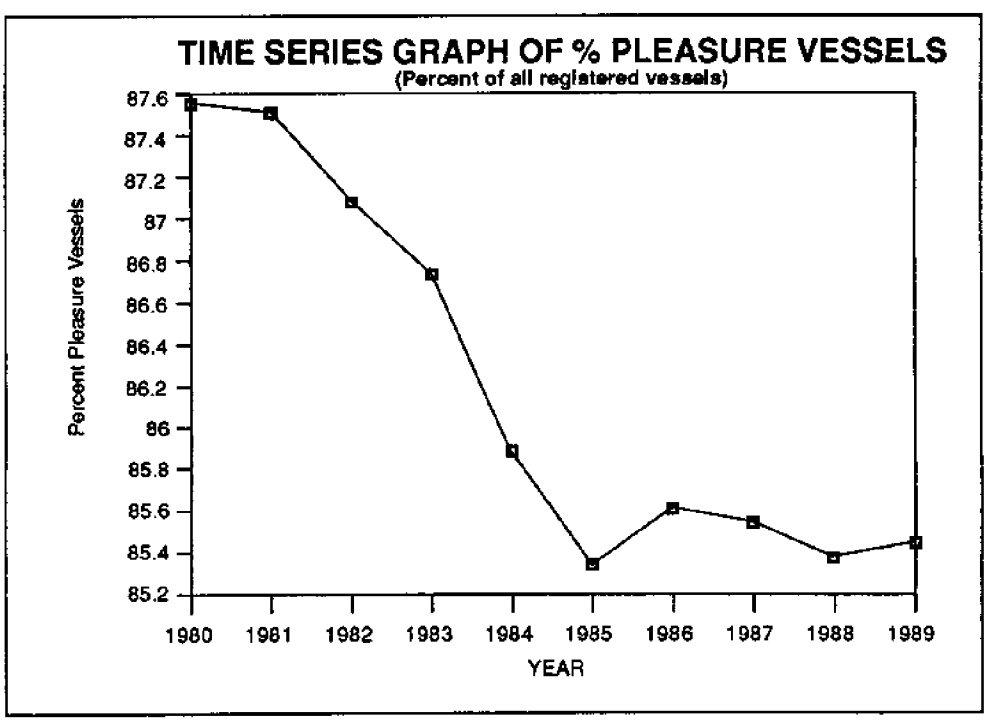


Figure 3

recreational compared to vessels engaged in other uses such as tour vessels and charter fishing, declined from 87.7% to 85.4% (Table 1). The actual number of recreational vessels per thousand population has declined over time from 12.2 in 1980 to 11.4 in 1989 (Figure 4).

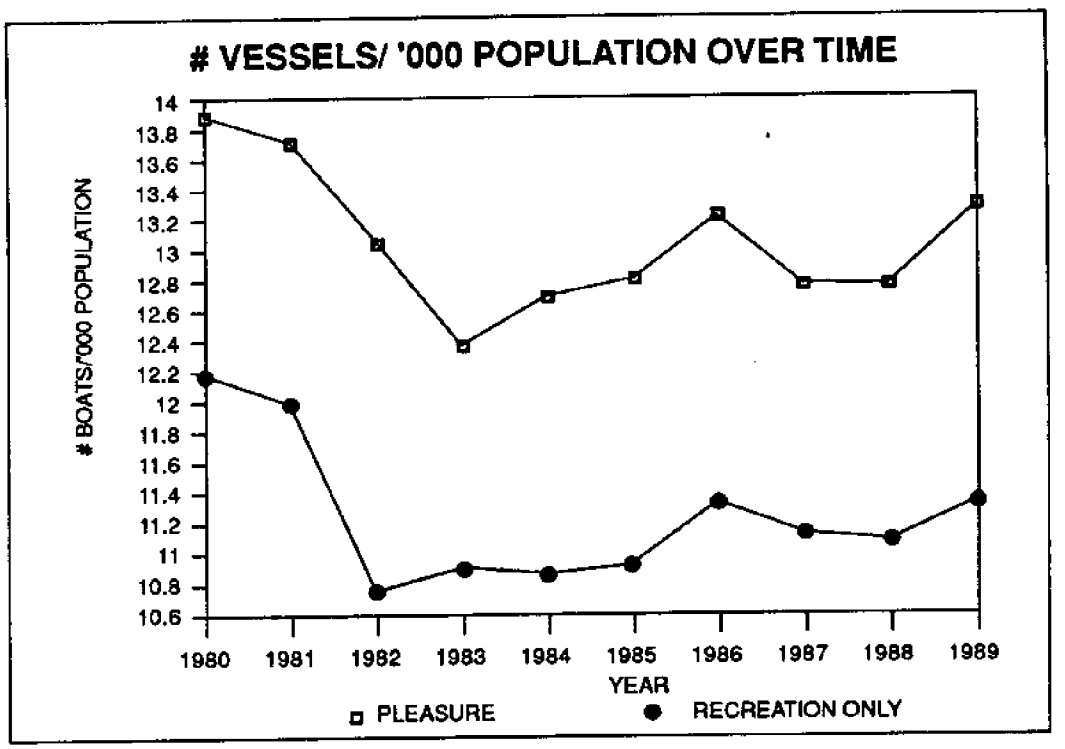


Figure 4

VESSEL TYPE – VESSEL CHARACTERISTICS

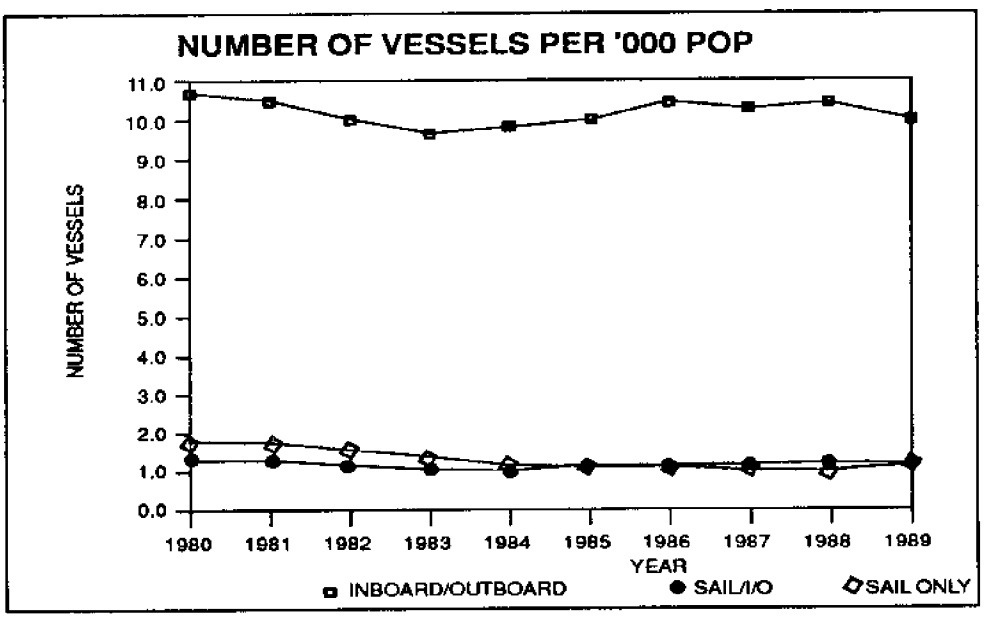
Outboard-powered vessels are the most common vessels in Hawaiian waters. They number 8,734 or 59% of all vessels, followed by 2,217 inboard and inboard-outboard vessels (15%). The number of small sail-only vessels is 948, or 6.4% of the types of vessels found in Hawaii (Table 4).

TABLE 4. FREQUENCY DISTRIBUTION OF VESSEL TYPE

Vessel Type	Numbers	Percentage
Inboard	1,041	7.1
Outboard	8,734	59.2
Inboard-Outboard	2,217	15.0
Sail/Inboard	611	4.1
Sail/Outboard	615	4.2
Sail Only	948	6.4
Manual	279	1.9
Others	326	2.2

Source: Harbors Division, DOT, Hawaii

The types of vessels found in Hawaii have not changed significantly over time (Figure 5). However, the number of sail-only vessels has declined and slight increases are shown in motor-powered vessels and sailboats with inboard-outboard motors (Figures 6, 7). The cost of a small motor-powered vessel coupled with the fact that fishing is the most popular recreational activity for the recreational boater in Hawaii, appears to account for the popularity of small, motor-powered vessels. While sailboats were once popular, the decline in the number of small sailboats for recreational use may be due to the introduction of close substitutes, such as sailboards.



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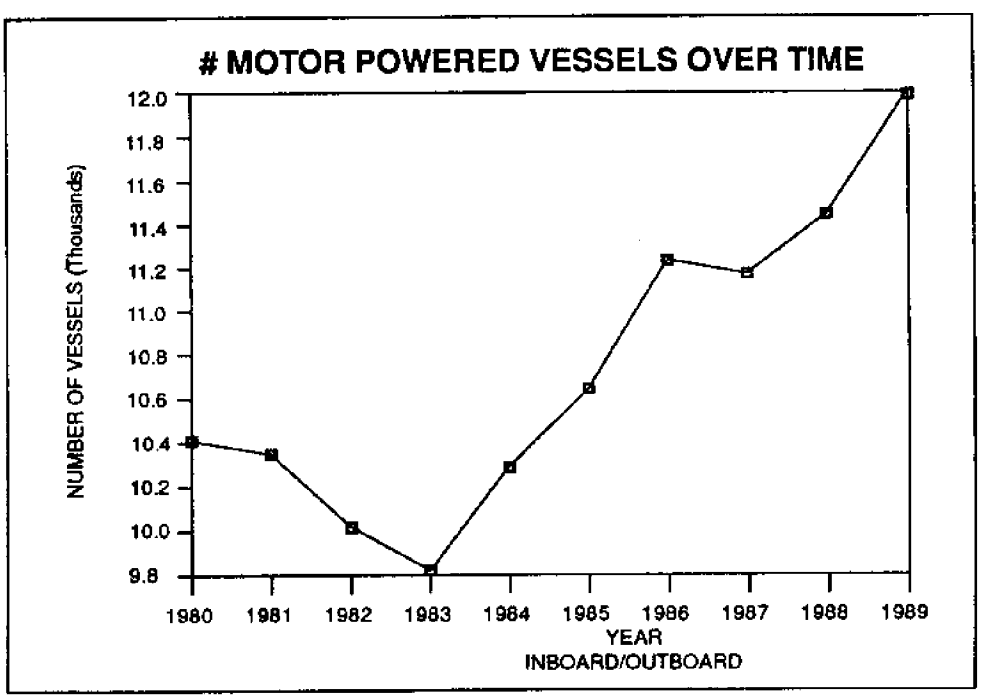

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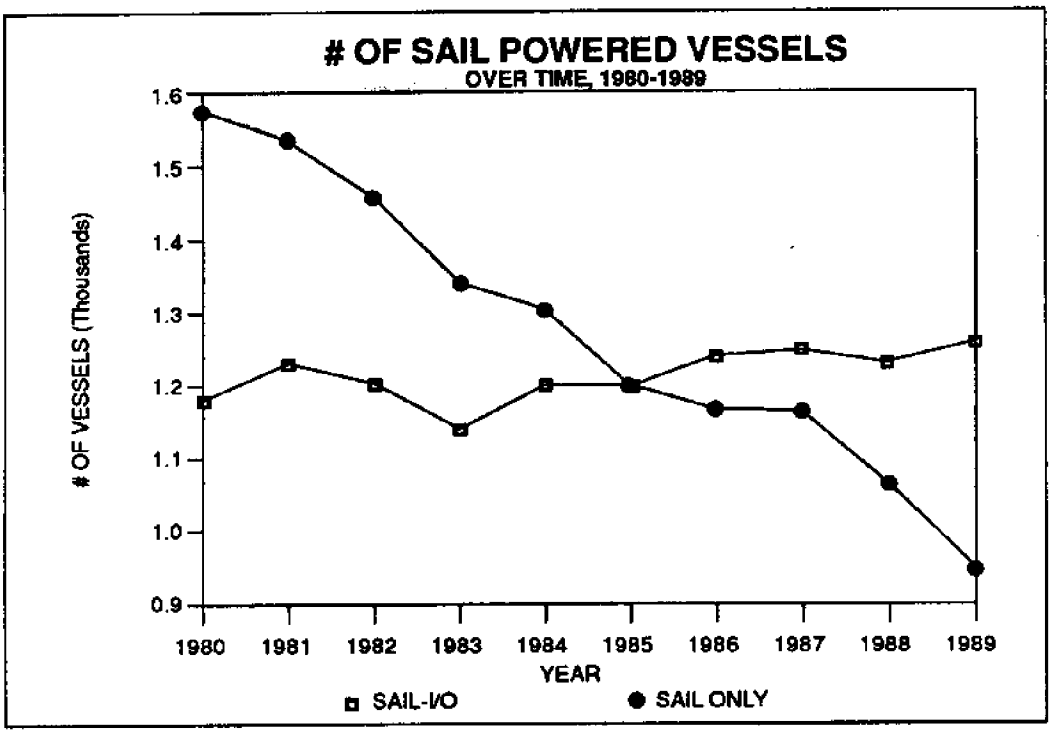


Figure 7 NUMBER OF SAIL VESSELS OVER TIME

VESSEL SIZE

The majority of the registered recreational vessels in the State are less than 25 feet in length (Table 5). In 1989, about 90% of all recreational vessels were in this group (Figure 8), while vessels over 30 feet accounted for less than 5%. The latter class is most popular as commercial and charter fishing vessels.

TABLE 5. SIZE FREQUENCY OF UNDOCUMENTED REGISTERED RECREATIONAL VESSELS

Size Class	All vessels	Recreational vessels
<16'	5,926	5,349
16-20'	4,932	4,269
21-25'	2,398	1,786
26-30'	934	705
31-40'	482	411
41-50'	137	128
>50	48	42
ALL	14,857	12,690

Source: Compiled from Undocumented Vessel Registration, DOT, Hawaii State Government, March 1990.

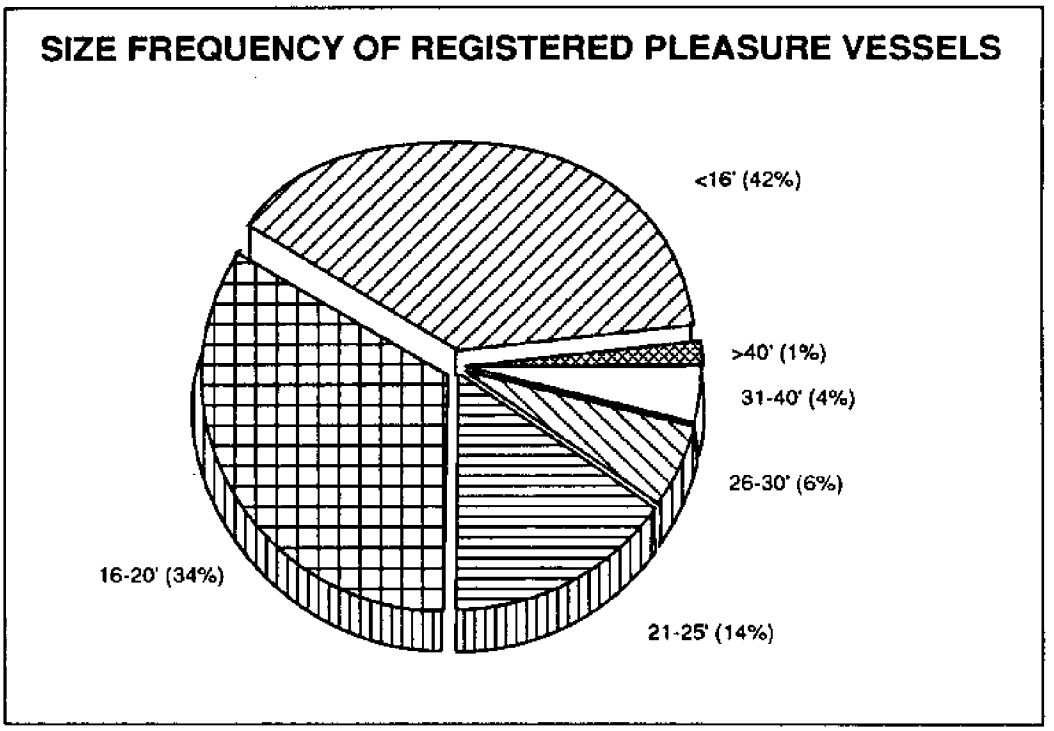
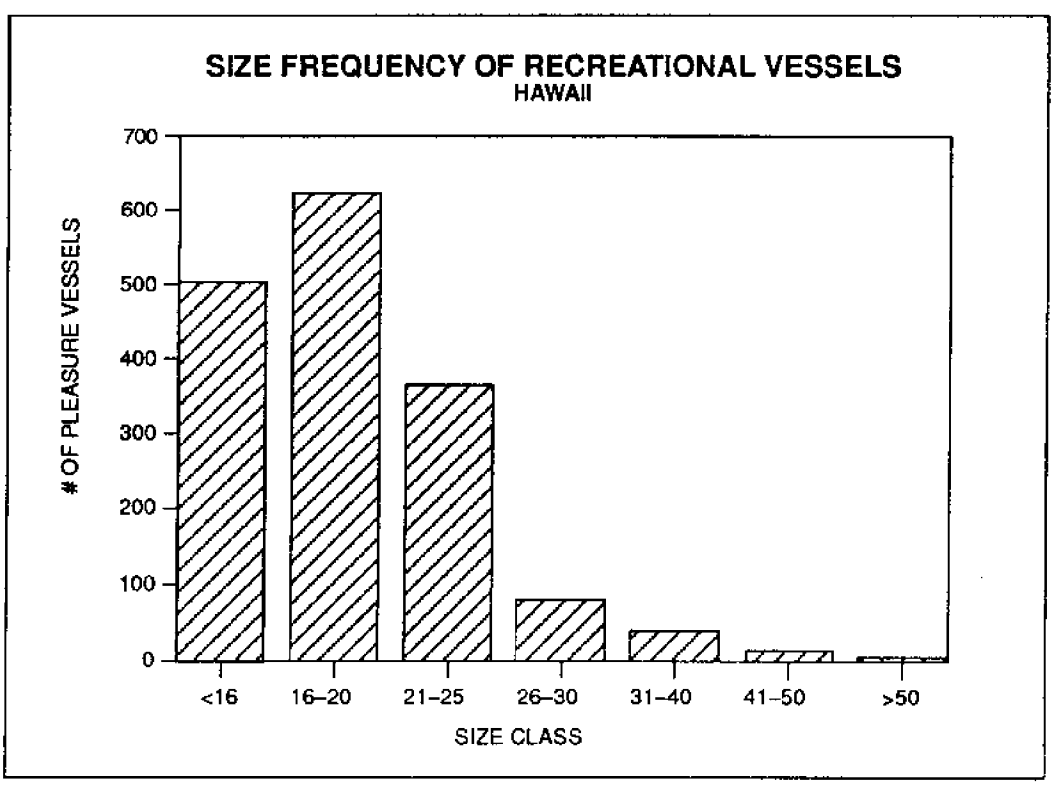


Figure 8

Vessels under 25 feet also make up the majority of recreational boats on all the islands. On the islands of Hawaii and Lanai, vessel lengths of 16-20 feet predominate. On other islands, vessels under 16 feet are more popular (Figures 9-14).



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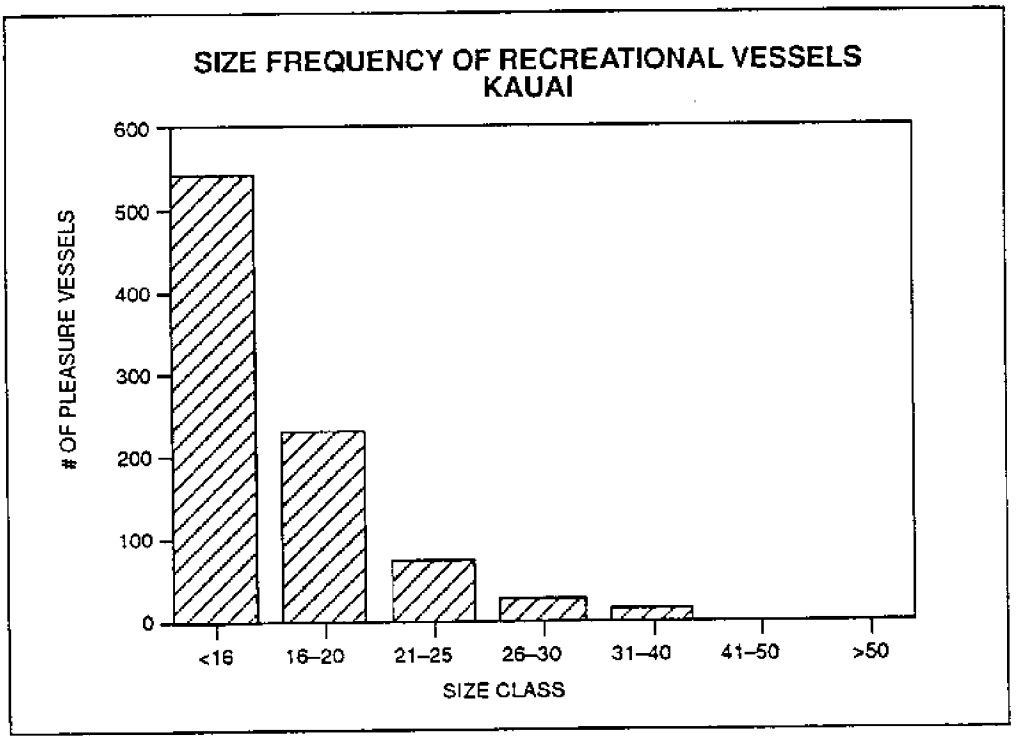

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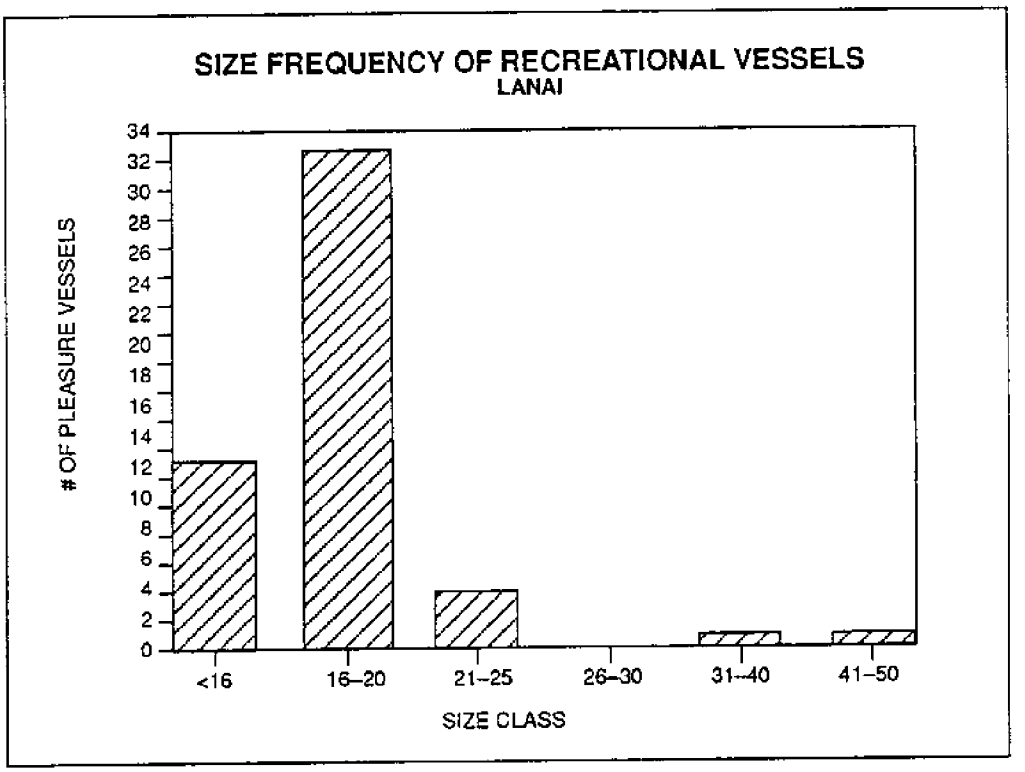

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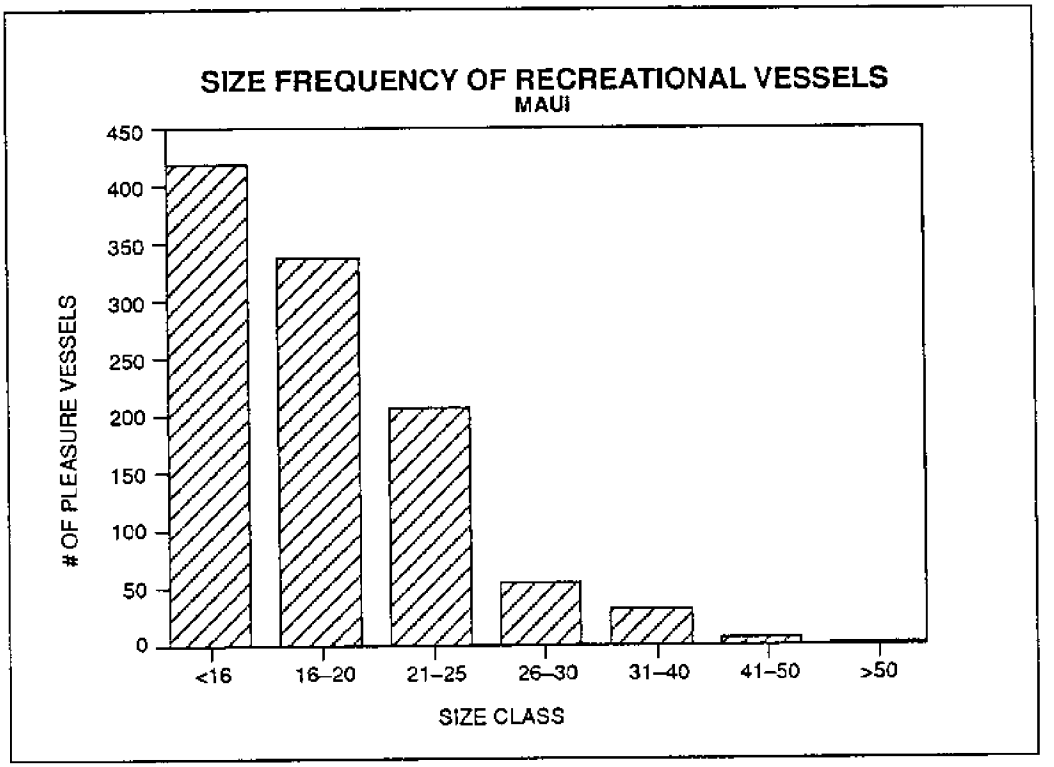

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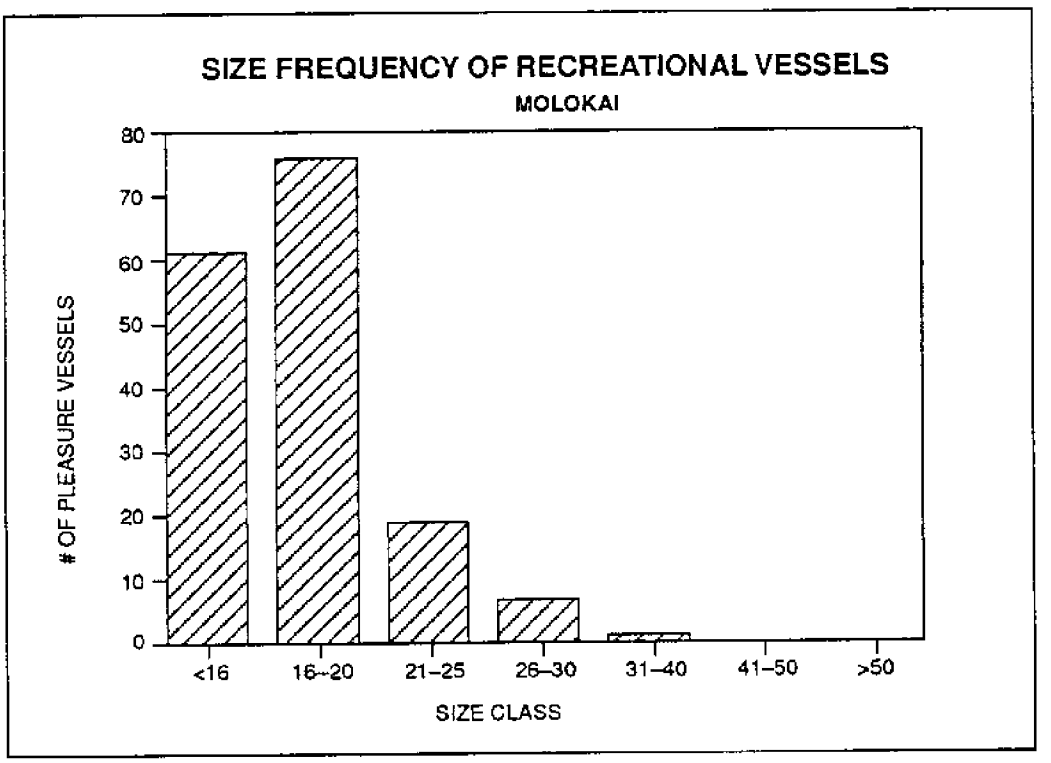

Figure 13

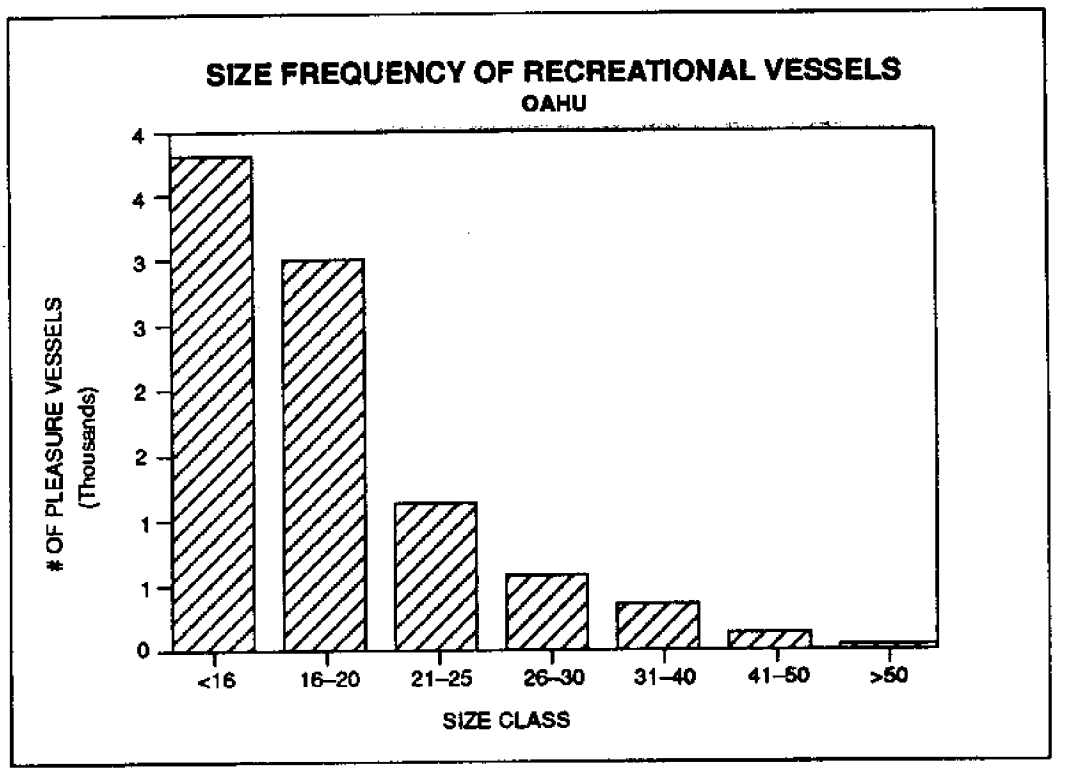

Figure 14

The size distribution of vessels in Hawaii appears to be a function of the availability of storage facilities as well as the fact that objects wider than nine feet and taller than 13 feet are not allowed on State highways without special permission (Department of Transportation, Highways Division, pers. comm.). About 82% of all recreational vessels in 1989 were stored on land. Of these, over 10,360 or 99.5% are less than or equal to 30 feet in length (Table 6). About 92% of the 518 vessels over 30 feet in length are wet-moored. However, wet-mooring facilities are very limited as will be discussed in the next chapters.

TABLE 6. DISTRIBUTION OF VESSEL SIZE AND STORAGE TYPE

Size Class	# Moored in water	# Stored on land
<16'	389	4,956
16-20'	371	3,896
21-25'	517	1,269
26-30'	530	237
>31'	819	50
TOTAL	2,275	10,410

Note: Five vessels were not included in above tally.
Source: Harbor's Division, DOT, March 1990

STORAGE PATTERN

The Harbors Division does not keep separate time series data on use, type and storage pattern. However, information on storage patterns over time for all registered vessels is available. With the increase in the number of vessels over time, the proportion of all vessels (recreational and others) stored on land has also increased. In 1966, 66% of the vessels were stored on land (Figure 15). In 1980, 10,651 of the state's registered vessels or 79.4% were stored on land; while in 1989 this figure had increased to 11,893 vessels (81.9%) .

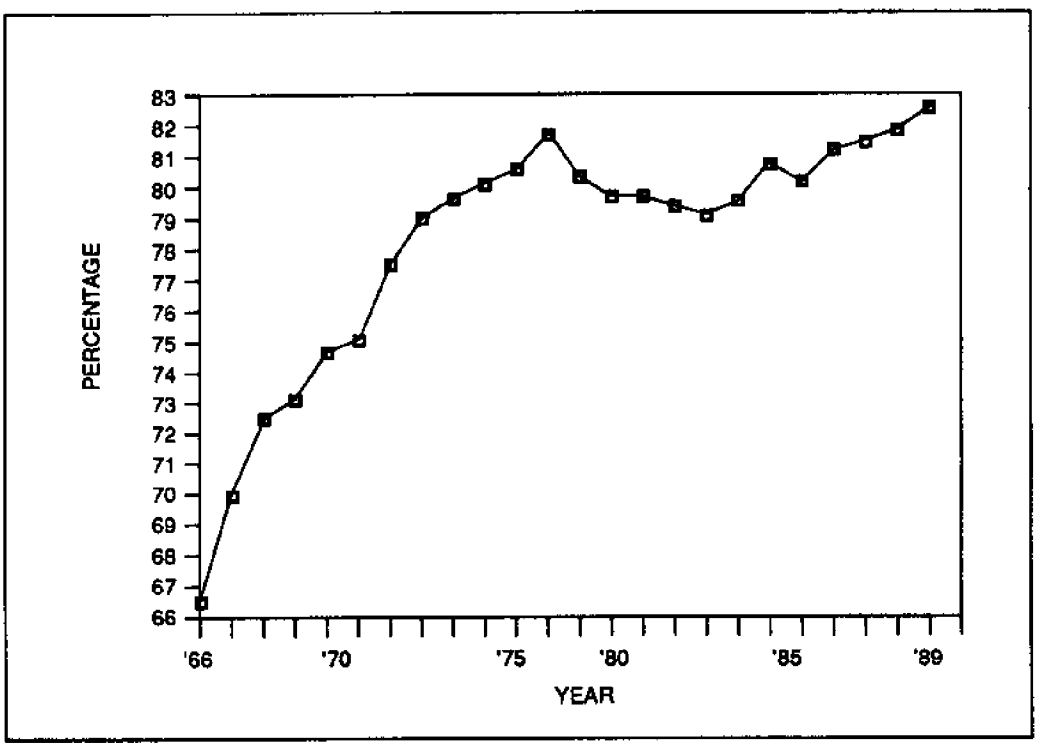

Figure 15 PERCENTAGE OF ALL VESSELS STORED ON LAND

Availability of storage and berthing facilities has not kept pace with increases in the number of vessels. This lack of facilities, together with the lack of convenient access to the ocean, probably explains why boat registrations have only increased slightly.

BOATER CHARACTERISTICS

A typical recreational boater in Hawaii is at least a high school graduate, with many having some college education (Figure 16). The most common age group of boat owners is 35-44 years of age (33%), followed by the 45-54 year class (23%).The over 54 and under 35 year classes of boaters are similar in the extent of their involvement in recreational boating (Figure 17). These data are consistent with the findings of the National Marine Manufacturers Association in their 1989 study of boating in the mainland United States.

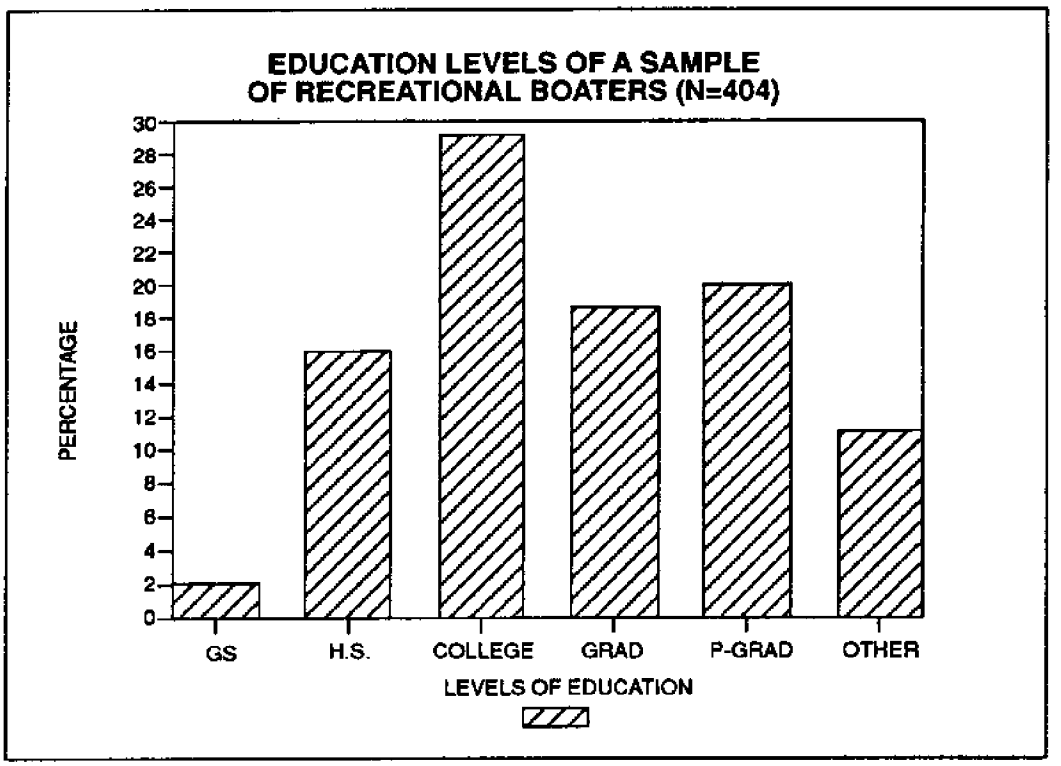

Figure 16

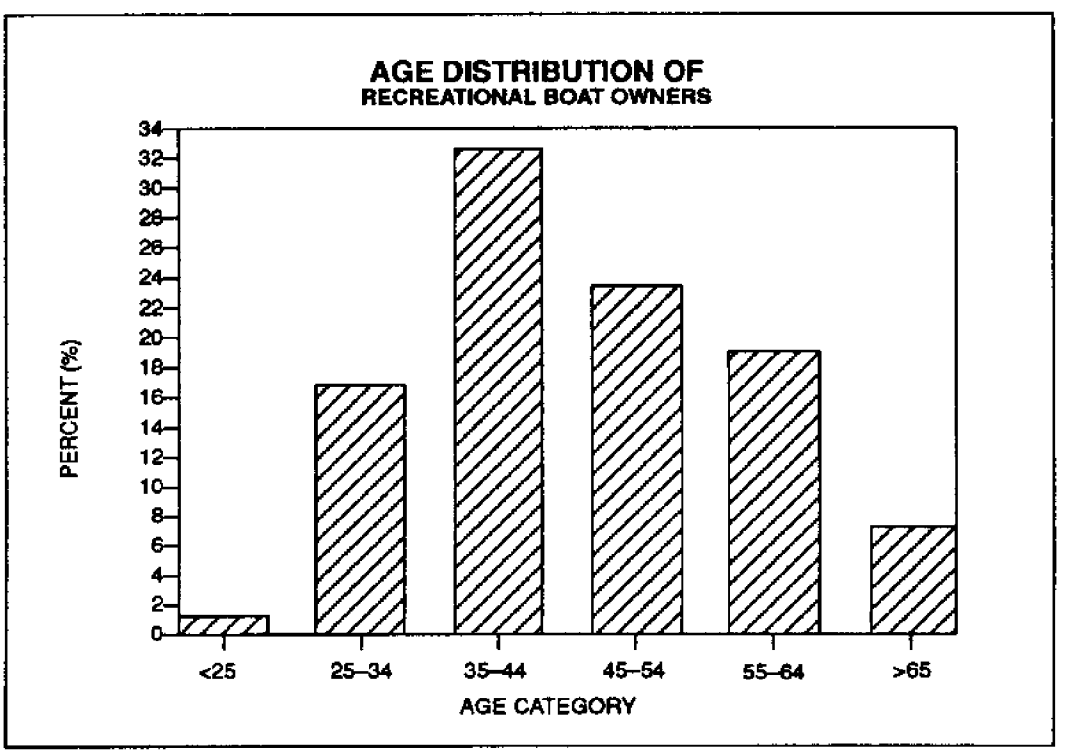

Figure 17

In Hawaii, the median income for recreational boaters is $20-25,000 per year. However, the $20-24,900 and the $25-29,000 income classes are the most common, each accounting for 22% of the boat owners (Dave Swenson, U.S. Army Corps of Engineers, Honolulu, pers. comm.)

MAIN ACTIVITY OF RECREATIONAL BOATERS

Vessels registered as pleasure craft are used in a variety of activities, but fishing is the single most important use. About 74% of the recreational vessels are engaged in fishing as their primary activity (Dave Swenson, U.S. Army Corps of Engineers, Honolulu, pers. comm.). Four percent engage in other primary activities, such as diving and cruising, and the balance are involved in more than one major activity. Only 10% of the recreational boaters involved in fishing, fished exclusively for recreation – that is, did not sell any of their catch to defray costs or supplement their income (Dave Swenson, U.S. Army Corps of Engineers, Honolulu, pers. comm.)

Chapter 3

BERTHING FACILITIES

CHARACTERISTICS OF BERTHING FACILITIES

There were only 3,696 individual berthing facilities available in Hawaii at the time of this study. The berthing facilities in Hawaii are comprised of 2,915 slips and 781 buoys (Table 7). About

TABLE 7. AVAILABILITY OF WET MOORING FACILITIES IN THE STATE OF HAWAII

Island	Slips	Buoys	Total
Oahu	2,731	230	2,961
:Private marina	750	0	750
:Private home assn	500	0	500
:Military	223	82	305
:State SBH	1,258	148	1,406
Island of Hawaii	23	334	357
Kauai	82	36	118
Maui	48	152	200
Molokai	3	29	32
Lanai	27	0	27
State subtotal	1,441	699	2,140
TOTAL	2,915	781	3,696

58% of these are provided by the State government. Oahu has about 80% of all the available slips and mooring facilities statewide and over 50% of all the State managed harbor facilities (Table 7). The private sector and the military provide over 50% of the facilities on Oahu (Figure 18) and about 42% of the total berthing facilities statewide The State's Department of Transportation provides all the berthing facilities on the other islands.

Approximately 75% of Oahu's non-State facilities are restricted to use by military personnel or to home owners in subdivisions with marinas. Only 750 berths (25%) of the private facilities on Oahu are available to the general public (Table 7).

The portion of slips and buoys and number of vessels per berthing facility varies between islands. Hawaii, Kauai, Maui and Molokai have more mooring buoys than slips. Oahu has almost thirteen times as many slips as buoys. Lanai has no mooring buoys at all (Table 7). The overall increase in vessel numbers in recent years has resulted in an increase in the number of vessels per facility on each of the islands. Oahu has about three registered recreational vessels per slip. Hawaii has 69 registered recreational vessels for every available slip, followed by Molokai with 54, Maui with 22 and Kauai with 11 (Table 8).

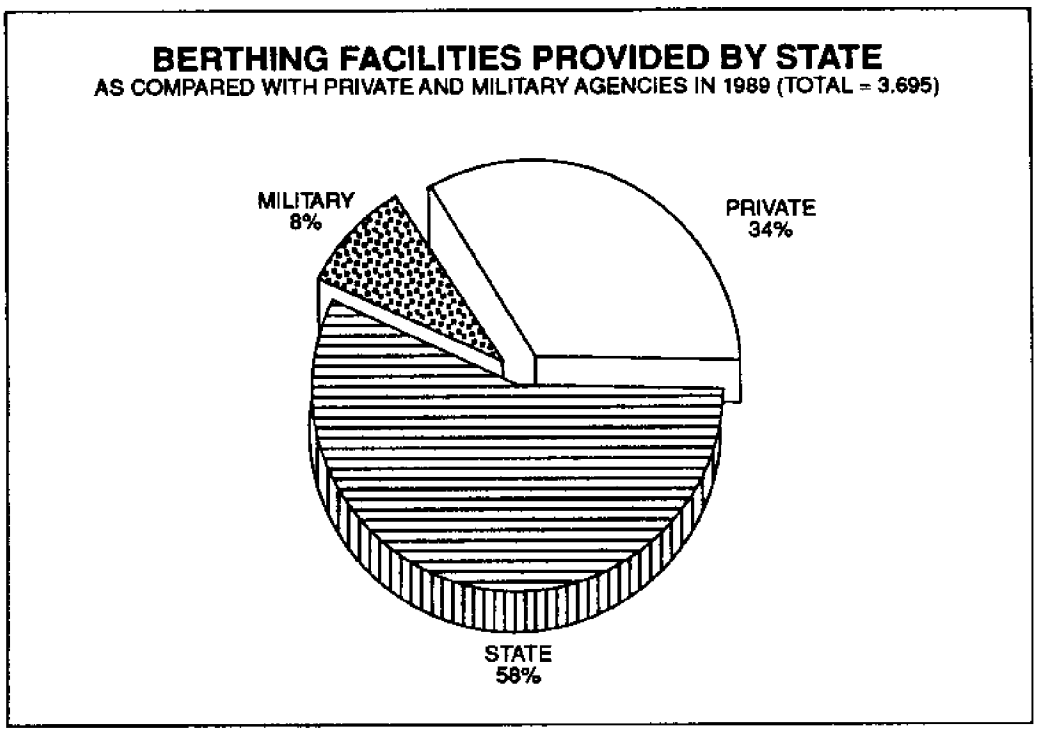

Figure 18

TABLE 8 NUMBER OF REGISTERED RECREATION VESSELS PER AVAILABLE BERTHING FACILITY BY ISLAND IN 1989

Island	# Recreational vessels	# of berths (slips + buoys)	# vessels '000 pop
Oahu	8,943	2,731	3
Island of Hawaii	1,588	23	69
Kauai	871	82	11
Maui	1,052	48	22
Molokai	161	3	54
Lanai	52	28	2
TOTAL	12,690	2,916	4.4

Source: Number of recreational vessels by island - Harbors Division, Department of Transportation, State of Hawaii, March 1990 Vessel Registration Data.

There have been about 195 additional berths developed at the State facilities since 1980. However, there was a corresponding decrease in mooring capacity. As a result the overall number

of facilities and distribution between islands have remained relatively constant (Figure 19). Berthing constraints may be eased with new private and public marina developments which have been

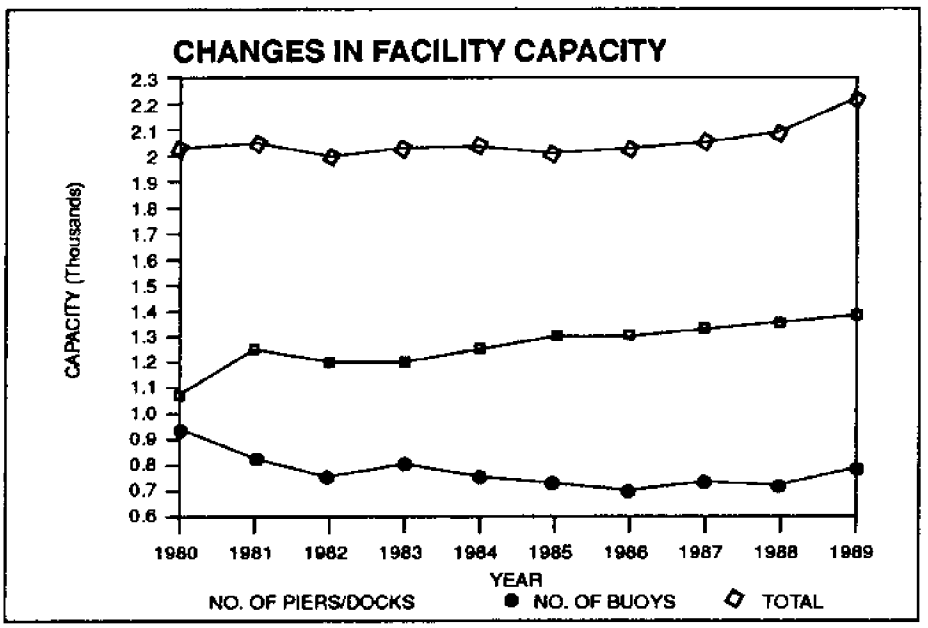

Figure 19

proposed. As of October 1989, there were seven marina developments proposed by private developers and five marina expansions proposed by the State (Table 9). However, to date only three

TABLE 9. PROPOSED PRIVATE/PUBLIC MARINA DEVELOPMENTS

Development/Island	# of slips	Private or State Facility
Oahu		
Ko Olina Resort	400	Private
Ewa Marina	1500	Private
Keehi Lagoon		
Pier 60 Marina	300	Private facility at State Harbor
Lagoon Drive Marina	1000	Private facility at State Harbor
Kauai		
Kukuiula	50	Private facility with state boat launch ramp
Maui		
West Maui Marine (Laniupoko)	570	Private
Maalaea	250*	State
Hawaii		
Hawaiian Riviera	400	Private
Ko Hana Iki	180	Private
Mauna Lani	150	Private
Honokohau	53†	State
Kawaihae	301^	State

*Maalaea currently has 100 slips with the expansion of an additional 250 slips the total will be 350
†Honokohau currently has 155 slips with the expansion of an additional 53 slips the total will be 208
^Kawaihae currently has 23 slips with the expansion of an additional 201 skips the total will be 324
(Source: Statewide Planning for Marine Facilities, DOT Harbors, 1989 and interviews with private developers)

of these facilities have been approved, the 400-slip marina at West Beach (Ko Olina), the expansion of Maalaea Small Boat Harbor and the development of a marina at Pier 60 in Keehi Lagoon .

The number and size of berths on each island, to a large degree, determine the number of larger boats. Figure 20 indicates the statewide availability of wet-storage facilities for different size

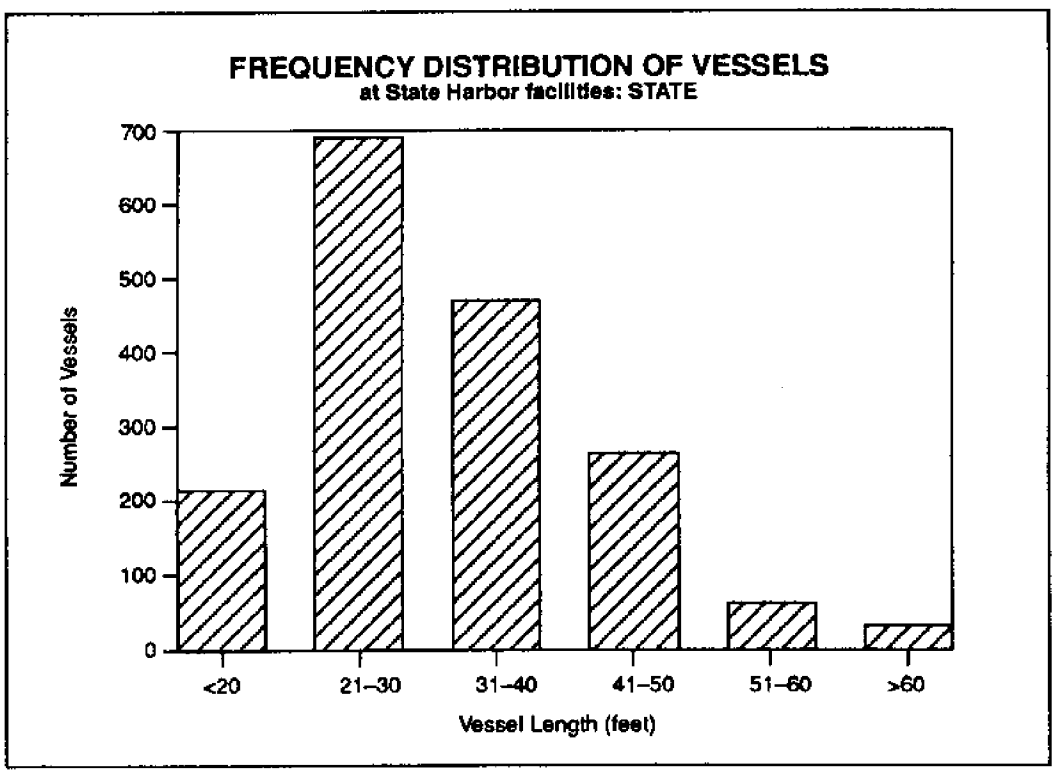

Figure 20

vessels at State harbor facilities. On all the islands there is a predominance of berths for boats under 30 feet long. On Maui and Oahu, a larger number of berths for the 30-40 feet category are available, reflecting the greater number of such vessels found on these islands (Figures 21-24).

In March 1990, for every one vessel under 16 feet stored in water, 13 were stored on land; for vessels 21-25 feet in length, three vessels were stored on land for one in the water; and for every

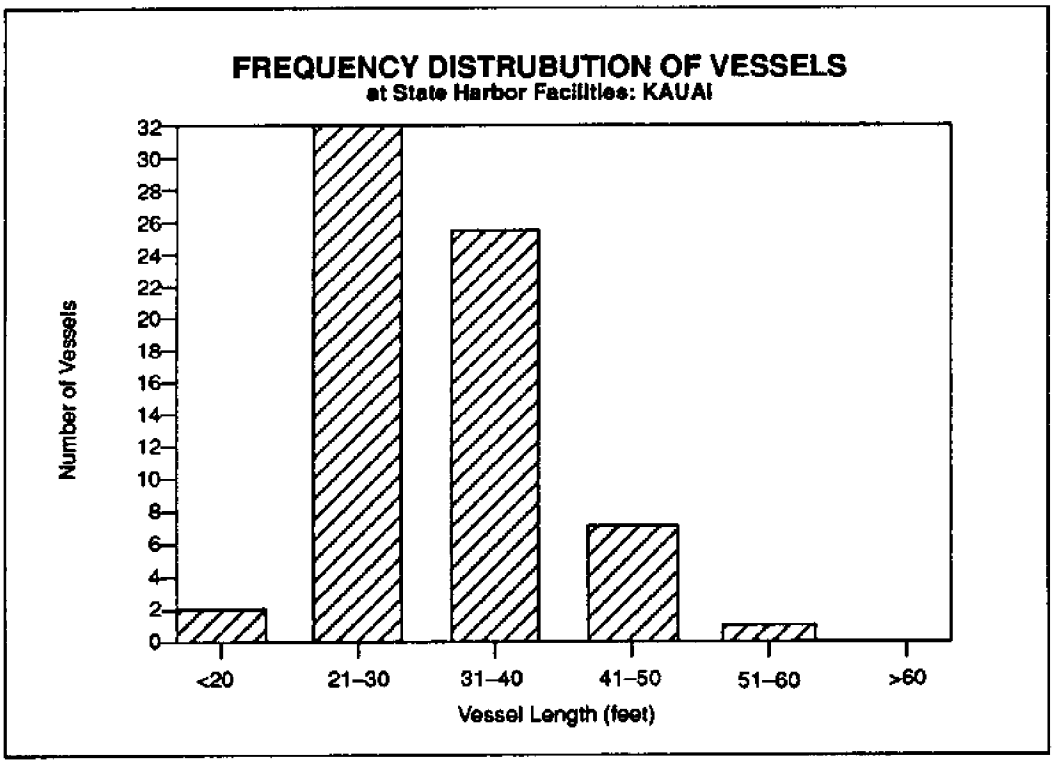

Figure 21

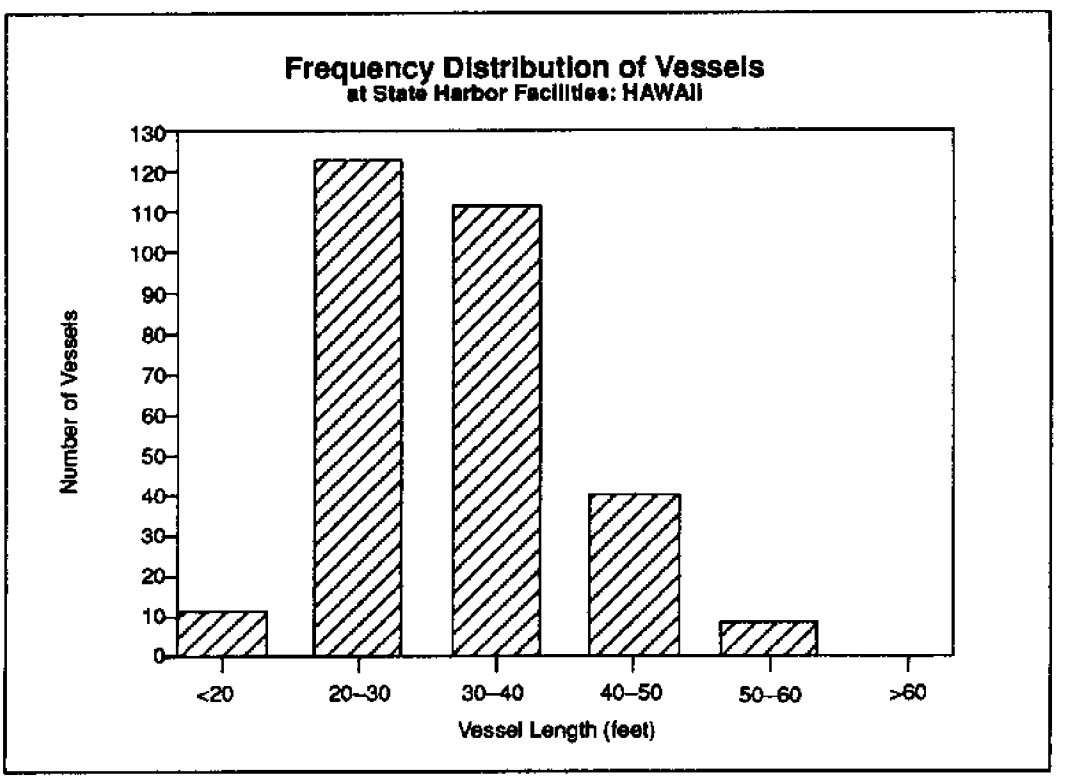

Figure 22

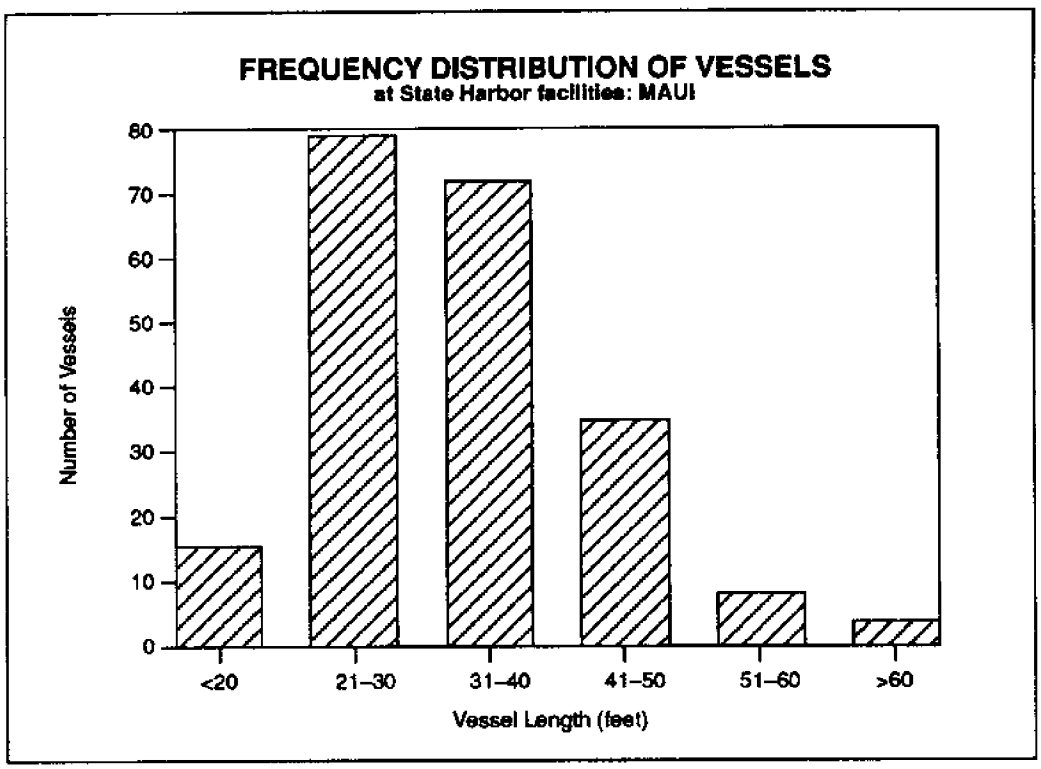

Figure 23

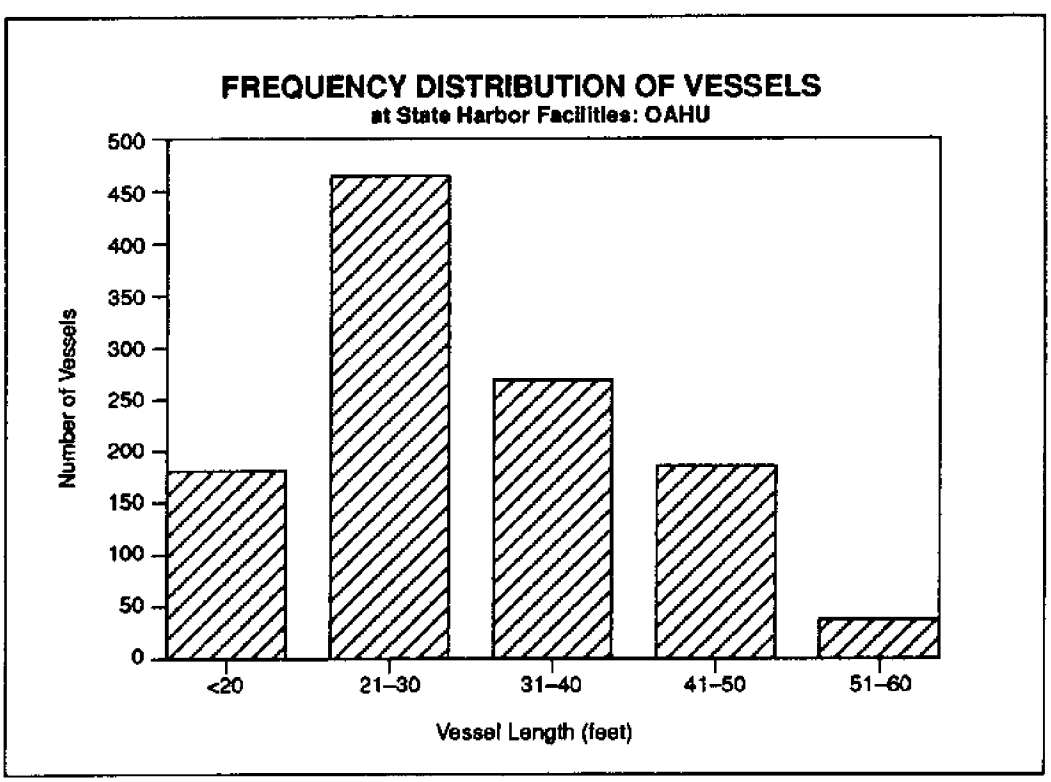

Figure 24

two vessels 26-30 feet length moored in water there was only one on land. For vessels over 40 feet, there are 13 vessels in the water for every boat stored on land (Table 10).

TABLE 10. PROPORTION OF VESSELS STORED ON LAND AND IN WATER BY SIZE CLASS

Size Class	# Stored on land/ wet storage	# Moored in water/ trailered
<16	12.7	
16-20	10.5	
21-25	2.5	
26-30		2.0
31-40		10.4
>40		12.9

Source: DOT, Harbors Division, March 1990.

WAITING TIME FOR BERTHING SPACE

Demand for berthing facilities far exceeds the supply. All State harbor facilities have a waiting list, except for the Waianae small boat harbor which has a dangerous surge problem. The applications on file have gradually increased over time. The waiting period ranges from five years for vessels over 30 feet in length to over 20 years for the smaller boats (Table 11). Even at private marinas, which generally have higher mooring fees, there are waiting lists. For example, at the Hawaii Yacht Club, which has only 24 slips, the number on the waiting list at any given time is about 40. Only at the military facilities, which are restricted to military personnel, is the waiting period measured in weeks. Management at the Makani Kai Marina, which rents some of its 80 slips to the public, indicated that while they do not have a waiting list, they receive, on average, at least three to four inquiries per day about boat moorage. The waiting lists underrepresent the pent-up demand. Boat owners often do not apply to be put on the list because of the annual $15 fee and the expectations of a long wait.

TABLE 11. BERTHING CAPACITY AND WAITING LIST/WAITING TIME AT STATE, MILITARY AND PRIVATE FACILITIES

Facility	Slips #	Buoys	Waiting time
MILITARY FACILITIES			
Hickam Harbor	20	14	2-3 weeks
Iroquois Lagoon Yacht Club	50	15	2 years
Rainbow Bay Marina	93	36	six months to 2 years
Marine Corps Air Station	20	17	6 months
PRIVATE MARINAS			
Keehi Marine Center	156	0	3 years
Waikiki Yacht Club	146	0	3 years
Hawaii Yacht Club	21	0	10-20 years for smaller vessels, and less than six months for larger vessels
La Mariana Sailing Club	100	y	N/A
Koko Marina Shopping Center	97	0	less than 6 months
Makani Kai Marine	80	0	no waiting list but 3-4 calls a day
Kaneohe Yacht club	150	0	2 years
STATE FACILITIES			**Waiting List**
Oahu			
Ala Wai Small Boat Harbor	726	20	1,075
Waianae Small Boat Harbor	146	1	none
Haleiwa Small Boat Harbor	64	15	24
Keehi Small Boat Harbor	304	62	108
Heeia Kea Small Boat Harbor	18	50	31
Oahu Subtotal	1,258	148	1,239
Maui			
Lahaina Boat Harbor	16	84	76
Maalaea Boat Harbor	32	68	183
Maui Subtotal	48	152	259
Kauai			
Port Allen Harbor	34	6	20
Kikiaola Harbor	0	8	N/A†
Kukuiula Harbor	0	10	N/A†
Nawiliwili Harbor	48	12	45
Kauai Subtotal	82	36	65
Big Island			
Reed's Bay	0	26	N/A
Radio Bay	0	8	N/A
Kailua Bay	10	19	4
Honokohau Small Boat Harbor		257	270
Keauhou	4	15	
Wailoa Sampan Basin	9		5
Kawaihae North and South Harbor		38	48
Big Island Subtotal	23	334*	339
Lanai			
Manele Small Boat Harbor	27		55
Molokai			
Kaunakakai Small Boat Harbor	3	29	

*another 29 buoys were noted for Big Island but not included here because the capacity was not known (DOT 3-042 Har-B 9/80)
†in Small Boat Harbors where no waiting list information is available, it is because no facilities exist, thus, waiting lists are not available
Source: Compiled from completed survey questionnaire, information provided by the Harbor's Division, DOT and Army Corps of Engineers (1985).

SUBLEASING OF STATE FACILITIES

One of the side effects of an excess demand for slips is an unauthorized subleasing of slips at State facilities. At a number of facilities, there are so-called "ghost" boat owners. Some slips are known to be subleased to new boat owners with the original boat owner (lessee) having no real interest in the vessel moored at the slip. Often, there is a premium attached. In other cases, the person to whom the slip is leased has had to wait so long for the slip that they no longer have a boat. They will illegally sublease the slip in order to avoid loosing it, banking on the day they will eventually own another vessel. The extent of this operation is not known but appears to be wide spread. At least three different brokers indicated that the availability of slips is almost a prerequisite for selling larger vessels. At times, two separate sets of ownership papers are prepared, the first indicating that the owner of the slip is still the vessel owner, and the second overriding document showing the true owner. By one estimate, at least 25% of the slips available at one of the Oahu State harbor facilities may be occupied by "ghost" owners.

This phenomenon was first reported in the local papers in August 1979 as a problem at Ala Wai Harbor and Lahaina small boat harbor on Maui (Honolulu Star Bulletin 9-30-79). At that time it was reported that some of the slips in Lahaina commanded a premium of over $1,200 per month, while a $45,000 premium was attached to the sale of a boat with access to a slip. While this high premium attached to vessels with slips in Lahaina was likely for the commercial recreational vessels, the value of these slips has increased since then. In addition, some interviewees suggested that the number of "ghost" ownership arrangements has increased since the 1979 article.

Chapter 4

ECONOMIC IMPACT OF RECREATIONAL BOATING IN HAWAII

The economic contribution of the recreational boating industry to Hawaii's economy can be measured in terms of the revenue generated and the number of people employed. The economic benefits are generated through the sale and use of boats themselves, the provision of berthing facilities, other supporting activities and the services provided by the commercial sector or by individuals who are self-employed, either on a part-time or full-time basis. Work undertaken by the boat owners themselves or their friends and relatives (in lieu of contracting for commercial services) is also an important component of the total economic benefit.

BERTHING FACILITY REVENUES AND EXPENDITURES

As noted earlier, except on Oahu, berthing facilities in Hawaii are provided primarily by the State government. On Oahu, about one-half of all facilities are provided by private marinas, yacht clubs, federal (military) agencies and private individuals.

State Facilities, Revenues, Expenditures and Employment

The Harbors Division obtains a majority of its revenue directly from the registration of vessels and through the provision of the small boat harbor facilities (Table 12). The latter includes mooring facilities, associated amenities and services such as electricity, water, rental of equipment and parking spaces. Other sources of revenue include fuel tax, rental of spaces to commercial vendors, charging commercial vessels a fee for permits to use State facilities and leasing of areas within the small boat harbors to commercial firms serving the boating community.

TABLE 12. ECONOMIC CONTRIBUTION OF STATE FACILITIES

Source	State total	% Non fuel total
Mooring charges, etc.	2,326,000	47.1
Licenses, permits, etc.	223,000	4.5
Use of amenity	56,000	1.1
Rental of equip., parking	159,000	3.0
Commercial fees	689,000	14.5
Space lease	809,000	16.7
Subtotal (excluding fuel, and commercial fees)	4,249,000	86.0
Subtotal (excluding fuel)*	4,938,000	100
Fuel	837,000	
TOTAL	5,747,000	

Using revenue figures for fiscal year 1989[4] it was estimated that the total annual revenues for the Small Boat Harbors Branch of DOT Harbors Division was $5,747,000 (rounded to the nearest thousand $). Of this, almost $837,000 (15%) was derived from the fuel tax.

Non-fuel tax revenues obtained by the State are estimated to be $4,938,000. Oahu generated $3,506,000 or 71% of the total non-fuel revenues. Maui county produced an additional $870,000 (18%). Non-fuel revenues from the recreational boating facilities on Hawaii accounted for $459,000 (9%) and Kauai accounted for $103,000 (2%) of the total (Figure 25).

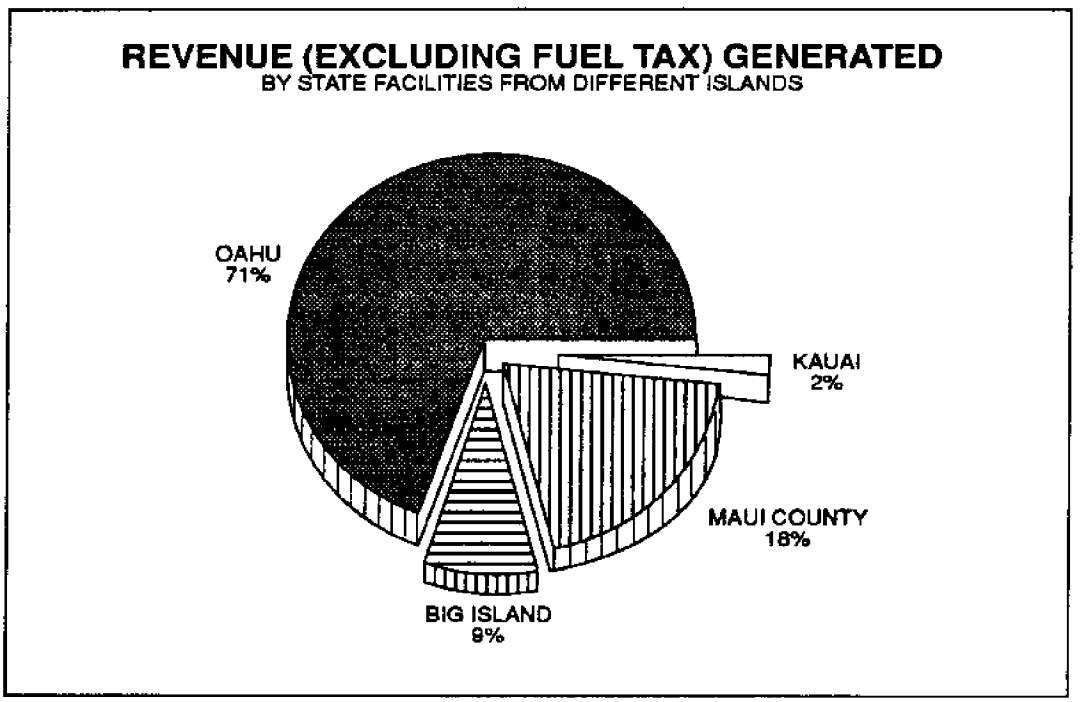

Figure 25

A large proportion of the Boating Branch's fund is derived from the provision of small boat harbor facilities. In 1989, excluding the fuel tax, $2,326,000 (47%) of the entire Small Boat Harbor fund was derived directly from the revenue generated from the provision of berthing facilities. This included mooring fees, mooring application fees and live-aboard charges (Table 13).

State facilities on Oahu generate $1,698,000 (73%) of their non-fuel tax revenues from mooring fees, followed by Maui with $329,000 (4%), Hawaii with $227,000 (10%), and Kauai with $72,000 (3%). In terms of total revenue produced per State berthing unit, Maui, with the second largest number of slips and buoys, generates the largest per unit return, $3,385, followed by Oahu $2,494. The high return per slip in Maui County is due to the large number of commercial slips in

[4]Fiscal year 1989 figures are for July 1988-June 1989 and are based on estimated final figures. Calendar year fiscal figures were unavailable.

TABLE 13. REVENUE GENERATED BY THE SMALL BOAT HARBOR FACILITIES BY ISLAND COUNTIES (REVENUES GIVEN IN $'000)

Source	State Total	Oahu	Bi	Maui	Kauai
Mooring charges, etc.	2,326	1,698	227	329	72
Licenses, permits, etc.	223	186	19	14	4
Use of amenity	56	44	10	2	0
Rental of equip., parking	159	143	3	12	0
Commercial fees	689	87	114	469	19
Space lease	809	701	81	91	8
Subtotal (excluding fuel)	4,281	2,876	455	847	103
Total (including other revenues)	4,938	3,506	459	870	103
Fuel		837			
TOTAL	5,747				

Source: Harbors Division, Boating Special Fund: Multi-Year Financial Summary (DOT pers comm)

the recreational harbors at both Lahaina and Maalaea Small Boat Harbors where commercial businesses are charged 2% of their gross revenues or 2 times the mooring fee per month, whichever is greater, for use of the State facility. Oahu obtains a large proportion of its total revenue from leasing its property under the control of the State Boating Program to firms servicing the boating community. In 1989, leases generated a little less than 30% of the non-fuel tax revenue.

Registration of all vessels, commercial and recreational, produced $196,000 (3.5%) of the non-fuel tax-revenues in 1989. Of the revenue derived from vessel registration, $165,000 (84.5%) was generated from recreational vessels. Registration of vessels stored on land accounted for $137,000 of this amount, while those moored in water accounted for the rest, $29,000.

The State expenditure for the Boating Program for 1989 was estimated to be $5,180,000, of which $83,000 (2%) was to have been spent on departmental administration, $896,000 on non-routine maintenance of harbor facilities, and $789,000 in debt service. Total expenses excluding wages and salaries, was estimated to be $3,820,000 (Table 14). The "Boating Special Fund," for the State Boating Program of DOT Harbors Division was expected to be $2,424,000 (Department of Transportation Boating Expenditure Plan 7-8-89). This also includes revenues derived from other non boating-related sources not included in the revenue estimates shown above. There were 54.5 authorized positions for the State Boating Program in 1989. Their salary and fringe benefits with expected pay increases for the year 1989 were estimated to be $1,360,000.

The Department of Transportation Harbors Division is prohibited by law from not generating revenues, so they set up a reserve contingency. Whatever funds are left over from one year's operations are carried over to following years to be paid against future expenses. They do not revert back to the State general fund. Revenues and expenditures fluctuate year to year and are affected by

TABLE 14. EXPENSES INCURRED IN RELATION TO THE PROVISION OF STATE FACILITIES

Item	1989 Expenses
Debt service	789,000
Special maintenance	896,000
Regular maintenance	1,797,000
Special fund surcharge	255,000
Departmental administration	83,000
Total expenses (excluding salaries and wages)	3,820,000

Source: Harbors Division, Boating Special Fund: Multi-Year Financial Summary (DOT pers comm)

cyclic increases in mooring fees. In 1989, the Boating Program generated more in revenues than there were expenses (DOT Harbors Division, Boating Branch, pers. comm.).

Non-State Berthing Facilities: Revenue, Costs and Employment

As previously indicated, Oahu is the only island in Hawaii to have private berthing facilities. These berthing facilities are provided by private marinas, yacht clubs, military marinas and home-owners associations. In 1989, the 1,250 private berths[5] earned $5.3 million in revenue. The commercially operated marinas and yacht clubs showed gross revenues of $4.9 million in 1988. Military facilities produced $391,990 in gross revenues (Table 15). Commercially operated berthing facilities, available to the general public, generated 32% of their revenues or $1.6 million from the lease of slips, mooring buoys and some dry storage facilities, and 68% of their revenues or $3.4

TABLE 15. ECONOMIC CONTRIBUTION OF THE PRIVATE AND MILITARY BERTHING FACILITIES

Facilities	Tr (Berths)	Tr (Other)	Total	Tc	Nb
Non-State private	1,892,173	3,433,548	5,325,721	3,297,603	2,028,118
Private (Comm)	1,581,087	3,352,644	4,933,731	2,993,888	1,939,843
Private * (Home owners assn)	347,809		347,809		
Military	311,086	80,904	391,990	303,715	88,275

*Revenue generated from the Home Owners Association is not included in the calculation on the Economic contribution because no breakdown of revenue and costs could be obtained.

[5]Here private marina means all private facilities that are available to the general public as well as those facilities that are for exclusive use such as yacht clubs and military facilities. It also includes those facilities that are associated with individual homes (or home-owners associations which have limited access) and for all practical purposes not accessible to the public. The Hawaii Kai facilities are in fact, however, restricted to home owners exclusively.

million from supporting services such as bars and restaurants. Military agencies generated 79% of their revenues from the lease of mooring facilities and some dry storage spaces. A limited amount of revenue is generated from the rental of boats to military personnel.

The cost of maintaining berthing facilities and operating associated services for non-State facilities was about $3.3 million The net returns from private commercial berthing facilities and services is estimated at $1.9 million for 1989 (Table 15).[6]

The private marinas employ a number of personnel to maintain berthing facilities and work in associated activities, such as sale of fuel and oil, service in restaurants and bars, haul-out yards, etc. In 1988, there were 258 individuals employed on a full-time or part-time basis, earning approximately $2.6 million in salaries and wages. A number of military marinas operate as "no-profit" facilities and employ only a minimum number of workers, or are manned by club members. Again the employment estimate is on the low side due to incomplete data in the survey returns.

REVENUES AND COSTS OF COMMERCIAL FIRMS SERVICING THE RECREATION VESSELS

The primary business of a number of commercial firms is servicing the recreational boating industry. Five different subsectoral questionnaires were sent out to 86 of these commercial firms in Oahu. Thirteen firms listed in the *Marine Directory 1988-89* had gone out of business by the time the survey was made a little over a year later. Forty-three firms responded and provided information. These data were used to estimate the economic contribution of the industry. Table 16 summarizes the survey responses in each category.

TABLE 16. NUMBER OF FIRMS THAT WERE SURVEYED AND RESPECTIVE NUMBER IN EACH INFORMATION CATEGORY

Category	Survey # count	Labor employees	Labor cost	Other costs	Revenue
Sail maker/repair	3	3	3	3	3
Insurance	5	5	2	1	5
Surveyors	5	5	5	5	5
Boat sales/brokerage	7	6	3	4	7
Misc	23	23	10	9	21
TOTAL	43	41	22	22	41

[6]Information was not available from the Hawaii Kai Home-Owners Association and one of the private marinas. These facilities are not included in this estimate.

Not all the firms responding to the questionnaire provided complete answers. Most of them were willing to give information about the constraints facing the boating industry, the number of their employees, and their gross revenue figures. This was useful in that it provided an indication of the level of activity. Very few provided data on their labor costs and the general cost of operating their business. The following estimates are based on the data provided by the firms for each of the different categories and extrapolated to Hawaii as a whole.

Revenue and Net Benefit

Total revenue generated by the commercial sector servicing the personal boating industry in Hawaii in 1989 is estimated to be $44.4 million. This estimate is derived from the 1988 revenue figure of $30 million, reported by 41 firms based on Oahu that served 8,568 recreational vessels there. The 1988 revenue figure was prorated for the 12,690 recreational vessels registered as of March 1990 (Table 17), and used as an estimate of revenues which could be derived from the commercial sector statewide.

The net benefit that the society derived in 1989 from the commercial sector serving the recreational boaters is estimated to be about $11.1 million. This estimate was based on a net profit margin of 25% of the total revenues for a given firm and was used as the proxy for the net financial profit. This is thought to be a conservative estimate of net benefit.[7]

TABLE 17. ESTIMATES OF FINANCIAL RETURNS TO THE COMMERCIAL SECTOR SERVING RECREATIONAL BOATERS IN HAWAII

Island/county	# Registered vessels	Revenue	Net revenue
Oahu	8,943	31.3 M	7.8 M
Big Island	1,588	5.6 M	1.4 M
Kauai	871	3.1 M	0.8 M
Maui	1,265	4.4 M	1.1 M
Others	23	0.8 M	0.2 M
TOTAL	12,690	44.4 M	11.1 M

Source: 1989 Revenue calculated using the gross return/recreational vessel estimate derived from the commercial survey data for 1988.

[7]For firms that provided information on costs and revenues, the net profit margin for different categories ranged between 27% of the total revenue in the sail making business to about 76% in the insurance business. The high returns in the insurance companies, however, are misleading because the percentage shown does not include the payments given out in insurance claims, which, on average, can be about 50% of the premium collected in the marine section (Hawaii State Data Book, 1988). Surveying companies appear to average a profit of 35% of the total revenue, while boat sales and brokerage firms had about 50%. Rather than using the weighted average profit estimated from the industry information which was about 60%, a conservative 25% net profit margin was used. The 25% figure was the average profit margin indicated by over 70% of the firms interviewed.

Employment and Wages Paid

The firms that serviced the recreational boating sector on Oahu in 1988 employed a total of 262 persons full-time and an additional 186 persons on a part-time basis. In total an estimated 355 full-time-equivalent persons were employed on Oahu to service the recreational boating industry, earning approximately $6.2 million in salaries and wages. The estimate of salaries and wages was based upon the weighted average figure of 20.6% of the firms that provided labor cost information (Table 18).[8]

TABLE 18. EMPLOYMENT BENEFITS GENERATED BY COMMERCIAL FIRMS SERVING RECREATIONAL BOATERS IN OAHU, 1988

Category	Labor F/T equip.	Wages, salaries
Sailmaker	16	290,460
Insurance	29	793,100
Surveyors	25	196,112
Boat/Yacht Sales	32	1,092,964
Misc	222	3,813,003
TOTAL	355	6,185,643

Using the estimates derived from Oahu and prorating these according to the number of registered recreational vessels by island/county, the total number of persons employed full time, or the equivalent, in the State of Hawaii for 1989 was estimated to be 525, generating about $9.1 million in salaries and wages (Table 19).

BERTHING FACILITIES SUPPORT-STAFF EMPLOYMENT AND EARNINGS

In addition to commercial firms, there are 'support workers', working on a casual and part-time basis out of their boats or homes, who also provide a variety of boating services. At the Ala Wai Boat Harbor, Mr. Earl Hinz estimated that during the months of September and October, there were about 23 of these support workers, ranging from divers, painters, woodworkers, mechanics, and electricians to general maintenance personnel. These workers put in an average of 20-40 man-hours

[8]On the basis of data provided by the commercial firms serving recreational boaters, labor costs and profits were estimated as follows: The minimum weighted average of labor costs per firm ranged from 27% of the total revenue in the sail making business to about 76% in the insurance business. Surveying companies paid on the average 35% of the total revenues for labor, while boat sales and brokerage firms used an estimated 50% of their total revenues to cover the cost of labor and capital. Because of the small number of firms in each of the categories, a conservative figure of about 21% of the total revenue (the weighted average labor payment for all the categories) is used as the estimate of salaries and wages expenditures.

TABLE 19. ESTIMATED EMPLOYMENT BENEFITS OF THE STATE OF HAWAII

Island	# Vessels	F/T labor	Salaries wages ('000)
Oahu	8,943	371	9,164
Big Island	1,588	66	1,598
Kauai	857	36	878
Maui	1,265	52	1,369
Other	23	<1	17
TOTAL	12,690	525	9,145

Source: F/T labor equivalent estimate for Oahu was used to estimate respective employment in other islands. The number employed per unit vessels is assumed to be constant as a number of firms indicated that marginal effect of increased boating activity could easily be absorbed by the existing firms, with some increases in number of employees.

per week, working for approximately 659 man-hours on recreational vessels (Table 20). Assuming 40 hours per week, this is equivalent to 16.5 full time employees. The annual earnings of these 'support workers', with varying levels of skills working 50 weeks per annum, are estimated to be $650,250 for serving the 754 vessels at Ala Wai Boat Harbor (Earl Hinz, November 1989, pers. comm.)

This estimate of the number and gross earnings of the 'support workers' at the Ala Wai Boat Harbor, prorated to estimate the number of 'support workers' and revenue generated by recreational vessels moored at various facilities available throughout Hawaii, represents the equivalent of about 70 support workers who are paid about $2.8 million for their services (Table 21).

TABLE 20. NUMBER OF "SUPPORT SERVICES" AT ALA WAI BOAT HARBOR

Skill category	Man-hrs/average week	Pay	Personal boating	Weekly earnings
Divers (3)	75	35	90-100	2,415
Painters (8)	280	15	80-100	3,840
Woodworker (3)	110	15-25	60-100	2,045
Mechanics (1)	40	25	75	750
Electricians (2)	60	15-25	50-100	800
Refrigeration (1)	80	35	50	1,400
General maint (5)	130	10-15	100	1,750

ANNUAL EARNINGS = $650,250

Source: Observations and survey conducted by Earl Hines (November 1989, pers comm)

TABLE 21. ECONOMIC CONTRIBUTION OF "SUPPORT WORKERS" EMPLOYED AT BERTHING FACILITIES IN HAWAII

Island/County	# Vessels	Labor #	Payment $
Oahu	2,461*	53.8	2,122,368
Hawaii	357	7.8	307,877
Kauai	118	2.6	101,763
Maui	259	5.7	223,361
Total	3,195	69.8	2,755,370

Source: "Support Workers" estimates derived from Ala Wai Boat Harbor (Hines November 1989, pers comm); * excludes the slips available at private homes.

ECONOMIC IMPACT OF RECREATIONAL BOATING INDUSTRY IN HAWAII

The gross revenues generated by the different subsectors serving recreational boaters in 1989 are estimated to be approximately $58 million (Table 22). The majority of the revenue contributed to the Hawaii economy comes directly from the commercial sector. The commercial firms serving recreational boaters generated about $44 million or 77% of the total revenues earned by the industry. The 'support workers' who work out of their homes or boats, generated around $2.8 million or 4.8%. No estimate was made of the value of services undertaken by friends and relatives, who are paid in fish (see Appendix A). The State, supplying 60% of the berthing facilities, generated approximately the same revenues, $5.7 million, as the private sector which provides 40% of the berthing facilities and generated $5.3 million in revenues. The State earned almost 60% of its recreational boating revenues from fees, while the private sector earned more of its revenues ($3.4 million or about 68%) from providing support services, such as restaurants and bars.

In terms of employment benefits, the recreational boating industry employed a minimum full-time equivalent (FTE) of about 779 persons. The commercial sector employed 525 of these

TABLE 22. SUMMARY OF ECONOMIC CONTRIBUTION OF THE SUB SECTORS WITHIN THE PERSONAL BOATING INDUSTRY IN HAWAII

Sub-Sector	TR	NB	Employment number	Employment salaries/ wages
State facilitiesd	5.7 M	2.4 M	55.4	1.4 M
Private facilities (which includes military facilities, which had a TR of $311,086)	5.3	2.0 M	129	2.6 M
Commercial firms	44.4	11.1 M	525	9.2 M
Support workers	2.8	0.69 M	70	0.57 M
TOTAL	58 M	16.9 M	779	13.8 M

individuals or 67%. The State employed 55 FTE to operate its berthing facilities while the private sector employed 129 FTE of the total employees to operate its facilities. An additional 70 FTE 'support workers' were estimated to provide support services at berthing facilities.

Total economic benefits include indirect effects as well as the direct benefits shown above. To estimate these effects, the direct benefits shown above were multiplied by an economic multiplier, which was developed for the Hawaii charter fishing industry by Samples et al. (1984).[9] The charter fishing industry appears to produce similar returns per fishing trip to those of recreational fishermen using similar inputs. Using this multiplier (1.46), the indirect industry effect generated by the recreational boating industry is $27 million (Table 23). The indirect multiplier effect on employment accounts for an additional 327 FTE. This multiplier is thought to be conservative.

TABLE 23. SUMMARY OF DIRECT AND INDIRECT ECONOMIC IMPACT OF RECREATIONAL BOATING INDUSTRY IN HAWAII

Economic impact	Direct impact	Direct & indirect impact (A)
Sales	$58 M	$85 M (1.46)
Income	13.8 M	20 M (1.41)
Employment	779	1,106 (1.42)

(a) Number is parenthesis are estimates of multiplier values of charter fishing (Samples et al., 1984)

The total wages and salaries paid out by the recreational boating industry is about $13.8 million of which 67% ($9.2 million) was paid to employees of the commercial firms. With an income multiplier value of 1.46, the direct and indirect household effect was about $20 million.

In summary it is estimated that the firms and facilities servicing Hawaii's recreational boaters produce at least $58 million in direct revenues. An additional $27 million is generated indirectly from economic activity stimulated in the rest of the economy. It is further estimated that about 779 FTE workers are employed to provide these services and that the interindustry effects of these economic activities result in employment of an additional 321 FTE in other businesses. The above estimates, albeit conservative, indicate that the personal boating industry makes an important contribution to Hawaii's economy.

[9]Economic multipliers show the "interindustry" effects of the dollar spent within a particular industry, i.e., each $1 of direct benefits produces an additional $.46 indirect benefits in the rest of the economy. Samples, K., J. Kusakabe and J. Sproul 1984. *A Description and Economic Appraisal of Charter Boat Fishing in Hawaii.* National Marine Fisheries Service Center Administrative report H-84-6C, Honolulu, Hawaii.

Chapter 5

CONSTRAINTS AND SOLUTIONS

CONSTRAINTS

Both private and public marina managers and the interviewees at the commercial firms that service the boaters identified a number of factors they believe affect the growth of recreational boating in Hawaii. Everyone interviewed identified inadequate berthing and associated facilities to be the principal factor in determining the number of boaters and the quality of the boating experience. They all felt that this constraint was limiting growth in the recreational boating industry.

In 1983 there were 1,499 applications for slips on file. In March 1990 there were 2,600 applications on file. This represents a 58% increase in the number of applicants in six years. The unauthorized subleasing of slips, particularly for vessels over 30 feet in length, is a further indication that demand exceeds supply. Two of the Hawaii's major yacht brokerage firms noted that an adequate increase in the number of slips could double their sales, particularly of vessels over 30 feet in length.

Inadequate service facilities for all vessels were also noted as constraints to recreational boating industry growth. For example, of the 11 marinas managed by private or military agents, fuel was sold at four– Hickam, Rainbow Bay, Koko Marina and Keehi Marine Center .

Very limited services were available at State harbor facilities and all are leased to commercial concessions. Haulout facilities were available only at Honokohau Small Boat Harbor on Hawaii and at Ala Wai and Keehi Lagoon Small Boat Harbors on Oahu. (It should be noted that there is a haul-out facility at Kewalo Basin commercial harbor that is also available to the recreational boater). Fuel and oil sales at small boat harbors operated by the State were available only at Ala Wai, Heeia Kea, Maalaea and Honokohau.

Only five of the State small boat harbors had food concessions in the general area of the harbor, three on Oahu – Ala Wai Small Boat Harbor, Keehi Small Boat Harbor and Heeia Kea Small Boat Harbor – and one each on the island of Hawaii – Honokohau Small Boat Harbor and Maui (Maalaea Boat Harbor). Most of the private facilities (8 out of 11) had some form of food concession (Table 24).

The problem of inadequate facilities was noted not only in relation to the mooring facilities but also for dry-storage spaces and launching ramps for trailered boats. In the State managed facilities, dry-stack storage was available only at Honokohau Small Boat Harbor, with limited land storage at Haleiwa and Keehi Lagoon on Oahu; Port Allen and Nawiliwili on Kauai; and Manele on Lanai. However, State dry-storage areas are generally not secure as they are in open parking lots next to harbor facilities. Limited land-storage facilities are available at a number of private and military marinas, but access is restricted. It was noted that if the existing dry-storage areas were adequately maintained and secure, a small portion of the demand for storage spaces could be met. The private sector indicated an urgent need for State lands to be made available to develop additional dry-storage areas.

TABLE 24 BERTHING FACILITY AND SERVICES PROVIDED

Facility	# Slips	# Buoys	Land storage	# Ramps	Park	Fuel sales	Haul out	Repair fac	Sell oil	DOOF
Military facilities										
Hickam Harbor	20	14	120	1	100	Y	Y	Y	Y	Y
Iroquois Lagoon Yacht Club	50	15	0	0	100	N		N	N	N
Rainbow Bay Marina	93	36	65	3	100	Y		Y	Y	N
Marine Corps Air Station	20	17	50	3	50	N		Y	N	Y
Private marinas										
Keehi Marine Center	156	0	Y	1	60	Y	Y	Y	Y	Y
Waikiki Yacht Club	146	0	12	1	36	N	N	N	N	Y
Hawaii Yacht Club	21		40	0	N	N	N	N	N	Y
La Mariana Sailing Club	100	Y	N	1	50	N	N	N	N	Y
Koko Marina Shopping Center	97	0	N	N	200	Y	N	N	Y	Y
Makani Kai Marine	80	0	N	0	N	N	N	N	N	N
Kaneohe Yacht Club	150	0	80	1	100	N	Y	N	N	Y
State facilities										
Oahu										
Ala Wai Small Boat Harbor	726	20	0	1	700	Y	Y	Y	Y	Y
Waianae Small Boat Harbor	146	1	0	6	120	N	N	N	N	N
Haleiwa Small Boat Harbor	64	15	Y	3	Y	N	N	N	N	N
Keehi Small Boat Harbor	304	62	Y	3	N	N	N	N	N	Y
Heeia Kea Small Boat Harbor	18	50	0	3	50	Y	N	N	Y	Y
Oahu Subtotal	1,258	148		16	870					
Maui										
Lahaina Boat Harbor	16	84	0	0	46	N	N	N	N	N
Maalaea Boat Harbor	32	68	Y	1	220	Y	N	N	Y	Y
Maui Subtotal	48	152		1						
Kauai										
Port Allen Harbor	34	6	Y	2	25	N	N	N	N	N
Kikiaola Harbor	0	8	0	1	10	N	N	N	N	N
Kukuiula Harbor	0	10	0	1	8	N	N	N	N	N
Nawiliwili Harbor	48	12	Y	2	18	N	N	N	N	N
Kauai Subtotal	82	36		6						
Big Island										
Reed's Bay	0	26	0	0	30	N	N	N	N	N
Radio Bay	0	8	0	0	12	N	N	N	N	N
Kailua Bay	10	19	0	0	12	N	N	Y	N	N
Honokohau Small Boat Harbor	257	0	4	120	Y	Y	Y	Y	Y	
Keauhou	4	15	0	2	50	N	N	N	N	N
Wailoa Sampan Basin	9									
Kawaihae North and South Harbor		38	0	1	100	N	N	N	Y	N
Big Island Subtotal	23	334*	5	222						
Lanai										
Manele Small Boat Harbor	27		Y	Y	30	N	N	N	N	N
Molokai										
Kaunakakai Small Boat Harbor	3	29	0	1	30	N	N	N	N	N

*approximately another 29 buoys were noted for Big Island, but not included here as the capacity was not known (DOT 3-042, Har-B 9/80)

Source: Data compiled from returned survey questionnaire and information provided by the Harbor's Division, DOT; some of the gaps were completed using Army Corps of Engineers (1985)

On Oahu, a common complaint made about launching facilities was the lack of adequate and safe launching ramps. The question of safety was specifically raised about the Kailua launch ramp, managed by the City and County of Honolulu. Inadequate launching facilities were noted for Eastern Oahu, where launching ramps are only available at Maunalua and Kailua. The problems of vandalism and lack of security in a number of State facilities were also noted. These problems, like the unauthorized subleasing of State berths, are not new; concern about them was raised as early as 1981 (Honolulu Star Bulletin 2-19-81). The 1981 article also noted that boat mooring fees would have had to be raised to $1.35/foot in order to provide this security. The fees were later raised, but 10 of the firms noted that security was not improved.

At least three commercial firms (about 7%) indicated that Environmental Impact Assessment procedures and other permits needed for new construction within the coastal area and State Conservation District were too stringent and time consuming. Over 25% of the commercial firms felt the State administration shared responsibility for the inadequate growth in the recreational boating industry in Hawaii.

Apart from the inadequate number of mooring facilities, another factor noted which may constrain the size of vessels purchased in Oahu, was the height of the Hawaii Kai bridge, which provides clearance of only 13 feet. One yacht brokerage firm expressed the opinion that this has affected the size of vessels purchased by the Hawaii Kai residents. However the extent of the effect of the bridge on the purchase of larger vessels could not be ascertained.

In summary, opinions of individuals directly involved in the recreational boating industry, the analysis of the boater characteristics, and the characteristics of the berthing facilities available all indicate the most significant constraint on increased boating activity in Hawaii are **inadequate berthing, storage and launching facilities.**

SUGGESTED SOLUTIONS

A number of suggestions were made by survey respondents to address some of the problems discussed above. These included solving the surge problem at the Waianae Harbor, allocating part of the Barber's Point Deep Draft Harbor for recreational boat storage, and providing improved security and safety measures at the State harbor facilities. There was universal agreement that more facilities should be provided and that the State should allow the private sector to assist in the development and management of marina facilities. Several survey respondents proposed that the State identify areas around the islands which could be allocated for marina development and involve the private sector in their development. One of the suggestions made was to set up a "Task Force" directly under the Governor's Office to critically evaluate how to best manage berthing facilities and to identify new areas that could be developed. This suggestion, along with the identification of some of the above noted problems was first made in 1981 (Honolulu Star Bulletin 2-19-81).

APPENDIX A

SHADOW VALUE OF REPAIRS AND MAINTENANCE UNDERTAKEN BY BOAT OWNERS, FRIENDS AND RELATIVES

A number of repairs and maintenance are often done by the boat owners themselves or their friends and relatives, who, according to Mr. William Alia, the Waianae Boat Harbor Agent, spend on average, at least two hours per week working on their boats, which may or may not be trailered. When work is undertaken by friends or relatives the payment is often in the form of fish. By his estimate the value of the work done is paid in the form of a fish given once a month with an approximate market value of $50. Using this rough estimate, it is implied that there would be an equivalent of 112 full time persons employed in this manner, generating an economic contribution of about $448,600 per month or $4.5 million per annum see Table 25 below.

TABLE 25. BENEFITS ACCRUED TO "FRIENDS AND RELATIVES" WORKING ON TRAILERED BOATS IN HAWAII

Island	# Vessels*	# F/TEQUIV employment 1,8-hr-day/ month	Approx value per month
Oahu	5,982	75	299,100
Hawaii	1,231	15	61,550
Kauai	753	9	37,650
Maui, Molokai, Lanai	1,006	13	50,300
TOTAL	8,972	112	448,000

* Not served by "support" staff - Total number of recreational vessels (Table 3) minus the number stored in water (Table 8)