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HAWAII COASTAL ZONE MANAGEMENT PROGRAM

Technical Supplement No. 6

Enhancement of Coastal Recreational Opportunities: A Description of Present Coastal Recreational Usage, Constraints, Data and Research Possibilities in the State of Hawaii

by

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ENHANCEMENT OF COASTAL RECREATIONAL OPPORTUNITIES: A DESCRIPTION OF PRESENT COASTAL RECREATIONAL USAGE, CONSTRAINTS, DATA, AND RESEARCH POSSIBILITIES IN THE STATE OF HAWAII

Prepared for

Pacific Urban Studies and Planning Program
University of Hawaii

By

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May 30, 1975

I. INTRODUCTION TO THE STUDY

Introduction
Purpose
Constraints
Perspective

Introduction

The shoreline of the State of Hawaii is one of its more precious assets. The coastal area provides the typical recreational outlet for residents and a glance at the varieties of uses made of the beach area indicates the complex nature of coastal recreation. The shoreline provides a release from the pressures of highly congested city life for Honolulu residents. De facto population density for the City and County of Honolulu in 1973 was 1197 persons per square mile[1] with 35 census tracts showing 1970 population densities over 10,000 persons per square mile.[2] Housing densities are very high in parts of Honolulu, particularly in the public housing areas, high rises, and older poorer parts of town. While the beach may be crowded at least part of the horizon is the Pacific rather than concrete blocks.

Recreational usage is only one of a number of possible uses of the shoreline and the competition is fierce. Tourism is now the most important economic activity in the State and concentrates facilities ana visitors along the shore. Other commercial, industrial, residential and transportarion uses either occupy or make their bids to occupy shoreline location as well. At a time when competition for the shoreline is so keen many of the shoreline recreational areas are coming under increasing user pressure. In an era of relentless competition for space and funds recreation programs are hard pressed to keep up.

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[1]State of Hawaii, Department of Planning and Economic Development, The State of Hawaii Data Book 1974: A Statistical Abstract, Honolulu, Hawaii, 1974, p. 10.

[2]Ibid., pp. 13-16.

Purpose

The basic purpose of this study is to explore what might be involved in the development of a workable approach to the enhancement of coastal recreational opportunities.

Constraints

Of necessity this study was conceived, undertaken, and completed in a very short period of time. Time constraints prevented the development of basic data. Coastal recreation data, if and when they exist, are frustratingly elusive and proved very difficult to track down. Had more time been available this report would be more reflective and comprehensive.

Perspective

In some respects this report is shockingly narrow and the data are remarkably sparce. The author believes that quite accurately reflects the state of the available information on coastal recreation. Part of the narrowness of the approach used here is the result of a deliberate decision by the author to focus principally on coastal parks and coastal recreational user data.

Coastal parks were chosen because they are the only areas devoted exclusively to recreation with staffs fully devoted to dealing with recreation problems. Other governmental units are involved with coastal responsibilities but have dominant non-recreational concerns and staffs not tuned to recreational problems. The author's assumption here is that initial efforts to change the approach taken to coastal recreation planning should be aimed at those most responsible and likely to be receptive.

Of the various types of coastal recreation data available coastal user data is the poorest. To the best of the author's knowledge not one of the four counties in the State publishes visitation data for its beach parks. Information concerning such topics as number of park units, acreages, inventories of camp sites, picnic sites, parking spaces, and fresh water availability is much more likely to be available than user data. The information available reflects quite accurately the predominant way managers and planners appear to think about recreation which is in terms of facilities. The author argues that it would be a considerable improvement if both groups were to view recreation as a service. Many of the most difficult recreation management problems are people management problems involving behavior and badly need to be addressed.

Since the author has university affiliation and has not had to meet the "real world" problems of planner or recreation or recreation manager it might be thought that the critical tone of some of the comments of this report is unfair. The author's perspective is unencumbered by loyalty to past planner or manager decisions but would be considerably enhanced by a better understanding of their context.

II. DEFINITIONS

Recreation
Coastal Zone
Enhancement

Recreation

It is important early in this report to make explicit how elusive the key terms are. Take for example the word "recreation." Webster's Seventh New Collegiate Dictionary defines it as "refreshment of strength and spirits after toil" or "means of refreshment or diversion."[3] The State Comprehensive Outdoor Recreation Plan (SCORP) quotes the State General Plan Revision Program's description of recreation goals: " Preserve and develop suitable parks and recreation resources for satisfaction of the expanding recreation needs of visitors and the resident population. To provide leisure time opportunities which contribute to the rejuvenation and uplifting of individuals."[4] SCORP quotes the County of Kauai General Plan's stated objectives recreation: "Create opportunities for a greater fulfillment of life through development of a broad spectrum of educational and cultural pursuits. Provide for a maximum variety of outdoor recreational activities. Recognize those aspects of the island and its people which are historically significant, and preserve and promote them as a continuing expression of the island's physical and social structure."[5] The summary volume of the thirty volume set of reports of the Outdoor Recreation Resources Review Commission had this to say about the meaning of outdoor recreation:

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[3]Webster's Seventh New Collegiate Dictionary, Springfield, Massachusetts, G. & C. Merriam Co., 1963, p. 716.

[4]State of Hawaii, Department of Planning and Economic Development, State Comprehensive Outdoor Recreation Plan, Honolulu, Marshall Kaplan, Gans, Kahn and Yamamoto, December, 1971, p. 132.

[5]Ibid., p. 135.

> . . . most Americans face the prospect of more leisure time in the future, and thus the challenge of using it for their own enrichment and development as individuals and citizens. This is precisely the contribution that outdoor recreation can make. For at its best, outdoor activity, whether undertaken lightly or with the serious intent of the perfectionist, is essentially a "renewing" experience--a refreshing change from the workaday world.
>
> This is true no matter what an individual actually chooses to do in the outdoors. As long as the activity is freely chosen--because it is refreshing and interesting to do--then it serves the basic function of "recreation"--the task of re-creating human vitality. Latent energy is tapped, unused powers of the body, mind, and spirit are employed, the imagination works on fresh material, and when all these things occur, the individual returns to his work with a sense of renewal.[6]

It is not difficult to find an impressive list of recreation's many benefits to society, nor is it difficult to compile vast listings of recreation activities; however, it is difficult to find clear cut definitions of recreation by planners or recreation administrators. The paucity of attention paid to defining recreation is reflected also in the shallowness of our knowledge of the recreation outcome. What happens to a person who has just completed a recreational experience? This and many other speculative questions would be just musings if they were not so crucial to monitoring recreation output. It we do now know what recreation is how can we determine whether or not we are successfully operating our recreation programs?

Coastal Zone

Determining the inland extent of the coastal zone in Hawaii with respect to recreation is complex. The language of the Coastal Zone Management Act of 1972

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[6]Outdoor Recreation Resources Review Commission, Outdoor Recreation for America: A Report to the President and to the Congress, Washington, D.C., U.S. Government Printing Office, 1962, pp. 22-23.

indicates the extent of the coastal zone ". . . extend(ing) inland from the shorelines only to the extent necessary to control shorelands, the use of which has a direct and significant impact on coastal waters."[7] Recreational use of the shoreline makes a highly interactive use of land and sea yet quite different in nature from other coastal zone uses which may degrade coastal waters in a physical sense. Excessive recreational pressure may eventually degrade coastal waters physically but is far more likely to reduce the public benefits derived from coastal recreation. If the goal is to avoid the creation of excessive recreational pressure on shoreline areas the areal extent of concern must be substantially greater than the area immediately adjacent to the sea. Accessibility is a major factor in determining the magnitude of usage and involves the examination of access linkages between the recreator's residence and his ultimate goal(s). An equally important consideration which would, if accepted, broaden the extent of the coastal zone is the recreation system itself. Attendance at a shoreline recreation area is the typical unit of recreational record. That is actually only the mid-point of the recreation system which includes the causal factors associated with the place of residence, the circumstances of the travel to the recreation site, the traditionally recorded recreation "event", the return home, and the recovery-recollection of the recreation event once back home. Focusing only on the coastal sites of formal recreational opportunity would be repeating the tendencies of previous planners and recreation managers to think almost exclusively in terms of on-site facilities. Briefly, the ideal geographic frame to use is that which

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[7]Public Law 92-583 (Section 304b).

encompasses the recreation system rather than just the recreation event. In the State of Hawaii, with its population living typically on the coastal periphery but with very few areas more than an hour's drive from major population clusters, the area of coastal zone influence consists of most of the State.

Enhancement

In many respects the "enhancement" of coastal recreation waits on the development of specific objectives so designed that progress toward their achievement may be monitored. The author assumes that a serious commitment to the improvement of coastal recreation opportunities exists and makes some specific suggestions as to how approaches to "enhancement" may proceed beyond the slogan stage of the present.

III. PRESENT COASTAL ZONE RECREATIONAL RESPONSIBILITIES AND PATTERNS

Federal Responsibilities
County Responsibilities
State Responsibilities
Present Pattern

This chapter is a brief description of the present pattern and responsibility for coastal recreation. It examines the division of responsibility for coastal recreation among the different units and levels of government, notes the most significant coastal features associated with recreation, and provides a brief description of the most popular activities and their location.

Responsibility for the provision of coastal recreation opportunity is divided among many units and levels of government. Responsibility for the shoreline area itself is also divided among a variety of agencies. The picture is further complicated by State and County zoning powers and review procedures. The consequences of the fragmentation of responsibility include jurisdictional conflicts and planning difficulties. The State Land Use Commission and County Planning Commissions are frequently asked to grant variances from their General Plans. The nature of the General Plan, the wisdom with which exceptions are made in special situations, and the degree of cohesiveness and articulateness of recreational interests will all affect the impact zoning and zoning changes have upon recreation opportunities Carefully designed land use controls or decisions may reduce the expense of acquiring land for recreation purposes, avoiding conflicting land uses which would lessen recreational usefulness of existing recreation lands, and allow recreation planning to catch up with rapid changes in the community.

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Federal Responsibilities

At the federal level the direct involvement with land used principally for coastal recreational purposes is modest. The National Park Service's Hawaii Volcanoes National Park on the Big Island has substantial but undeveloped beach frontage along its southern boundary. Haleakala National Park on Maui has approximately one mile of ocean frontage in the Kuloa Point area. The City of Refuge National Historic Park on the Big Island is on the shoreline and the interpretive effort focuses in part on the shoreline. Puukohola Heiau National Historic Site is on the coast of the Big Island but is not developed. In all cases the developments and uses permitted are compatible with the preservation theme of the National Park Service.

The federal government exerts an important influence over the coastal recreation pattern through its control of military lands. Various branches of the military control substantial portions of Oahu's shoreline (92% of the total military acreage in the State is located on Oahu) in the Pearl Harbor area (U.S. Navy), on Mokapu Peninsula (Marines), in the Waimanalo area (Bellows Field--U.S. Air Force), and at Barbers Point Naval Air Station and at Hickam Air Force Base. Public use of the beaches involved is prohibited with the exception of Bellows Field which allows public use of the shoreline on weekends.

County Responsibilities

More than 90% of the total of 102 public beach parks in the State are administered at the County level. The majority of these (60 of 93) are in rural settings, with Honolulu the only county with a balance of urban and rural beach park sites (20 of 42 are in urban settings).[8] The counties clearly have the major responsibility for the provision of coastal recreational opportunity.

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[8]State of Hawaii, Department of Planning and Economic Development, SCORP-1971, p. 38.

State Responsibilities

The State Park System consists of 41 units including state parks, state recreation areas, state waysides, and state monuments plus the state capitol. Approximately 85% of the system's total acreage is tied up in the three largest parks which are inland. (Kahana Valley State Park on Oahu may eventually include within its boundaries an existing County Beach Park). Each County has at least two units of the State Park System with shoreline. The State Comprehensive Outdoor Recreation Plan comments: "So far the only difference between State and County beach parks is that County parks are developed with more active recreational facilities than State beach parks, which are usually developed with minimal improvements, emphasizing the natural setting."[9]

Various agencies of the State have general responsibility for coastal areas. The State Department of Transportation has authority to "promote public safety, health, and welfare in or on the shore waters and on the beaches encumbered with easements in favor of the public."[10] SCORP concludes "Thus, the Department (of Transportation) has the authority to control all activities in the shore waters and on the shoreline. Nevertheless, the Department has not devoted much attention to beaches."[11] The Department of Transportation is also responsible for the establishment and operation of small boat harbors as well as the licensing of pleasure boats.

The State Department of Health has closed certain beaches to camping when water pollution makes conditions hazardous. That agency sets, monitors, and enforces coastal water quality standards.

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[9] Ibid., p. 96.

[10] Ibid., p. 19.

[11] Ibid., p. 20.

The State Department of Land and Natural Resources (DLNR) manages the great majority of the public lands of the State. The State owns the shore up to the vegetation line and DLNR is responsible for the management of this and the State owned submerged lands. Under the State Land Use Law approximately 50% of the total land area of the State is included in Conservation Districts under the control of the DLNR. These districts include "the existing forest and water reserves, lands in national or state parks, lands with a general slope of 20% or more, and marine waters and offshore islands."[12]

Present Pattern

The present pattern of coastal recreation is a complex one: made so by the sheer numbers of people involved, the difficulty of accurately determining what their principal activity is, and the haunting thought that recreation occurs in more places and in more ways than we observe or record. The general picture is one dominated by the shoreline: going to the beach for sunbathing and swimming are the dominant recreational pursuits. Public facilities dominate the pattern with county parks such as Ala Moana, Kapiolani, and Kuhio receiving very intensive use.[13] Much of the variety and richness of coastal recreation in the State is obscured by the statistical picture: the grandeur of being alone on Kalalau Beach, the genuine pleasure of a 6:30 a.m. walk on Kailua Beach, the thrill of going "beyong the reef" at Hanauma Bay are certainly part of the pattern too.

Sandy beaches deserve the most attention: they function as major access avenues to coastal waters for swimmers, divers, surfers, and some boaters. The beaches themselves

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[12]R. W. Armstrong (ed.), Atlas of Hawaii, Honolulu, Department of Geography, University Press of Hawaii, 1973, p. 139.

[13]State of Hawaii, Department of Planning and Economic Development, SCORP-1971, p. 227.

serve a great many recreators who may or may not actually reach the water but wish the amenities of the beach. In some cases the view of the beach itself is the principal recreation! Tour buses bring many by Kalapana Black Sand Beach on the Big Island. On Kauai visitors stop to photograph a beach which was one of the settings for the film South Pacific. Due to their crucial role recreational and importance in general planning, a substantial amount of information has been gathered on the State's beaches. A three part classification system of sandy beaches has been developed.

> Primary beaches are wider than 35 feet, contain sand free of debris and of gentle slope, have small shore break and mild currents, and are physically accessible with sufficient back-up areas for general recreation use. Secondary beaches exhibit these qualities only during certain months of the year. Tertiary beaches may contain dangerous underwater hazards or strong currents and large waves, but are still suitable for activities confined to the shore.[14]

The following table "Classification and Distribution of Shoreline"[15] illustrates the extent and distribution of the different types of sandy shoreline.

TABLE 1

	Hawaii	Kauai	Lanai	Molokai	Maui	Oahu	State Total
Tidal Shoreline in Miles	305.5	113.4	52.3	105.9	158.8	198.5	934.4
Sandy Shoreline in Miles	19.4	41.2	18.2	23.2	32.6	50.3	184.9
Percentage of Sandy Miles - Total Tidal Shoreline	6	36	35	22	21	25	20
Index State Average=100	30	180	175	110	105	125	100

[14] Ibid., p. 36.

[15] Ibid., p. 37.

Table 1 (CONTINUED)

	Hawaii	Kauai	Lanai	Molokai	Maui	Oahu	State Total
Primary Miles	1.2	2.8	0	0	7.9	12.5	24.4
Percentage of Total Sandy	6.2	6.8	0	0	24.2	24.4	13.2
Index State Average=100	47	52	0	0	183	185	100
Secondary Miles	.1	8.6	.3	0	9.8	5.5	24.3
Percentage of Total Sandy	.5	20.9	1.6	0	30.1	10.9	13.1
Index State Average=100	4	160	12	0	230	83	100
Tertiary Miles	18.1	29.8	17.9	23.2	14.9	32.3	136.2
Percentage of Total Sandy	93.3	72.3	98.4	100	45.7	64.2	73.7
Index State Average=100	127	98	134	136	62	87	100

Source: Adapted from SCORP-1971, p. 37.

Table 1 reveals marked differences in the distribution of sandy shoreline among the islands. Table 2 indicates the inches of sandy shoreline per resident of each of the Counties.

TABLE 2

INCHES OF SANDY SHORELINE PER RESIDENT

	Total	Primary	Secondary	Tertiary
Oahu	5."	1.25"	.55"	3.25"
Maui (Includes Maui, Molokai, Lanai)	101.57"	10.84"	13.86"	76.87"
Kauai	87."	5.96"	18.3"	63.44"
Hawaii	19.33"	1.19"	.1"	18.06"
State Totals	15."	2.01"	2.00"	11.23"

Sources: Atlas of Hawaii, p. 104; SCORP-1971, p. 37.

Introducing the element of population increases the differences still further. The Counties of Maui and Kauai each have more than fifteen times greater sandy beach frontage per resident than residents of Oahu. Primary and secondary beach frontage per resident are combined in Table 3 which indicates a less extreme situation but continued major differences.

TABLE 3

INCHES OF PRIMARY AND SECONDARY SHORELINE PER RESIDENT

	Total	Per cent of State Average
Oahu	1.8"	45
Maui (Includes Maui, Molokai, Lanai)	24.7"	616
Kauai	24.26"	606
Hawaii	1.29"	32
State Total	4.01"	100

Sources: Atlas of Hawaii, p. 104; SCORP-1971, p. 37.

TABLE 4

EXISTING LAND USE OF PRIMARY AND SECONDARY BEACHES

Land Use	Total Miles	%	Primary Miles	%	Secondary Miles	%
Total	48.7	100	24.4	100	24.3	100
Urban	6.7	13.8	4.6	19.0	2.1	8.5
Resort	2.0	4.2	1.0	4.1	1.0	4.2
Military	7.4	15.2	3.0	12.3	4.4	18.1
Public Park	11.1	22.7	6.9	28.2	4.2	17.2
Quasi-Public Park	2.1	4.4	0.7	3.0	1.4	5.9
Agriculture, Conservation and Open Land	19.4	39.7	8.2	33.4	11.2	46.1

Source: SCORP-1971, p. 37.

Table 4 indicates the existing land use of primary and secondary beaches. The broad category of "agriculture, conservation, and open land" dominates the listing. Public park classification accounts for 28% of total primary mileage. A further breakdown of primary and secondary frontage into public park frontage by County is not presently available. The beach parks constitute the principal provision of facilities for coastal recreation.

Much coastal recreation occurs outside these parks; however, information about what and how the coastal resource is utilized is usually spotty. The best information available on non-park coastal recreation is that on surfing. That body of information was developed largely at the instigation of surfers themselves after years of growing frustration with increased crowding, disappearing sites, and government inertia. The following paragraphs describe the provision of surfing opportunities.

Surfing was important in pre-contact Hawaii. The Hawaiian people had "a distinct heritage of custom and legend, widespread social practice, sophisticated equipment, a selective vocabulary describing parts of different types of waves, surfing conditions and maneuvers, and geographical place names describing surf and surfing . . . ."[16] The natural conditions desired were likely much the same as those desired at present. Kelly comments:

> A good surfing site has seasonally predictable waves, a riding shoulder or "peel off rate" of the right quality, favorable winds and surface conditions, a suitable board recovery and rider return zones, clean water and favorable access. It should be, but often is not free of coral heads, rocks or other dangers. The site should also be close enough to the shore for spectators to enjoy the action among whom are always surfers resting between surfing periods . . . .[17]

A great variety exists among different types of surf and surfers differ considerably in what they seek out. "Surfer preferences for certain types of waves vary according to the age, skill, experience, available equipment and geographical nearness of residence to the sea.

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[16] John Kelly, "Surf Parameters, Part II, Social and Historical Dimensions," Technical Report 33, Honolulu, University of Hawaii--Look Lab 73-33, p. 25.

[17] Ibid., p. 32.

Anderson (1971) reported that nearly two-thirds of the surfers lived within one-half mile of their usual surfing site. Knowledge of an area, its advantages and hazards, influences a surfer's preference."[18]

TABLE 5

DISTRIBUTION OF SURFING SITES IN HAWAII

Island	Number of Sites	Total Shoreline Miles (Tidal)	Ratio of Sites Per Miles
Oahu	594	199	2.98
Kauai	330	113	2.92
Maui	212	159	1.33
Hawaii	185	306	0.60
Molokai	180	106	1.70
Lanai	99	52	1.90
Total	1600		

Note: The total tidal shoreline miles include harbors and bays with offshore reefs. If deductions were to be made for such areas where surf cannot occur, the ratio of sites per mile would be modified, particularly on Oahu where the ratio would be higher than 4.

Source: John Kelly, "Surf Parameters, Part II, Social and Historical Dimensions," p. 88.

Table 5 illustrates the findings of the Surfing Education Association's investigation of the distribution of surfing sites in the State.

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[18] Ibid., p. 84.

A great number of recreational activities which occur in the coastal area remain to be covered; however, their treatment must be necessarily brief because of lack of information. Recreational boating demands the provision of launching and/or docking facilities, fueling and maintenance facilities, desirable cruising or sailing waters, and informational and rescue facilities. SCORP notes that "small boat harbors and ramps represent the largest State shoreline facility investment."[19] With harbor space in such short supply (the same source indicated the number of boat berths available in small boat harbors as 933)[20] most of the State's boat owners use boat launching ramps. There are 43 boat launching ramps in public ownership[21] from which 182,000 launchings were estimated in 1970.[22]

Fishing activity is another elusive recreational pursuit. Commercial party boats operate out of a number of harbors throughout the State. Judging by the inclusion of fishing gear in many of the boats seen launched fishing is an important activity of private boaters. Fishing from shore with line or net is another variation. Spear fishing by snorkel and scuba divers is another facet of this general category.

Diving is yet another recreational use of coastal waters which passes unrecorded. The designation of Hanauma Bay on Oahu as a marine conservation district indicates the public's desire to protect this resource. "The . . . designation was awarded in 1967 to protect the bay's diverse marine life from excessive exploitation. Restrictions prohibiting

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[19] State of Hawaii, Department of Planning and Economic Development, SCORP-1971, p. 38.

[20] Ibid., p. 39.

[21] Ibid.

[22] R. W. Armstrong (ed.), Atlas of Hawaii, p. 189.

the taking of any plants, animals, or substrate materials were imposed at that time, allowing marine life to be only viewed and photographed. With this protection, fishes, corals, and other animals have flourished."[23] A similar management unit has been established at Kealakekua Bay on the Big Island.

Throughout this report we are forced to deal with the concepts of "formal" and "informal" recreation. When a car load of scuba divers is spotted unloading their gear and preparing to enter the water it is relatively easy to ascertain their intentions. If a researcher is observant he or she is not presented with much difficulty; there is very likely to be a "blank" all ready to fill. Easily identified recreational activities with obvious associations with particular places or resources are "formal" recreational activities. If the researcher who observed the arrival of the scuba divers happens to notice the arrival of a bicyclist he or she may be in a quandry as to how to record the bicyclist's visit if the visitor does not engage directly in a clear cut recreational activity. What if the bicyclist just looks at the scenery? What was the purpose of his or her trip? The ambiguity of the latter example indicates its "informal" status. At some point these distinctions become arbitrary but our present lack of knowledge of recreational patterns tends to suggest that those activities which are easy to identify and enumerate in specific places seem to be better articulated and more often recorded than those that are not.

Most of the data we have available are gathered from the areas most heavily used. As one moves away from these centers of participation our information becomes weaker. Activities that take place in a number of sequential locations, for example an "around the

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[23] Ibid., p. 23.

island" drive, make data collection and interpretation more difficult. A number of important uses of the shoreline area fall into this category: private automobile driving for pleasure; a quick trip to the beach in the middle of a shopping trip; children at play returning from school just to name a few. Since our data gathering likely began in those areas where problems appeared to be most pressing it is no surprise that public parks provide most of our data base. This has its impact on the sharpness of our picture of non-park recreation.

In an effort to develop an improved data base a consultant for the State Department of Planning and Economic Development undertook a household survey of recreation needs, participation, and attitudes throughout the State in the Spring of 1971.

The household survey information is presented in Appendix A of SCORP-1971[24] in a series of 48 tables and a concluding set of tables on total, peak, and projected future total activity occasions. The information on the present recreational pattern is presented in the first 32 tables out of which I have chosen 9 to illustrate the general pattern of demand and the shoreline's role.

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[24]State of Hawaii, Department of Planning and Economic Development, SCORP-1971, pp. 211-244.

TABLE 6

AVERAGE TIME SPENT IN OUTDOOR RECREATION, 1970-1971
BY INDIVIDUAL USER GROUPS

(Percent of Each Group)

	Children Age 5-12	Youth Age 13-18	Family Head	Spouse of Head	Single Individual
Weekdays					
4 + hours/day	13	12	10	6	11
2 - 4 hours/day	40	25	16	18	23
1 - 2 hours/day	33	32	27	25	24
Under 1 hour/day	8	18	21	24	19
None	6	13	27	28	24
Weekends					
4 + hours/day	63	50	39	30	38
2 - 4 hours/day	27	30	29	27	32
1 - 2 hours/day	6	12	15	20	14
Under 1 hour/day	3	7	8	11	7
None	1	2	9	12	9

TABLE 6 (Continued)

	Children Age 5-12	Youth Age 13-18	Family Head	Spouse of Head	Single Individual
Vacation					
4 + hours/day	71	57	46	38	40
2 - 4 hours/day	19	23	21	23	27
1 - 2 hours/day	7	12	12	14	12
Under 1 hour/day	2	4	7	8	6
None	1	4	14	17	15

Source: SCORP-1971, p. 216.

TABLE 7

AVERAGE TIME SPENT IN OUTDOOR RECREATION, 1970-71, BY ETHNIC GROUPS

(Percent of Each Group)

	HAWAIIAN	CAUCASIAN	JAPANESE	CHINESE	FILIPINO	OTHER
Weekdays						
4 + hours/day	16	11	4	8	11	43
2 - 4 hours/day	26	22	17	21	24	29
1 - 2 hours/day	27	31	26	25	21	7
Under 1 hour/day	13	20	24	27	13	3
None	19	16	29	19	31	18
Weekdays						
4 + hours/day	49	45	33	36	38	40
2 - 4 hours/day	27	28	29	28	29	30
1 - 2 hours/day	10	14	18	21	11	15
Under 1 hour/day	7	6	10	9	8	8
None	7	7	9	5	13	8

TABLE 7 (Continued)

	HAWAIIAN	CAUCASIAN	JAPANESE	CHINESE	FILIPINO	OTHER
Vacation						
4 + hours/day	55	54	39	39	46	43
2 - 4 hours/day	20	19	23	30	26	29
1 - 2 hours/day	10	11	16	14	7	7
Under 1 hour/day	4	5	8	7	7	3
None	11	10	13	10	14	18

Source: SCORP-1971, p. 217.

TABLE 8

TOTAL PARTICIPATION IN MOST POPULAR ACTIVITIES
BY COMBINED INDIVIDUAL USER GROUPS, BY GEOGRAPHIC AREA

(Percent of Total Population)

	STATE		OAHU		NEIGHBOR ISLANDS	
	PERCENT	RANK ORDER	PERCENT	RANK ORDER	PERCENT	RANK ORDER
Beachgoing, sunbathing	33	1	36	1	25	2
Swimming; sea fresh water	31	2	33	2	22	3
Driving for pleasure, sightseeing	20	3	19	5	25	1
Picnicking	20	4	20	3	20	4
Walking for pleasure	18	5	19	4	12	6
Fishing from shore, pier, net fishing, clamming	15	6	12	8	17	5
Bicycling	13	7	14	6	9	8
Swimming; pool	11	8	13	7	7	9
Attending outdoor sports events	11	9	11	9a	11	7
Attending cultural and educational events and exhibits	11	10	11	9b	5	14
Basketball	7	11	8	10	3	16a
Golf	7	12	8	11	6	13a
Baseball	7	13	7	12	6	13b
Beach camping	6	14	6	15	7	10
Nature walks, enjoying natural areas	6	15	6	16	4	15
Surfing	6	16	6	13	3	17
Attending outdoor concerts, plays	5	17	6	19	3	18a
Jogging	5	18	6	17	3	18b
Hiking	5	19	5	18	6	12
Fishing from boat, deep sea fishing	5	20	4	20	6	11a
Skindiving	4	--	5	19	3	16a
Hunting	2	--	1	--	6	11b

Source: SCORP-1971, p. 221.

TABLE 9

PARTICIPATION IN MOST POPULAR ACTIVITIES BY INDIVIDUAL USER GROUPS

(Percent of Total Persons in Each Category)

CHILDREN AGE 5-12	%	YOUTH AGE 13-18	%	FAMILY HEAD	%	SPOUSE OF HEAD	%	SINGLE INDIVIDUAL	%
Bicycling	53	Sea swimming	58	Beachgoing	26	Beachgoing	32	Beachgoing	49
Sea swimming	34	Beachgoing	46	Sea swimming	24	Driving for pleasure	26	Sea swimming	44
Beachgoing	29	Bicycling	29	Driving for pleasure	23	Picnicking	22	Picnicking	30
Pool swimming	26	Pool swimming	22	Fishing-shore, pier	22	Sea swimming	22	Driving for pleasure	28
Walking for pleasure	19	Basketball	20	Picnicking	18	Walking for pleasure	21	Fishing-shore, pier	17
Baseball	17	Fishing-shore, pier	18	Golf	15	Attending outdoor cultural and ed. exhibits	12	Attending outdoor concerts	14
Fishing-shore, pier	19	Attending outdoor sports events	18	Attending outdoor sports events	13	Pool swimming	8	Attending outdoor cultural and ed. exhibits	13
Picnicking	14	Surfing	17	Walking for pleasure	13	Attending outdoor sports events	7	Surfing	13
Basketball	13	Picnicking	16	Fishing-boat, deep sea	9	Fishing-shore, pier	7	Attending outdoor sports events	12
Attending cultural and ed. exhibits	12	Walking for pleasure	15	Baseball	9	Nature walks	6	Basketball	11
Recreation program	9	Beach camping	13	Jogging	9	Attending outdoor concerts	5	Bicycling	10
Football	8	Volleyball	13	Pool swimming	7	Beach camping	5	Beach camping	9
Nature walks	8	Hiking	12	Skin Diving	7	Golf	4	Pool swimming	9
Hiking	8	Driving for pleasure	11	Attending outdoor cultural and ed. exhibits	6	Bicycling	4	Tennis	8
Beach camping	6	Football	10	Beach camping	5	Tennis	4	Hiking	8
Attending outdoor sports events	6			Hunting	5				

Source: SCORP-1971, p. 223.

TABLE 10

PARTICIPATION IN MOST POPULAR ACTIVITIES BY MAJOR ETHNIC GROUPS
(Excludes Participation Occuring Within Family Outings)

(Percent of Total Persons in Each Category)

	HAWAIIAN	CAUCASIAN	JAPANESE	CHINESE	FILIPINO
Beachgoing, sunbathing	25	42	26	29	33
Swimming: sea, fresh water	43	38	23	23	21
Driving for pleasure	16	21	21	23	22
Picnicking	24	16	23	25	20
Walking for pleasure	16	21	15	16	14
Fishing: shore, pier, etc.	15	11	20	20	17
Bicycling	13	16	10	12	12
Pool swimming	10	18	7	8	7
Attending outdoor sports events	10	9	15	16	5
Attending outddor cultural and educational exhibits	8	10	10	15	5
Golf	4	11	6	6	3
Basketball	11	6	6	6	7
Baseball	8	7	6	5	11
Beach camping	10	7	6	5	5
Nature walks	3	9	4	5	6
Surfing	7	9	2	4	7
Attending outdoor concerts	3	5	6	5	5
Jogging	6	6	3	6	4
Hiking	3	7	4	5	3
Fishing: boat, deep sea	4	4	6	8	2

Source: SCORP-1971, p. 224.

TABLE 11

DISTRIBUTION OF USE OF MAJOR FACILITY TYPES, BY ADULT USER GROUPS

(Percent of Total Use)

FACILITY TYPE	FAMILY HEAD	SPOUSE OF HEAD	SINGLE INDIVIDUAL
Beach park	49	51	52
Inland park	2	1	1
Recreation center: golf, pools	17	8	12
Historical-cultural	4	8	7
Resort, boat launch	4	2	3
Trails-including hiking, driving, bicycling	21	27	23
Backwoods areas	1	0.2	0.5
Other	2	2	2

Source: SCORP-1971, p. 225

TABLE 12

DISTRIBUTION OF TOTAL USE OF MAJOR FACILITY TYPES, BY GEOGRAPHIC AREA

(Percent of Total Use by Population 18 Years and Over)

FACILITY TYPE	STATE	OAHU	NEIGHBOR ISLANDS
Beach park	50	50	49
Inland park	2	1	3
Recreation center: golf, pools	13	13	11
Historical-cultural	6	6	3
Resort, boat launch	3	3	3
Trails-including hiking, driving, bicycling	24	22	29
Backwoods areas	0.5	0.5	0.5
Other	2	3	1

Source: SCORP-1971, p. 225.

TABLE 13

FACILITY TYPE USED FOR FAMILY OUTINGS, BY GEOGRAPHIC AREA

(Percent of Total Annual Outings)

	STATE	OAHU	NEIGHBOR ISLANDS
Beach park	84.0	86.0	79.0
Inland park	5.0	3.0	11.0
Playground, Recreation Center (golf course, swimming pool, etc.)	3.0	3.0	2.0
Historical-cultural	4.0	5.0	1.0
Resort hotel, boat harbor, launch	0.8	1.0	0.3
Paths, trails, roadway	3.0	1.0	6.0
Backwoods	0.1	0.1	0.3
Other	0.4	0.5	0.0

Source: SCORP-1971, p. 226.

TABLE 14

MOST UTILIZED SITES FOR FAMILY OUTINGS, FOR THREE ISLANDS

(Percent of Total Annual Outings Occurring Each Island)

	%
Oahu	
Ala Moana Beach Park	15
Waikiki, Kapiolani Beach Parks	15
Kailua, Kaneohe beaches and parks	11
Makaha, Waianae beaches and parks	6
Hanauma Bay, Koko Head area	5
Waialua, Haleiwa beaches and parks	5
Other	43
Maui	
Kihei area - Maalaea, Kalama, Kamaole beaches and parks	21
Lahaina, Kaanapali beaches and parks	17
Wailuku, Kahului, including Iao Valley Park	16
Hana Bay	3
Other	43
Hawaii	
Hilo area beaches	25
Hapuna, Kawaihae beaches	25
Volcanoes Park, and Black Sand Beach	7
Kona - Kailua beaches	6
Other	37

Source: SCORP-1971, p. 227

IV. RECOGNIZED CONSTRAINTS

Limited Sandy Beach Area
Water Pollution
Access
Overlapping Responsibilities
Tourism
Competing Recreational Activities

There are a wide variety of constraints to the provision of coastal recreation. There are also a wide variety of constraints to the enjoyment of coastal recreation. What will be dealt with in this section are the coastal recreational constraints recognized by a variety of planning studies. This should yield not only an idea of the general limitations involved but also indicate the type of treatment and attention they have received.

The State Comprehensive Outdoor Recreation Plan (SCORP) is the major statement of recreational planning in the State of Hawaii. It treats physical constraints such as the limited extent of high quality sandy beach frontage, shoreline access problems, and shoreline pollution problems. SCORP also treats the jurisdictional conflicts which have arisen between the State and the Counties as well as the difficulties generated by shared or overlapping coastal area responsibilities of governmental units. Problems of inadequate access to the shoreline are briefly considered in SCORP. Conflict between different types of recreational uses and the problems associated with efforts to mediate the conflict are also noted.

Limited Sandy Beach Area

The relatively small mileage of primary beach frontage has already been noted in the preceeding section.

Water Pollution

Water pollution is a considerable problem for coastal recreation according to the Statewide Surfing Site Inventory compiled by the Surfing Education Association. SCORP used that source as authority to note that 240 shoreline miles had polluted water.[25] The nature of water and shoreline conditions works its way into the language usage as well: "Surfers call polluted shoreline sections by very graphic names: 'Rubbish Pile', 'Toilet Bowl', 'Puka Kukae', 'Flies', and 'Incinerators'. Among the most heavily used surfing sites in the State are Ala Moana Bowl, Shark Hole, and Point Panic. These areas are all adjacent to the Honolulu waterfront and most are polluted by sewage outfalls."[26]

Access

Access is another major problem. SCORP reported:

> One hundred twelve miles of shoreline exhibited problems for general public access. Steep shoreline terrain or lack of passable roads physically limit access. Private development or private lands abutting the shore legally block public access. Miles of Hawaii's shoreline are inaccessible to the public due to private property restrictions, military bases and facilities, State and County transportation facilities such as docks, harbors, jetties and groins, and private resort developments.[27]

From the Surfing Site Inventory source SCORP published a listing of miles of shoreline with pollution or access problems.

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[25]State of Hawaii, Department of Planning and Economic Development, SCORP-1971, p. 45.

[26]Ibid.

[27]Ibid., p. 46.

TABLE 15

SHORELINE POLLUTION AND ACCESS PROBLEMS

LOCATION	MILES OF SHORELINE	
	Pollution	Access
Oahu	74.0	28.8
Maui	37.6	8.0
Molokai	20.2	29.2
Lanai	22.4	0.0
Kauai	13.6	36.6
Hawaii	72.9	9.6
Total	240.7	112.2

Source: SCORP-1971, p. 46.

Providing access to the shoreline has become a major problem in the State. While the beach is in public ownership up to the vegetation line effective control over it may be exercised by adjoining land owners if access is denied to the public over the intervening private land. The State itself owns approximately one-third of the land adjoining the shoreline but some of that is under lease and public access not guaranteed. The chief problem is of course with the two-thirds in private ownership. Much of the basic problem was established some time ago as private residences were developed adjoining the shoreline, often between the coastal highway and the beach, and effectively began to restrict access as the shoreline was built up. In recent years this problem has been heightened by

considerable improvements in the highway system and a generally more mobile public venturing further afield in search of recreational opportunity. Add to this the phenomenal growth of the State's visitor industry and the dramatic increase in the number and size of hotels which tend to cluster by prime beaches. The resulting picture is one of growing access problems and competition for beach space. SCORP notes: ". . . provision for public access usually has been a concern only after development has occurred."[28]

Public right-of-ways to the shore are now being required of any private development which threatens to block public access. Programs are presently in operation to purchase right-of-ways in areas where access is difficult. Existing right-of-ways sometimes exist in name only.

> A survey of 196 supposedly "legal" access routes on Oahu, carried out for us during the summer of 1973 by students of the Marine Options Program at the University showed many routes were, in fact, closed to the public by fences, locked gates, overgrowth and other obstructions (including, in one case, a house). Some were impossible to locate.[29]

Overlapping Responsibilities

The heart of the matter is the very broad governmental authority to make plans and grant exceptions to plans once made which include the entire gamut of land uses without adequate information as to the consequences of these decisions. This is

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[28]Ibid., p. 103.

[29]State of Hawaii, Department of Planning and Economic Development, Governor's Advisory Committee on Science and Technology, Hawaii and the Sea, Honolulu, 1972, p. 5-5.

compounded by . . . (the) lack of any clear designation of the State's potential recreation resources. Park planning proceeds piecemeal, geared to short-term capital improvement programming. While the significance of shoreline to recreation is generally recognized, no designation of all resource areas guides land use decisions."[30]

The need for a coordinated approach is made obvious by the problems expressed in the following paragraph.

> The Land Use Law gives the State and County governments control for the use of the land. However, the Department of Transportation has concurrent authority over the use of the shore and submerged lands. Thus, a project approved by one body may be disapproved by another. Here again there is no overriding policy. Likewise, the Department of Land and Natural Resources determines the specific uses for which State lands, including submerged lands, can be leased. Transportation can override the Department of Land and Natural Resources' determination on a shore use. The State's use and development of its submerged land and the shoreline is subject to review and approval by the U.S. Corps of Engineers for navigational and flood control concerns. Again, conflicts can arise over proposed uses because of a lack of clear policy.[31]

SCORP reported a serious conflict between State and County park departments. There have been instances where County beach parks established on State land have been considered as possible State parks or where the State has developed a facility immediately adjacent to the existing County park. "The County departments are demoralized when faced with the State's superior resources and powers and thus do not operate with as much purpose as they might."[32] SCORP points out a difference in philosophy/approach:

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[30]State of Hawaii, Department of Planning and Economic Development, SCORP-1971, p. 96.

[31]Ibid., pp. 101-102.

[32]Ibid., p. 97.

". . . Counties are oriented toward urban recreation needs typified by organized sports, the State's orientation lies at the opposite end of the scale where the natural environment is utilized to provide a recreational setting with a minimum of development."[33]

One of the most penetrating studies done of coastal recreation was written by John Kelly for the University of Hawaii's James K. K. Look Laboratory of Oceanographic Engineering.[34] This social and historical study of surfing by a well known surfing expert examined in substantial depth the development of surfing interest, the benefits of surfing activity, profiled the "typical" surfer, listed the environmental requirements, and concluded with the threats to surfing. Kelly's approach pulled no punches, as indicated in his Preface when he stated: "For engineers, legislators and government administrators, a few of whom may react with raised eyebrow to some points in the chapter on adversities, we say that these express thoughts or views prevalent outside the apparatus of government, some of which may be invisible to the eyes of those inside."[35]

Kelly identified four major threats to surfing: construction in the coastal zone; pollution of shoreline waters; loss of access to and transit along the shoreline; and overcrowding.[36] He notes:

> The most severely affected segment of the State's shoreline is its most urbanized segment, from the International Airport to Diamond Head on Oahu where 267 separate federally recorded shoreline

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[33] Ibid.

[34] John Kelly, "Surf Parameters, Final Report, Part II, Social and Historical Dimensions."

[35] Ibid., p. 7.

[36] Ibid., p. 100.

> intervention permits have been granted since 1903. Not a foot of natural shoreline remains in this nine-mile area. We find here the State's most numerous, severe, persistent and mounting instances of water pollution, physical destruction, aesthetic degradation, overcrowding, incompatible usages, and threats to the remaining marine eco-systems. This process of urbanization of the shoreline is spreading rapidly to other areas with similar effects.[37]

An appendix listed 56 surfing sites destroyed in the period 1920-1969, the majority of sites lost to dredging and filling operations for ship and boat harbors.[38] Another appendix reviewed more than thirty projects or programs which were thought to threaten surfing provision. These included beach widening projects, harbor creation or expansion, transportation improvements such as the reef runway and proposed water borne mass transit, new electric power plants, and beach preservation efforts.[39]

Tourism

A recent study[40] of the impact of tourism in the State indicated that "tourism increases the cost of certain goods and services within the community, most notably housing and shoreline recreation."[41] The study viewed the impact of tourism as largely an economic matter but offered no data on the actual magnitude of increased recreational costs. The impact of tourism on recreation in the State is far more complex than mere economics, however, that is more a conclusion of intuition and personal observation than documented fact. The tendency of tourist facilities to seek prime beach areas and block

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[37] Ibid., p. 14.

[38] Ibid., Appendix A, pp. 187-191.

[39] Ibid., Appendix B, pp. 192-210.

[40] State of Hawaii, Department of Planning and Economic Development, Hawaii Tourism Impact Plan, Volume 1, Honolulu, 1972.

[41] Ibid., p. 118.

public access by accident or design is well known. Some beaches are thought to be local and some for tourists and there is just a hint that the two groups do not mix particularly well. Although data are not available to confirm or deny the preceeding sentence the author has heard it said often by residents.

Competing Recreational Activities

The classic case is that of private recreational use of space competing with public recreational uses. Examples include beach front residences, clubs, hotels, weekend retreats, boats and marinas which may conflict by occupying and/or using scarce space on an exclusive basis or add a substantial additional load on the public resource.

Possibly more difficult to resolve are the conflicts which arise between different types of recreational usage. A well known case is the considerable conflict off Waikiki between surf canoes loaded with tourists and not particularly maneuverable and the great number of novice surfers suffering manueuverability problems of their own.

SCORP identified problems associated with mixing swimmers, divers, waterskiers, surfers and boaters in the same area.[42] Kelly[43] developed a table of compatible and incompatible surf sport activities under crowded user conditions. One study went so far as to suggest: "Perhaps lifeguards should be given the authority to issue tickets to reckless or incompetent surfers."[44]

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[42]State of Hawaii, Department of Planning and Economic Development, SCORP-1971, pp. 40-41.

[43]John Kelly, "Surf Parameters, Final Report, Part II, Social and Historical Dimensions," p. 131.

[44]State of Hawaii, Department of Planning and Economic Development, Hawaii and the Sea, p. 5-8.

V. COASTAL RECREATION USER DATA AVAILABILITY AND EXISTING RESEARCH

Park Agency Examples
Anecdotal Data
Planner Caution
Data Needs

Perhaps the best introduction to the topic is to examine the State of Hawaii Data Book 1974.[45] The reader soon realizes that data on coastal recreation are sparce: parks receive the bulk of the attention. County parks which comprise more than 90% of the total number of park areas in 1973 have no visitation data shown just information on their number and acreage. State and national parks have their acreages, number of areas, and visitation data recorded. The only information offered which pertains exclusively to the coast is a listing of beach park acreage on Oahu[46] and listings of small-craft moorage, mileage of sandy shoreline, and surfing sites by island.[47]

Due to the elusiveness of so much of the recreation data, particularly those data on the less formal activities in areas not devoted principally to recreation, the most likely sources of good data are the various governmental park departments. The paragraphs which follow briefly examine the data which have been compiled and bear on coastal recreation.

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[45]State of Hawaii, Department of Planning and Economic Development, The State of Hawaii Data Book 1974: A Statistical Abstract, Honolulu, 1974, 306pp.

[46]Ibid., p. 147.

[47]Ibid., p. 149.

Park Agency Examples

The County Parks and Recreation Departments have the weakest collection of coastal user data. That should not be surprising when one considers the hundreds of coastal units under their jurisdiction, the multiplicity of their other non-coastal responsibilities, the sheer numbers of people using and sometimes abusing their facilities, and the difficulties of organizing input from hundreds of different sources. The City and County of Honolulu instructs its lifeguards to record the number of beach users on the sandy portions of the beach parks. The planner in charge of the development of the fledgling recreational data collection system for the County has raised serious questions about the accuracy of this beach user data.[48]

The County also requires groups of over fifty persons intending to use its park facilities to apply for a permit. It is not known what percentage of groups using the parks comply with this regulation nor what percentage of the total visits these groups constitute. The Parks and Recreation Department is beginning to conduct public user surveys but the scale of these attempts is modest and they are concentrating on playground users.[49] When County park data are published it is impossible to disaggregate coastal from inland park users.

The State Parks Division of the Department of Land and Natural Resources makes estimates of the numbers of visits occurring at each of the units under its jurisdiction. In instances where the park unit is focused on the coast estimates are available on the number

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[48] Ed. Campbell, City Park Planner, telephone interview, Honolulu, May 1975.

[49] Ibid.

of coastal oriented visits. The majority of the state park units are in inland locations. Mr. Gene Renard, a State Park Division planner, indicated to the author that data availability "hasn't improved a bit" over the last five years.[50] The need for better data is recognized but funds have not been available to hire the additional manpower necessary. Mr. Renard was hopeful that the funds would be available soon. The 1975 session of the Legislature approved funding for two additional planners; however, the Governor had yet to release the funds.

The National Park Service gathers information on the number of visits to each of the four units under its jurisdiction in the State of Hawaii. The City of Refuge National Historic Park recorded 350,000 visits in 1974 and its coastal location put all of its visitors in the role of coastal recreators, although the cultural/historical nature of this recreation is quite different from the typical coastal recreation in the State. Hawaii's newest unit of the National Park System, Puukohola Heiau National Historic Site, contains an underwater heiau which will eventually be interpreted on land; however, the area is presently underdeveloped and very few people visit it. The two remaining units of the National Park System, Haleakala National Park and Hawaii Volcanoes National Park, each have areas of coastline within their boundaries. Haleakala National Park's mile long strip of shoreline has a very complex usage pattern and evidences rapid growth in visitation from 43,000 visits in 1970 to 141,000 visits in 1974.[51]

Highway based viewing of scenery probably accounts for the majority of use of the area. Fishing from the shoreline is an important activity to many Hawaiians from the Hana area. The Seven Pools area receives very heavy usage from fresh water swimmers.

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[50]Gene Renard, State Park Planner, telephone interview, Honolulu, May 1975.

[51]Robert Barrel, State Director, National Park Service, telephone interview, May 1975.

Mr. Barrel candidly comments that the area will be a "mess" if the highway is improved and many more visit the area. Hawaii Volcanoes National Park's coastline receives highway based scenic viewing from an estimated 50,000 visitors a year. (Approximately 1 1/2 million visits were recorded for the park in 1974). In both national parks the National Park Service has special agreements with the residents of nearby areas to protect their traditional fishing rights. In the case of Hawaii Volcanoes National Park a legal agreement limits fishing along a portion of the coastline to Hawaiians from Kalapana or those guided by Hawaiians from Kalapana. After the highway turns inland the typical use of the coastal area is by opihi pickers and backpackers. A series of shelters with rain catchments are being developed and are expected to stimulate a rapid rate of usage growth.

Anecdotal Data

The reader no doubt notices the difference in the treatment of the National Park Service compared with State and County park administrations. The difference is the anecdotal treatment received by the former. The National Park Service does have slightly better data on coastal usage but that is likely attributable to a long tradition of reporting to Washington, D.C. Similar anecdotal information could be compiled for the State and County beach parks. The important point here is that the information is at present anecdotal and not available in written form.

Recreation managers have been long accustom to flying by the seat of their pants in estimating usage. The author vividly remembers speaking with the Director of the State Parks Division five years ago and being told of the means the Division had for

estimating the usage of some isolated picnic sites; the faster the metal fire grill burned out the more use the site was receiving! For many recreation managers their careers have necessarily revolved around the struggle to maintain the areas under their control and cope as best they can with dramatic increases in usage and a public more concerned with clean restrooms and a place to park than with adequate funding.

Planner Caution

What is considerably less understandable is the general but not universal failure of recreation planners to call for better user data. Many studies have a general reluctance to: 1) admit the very serious gaps and weaknesses in the data and data collection systems presently used; 2) identify and justify the assumptions their plans rest on; 3) develop or call for the development of information which could be used to test the validity of their assumptions and the success of their programs. Take the Open Space and Outdoor Recreation Plan[52] written for the Maui Planning Department by Marshall Kaplan, Gans, Kahn and Yamamoto for example. It makes recommendations regarding camping, shoreline and recreation reserves, multi-cultural recreation, recreation programs, park landscaping, historic sites, bikeways, regional parks, marine reserved, specialized recreation needs, plantation recreation facilities, and access to recreation areas in its " Policies and Strategy Statement"[53] without a word about the facts that stimulated these recommendations. The "Goals Statement"[54] lists goals for outdoor recreation without articulating their factual foundations. The entire document may be searched for these to no avail. In the

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[52]County of Maui, Department of Planning, Open Space and Outdoor Recreation Plan, Marshall Kaplan, Gans, Kahn and Yamamoto, Honolulu, Hawaii, 1974, 117 pp.

[53]Ibid., pp. 21-31.

[54]Ibid., pp. 17-20.

acknowledgements section of the report[55] mention is made of a survey team and a number of citizen's advisory committees. Let us assume that these recreation recommendations arise from a perfect reading of citizen desires. There remain some difficult questions to answer. How will we know when the suggested goals are achieved if we do not have the means to measure our progress toward them? A response might be that the plan contains specific suggestions which, when accomplished, will meet the goals. How do we know that will occur? How do we know that the specific suggestions are the most effective means of meeting the goals?

Data Needs

The chief problem is the view that planning and providing coastal recreation can proceed in an acceptable manner without learning more about what users are doing. The Governor's Advisory Committee on Science and Technology made nineteen recommendations concerning marine recreation. Only one of the recommendations suggested the gathering of user information and that involved a survey to determine the need for additional marinas. Planners take suggested acreage standards per 1000 population for a variety of different recreational units (neighborhood parks, regional parks, play lots for example) and crank in population projections and, presto, have a recreation plan. All of this rests on critical assumptions that all acres are equal and each unit of population is like every other.

A recent study[56] done for Hawaii County suggested acreage standards without a clear indication of the method used in their establishment. One standard, in the words of the study "was developed through interpolation and by relating it to nationally

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[55] Ibid., pp. 113-116.

[56] County of Hawaii, Department of Parks and Recreation Planning Department, County of Hawaii Recreation Plan, Edward R. Aotani and Associates, Inc., Honolulu, Hawaii, 1973, 230 pp.

recommended standards."[57] The standard involved was 60% of one national standard and 49% of the other national standard illustrated in the planning report. The City and County of Honolulu's more modest acreage standards were illustrated. The interpolation process is left to the reader's imagination. The resulting standard called for less acreage than is presently available. The same study listed "primary considerations for developing recreation proposals"[58] and were very revealing of the planning context. Of the seven primary considerations offered only one related to the recreation user directly and only then if he or she attended or had their interests represented at the community meetings which were held to gather public opinion. Of the six primary considerations remaining a total of five dealt with coordinating with other plans and units of government.

Some planners have expressed the need for better recreation information. A partner in a major Honolulu planning firm offered these comments:

> . . . we do not have a full inventory of recreational facilities and areas--especially, those which are found on private property with limited and restricted uses. Moreover, we do not have any systematic monitoring of our recreational supply and its use. (Not simply the keeping of attendance figures or activity days, but something more tangible with respect to use characteristics). Briefly then, our information needs focus on supply, users and non-users, accessibility, and monitoring of existing resources and their use.[59]

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[57] Ibid., p. 12.

[58] Ibid., p. 5.

[59] State of Hawaii, Department of Planning and Economic Development, Proceedings of the Conference on Socio-Environmental Indicators, March 15-17, 1971, Honolulu, Hawaii, 1971, p. 104.

In a paper by Gene Renard entitled "Outdoor Recreation Statistics--Unmet Needs"[60] the following problems were among those identified in existing statistics.

1. Park Visits

   Attention is paid only to recording the number of visits; duration of visit, on-site behavior, desired opportunities, origin of visitors, or benefits received are generally ignored.

   "Personnel collecting data are generally untrained for the purpose and their judgmental abilities and consequent reliability of data vary widely."[61]

   "Procedures are not fully standardized."[62]

   "Generally poor funding leads to personnel shortages, requirements of higher priorities such as public safety, health, sanitation, protection of resources, etc., to lack of equipment, such as traffic counters or entrance styles (sic), and to inadequate processing of collected data."[63]

2. Park Inventories

   Some of the State Park units have not been properly delineated from the State owned land they were created out of. This leads to some cases where neither park boundaries or area are precisely known.

   There are definitional problems which must be overcome before comparable inventories can begin.

   Little inventorying has been done of potential recreation areas.

3. The challenge to understand how recreation relates to the following public needs:[64]

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[60]State of Hawaii, Department of Planning and Economic Development, Statistics in Hawaii: 34 Papers Prepared for the Hawaii Statistical Reporting System Workshop, Honolulu, Hawaii, 1970, pp. 65-70.

[61]Ibid., p. 66.

[62]Ibid.

[63]Ibid., pp. 66-67.

[64]Ibid., p. 69.

Needs for rest, relaxation, contemplation, quiet
Needs for exhilaration refreshment of spirit, change of pace or environment, diversion
Needs for physical fitness, mental alertness
Needs for challenge, competition, a feeling of accomplishment
Needs for fellowship, camaraderie, team spirit
Needs for inspiration, esthetic enjoyment, at-oneness with nature
Needs for cultural enrichment, broadening of interests

Recreational research is but one of many types of information needed in a State where ". . . we are approaching, and in some cases have exceeded, the limits of the environment's ability to support human activities at present levels of technology. We have reached a condition of Overload. The result is a diminished quality of life and environment."[65] The Hawaii Environmental Simulation Laboratory (HESL) at the University of Hawaii with probably the most complex funding arrangements, the least strings attached, and the firmest grounding in scholarship discusses the concepts of carrying capacity, overload, and areas of critical concern in its Carrying Capacity Analysis In Context.[66] HESL's Principal Investigator, Doak C. Cox, indicated to the author that HESL was doing nothing on coastal recreation use explicitly.[67]

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[65]Temporary Commission on Statewide Planning, A Plan for Hawaii's Environment, Honolulu, Hawaii, November 6, 1973, p. 8.

[66]Hawaii Environmental Simulation Laboratory, University of Hawaii, Carrying Capacity Analysis In Context, Application to Growth Management in Hawaii: A Report to the Eighth Legislature, State of Hawaii, January, 1975, pp. 49.

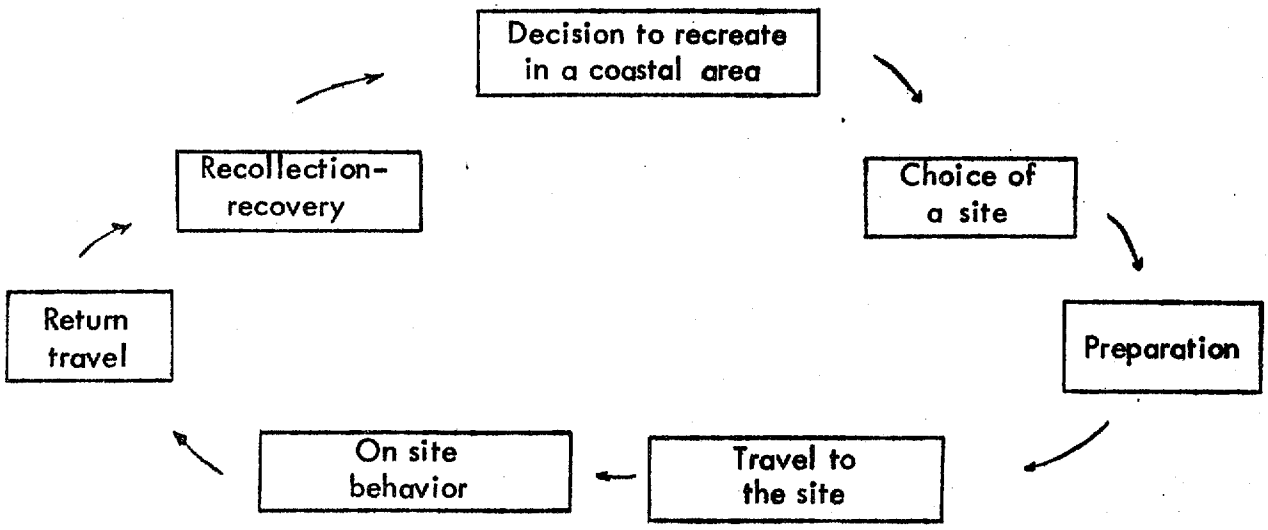
[67]Doak C. Cox, Principal Investigator, HESL, Telephone Interview, May, 1975.

VI. COASTAL RECREATIONAL OPPORTUNITY ENHANCEMENT: POTENTIAL RESEARCH AVENUES AND SUGGESTIONS FOR RECREATION MANAGERS

The Recreational User System
The Recreational Manager System
The Natural and Man-Made Physical Parameters of the Recreation Resource
Suggestions for Resource Managers

The prospect for enhancing coastal recreational opportunity is unclear. The author has pointed out many times in this report the paucity of existing data and the reluctance to remedy the situation. A variety of topics and approaches should be dealt with following the suggestions at the conclusion of this chapter. Three highly generalized views of the recreation system are offered: the user recreational system, the recreational manager system, and the natural and man-made physical parameters of the recreation resource. Each of these is treated separately for convenience but in fact each system has many shared elements and interacts with the others. Each appears to have fruitful research possibilities and management implications.

The Recreational User System



The diagram above illustrates the key points in a generalized view of a completed recreational experience which is away from one's residence. Portions of it have been developed in substantial detail by economists seeking to estimate the economic impact of recreation and dissatisfied with the traditional "on-site" view of recreational expenditures.[68] Unfortunately the traditional view appears to be strongly entrenched. While there is welcome evidence to the contrary in the preceeding chapter, calls for improved user data (to say nothing of actual efforts to develop user data) are relatively obscure and if made usually ask for on-site data with a heavy emphasis on visitation data. What might be learned from examining the whole of the recreational user system? How might this be of value to enhancing coastal recreation? Let us examine each phase of the recreational user system in turn.

Coastal Recreation Decision

We might ask:

Why was a recreational use of time chosen?

Why a coastal recreational use?

What are the differences and similarities of the decisions made by people of varying ages, sex, income, ethnicity, location, and previous experience?

The resulting information would be of value in:

Developing better methods and estimates of future recreational participation.

Determining the ease or difficulty of substituting inland recreation opportunities for coastal ones.[69]

Generating data on the meaning and cause of coastal recreational behavior.

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[68]Marion Clawson, Land and Water for Recreation: Opportunities, Problems and Policies, Chicago, Rand McNally and Co., 1963, p. 40.

[69]See: State of Hawaii, Department of Planning and Economic Development, SCORP-1971, p. 146.

Site Choice

We might ask:

Why was this site picked?

What limiting factors were considered?

Was a qualitative assessment made? In terms of what?

Were other sites considered? Which?

The resulting information would be of value in:

Developing better methods of estimating participation in specific activities at specific places.

Focusing management concern on negative factors which appear amenable to solution.

Developing a "zoning effect" where areas which offer essentially identical recreational opportunities are deliberately managed to encourage use by specialized groups (i.e., teenagers, sailing, body surfing, etc.).

Formulating expressions of perceived recreational quality.

Establishing the degree of substitutability of one site for another.

Experimentation by managers on the role information plays in recreation site selection. Perhaps managers could broadcast a beach use report similar to the radio surf reports.

Preparation

We might ask:

Was preparation necessary?

What type of preparation was necessary, if any?

The resulting information would be of value in:

Learning how, where, and from whom recreators acquire the skills that some coastal activities require.

Learning more about the important element of pride of accomplishment associated with some types of recreation.

Expressing the dollar value of this particular portion of the recreational experience.

Travel to Site

We might ask:

What are the principal pleasures and frustrations of this portion of the recreational experience?

How much money was spent during this phase of the experience?

Under what conditions would public transportation be used?

What type of vehicle (if any) was used?

How many people were in it? (If applicable).

The resulting information would be of value in:

Determining the practicality of developing public transport to serve recreation areas.

The extent of complementary and competitive uses of the public highway system by recreationists and other users.

Noting whether the existing distribution of coastal recreational opportunities favors some localities and users over others.

Expressing the dollar value of this particular portion of the recreational experience.[70]

On Site Behavior

We might ask:

For user characteristics. (Applicable at any of the phases). Age, sex, ethnicity, place of residence, mobility, recreation interests, education, income, etc.

What use(s) was (were) made of the area?

Was crowding experienced? Did it interfer with enjoyment? In what terms?

Were recreational conflicts noted? Examples?

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[70]See: Center for Governmental Development, College of Continuing Education and Community Service, University of Hawaii, The Value of Recreation Areas on Oahu, James E. T. Moncur, Honolulu, Hawaii, 1972, 99 pp.

Was any type of particularly destructive/disruptive behavior observed? Examples?

How much money was spent during this phase of the experience?

The resulting information would be of value in:

Assessing the adequacy of present facilities.

Adjusting manager estimates of uses and use levels to what is actually occurring.

Developing data on the extent of perceived crowding and its consequences.

Learning which uses are associated with certain user characteristics for the prediction of future use.

Ascertaining the extent and nature of destructive/disruptive behavior.

Testing the acceptance and impact of a variety of management innovations to shift usage, increase capacity, reduce maintenance, control vandalism, etc.

Estimating the value of on-site expenditures.

Return Travel

Similar to Travel to Site in terms of the questions that might be asked and the usefulness of the responses; however, the responses themselves might be considerably different.

Recollection-Recovery

We might ask:

Were expectations met?

Did the judgment of the nature of the recreational opportunities available change?

Is this stage of the recreation experience important? In what terms?

What expenditures for new equipment, repairs, training, or anything else related to this stage of a completed recreational event were made?

The resulting information would be of value in:

Learning how the recreational user feedback system operates.

Evaluating the degree to which respondent's expectations are met.

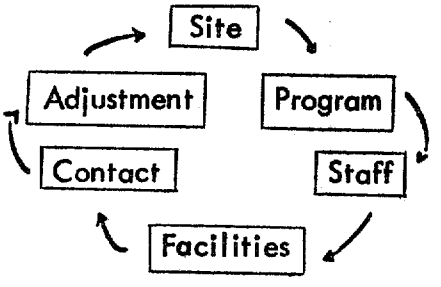
Identifying those activities, areas, or groups of people whose expectations are not being met.

Developing information on user satisfaction.

Estimating the value of recollection-recovery expenditures.

Gathering data on the recreational user system over time should prove useful in identifying trends and establishing the degree of stability of recreation behavior and attitudes. With care we should be able to learn recreators' judgments of the personal significance of recreational opportunities.

The Recreational Management System



It would probably come as a shock to some that there might be a need to manage recreation areas and that management may have much to do with user satisfaction. The discussion which follows suggests the information needed and the possible benefits of learning more about the recreational management system.

The Site

We might ask:

The physical characteristics. (Covered in The Natural and Man-Made Physical Parameters of the Recreation Resource).

What are the recreational uses managers think appropriate for the site?

How is the quality of the site judged?

The resulting information would be of value in:

Learning how managers perceive the sites under their control and the likely standards used in seeking additional sites.

Examining how professional managers view site quality and the extent to which that corresponds with the public view.

Identifying critical factors which limit recreational usage.

The Program

We might ask:

What are the goals?

What means will be used to achieve the goals?

What measures will be used to evaluate achievement?

Are possible conflicts recognized? Dealt with?

Who funds the program? Budget? How is the budget allocated?

The resulting information would be of value in:

Establishing who and how many might benefit from the program.

Encouraging management agencies to develop and improve measures of their "product."

Identifying cases of overlapping goals and cases where responsibility is not established.

The Staff

We might ask:

What is the basis for the selection, retention, and promotion of the staff?

How are ideas and observations of junior staff utilized by higher level decision makers?

The resulting information would be of value in:

Determining whether the training and number of staff are adequate.

Learning what becomes of risk-takers and innovators.

Developing an idea of the role the on-the-ground staff plays in aiding management and planning decisions.

Facilities

(See the discussion in Natural and Man-Made Physical Parameters).

The Contact

We might ask:

What, if anything, do users recognize as evidence of management of mis-management?

What opportunities do users have to express themselves directly to managers?

Do users know what agency manages an area or has responsibility for provision of a service?

What are managers professed and actual attitudes toward users and non-users?

What is the extent of "manager presence" at the site?

Which might be valuable in:

Determining how articulate the general public is in expressing its views of recreational adequacy through the political system.

Judging how much feedback recreation managers invite or receive from the public directly.

Reviewing how much effort goes into taking an active role in on-site management, particularly in controlling behavior of users which is seriously detrimental to visitors and/or the recreational resource itself.

The Adjustment

We might ask:

What type of information is conveyed up the administrative hierarchy from this crucial maintenance and recovery stage?

What is the rationale for allocating effort within and between different areas at this stage?

What types of data might be valuable for managers to gather at this stage?

Which might be valuable in:

Determining how cognizant management is of the valuable data which might be gathered at this stage to test site, staff, and facility durability and productivity.

Testing whether user complaints and suggestions are acted on and/or reported to higher management levels.

The Natural and Man-Made Physical Parameters of the Recreational Resource

Inventories should be begun to gather basic information at a level of detail to be presentable on maps of a sufficiently large scale to be deemed useful in small area planning.

Detailed information is necessary on:

soils
slope
vegetation
fauna
sand type
beach width, depth, area, seasonal changes
wind and cloud cover conditions
rainfall
water quality
water hazards including underwater hazards

Also necessary are studies of:

coastal land use
accessibility
ownership
zoning status
proposed changes which would affect any of the above

Equally necessary are reviews of facilities such as:

emergency telephones and aid stations
parking, designated and informal
boat ramps and piers

comfort stations
picnic facilities
campsites
fresh water systems
lifeguard stations
outside (and inside) showers
garbage receptacles and storage areas
convenience food sources

The results of the inventories should be applied to efforts to establish what the physical limitations of the recreational resource are. Both the natural environment and the man-made facilities have a physical capacity to sustain continued use: a point if exceeded results in a reduction of benefits over the long term. Efforts should be made to establish what these limitations are in terms of user numbers and behavior.

Suggestions for Recreation Managers

The preceeding discussion has been an effort to stimulate awareness of the breadth of the recreation system and to encourage its investigation. To slightly alter a popular saying, we may be able to get there from here, but we're not likely to get there soon. A serious program of coastal recreational enhancement would combine user, manager, and physical resource elements with a critical eye to past weaknesses. How might recreation managers begin in the State of Hawaii? The author has seven suggestions.

1. The development of testable varifiable objectives is necessary. If the enhancement of recreational opportunity is the goal we need means by which to measure progress towards that goal. The ability to monitor achievement will enable us to test different approaches for their effectiveness and allocate resources to programs and areas most in need if we so desire. Stating objectives explicitly will force recreation managers to develop some means of measuring their achievement.

2. Whatever objectives are set should include a specific date for their achievement. Any change in dates should be accompanied by explanation which would include enumerate the circumstances which forced the change. The number of met and missed objectives should be a matter of public record.

3. A massive data gathering, storage and interpretive effort should be made by recreation managers. This would necessarily involve coastal and non-coastal information. The data should include user information such as that called for earlier but should include information on the physical parameters of the resource areas which have a bearing on their carrying capacity. An effort should be made to ensure that the data gathered are comparable. Seen even at the most preliminary stage this suggestion would be so demanding of funds and organizational talent that an external funding agency might be in the best position to encourage its acceptance.

4. Crucial limiting factors affecting coastal recreation should be identified. An initial group of factors should be identified by recreation managers, the nature of the limitations they impose also identified, and plans developed to reduce or moderate their influence.

5. Recreation agencies should develop estimates of the carrying capacity of each of the units under their jurisdiction. This would involve the development of very sophisticated user data on needs and satisfaction as well as information on physical parameters of the resource. Since carrying capacity estimates are made with certain assumptions about trade-offs between quantity and quality it would be important to have recreation agencies make explicit those assumptions and how carrying capacity estimates change with changing assumptions.

6. Efforts should be made to make explicit the system of trade-offs between different recreational investments of money, research, or supervision. Even if goals are operationally defined it becomes necessary to allocate scarce resources between numerous possible projects and goals. At some point planners ought to be able to explain why they allocate so much (or little) funding or space to an individual activity or place.

7. There is a growing need to develop better information on the relationship between the State's tourist industry and coastal recreation. There is conflict between the two and the interwoven nature of each suggests that in some respects the health of one is responsible for the health of the other.

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