

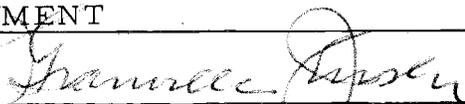
AN ABSTRACT OF THE THESIS OF

D. LAWRENCE ANDERSON for the DOCTOR OF PHILOSOPHY
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(Major) (Date)

Title: A SEARCH FOR SOLUTIONS TO CONFLICTING DEMANDS
OF OUTDOOR RECREATION IN THE OREGON DUNES
COASTAL ENVIRONMENT

Abstract approved:



J. Granville Jensen

Conflict and competition between outdoor recreational activities is increasing in intensity. Thus, management agencies and persons responsible for regulation of outdoor recreation areas have become increasingly concerned and are seeking appropriate means for amelioration of the intensifying problem.

This research was designed to seek better understanding of conflicts and incompatibilities as perceived by recreationists. The research utilized a questionnaire to develop a body of original data on participants' perception of compatibility or non-compatibility of outdoor recreational activities and their attitudes toward degree and kinds of existing and needed resource development. As the case study area for this investigation, the sand dunes coastal environment of Central Oregon was selected. Topics in the questionnaire covered perception

of recreational development, attitudes toward recreational land and facility ownership, perception of pollution conditions and perception of and attitudes toward recreational activities in terms of conflict or harmony with each other and with the natural environment.

Analysis of the 428 questionnaires completed revealed some surprising responses. Perhaps the single most important finding from the user survey was that the majority of the respondents viewed the coastal zone as underdeveloped. Additional development was desired, and the kinds preferred reflected the type of accommodation and recreational facilities that respondents were already using. Tent and trailer parks, picnic grounds and low-cost motels were the preferred kinds of developments based on responses to the questionnaire.

The list of recreational activities reported as being enjoyed in this coastal zone was long and varied; however, the greatest number of preferred activities were environmentally-oriented and definitely related to the marine and sand dune environments. Motorbiking in particular, dune bugging, tavern or lounge visiting and nightclubbing, hunting and waterskiing were often mentioned as bothersome, annoying activities. Most respondents implied acceptance of regulation of user activities and zoning for land use.

It was the consensus among respondents that motor vehicles should be restricted to prescribed areas of the sand dunes and beach. Different accommodational uses of campgrounds was not generally

desired as long as vegetation buffers were used to separate sites.

When perception of air, water or noise pollution was questioned and a combined pollution index developed, respondents indicated pollution to be only slight and lumbering and associated industries were reported as the major causes. Human factors, pollution and the weather were the most frequently mentioned unappealing features of this coastal zone. Throughout the littoral the numbers of people at recreation sites were reported as just about right.

Increased recreational use and development appears to be inevitable and in some cases perhaps even desirable within this coastal zone. Consequently, viable management techniques need to be developed so as to minimize activity conflicts and to maintain natural environment harmony in the area.

A Search for Solutions to Conflicting Demands
of Outdoor Recreation in the Oregon
Dunes Coastal Environment

by

David Lawrence Anderson

A THESIS

submitted to

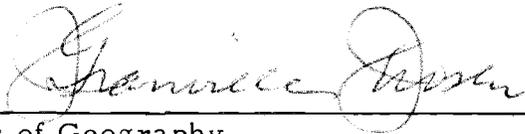
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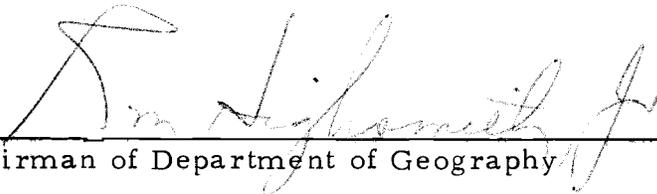
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A SEARCH FOR SOLUTIONS TO CONFLICTING DEMANDS
OF OUTDOOR RECREATION IN THE OREGON
DUNES COASTAL ENVIRONMENT

CHAPTER I

INTRODUCTION

Conflict and competition between outdoor recreational activities is increasing in intensity. This development is the result of an expanding variety of recreational activities fostered by increased leisure time, more discretionary money, expanded mobility including wider use of campers, trailers, motorbikes and dune buggies as well as greater numbers of people with the associated population pressures. In fact, with more participants engaging in an expanded number of recreational activities, incompatibilities are burgeoning. Thus, management agencies and persons responsible for regulation of outdoor recreation areas have become increasingly concerned and are seeking appropriate means and rationale for ameliorating the intensifying problem of conflict.

In order to better understand the conflicts and incompatibilities, it is desirable to know what the participants are active in and how they feel about other activities and the environment. In other words, recreationists' perception of the resource base and the associated activities must be evaluated if a thorough comprehension of

compatibility and incompatibility is to be realized. Participants' perceptions¹ of existing recreational developments, their attitudes toward additional developments, kinds of developments desired, facilities ownership and land tenure as well as their preferences and attitudes toward specific recreational activities need to be appreciated, before viable management techniques can be formulated.

Purpose of the Research

The purpose of this research is to develop and analyze a body of original data on participants' perception of compatibility or non-compatibility of outdoor recreational activities and their attitudes toward degree and kind of resource development. Based on the data analysis, an effort was made to draw specific conclusions which would aid in the understanding of these incompatibilities and stresses. In this way, management techniques can be formulated and implemented so as to overcome these problems of conflict. Four types of questioning were involved in the study. Questions covered perception of recreational development, attitudes toward recreational land and facility ownership,

¹According to D. W. Lime and G. H. Stankey in "Carrying Capacity: Maintaining Outdoor Recreation Quality" from Recreation Symposium Proceedings, U. S. D. A. Forest Service, Northeastern Forest Exp. Station, Upper Darby, Pa., 1971, pp. 174-184, "'Perception' refers to the process whereby an individual receives information from the social and physical environments in which he operates, interprets it in the light of his experience and attitudes, and then reacts."

perception of pollution conditions and lastly, perception of and attitudes toward recreational activities in terms of conflict or harmony with each other and with the natural environment. The major objectives of the study were to:

1. Analyze participants' perception of various outdoor recreational activity compatibilities and non-compatibilities with the aim of achieving solutions to the conflicts.
2. Analyze users' and local occupants' perception of the outdoor recreational land use conflicts which exist and ideas for solutions.
3. Propose implementation methods that would be usable by managers of the environment for solution of the problem of conflicts.

The Study Area

The area selected for investigation was the Oregon coastal zone from immediately north of Florence southward to Coos Bay. It was chosen for the study because it is diverse in nature and in many ways is a microcosm of coastal outdoor recreation opportunities. Here most types of environment of the Oregon littoral are represented including freshwater lakes, rivers, estuaries, sand dunes, beaches and forests. A number of motels, restaurants, campgrounds, trailer parks, condominiums, marinas and resort facilities have also been

developed throughout the coastal zone. Moreover, the Florence-Coos Bay area includes the outstanding complex of sand dunes and related freshwater bodies which was recently designated by Congress as the Oregon Dunes National Recreation Area (U. S. Congress, Public Law 92.-260, March 23, 1972).

In size, the study area is approximately 52 miles in its north-south lineation and only 6 miles at its widest. At its northern end, Sea Lion Point marks the place where the sand dunes environment gives way to rocky headlands formed by the northwestward extending Coast Range. Coos Bay, a natural boundary at the other extremity of this sand dunes zone, marks the southern extent of the study region. Generally, U. S. Highway #101 is the eastern boundary of the study area, although, in a few cases such as at Eel, Tahkenitch, Siltcoos, Woahink and Mercer lakes, the eastern shores of these lakes are used as the demarcation. Any other areas or facilities that lie to the east of U. S. Highway #101 and are directly related to the study zone are included within that research area (Figure 1. 1).

In undertaking this investigation, a questionnaire-based user survey was employed at 48 locations including motel, campground, trailer park, resort and beach areas. These locations are indicated in Figure 1. 2.

Figure 1. 3 relates the study area to other parts of Western North America. As can be seen, U. S. Highway #101 runs directly

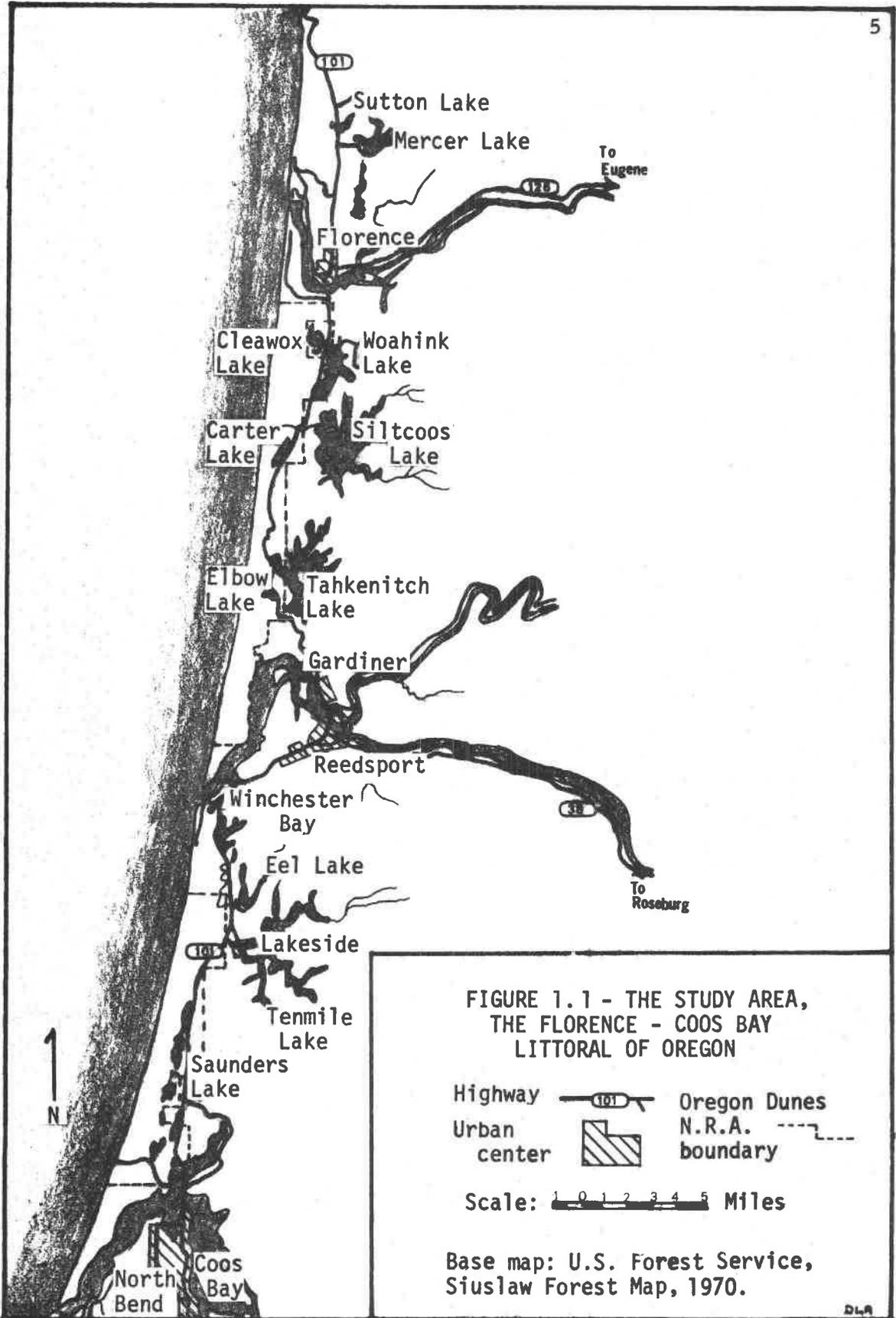


FIGURE 1.1 - THE STUDY AREA, THE FLORENCE - COOS BAY LITTORAL OF OREGON

| | | | |
|--------------|--|---------------------|--|
| Highway | | Oregon Dunes N.R.A. | |
| Urban center | | boundary | |

Scale: 0 1 2 3 4 5 Miles

Base map: U.S. Forest Service, Siuslaw Forest Map, 1970.

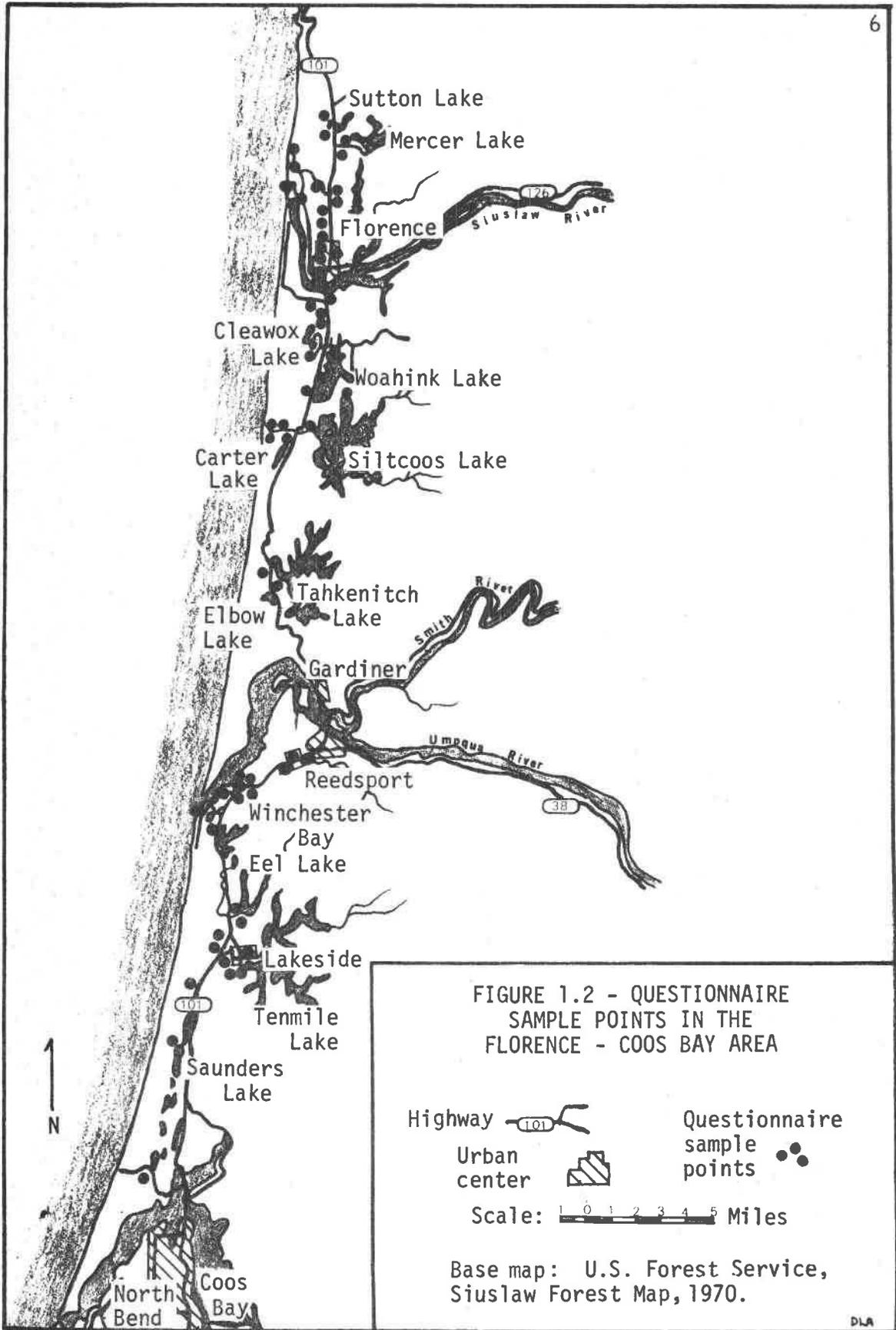
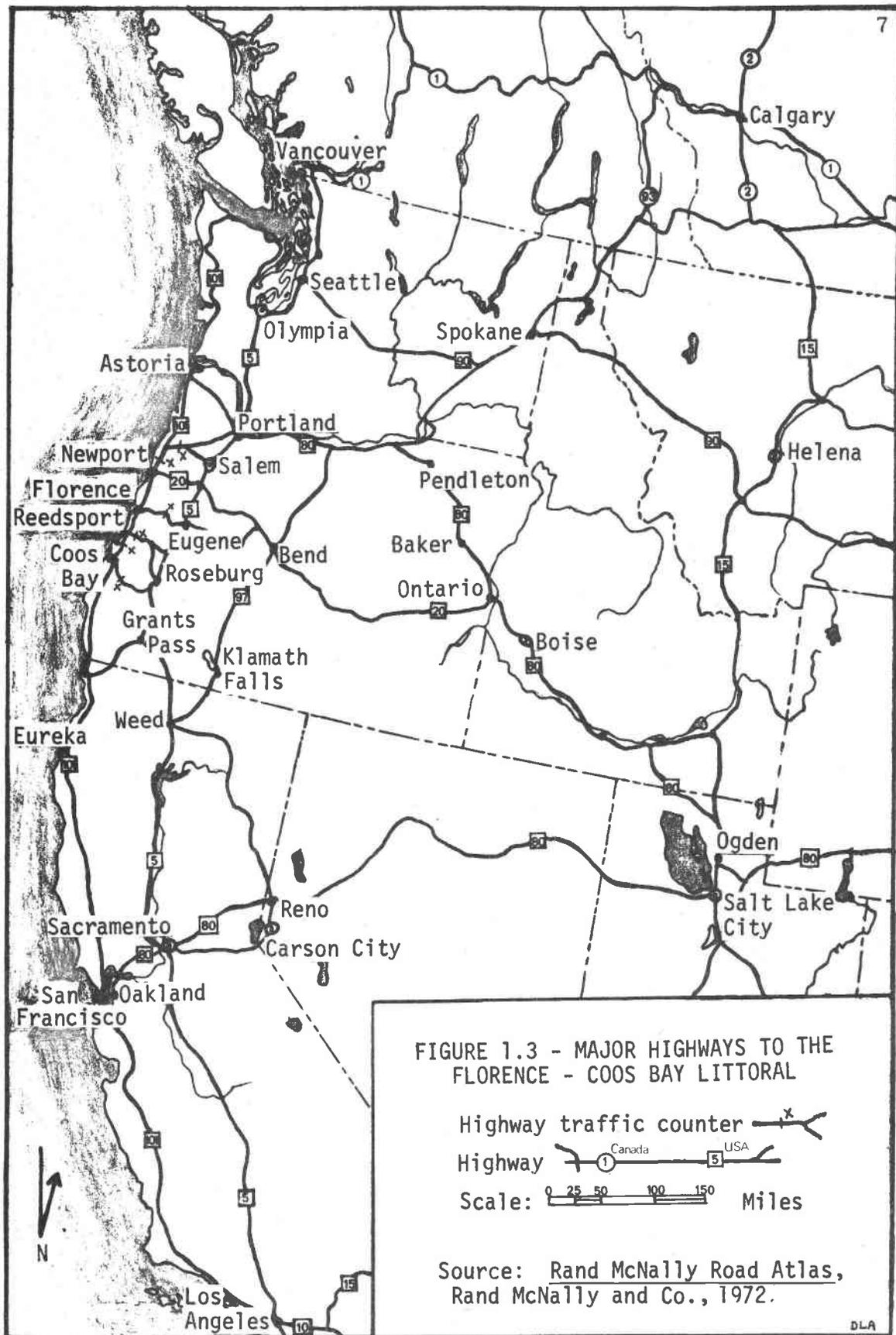


FIGURE 1.2 - QUESTIONNAIRE
SAMPLE POINTS IN THE
FLORENCE - COOS BAY AREA

Highway  Questionnaire
Urban sample
center points 

Scale:  Miles

Base map: U.S. Forest Service,
Siuslaw Forest Map, 1970.



through this coastal zone linking it to other Oregon littoral locations, as well as to Northern California and Washington. Table 1.1 shows the traffic flow on some of the State and U. S. highways that connect the populated Willamette Valley and other interior valleys with the littoral and other parts of the Oregon Coast. As one would expect, the route from Portland to the coast carries heavy traffic loads (i. e., U. S. Highway #26). Not surprisingly too, is the fact that the Salmon River Highway (Oregon #22) is the most heavily traveled. Salem, Portland and northern Willamette Valley traffic funnels to the Central Coast via Oregon Highway #22, and this concentrating effect leads to a heavy amount of traffic.

Eugene-Springfield and the southern Willamette Valley are connected to Florence by Oregon Highway #126, so it is not unusual that it carries the greatest load of any route into the study area. The other two highways linking the interior and the study area--Oregon Highways #38 and #42--carry only a small traffic load relative to most of the other coast-linking routes. This situation is not unexpected as only Roseburg and the smaller Douglas County centers are connected to the coast by these two highways. Thus, one may conclude that most traffic along Oregon Highways #38 and #42 is of a local nature; whereas a lesser, although still high percentage of the load on Oregon Highway #126, is local. This estimation is based on a series of 10 to 12 journeys by the researcher along Oregon Highway #126 during the summer of 1972. A conservative estimate of traffic origins for the Eugene-Florence

Table 1.1. Average traffic flow on Oregon highways linking the interior and the coast,
June - August 1972.

| Highway | Location | Average Day Total | Average Week Day | Average Saturday | Average Sunday |
|-----------|-------------------|----------------------|---------------------|---------------------|-------------------|
| U. S. #26 | Sunset Tunnel | | | | |
| June | | 3921 | 3199 | 4761 | 6694 |
| July | | 5420 | 4344 | 7036 | 9187 |
| August | | 5858 | 4595 | 7768 | 10,260 |
| U. S. #22 | Valley Junction | | | | |
| June | | 7977 | 7300 | 8324 | 11,015 |
| July | | 10,335 | 9111 | 11,570 | 15,217 |
| August | | 10,504 | 8982 | 12,032 | 16,588 |
| Ore. #126 | Near Noti | | | | |
| June | | 3561 | 3296 | 3968 | 4480 |
| July | | 4113 | 3729 | 4717 | 5432 |
| August | | 4057 | 3615 | 4785 | 5540 |
| Ore. #38 | Scottsburg | | | | |
| June | | 2999 | 2783 | 3294 | 3786 |
| July | | 3199 | 2916 | 3679 | 4137 |
| August | | 3418 | 3173 | 3648 | 4415 |
| Ore. #42 | Near Myrtle Point | | | | |
| June | | 4103 | 4195 | 3871 | 3875 |
| July | | 4138 | 4230 | 4064 | 3750 |
| August | | 4285 | 4363 | 4182 | 4001 |

Table 1.1. Continued.

| Highway | Location | Average Day Total | Average Week Day | Average Saturday | Average Sunday |
|------------|----------------|----------------------|---------------------|---------------------|-------------------|
| U. S. #101 | Otter Rock | | | | |
| June | | 5692 | 5415 | 6259 | 6510 |
| July | | 7880 | 7307 | 9055 | 9572 |
| August | | 8381 | 7804 | 9700 | 9949 |
| U. S. #101 | Winchester Bay | | | | |
| June | | 7041 | 6910 | 7360 | 7376 |
| July | | 8338 | 8235 | 8661 | 8533 |
| August | | 8706 | 8654 | 8682 | 8989 |

Source: Oregon State Highway Division, unpublished Daily Automatic Traffic Recorder Data, Salem, 1972.

Highway would allot 25 to 30% to the out-of-state category. Similar travels and estimating for Oregon Highways #38 and #42 suggest only an 8 to 12% of out-of-state traffic load. U. S. Highway #101 seems to carry about 40 to 50% out-of-state traffic, although this percentage varies depending on the day of the week. More locals and Oregonians, in general, are at the Coast on the weekend. Notwithstanding this estimate, the loads are heavy and the out-of-state percentage is large, a fact that attests to the popularity of the Oregon Coast (Table 1. 1).

As the U. S. Highway #101 traffic station near Winchester Bay reported a slightly higher traffic count than that near Newport, it is suggested that the sand dunes coastal environment has an attracting effect. Probably the fewer number of highways running to the interior from near Reedsport better explains this phenomenon. Traffic is concentrated along U. S. Highway #101 south of Reedsport, whereas north and inland from Newport where most of the Oregon populous resides, alternate routes siphon traffic from the coast route. Nevertheless, the recreation quality of the sand dunes coastal environment is important in luring visitors from both out-of-state and within Oregon. The superb recreational resource only compounds the concentrating effect of U. S. Highway #101.

Organization of the Thesis

The thesis is organized into eight chapters. Chapter I identifies

the purpose of the investigation and provides necessary background for understanding the study area. Chapter II describes the population characteristics of the littoral, including an analysis of vicinal relationships of outside population centers to this coastal zone. The third chapter is a description of the methods used in gathering data on attitudes and perception concerning compatibility of various activities and environmental relationships. Chapter IV follows with an analysis of the recreational activities identified by the respondents, and their perception of compatibility. The fifth chapter presents the essence of the thesis as it analyzes the attitudes and perceptions reported with reference to development and ownership. Chapter VI analyzes respondents' attitudes toward and perception of pollution. In Chapter VII, respondents' attitudes toward control of activities on the beach and on the sand dunes of the littoral are investigated. Finally, in Chapter VIII, all of the results of analysis are synthesized, conclusions are drawn, and recommendations to minimize conflicts and incompatibilities are presented.

CHAPTER II

THE RESOURCE BASE, POPULATION, FACILITIES
AND OUTDOOR RECREATION OPPORTUNITIES
IN THE STUDY AREA

The study area, incorporating the Florence-Coos Bay littoral, is one of the world's high dune areas said to be equalled only by those of central Australia. The estuaries are some of the biologically richest on the Pacific Coast, and the beaches are vast and wild. Thus, the zone is unusual in terms of its natural qualities, and most of it is publicly owned. Other than in areas immediately around Florence, Reedsport, and Lakeside, the area is undeveloped.

Recreation Resource Quality

"Recreational use capability" or "capability," as it is also called, is defined as "the natural capability of land for use for any one or more of the types of recreational activities" (Canada Land Inventory, A. R. D. A., 1967, p. 7). Thus, knowing what is meant by "recreational capability," we can look at the study area specifically to determine why it has been described as having superb recreational resource qualities and capabilities. It should be noted that "given today's recreational tastes, accessible areas that have water resources offer the highest potential for outdoor recreation activities" (Canada Land Inventory, A. R. D. A., 1967, p. 8; see also Appendix I).

As has already been pointed out, the Oregon Coast is afforded excellent accessibility via U. S. Highway #101 and numerous other highways that run inland. The sand dunes coastal environment, extending from the Florence vicinity to the Coos Bay is well-served by good highways. Moreover, this littoral has numerous lakes, ponds, rivers, creeks and broad estuaries distributed throughout its rugged, forest-covered extent, and thus, has a great potential for water-based recreational activity. A continuous 52-mile long ocean beach, broken only by the estuaries of the Coos, Umpqua and Siuslaw rivers, fronts this entire coastal zone. That the presence of the Pacific Ocean with its spectacular beaches, fishing, boating, surfing, and shell-fishing activities is such an added bonus to the area is no wonder. In addition, the inland areas of this coastal zone offer much recreational diversity (see Figure 2. 1).

The Class 1 Resource

The sand dunes, an extensive ocean beach, the numerous lakes and three large estuaries are the features providing the greatest recreational capabilities within this coastal zone. A report submitted to Douglas County (Gudger et al., 1972) indicated the dunes area inland from the ocean beach to U.S. Highway #101 in the Woahink Lake and Tahkenitch Lake areas rated very highly. Indeed, based on the Canada Land Inventory Recreational Capability 1 to 7 rating system,

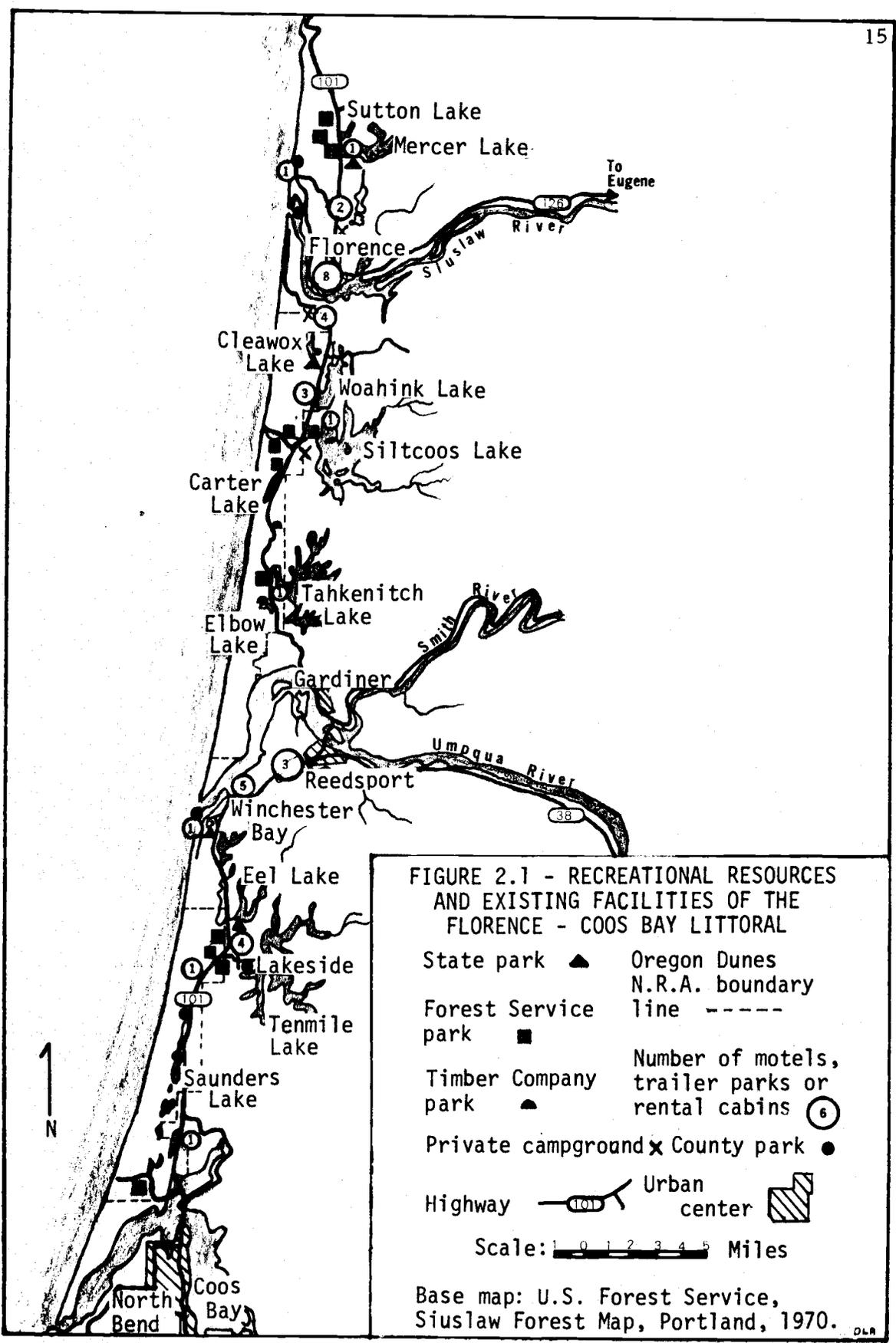


FIGURE 2.1 - RECREATIONAL RESOURCES AND EXISTING FACILITIES OF THE FLORENCE - COOS BAY LITTORAL

- State park ▲ Oregon Dunes N.R.A. boundary line - - - -
- Forest Service park ■
- Timber Company park ▲
- Private campground x
- County park ●
- Number of motels, trailer parks or rental cabins (6)
- Urban center [hatched box]
- Highway [road symbol]

Scale: 0 1 2 3 4 5 Miles

Base map: U.S. Forest Service, Siuslaw Forest Map, Portland, 1970.

this sand dune belt was classified as "Class 1 Upland with a high capability for viewing and interpretation, a very high capability for camping -picnicking and patterns of topography and landform or land and water exhibiting diversity of natural landscape" (Gudger et al. , 1972, p. 113). Similar dunes areas exist west of Eel Lake and in the Saunders Lake to Horsfall Lake region. In general then, that upland zone between U. S. Highway #101 and the ocean beach would be a very high capability Class 1 Upland.

Within the dunes, three water bodies--Cleawox Lake, Woahink Lake, and small parts of Siltcoos Lake--fall into a Class 1 Shoreland category. These lakes have areas with "a very high capability for bathing, camping-picnicking and a highly unique landform (the dunes) with a high capability for viewing and interpretation" (Gudger et al. , 1972, p. 114). No other Class 1 Shoreland or Upland areas exist within this study zone, since, as the Canada Land Inventory classification infers, Class 1 areas are most unique. Certainly this coastal zone is especially well-endowed in having several extensive areas rated Class 1.

The Class 2 Resource

Due to cold ocean waters, the vast ocean beaches of this littoral are down-rated to Class 2. Swimming is inhibited, although surfing, hiking and shell or driftwood gathering are encouraged. The foredune

is high and provides excellent sites for viewing and interpretation of the vast dunes area. Estuaries such as the Siuslaw, Umpqua and Coos also receive a Class 2 rating. They offer high quality angling, deep-water boat tripping, and, to a lesser extent, cottaging or lodging.

Local areas such as Winchester Bay-Salmon Harbor and the Umpqua Lighthouse area also warrant a Class 2 rating. Umpqua Lighthouse and the associated State Park occupy Class 2 shorelands with a high capability historic site, and high capability for camping-picnicking and viewing (Gudger et al., 1972, p. 114). Salmon Harbor and the nearby Windy Cove wharf are rated as Class 2 Shoreland with man-made structures of high recreational interest, and a high capability for angling and cottage or lodging use. The town of Florence's waterfront also falls into a category similar to that of Salmon Harbor. The Coos Estuary with its spectacular bridge, channel for ocean-going ships, deep-water boat tripping and fishing would be similarly rated Class 2 Shoreland. Other Class 2 regions of this coastal zone include lake areas such as Carter Lake, Dune Lake, Sutton Lake, Mercer Lake, Tenmile Lake and Saunders Lake. These Class 2 Shorelands have a high capability for bathing, camping-picnicking and, to a lesser extent, canoeing or boating. There is also potential for cottaging and lodging, for example at Saunders and Mercer lakes. Most of these small lakes, however, are within the Oregon Dunes National Recreation Area and thus, such private developments are restricted.

Other Important Recreational Resources

The last important areas of this coastal study zone are rated as Class 3. Tahkenitch Lake, Mussel Lake, Horsfall Lake and parts of Siltcoos, Woahink, Eel, Mercer and Saunders lakes fall into this category. They are described as Class 3 Shorelands with moderately high cottage or lodging capability. A strip of land along the lower part of Eel Creek from U. S. Highway #101 to the ocean should be rated as Class 3 Shoreland with a moderate capability for viewing and hunting wetland and upland wildlife. Fishing is also very good along this stream; although as fish and wildlife do not tolerate human disturbance, this zone is only of limited recreational potential. Its importance probably stems from its quality as a breeding area for a good deal of the region's fish, birds and upland game.

One final Class 3 resource of this littoral is the corridor along U.S. Highway #101 from near Gardiner to Tahkenitch Lake. This Class 3 Upland provides a moderately high capability for viewing the ocean and lakes; while its tree cover, and land and water patterns exhibit a diversity of natural landscape.

The other upland areas of this coastal zone only merit a Class 5 rating. This class indicates an upland with a diversity of landscape, tree cover and a capability for upland wildlife hunting and viewing.

Recreational Facilities of the Littoral

Existing recreational facilities within the Coos Bay to Florence coastal zone are varied. Public parks are numerous and generally of very good quality. Table 2.1 enumerates these camping, picnicking and roadside sites. As can be observed, the U.S. Forest Service parks are the most numerous--21 in total. Certainly this fact is no surprise since a major portion of the coastal strip is within either the Siuslaw National Forest or the newly-created Oregon Dunes National Recreation Area. County Parks account for the second largest number. There are seven such parks in this littoral that includes parts of Lane, Douglas and Coos counties. Three Oregon State Parks are also found in the study area. Besides the privately-owned resorts, cottages, cabins, trailer parks, marinas, campgrounds, and a good number of motels are distributed throughout the littoral. Most of the motels are within the urban centers, although, in several cases, they are in rural locations along U.S. Highway #101. Driftwood Shores Condominium Resort Inn is notable in that it is situated on Heceta Beach away from Florence and U.S. Highway #101. Several charter fishing boat companies also operate throughout the littoral. Winchester Bay (Salmon Harbor) is particularly well-endowed with such charter services and several similarly exist at Lakeside and Florence. Restaurants and other eating places specifically catering to the tourist are established in association with the lodging and resort facilities of the study zone.

Table 2.1. Parks, resorts and motels in the Florence-Coos Bay study area.

| Ownership and Nature of Park | Total Parks Without Camping | Total Parks With Camping |
|--|--------------------------------|-----------------------------|
| State park, wayside or recreation area | 1 | 3 |
| U. S. Forest Service area | 7 | 14 |
| County parks | 4 | 3 |
| Corps of Engineers parks | 4 | 0 |
| Power company or timber company parks | 0 | 2 |
| Privately owned campgrounds | 0 | 2 |
| Privately owned resorts (includes trailer, cabin and camp facilities) | 0 | 17 |
| Condominium campgrounds | 0 | 2 |
| Motels, motor hotels and inns | 0 | 28 |
| Total Privately Owned Facilities | 0 | 51 |
| Total Publicly Owned Facilities | 16 | 20 |
| Total Facilities | 16 | 71 |

Sources: Oregon State Highway Division, 1972 Oregon Parks, Salem, 1972.

U. S. D. A., Forest Service, Oregon Dunes National Recreation Area Map, Corvallis, Oregon, May 1971.

Population Patterns Vicinal to the Study Area

The sand dunes coastal environment is an important state and national tourist attraction. Visitors come by way of the extensive highway system from all parts of Oregon, many areas of California and Washington, Western Canada and distant areas of the United States, including Alaska and Hawaii (Figure 1.3). Visitor statistics for state parks in the study area show the high percentage of non-Oregon visitors (Table 2.2). The results of the questionnaire employed in this study similarly reveal a high out-of-state visitor percentage, as 41% of the respondents were from outside Oregon.

Oregon is the most important source of visitors to the sand dunes coastal environment, inasmuch as most of the population is concentrated in the western part of the state and particularly in the Willamette Valley that extends northward from Eugene (population 114, 150) to Salem (74, 600) and Portland (866, 200) (Oregon State Highway Division, 1972). The proximity of this valley to the study area is important since it means that Portland at the northern end is only 185 miles distant and Eugene in the south is 88 miles away. Other moderately large Oregon centers like Coos Bay (13, 300), Grants Pass (12, 900), Medford (31, 100), Roseburg (15, 100), Bend (14, 500) and Klamath Falls (15, 800) are within a one-day drive on good all-weather roads from the study zone (U.S. Department of Commerce, 1971, p. 10).

Table 2.2. Total in-state and out-of-state visitors to Oregon state parks of the study area, June - August 1972.

| Park | June | July | August |
|-------------------------------|------|--------|--------|
| Jessie M. Honeyman State Park | | | |
| Oregon | 571 | 1254 | 1056 |
| Out-of-state | 537 | 1908 | 2170 |
| Total | 1108 | 3162 | 3226 |
| Umpqua Lighthouse State Park | | | |
| Oregon | 464 | 660 | 555 |
| Out-of-state | 859 | 1301 | 1400 |
| Total | 1323 | 1961 | 1955 |
| William M. Tugman State Park | | | |
| Oregon | 2469 | 4428 | 4177 |
| Out-of-state | 3192 | 6959 | 6940 |
| Total | 5661 | 11,387 | 11,117 |

Source: Oregon State Parks, Daily Park Occupancy, unpublished data, Highways Building, Salem, 1972.

The population agglomerations in the San Francisco Bay area of California and the Puget Sound region of Washington are also important to the study littoral. San Francisco is only 525 miles from Reedsport via U.S. Highway #101 while Seattle is just 360 miles away using Interstate Highway #5 and any of the trans-Coast Range routes. Data on Oregon tourist visitations confirm the significance of California and Washington visitors to Oregon. In 1971, the majority of the tourists to Oregon were from Washington and California and they contributed most of the tourist dollars spent in Oregon as well (Oregon State Highway Division, 1971, p. 10). Thus, the sand dunes environment study zone, lying athwart U.S. Highway #101, a main route from these states, is conveniently accessible to a good share of visitors to Oregon.

Visitations to the Study Area

Reference to Oregon State Parks visitor data for Tugman, Honeyman and Umpqua Lighthouse State Parks, the three state parks in the study region, is most revealing (Table 2.2). In all instances except at Tugman Park in June 1972, out-of-state visitors greatly outnumbered the in-state park occupants. As mentioned earlier too, the State Parks statistics also show that Californians account for the largest number of out-of-state visitors to the three state parks within the research area. Washingtonians are a low second and Canadians follow as third. These same trends were discerned from

the questionnaire data but due to stratified sampling, they occurred less. There were 428 questionnaires completed and of those, 41 or approximately 10% were from residents of the study area. The other 90% of the questionnaires were randomly administered to sample the visitor groups. As previously mentioned, 182 or 41% of these were from out-of-state, and again, the largest number (104 or 24%) were from California. Washingtonians ranked second of the out-of-state visitors accounting for only 31 or 7% and Canadians were only 4 respondents or 1%.

The coastal zone from Coos Bay to the Florence vicinity has a very high recreational capability, and data indicate this littoral is heavily used. Such intensive use leads to conflicting activities and competition for use of resources. This problem of how to reconcile increasing competition and conflict is the point of the study. Conflicts were observed and a questionnaire was distributed to visitors, local residents and recreationists in order to assess their feelings toward the way the area is being used and toward various activities. The methodology employed and the results received are presented in subsequent chapters. An analysis is made of the data and recommendations for overcoming the conflicts and avoiding incompatibilities are presented.

CHAPTER III

RESEARCH DESIGN

In designing the research techniques for collecting data, methods had to be carefully considered. This chapter analyzes those considerations involved in formulating and using the gathering device. In beginning, it was necessary to decide on the information collecting technique to be used. After that decision, sampling methods had to be developed so as to insure representativeness, validity and reliability. Valid statistical sampling methods were utilized and the collected data analyzed using the computer for frequency counts, cross-tabulations and statistical testing.

Choosing the Questionnaire Method

In deciding upon the data collecting vehicle to be used in this research, various devices and techniques were examined. Questionnaires, interviews, direct observation, and all variations of these were considered.

The direct interview technique was initially thought to be the best. Interviews permit discussion and the follow-up of a question (Reed, 1972). The dialogue developed is also less rigid than in formal questioning so that respondents often volunteer more and provide greater detail on attitudes or opinions. Certainly, the interview

approach is excellent and the user's true attitudes and opinions can often be gleaned. Nevertheless, the interview technique has its problems. Biases on the part of the interviewer can develop and shyness or lack of eloquence can inhibit a respondent.

The partial questionnaire using an interview approach is another alternative to the pure interview or pure questionnaire techniques. J. A. Zinn (1972) in his unpublished doctoral dissertation Analysis of Resident Property Owner Perception of Resources and the Management System of Siletz Bay Estuary, employed the partial interview method. Such a method involved the reading of questions to respondents who had the written answers before them. They listened to the questions, discussed them with the researcher if necessary, and then marked the desired responses. Variations such as the use of photographs to gauge perception of various environments can be incorporated into the interview or questionnaire. D. J. Reed (1972) used photographs of the San Antonio River Walk to solicit responses to various recreational environments.

The questionnaire method was finally chosen for several reasons. Using the questionnaire approach, numerous respondents can be sampled at one time, thus providing more comparable responses and avoiding the problem of differing environmental conditions. A good example of this synoptic nature of the questionnaire method arose at Honeyman State Park on the Sunday morning of Labor Day weekend,

1972. Some 30 questionnaires were distributed, completed and picked up in a period of one hour and 35 minutes. Probably only four parties could have been visited in that same time if the interview technique had been employed.

Flexibility is another positive attribute of the questionnaire. It was possible to leave a questionnaire with a temporarily busy housewife while an interviewer might have had to miss the opportunity to talk with her. In cases where a questionnaire could not be picked up in person, the mail was convenient for both the respondent and researcher. The drawbacks associated with this mailing technique, however, are realized. Nevertheless, 55% of the 51 self-addressed envelopes and questionnaires to be mailed were actually returned, certainly an important reason for collecting the questionnaires in person.

The questionnaire technique was invaluable for sampling motel and other lodging type users since these visitors could not be directly contacted, as were the tourists in campgrounds, and those in cottages and private homes. Motel owners and operators distributed the questionnaires to their guests upon registering. In a few cases, they left the questionnaires in the rooms for interested visitors to complete.

Another important point that supported the use of the questionnaire related to uniformity and reliability. The questionnaire was

self-explanatory so that, no matter who distributed it, reliability was assured. In order to achieve reliability using the interview technique, the researcher would have had to do all the interviewing himself. The need for uniformity of interviewing discounted the possibility of using other assistants, even if such a method had been economically feasible.

Precise questions were easily presented using the questionnaire. In this way, 34 information gathering queries were accurately and uniformly asked. Indeed, this questionnaire was even more standardized than a point-sheet directed interview. The majority of the questions used were close-ended. This guaranteed that responses to each question were comparable among all of those completing the questionnaire. Because there was need for empiricism in questioning, the chances for success using an interview type methodology employing statements that were read aloud was also discounted.

For the reasons indicated, the questionnaire technique for data gathering was selected. The problem was to design such a device which permitted statistically valid population sampling, was reliable, achieved representativeness and validity and could be analyzed with the aid of the computer. Thus, with those criteria, a 34-topics questionnaire was developed for use in this study of perception of conflict. The questionnaire was the major data gathering device but the techniques of observation and interview proved to be valuable supplements.

The Questionnaire Design and Distribution

There were two prime objectives of the questionnaire utilized in researching this coastal study. These were:

- a. To provide an inventory of outdoor recreation activities in the study area, and
- b. To analyze users' and local occupants' perception of the compatibility or non-compatibility of activities and land use in the area, and their ideas of potential resolution.

Data were required on the outdoor recreation activities experienced by participants. Secondly, user and occupant perception of land use and recreational activity conflicts was also desired. Thus, the questionnaire had to be designed so that it would cover these subjects and so that the data gathered would be amenable to correlation with existing information such as State Highways and State Parks information and also be internally relateable. Information also was desired regarding personal characteristics of the individual answering the questions, and the other members of his group.

In addition, the questionnaire had to be analyzed. Oregon State University faculty members with expertise in the design of questionnaires were consulted. In particular, those members from the Department of Statistics aided in the formulation and specifically the computer analysis of the questionnaire data.

The other two major aims of the study involved this analysis of the data gathered by the questionnaire. These two were:

- c. To attempt to comprehend participants' perception of the degrees of compatibility of various recreational activities in the context of retaining quality in the littoral environment, and
- d. To propose methods for solution of the problems of conflicts, which might be usable by responsible environmental managers.

The Pilot Questionnaire

In order to test the data gathering device as well as various questionnaire distribution techniques, a pilot was used in a trial run prior to the distribution of the master questionnaire. The pilot questionnaire was distributed and tested in two ways. First, 40 questionnaires were distributed in the coastal zone study area using a stratified, random sampling method. Thirty-one of those questionnaires were completed by recreationists in the Florence to Coos Bay region. The second type of distribution was quite different. Twenty-five questionnaires were given to a Summer Session freshman level Geography class at Oregon State University. In that case, only those students who had been to some part of the Oregon Coast during the preceding few months were allowed to answer. Each respondent was asked to indicate the location on the coast visited, and to answer the questions as if he were at that site.

It was already noted that the reason for the pilot questionnaire was to find its problems and remove them so as to improve the interrogatory power of the master questionnaire. This was done and several minor, although important changes, were made. The most notable was the removal of the "just about right" possibility in Question #6. This was done because all those completing the pilot instrument checked that option and a true picture of attitude toward development or non-development apparently was not being realized. On the master questionnaire, however, many respondents (10%) wrote in a "just about right" reply. Due to these additions and because of the experience with the question in the pilot questionnaire, that variation finally was included in the statistical calculations.

Since the pilot and master questionnaires did vary slightly, it was not possible to mix their populations for analysis. For the purposes of this study, the pilot questionnaire populations (the coastal and the O. S. U. sub-populations--42 questionnaires in total) were omitted from the analysis.

Distribution of the Questionnaire

Random sampling is commonly used in sampling a population. Still, if the exact population size is different, if obvious subgroups exist, or, if time or area variations develop, additional controls must be employed to guarantee representativeness. These cases are

similar to the conditions which existed within the study area. The population size changed from day to day and different local sites had varying numbers of people present. The weather and time of the week affected the population. Finally too, the ratio of visitors to local inhabitants fluctuated constantly. In light of these conditions, simple random sampling would have been unrepresentative. Different random techniques were needed so that all variations in population would be represented.

Consultation with faculty members in the Oregon State University Department of Statistics resulted in the decision that representativeness would be insured if questionnaires were distributed within the study area. In fact, the statisticians were emphatic when they said that if one wants to sample recreationists, then one has to go to a recreation area.

Randomness was maintained by using random numbers to choose campground sections, cottages along a lake, trailers in a parking area, or motels in a town. A stratified random sample was developed by distributing questionnaires to campgrounds, trailer parks, or motels according to the size of the recreation facility relative to all the other facilities. In this way, a substantial cross-section of facilities was sampled by the master questionnaire and randomness was maintained. Almost all recreation areas and facilities were eventually sampled during the six-week field period from July 26 to

Labor Day (September 4), 1972. The timing of each sample was randomly chosen using the quota sampling technique. A certain number of weekends were chosen, every day of the week was covered at least once, and a major holiday--the Labor Day weekend--was sampled. All possible times of the week as well as most weather conditions were experienced. Therefore, as the Statistics Department consultants stated, when all days of the week are covered and all weather conditions during the course of the field work are experienced, then quota sampling and unbiasedness are achieved.

Questionnaire Analysis

The theory of measurement consists of a group of separate theories, each relating to a distinct level of measurement. Four scales exist for measuring--nominal, ordinal, interval and ratio; hence, each of the 34 questions in the questionnaire was categorized according to its measurement level. The admissible statistical procedures for each are a direct function of the level, and predicated upon it, the appropriate statistical analyses can be undertaken.

Table 3.1 indicates this categorization and the following discussion identifies the type of statistical analysis that was appropriate to each type of quantification.

Table 3.1. Four levels of measurement and the classification of each question in the questionnaire.

| Measurement level | Question number |
|-------------------|---|
| Nominal | 3, 5, 6, 7, 8, 9, 10, 11, 15, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29b, 30, 32, 34. Total = 24 |
| Ordinal | 12, 13, 14, 16, 18. Total = 5 |
| Interval | 31b, 32. Total = 2 |
| Ratio | 1, 2, 4, 29a, 31a, 33. Total = 6 |

Note: Question #29a is "ratio" when reported as miles traveled. When converted to regions (that is, Question #29b) then it is "nominal." Similarly, Question #32 can be either "interval" or "nominal."

Source: Questionnaire data and James A. Davis, Elementary Survey Analysis, Englewood Cliffs, N. J., pp. 10-11.

The Nominal Scale

Some 24 questions of the study questionnaire fall into the lowest measurement level--the nominal scale. Of these, two questions can also be classified in the interval category. Still, this means that more than half of the questions (22 of 34) are limited to the nominal level of measurement.

In general, statistical tests were done with the nominal question results by using the one-sample case approach. Here then, because the various groups on a nominal scale may be interchanged without

altering the basic information in the scale, only descriptive types of statistics were permissible. These included mode, frequency and contingency tables (cross-tabulation), since they would remain unchanged by such transformation. The χ^2 (Chi-square) one-sample test is the only statistical test that was used with the nominal data. It was usable in a question such as #7 where persons were categorized according to whether they were "in favor of development" in differing areas, "opposed to" it, or whether they reported "don't know." A null hypothesis based on such attitude responses was easily tested with the Chi-square (χ^2) test.

Even with the nominal data of the questionnaire, it was possible to use two-independent-sample procedures, as well as K-independent-sample procedures. These cases occurred when nominal data for two or more populations were compared: in-state and out-of-state data; cottage, camper, and trailer park results; occupational data; and information on home residence. In effect then, each one of these groups of recreationists would be handled as an independent or separate sub-population, thus permitting correlations using the χ^2 test for two independent samples, depending upon the case.

The Ordinal Scale

As Table 3.1 indicates, there are only five ordinal scale questions in the study questionnaire. In these cases, equivalence and rank

exists so that median percentile, and several types of rank correlation statistical techniques were possible. As in the nominal questions, the one-sample condition was used, as well as the two-independent-samples and K-independent-sample cases. Chi-square testing was the testing device for statistical significance. Again, as in the nominal situation, non-parametric statistical tests were all that could be employed.

The Interval Scale

The coastal study questionnaire has two interval scale questions (#31b and #32). As will be noted, the interval type is that having a known interval between numbers but the zero point and interval remain arbitrary. Thus, good measurement was achieved in these two instances and non-parametric and parametric statistical tests were possible. Interval scales have the defining relations of equivalence, ranking, and the known ratio between any two intervals. These relations permitted statistical maneuvers dealing with means, standard deviations, coefficient of variation and any of the procedures already mentioned for ordinal and nominal measurement scales. As in the non-parametric scales, the Chi-square (χ^2) test had to be used in the cross-tabulation between the two interval scale questions and nominal or ordinal data. Parametric statistical testing would have been possible only with completely parametrically scaled questions.

The Ratio Scale

The last measurement scale, the ratio scale, had six representative questions in the subject questionnaire. These questions regarding level of schooling, number in each tourist group, and length of stay were handled like any of the nominal, ordinal, or interval scales and, because they have a true zero point at their origin, several other operations are admissible beyond those of the interval scale. The ratio of any two scale values is known, so one may also use statistics such as the geometric mean and the coefficient of variation. These latter two statistics are unique to the ratio scale due to the fact that they require knowledge of the true zero point.

Contingency Tables

Cross-tabulation, or contingency tables as they are also called, were the major vehicle for associating the different variables presented in the 34 questions of the questionnaire (Appendix II). These tables permitted establishment of a correlation between two variables and Chi-square (χ^2) testing was again used to reject the null hypothesis and determine the significance of the observed associations. Non-significant relationships were also discerned using this test statistic. In this way, a sub-population of, for example, "anti-development respondents" was correlated with the variable of perception of present recreational development. The associating of kinds of accommodation

used by respondents with kinds of accommodation developments they prefer is another cross-tabulation that was made and tested with the simple Chi-square testing method.

In all but one of the cases of data handling, the Oregon State University CDC 3300 computer was used. Batch, CRT (cathode ray tube) and teletype methods were employed in running the computer analyses. The one analysis that did not use the computer involved simple punch card sorting on a mechanical sorter. Activities participated in by the respondents (Question #26) were distinguished and associated while frequencies were also calculated. The computer was used to do Chi-square (χ^2) testing for the significance levels of relationships.

The significance level of .05 was taken as the cut-off criterion. Significance levels lower than that brought a failure to reject the null hypothesis of independence between the two variables being related.

The Scope of the Questionnaire

The scope of the questionnaire was four-fold. Factors on recreational activities, degree of development, type of ownership and pollution were included so that perceived conflicts or the lack of them could be understood. Thus, if one looked at Table 3.2 these four aims of the questionnaire could be noted. Moreover, demographic questions, as well as those questions that pertained to the natural features of the study area, were indicated in that table.

Table 3.2. The classification of each question of the questionnaire according to its scope.

| Scope of the Question | Question Number |
|---------------------------|--|
| Recreational activities | 10, 11, 25, 26, 27, 28, 22, 23 ¹ , 23 ² , 24 ¹ , 24 ² . |
| Developed vs. undeveloped | 6, 7, 8, 9, 21, 23 ² , 23 ⁷ , 24 ⁶ , 24 ⁷ , 24 ² . |
| Public vs. private | 9, 10, 11, 22b. |
| Pollution | 12, 13, 14, 15, 16, 17, 18, 19, 20, 23 ⁸ , 24 ⁸ . |
| Demographic | 1, 2, 3, 4, 5, 29a, 29b, 30, 31a, 31b, 32, 33, 34. |
| Features of the area | 23 ³ , 23 ⁴ , 23 ⁵ , 23 ⁶ , 23 ⁹ , 24 ³ , 24 ⁴ , 24 ⁵ , 24 ⁹ . |

Note: The superscript above a question number, e. g., 23⁸ refers to answer possibility Code '8' in Question number '23'.

With the knowledge of the questionnaire's scope as was illustrated in Table 3.2, it was possible to look specifically at each question so as to note the cross-tabulations and tests that were done. Appendix III condensed these details into a succinct form. Furthermore, the intent or desire of each contingency table (cross-tabulation) is included so that the reason of each of these statistical relationships can be seen. Thus, if one looked at Table 3.1, Table 3.2 and Appendix III particular questions can be singled out, their scope noted, the type of analysis used, and the reason or justification for each realized. In that way, each analysis is thoroughly understood and appreciated.

In concluding this discussion on the various types of quantification implied by the questions of the questionnaire, the preponderance of nominal data must be emphasized. Twenty-four questions required nominal handling, a situation which was definitely a limiting factor in the analysis of the questionnaire. That meant that equivalence was the only relationship of the majority of the questions and, therefore, only cross-tabulation (contingency tables), and frequency statistics could be employed. Nevertheless, the empirical quality of most of the questions compensated a great deal. The statistical technique appropriate to the study questionnaire's findings was restrictive, but the specificity and empiricism of the collected data made direct conclusions and hypotheses nonetheless possible. The development, ownership, pollution and recreational activity orientations of this

stress-based questionnaire were studied, and statistical analysis was used to show recreationists', as well as local residents' perception of the conflicts and the compatibilities.

CHAPTER IV

ANALYSIS OF PARTICIPATION AND PERCEIVED
ACTIVITY CONFLICTS

As would be expected in a quality natural environment, a wide variety of recreational participation was reported. In this chapter, background information on the characteristics of respondents to the questionnaire is first presented. Their indications of preferred recreational activities are then examined and finally the respondents' indication of activities that they considered to be annoying are analyzed.

Characteristics of the Respondents

Eleven questions were designed to collect information about the respondent's background. The first five of these (Questions #1-#5) pertained to the respondent's life style during his stay in the coastal zone. These inquiries gathered data on length of stay, frequency of visits, type of accommodation used, and means of transport. The other six questions (Questions #29-#34) were primarily demographic in nature, providing data on the respondent's home residence, age and sex, the number and age of the accompanying group, education and occupation.

Length of Stay

Questions #1 and #2 concerned the length of stay of respondents

in the coastal zone and specifically at the questioning site. The findings were illuminating in revealing that two types of recreationists were studied. One group was short-term visitors who stayed less than one month and generally less than 10 days. The other group stayed much longer, varying from 40 to 365 days with the full-year group being permanent residents. Therefore, it was decided to analyze the responses in two groups. The data for these two lengths of stay questions were divided at the one month (30 days) point so that separate analyses could be conducted for both the long- and short-term respondents. In this way, much more meaningful results were secured. Question #1 asked how long the individuals stayed in the coastal zone. Information given by the 358 respondents staying less than one month showed that the average length of stay in this coastal zone was 4.6 days and the median 4.0 days. Question #2 asked how long the individuals stayed at the interview site. The responses revealed that the average length of stay at the interview site itself was 3.9 days, and the median was 3 days for short-term visitors. Long-term respondents, including permanent residents, averaged 154.8 days and had a median visitation period of 120 days at the particular recreation location where the questionnaire was administered. Moreover, both groups seem to have spent most of their time at the questionnaire site; indeed, reflecting the fact that the majority of respondents were polled at their accommodation location.

Number of Visits

In Question #4 visitors reported the number of visits made to the study area during the previous 12 months. The range of responses to this question varied from 1 time to 52 times. Due to the way the question was phrased, all those who were visiting for the first time marked one time, and all others recorded their reply to include the present visit. It is interesting that more than one-third (39%) of those completing the questionnaire did not answer this question. Probably this is indicative of a difficulty in recalling the number of past visits. Caution should also be used here with regard to the number of low-frequency visitations. It would have been much easier to remember 1, 2, or even 3 visits than to recall 11, 12, 13, or 14. Thus, probably a greater accuracy in remembering came from first, second, or third time visitors. The greater frequency of responses to the lower number of visitations reflects the out-of-state respondents and also the large number of Oregonians who only came to the area a few times during the year. Respondents who indicated that they frequently visited the littoral were unusual, even though for Willamette Valley residents, the study zone is only a short distance away.

Despite these questions about representativeness and accuracy in Question #4, an average number of visits was recorded as 3.4. This figure seems reasonable when one recalls the high frequency of 1 to 5 responses.

Means of Transport

Twelve transport possibilities were given for the respondent to choose from in Question #3. Auto, camper, or recreational vehicle were indicated as the means of transport by 88% of these individuals. Fourteen percent of all those recreationists completing a questionnaire used campers and 4% traveled in recreational vehicles. This combination totaled 18%; and, if one assumes that a high percentage of those marking "other" transport probably had a camper or recreational vehicle in conjunction with some other form of transport, the grand total increases greatly. In fact, if only one-half or 4.44% of all the "other" category had a camper or recreational vehicle, this would still have raised the grand total for these two transport forms to 22%. It is possible that this percentage might have been nearer to 25%. Indeed, it is noteworthy that approximately one-quarter of all those who completed a questionnaire were traveling in a camper or recreational vehicle which requires parking and camping space.

As can be noted from the frequencies (Appendix II), four categories--horse, taxi, busline and airplane--received no responses. Several times motorcycles and other vehicles were found in combination; therefore, these 8% have been classified as "other."

Accommodation

The responses to Question #5 about accommodation were varied

and tended to include all the possibilities offered in the question.

Data showed that the greatest percentage (24%) of those who completed the questionnaire used a trailer for their accommodation. Some of the other respondents had a trailer, but as they used it in combination with a tent or camper, it was classified in the tabulations as "other." In this regard then, it means that more than 25% of the recreationists were using a trailer. Moreover, parking space was required for these units whether it was by the night for vacation trailers, or by the month for long-term or permanent residents.

Tenters accounted for 18% of those questioned and this percentage was probably slightly higher as tents were often included in some of the combination units that received the "other" classification. Only the motor-hotel category was very low--1%, and it would probably have been more meaningful to have included it with the 20% who used motels, thus making a combined group of 21%. Recreational vehicles were reported only 10 times (2%), a drop of 2% from Question #3. Probably this discrepancy can be explained by the fact that some of the 28 in the "other" category from Question #5 were using a recreational vehicle (motor home) in combination with some other form of accommodation such as a tent, cottage or cabin, or trailer. Whatever the case, the recreational vehicle group probably should be clumped with the camper people to give a total of 14% in the camper-recreational vehicle category.

Cottages or cabins accommodated 5% of those recreationists questioned while a larger number (10%) resided permanently in the house accommodation they were using. Neither of these two sets of data were unusual but their relationships to lengths of stay and number of visits is noteworthy. Both of these categories of respondents skewed the length of stay data in Questions #1 and #2. In fact, the permanent residents made up the greatest part of the long-term segment that was mentioned earlier. One thing should be noted about the sub-population who used cottages or cabins. They might have visited up to 52 times per year (that is, weekly) as was seen in Question #4 data; however, when asked in Question #1 how long this particular visit would be, they gave a reply of only 2 or 3 days. Caution should be used here then, as these people were really long-term visitors who interrupted their visit every week. Only those cottagers who rented for short periods would not have been long-term and they were looked at in the context of short-term visitors. This way, the group fits very well into the 4.6 days and 3.7 days averages that were computed for Questions #1 and #2 respectively.

Regular cottage users who stayed only for short periods at a time responded almost as the permanent residents, probably because they, too, usually owned, or at least had a vested interest in, their cottage or cabin and its land. They were not transient like many of the motel, camper, recreational vehicle and tent groups, so they had to be regarded as long-term visitors.

Demographic Information on Respondents

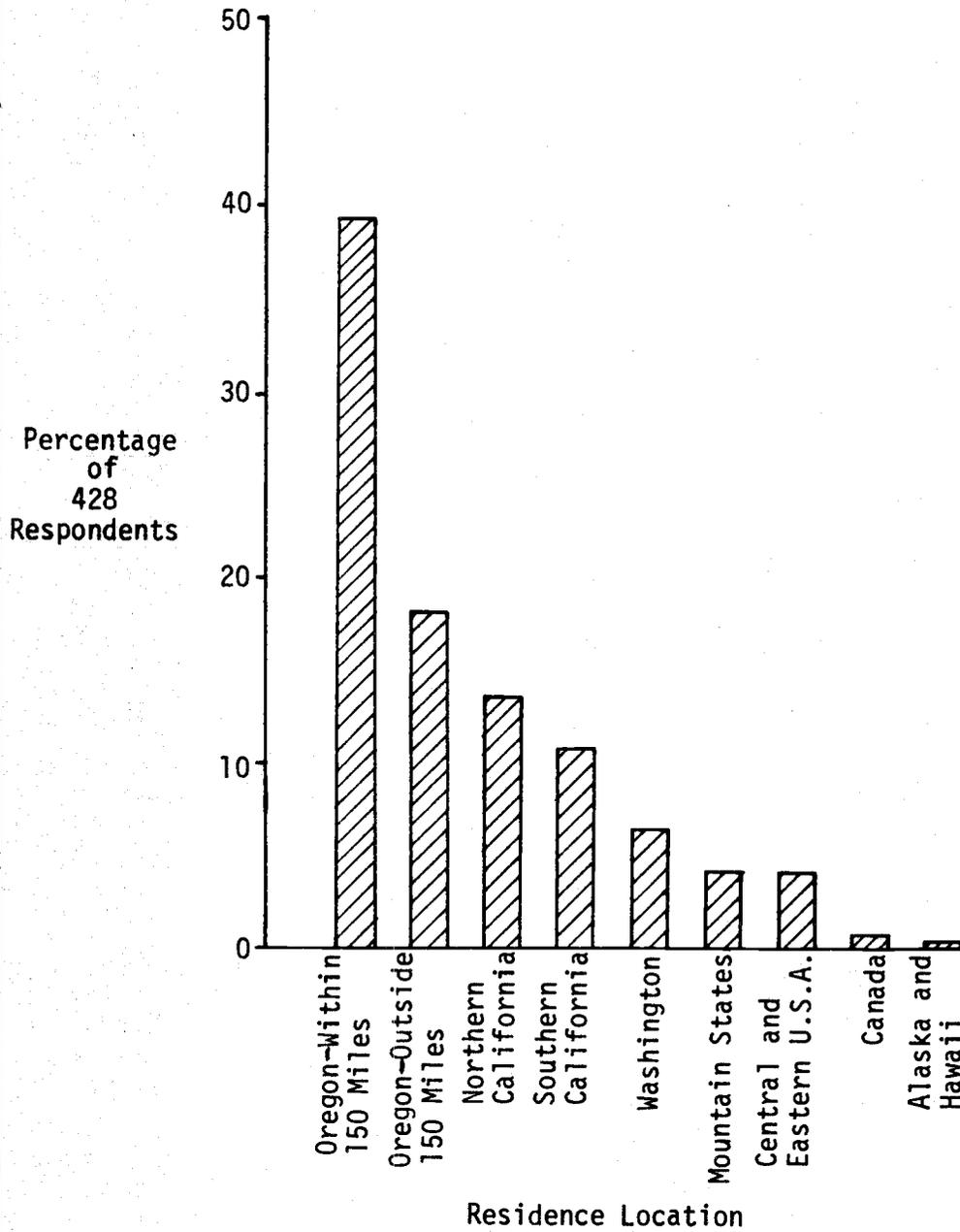
Six demographic questions (Questions #29-#34) collected information about the respondent's background and way of life at his home residence. The responses to these were analyzed and the findings were reported.

Home Residence Location

The 428 people who completed a questionnaire originated from 178 different home residence areas. Each one of these specific locations was noted and using a nine-fold system of categorization, they were grouped (Figure 4. 1). It was found that 57% of the respondents were from within Oregon and that 39% of the visiting Oregonians were from within 150 miles of Reedsport, the center of the study area. Another statistic that is not surprising is the fact that Californians comprised the second largest group (24%). The division of that state was at the 700-mile point from Reedsport, separating California into Northern and Southern categories. The two areas were almost equally represented although the Northern part (13%) contributed slightly more respondents than the South (11%). Washington with 7% was next surpassing the Mountain region (4%), the Central and Eastern U. S. A. (4%), Canada (1%), and Alaska and Hawaii (0.23%).

RESPONDENTS BY HOME RESIDENCE LOCATION

FIGURE 4.1



Explanation: See Appendix IV for explanation of location categories
Source: Questionnaire data, Question #29b.

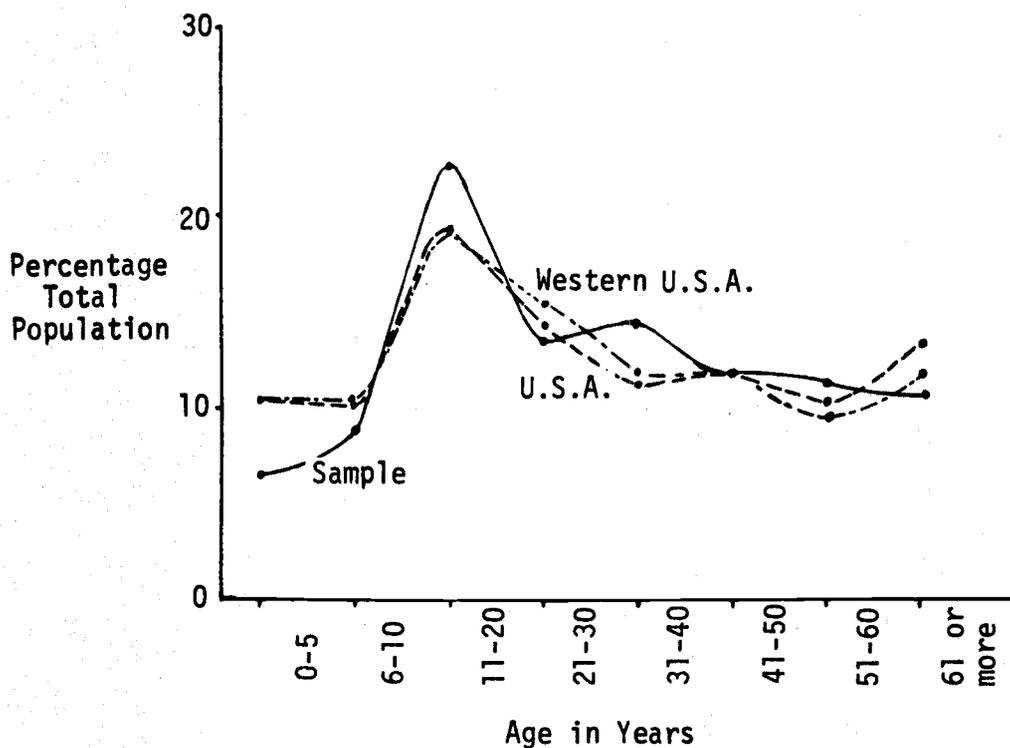
Sex and Age by Respondents and Groups

Of the 428 completing a questionnaire, 54% or 229 were male, while 45% or 193 were female (Question #30). Question #31 inquired about numbers of people in the respondent's group and their ages. Of the 1,664 people who were involved in the 428 groups contacted, only one person in each group completed the questionnaire. These statistics result in an average group size of 3.9, although the range was from 1 to 34 people. The frequencies shown in Figure 4.2 indicate that the 11 to 20 years age group accounted for the largest share (23%) of the population included in the recreating groups. The 31 to 40 years group was second largest with 14%, while 13% were in the third category of 21 to 30 years. An interesting discovery was the fact that the two categories of children combined--5 years or less and 6 to 10 years--only totaled 15%. It is also noteworthy and logical that the youth category of 11 to 20 years was high; however, it is somewhat surprising that the more affluent middle-aged groups (51 to 60 years and 41 to 50 years) were only moderately represented.

Question #32 asked for the age category of the individual completing the questionnaire. Four hundred and nine people answered this question and the modal age of these respondents was between 31 and 40 years. This mode does not coincide directly with the total visitor's age category having the greatest frequency (i. e., the 11 to

AGE DISTRIBUTION OF THE SAMPLE POPULATION
 COMPARED WITH U.S.A. AND
 WESTERN U.S.A. (1970) *

FIGURE 4.2



* Western U.S.A.: Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, California and Nevada.

Source: Questionnaire data and U.S. Census data (1970).

20 years category) but, that would be expected, since usually one of the elder members of a family, whether he was husband or wife, completed the questionnaire.

Education Levels

Responses to Question #33 on education levels show that out of the 409 individuals completing that question, the average years of formal education completed was 12.89 years with a median of 13 years. Frequency statistics shown in Table 4.1 are revealing. The largest group of respondents (32%) had 12 years of schooling while the second highest group (17% of the population) had 17 years or more. It is most interesting that only 11% of those queried had 11 years or less education. Certainly the questionnaire population was above average in education, as was noted through comparison with the U. S. A. population figures.

Occupations

The last demographic question--Question #34--queried the respondent on his or her occupation. For analysis purposes all the replies were categorized using 11 census categories plus three extra listings (Table 4.2). In agreement with the education data previously discussed, the occupational responses suggest a well-educated population. "Professional, technical and kindred workers" accounted

Table 4.1. Questionnaire respondents' education as compared to the U.S.A. 1970 education achievement.

| Respondents | Percentage | | U. S. Percentage | School Years Completed |
|-------------|------------|-----|---------------------|------------------------|
| 11 | 3 | | 21 | 0 - 8 |
| 17 | 4 | | | 9 |
| 6 | 1 | 8% | 20 | 10 |
| 11 | 3 | | | 11 |
| 137 | 33 | | 32 | 12 |
| 47 | 11 | | | 13 |
| 45 | 11 | 27% | 12 | 14 |
| 20 | 5 | | | 15 |
| 45 | 11 | | 8 | 16 |
| 70 | 17 | | 8 | 17 or more |
| 409 | 100 | | 100 | Totals |

Sources: Questionnaire data and U.S. data are based on Earnings by Occupation and Education, 1970 Census of Population, Subject Report P. C. (2) - 8B, Jan. 1973, 428 pp.

Note: U.S. data is based on experienced civilian labor force, ages 25 to 64 years.

Table 4.2. Respondents' occupations as compiled from questionnaires.

| Occupation | Respondents | |
|---|-------------|------------|
| | Number | Percentage |
| Professional, technical and kindred workers | 76 | 18 |
| Managers, administrators (except farm) | 40 | 10 |
| Sales workers | 22 | 5 |
| Clerical and kindred | 33 | 8 |
| Craftsmen and kindred | 40 | 10 |
| Operatives except transport | 16 | 4 |
| Transport equipment operatives | 6 | 1 |
| Laborers (except farm) | 10 | 2 |
| Farm workers | 1 | 0.2 |
| Service workers | 15 | 4 |
| Private household workers | 1 | 0.2 |
| Students | 27 | 6 |
| Unemployed and retired | 68 | 16 |
| Homemaker | 61 | 15 |
| Total | 416 | 100 |

for by far the largest working group (18%). This percentage was approximately 3-1/2% above that of the national level. The next largest group was the "unemployed and retired" group with 16% of the respondents of which all but one was retired. This fact coincides well with the 65 respondents in the "over 60 years" category of Question #32.

The "homemaker" (also referred to in many of the questionnaires as "housewives") numbers were high (15%), since husbands were often away at work or out recreating. Unfortunately, because of the need for mutual exclusiveness, homemakers otherwise employed have that classification. All those who were part-time were classified according to their other occupational position. A noteworthy point is that 61 homemakers accounted for almost one-third (32%) of the questionnaire's female population. The other two-thirds were students, retired, sales workers, or clerical and kindred workers.

Participation in Activities by Respondents

Four questions queried respondents on the activities in which they participated. Question #25 asked where respondents eat. Questions #26 and #27 specifically asked respondents what recreational activities they participated in and which three they most preferred to engage in while in the sand dunes coastal area. Besides these specific questions, one other activity-oriented question, open-ended Question #23, asked respondents to identify features of the coast

appealing to them. All the responses that were directed to activities were classified and coded as Code 1.

Question #26 had 28 possible activities listed plus one general category of "others" that permitted the recording of unusual endeavors. It should be noted too, that, for this question, all activities that the respondent will do or did do in this specific coastal zone were to be checked. Therefore, as many as 29 possibilities could have been noted, although the average recreationist indicated only five to eight various activities.

In Question #27 the respondent chose three of any of the 29 possibilities shown in Question #26 in order to demonstrate his recreational preferences. Most respondents filled in all three possibilities, although some completed only two. Of the 428 questionnaires, 86% indicated three preferences, 8 more or 2% had only the first two preferences indicated and 17 more (4%) marked just one preference. Some 35 (8%) respondents did not mark the recreational activities that they preferred. Probably most of these were local residents (44 permanent residents completed questionnaires); although some apathetic or inactive visiting respondents might also have accounted for some of them. Generally though, it was reported in discussions that local residents felt that these recreational activities pertained only to visitors so they did not complete the lists. Perhaps too, this situation could be interpreted in another way. Locals

usually did not participate in many of the area's recreational activities, so, for that reason, they would not have been able to answer the questions pertaining to recreational activities. Either way, a high percentage of permanent residents did not answer Questions #26 and #27, although Questions #23 and #25 were adequately completed by visitors and local residents. Therefore, most of the discussion on recreational activities is based on responses by visitors to the study area.

Activities Experienced

Question #26 asked the respondents to check all the recreational activities that they "will or did do in this specific coastal zone" (see Table 4.3). Based on the frequencies that were calculated, it was immediately evident that of the very general recreational activities, the following were the most popular: sightseeing (73% of the respondents), relaxing (72%), hiking and walking (65%), and picture taking (54%). Of the specific questions, fishing was chosen by 57% of those questioned and, of the 29 recreational activities, it currently appears to be the most important. The four general categories listed earlier are less specific and therefore, one would expect them to be ubiquitous in appeal. Camping, with a 54% response, followed closely behind fishing while the more general "meeting and talking with other visitors" category was mentioned by 53% of the respondents. Swimming was an activity of

Table 4.3. Participation in activities indicated by respondents.

| Activity | Percentage of 428 respondents indicating | Activity | Percentage of 428 respondents indicating |
|------------------------|--|----------------------------|--|
| Sightseeing | 73 | Bicycling | 13 |
| Relaxing | 72 | Tavern and lounge visiting | 10 |
| Hiking/walking | 65 | Others ^{b/} | 10 |
| Fishing | 57 | Waterskiing | 6 |
| Picture taking | 54 | Nightclubbing | 6 |
| Camping | 54 | Motorbiking | 5 |
| Meeting and visiting | 53 | Hunting | 5 |
| Swimming ^{a/} | 40 | Horseshoes | 5 |
| Picnicking | 40 | Horseback riding | 4 |
| Dining out | 29 | Surfing | 4 |
| Boating and canoeing | 26 | Painting | 3 |
| Nature study | 22 | Baseball | 2 |
| Dune bugging | 18 | Flying | 2 |
| Shellfishing | 16 | Tennis | 1 |

^{a/} mostly in littoral lakes and swimming pools.

^{b/} includes beachcombing, berry picking, etc.

Source: Questionnaire data, Question #26.

40% of those sampled, picnicking was checked by 40% also, and dining out was enjoyed by 29% of the questionnaire respondents. The high response to swimming was notable since ocean waters of this littoral are so cold as to inhibit such activities. Lakes and swimming pools must have accommodated this high number of swimmers. Surfing, a water-oriented activity, was indicated by only 16 respondents (4%). The remaining recreational activities seemed to be less popular, although 26% participated in boating or canoeing and 22% experienced nature study. Three interesting, although less prevalent, recreational activities included in the activity list of Question #26 were motorbiking and dune bugging, as well as the more recently popular bicycling. The results noted in these frequency counts are most interesting. Eighteen percent of all those sampled checked dune bugging while only 5% marked motorbiking. Bicycling appeared to be of moderate appeal with only 13% indicating it as one of their activities.

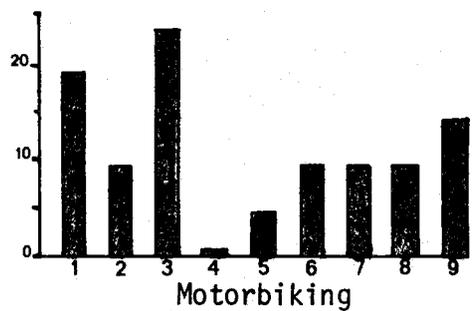
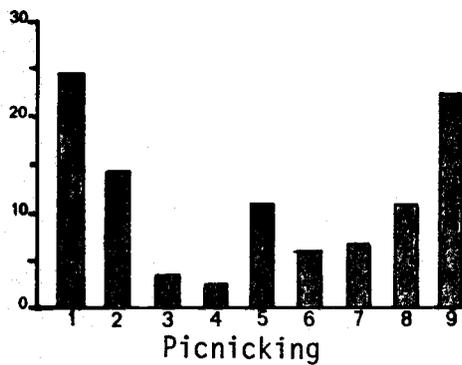
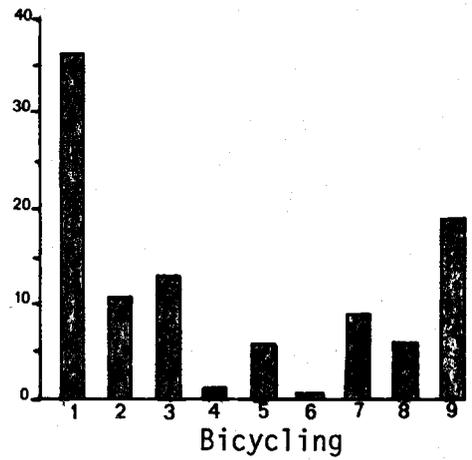
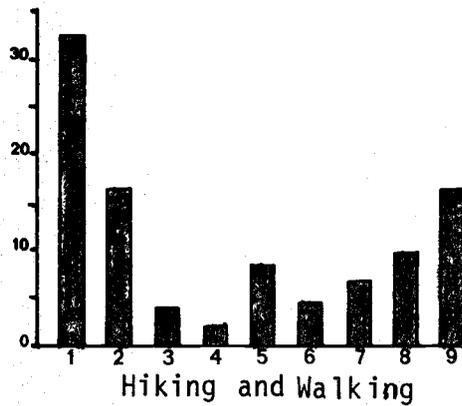
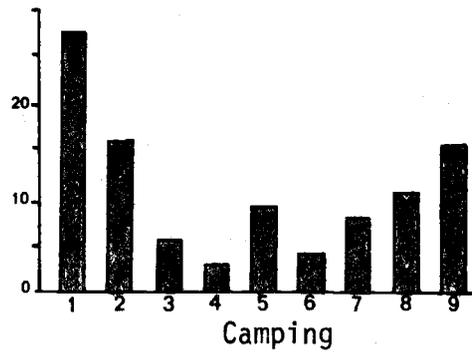
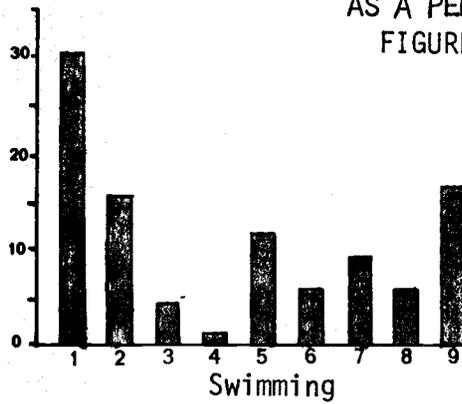
Interaction of Occupational Types and Activity Preferences

Data analyzed by the computer revealed very little association between occupation and recreational activities. Nevertheless, six relationships had high Chi-square values (Figure 4.3) when the 19 high frequency activities chosen from Question #26 were cross-tabulated with the nine occupational categories (the initial 15 were grouped) of

ACTIVITY TYPES BY OCCUPATIONAL GROUPS

AS A PERCENTAGE

FIGURE 4.3



Explanation: See Appendix IV for explanation of occupation numbers
 Source: Questionnaire data, Question #32.

Question #34. Therefore, it is possible to state that participation in swimming, hiking and walking, camping, picnicking, bicycling and motorbiking is not independent of the respondent's occupation. Specific occupations are associated with each activity.

The retired and unemployed (more than 90% are retired) group showed a strong negative relationship with five of the six significant activities. Fewer than expected in this category participated in swimming, hiking and walking, camping, picnicking, or bicycling. The motorbiking sub-population of retired and unemployed was so small (2) that it was not even significant. In retrospect, these associations are logical since more than 90% of this occupational group are aged. Old people are less apt to participate in active recreational pastimes so in particular, activities such as swimming and hiking are enjoyed by fewer of these respondents. Even the more passive camping and picnicking were not overly partaken of, although retired and unemployed respondents chose these activities more often than active pastimes.

The employment group "professional, technical and kindred workers, and managers and administrators except farm" deviated from what was statistically expected. More of these respondents than expected participated in swimming, hiking, picnicking, bicycling and motorbiking. This situation coincided with the fact that these workers were generally more highly educated and better paid so that

they had the desire, as well as the means, to participate in activities that often were environment-oriented or required large capital outputs for equipment. Most of this group were young, increasing their propensity to pursue active recreational experiences.

A very large number of homemakers, relative to what was expected, indicated that picnicking was one of their recreational pastimes. Certainly this fact relates to the reality that all of these respondents were women. "Sales workers, clerical and kindred occupations" seemed to participate in hiking and camping. Perhaps this condition reflects their lower wages and thus an orientation away from activities such as motorbiking, which requires a large capital outlay.

As a final note, it should be mentioned that a significantly larger number than expected of craftsmen and kindred workers mentioned motorbiking as an activity they enjoyed. This might be associated with their mechanical ability or probably, it is better explained by the fact that "blue collar workers" generally relate more to motorized vehicle-associated outdoor recreation (see Lycan and Michelson, 1973).

Activity Packages

In order to determine related occurrences of the 29 recreational activities given in Question #26, activities were grouped using a simple

sorting method. Sub-populations based on one activity were separated from the complete population and using these sub-groups, other recreational activities were related. Thus, as an example, a sub-population of fishermen (all those who checked fishing) was sorted out. From this group, all of the other 28 activity frequencies were then noted so that one could make a statement such as: 45 of the 242 fishermen also checked nature study. Moreover, using the χ^2 (Chi-square) test, this relationship was tested for its significance in order to see if the two activities were independent or dependent.

Using the sub-population method of relating activities, it was possible after numerous frequency counts, to develop a series of activity packages. Table 4.4 gives six of the more important positive relationships that were developed. Many of the activity patterns suggested by Hendee, Gale and Catton (1971) were visible from the study data. The combination of nature study, sightseeing, hiking and walking, and relaxing is a typical activity package. Thus, using this relationship one may state that of the 428 respondents to the questionnaire, 96 or 22% checked nature study as one of their recreational activities in this coastal zone. From this arises a statistically based hypothesis. It states that of these 96 individuals, more than 80% also engaged in the following activities: hiking and walking (88%), sightseeing (85%) and 80% in relaxing. Similarly, other hypotheses can be

Table 4.4. Respondents' recreational activity associations.

| Participants' Major Activity | Participants' Other Activities | Percentage Involvement in Other Activity |
|---------------------------------------|-----------------------------------|--|
| Nature study 96/428 = 22% | sightseeing | 85 |
| | hiking/walking | 88 |
| | relaxing | 80 |
| Dune bugging 76/428 = 18% | sightseeing | 84 |
| | hiking/walking | 78 |
| Motorbiking 22/428 = 5% | relaxing | 100 |
| | meeting and visiting | 78 |
| | boating and canoeing | 59 |
| Bicycling 55/428 = 13% | hiking/walking | 78 |
| | swimming | 75 |
| | camping | 73 |
| Fishing 242/428 = 57% | shellfishing | 90 |
| | hunting | 85 |
| | boating and canoeing | 92 |
| | waterskiing | 85 |
| | nightclubbing | 85 |
| Boating and canoeing 111/428 = 26% | waterskiing | 85 |
| | motorbiking | 59 |
| | fishing | 92 |
| | relaxing | 80 |
| | hiking/walking | 74 |

Note: Activities were discovered by sorting out a sub-population of those who participated in the major activity. As an example 96 of 428 respondents checked "nature study" as the major activity, and of this "nature study" sub-population, 85% also checked "sightseeing."

Source: Questionnaire data, Question #26.

made about activity relationships such as those shown in Table 4.4. Another such sub-population enjoyed bicycling, hiking and walking, swimming, and camping.

Recreational Activity Preferences

In Question #27 respondents were specifically asked to pick their three favorite activities from those listed in Question #26. They were subsequently asked to order them in a first, second, and third preference rating. Again frequency counts were made of the data from the 428 questionnaires so that the most important recreational activity preferences could be noted. Table 4.5 shows five "first preferences" which accounted for 5% or more of the total preference activities. The top five preferred activities accounted for 74% of all the activities checked. Moreover, 30% of those recreationists who responded chose fishing as their most preferred activity. Camping, with an 18% response, was also a very popular activity. Indeed, these two activities alone accounted for nearly 50% of the "first preference" activities stated. Certainly a correlation could be assumed between these two recreational activities and the superb natural recreational capabilities of the marine environment. Fishing and camping were the most preferred activities, while complementarily, this environment's greatest recreational capability also seems to be oriented toward these two pursuits.

Table 4.5. Activities marked as preferences by respondents.

| First Preference | Total | Second Preference | Total | Third Preference | Total |
|------------------|-------|-------------------|-------|------------------|-------|
| Fishing | 30% | Camping | 13% | Sightseeing | 15% |
| Camping | 18% | Fishing | 13% | Relaxing | 14% |
| Relaxing | 10% | Hiking/walking | 12% | Hiking/walking | 11% |
| Sightseeing | 9% | Sightseeing | 11% | Camping | 9% |
| Hiking/walking | 7% | Swimming | 8% | Fishing | 7% |
| | | Relaxing | 7% | Swimming | 7% |
| | | | | Picture taking | 6% |
| Totals | 74% | | 64% | | 69% |

Note: Only those activities having a frequency of approximately 5% or more are listed. All 29 activities received at least one response in each of the three preference lists. The other activities are usually inconsequential as few respondents marked them. The total number of responses was 393.

Source: Questionnaire data, Question #27.

The high preference for relaxing, sightseeing, and hiking and walking was similarly not surprising. People recreating in an environmental zone such as the sand dunes littoral were very interested in viewing and looking; that is, sightseeing. Relaxing was an extremely common leisure pastime too, so it was also expected to rate highly; likewise, hiking and walking were anticipated to occur. Indeed, foot travel and sightseeing go "hand in hand" in a unique recreationally oriented environment such as this littoral.

The list of "second preference" activities is almost a repeat of the "first preference" list. Moreover, in this second enumeration, no high-frequency choice occurred. Camping and fishing were foremost with hiking and walking, and sightseeing rating next in line. Swimming with 8% of the preference was the only new addition, ranking just above relaxing. Thus, in retrospect, the "second preference" list seems to only reiterate the list of preferences given in the first list. The ordering is slightly different and one new activity--swimming--is notable, since ocean swimming is nearly ruled out by the cold water. Lake and pool swimming had to be the activity referred to, although some of the responses might have come from parties who had not tried the ocean prior to answering. If this were the case, they must have mistakenly thought of this Central Oregon Coast as a warm area. Whatever the thinking, this certainly suggests environment-oriented recreational activity, much like that already mentioned above.

The list of "third preference" recreational activities is a reordering of the two previous lists, plus the addition of one lowly-ranked activity--picture taking. This is not surprising since all of the preferences were very ubiquitous, widely enjoyed leisure pastimes. Picture taking was a natural addition to the list, particularly since it complemented sightseeing and is one of the first things thought of when traveling or visiting an aesthetically appealing zone such as this coastal environment.

Eating Within the Littoral

Responses to Question #25 showed that 97% of those who answered the first part of the question had eaten or would eat at least one meal within the littoral. In part 2 that referred to restaurant eating, 58% of those who responded had eaten or would eat at least one meal in such an establishment. Of the 371 who gave a reply to part 3, 64% said that they would be eating at least one meal other than in a restaurant. This response is significant in suggesting that most visitors to the area are not interested in restaurants. The last part of Question #25 took an open-ended approach to this "non-restaurant" eating question. Respondents could write in where they planned to eat and then for analysis purposes, these were clumped into seven categories. Table 4.6 shows these seven groups as well as the frequencies and associated percentages. Public camps or trailer parks were by far the most

Table 4.6. 'Non-restaurant' eating areas reported by respondents.

| Area | Frequency | Percentage of Total Responses |
|-----------------------------------|-----------|-------------------------------|
| Private camp or trailer park | 19 | 7 |
| Public camp or trailer park | 108 | 41 |
| Motel or rented cabin (public) | 17 | 4 |
| Private home or cabin | 30 | 7 |
| Picnic ground | 50 | 19 |
| Beach or roadside site | 5 | 2 |
| Motorhome, camper trailer or boat | 33 | 13 |
| Sub-total | 262 | 100 |
| No response | 166 | 0 |
| Total | 428 | 100 |

Note: One hundred fifty-three of the 166 "no response" group did not reply in part 3 as they indicated either "no," "don't know", or "no response" with regard to 'non-restaurant' eating. Coast Village Condominium Campground is privately-owned and even though it is for public use it was classified as a "private camp or trailer park". Many respondents stated that they ate in their recreation vehicle. For this reason some of the totals for areas may be low and conversely the "motorhome", "camper", "trailer" or "boat" category may be too high.

Source: Questionnaire data, Question #25.

frequently used "non-restaurant" eating spaces, a fact that was expected since approximately 45 to 50% of the respondents were accommodated in public camps and trailer parks. Picnic grounds rated a modest second with 19% while the specific recreation transport unit (whether it was a motor home, camper, trailer, or boat) was mentioned by 13%. Unfortunately, the reference to the transport unit was not too meaningful, because it was not known where the unit was parked. Private homes or cabins were the only other notable "non-restaurant" eating places and even that category was checked by only 11% of all those who completed the question. All other non-restaurant areas received only minor references by respondents and, for that reason, they did not merit attention. What is important, however, is the high percentage of use of public camps, trailer parks and picnic grounds. Sixty percent of all respondents to the questionnaire eat their meals in these publicly-owned facilities.

Appealing Recreational Activities

In Question #23, the appeal of recreational activities possible in the coastal zone (Code 1) was pointed out by 40 respondents (23%) of those who answered the question (Appendix IV). Since any one response to Question #23 was only recorded once, the answers were mutually exclusive. Moreover, as a respondent could have mentioned a particular appealing feature in either the first, second, or third

position, it was acceptable to total the frequencies determined for any one particular part of Question #23. Thus, all three frequencies shown for Code 1 were totaled; that is, $40 + 28 + 22 = 90$. The total or highest number of responses to Question #23 was 398 people (the number recording only one answer); therefore, one can figure the frequency percentage from that total. To these 398 people, recreational activities had many forms. Some referred to dune bugging or waterskiing while others enjoyed fishing, boating, camping, picnicking, hiking, horseback riding or even hunting. Berry picking, beachcombing, relaxing and meeting visitors were some other leisure pastimes that also warranted mention.

Summary of Participation

It was evident from responses to the activity-oriented Questions #26, #27, #23 Code 1, and #25 that respondents generally participated in passive or nature-oriented pastimes in the study zone. Activities such as sightseeing, hiking and walking, picture taking, fishing, camping, picnicking, swimming, meeting and visiting, and relaxing were the most frequently experienced. Moreover, these activities were also marked as the most preferred. It was notable too, that motor-driven machines and vehicle-oriented activities were much less preferred than those quiet and more nature-oriented activities. Even eating habits within the study zone mirrored this preference. Only about

one-half of those eating in the littoral used restaurants and the tendency was more toward campground and picnic ground dining. Respondents seemed to prefer a slower pace and more passive experiences in all of their littoral activities.

Annoyances

Two questions related to annoyances. In Question #28 respondents were specifically asked to indicate the two most annoying recreational activities of those listed in Question #26. Using these responses, frequency counts were made of the data from the 428 questionnaires so that the most annoying recreational activities could be noted. Open-ended Question #24 also inquired about annoying or unappealing features of the coastal zone. All those responses that related to unappealing activities for analysis purposes have been grouped and coded as "Code 1" in that question.

Annoying or Bothersome Activities

Table 4.7 shows the six most annoying activities that were reported first and the five most annoying activities that were placed second. It should be noted, though, that unlike Question #27, this annoyance question--Question #28--did not ask for ranking. Therefore, it could not be assumed that the first mentioned was the most bothersome and the second the next bothersome. Still, the responses

Table 4.7. Activities marked as being most annoying to respondents.

| First Annoyance | Total | Second Annoyance | Total |
|-------------------------------|-------|-------------------------------|-------|
| Motorbiking | 42% | Motorbiking | 43% |
| Dune buggying | 17% | Hunting | 10% |
| Tavern and lounge visiting | 9% | Tavern and lounge visiting | 18% |
| Nightclubbing | 7% | Dune Buggying | 10% |
| Hunting | 7% | Nightclubbing | 9% |
| Waterskiing | 5% | | |
| Total | 87% | | 90% |

Note: Only those activities having a frequency of approximately 5% or more are listed. The other activities are usually inconsequential as few respondents marked them. Annoyance list #1 had all 29 activities mentioned at least once but annoyance list #2 had only 13 activities indicated.

Source: Questionnaire data, Question #28.

were mutually exclusive since an activity was listed only once by a respondent. In actuality the two lists only tabulated the two recreational activities which the respondent considered most annoying. No ranking was asked for.

Despite the fact that ranking was not intended for Question #28, this discussion covers the lists of annoyances according to the order in which they were listed. Those mentioned first are referred to as "Annoyance #1" while the second group fall into the "Annoyance #2" category. As was mentioned earlier, six activities appeared in the first list accounting for a total of 87% of all the annoying activities. Motorbiking seemed the more universally bothersome as 42% of all those answering Question #28 marked it as a first annoyance. Dune bugging (16%) and the combination of tavern and lounge visiting plus nightclubbing (totaling 16%) were the next most significant annoyances. Hunting (7%) and waterskiing (5%) were the only other activities which were considered as annoyances by 5% or more of the responses. Based on the list of annoyances mentioned first, several conclusions seem possible. First, those activities utilizing motors--motorbikes, dune buggies, motorboats and waterskiing--were perceived as annoying. The unappeal of motorbikes, dune buggies and waterskiing is not surprising. Observations and interviews with recreationists throughout the numerous camps and beach areas of the littoral also revealed widespread disdain toward them. Officials of the Oregon Dunes

National Recreation Area are justified in considering dune bugging and motorbiking as less desirable activities and requiring restraint.¹

These government managers look upon dune buggies and motorbikes as a problem, regarding them to be noisy, dangerous, and, above all, destroyers of trails and natural vegetation.²

A second notable aspect of the annoyance list #1 was the presence of social -issue related recreational activities--tavern and lounge visiting and nightclubbing. A total of 16% marked these items as their first annoyance. It is an interesting response as these drink-related activities do not conflict directly with other activities except through drunkenness. Furthermore, these leisure pastimes do not depend upon the natural environment. Therefore, one might conclude that the reason for their identification as annoyances is socially rooted. Recreationists who enjoy the natural features of this coastal environment might have perceived tavern and lounge, or nightclub activities as annoyances because these pastimes are usually associated with urbanization. For whatever reasons, the facts were that drink-related recreational activities were perceived as being annoying or

¹Reported by R. R. Marlega and J. Czmerys in a slide-assisted presentation on the Oregon Dunes National Recreation Area for an Oregon State University Forest Recreation Class, Oct. 1972.

²Discussion with J. F. Ross, Exec. Dir., O. C. C. D. C. indicated that off-road vehicle legislation is needed and his office is working with the office of the Governor to initiate such control.

bothersome to a significant number of respondents.

Another activity commonly noted as annoying is hunting. Hunting was perceived as bothersome by 7% of the respondents to this question. To them, this activity probably conflicted with the natural environment and might have even been perceived as a threat to their own personal safety. Hunting was regarded as an annoyance even though throughout this coastal zone it was not widely practiced (only 5% of those answering Question #26 checked it as one of their coastal zone leisure pastimes).

The second list of annoyances presented in Table 4.7 is almost a repeat of those in list #1 except for the omission of waterskiing. It has the other five bothersome activities tabulated but this time they are ordered differently. Motorbiking is still first in the list, having 43% of the responses. Only 88 of the possible 428 respondents answered the second part, so the actual frequency of response for motorbiking was only 38 as compared to 99 in annoyance list #1. The combination of tavern and lounge visiting plus nightclubbing ranked second with 16 replies or 18% of the second annoyance list. Hunting (10%) completed this group.

Unappealing Activities

Question #24 asked respondents to identify the most unappealing features of the study area. Responses that were activity-oriented

have been grouped into Code 1 for computer analysis (Appendix IV). Motorbikes, large boats and motors, horses, campers and trailers, dune buggies, bikes and guns were commonly reported as unappealing. Poor fishing, dune buggy restrictions, motorbike regulation, rifle ranges and lack of riding stables were other complaints noted. Only 14 people accounting for 5% of the total of 292 respondents identified recreational activities as unappealing features of this coastal environment. Certainly the data definitely show the appeal of recreational activities rather than their unappeal, since 23% noted recreational activities as appealing, whereas only 5% referred to them as unappealing. Moreover, nearly all of the activities mentioned were environmentally-oriented, a fact which substantiates the findings of Questions #26 and #27. Thus the evidence points to the necessity of maintaining environmental harmony within the littoral. The majority of recreational activities and the associated area appeal are dependent upon concord.

Perceived Activity Conflicts

In Table 4.8 the five most bothersome recreational activities reported by respondents are correlated with the seven most preferred pastimes. Tavern and lounge visiting was grouped with nightclubbing. In that way, four sub-populations were developed based on the activities perceived as being annoying. The four annoyance categories

Table 4. 8. Most preferred activities by percentage of the respondents' most indicated annoying activities.

| Motorbiking ¹ n = 137 | | Tavern and lounge visiting and nightclubbing n = 56 | | Dune bugging n = 48 | | Waterskiing n = 13 | |
|-------------------------------------|----|--|----|------------------------|----|-----------------------|----|
| Hiking /walking | 25 | Hiking /walking | 33 | Fishing | 40 | Hiking /walking | 25 |
| Camping | 19 | Fishing | 27 | Camping | 20 | Camping | 21 |
| Fishing | 17 | Relaxing | 16 | Relaxing | 20 | Relaxing | 17 |
| Relaxing | 17 | Swimming | 14 | Hiking /walking | 20 | Sightseeing | 15 |
| Sightseeing | 15 | Camping | 10 | | | Fishing | 13 |
| Swimming | 5 | | | | | Swimming | 6 |
| Nature study | 3 | | | | | Nature study | 4 |

¹Note: Percentages were based on the total number of responses to the specific annoying activity. Thus, as an example, 25% of those who were annoyed by motorbiking were respondents who marked hiking and walking as first preference.

Only the four most annoying activities from Table 4. 3 were used. The five most preferred pastimes were also taken from that table and nature study was added since it seemed to typify a nature and quiet-dependent activity.

Source: Questionnaire data, Questions #27 and #28.

are: tavern-lounge-nightclubbing, waterskiing, motorbiking and dune bugging. In each category of complainants the analysis was designed to characterize the group in terms of their activity participation.

Motorbiking

It was shown earlier that motorbikes were perceived as the most bothersome activity. Those most annoyed within this sub-population were the hikers and walkers. One-quarter of all those indicating that the motorbike annoyed them preferred hiking and walking. Camping (19%), fishing (17%), relaxing (17%) and sightseeing (15%) were the other preferred pastimes of those bothered by motorbiking. Thus the data show that those who dislike motorbikes are persons who value the quiet and aesthetic quality of the out-of-doors and participate in passive non-vehicle oriented activities.

Dune Bugging

The second most bothersome activity in this sand dunes environment was dune bugging. Again, as with motorbiking, 25% of the bothered respondents reported that they preferred hiking and walking. Camping was a close second preference (21%) and relaxing (17%) and sightseeing (15%), as well as fishing (13%) were the other desirable activities.

Waterskiing

Waterskiing is another recreational activity that utilizes a motorized vehicle or boat. Forty percent of those bothered by waterskiing were fishermen, while 20% were hikers and walkers, campers and those who preferred relaxing. Here, as in the motorbiking and dune bugging cases, the motorized activities were perceived as conflicting with the nature-oriented more passive pastimes.

Tavern or Lounge Visiting and Nightclubbing

As was indicated in the general discussion on annoyances from Question #28, tavern or lounge visiting and nightclubbing were widely reported as bothersome activities. The largest percentage of those who were bothered by these beverage-related pastimes were respondents who preferred hiking and walking (33%) and fishing (27%). Relaxing (16%), swimming (14%) and camping (10%) were the three other preferences of those who indicated that tavern or lounge visiting and nightclubbing were annoying. Similar to the other sub-populations already mentioned, those preferring environmentally-oriented, generally passive type recreational activities were most bothered by tavern or lounge visiting and nightclubbing.

Conclusion

Recreationists within the study zone tended to participate in recreational activities that were environmentally-related and of a passive or non-motorized type. Certainly, motorbiking, dune bugging, waterskiing and other equipment and vehicle-dependent activities were enjoyed; however, the greater number of recreationists in the littoral preferred pastimes such as hiking and walking, fishing, sight-seeing, nature study, camping, picnicking, picture taking, and meeting and talking with other visitors. Bothersome activities were mainly the motor-vehicle associated types, motorbiking being the prime annoyance. Dune bugging, waterskiing, hunting, and tavern or lounge visiting and nightclubbing completed the list of bothersome activities. Thus, the data provided by the 428 respondents make clear that there are stresses and incompatibilities between the activities experienced in the study zone and that the major stress is between participants in motorized activities and those who more highly value the natural quality of the environment.

CHAPTER V

ATTITUDES AND PERCEPTIONS OF RESPONDENTS
TOWARD RECREATIONAL DEVELOPMENT

This chapter analyzes data on respondents' perception of degree of development for recreational use of the study area. In the procedure of analysis, respondents favoring development are separated from the anti-development respondents; then, their characteristics, and their attitudes toward environmental development, are analyzed separately.

Responses Concerning Recreational Development

One of the major aims of this research was to analyze recreationists' attitudes toward degree of recreational development in the sand dunes coastal environment of Oregon. Six specific questions in the questionnaire pertained to perception of recreational development. Question #6 asked how the respondent perceived the present degree of recreational development in this coastal zone. Leading from that question, their attitudes toward need or desirability of future development and its location was introduced by Question #7. Question #8 proceeded one step further by asking what kind of recreational development the respondent preferred. In both Questions #7 and #8, the person completing the questionnaire also had the option of showing his objection to further recreational development for the area.

Recreational development was approached in a much more specific way by Question #21. In it, three campground and trailer park improvements were given and the respondent was asked to mark which he favored for implementation. The last two development-oriented questions were actually open-ended queries which asked respondents to identify appealing (Question #23) and unappealing (Question #24) features of this coastal zone. Developmental responses were often given and those from Question #23 were categorized as "Code 7." Responses to Question #23 were divided into two groups, Code 6 (degree of development) and Code 7 (kinds of development).

Perception of Existing Recreational Development

Question #6 reported the respondent's perception of existing development. The majority (54%) of those answering indicated the existing condition as underdeveloped while 29% viewed it as overdeveloped. A number (10%) of those who completed the questionnaire wrote in "just about right" so this written-in category was included in the analysis. These three different responses are important since later in the analysis respondents who subscribed to each of these points of view are separated for analysis.

Attitudes Toward Future Development

Question #7 was directed toward a respondent's attitude toward locations of future development. If the respondent was pro-development three response possibilities about preferred locations for development were offered. "Anti-development" and "don't know" options were also provided so that the respondent was not forced to give an opinion on development in specific areas if he had no opinion or was opposed to it. Appendix II gives the frequency of responses to this question. Significantly 25% of the respondents marked "not in favor of further recreational developments." Thus the anti-development people almost equal those favoring "development in both built-up and underdeveloped areas" (26%). On the other hand, since respondents could only check one of five responses and the first three are pro-development options, the reality is that 57% of the respondents favored development. In summary, respondents to this question indicated a desire for more recreational development and that they would like it to be both in built-up and as yet undeveloped areas.

Attitudes Toward Types of Recreational Development

In Question #8, opinions about specific types of recreational development were asked. Here again, the respondent could have stated that he was not in favor of further recreational development.

Six of the responses implied pro-development and in this question as many responses as desired could have been checked. Reference to the response frequencies in Appendix II reveals that 52% of the respondents favored more tent and trailer parks. This is not too surprising since approximately 54% of those completing a questionnaire were using tents or other mobile accommodation (Question #5). One notable point is that even though more than half (58%) of the respondents in Question #25 reported patronizing restaurants, only a small number (15%) of them felt that more such facilities were needed. Most of the other response percentages calculated from Question #8 coincide with the frequencies derived from the corresponding question concerning use of that kind of facility (Question #5). An important conclusion comes from this association--people want more of the recreational facilities that they already enjoy, less of those with which they are not familiar.

Attitudes Toward Campground and Trailer Park Improvement

In order to investigate respondents' attitudes toward improving overnight camping and trailer accommodation, three queries were presented in Question #21. Only 34% of the possible 427 respondents favored the separation of tent areas from trailer and camper vehicle areas. A much larger number (62%) indicated that a vegetation buffer

should separate individual camping and trailer sites. The lowest response from those completing this question (31%) was received for the option "an organized nature program." The data indicate that visitors strongly desire sites that are clearly divided by a vegetation buffer, but are not emphatic in wanting separation of tenting and recreational vehicles. Surprisingly, the respondents reveal little interest in having organized nature programs.

Most Appealing Features

Question #23 asked respondents to identify features of the coastal zone that they considered to be most appealing. There was no limit to the number which could be given but only the first three were included in this analysis. Development-oriented responses were categorized as "Code 7." Indications of environmental appeal are considered later. Only 6% of the responses to Question #23 are Code 7 and Appendix IV tabulates most of the answers that were received in this open-ended question. Certainly, degree of development is shown to be less important for visitors than qualities of the natural environment of this coastal zone.

Most Unappealing Features

In Question #24, development-oriented responses were categorized in two ways. One group of unappealing features was called

"degree of development" (Code 6), whereas the other category referred to "kinds of developments" (Code 7). Of the respondents, 11% of the total of 411 indicated degree of development factors as unappealing. Indications relating to crowding or development or dislike of people were categorized as "Code 3" and received 20%. The list of answers to this question is also given in Appendix IV. In fact, the list of responses given in that appendix should be very useful in suggesting methodologies and solutions to problems.

Characteristics of Respondents who Perceived the Area as Underdeveloped

Based on responses to the questionnaire, those who indicated that they perceived the area as underdeveloped are here analyzed according to their characteristics implied from other responses. The grouping was derived from responses to Question #6 where respondents were asked to choose from "underdeveloped," "overdeveloped" or the write-in response of "just about right." The analysis of responses that follows indicates that this group of people who perceived the area as underdeveloped clearly desire development in greater intensities and variety.

Relationships with Attitudes Toward Development

The sub-population that perceived underdevelopment was

cross-tabulated with Question #7, "Within this coastal zone where would you like to see recreational development occur?" Table 5.1 summarizes the results of this cross-tabulation. From the table it is clear that this group is the most important. Of the sub-population perceiving the area as underdeveloped, 44% felt that future recreational development should occur in both built-up and undeveloped areas. With regard to Question #7 this sub-population of 85 respondents accounts for 80% of all those favoring this kind of areal development. It should be noted too, that this group of 85 is made up of most of the 33 who checked development "only within built-up communities" and the 53 who marked "only within the undeveloped areas." The indication that a larger percentage desired development in the undeveloped coastal areas (27%) rather than in built-up communities (17%) was the most important information arising from Table 5.1. This means that more than one-quarter of the sub-population perceiving underdevelopment was indifferent to preserving the yet undeveloped areas.

Relationship with Kinds of Recreational Development

Table 5.2 illustrates the results of another cross-tabulation. This time Question #6 on development perception is paired with Question #8 on kinds of recreational development. Analysis of the

Table 5.1. Perception of recreational development related to attitudes toward future development-- by percentage response.

| Development Preference | Perception of Recreational Development | | |
|--|--|--------------------------|----------------------------|
| | Underdeveloped n = 193 | Overdeveloped n = 107 | Just about Right n = 33 |
| Only within built-up communities | 17% | 22% | 12% |
| Only within undeveloped areas | 27% | 9% | 12% |
| In both built-up and undeveloped areas | 44% | 12% | 24% |
| Not in favor of further recreational development | 11% | 57% | 51% |

Note: The "don't know" response was not considered in the calculations.

Source: Questionnaire data, Questions #6 and #7.

Table 5. 2. Perception of recreational development related to kinds of recreational development favored -- by percentage.

| Development Preference | Perception of Recreational Development | | |
|--|--|--------------------------|----------------------------|
| | Underdeveloped n = 342 | Overdeveloped n = 157 | Just about Right n = 52 |
| More low-cost motels and hotels | 14% | 11% | 7% |
| More restaurants | 13% | 6% | 9% |
| More tent and trailer parks | 43% | 24% | 39% |
| Not in favor of further recreational development | 7% | 43% | 26% |
| More picnic grounds | 19% | 14% | 15% |

Source: Questionnaire data, -- Questions #6 and #8.

table reveals several important relationships. The sub-population that felt the study area was underdeveloped seemed to have the most consistent attitudes toward recreational growth. Only 7% were against recreational development, leaving 93% in favor of varying kinds of recreational facility additions. The largest number of the pro-development people indicated that they wanted more tent and trailer parks. This group accounted for 43% of the people perceiving underdevelopment. With regard to preference for more tent and trailer parks, the largest percentage (72%) also perceived the study region as presently underdeveloped.

The other cross-tabulation cells of importance also involve the sub-population that perceived underdevelopment. More restaurant development was favored by 13% of those who answered this question regarding restaurant development, 14% indicated that they would like more low-cost motels and hotels, and 19% answered this question in favor of more picnic grounds. The first of the three statements is not statistically significant; however, the second and third relationships are statistically significant. Indeed, these latter two relationships show high degrees of interdependence since their frequencies are quite different from the expected values.

Preferences for outdoor facilities such as picnic grounds and tent and trailer parks are noteworthy because they substantiate the statements made by recreationists and government agency officials

who were interviewed. Heavy summer usage of existing outdoor facilities also reinforced these opinions. It is mentionable, although not astonishing, that such strong preferences were expressed by those perceiving underdevelopment. The indicated desire for more low-cost motels and hotels was suggestive of respondents who disliked rising costs and congested facilities. It should also be remembered that these people wanting low-cost motels and hotels (14%), like the group desiring more restaurants (13%), were actually only a small percentage of the total questionnaire population.

Relationship with Location of Questioning

When the sub-population who perceived underdevelopment was related to the locations where questioning occurred, a lengthy cross-tabulation developed. The most notable point derived from this relationship is that very few strong perceptions of location of development relationships exist. In fact, the lack of associations in itself is quite remarkable. Nevertheless, several weak conclusions were made about these data. With regard to the sub-population at hand, one relationship was particularly observed: a tendency did exist for those perceiving underdevelopment to be users of motels, lodges or condominium-type accommodation. This would be expected since generally those who use facilities indicative of development are often the last to perceive that an area is well developed.

Relationship with Home
Residence Location

The results of cross-tabulating Question #6 on development perception (both over and underdevelopment) with Question #29 on home residence location proved not statistically significant. Thus, it was concluded that perception of underdeveloped or overdeveloped recreational conditions in this littoral is not associated with home residence location. The two are independent of each other.

Relationship with Perception
of Crowding

In Table 5.3 the results of a cross-tabulation between Question #6 on perception of development and Question #12 on population perception are presented. Statistically, the findings are strongly significant so it can be assumed that the variables of development perception and population perception are not independent.

Regarding the sub-population which perceived underdevelopment, the first group investigated included those who felt that this coastal zone "would be okay with more people." Only 22% were in this category; however, this was much higher than was statistically expected. A lower number of respondents (13%) perceived that there were "too many people" at the site of questioning. Thus, fewer than expected of those who viewed the area as being underdeveloped felt

Table 5.3. Perception of recreational development related to the perceived number of people at the recreation facility -- by percentage.

| Degree of Development | Numbers of People | | | Total |
|-----------------------|-----------------------------|---------------------------|---------------------------------|-------|
| | Just about Right n = 263 | Too Many People n = 67 | Okay with More People n = 57 | |
| Underdeveloped | 65% | 13% | 22% | 100% |
| | 55% | 45% | 84% | |
| Overdeveloped | 69% | 26% | 6% | 100% |
| | 32% | 48% | 12% | |
| Just about Right | 83% | 13% | 5% | 100% |
| | 13% | 7% | 4% | |
| Total | 100% | 100% | 100% | |

Note: As an example, 65% of the respondents perceived the degree of development as underdeveloped while 55% of those who perceived the area as underdeveloped reported that the numbers of people were just about right.

Source: Questionnaire data, Questions #6 and #12.

that the area had too many people and more than expected reported that it "would be okay with more people." The remainder felt that the population numbers were "just about right."

Relationships with Land Facility Ownership Attitudes

In Table 5.4 are the results of cross-tabulating Question #9 on land and facility ownership with Question #6 on recreational development perception. The first point to note is that three of five rows of the contingency table proved to be not statistically significant; and only the two significant rows are included in Table 5.4. Thus, one must conclude that attitudes toward development on private land, public agency provision of publicly-owned food and lodging facilities and public agency purchase of undeveloped private property are not related to perception of degree of development for recreation. Attitudes toward the granting of franchises by public agencies for the provision of privately-owned food and lodging facilities on public land were statistically shown to be positively associated with the perception of an underdeveloped recreational condition. Moreover, it is shown that the response indicating desire for "no further recreational development" is also not independent of the perception of underdevelopment. A statistically significant low percentage (11%) of those who perceived underdevelopment were against further recreational development.

Table 5.4. Perception of recreational development related to attitudes toward land and facility ownership-by percentage.

| Ownership attitude | Perception (%) | | |
|--|-----------------|----------------|------------------|
| | Under-developed | Over-developed | Just about right |
| No further recreational development should occur. | 11 | 41 | 22 |
| Public agencies should grant franchises for the provision of privately-owned food and lodging facilities on public land. | 27 | 9 | 16 |
| N = | 281 | 153 | 49 |

Source: Questionnaire Data--Questions #6 and #9.

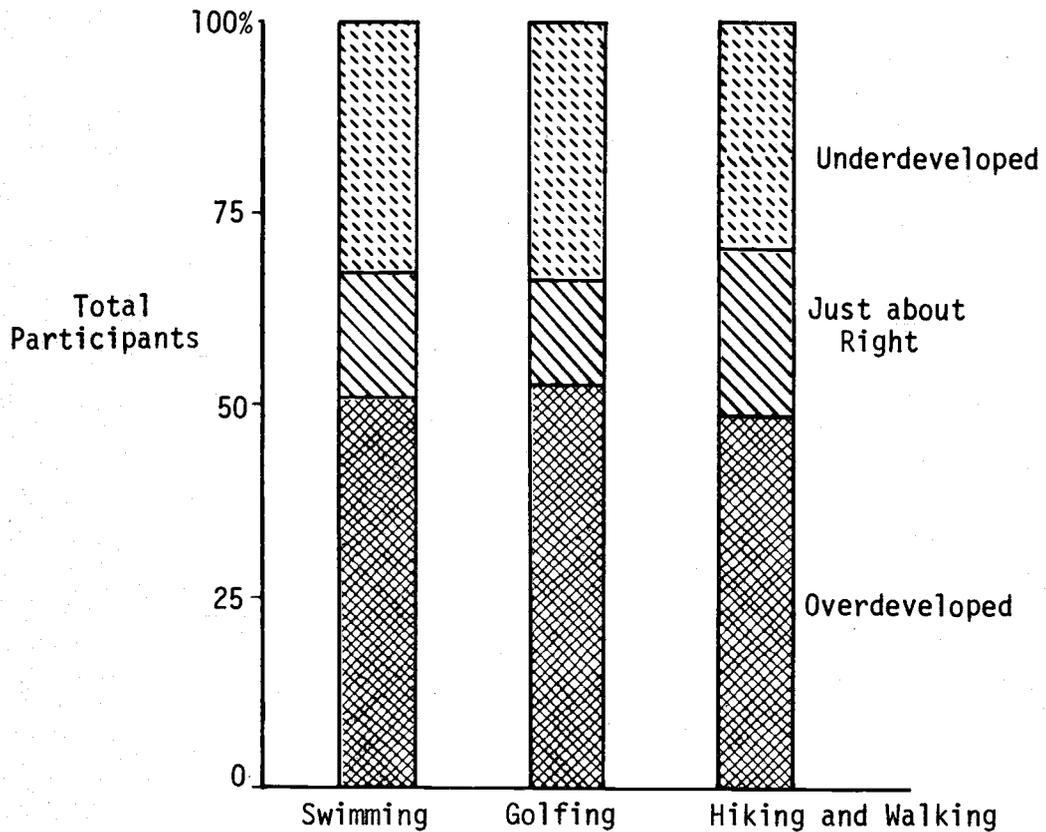
The only other relationship in Table 5.4 shows that 27% of the population perceiving underdevelopment were also in favor of public agencies granting franchises for the provision of privately-owned food and lodging facilities on public land. This means that a large majority of those who wanted privately-owned food and lodging facilities on public land believed that the region was underdeveloped. Thus, they may even have favored public land ownership, but they did not desire the recreation-oriented service franchises (food and lodging) to be publicly-owned.

Relationships with Recreational Activities

In Figure 5.1 the results of three cross-tabulations from Question #26 on recreational activities and Question #6, perception of

PERCEIVED DEGREE OF DEVELOPMENT
BY PARTICIPANTS IN SWIMMING,
GOLFING, HIKING AND WALKING

FIGURE 5.1



Source: Questionnaire data, Questions #6 and #27.

recreational development, are presented. Fourteen of the possible 17 activities had low Chi-square values so it was concluded that perception of recreational development and participation in these recreational facilities were independent. Only swimming, golf, hiking and walking proved to be significant. Thus, in the case of these three pastimes, a statistically significant relationship exists between participation in them and perception of recreational development within the study region. In the case of all three--swimming, hiking and walking, as well as golf--the majority of participants, although fewer than expected in these activities, viewed the littoral as presently underdeveloped. Based on these data, it can be concluded that a statistically significant small group of the sub-population perceiving underdevelopment participated in swimming, hiking and walking, or golf.

Summary

Those respondents who perceived the littoral as recreationally underdeveloped are the majority of those responding. Approximately 90% of them favored future recreational development and they even showed a preference for such growth in undeveloped areas, although they also accepted the possibility of only using built-up locations. Tent and trailer parks, picnic grounds and low-cost motels and hotels were the most desired kinds of additional recreational facilities. In

terms of existing use and crowding, this sub-population that perceived the area as being underdeveloped felt that the numbers of people were "just about right" and it might even be acceptable to have more. Conclusions about the types of land ownership wanted could not be made although a large majority favored private food and lodging facilities on public land. Despite the fact that the total number of respondents perceiving underdevelopment was high, fewer than statistically expected did not participate in swimming, hiking and walking, or golf. Finally, these data suggest a tendency for members of this group to be users of motels, lodges and even condominiums.

Respondents who Perceived Overdevelopment

Based on responses to the questionnaire, those who indicated that they perceived the area as overdeveloped are here analyzed according to their characteristics implied from other responses. The grouping was derived from responses to Question #6 where respondents were asked to choose from "underdeveloped," "overdeveloped" or the write-in response of "just about right." The analysis of responses that follows indicates that this group of people clearly does not desire more recreational development.

Relationships with Future Development Attitudes

The sub-population that perceived the study zone to be

recreationally overdeveloped was cross-tabulated with Question #7. Table 5.1 shows the results of the cross-tabulation. The most noteworthy and significant finding with regard to the sub-population perceiving overdevelopment was that 57% were not in favor of further recreational development. A much lower than expected 12% favored recreational development in both built-up and undeveloped areas while 9% wanted such development only in undeveloped areas. More than expected (22%) desired recreational development in only the built-up communities of the littoral. Certainly, an anti-development attitude is implied among the members of this sub-population. Respondents of this group who favored development seemed to want it only in the built-up areas of the coastal zone, a response which is contrary to the attitude of those perceiving underdevelopment.

Relationship with Kinds of Recreational Development

The results of a cross-tabulation between the sub-population perceiving recreational overdevelopment (Question #6) and kinds of recreational development (Question #8) are also presented in Table 5.2. With regard to this sub-population, the most noteworthy statistic is that 43% (higher than statistically expected) of the group were not in favor of further recreational development. The other frequencies were generally lower than those for the sub-population perceiving

underdevelopment. Nevertheless, the 24% favoring more tent and trailer parks, the 14% wanting more picnic grounds, the 11% desiring more low-cost motels and hotels, and the 6% requesting more restaurants are all significant in that they are much lower than statistically expected. Indeed, these frequencies reconfirm the strong relationship that appears to exist between respondents' perception of overdevelopment and the anti-development attitude.

Relationship with Location of Questioning

Generally this group patronized motels, the condominium campground and resorts. In terms of location, these facilities were found either immediately along the Florence U. S. Highway #101 "Strip," or fronting on U. S. Highway #101 in some other part of the study area. In summary, this assemblage of people used facilities that were not really dissimilar to those used by the "underdevelopment" sub-population, although the latter group was usually located away from the major highway route. Certainly these two associations are interesting to speculate upon, but as was pointed out at the start, they are only weak relationships and deal in the most part with small numbers of people.

Relationship with Perception of Crowding

Table 5.3 presents the results of cross-tabulating the sub-population perceiving overdevelopment with Question #12 on population perception. A slightly higher than expected 69% perceived the numbers of people to be "just about right." The significant statistic however, was that 26% of the sub-population perceiving the area as being overdeveloped felt there were too many people at the recreation site where they were questioned. In contrast, a low 6% thought that it would be acceptable to have more people. Thus in summary, the majority felt that the number of people using the facility area was "just about right," but a statistically significant one-quarter perceived population stresses and pressure.

Relationships with Land and Facility Ownership Attitudes

It was already noted that Table 5.4 records the association of Question #9 on land and facility ownership with Question #6 which pertains to recreational development perception. Only the associations dealing with parts 1 and 5 of Question #9 from the computer-tabulated contingency table are here considered.

Several conclusions arise from the analysis of these two significant relationships. First, a much greater than statistically expected

41% of the sub-population perceiving overdevelopment declared that no further recreational development should occur. Second, significantly less than expected (9%) agreed that public agencies should grant franchises for the provision of privately-owned food and lodging facilities on public land. Thus, it appears that people in the sub-population perceiving the area as being overdeveloped are anti-development.

Relationships with Recreational Activities

As was mentioned earlier, Figure 5.1 also shows the cross-tabulation between four recreational activities and the sub-population that perceived the area as being overdeveloped. Only the three activities of golfing, hiking and walking, and swimming showed a statistically significant association. Of the respondents in this sub-population, a higher than expected percentage (71%) participated in hiking and walking. Swimming was also important since 42% of those perceiving overdevelopment were involved with it. Golfing was the only activity that was not significantly different as a pastime of this sub-population. A slightly lower than expected 10% were involved with that sport.

Summary

One major attitude of those who perceived the area as being

recreationally overdeveloped kept recurring. They are not in favor of further development for recreation within the sand dunes coastal environment. Of those agreeing that such development should occur, built-up areas were indicated as the preferred sites and less than expected favored private food and lodging franchises on public land. This attitude toward location of future development is almost the opposite of those who perceived underdevelopment.

In this sub-population who perceived overdevelopment, the majority indicated the numbers of people at the recreation sites as "just about right," although one-quarter of them also perceived population pressure. Hiking and walking as well as golfing were the activities that were significantly enjoyed by this sub-population. Moreover, the average respondent in this group used motels, the condominium campground and resorts while in the littoral; and they tended to stay in Florence or immediately adjacent to U. S. Highway #101 in the other parts of the study zone. A lower than expected number of these respondents favored recreational facility development.

Respondents who Perceived Recreational Development as Just about Right

Based on responses to the questionnaire, those who wrote in that they perceived the area as being recreationally "just about right" are here analyzed according to their characteristics implied

from other responses. The grouping was derived from responses to Question #6 where respondents were asked to choose from "underdeveloped," "overdeveloped" or the unexpected write-in response of "just about right." The analysis of responses that follows indicates that this "just about right" group of people clearly does not desire recreational development in the study area. Only 10% of the total questionnaire population wrote in that they perceived the area as being recreationally "just about right." Thus, when this small sub-population of only 43 respondents was cross-tabulated with the attitudes and variables that were also related to the "overdevelopment" and "underdevelopment" sub-populations, very few statistically significant results were noted.

Perhaps the most important result of the cross-tabulations is that a much larger number than expected (17%) of those who were not in favor of further recreational development (from Question #7) perceived conditions as "just about right." A significant 26% of those who marked "not in favor of further recreational development" (Question #8) also perceived present recreational development as "just about right."

In terms of perceived populations at the recreation site, more than expected (83%) of this sub-population who perceived recreational development as "just about right" also viewed the numbers of people as "just about right." Fewer than expected (5%) agreed that the area

would be alright with more people. In fact, a low response regarding population pressure supplemented these other attitudes to give a general consensus that population conditions were "just about right."

With regard to land and facility ownership, slightly fewer than expected of the "just about right" sub-population favored private franchises for food and lodgings on public land (16%). Generally, these frequencies regarding ownership were not significant.

In terms of relationships between questionnaire location and perception of recreational development, several associations are revealed by the data. Those who perceived the region as "overdeveloped" and "just about right" are predominantly made up of persons questioned at cottages, trailer and cabin resorts, and private homes. Those who reported the region as "underdeveloped" to "just about right" were found more in campgrounds, trailer resorts and low-cost motels. Thus, the "just about right" sub-population seemed to consist of those permanently living in the area, and those visiting frequently and for longer periods of time (that is, private home, cottage or cabin users), as well as a transient population that stayed in campgrounds, resorts or low-cost motels.

In concluding this summary, it should be reiterated that those who perceived existing recreational development as "just about right" did not generally favor more recreational development. They viewed

the number of people as "just about right" too, so there did not appear to be need for future recreational additions.

Pro-development Respondents

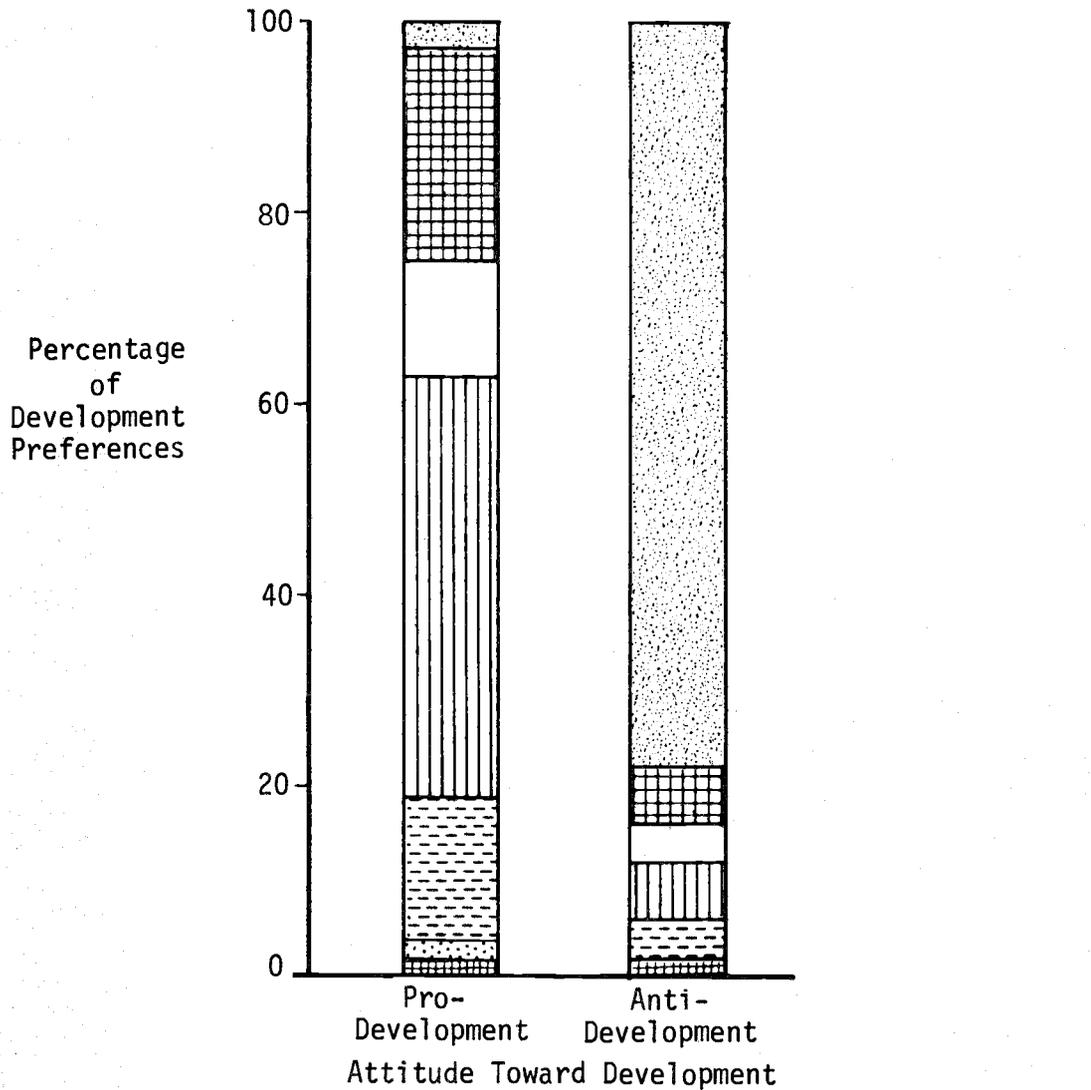
Based on responses to the questionnaire, those who indicated that they would like to see recreational development within this coastal zone are here analyzed according to their characteristics implied from other responses. The grouping was derived from responses to Question #7 where respondents were asked to choose from "development within built-up areas," "development within the undeveloped areas," "development in both built-up and undeveloped areas," "not in favor of further recreational development" or "don't know." Those who marked any of the three responses favoring development are included in the following analyses and referred to as "pro-development."

Relationships with Desired Kinds of Recreational Development

Figure 5.2 shows the results of the cross-tabulation of Question #7, "Within this coastal zone where would you like to see recreational development occur?", with Question #8, "What kind of recreational development do you most favor within this coastal zone?" In this contingency table, Question #7 is simplified into only its pro- and anti-development components so that it can be more easily related

DEVELOPMENT PREFERENCES AND ATTITUDES TOWARD
 FURTHER RECREATIONAL DEVELOPMENT

FIGURE 5.2



Development Preferences:

-  More Condominiums
-  More Tents and Trailer Parks
-  More Picnic Grounds
-  More Luxury Motels, Hotels
-  More Restaurants
-  Not in Favor of Further Development
-  More Low-Cost Motels, Hotels

Source: Questionnaire data, Questions #7 and #8. CA

to the kinds of outdoor recreation desired, the subject of Question #8. Two parts of the contingency table ("more luxury motels and hotels" and "more condominiums") had low Chi-square values indicating that their associations were not statistically significant. In contrast, the other five parts of the contingency table showed a strong relationship between the variables.

The first noteworthy point seen in this contingency table is the fact that a significantly high percentage (44%) of the pro-development sub-population favored more tent and trailer parks. This closely compares with the 42% of the respondents who were staying in tents or trailers, according to Question #5. Conversely, one can infer that a very high percentage (96%) of those favoring more tent and trailer parks are in the pro-development category. Moreover, it is probably correct to assume that a very high percentage of those tenting or trailering are in the pro-development sub-population.

Two other relationships follow the pattern demonstrated by those preferring tent and trailer park development. In the pro-development sub-population, 22% were for more picnic grounds, while 15% favored more low-cost motels and hotels. Thus, these responses demonstrate that favorable attitudes toward development of tent and trailer parks, and low-cost motels and hotels are positively related to the respondent also being pro-development.

Relationships with Home Residence
Location and with Occupation

A cross-tabulation was made between responses to Question #7 and the home residence area noted in Question #29b. Similarly, occupations in Question #34 were related to the development attitudes. The Chi-square values in both of these cross-tabulations were low, so it had to be concluded that the attitude of the questionnaire respondent toward future recreational development was not related to his home location area or occupation.

Relationships with
Recreational Activities

After it was hypothesized that respondents participating in certain pastimes would have specific attitudes toward recreational development, pro- and anti-development attitudes were cross-tabulated with recreational activities. Low Chi-square values were received and thus, associations are not statistically significant for any of the 19 high frequency activities (relaxing, fishing and shellfishing, hunting, swimming, waterskiing, boating, nature study, hiking and walking, sightseeing, camping, picnicking, dune bugging, bicycling, motor-biking, golfing, dining, tavern and lounge visiting and nightclubbing). Thus, one must conclude that recreational activity participation and attitudes toward future recreational development are completely independent.

Summary

Respondents who were pro-development perceived the coastal zone as underdeveloped. It is significant that a high percentage of the sub-population favored development of more tent and trailer parks and more low-cost motels and hotels, as well as more picnic grounds. Thus, development is favored but it is desired to be outdoor-oriented or of a low-cost type.

In the only other association studied, it was found that a pro-development attitude is independent of occupation and home residence location; and also, it has no relationship with the type of activities experienced in the littoral.

Anti-development Respondents

Based on responses to the questionnaire, those who indicated that they would not like to see recreational development within this coastal zone are here analyzed according to their characteristics implied from other responses. The grouping was derived from responses to Question #7 where respondents were asked to choose from "development within built-up areas," "development within the undeveloped areas," "development in both built-up and undeveloped areas," "not in favor of further recreational development" or "don't know." Those who marked that they were not in favor of further

recreational development are included in the following analyses and referred to as "anti-development."

Relationships with Desired Kinds of Recreational Development

It was noted earlier that Figure 5.2 tabulates the results of the cross-tabulation of anti-development attitudes with Question #8 on desired kinds of recreational development. The notable point concerning those not in favor of further recreational development is that 21% paradoxically revealed that they were also pro-development of specific recreational facilities. Thus, it is interesting that as many as 21% who were against recreational development approved further recreational development when the kinds of development (mainly lodging and eating facilities) were specified. Perhaps these people did not favor a kind of recreational facility such as a swimming pool or boat dock, but wanted more recreational accommodations.

Relationships with Home Residence Location, with Occupation and with Recreational Activities

As was mentioned previously, all three of these cross-tabulations proved to be not statistically significant. Therefore, an anti-development attitude is independent of the respondent's home residence location and his occupation. Moreover, recreational activities experienced do not relate to development attitude.

Summary

Anti-development respondents perceived existing recreational conditions to be overdeveloped. Overdevelopment was the response of 61% of this sub-population and 17% perceived development to be "just about right." These points of view relate well to the fact that 79% of the sub-population did not favor facility development, even when specific types were mentioned. Contrarily however, 21% of these anti-development respondents did favor certain types of accommodation, especially more low-cost motels and hotels or more tent and trailer parks.

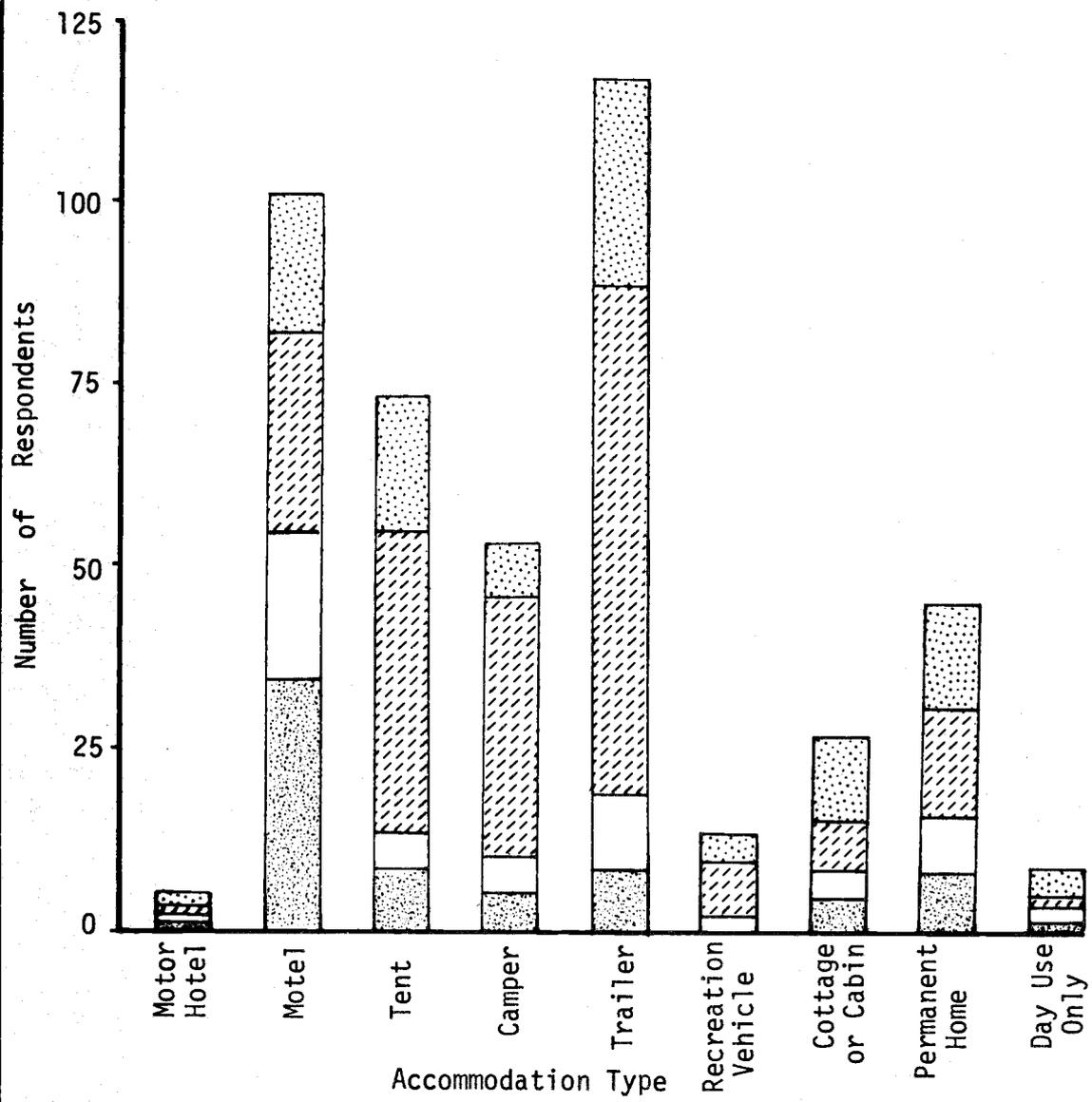
Kinds of Recreational Development Favored

In previous contingency tables, analyses of development attitudes and perceptions have been associated with specific kinds of recreational development. It is the purpose of this cross-tabulation to relate the various kinds of recreational development desired to the type of accommodation that the respondent used; that is, Question #8, "What kind of recreational development do you most favor within this coastal zone?" is cross-tabulated with Question #5, "What kind of accommodation are you using on this present visit?"

Four parts of Question #8 when cross-tabulated with Question #5, produced statistically significant relationships. These are listed in Figure 5.3. The first and probably most important relationship is

DEVELOPMENT PREFERENCES AND USERS BY ACCOMMODATION TYPE

FIGURE 5.3



Development Preferences:

- More Low-Cost Motels and Hotels
- More Restaurants
- More Tent and Trailer Parks
- More Picnic Grounds

Source: Questionnaire data, Questions #5 and #8.

that attitudes toward development of more low-cost motels and hotels, more restaurants, more tent and trailer parks and more picnic grounds are strongly related to the kind of accommodation used by the recreationist. For example, of the total motel users, 26% indicated a desire for more motel development. In the answers regarding more tent and trailer parks, 45% of those favoring more were tenters. It is curious that two unexpected associations also occurred. Moderately high percentages -- 23% and 22% -- of those permanently resident in the study zone (permanent home) indicated that they favored more tent and trailer parks, and more picnic grounds. One might have assumed that local residents would have had no interest in more tent and trailer parks, while picnic grounds, which they themselves used, would have been more important to them. Perhaps this response was based on a disinterest in commercial facilities such as motels, hotels and restaurants. The lower responses by permanent residents to the questions explained in parts 1 and 2 of Figure 5.3 seem to substantiate this latter point.

In this chapter, respondents' attitudes toward, and perception of recreational development in the coastal zone were analyzed. It appears that most respondents perceived the area to be underdeveloped at present; however, a pro-development view was expressed. Developments most desired were outdoor-oriented such as campgrounds and picnic grounds, although low-cost motels and hotels were also wanted.

CHAPTER VI

ATTITUDES TOWARD, AND PERCEPTION OF POLLUTION

Attitudes toward pollution within this sand dunes coastal zone were investigated through eight questions pertaining specifically to pollution. Cross-tabulations between these questions and other development and demographic inquiries furthered the analysis. Finally, a pollution index was developed so that each respondent's overall pollution attitude could be categorized. The index further acts as a tool for comparing attitudes and perceptions so that conflicts are better understood.

The first pollution-oriented question (Question #12) was aimed at evaluating the respondent's attitude toward the numbers of people at the recreational facility. In this scaled inquiry, a list of replies was given ranging from "too many people" to "would be okay with more people." Appendix II shows that the greatest number of people (64%) felt that population numbers at the questionnaire site were "just about right." The other two extremes--"too many people" and "okay with more"--had nearly equal responses, that is, 17% and 14% respectively. In summary, no population pressure was generally perceived; in fact, the numbers of people were usually thought of as being "just about right."

Question #13 investigated attitudes toward aesthetic appeal as a

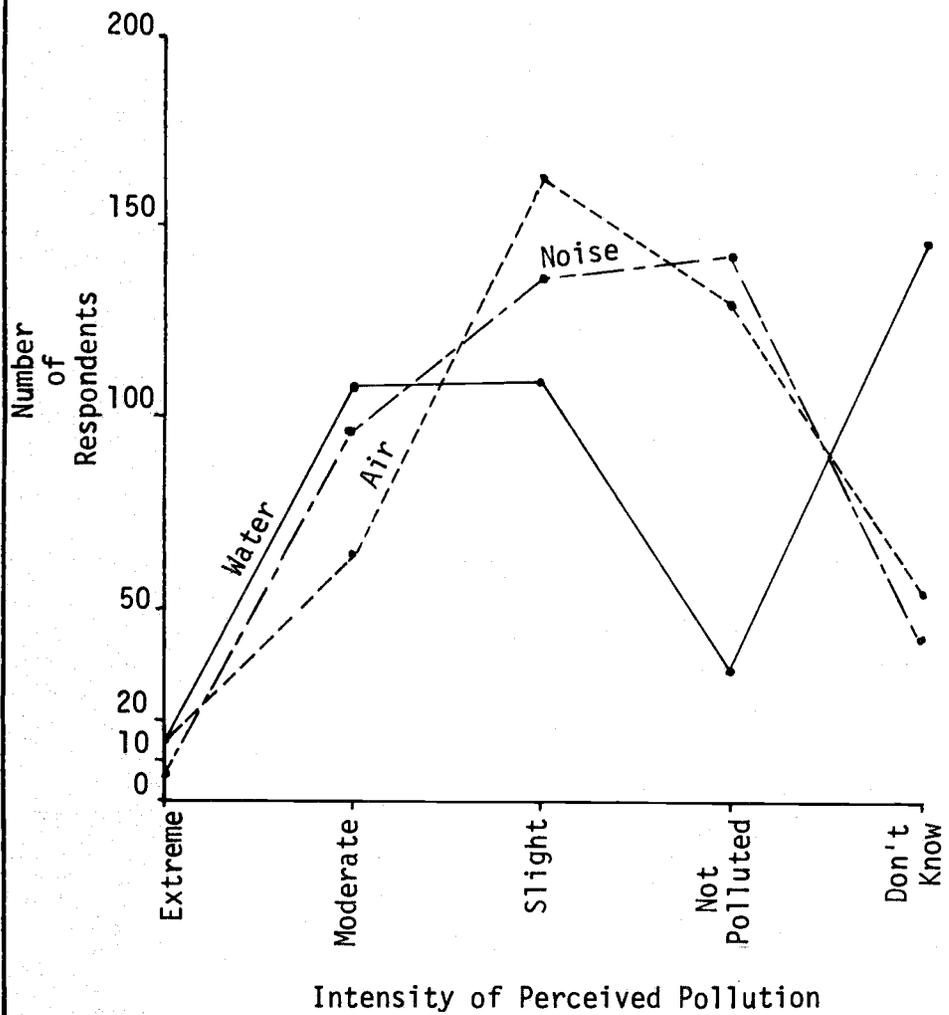
function of the area's lumbering and industrial activities. Of those answering the question, 41% felt that lumbering and industrial activities did not affect the appeal. Nineteen percent indicated that these activities detracted from the appeal and an equal number said they had not noticed (19%). Moreover, an examination of the original questionnaires disclosed that approximately five people said that such activities added to the appeal of this rugged area. Generally then, it can be concluded that lumbering and industrial activities seemed to have very little, if any, perceived effect upon the aesthetic appeal of this coastal zone.

Questions #14 and #15 related to perception of water pollution. In the first of these questions, it was asked if water pollution existed in this coastal zone. The second query asked if the respondent was able to indicate the causes of this pollution. The opportunity to indicate that no water pollution existed was also afforded. Examination of the scaled responses to Question #14 (Appendix II, Figure 6.1 and Table 6.1) indicates that those answering this question felt that only slight to moderate water pollution existed. There were 23% who reported "only slight pollution" while 26% indicated "moderate pollution." A noteworthy fact is that the plurality of the respondents (33%) did not know if water pollution existed. In Question #15 concerning cause, the "don't know" group (36%) was even larger than in Question #14.

PERCEPTION OF AIR, WATER AND NOISE

POLLUTION BY RESPONDENTS

FIGURE 6.1



Source: Questionnaire data, Questions #14, #16 and #18.

Table 6. 1. Perception of air, water and noise pollution in the coastal zone.

| Degree of pollution | Frequency of response | | |
|------------------------|-----------------------|-----------|-----------|
| | Water | Air | Noise |
| Extremely polluted | 16 | 13 | 7 |
| Moderately polluted | 113 | 65 | 92 |
| Only slightly polluted | 116 | 164 | 136 |
| Not polluted | 33 | 130 | 143 |
| Don't know | <u>142</u> | <u>54</u> | <u>42</u> |
| Total responses | 420 | 426 | 420 |

Source: Questionnaire data, Questions #14, #16, and #18.

Of the specific water pollution causes, industrial wastes was chosen by the plurality (38%) while town and community sewers (28%), lumbering run-off (27%) and boat wastes (24%) ranked next in order. It seems that no specific cause was singled out as the culprit; however, industrial wastes was the most common response.

Questions #16 and #17 used the same format as the previous two queries, but, in this case, air pollution was the subject. Appendix II, Figure 6. 1 and Table 6. 1 show that 38% of those answering perceived only slight air pollution and 30% stated that there was no air pollution. In contrast to Questions #14 and #15, very few people (13%) marked the response "don't know. "

Pulp mills were categorically chosen as the major cause of air pollution by 43% of those answering Question #17. Timber waste burning, with 25% of the responses, was the other major choice and

27% responded that no air pollution existed. Since a large number of the study population did not note the existence of air pollution, based on these facts, we must conclude that any existing air pollution cannot be too bad. This fact, based upon Question #17 frequencies, coincides nicely with the "no pollution" replies (30%) in Question #16.

The last three questions of this series dealt with noise pollution. The first, Question #18, asked if there was noise pollution. To this inquiry, the plurality (33%) replied that there was no noise pollution, while the next two categories -- "only slight noise pollution" (32%) and "moderate noise pollution" (22%) -- were also amply represented (Table 6.1 and Figure 6.1).

In Question #19, the plurality (35%) felt that no noise pollution existed. Of those declaring the presence of noise pollution, motorbikes (30%) and other motorized vehicles -- mainly autos and trucks (33%) -- were specified as the major causes. It is also interesting to note the area in Question #20 where noise pollution was viewed as bothersome. Towns, communities and cottage areas, that is, the developed areas, received the greatest mention (18%). Campgrounds for only trailer and camper vehicles (15%) and campgrounds for only tents (11%) were also commonly specified. The trailer and camper vehicle areas where compressors, air conditioning units and other machines are more common, received a greater mention than did the tent areas. The small "others" category of 8% also merits attention because the

greatest part of the replies in that assemblage indicated trucks and highway traffic as primary noise pollution sources. "No noise problem exists" was indicated by 37%, relating closely with the 35% who stated that no noise pollution exists (Question #19). In summary, it appears that noise pollution is of minor importance, although several sources of pollution were mentioned. Motor vehicles appeared to be the most blatant cause while developed areas and campgrounds were viewed as the noisier locations.

Two other questions referred to pollution attitudes, and, in some respects, these are the most meaningful, as they are open-ended. Question #23 reported the three most appealing features of this coastal zone, while Question #24 solicited the most unappealing features of this coastal zone. In both questions, those replies that were oriented toward pollution were categorized as "Code 8." Thus, in Appendix II it can be noted that for Question #23 only 8% of the answers were related to some aspect of pollution (Appendix IV). Such factors mentioned were "clean air," "cleanliness," "quiet and solitude"--all positive aspects.

Question #24, Code 8 referred to unappealing features that were more in the context of negative pollution factors. The second highest total response frequency for that question (19%) indicated some sort of negative pollution such as "dirty beaches," "clear cuts," "garbage" and "noise." Pollution statements are listed in Appendix IV. It

appears from these replies, that negative pollution factors were more numerous than the positive environmental quality statements. Caution should be used in this interpretation however, since people have a tendency to always remember and report the bad, but to be remiss in noting the good. No doubt this situation occurred in the case of Questions #23 and #24. The other pollution-oriented questions (Questions #12 to #20) did not reveal such negative attitudes. Indeed, pollution was probably no more perceived than these latter questions suggested. The two open-ended Questions #23 and #24 only magnified the situation. One may, in fact, assume there was more positive appeal than negative unappeal. Thus, in the former, common phenomena like "clean air" and "solitude" were taken for granted; whereas, in the latter with only a few existing negative aspects, even the minor kinds of pollution achieved a good deal of reference.

Population Pressure at Questionnaire Sites

The relationship of intensity of use of recreational areas to perception of population pressure was investigated, and the results are presented here.

Questionnaire locations were cross-tabulated with Question #12 on population pressure perception. This association was statistically significant, so it was possible to conclude that location of the respondent at the time of questioning was related to his perception of

population pressure. Of the three possible responses to Question #12, the majority (67%) felt that the population at that location was "just about right." Some 18% of those completing the question agreed that the particular recreation site had "too many people," while only 15% suggested that the location would be "okay with more people." Thus, it is evident that the typical respondent perceived his particular recreation site as "just about right," although a tendency did exist for him to view it as having "too many people."

In terms of numbers of locations, 32 sites were mentioned as "just about right," 12 were viewed as having "too many people" and only 7 were suggested as "okay with more people." Generally those respondents who indicated that the recreation site would be "okay with more people" were encountered in Florence, Heceta Beach and the northern part of the study area. Saunders Lake cottagers and the few people interviewed in Lakeside were exceptions to this northern tendency.

Of the group indicating that "too many people" were using the particular facility, a generalization is less evident. Still, there is a tendency for facilities at the southern end of the region to be in this category. Of course, Honeyman Park (18% of the responses) and the Dunes Motel in Florence (6%), as well as the Heceta Beach cottage area (4%) stand out as anomalies; nevertheless, the numbers of respondents at these two sites indicating a perception of overpopulation are small compared to those in the "just about right" category.

Perception of Unappealing Human Factors

In Table 6.2, the results of an association of Question #24, Code 3 on unappealing human factors with Question #29b on home residence location of the respondents are arranged. This relationship is statistically significant, so it can be assumed that perception of unappealing human factors and home residence location are related.

Several noteworthy findings are demonstrated in this contingency table (Table 6.2). Oregonians from within 150 miles of Reedsport, the largest group represented, showed a positive relationship; more respondents perceived unappealing human factors than was expected. This fits the expectation since, as Appendix IV demonstrates, many of the unappealing human factors are features such as "anti-out-of-state visitor attitudes," "crowds," "traffic," and "hippies and hitchhikers." Moreover, those people from within 150 miles of the littoral felt the greatest attraction to this region and reflected an hostility toward outsiders. Data in Table 6.2 bear out this hypothesis. The attitudes of visitors from the remainder of Oregon, all of California and Washington toward the unappealing factors of this study zone are also important. As was theorized, the viewpoint of visitors from these areas was statistically negatively significant, in that fewer of the respondents perceived unappealing human factors than was expected. Canadians were like Oregonians from within 150 miles, as more of them than was expected felt that unappealing human factors

Table 6.2. Perception of unappealing human factors based on the respondents' residences by percentage response.

| Residence | Percentage response |
|------------------------------|---------------------|
| Oregon - within 150 miles | 54 |
| Oregon - outside 150 miles | 13 |
| Northern California | 9 |
| Southern California | 8 |
| Washington | 4 |
| Mountain States | 5 |
| Central and Eastern U. S. A. | 4 |
| Canada | 4 |
| Alaska and Hawaii | 1 |

Note: For explanation of categories, see Appendix IV.

Source: Questionnaire data, Questions #24, Code 3, and #29 b.

existed in this littoral. Only three individuals were in this category, so even though statistically significant, it may not be representative.

In summary, it appears that perception of unappealing human factors was strongly related to home residence location. Locals and Canadians observed unappealing human factors more than did the other visitors to the study area, perhaps because many of the distant visitors came from urban areas where crowds, and social problems are more common. In the littoral they would find fewer of these problems, whereas locals and those from less-developed areas would feel more pressure created by the visitors. Curiously, respondents from the Mountain region, and Central and Eastern U. S. A. showed a weak relationship between location and unappealing human factors.

The Pollution Index

In order to develop a classification or index that would relate the three pollution variables--water pollution, air pollution and noise pollution--a very simple system was developed. This technique involved the totaling of a respondent's answers to Questions #14, #16, and #18 (Table 6.3). The "don't know" answer was disregarded, so if it or a "no response" answer was received, the whole summation for a respondent was nullified. In this way, the response possibilities were 1, 2, 3, or 4 for each question and a range of 3 to 12 for the index. If a very low (3 or 4) index was recorded for an individual, this

Table 6.3. The pollution index.

| Index | Frequency | Percentage | Scale description |
|-------|-----------|------------|--------------------|
| 3.0 | 1 | 0.4 | Extreme pollution |
| 4.0 | 4 | 1.6 | |
| 5.0 | 6 | 2.4 | |
| 6.0 | 17 | 6.8 | Moderate pollution |
| 7.0 | 36 | 14.3 | |
| 8.0 | 55 | 21.8 | |
| 9.0 | 43 | 17.1 | Slight pollution |
| 10.0 | 41 | 16.3 | |
| 11.0 | 34 | 13.5 | |
| 12.0 | <u>15</u> | <u>6.0</u> | No pollution |
| Total | 252 | 100.0 | |

Explanation: The index is derived by totaling a respondent's answers to Questions #14, #16 and #18. "Don't know" and "no response" are disregarded and thus nullify a summation.

Source: Questionnaire data, Questions #14, #16 and #18.

reflected an extreme perception of water, air and noise pollution. Conversely, an index of 12 indicated the viewpoint that no water, air, and noise pollution existed. In this way, the index acts as a general tool for comparing pollution perception. Table 6.3 presents the pollution index frequency of occurrence. As can be inferred from Questions #14, #16 and #18, the questionnaire populations reflected a "slight" to "no pollution" point of view. In fact, 53% of the respondents are within the two categories "slight" and "no pollution."

Development Attitudes as They Relate to Pollution Perception

In order to ascertain if perception of pollution is related to attitudes toward existing and future development, a series of cross-tabulations was made using the pollution index. It was found that in all five cases, the relationships proved to be not statistically significant. Nevertheless, it was possible to draw some conclusions. A respondent's pollution index was independent of his attitude toward future recreational development. His perception of existing recreational development was likewise independent of his index, as was his attitude toward land and facility ownership. Two cross-tabulations were also made with Question #24, Code 8, which in open-ended form reported perception of unappealing pollution factors. Home residence location and perception of existing recreational development were included in

these two contingency tables, but in both instances, the associations proved to be not statistically significant and thus, were independent of pollution perception.

Summary

The analysis of questions focusing on perception and problems of pollution revealed that respondents perceived only slight to no pollution. Water pollution was the only exception to the generalization inferred by the pollution index. In that case, respondents felt that moderate to slight water pollution did exist. Population pressure was not generally perceived by those responding to the questionnaire; thus, the majority of the people answering viewed the numbers of people at recreation sites as "just about right." Respondents who perceived the area as being already overdeveloped thought there were "too many people"; however, those who replied that the area was underdeveloped indicated that use by more people "would be okay." Thus, as with pollution, those answering the questionnaire perceived only slight to no population pressure.

CHAPTER VII

ATTITUDES TOWARD REGULATION AND OWNERSHIP

In the preceding chapters, the respondents' perception of existing recreational development, attitudes toward additional growth, views on population pressure and pollution conditions, as well as their recreational activities in the area were analyzed. It is the purpose of this section of the thesis, first to report on respondents' attitudes toward ownership of land and facilities, and second to analyze their views on control and regulation of activities on the sand dunes and along the beaches of the coastal zone.

Attitudes Toward Land and
Facility Ownership

Question #9 specifically inquired into the questionnaire respondents' attitudes toward ownership and regulation. In that query, the principle of public versus private facility ownership was introduced and respondents were allowed to check more than one attitude.

Appendix II gives the response frequencies for Question #9. According to the totals, the largest number of respondents (36%) stated that development on private land should be regulated by zoning ordinances, 26% desired no further development, 23% favored private ownership and operation of food and lodging facilities on public lands, 20%

avored public agency purchase of undeveloped private property, and 12% favored development of publicly owned facilities. Some of those against more development also indicated the kind of land control they would prefer if recreational development did occur. In other words, they were anti-development, but being realistic, they also stated the kind of development that they would tolerate.

Perusal of the answers to Question #9 indicated a mixed response; however, the general attitude seemed to favor control of private land development through zoning, and private operation and ownership of food and lodging facilities on public land. The desirability of public ownership and public operation of facilities was less frequently indicated.

Relationship to Perception of Recreational Development

It was already mentioned in a previous chapter that Table 5.4 presents the cross-tabulation of Question #9 on ownership attitudes, with Question #6 that reported perception of existing recreational development. This discussion examines that data from the perspective of attitude toward ownership; however, it should be noted that anti-development attitudes and a preference for privately-owned food and lodging facilities on public land are not independent of perception of existing development.

Based on the 401 respondents who answered both of the questions summarized in Table 5.4, only 20% indicated that no further recreational development should occur. Within that anti-development sub-population, a statistically significant 61% perceived the area as already overdeveloped. In contrast, a statistically significant 29% viewed it as underdeveloped.

Responses to the only other part of Table 5.4 were revealing. Only 24% of those completing Questions #6 and #9 agreed that public agencies should grant franchises for the provision of privately-owned food and lodging facilities on public land. Within this sub-population, 77% viewed the littoral as presently underdeveloped. A much lower than expected 14% perceived recreational development within the area as already overdeveloped. The group within this sub-population who felt that development was "just about right" was below the expected percentage with 8%. Thus, to summarize these findings, it appears that of the one-quarter of the population replying to both of these questions, the majority perceived the area as being underdeveloped.

Relationship to the Pollution Index

The only other cross-tabulation that was undertaken using Question #9 on ownership attitudes involved the pollution index. The association proved to be not statistically significant, so it can be concluded that ownership attitudes and perception of pollution are independent.

Attitudes Toward Activity Control

Question #10 and #11 related to perception of need, or desirability for, restriction of activities on sand dune and beach areas. In these two questions, respondents could show a desire to control various motorized vehicles as well as horses, and they were also able to stipulate that no restrictions should be made. The respondent's participation in these activities was not asked, but implicitly his attitude toward activities, whether they were his own or those of others, were questioned. In fact, these two questions are important measures of a respondent's perception of recreational conflict. He might never state that he disliked a recreational activity such as dune bugging. Nevertheless, if he indicated that these vehicles should be restricted, it is logical to assume some degree of hostility toward, for example, dune bugging and conflict with his own recreational activities.

Responses to Questions #10 and #11 revealed that 54% of all respondents favored restriction of all motor vehicles on the sand dunes. Beach restrictions were favored even more strongly with 75% of all respondents indicating that all motor vehicles should be restricted. About the same number (54%) indicated a desire to restrict the area of dune buggies on the sand dunes, but oddly, fewer (49%) indicated they favored restrictions on the beach--50% would restrict motorbikes

to prescribed beach areas. Even horses ought to be restricted--39% indicated restriction to prescribed areas on the sand dunes and 32% on the beach. Only 18% indicated a desire for no restrictions to prescribed sand dune areas and 14% for no restriction on beaches.

The responses to these questions (Questions #10 and #11) revealed some surprising oddities. Seventy-five percent of the respondents indicated that there ought to be restriction of all motor vehicles, yet only 49% indicated that there should be restriction of dune buggies, and 50% restriction of motorbikes on the beach. With regard to restricting motorized vehicles to certain areas on the dunes, the respondents were more consistent. Nevertheless, the responses make clear that visitors to the Oregon dunes area perceive motorized vehicles as incompatible with other activities, and would have them restricted to prescribed areas or perhaps even banned.

Control of Activities on the Beach and Sand Dune Areas

In order to determine if there was an association between perception of existing recreational development and attitudes toward beach and sand dunes activities regulation and control, two cross-tabulations were undertaken. In the first, development-oriented Question #6 was associated with Question #10 regarding sand dune activity regulation and control.

Development Perception and Control
of Activities on the Sand Dunes

In the tabulation, only one of the relationships was statistically significant. Ironically, it was "all motor vehicles"--the one that encompassed several of the others. The finding is particularly noteworthy as it means that the individual cross-tabulations for dune buggies, motorbikes and horses are independent of respondents' development perception, but the composite is not independent. Thus, 54% wanted to see all motorized vehicle use restricted to certain prescribed areas of the dunes, and 52% perceived the study region as underdeveloped. The only use not included in this conclusion was utilization by horses. Furthermore, a smaller proportion, only 39%, of those who favored restriction of all motorized vehicles on the dunes, perceived the area as being overdeveloped. These findings seem paradoxical. Perhaps the explanation is tied to the implication of the responses that those perceiving an area as underdeveloped, feel it warrants more protection than a region that has already been scarred by overdevelopment.

Development Perception and Control
of Beach Activities

The results of the cross-tabulation between Question #6 on perception of development and Question #11 on beach activity control

proved to be not statistically significant. Therefore, it has to be concluded that a respondent's attitude toward control of all motorized vehicles and horses on the beaches was not associated with his perception of existing recreational development.

Activity Preferences Related to Attitudes Toward Control of Sand Dune and Beach Activities

The hypothesis is that participants in certain activities perceive other activities to be conflicting and want them controlled. Predicated on this premise, the two questions on attitudes toward control of sand dunes and beach activities were cross-tabulated with activities preferred by respondents.

Relationship with Control of Sand Dune Activities

In this cross-tabulation, a respondent's first recreational activity preference was related to his response to Question #10 on restriction of uses on sand dunes. The first preference was the only one used due to the complexities of analysis; however, the Chi-square value for even that one group of activities was low, thus rendering the relationship statistically not significant. Based on this test, it was concluded that the respondent's response toward activity control on the sand dunes was independent of the activities that he himself preferred.

Relationship with Beach
Activities Control

When responses to Question #11 on beach activity restriction were cross-tabulated with the responses to 29 preferred activities in Question #27, it was discovered that all but one of the associations had low Chi-square values that resulted in statistically non-significant relationships. Activity preferences were shown to be independent of attitudes toward beach use restriction. The cross-tabulation involving part 3 of Question #11 ("no restrictions should be made") was the only significant one. Thus, the results of this tabulation have been reproduced in Table 7. 1. Based on the significance level of .05, it was concluded that recreational activity preferences are positively associated with the attitude that no restriction of activities should be made on the beach.

Table 7. 1 reveals some other results from this cross-tabulation. Those who preferred nature study, camping, fishing, and relaxing showed the greatest variation from the expected attitude toward beach control. Fewer than expected of those who were against these restrictions preferred fishing and relaxing, whereas more than expected of those not favoring such activity controls preferred nature study and camping. These findings are particularly noteworthy since they did not substantiate the hypothesis. It was anticipated that since dune buggiers, motorbikers, bicyclists, and horseback riders all

Table 7.1. Anti-restriction attitudes toward beach use based on respondents' activity preference.

| Activity Preference | Percentage Responding Against Restrictions |
|----------------------------|---|
| Fishing | 21 |
| Camping | 21 |
| Nature study | 10 |
| Sightseeing | 10 |
| Hiking and walking | 8 |
| Swimming | 6 |
| Others | 4 |
| Relaxing | 4 |
| Shellfishing | 2 |
| Hunting | 2 |
| Waterskiing | 2 |
| Boating/canoeing | 2 |
| Picture taking | 2 |
| Picnicking | 2 |
| Motorbiking | 2 |
| Dining out | 2 |
| Tavern and lounge visiting | 2 |
| Meeting and visiting | 2 |
| Painting | 0 |
| Dune bugging | 0 |
| Bicycling | 0 |
| Horseback riding | 0 |
| Flying | 0 |
| Golf | 0 |

Note: Part 3 of Question #11 specified that no restrictions should be made with regard to horses or motor vehicles on the beach. Only the first preference from Question #27 was used in the cross-tabulation.

Source: Questionnaire data, Questions #11 and #27, part 3.

would have been affected by beach controls, they would have favored uncontrolled beach activities. Ironically, the action-oriented participants, as well as those preferring nature study and campers, did not substantiate the hypothesis, but fishermen and those who engaged in relaxing did. No explanation seems evident other than the possibility that many of the campers and nature study participants were also probably dune buggiers, motorbikers, horseback riders or bicyclists.

Summary

Two major ownership attitudes were revealed in this chapter. First, respondents favored future recreational development, but with zoning ordinances to regulate use of privately-owned lands. Second, they favored having public agencies grant franchises for the provision of privately-owned food and lodging facilities on public land. With regard to control of recreational activities, the majority supported restriction of all motor vehicles on the sand dunes and on the beach. In particular, dune buggies were singled out for control on the sand dunes, while motorbikes were indicated as requiring restriction on the beach. From the group of activity participants, one surprising attitude was indicated. Those members who preferred dune bugging, motorbiking, bicycling and horseback riding ironically tended to be the ones favoring restrictions and control of motor vehicles on the beach. About one-third of the respondents indicated that horseback riding ought

to be regulated. Thus, in one concluding statement based on all these findings, it is possible to report that respondents to the questionnaire favored controlled recreational development throughout the littoral, and regulation of all motor vehicles as well as horses on the beach and sand dunes.

CHAPTER VIII

CONCLUSIONS

The purpose of this chapter is to develop a compendium of the findings from the questionnaire analysis. Based upon this summary of illuminating user perceptions and attitudes, management regulations for avoidance of conflicts can be better realized. Some conclusions toward viable management of outdoor recreational activities are presented based on the research results.

The findings of the user survey reveal that recreationists in this coastal zone are attracted to, and responsive to, the natural appeal of the marine and dunes environments and the functionally integrated recreational and accommodational developments. As a generalization of the results of the questionnaire analysis, interviewing and observation, it can be stated that no critical problems were perceived by users in this sand dunes coastal zone. Notwithstanding, numerous minor difficulties were reported, or at least were perceived. It seems clear therefore, that with an ever-increasing use of the recreational zone, conflicts among activity participants can only increase and environmental conditions deteriorate unless sound management techniques are devised and implemented.

Perception of Present Recreational Development

Perhaps the single most important finding from the user survey is the fact that the majority of the questionnaire respondents view this coastal zone as underdeveloped. This perception is notable since it sets the tone of their responses. The larger proportion of both the visitors and local residents have this general impression which is further reflected in their attitudes toward matters such as future development, the numbers of people present at a site, and the appealing and unappealing aspects of the environment. This general impression of underdevelopment might even lessen their environmental concern somewhat since, unlike some of the problem areas of California or even the Willamette Valley, this coastal zone is still generally looked on as underdeveloped. In contrast, many enlightened visitors commented that because it is still underdeveloped, it must be protected from destruction through overdevelopment. Ironically, even though the area is admired because it appears to be underdeveloped, very few of those completing a questionnaire singled out the low level of development as an appealing feature. Perhaps this demonstrates that very often, the values of underdevelopment are taken for granted until it is too late.

Attitudes Toward Future Development

It appears that additional development is desired by the majority.

Approximately three-quarters of the respondents were classified as pro-development on the basis of their responses, and as a consequence, those perceiving underdevelopment favored future development in presently undeveloped areas. Many also indicated that built-up areas could be used for future recreational development, but the desire to avoid concentration seemed to be of paramount importance to them. Unfortunately, this desire for future development in undeveloped or non-built-up areas contradicts the plans of the Oregon Dunes National Recreation Area officials, as well as the principles of good environmental management.

The open, undeveloped spaces of this coastal zone were clearly shown to be a major part of its appeal. Undoubtedly the open, undeveloped spaces ought to be protected from future development, but at the same time, growth of facilities has to occur. Therefore, the only possible solution is to concentrate development in the already built-up areas. Even though the majority of the respondents opposed it, such concentration could be made acceptable through good design and building techniques, coupled with management and zoning controls. Moreover, with areal separation of incompatible activities, conflicts can be minimized, while at the same time, increased numbers of pleasurable experiences are afforded by the great variety of recreational pastimes.

Kinds of Future Development

The kinds of future development desired by those recreationists completing the questionnaire reflected the type of accommodation and recreational facilities that they themselves were using. Certainly this is not surprising; in fact, it is important since it demonstrates that present trends in kinds of development are likely to continue. New pretentious facilities such as condominiums and luxury hotels are not desired by the majority of recreationists. Tent and trailer parks, picnic grounds and low-cost motels and hotels are the preferred kinds of developments based on responses to the questionnaire. Oregon Coast recreationists are similar to a cross-section of North American society, so it is not unusual that low-cost facilities would be the most in demand.

One surprising response is that only a very few (15%) of the respondents favored more restaurants. In contrast, 58% indicated that they used these eating facilities, so it must be concluded that the respondents felt there was an adequate number of restaurants.

Control of Beach and Dune Activities

It is the consensus amongst those completing questionnaires that all motor vehicles should be restricted to prescribed areas of the sand dunes and beach. Within the complete questionnaire population,

certain sub-groups have opinions with regard to control or non-control of specific activities. Even with differing points of view, the overall population tends to agree on the need for control.

Those perceiving the littoral as underdeveloped particularly favor control of all motor vehicles on the sand dunes, while no relationship exists between control attitudes on the beach and perception of existing recreational development. Nevertheless, with reference to activities on the beach, there is a tendency for those who would be personally affected (that is, dune buggiers, bicyclists, and horseback riders) to be against beach activity restrictions. Certainly this type of attitude is understandable, although a contradiction develops with some of the statements made by others of this group who do favor controls. Those who favor control believe that conflicting activities ought to be areally separated as the means of control. In actuality, such areal segregation affects everyone, but at the same time, it permits all uses, so long as they are separated spatially and harmonize with the natural environment.

Park Design

From all the different campground users (that is, those with tents, trailers, campers and recreational vehicles), the consensus is that these facilities need not have different areas so as to separate tents from trailers, campers or recreation vehicles. Most people

felt that individual sites ought to be separated by vegetation buffers, and that alone would be quite sufficient. Thus, it appears that noise and congestion are not viewed as too great a problem in the campgrounds so long as sites are separated in ways that suggest spaciousness and provide privacy. It is necessary that distinct separation is perceived, whereas actual areal separation need not be great; the vegetation buffer seems to be all that is required.

In this regard, a suggestion made during discussion with a camper is noteworthy. This person stated that older people like he and his wife did not care about the kind of vehicle or tent that was next to them; however, the ages of the party members using that equipment were important. Thus, this man suggested that parties of recreationists could be separated by age, to advantage. Older people could request a site away from the noise and raucous of young families, or if they did not care, they could take a site wherever they desired. This system seems to be an answer to the privacy problem, although its adoption would only be possible in organized camps such as Honeyman State Park where site allotment is managed.

The addition of organized nature programs (trails, displays and slides or films) was perceived as not important by most questionnaire respondents. Only about one-third seemed to favor it, so it can be concluded that this kind of program was identified as desirable but not required.

Unappealing Features

Human factors, pollution and the weather were the most frequently mentioned unappealing features of this coastal zone. When the most mentioned unappealing feature--human factors--was related to the residence areas of respondents, it was discovered that Oregonians from within 150 miles of the littoral, and Canadians specifically perceived human factors as being unappealing. Distant Oregonians, Californians and Washingtonians did not look on human factors as detracting. It is clear then, that the factors of "anti-out-of-staters" or even "anti-distant visitors" was an important consideration with regard to human incompatibility. Oregonians from within 150 miles and Canadians are not used to the population crush, as are visitors from heavily populated regions. No doubt, this will be a temporary situation, since visitation numbers to the coastal zone are almost certain to increase. This forecast stresses the need to demand good management and environmental harmony within this sand dunes coastal zone.

A somewhat paradoxical outlook is demonstrated by a moderate number of respondents who perceived the area's level of development as "unappealing." This ambivalent view is possible since the region is generally underdeveloped, while at the same time, existing development is often of low quality and poorly planned. There is no doubt

that these attitudes toward unappeal suggest the need for controlled, better quality development.

Land and Facility Ownership

Private ownership is ardently favored by the majority of those completing a questionnaire. The public good is not abandoned however, since the largest number of those respondents to the ownership question also favored effective zoning ordinances in order to maintain natural, as well as cultural environmental quality. It was also noted that a good number of respondents indicated that on public lands, franchises should be granted for the provision of privately-owned food and lodging facilities.

Perception of Pollution

Based on the pollution-oriented questions, it is possible to state that pollution was perceived to be only slight. Noise and air pollution were particularly viewed as slight to non-existent, while water pollution has more notoriety and was perceived as slight to moderate. The identified causes of these three pollution types were varied. Pulp mills and timber waste burning were singled out as the air pollution causes, while industrial wastes, town and country sewers, lumbering run-off and boat wastes were pointed out as the water polluters. As was already mentioned, noise pollution was regarded as only slight,

but from the recreational point of view it was most significant, since motorbikes and motor vehicles in general are the prime contributors. Built-up areas and recreation sites such as town, community, cottage and campground locations were indicated as the locations of the noise problem.

From the aesthetic perspective, lumbering and industrial activities were looked on as having no detrimental effects on the environment. In fact, several respondents even suggested that lumbering and industrial activities contributed to the appeal of this coastal zone.

It is noteworthy that all of these different pollution perceptions pointed at lumbering and associated industries as one of the major or perhaps the major pollution cause. A number of respondents specifically singled out lumber trucks as a major noise polluter. Thus, it appears that those answering the questionnaire complained about the effects of lumbering and related industries on the air, water and indirectly, on the quiet of the study zone, while at the same time they perceived no negative lumbering or industrial effects upon the aesthetic appeal. In retrospect, it appears that those completing the questionnaire had a double standard with regard to lumbering and the industrial activities in the littoral. Independent of their development and ownership attitudes as well as their home residence location, they felt that this economic activity was not aesthetically objectionable and perhaps even enhanced the rugged natural environment. In contrast however,

the pollution conditions were regarded as slight to moderate and specifically of an unappealing nature.

Population Problems

Population pressure and human factors were two other important stress factors that can be equated with pollution. The majority of those responding to the questionnaire felt that the numbers of people at sites throughout the littoral were just about right. A tendency toward areal differentiation in population perception did develop. Respondents in the south of the study region as well as at Honeyman State Park felt that these areas were overpopulated. Conversely, those in the north perceived lower population pressure and went as far as to suggest that it would be "okay with more people." Even with these differing opinions, it appears from inference and observation that the number of people in this coastal zone is not yet perceived as being excessive; although, on certain weekends such as the Fourth of July and Labor Day, the pressure is quite great. The responses citing human factors in the question regarding "unappealing features" however, suggested a problem of increasing crowds of people. The responses to several questions (Question #6 and #12) seemed to imply that people perceived the area as still being underdeveloped and as having a good deal of open space. Surprisingly, the respondents did not indicate perception of population pressure, even though they may

have had to wait in line to get into a campground or to enter a restaurant--all indicators of overpopulation. Perhaps this is suggestive of a gradual adjustment to crowding. Indeed, the typical "bumper to bumper" traffic flow on U. S. Highway #101 points to an increasing problem for partaking of activities in the coastal zone. Moreover, it appears that recreation areas of the coast approach their limits of endurance on many days of the summer, despite the fact that overpopulation was not generally perceived by the respondents.

Recreational Activities

The list of recreational activities enjoyed in this coastal zone is long and varied. Still, the greatest number of activities are environmentally-oriented and definitely relate to the marine and sand dunes environments. In fact, this association is so dominant in some instances, that it was possible to show a direct relationship between those who indicated natural marine appeal and those that specified the preferred activities of swimming, hiking and walking, camping and relaxing. Other activities reported did not demonstrate such strong relationships with natural marine appeal and no association could be seen in the case of natural appeal of inland areas. Nevertheless, even though the relationships were not statistically significant, it is logical to assume that some degree of recreational activity-natural environment association does exist. Dune bugging, fishing, camping,

shellfishing and numerous other activities are only possible here because of the presence of the dunes, the lakes, the forests and the marine resources.

By grouping activities, specific "activity packages" were discernible. In the "package" which included boating and canoeing, waterskiing, motorbiking, fishing, relaxing, and hiking and walking, the association with natural environmental quality was clear. The "package" of dune bugging, sightseeing and hiking and walking also displayed clear relationships with environment quality and annoyances were explicit in the responses to the questionnaires. It could be appreciated that fishing, camping, relaxing, sightseeing, hiking and walking, swimming and picture taking were important activities enjoyed by the majority. In contrast, motorbiking in particular, dune bugging, tavern or lounge visiting and nightclubbing, hunting and waterskiing were often mentioned as bothersome, annoying activities. Thus, conflicts and incompatibilities were revealed. Ironically, many respondents indicated that they enjoyed activities of the "preferred" group, while at the same time they also participated in one of the annoying pastimes. This is a management problem, since many recreationists do not specifically subscribe to just the "preferred" activities, or only the "annoying" activities.

It was revealed in the analysis of the questionnaire responses that certain activities were enjoyed by distinct occupational groups.

The group identified as professional, technical, managers, administrators except farm workers, and kindred workers showed a positive preference for swimming, hiking and walking, picnicking and bicycling. It is noteworthy that those in this occupational cluster seemed to prefer the nature-oriented activities that require only minimal equipment and are not tied to the motor vehicle. Homemakers similarly related significantly to the passive activity of picnicking, while craftsmen were typically associated with the bothersome, overly-active pastime of motorbiking. None of the other occupational groups could be statistically associated with specific recreational activities. Furthermore, no statistically significant relationships could be demonstrated between development perception and activities.

Conclusions Applicable to Development of Viable Management Techniques

Future recreational development appears to be inevitable, and, in some cases, perhaps even desirable, within this coastal zone. Consequently, viable management techniques need to be developed so as to avoid activity conflicts and to maintain environmental harmony in the area. Considering the attitudes and suggestions of respondents to the questionnaires, the following conclusions which might aid management officials have been formulated. The management people involved include U. S. Forest Service, State and County Parks personnel

responsible for outdoor recreational facility development and management, as well as planners of built-up communities.

Conclusions

1. The open space and natural environment qualities of the area need to be preserved, and the ordering of development ought to keep this in mind, perhaps through zoning.
2. Already built-up areas should be favored as the sites for further recreational development such as motels, restaurants and concessions in order to assist in preserving the remaining natural qualities.
3. Incentives to encourage additional development of moderately-priced, compatible, resource-oriented facilities would be desirable. The respondents generally suggested that luxury, sophisticated developments are less wanted.
4. Vegetation separations between tent and trailer camp sites are appreciated and valued by users, and certainly should be included in planning for park areas.
5. Separation of recreation area user-groups by age might be considered, since several respondents suggested this technique for minimizing conflict. For example, areas could be designated for senior citizen groups.
6. Public agencies might consider granting privately-owned food, lodging and other facility franchises on public lands, inasmuch as a

substantial number of respondents reported that they favored this kind of development.

7. Special efforts should be made to avoid the construction of low-quality, unharmonious facilities, since a number of respondents complained of this type of unappealing development.

8. Tax incentives for repair or improvement of private property might be considered by political units, and building codes tightened with an eye toward preserving harmony with the natural environment.

9. All off-road vehicles ought to be restricted, and such control would be accepted, inasmuch as more than half of the people indicated the desirability of controlling all motorized vehicles, both on the dunes and on the beach areas.

10. Specialized use areas should be designated for such uses as dune bugging and motorbiking to separate these noise-creating, more vigorous activities from the passive activities such as picnicking, hiking and walking and sightseeing. It is evident from the responses to the questionnaire, that these motorized activities are considered to be incompatible with the other activities. Moreover, the responses suggest that the general public is ready to accept such regulation.

11. Vegetation buffers and set-backs should be considered to help contain highway noise. Although the respondents did not seem to perceive noise as a serious problem, it is clear that noise levels are increasing and are becoming incompatible with the quality natural environment.

12. There is an implication that motorboating should be restricted, and perhaps prohibited on small lakes such as Cleawox, Carter and Elbow lakes. Respondents commonly indicated waterskiing as an annoyance and moreover, motorboating contributes to the noise problem.

13. Since waterskiing was often indicated as an annoyance, it should be limited on the large lakes of the littoral, perhaps to that part of the day between 9 a. m. and 5 p. m., or to designated areas, so that conflicts with other water-oriented activities can be avoided.

14. It is suggested that tavern and lounge development and nightclubs be permitted only in the built-up communities of the coastal zone, since respondents commonly reported these facilities as annoyances, and incompatible with the quality natural environment.

15. Foresighted attention by all agencies and political units should be given to avoiding air and water pollution. This could be accomplished through strict building codes, insistence on adequate sewer treatment, and enforcement of existing clean air and water quality legislation, both within the area and in the contiguous zones.

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APPENDICES

APPENDIX I

This appendix is a direct copy of part of a document, Outline of Canadian Land Capability Classification for Outdoor Recreation by Chester S. Brown, prepared for Canada Land Inventory, A. R. D. A., Ottawa, Ontario, March 1966, 23 p. This preliminary classification was utilized in the resource capability analysis and is not readily available to the reader. Subsequently, a permanent document was published. It is with the generous permission of the author that this information is included.

APPENDIX I

OUTLINE OF THE CANADIAN LAND CAPABILITY
CLASSIFICATION FOR OUTDOOR RECREATION

The national system requires that only the capability class and the kinds of recreation features be indicated. As outlined herein, it contains only these elements and a separation of all units between shorelands and uplands (for computer purposes). This section describes each of the seven classes.

CLASS 1AREAS IN THIS CLASS HAVE A VERY HIGH CAPABILITY
FOR OUTDOOR RECREATION

Class 1 lands constitute the highest quality resources for outdoor recreation in the region and have natural capability to attract and sustain very intensive use. They may be shorelands with excellent natural capability for public beach and shore based recreation uses; or lands with an excellent natural capability for professional and amateur skiing; or lands which provide viewing opportunities, or contain special interest features of highly outstanding and unique quality; or any combination of these.

Lands which have high capability for intensive use through two or more seasons due to the presence of two or more recreation features each of which would independently rate Class 2 may in instances rate Class 1.

CLASS 2AREAS IN THIS CLASS HAVE A HIGH CAPABILITY
FOR OUTDOOR RECREATION

Class 2 lands are not of the highest quality for recreation in the region, but are relatively outstanding and capable of attracting and sustaining moderately intensive use. Modest improvements to the resource base may be necessary to realize the full potential. They may be shorelands with good natural capability for public beach and shore based recreation activities; or lands with good natural capability for competitive and amateur skiing; or lands which provide viewing opportunities or contain special interest features of outstanding quality; or any combination of these.

CLASS 3AREAS IN THIS CLASS HAVE A MODERATELY HIGH
NATURAL CAPABILITY FOR OUTDOOR RECREATION

Class 3 lands will normally have limited capability for intensive use of a public nature without significant capital inputs but are more likely to attract and sustain a high total annual use. They may be shorelands with moderate to high capability for shore based activities such as swimming, boat launching and camping, or for intensive private or commercial lodging use; or lands with capability for moderate to high total annual use associated with particular recreation attractions or exceptional viewing opportunities; or any combination of these.

CLASS 4AREAS IN THIS CLASS HAVE A MODERATE CAPABILITY
FOR OUTDOOR RECREATION

Class 4 lands will not normally engender intensive use without major capital inputs, but may engender moderately high total annual use in dispersed activities. They may be shorelands with low to moderate capability for private lodging or camping associated with access to water suited to boating and/or swimming though some improvements will be necessary for access to, or use of the water. They may be shorelands with moderate to good capability for lodging fronting waters with low capability for shore based activities other than viewing. Or they may be lands with good to excellent capability for dispersed activities, including shorelands or other lands with high scenic quality on an extensive scale, but lacking capability to rate higher.

CLASS 5AREAS IN THIS CLASS HAVE A MODERATELY LOW
CAPABILITY FOR OUTDOOR RECREATION

Class 5 lands lack the natural aesthetic quality or the recreation features to engender intensive use, but may have moderate to good capability for a number of dispersed activities. They may be pleasant for touring, walking or riding or good for hunting, stream fishing or gathering and collecting. They will seldom warrant capital improvement except in a high demand situation. They may provide a fully

satisfactory buffer zone for an intensive use area.

CLASS 6

AREAS IN THIS CLASS HAVE A LOW CAPABILITY FOR OUTDOOR RECREATION

Class 6 lands lack natural aesthetic quality and recreation features, but may have low to moderate capability for one or more dispersed activities. They will normally be uninteresting and may present serious restrictions and offer little incentive to exploration or use.

CLASS 7

AREAS IN THIS CLASS HAVE A VERY LOW CAPABILITY FOR OUTDOOR RECREATION

Class 7 lands will have practically no natural capability for any popular types of recreation activity due to an almost complete lack of recreation features. They may, however, have some capability for very specialized activities with recreation aspects such as a study of biological or other phenomena or gathering of specimens, or they may merely provide open space.

RECREATION FEATURES

The following attractions or "recreation features" are grouped to a degree as follows: Water or shoreland use features: upland use features: visual attractions. The reader may find them more usefully

listed alphabetically. It may be found necessary to add to the list with further experience.

Where possible the letter symbol used relates to the feature or use.

- B Bathing beach: wet and dry beach conditions suited to family bathing, at normal water levels, in terms of water quality, beach slopes and beach materials.
- D Shoreland with deeper water inshore suitable for swimming or boat launching.
- N Shoreland suited to family cottage or other lodging use.
- Y Boating area: shorelands providing access to a water body capable of accommodating popular forms of family boating activity.
- A Angling area: land providing access to water with natural capability for production or harvesting of sport fish.
- C Canoeing area: land providing direct access to a stream, river or other waterway with good natural capability for canoe tripping.
- W Wetland: with significant capability for wildlife viewing or hunting.
- T Thermal springs.
-
- J Gathering and collecting: areas offering particular opportunities for items of popular interest.

- G Glacier or area offering a glacier view or experience.
- F Waterfalls or rapids.
- K Camping: terrain suited to organized camping (generally to be used only when such terrain exists near, or in the same unit with another attraction).
- S Skiing areas: slopes and climatic conditions capable in normal seasons of providing skiing opportunities.
- O Upland with significant capability for wildlife viewing or hunting.
- M Upland area containing frequent small water bodies.
-
- Z Major permanent, non-urban, man-made structures of recreational interest.
- Q Patterns of topography and land form, or land and water, exhibiting interesting diversity of landscape.
- E Areas exhibiting representative and unique types of nature vegetation.
- L Natural landform features of particular interest - other than rock formation: such as hoodoos, slump zones, eskers, sand dunes, badlands, etc.
- H Historic site: an historic or prehistoric site or feature of a level of significance recognized by provincial or national government authorities.
- P Areas exhibiting pleasing or interesting diversity of cultural landscape patterns.
- R Rock formation of interest; such as caves, crevasses, exposed stratification, folding, fossil deposits, etc.

V Viewpoint or overlook: a promontory or vantage point which provides a superior view of a feature, landscape or seascape; or a corridor or other area which provides frequent good viewing opportunities.

APPENDIX II*

No. _____
 Date _____
 Interview _____
 Place _____

Oregon State University
 Department of Geography
 Corvallis, Oregon 97331

INTRODUCTION

The following is a questionnaire that has been prepared in support of an Oregon State University doctoral dissertation concerning recreational land use of an Oregon coastal zone. The accuracy of the study will depend to a large extent on the quality of your answers to these questions. Your assistance in completing this questionnaire will be appreciated. In order to assure your privacy there is no need to place your name on this form. It will take approximately 9 MINUTES TO COMPLETE.

Thank you for your needed assistance.

Yours sincerely,

D. Lawrence Anderson
 Doctoral Candidate

* Note: To the original questionnaire, the following have been added:
 In Questions #1 and #2, the short-term and long-term mean lengths of stay are tabulated by days.
 In Question #4, the mean number of visits is indicated.
 In Question #6, the "just about right" category was written in by respondents.
 In all questions where applicable, the "no response" frequencies have been added.
 In Questions #23 and #24, frequencies are given by nine categories that are referred to as "Codes 1 to 9." "Code 0" is a "no response" category. These nine categories are explained in Appendix IV.
 In Questions #25, part 4; #26, "Others"; #29 and #34, the categorized responses are explained in Appendix IV.

Therefore, variables do appear that have been added to facilitate in a complete accounting of all responses.

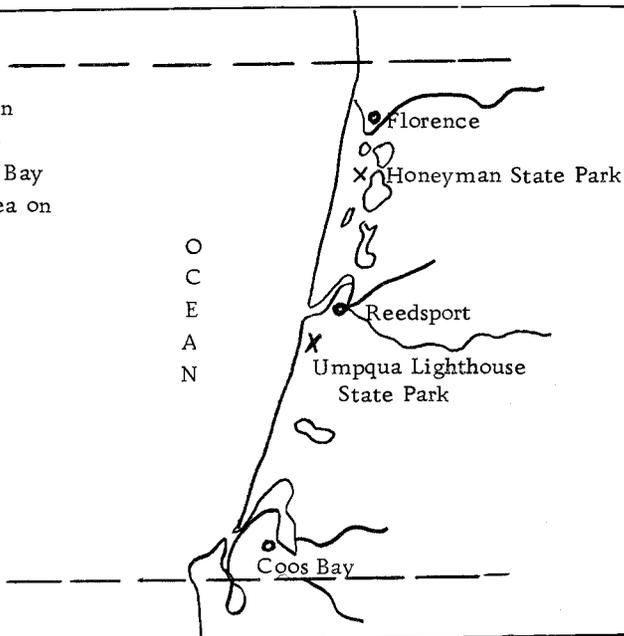
QUESTIONNAIRE

INSTRUCTIONS: Please answer all questions to the best of your ability marking only ONE answer except where otherwise stated. Questions requiring a written response can be answered in the space allotted.

Questionnaires will be picked up by the researcher who distributed them. In other cases where questionnaires are given out at registration, they may be turned back in to the office or gate at departure time.

Thank you for your help.

The term 'coastal zone' as used in this questionnaire refers ONLY to that area lying between the Coos Bay on the south and the Florence area on the north (see map).



1. On this visit, approximately how many days will you spend in this coastal zone? 4.6 (152.0) days.
If less than one day, how many hours? All hours counted as one day.
2. How long will you spend at this particular recreation site? 4.0 (154.8) days.
3. What is your means of transport through this coastal zone?

| | | |
|-----------------------------|--|--|
| <u>293</u> (68%) automobile | <u>58</u> (14%) camper | |
| <u>4</u> (.94%) motorcycle | <u>17</u> (4%) recreation vehicle (motor home) | |
| <u>1</u> (.23%) bicycle | <u>2</u> (.47%) boat | |
| <u>0</u> (0%) horse | <u>0</u> (0%) busline | |
| <u>0</u> (0%) taxi | <u>0</u> (0%) airplane | |
| <u>3</u> (.70%) foot | <u>38</u> (9%) other (specify) _____ | |
| | <u>12</u> (3%) no response | |
4. How many visits have you made to this particular coastal zone in the past 12 months?
3.4 (mean)

5. What kind of accommodation are you using on this present visit?
- | | | | |
|-----------------|------------------|------------------|--|
| <u>85</u> (20%) | motel | <u>4</u> (.93%) | motor hotel |
| <u>51</u> (12%) | camper | <u>103</u> (24%) | trailer |
| <u>78</u> (18%) | tent | <u>10</u> (2%) | recreation vehicle (motor home) |
| <u>23</u> (5%) | cottage or cabin | <u>4</u> (.93%) | one day only (no accommodation req'd.) |
| <u>41</u> (10%) | permanent home | <u>28</u> (7%) | other (specify) _____ |
| | | <u>1</u> (.23%) | no response |
6. If you had to choose ONE of the following, which would you say best describes the present recreational development in this coastal zone?
- | | | | |
|------------------|----------------|-----------------|------------------|
| <u>232</u> (54%) | underdeveloped | <u>43</u> (10%) | just about right |
| <u>126</u> (29%) | overdeveloped | <u>27</u> (6%) | no response |
7. Within this coastal zone where would you like to see recreational development occur?
- | | |
|------------------|---|
| <u>61</u> (14%) | only within the built-up communities of this coastal zone |
| <u>74</u> (17%) | only within the undeveloped areas of this coastal zone |
| <u>110</u> (26%) | in both built-up and undeveloped areas |
| <u>107</u> (25%) | not in favor of further recreational development |
| <u>70</u> (16%) | don't know |
| <u>6</u> (1%) | no response |
8. What kind of recreational development do you most favor within this coastal zone? (CHECK ALL THAT ARE APPLICABLE)
- | | | | |
|------------------|--|------------------|-------------------------------|
| <u>72</u> (17%) | more low cost motels and hotels | <u>7</u> (2%) | more luxury motels and hotels |
| <u>65</u> (15%) | more restaurants | <u>104</u> (24%) | more picnic grounds |
| <u>221</u> (52%) | more tent and trailer parks | <u>12</u> (3%) | more condominiums |
| <u>117</u> (27%) | not in favor of further recreational development | | |
9. Which of the following would be beneficial to recreation in this coastal zone? (CHECK ALL THAT ARE APPLICABLE)
- | | |
|------------------|---|
| <u>112</u> (26%) | no further recreational development should occur |
| <u>87</u> (20%) | all undeveloped private property should be purchased by public agencies (i. e., State, Federal and Local) |
| <u>156</u> (36%) | development on private land should be regulated by zoning ordinances |
| <u>51</u> (12%) | public agencies should provide publicly-owned food and lodging facilities on public land |
| <u>102</u> (24%) | public agencies should grant franchises for the provision of privately-owned food and lodging facilities on public land |
10. On the sand dunes should the following recreational uses be restricted to certain prescribed areas? (CHECK ALL THAT ARE APPLICABLE)
- | | | | |
|------------------|--------------------------------|------------------|------------|
| <u>233</u> (54%) | dune buggies | <u>188</u> (44%) | motorbikes |
| <u>231</u> (54%) | all motorized vehicles | <u>166</u> (39%) | horses |
| <u>75</u> (18%) | no restrictions should be made | | |

11. On the beach should the following activities be restricted? (CHECK ALL APPLICABLE)

| | | | |
|------------------|--------------------------------|------------------|------------|
| <u>208</u> (49%) | dune buggies | <u>213</u> (50%) | motorbikes |
| <u>322</u> (75%) | all motor vehicles | <u>137</u> (32%) | horses |
| <u>59</u> (14%) | no restrictions should be made | | |

12. Generally speaking what do you think of the number of people using this particular facility?

| | | | |
|------------------|----------------------|-----------------|--------------------------------|
| <u>276</u> (64%) | just about right | <u>60</u> (14%) | would be okay with more people |
| <u>72</u> (17%) | too many people here | <u>19</u> (4%) | no response |

13. Do you think that the lumbering and industrial activities along the various estuaries of this coastal zone affect the aesthetic appeal?

| | | | |
|-----------------|-------------------------------------|------------------|-------------------------|
| <u>68</u> (16%) | strongly detract from the appeal | <u>177</u> (41%) | don't affect the appeal |
| | | <u>82</u> (19%) | haven't noticed |
| <u>83</u> (19%) | detract from the appeal | <u>17</u> (4%) | no response |

14. Do you think the waters of this coastal zone are polluted (estuaries, lakes, and the ocean)?

| | | | |
|------------------|------------------------|------------------|--------------|
| <u>16</u> (4%) | extremely polluted | <u>33</u> (8%) | not polluted |
| <u>113</u> (26%) | moderately polluted | <u>142</u> (33%) | don't know |
| <u>116</u> (27%) | only slightly polluted | <u>7</u> (2%) | no response |

15. If you think there is water pollution in this coastal zone what do you think causes it? (CHECK ALL THAT ARE APPLICABLE)

| | | | |
|------------------|---------------------------|------------------|---------------------------|
| <u>121</u> (28%) | town and community sewers | <u>73</u> (17%) | recreation area sewers |
| <u>164</u> (38%) | industrial wastes | <u>142</u> (27%) | lumbering run-off |
| <u>92</u> (22%) | garbage dumping | <u>104</u> (24%) | boat wastes |
| <u>154</u> (36%) | don't know | <u>26</u> (6%) | no water pollution exists |

16. Do you think there is air pollution in this coastal zone?

| | | | |
|------------------|------------------------|------------------|--------------|
| <u>13</u> (3%) | extremely polluted | <u>130</u> (30%) | not polluted |
| <u>65</u> (15%) | moderately polluted | <u>54</u> (13%) | don't know |
| <u>164</u> (38%) | only slightly polluted | <u>1</u> (.23%) | no response |

17. If you think there is air pollution in this coastal zone what do you think causes it? (CHECK ALL THAT ARE APPLICABLE)

| | | | |
|------------------|----------------------|------------------|-------------------------|
| <u>107</u> (25%) | timber waste burning | <u>36</u> (8%) | campfires |
| <u>182</u> (43%) | pulp mills | <u>50</u> (12%) | teepee burners |
| <u>46</u> (11%) | garbage burning | <u>77</u> (18%) | don't know |
| <u>52</u> (12%) | other industry | <u>117</u> (27%) | no air pollution exists |

18. Do you think there is noise pollution in this coastal zone?

| | | | |
|------------------|-----------------------------|------------------|--------------------|
| <u>7</u> (2%) | extreme noise pollution | <u>143</u> (33%) | no noise pollution |
| <u>92</u> (22%) | moderate noise pollution | <u>42</u> (10%) | don't know |
| <u>136</u> (32%) | only slight noise pollution | <u>7</u> (.2%) | no response |

19. If you think there is noise pollution in this coastal zone, which of the following create noise that bothers you? (CHECK ALL THAT ARE APPLICABLE)

- 128 (30%) motor bikes
- 141 (33%) other motorized vehicles
- 20 (5%) aircraft
- 20 (5%) boats
- 151 (35%) no noise pollution exists
- 53 (12%) dune buggies
- 35 (8%) pets
- 46 (11%) humans (e. g. , voices, shouting)
- 23 (5%) radios, TV's, musical instruments

20. If in your opinion, noise is a problem, in which of the following areas is it most bothersome to you? (CHECK ALL THAT ARE APPLICABLE)

- 46 (11%) tent campgrounds (tents only)
- 63 (15%) campgrounds for trailer and camper vehicles only
- 21 (5%) picnic grounds
- 39 (9%) developed recreational areas (e. g. , marinas, swimming areas, etc.)
- 29 (7%) undeveloped areas (e. g. , trails, lakes, sand dunes, beaches, etc.)
- 76 (18%) towns, communities and cottage areas
- 33 (8%) others (specify) _____
- 157 (37%) no noise problem exists

21. Which of the following would improve overnight camping and trailer accommodations? (CHECK ALL THAT ARE APPLICABLE)

- YES 147 (34%) tent areas should be separated from trailer and camper vehicle areas
- YES 265 (62%) individual sites should be separated by a vegetation buffer
- YES 133 (31%) an organized nature program (trails, displays and slides or films)

22. If you are using portable or mobile accommodation (i. e. , tent, trailer, etc.) in this coastal zone, where will you stay tonight? (If you will not stay tonight BUT did stay last night then refer to that location.) Please give the park name. 26 possibilities. If you DON'T KNOW the specific name of the park, then do you know what kind of a park it is?

- 98 (23%) Oregon State Park
- 78 (18%) U. S. Forest Service Park
- 39 (9%) Privately owned or leased land
- 6 (1%) Other (specify) _____
- 16 (4%) County Park
- 34 (8%) Private Park
- 17 (4%) Don't know
- 139 (32%) No response

23. For you, what are the most appealing features of this coastal zone? _____

| Code | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----|----|----|-----|----|-----|-----|----|----|----|
| Total | 549 | 90 | 51 | 100 | 47 | 172 | 163 | 41 | 58 | 13 |

24. For you, what are the most unappealing features of this coastal zone? _____

| Code | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|-----|----|----|----|----|----|----|----|----|----|
| Total | 873 | 14 | 40 | 81 | 69 | 20 | 45 | 54 | 77 | 11 |

25. Have you eaten or will you eat at least ONE meal within this coastal zone?

- 12 (3%) = No
- 391 (91%) = Yes
- 25 (6%) = No response

If 'No' go to Question #26. If 'Yes' continue here.

Have you or will you eat at least ONE meal in a restaurant?

- 110 (26%) = No
- 232 (54%) = Yes
- 56 (13%) = Don't know
- 30 (7%) = No response

Have you or will you eat at least ONE meal other than in a restaurant?

56 (13%) = No 274 (64%) = Yes 40 (9%) = Don't know 57 (13%) = No response
 If 'non-restaurant', please specify where, e. g., picnic ground) 7 possible responses.
262/428 responses = 61.92%.

26. Which of the following recreational activities will you OR did you do in this specific coastal zone?
 (CHECK ALL THAT ARE APPLICABLE)

| | | | | | | | | | |
|------------------|---------------------|------------------|----------------------------|-----|----|----|----|---|----|
| <u>242</u> (57%) | fishing | <u>55</u> (13%) | bicycling | | | | | | |
| <u>68</u> (16%) | shellfishing | <u>22</u> (5%) | motorbiking | | | | | | |
| <u>20</u> (5%) | hunting | <u>18</u> (4%) | horseback riding | | | | | | |
| <u>171</u> (40%) | swimming | <u>8</u> (2%) | flying | | | | | | |
| <u>16</u> (4%) | surfing | <u>6</u> (1%) | tennis | | | | | | |
| <u>27</u> (6%) | waterskiing | <u>44</u> (10%) | golf | | | | | | |
| <u>111</u> (26%) | boating or canoeing | <u>10</u> (2%) | baseball | | | | | | |
| <u>96</u> (22%) | nature study | <u>20</u> (5%) | horseshoes | | | | | | |
| <u>279</u> (65%) | hiking/walking | <u>122</u> (29%) | dining out | | | | | | |
| <u>314</u> (73%) | sightseeing | <u>27</u> (6%) | nightclubbing | | | | | | |
| <u>233</u> (54%) | picture taking | <u>44</u> (10%) | tavern and lounge visiting | | | | | | |
| <u>13</u> (3%) | painting | <u>307</u> (72%) | relaxing | | | | | | |
| <u>232</u> (54%) | camping | <u>225</u> (53%) | meeting and talking with | | | | | | |
| <u>170</u> (40%) | picnicking | | other visitors | | | | | | |
| <u>76</u> (18%) | dune bugging | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <u>44</u> (10%) | Others (specify) | 166 | 19 | 108 | 17 | 30 | 50 | 5 | 33 |

27. Which of all of those activities listed in Question #26 would be the top three that you most prefer to engage in?

1st Preference See Table 4.5 2nd Preference _____
 3rd Preference _____

28. Which activities of those listed in Question #26 most annoy or bother you?

See Table 4.7

0 1 2 3 4 5 6 7 8 9

29. Where is your home residence? 5 169 77 55 49 31 18 19 4 1 Part b
 City State/Province

30. Are you Male 229 (53.50%) , or Female 193 (45.09%) ? 5 (1.17%) No response

31. How many people are in your group on this trip? 3.89 Mean . Please indicate the number of individuals within each age category:

- | | |
|------------------------------|-----------------------------|
| 1. <u>72</u> 5 years or less | 5. <u>86</u> 6-10 years |
| 2. <u>177</u> 11-20 years | 6. <u>114</u> 21-30 years |
| 3. <u>131</u> 31-40 years | 7. <u>124</u> 41-50 years |
| 4. <u>112</u> 51-60 years | 8. <u>105</u> over 60 years |

32. What is your age category from Question #31? _____

1 = 0% 2 = 8% 3 = 21% 4 = 16% 5 = 47% 6 = 18% 7 = 17%
 8 = 15% No response = 4%

33. What was the last year of school that you completed? (Please circle the year)

| <u>Elementary & Junior High School</u> | | <u>High School</u> | | | | <u>College or Technical</u> | | | | | |
|--|-------------|--------------------|----|----|----|-----------------------------|----|----|----|--------------|----|
| 0 | 8 (or less) | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 (or more) | |
| Total | 19 | 11 | 17 | 6 | 11 | 137 | 47 | 45 | 20 | 45 | 70 |

Mean = 12.89 years

34. What is your occupation? _____ 15 possible responses _____ .

Again I thank you for your assistance.

APPENDIX III

QUESTIONNAIRE ANALYSES

1. Cross-tabulation of Question #8 (recreational development desired) with Question #5 (kind of accommodation used).
Desire: to see if people want more development of the kind that they use themselves.
2. Cross-tabulation of Question #29b (home residence - nine categories) with:
 - Question #7 (anti-development sub-population).
Desire: to see if certain regional groups are anti-development.
 - Question #6 (perception of level of development).
Desire: to see if level of development varies with home residence.
3. Cross-tabulation of Question #31 (age categories - seven categories) with Question #7 (anti-development sub-population).
Desire: to see if certain age groups are anti-development.
4. Cross-tabulation of Question #7 (anti-development sub-population) with:
 - Questions #13, #14, #16 and #18 (pollution).
Desire: to see if the anti-development group has certain pollution perceptions.
 - Question #34 (occupation).
Desire: to see if certain occupational groups are anti-development.
5. Cross-tabulation of Question #6 (perception of development - three possibilities) with Question #7 (where is development desired - five possibilities).
Desire: to see if perception of recreational development relates to attitudes toward location of future development.
6. Cross-tabulation of Question #6 (perception of development - three possibilities) with Question #8 (kind of development - seven possibilities).
Desire: to see if perception of development relates to the kind of development preferred.

7. Cross-tabulation of pollution Questions #14, #16 and #18 with each other (each has five possibilities).
 - Desire: to develop a "pollution index" for each questioned respondent.
 - Using the "pollution index" developed above, cross-tabulate with Question #6 (perception of development).
 - Desire: to see if one's "pollution index" relates to one's perception of development.
 - Using the "pollution index" developed above, cross-tabulate with Question #29b (home residence - nine categories).
 - Desire: to see if one's home residence relates to one's "pollution index."
 - Using the "pollution index" developed above, cross-tabulate with Question #7 (pro- and anti-development).
 - Desire: to see if pollution perception and development attitudes are related.
 - Using the "pollution index" developed above, cross-tabulate with Question #9 (land and facility ownership).
 - Desire: to see if pollution perception and attitudes toward land and facility ownership are related.

8. Cross-tabulation of Question #12 (numbers of people perceived - three possibilities) with Question #6 (perception of development - three possibilities).
 - Desire: to see if perception of development and numbers of people are related.
 - Cross-tabulation of Question #12 (numbers of people perceived - three possibilities) with location of the interview.
 - Desire: to see if location of recreation relates to one's perception of the number of people.

9. Cross-tabulation of Question #6 (perception of development) with:
 - Question #10 (sand dune activities control).
 - Question #11 (beach activities control).
 - Desire: to see if development perception coincides with attitudes toward controls and restrictions on sand dunes and beaches.

10. Cross-tabulation of Question #27 (preferred activities) with Question #28 (activities that bother).
 - Desire: to note conflicts of activities.

11. Cross-tabulation of Question #2 la (campground improvement) with Question #5 (accommodation users).
Desire: to see which accommodation users want camp separation.
12. Cross-tabulation of questionnaire interview location with Question #6 (perception of development).
Desire: to see if development perception relates to location of questioning.
13. Cross-tabulation of Question #9 (type of recreational development) with Question #6 (perception of development).
Desire: to see if ownership perception relates to development perception.
14. Cross-tabulation of Question #7, Codes 1, 2, and 3 (where development preferred) with Question #8, Codes 1, 2, 3, 5, 6 and 7 (kinds of development).
Desire: to see the relationships between location and kinds of development desired.
15. Cross-tabulation of Question #24, Code 3 sub-population (human factors) with Question #29b (home residence).
Desire: to see if perception of unappealing human factors relates to where a person resides.

Cross-tabulation of Question #24, Code 8 sub-population (pollution) with Question #29b (home residence).
Desire: to see if pollution perception relates to where a person resides.

Cross-tabulation of Question #24, Code 8 sub-population (pollution) with Question #6 (perception of development).
Desire: to see if pollution perception relates to perception of development.
16. Cross-tabulation of questionnaire interview location with Question #7 (attitude toward development).
Desire: to see if development attitudes relate to location of questioning.
17. Cross-tabulation of Question #23, Code 6 sub-population (inland appeal) with preferred activities in Question #27.
Desire: to see if inland natural appeal relates to preferred activities.

Cross-tabulation of Question #23, Code 5 sub-population (marine appeal) with preferred activities in Question #27.

Desire: to see if marine natural appeal relates to preferred activities.

Cross-tabulation of Question #23, Code 5 sub-population (marine appeal) with "anti-development" in Question #7.

Desire: to see if marine natural appeal relates to perception of anti-development.

Cross-tabulation of Question #23, Code 6 sub-population (inland appeal) with anti-development in Question #7.

Desire: to see if inland natural appeal relates to perception of anti-development.

18. Cross-tabulation of Question #26 (combined into 17 categories of recreational activities) with Question #34 (occupations combined into nine categories).

Desire: to see if particular occupational groups participate in particular activities.

19. Sorting of responses to Question #26 (recreational activities) to develop activity packages from which sub-populations can be derived.

Desire: to note compatibilities.

20. Cross-tabulation of preferred activities in Question #27, with:
-Question #11 (beach activity restrictions).
-Question #10 (sand dune activity restrictions).

Desire: to see if activities preferred relate to attitudes toward restrictions.

21. Cross-tabulation of clumped categories in Question #26 (activities) with:
-Question #6 (perception of "overdevelopment" and "under-development").
-Question #7 anti-development population and pro-development population.

Desire: to see if those people with different perceptions of development participate in different activities. To see if anti-development people participate in different activities than those in favor of development.

Note: χ^2 (Chi-square) was used as the test for significance in each of these cross-tabulations (contingency tables). Significance levels had to be at the least .05 to be accepted.

Code

3. Scenery and natural beauty
4. Weather includes: pleasantly cooler temperatures
5. Natural features --marine related include : ocean and coastline, beaches, driftwood and rocks.
6. Natural features --inland related include : vegetation and trees, rivers, estuaries, waters and lakes, animals and wildlife, caves and dunes.
7. Level of development includes: small towns, naturalness, relatively undeveloped, not overly commercialized, low population and few people most of the year, public beaches, natural.
8. Pollution includes: clear air and smog free, unpolluted, cleanliness, quiet and solitude.
9. Miscellaneous includes: ocean-going ship viewing, friendly people.

Question #24 - Unappealing Features

Code

1. Recreational activities include: motorbikes, large boats and motors, rifle range, poor fishing, motorbike requirements, guns, horses, campers and trailers, not enough horse riding, dune buggies and concessions, can't drive dune buggies everywhere, and bike riders.
2. Recreational facilities include: not enough campsites, need for vacancy system, permanent trailer parks, lack of bars, need more golf courses, variations in recreational facilities (Federal versus State), no safe bike riding areas, lack of night life, U. S. Forest Service wood vending machines, lack of recreational facilities and services for families, campsites too close together, private parks, condominiums, poor beach facilities, parks with dirt but no grass, campers and trailers.
3. Human factors include: the people, out-of-state visitors, anti-out-of-state feeling, tourists, police, hippies and hitchhikers, unfriendly townsfolk, vandalism, crowds and traffic.

Code

4. Weather includes: wind, rain and cold weather, fog, blowing sand.
5. Natural features include: lack of swimming, dunes, little beach access, insects, rough or cold water.
6. Level of development includes: commercialism, too many public parks, government control from afar, uncontrolled and unrestricted development, private land, and complaint because recreation funds divided between Federal and State agencies.
7. Kinds of development include: urban development, cheap houses and junk, signs, bad side streets, and lack of good highways.
8. Pollution includes: industry, noise, garbage, litter, dirty facilities, careless use of land, dirty beaches, dirty rivers due to sewage, and clear-cuts.
9. Miscellaneous includes: high prices, logging trucks and dogs.

Question #25 -- Non-restaurant Eating Locations

Code

1. Private camp or trailer park
2. Public camp or trailer site (if in doubt the site was categorized as public)
3. Motel or rented cabin
4. Private home or cabin
5. Picnic ground
6. Beach or roadside (car)
7. Motor home, camper, trailer, boat

Question #29 - Home Residence Locations

Home residence locations were converted to mileages (Question #29a) and to regions (Question #29b). Nine regions were developed for Question #29b and are as follows:

'Oregon - within 150 miles' refers to locations within 150 miles of Reedsport;

'Oregon - outside 150 miles' refers to locations beyond 150 miles of Reedsport;

'Northern California' refers to California locations within 700 miles of Reedsport;

'Southern California' refers to California locations beyond 700 miles of Reedsport;

'Washington' refers to the whole state of Washington;

'Mountain States' refers to the states of Idaho, Montana, Arizona, Nevada, New Mexico, Colorado, Utah and Wyoming;

'Central and Eastern U. S. A. ' refers to the states east of the 'Mountain States';

'Canada' refers to the whole nation of Canada;

'Alaska and Hawaii' refers to both of the states of Alaska and Hawaii.

Question #34 - Occupational Categories

| <u>Code</u> | | <u>Combined Categories</u> |
|-------------|---|----------------------------|
| 01 | Professional, technical and kindred workers | 1 |
| 02 | Managers and administrators except farm | |
| 03 | Sales workers | 2 |
| 04 | Clerical and kindred workers | |
| 05 | Craftsmen and kindred workers | 3 |
| 06 | Operatives except transport | 4 |
| 07 | Transport equipment operatives | |
| 08 | Laborers except farm | |
| 09 | Farmers and farm managers | 5 |
| 10 | Farm laborers and farm foremen | |
| 11 | Service workers, except private household | 6 |
| 12 | Private household workers | |
| 13 | Students | 7 |
| 14 | Unemployed and retired | 8 |
| 15 | Homemakers | 9 |

Questionnaire Locations

Honeyman State Park Campground
 Harbor Vista County Park--Siuslaw River
 Woahink Lake Trailer Resort
 Woahink Lakeshore Resort Trailer Court
 Rhododendron Trailer Park--Heceta Junction

Heceta Beach cottage area
 Coast Village Condominium Campground
 North Jetty Siuslaw River
 Windy Cove--Winchester Bay
 Reedsport Travel Bureau--Reedsport

Beach Boulevard Motel--Winchester Bay
 Driftwood Shores Condominium Inn--Heceta Beach
 Carter Lake
 Tahkenitch Lake Campground
 Park Motel--Florence

Ha-Sea-Ta Lodge--Heceta Junction
 Saunder's Lake cottage area
 Lakeside Real Estate--Lakeside town
 Umpqua Stockade Motel--Winchester Bay
 Tugman State Park Campground
 Tugman State Park Picnic Ground
 Lakeshore Lodge--Lakeside
 Winchester Bay Charter Boats--"Whitewater Salmon Charters"
 Tropicana Motel--Reedsport
 Tahkenitch Lake Resort
 Darlings Resort--Woahink Lake

Ragan Motel--Florence
 Villa West Motel--Florence
 Wishing Well Motel--Florence
Heceta Beach Road
 Waxmyrtle Campground--Siltcoos Beach

Lagoon Campground--Siltcoos Beach
 Alder Campground--Sutton Lake
 Dunes Lake Campground--Sutton Lake
 Sutton Creek Campground--Sutton Lake
 Tye Campground

Bluebill Campground
Dunes Motel--Florence
Silver Sands Motel--Florence
Mercer Lake Resort--Mercer Lake
Eel Campground-North--Lakeside
Eel Campground-South--Lakeside

Dunes Ranch Mobile Park--Lakeside
Winchester Bay town
Umpqua Resort Trailer Park--Winchester Bay
Tenmile Court Seadrift--Lakeside
Fir Grove Motel--Reedsport
Umpqua Lighthouse State Park Campground--Winchester Bay

Others within study area
Others outside study area