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Puget Sound and Adjacent Waters

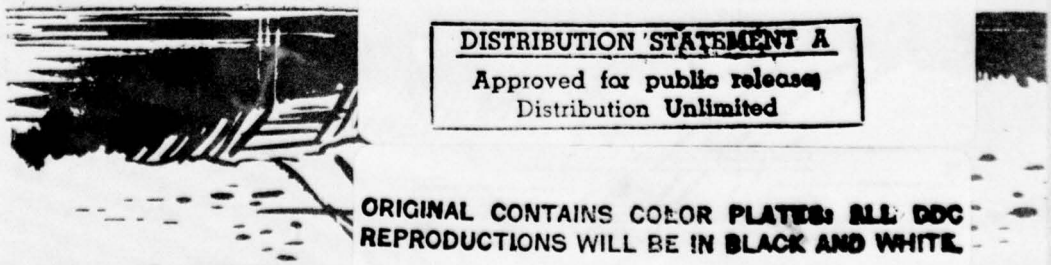
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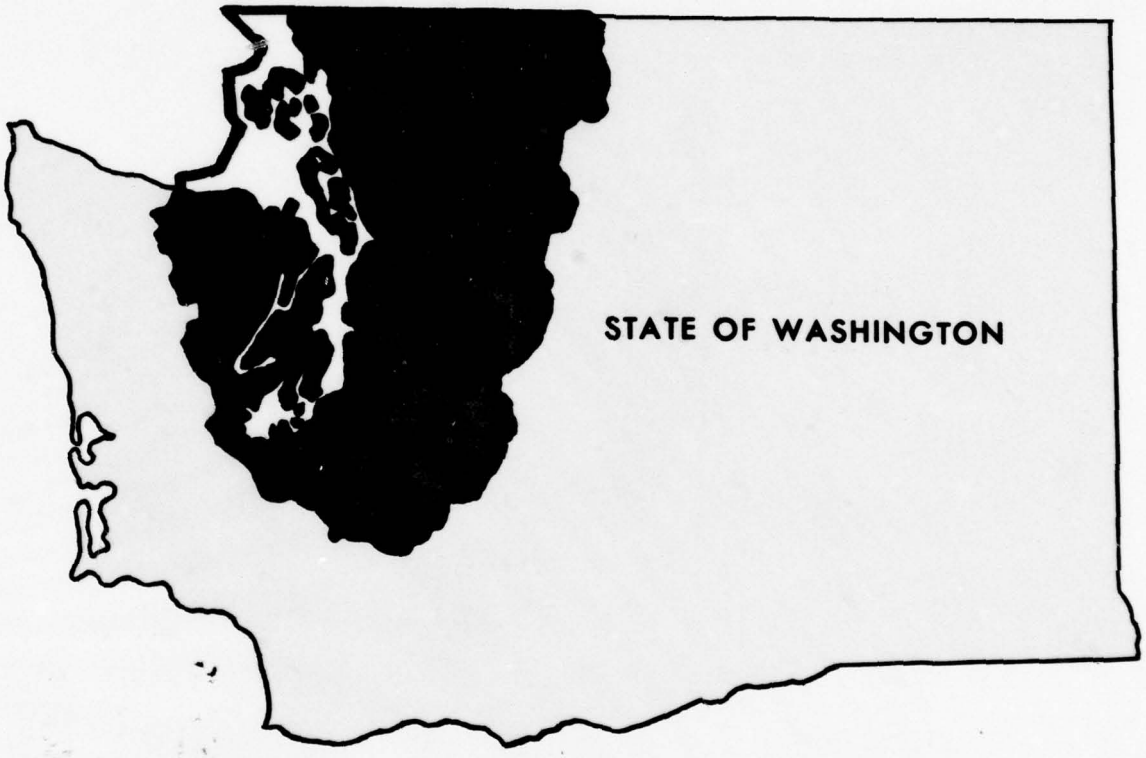
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FOREWORD

APPENDIX X, RECREATION, contains a detailed report of one component of the Comprehensive Water Resource Study of Puget Sound and Adjacent Waters. It is one of the technical appendices providing supporting data for the overall water resource study.

The Summary Report is supplemented by 15 appendices. Appendix I contains a Digest of Public Hearings. Appendices II through IV contain environmental studies. Appendices V through XIV each contain an inventory of present status, present and future needs, and the means to satisfy the needs, based upon a single use or control of water. Appendix XV contains comprehensive plans for the Puget Sound Area and its individual basins and describes the development of these multiple-purpose plans including the trade-offs of single-purpose solutions contained in Appendices V through XIV, to achieve multiple planning objectives.

This appendix was prepared for the Puget Sound Task Force by the Bureau of Outdoor Recreation as the chairing agency of the Recreation Technical Committee. The data and information contained herein was supplied, developed, and coordinated by the members of the Committee. The findings, conclusions, and recommendations contained herein do not necessarily reflect the views of individual agencies represented on the Technical Committee.

River-basin planning in the Pacific Northwest was started under the guidance of the Columbia Basin Inter-Agency Committee (CBIAC) and completed under the aegis of the Pacific Northwest River Basins Commission. A Task Force for Puget Sound and Adjacent Waters was established in 1964 by the CBIAC for the purpose of making a water resource study of the Puget Sound based upon guidelines set forth in Senate Document 97, 87th Congress, Second Session.

The Puget Sound Task Force consists of ten members, each representing a major State or Federal agency. All State and Federal agencies having some authority over or interest in the use of water resources are included in the organized planning effort.

The published report is contained in the following volumes.

SUMMARY REPORT

APPENDICES

I. Digest of Public Hearings
II. Political and Legislative Environment
III. Hydrology and Natural Environment
IV. Economic Environment
V. Water-Related Land Resources
   a. Agriculture
   b. Forests
   c. Minerals
   d. Intensive Land Use
   e. Future Land Use
VI. Municipal and Industrial Water Supply
VII. Irrigation
VIII. Navigation
IX. Power
X. Recreation
XI. Fish and Wildlife
XII. Flood Control
XIII. Water Quality Control
XIV. Watershed Management
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INTRODUCTION

Along with technological advances in the United States have come social changes. Americans have more leisure time and additional income, which they desire to spend preferably in the pursuit of pleasure.

Large numbers of Americans prefer using their leisure time and extra income to enjoy the outdoors. They engage in the activities ranging from picnicking to mountain climbing, boating to sightseeing. Generally, they are using expensive, sophisticated equipment and are demanding larger and better-equipped areas. In so doing, they are using more recreational resources and are creating unique and complex management and user problems. Conservation and improvement of America's outdoor recreation resources is needed with this advent of leisure time and added income, and the desire of many Americans to use these in pursuing outdoor recreation activities.

The outdoors was first important as a source of life within the Puget Sound Study Area, next as a wilderness to be conquered, and now as a source of inspiration, relaxation, and recreation.

In the last ten years, natural scenery has been disappearing at a rapidly increasing rate. Much area has been converted to sites for family dwelling units, shopping centers, highways, and industrial plants to satisfy other requirements of today's society. Land uses have become fixed permanently and, to a large extent, adequate provision has not been made for outdoor recreation. Too often, the wooded areas were converted into cleared fields and the streams channeled through culverts in new developments. People have found themselves traveling farther and farther away from home in search of pleasant, uncrowded places to enjoy a walk in the woods, a family picnic, or access to a body of water for swimming, fishing and boating. The rural areas, once close to the city, have been pushed further away.

Growing demands on land and water resources are diminishing the availability of areas capable of outdoor recreation development. Developed recreation sites are frequently so overcrowded that enjoyment of the natural values, inherent when the areas were set aside, is impossible.

The growing public demand for outdoor activities, along with increasing competition for recreation resources, is reaching a peak of concern. In 1958, Congress established the Outdoor Recreation Resources Review Commission to survey the outdoor recreation needs of the American people for the next 40 years and to make recommendations for meeting these needs. A comprehensive report, "Outdoor Recreation for America," buttressed by 27 special study reports, was transmitted to the President and Congress in 1962. The findings and recommendations provided a basis of fact and considered opinion on which action programs can be built.

One of the more important Commission findings was that better planned, bolder, and more imaginative efforts are required to meet both the qualitative and quantitative needs of the American people. Without such efforts, the gap between demand and adequate supply of outdoor recreation resources and facilities will widen over the coming years.

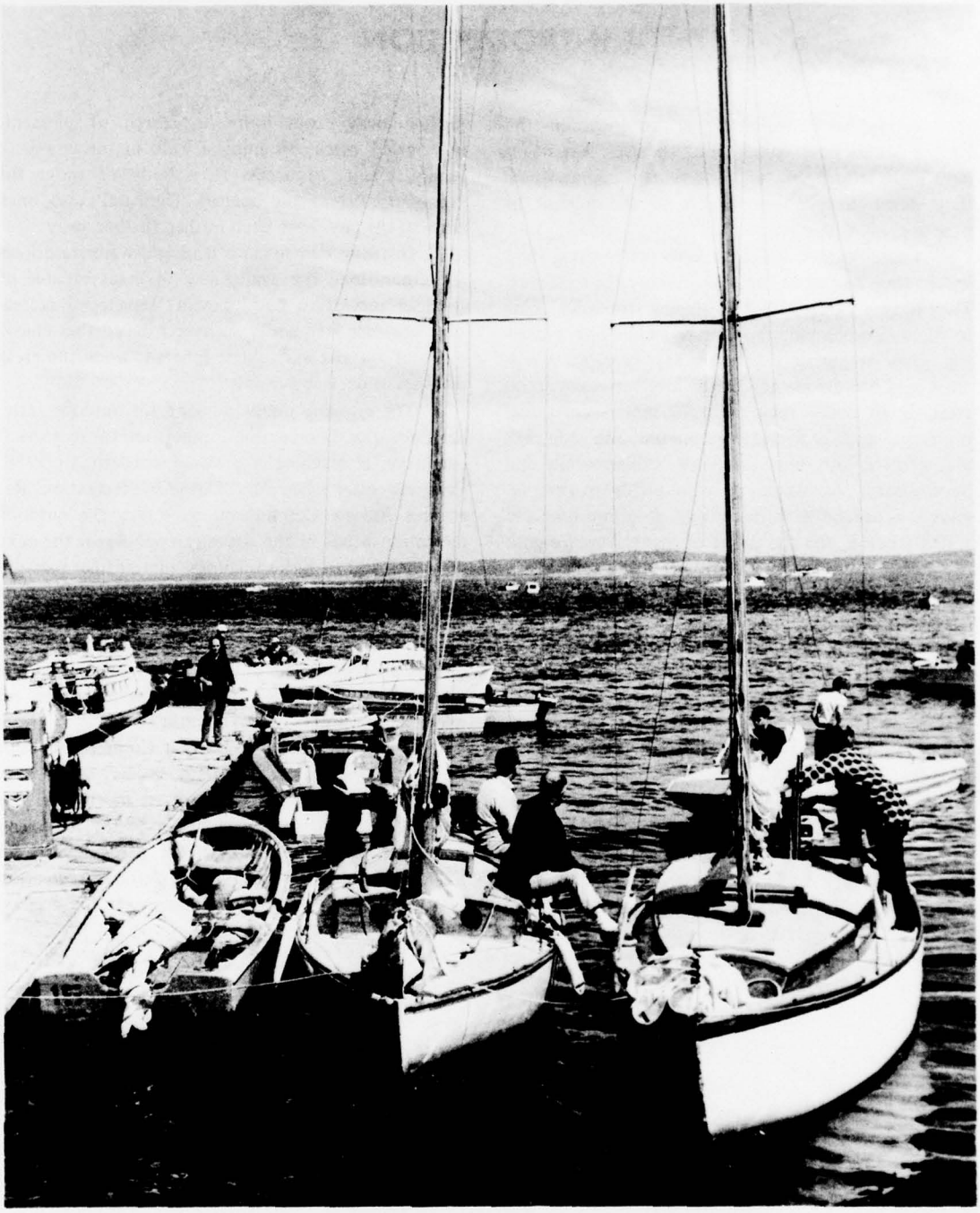


PHOTO 1-1. Pleasure Boaters on Puget Sound—U.S. Bureau of Outdoor Recreation Photo.

THE STUDY

The need to include recreation as a part of a comprehensive plan for Puget Sound and Adjacent Waters, identifying the needs, potential, issues and problems, together with a statement of aims and goals, is shown by examining (1) the large number of public, quasi-public and private organizations which have some responsibility or interest in the field of outdoor recreation, (2) the Study Area as an entity in itself with significant recreation characteristics, (3) the large and growing number of recreationists living within the Area, and (4) the popularity of the recreation resources as destination points for non-resident visitors.

OBJECTIVES

The primary objectives of this study are to identify and suggest solutions to some of the management and user problems, both quantitatively and qualitatively, to evaluate the water and related land resources, and to assess capabilities in meeting future recreational needs in the Puget Sound Study Area.

To accomplish these objectives, this appendix is intended to:

1. Facilitate the coordination of water-oriented recreation planning, land acquisition, development, and management with other land and water resources needs of the Study Area.

2. Provide an inventory of present recreation opportunities in the Study Area; determine water related recreational demands for the years 1980, 2000, and 2020; and by comparison of present supply to future demand, determine recreational needs for these years.

3. Determine potential for public and private enterprise to provide facilities for meeting the projected demands for recreation and to encourage action by Federal, State and local governments and private interests to reserve or acquire needed land, water, beach, and shoreline areas for public use.

4. Identify features worthy of conservation and propose protective measures.

5. Identify outdoor recreation problems, especially those relating to water use and propose remedial actions.

GENERAL PLANNING PROCEDURES

In this appendix, recreation includes all types of outdoor recreation activities dependent upon water resources and associated lands. In the comprehensive study, fish and wildlife are discussed in Appendix XI and are covered only in a general manner in this appendix. For purposes of this study, eight water related activities have been adopted. These recreation activities are picnicking, swimming, boating, sailing, water skiing, fishing, camping, and hiking.

The overall planning procedure included five fundamental steps: (1) an invenotry of existing and potential recreation resources; (2) an analysis of existing demand for water related recreation and of anticipated demand for the years 1980, 2000, and 2020; (3) a comparison of existing supply with projected demand to determine future needs; (4) an evaluation of water and related lands to assess their capability in satisfying determined needs; and (5) the recommendation of necessary short and long-term action programs to fulfill needs and to effect coordinated planning and development between appropriate agencies.

Step 1—Federal, State and local agencies having recreation development in the Puget Sound Study Area provided data on existing supply. Since data on potential supply is lacking or incomplete, potential supply is covered in general terms. Most of the supply information relating to the private sector was obtained from the inventory conducted by the National

Association of Soil and Water Conservation Districts. The inventory of recreation supply is presented in a series of tables and maps within the basin plans.

Step 2–Attendance figures, data on preference and participation rates from the study reports of the Outdoor Recreation Resources Review Commission and from public agencies were combined with pertinent population and socio-economic data to form the basis for the demand phase of the study. Interpolation, extrapolation, and professional judgment were applied where data was inappropriate or lacking.

Step 3–In the needs phase, assessment was made of the capabilities of the supply in meeting the expected recreation demands (Step 2). Analysis involved use of recreation design planning standards to convert use into resource needs.

Step 4–Existing fresh and salt waters and related lands were studied to assess their capabilities to supply water-oriented recreation opportunities.

Step 5–Recommendations regarding recreation programs were made. General plans were formulated for the recreational development of water related resources within each of the basins. Plans included an evaluation of the need for the development or preservation of recreation resources, a general action program, the costs of development, and the benefits attributable to recreation.

In some sections of the country, public land for outdoor recreation is in short supply. As a result, private individuals and corporations have become important suppliers of outdoor recreation. This trend is upward with the growth in recreation participation, expanding urban centers, and the demand for close-in sources for varied activities. It appears that privately-operated services will grow in the Puget Sound area as the relative economic gain from recreational use of certain lands surpasses ranching or farming or some other present use. Some privately-owned lands have already been developed. More are expected in the Puget Sound Study Area.

This appendix recognizes the importance of the private sector as a supplier of recreation opportunities and its significance as a factor in meeting existing and future recreation needs.

LIMITATIONS OF STUDY

Certain limitations affect the task undertaken by the Recreation Committee. These should be understood to assess adequately and clearly the conclusions and recommendations presented herein:

AVAILABILITY OF DATA

In general, there is a paucity of reliable data, a lack of consistency in data collection, and a rather brief history of data collection at most recreation areas. Detailed origin and destination surveys, user preference surveys, and related studies have not been undertaken in connection with this study.

Recreation demand is estimated from data contained in "Project Open Space" by the Puget Sound Governmental Conference and from the Outdoor Recreation Resources Review Commission's demand survey. Current information from the State demand survey conducted during the preparation of the 1969 Washington Statewide Outdoor Recreation and Open Space Plan was not available in time for incorporation into this appendix.

THE HUMAN FACTOR

The planning process deals with such intangibles as the value and necessity of outdoor recreation in daily life; the capriciousness of leisurely pursuits; the influence of technology on recreational equipment; changing social values relating to work and play; and the concern for relative solitude, whether in a wilderness area or elsewhere. One must act as a prophet and prompter concerning the vagaries of people's leisure. The approach does not assume complete understanding of human psychology.

CARRYING CAPACITY AND OPTIMUM USE

The carrying capacity and optimum use of recreation areas and facilities are constantly changing. Ideally, to prevent overuse and deterioration of a recreation resource, the factors of human pressure and biological ecology should be a harmonious blend. In actuality, optimum use is seldom realized, and the



PHOTO 1-2. Enjoying a pleasant walk near Mt. Shuksan—U.S. Bureau of Outdoor Recreation Photo.

transition from underuse to overuse occurs rapidly, with control measures inadequate or nonexistent.

Standards of use vary with types of population, with management practices, with land characteristics and with user acceptability. The land-managing agencies use different standards, which are associated with their own goals. A Forest Service campground may have a different use intensity than a State park campground. Private developments may have another set of goals and standards. A difficulty arises in projecting the needs for development when existing facilities are undergoing reevaluation of their ability to serve the population.

Recreation standards employed in this appendix are based on those of Federal, State and local agencies.

ASSUMPTIONS

Basic assumptions concerning population growth, business cycles, economic growth, wars, and other factors presented by the Economics Committee and other work groups of this survey apply to this appendix.

The following assumptions are particularly germane to the recreation aspects of the comprehensive report. These are necessary in evaluating conclusions and recommendations.

The most salient factors influencing demand for outdoor recreation are population, disposable income, leisure, and mobility. Per capita rates for

participation in recreation activities have been increasing, and projections indicate that this upward trend will continue in varying degrees.

The development now occurring at water-based recreational areas will continue to include the same types of facilities; that is, boat launching, sanitation, picnic and camping sites, trailer parks, swimming beaches, vehicle parking, and similar facilities. This must be assumed to determine valid cost-benefit ratios.

The rural-to-urban transition will continue, resulting in a greater segment of the increased population residing in large metropolitan areas. Recreation at projects within or near urban centers will experience accelerated growth rates.

GLOSSARY

The following definitions are applied to outdoor recreation terminology in this report:

ACTIVITY OCCASION–Participation by an individual in any one recreation activity during all or any part of a 24-hour period.

DAY-USE-ZONE–That area within 40 to 60 road miles of the population center of a metropolitan area.

DESIGN LOAD–The maximum number of recreationists expected to use an area at any one time on an average weekend day during the peak month of annual visitation for which facilities and land or water would be provided.

OUTDOOR RECREATION–Leisure time activities which utilize an outdoor setting.

OUTDOOR RECREATION ACTIVITY–A specific leisure time action or pursuit in an outdoor environment.

OUTDOOR RECREATION AREA–A land and/or water area where outdoor recreation is recognized as the dominant or one of the major resource management purposes.

OUTDOOR RECREATION SITE–A tract of land developed for specific recreation activities.

OUTDOOR RECREATION UNIT–A facility or group of complementary facilities designated to accommodate a family or other small group.

PARTICIPATING POPULATION–That population residing inside and outside of the Study Area which would seek recreation opportunity in the Study Area.

PARTICIPATION RATE–The number of occasions of participation in an activity by a sample group during a measured time period.

RECREATION DAY–A unit of measurement consisting of a visit by one individual to a recreation development or area for recreation purposes during a reasonable portion or all of a 24-hour period. It is assumed that the average person participates in 2.5 activities during an average visit to a recreation area. Therefore, 2.5 activity occasions equal one recreation day.

RECREATION DEMAND–The total participation in general outdoor recreation activities which would occur if opportunities to participate are available.

RECREATION FACILITIES–Developed structures or conveniences for specific outdoor activities in a designated area.

RECREATION NEEDS–The difference between demand and supply expressed in terms of recreation requirements.

RECREATION REQUIREMENTS–Those lands, waters, and facilities required to provide adequate outdoor recreation opportunities to satisfy the demands of the people.

RECREATION SERVICE AREA–That area which extends outward from the center of population of a specific geographic area. It encompasses the recreation resources which serve or are expected to serve the residents of a specified geographic area.

RECREATION SUPPLY–The resources and facilities capable of providing outdoor recreation opportunities.

WATER RELATED ACTIVITIES–Those activities that are water-based or enhanced by water.

WEEKEND-USE-ZONE–That area between the end of the day-use zone and 125 road miles from the population center of a metropolitan area.

VACATION-USE-ZONE–The Area beyond the weekend-use zone.

SUMMARY OF FINDINGS

The following findings were noted as a result of the analysis of outdoor recreation opportunities and needs within the Puget Sound Study Area:

1 The use and development of water, forest and land resources have followed the common historical pattern of:

(a) Abundance, with limited administration;

(b) Increasing use and competition with subsequently greater administration and regulation;

(c) Accelerated use and competition with subsequently greater need for coordinated planning and development.

2 The recreation programs in the Study Area are guided by a legislative framework which defines the role of Federal, State, local and private sectors. Certain modification in legislative policy and philosophy will be necessary to facilitate the implementation of comprehensive planning for resource development.

3 The existing methods of financing recreational use and development are presently only indirectly related to conventional demand-supply-price relationships. There is a widely recognized need for the development of reliable methodology for benefit-cost analysis when considering land acquisition and development costs. This is needed to define the financial responsibilities of the user and the developer as well as to strengthen the role of the private sector in recreational development.

4 The total recreation resources within the Study Area are adequate to satisfy foreseeable outdoor recreation demands until the year 2020 if comprehensive planning and action programs are followed. There are current deficiencies of water access, outdoor facilities and developed areas, however. Outdoor recreation has become a major leisure time activity. Demand for outdoor recreation opportunities may increase over sixfold between 1960 and 2020. To satisfy demand, there is a need for additional opportunities of a type, quality and quantity and in a location consistent with recreation habits and desires.

5 Outdoor recreation is a legimitate and important use of water. Water is a key factor of recreation supply, being essential for many outdoor activities and adding to the enjoyment of others. If present trends of water-based recreation activities continue, there will be an adequate supply of water surface within the Study Area to satisfy recreation demands until after the year 2000. Swimming pools, which are presently needed within all urban areas, are an exception to this finding. Other deficiencies may occur within several of the basins at an earlier date.

6 Competing land and water uses impair and restrict the public use of these resources for recreation. For example, lineal residential developments, shore line roads and railroads and private ownership of waterfront and tidal areas restrict the use of resources which are needed for public enjoyment. Increasingly, stretches of tideland and beach are being filled or dredged to accommodate residential and commercial uses. In several localized situations, water pollution has reduced the value of water for recreational use. Adequate zoning, water quality management, and comprehensive planning (including cluster development and realization of multiple use potentials) will lessen competitive effects.

7 Many people are not realizing the full enjoyment and potential of their public recreation resources because they lack a basic knowledge and understanding of the attractions and how to use them. Proper interpretation assists in integrating people with resources. There is a recognized need for expanded recreational education and resources interpretation and the development of user skills not only for the enjoyment and use of recreational resources, but also in terms of fundamental, psychological and emotional needs of people.

8 Over 60% of recreation use occurs during the summer, and more than one-half of this use takes place on weekends. As a result, recreation facilities are not used to optimum capacity a majority of the time. On weekends and holidays, many recreation areas are overcrowded, especially those within or near urban areas.

9 There are numerous archeological and historical features, outstanding natural areas, underwater marine areas, islands, and recreation rivers worthy of protection for public enjoyment. Within expanding urban and residential areas, green belts and other open spaces are desirable for recreation use and to beautify the environs where people spend most of their time.

10 The use and development of the submerged lands and subsurface waters of Puget Sound are occurring without benefit of planning. There is a need for the establishment of subsurface parks and for the preservation of unique areas of scientific interest. Fact finding inventories are being made of the status and potential of marine and estuarial shore and bottom lands and of marine water uses and resource productivities. Resource use and resource fact finding programs are not presently coordinated.

11 Pre-emption of open space lands is proceeding at a faster rate within the Study Area than any other part of the Pacific Northwest. This rapid growth is haphazard and piecemeal constituting a major threat to the quality of the environment.

12 Flood plains provide open space and offer excellent opportunities for recreational use. In the Study Area, flood plain encroachment has an adverse effect upon aesthetic and recreational values.

13 There are many areas and features which need to be identified, evaluated, protected, and developed for general recreation use before they are utilized for other purposes.

14 The recreation and tourist industry is a ranking industry in the Pacific Northwest and in the Puget Sound Study Area. With the increase in the economic importance of the recreation and tourist industry, there is a need for closer working relationships between the public and private sector so that private enterprise will play an increasingly significant role in satisfying recreation needs.

15 Outdoor recreation trends are influenced by numerous variables. The introduction of new activities and methods of transportation can alter recreation activity preferences to a considerable extent. In future years, a higher percentage of leisure time may be spent in the pursuit of arts and other cultural activities, thus modifying present outdoor recreation use patterns. Since these and other changes and their effects upon recreation needs cannot be foretold, effective recreation planning is a process requiring continual revision and up-dating of existing plans.

The following actions are necessary to assure the optimum sustained use and timely development of water related recreation resources in the Puget Sound Study Area:

1 A Comprehensive Outdoor Recreation and Open Space Plan for the State of Washington is in the process of preparation for implementation to assure the timely, orderly and reasonable development of the recreation resources of the State and the Study Area. This plan is a revision of the statewide recreation plan prepared in 1967. Information contained in the State plan and this appendix are mutually supporting.

This appendix and the Washington Statewide Outdoor Recreation and Open Space Plan should be utilized in providing direction to Federal, State, and local agencies and private interests when preparing plans and implementing outdoor recreation programs.

2 An analysis of Federal, State and local legislation needs to be undertaken by the State to prepare realistic proposals for future legislative needs at all levels of government. The objective should be to correlate and strengthen existing legislation and recommend new legislation in accordance with needs apparent in the comprehensive planning and action program.

3 More cooperative programs between governmental agencies for development and management of single-purpose public lands are needed to provide for unmet outdoor recreation needs through programs of managed multi-purpose use. Changing or abandoned single-purpose use areas should be analyzed and converted to multipurpose use in accordance with the quality of the recreation resources, improving technology and user demand.

Limited public access and recreation use need to be permitted on municipal watersheds until such time as intensive recreation use is found compatible with watershed values or when the demand for

recreation space threatens to saturate available resources outside the watersheds. At that time, intensive use should be accommodated with recreation allotted part of cost sharing.

4 To satisfy projected outdoor recreation demands for the activities of swimming, boating, sailing, water skiing, camping, and picnicking, the following additional acres of development and associated buffer should be provided:

(a) Year 1980

Acres of development	9,500
Acres of buffer	8,200
Total acreage	17,700

(b) 1980-2000

Acres of development	12,200
Acres of buffer	10,500
Total acreage	22,700

(c) 2000-2020

Acres of development	21,800
Acres of buffer	18,700
Total acreage	40,500

A portion of these needs would be satisfied on lands presently undeveloped but administered for public recreation use. The Washington Statewide Outdoor Recreation and Open Space Plan indicates that by the year 2000 an additional 40,000 acres of waterfront lands will need to be acquired in the Study Area to satisfy recreation demands.

5 Public and quasi-public agencies and private enterprises need to initiate or accelerate programs of providing outdoor recreation opportunities. To satisfy the recreation demands of the people, funding at all levels of government and at the private level needs to be greatly increased.

Broad recreation funding objectives and procedures need to be established and cost estimates prepared for Federal and State Legislatures and private operating agencies for use in evaluating available alternates and for program implementation and operation.

6 Priorities need to be established for the acquisition and development of lands for recreation use.

Where the price of suitable lands is escalating, where other types of development threaten to occupy desirable recreation lands, and where the present combination of public and private recreation lands is inadequate, the acquisition of lands for public recreation should receive precedence over development. Highest acquisition priorities would apply to urban recreation areas, fresh and salt water beaches and shore lands, and outstanding natural areas.

Acquisition and development priorities need to be coordinated by a State appointed interagency committee composed of representatives from all participating recreation agencies and the private sector. In addition, the State should develop systematic concepts for cost-benefit analysis for recreation purposes including land acquisition costs as a basis for optimizing land purchases and to strengthen the role of the private sector in recreational development.

7 Recreation access needs to be provided to key areas throughout the Puget Sound Study Area. Public land owning agencies need to secure easements across adjoining lands to allow access to public waterfront lands suitable for recreation use. State-owned tide and shorelands need to be retained in public ownership and public use encouraged. Provisions should be made to allow for public access along flood control levees, breakwaters constructed for boat basins and privately-owned tidelands and across railroad and highway rights-of-way.

The State should designate a coordinating committee with representatives from the Federal, State, local and private sectors to define the nature and scope of the access problem and to prepare recommendations for scheduling the establishment of easements and other means of access. Special consideration needs to be given to the relocation of existing roads and highways along the shores which preclude or limit public recreation use and development.

8 The lands within the Study Area and within the State need to be inventoried by the State to identify and classify specific sites and areas suitable for recreation use.

9 A study team composed of local, State, Federal, and Canadian interests should explore all the recreation resources of the San Juan Islands and the associated Gulf Islands in Canada to:

(a) determine those islands or island areas needing protection and development for outdoor recreation;

(b) classify areas for management and administration to meet public recreation needs;

(c) suggest alternate methods for acquisition or control.

10 The Puget Sound and the adjacent waters, including 2,500 square miles of marine water surface and 3,000 miles of shoreline, represent one of the outstanding estuarial complexes on the North American Continent. A study to explore the establishment of Puget Sound as a Federal-State recreational waterway should be initiated and coordinated by an agency selected by the Governor, and the study should include Federal, State, local, and Canadian interests. The study should include underwater and shore-land preservation areas and parks and recommend legislative, regulatory and fiscal needs for program implementation.

11 Portions of the Skagit River and its tributaries have been designated by Public Law 90-542 for possible inclusion within the National Wild and Scenic Rivers System. A Federal-State-local team will study these streams and related adjacent lands for this purpose. The Pacific Crest Trail has been established as a national scenic trail within the National Trails System. A portion of this trail is within the Study Area.

An investigation has been initiated by the State to develop recommendations for the establishment of statewide recreation rivers and trails systems. These efforts should be closely coordinated with the compatible Federal programs.

12 To set aside unique features for recreation and scientific use, significant natural, archeological, and historical sites and areas need to be identified, protected, and interpreted within a statewide system of special interest areas.

The Federal Government and the State of Washington have established historic sites and preservation programs. Historic sites are in the process of identification for inclusion in the statewide inventory. Review and comment by State, Federal and local agencies should be included prior to the action phases of these programs.

13 In accordance with the recognized need for pleasure driving opportunities, the Washington State Legislature has enacted Substitute Senate Bill No. 424, which created the State Scenic and Recreational Highway System. Additional routes in the Puget Sound Study Area should be identified and established in accordance with the existing law.

14 Strong zoning and other land use controls should be effectively and uniformly applied to guide growth. To date, zoning has been a notoriously fragile tool in directing patterns of land use. Zoning regulations tend to be weak, exceptions are granted too frequently, and zoning by a multiplicity of local jurisdictions results in unrelated standards and patterns. One approach to the situation is area-wide land use regulations based on up-to-date comprehensive regional plans. Another possible solution would be broad zoning by the State.

15 Federal, State and local agencies need to include the use of flood plain areas as a necessary element of comprehensive development planning. Flood tolerant uses, such as agriculture and recreation, need to be encouraged on flood plains. A degree of flood protection higher than that needed for reasonable protection of recreation and agricultural resources should not be developed unless the need is clearly defined.

16 The beauty and cleanliness of recreation waters should be maintained and frequently improved to assure high quality recreational opportunities. To carry this out the State should designate a coordinating committee to document quality and water flow management needs for optimum recreational use and development. This committee should define the nature and scope of the problem, suggest flow and quality needs and prepare an action program.

17 Acquisition and/or development of recreation areas adjacent to existing waters need to receive precedence over the construction of new reservoirs for recreation use.

Operation plans of existing reservoirs need to be studied by Federal and State agencies and private

interests to determine the feasibility of enhancement of recreation resources.

18 In order to achieve optimum recreation facility utilization, a study should be undertaken to determine methods for greater distribution of recreational uses both in terms of time and location. The State should designate a coordinating committee to define the nature and scope of the problem and prepare a report of means and alternate methods to fulfill peak and periodic demands.

19 The Interagency Committee for Outdoor Recreation should prepare an annual report of status, progress and revised needs as they relate to the comprehensive plan for water and related resources use and development in the Puget Sound area of the State of Washington.

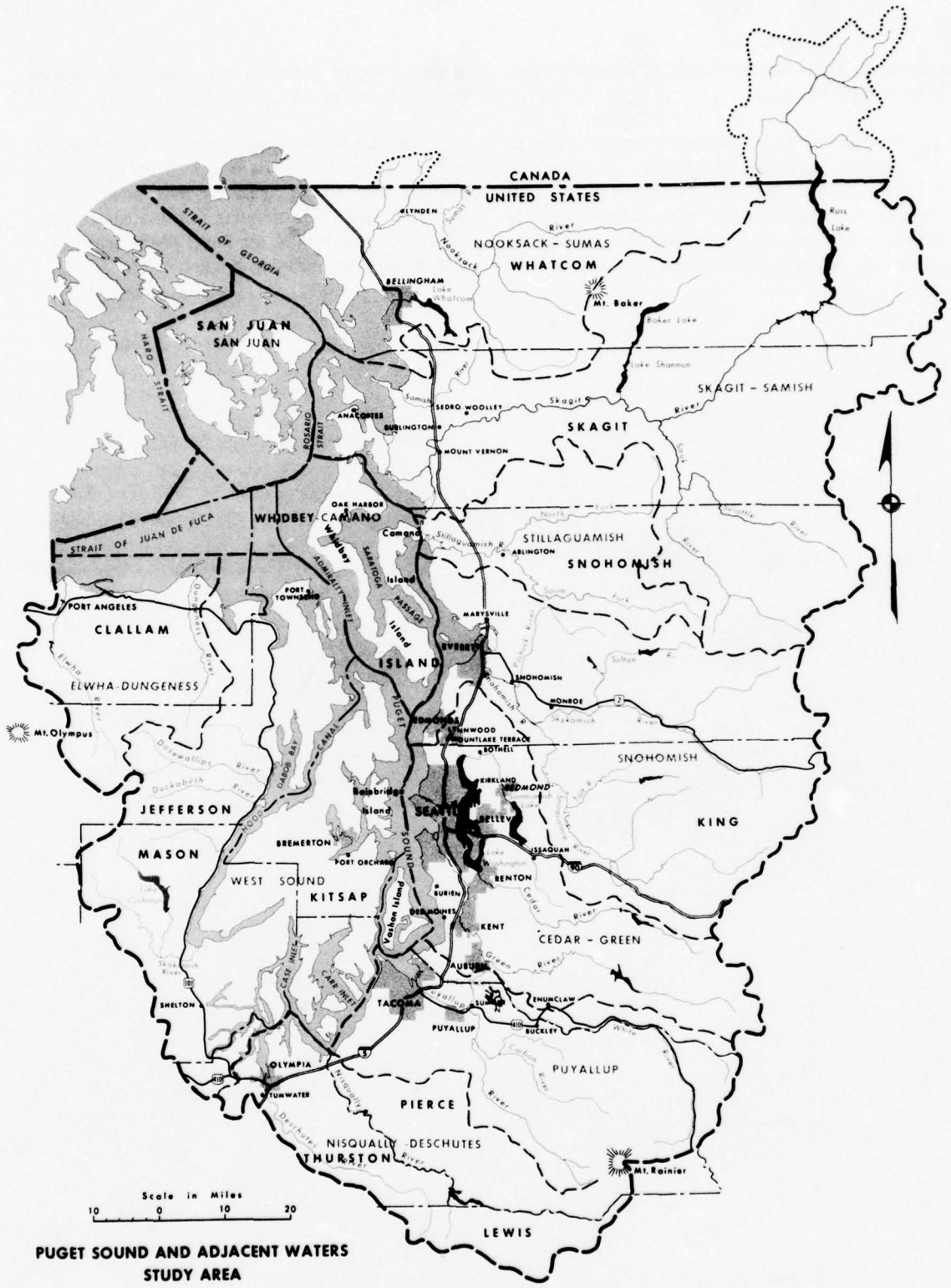
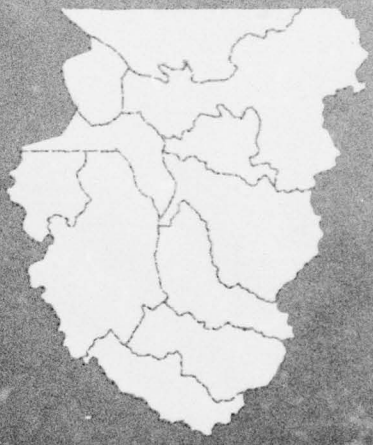


FIGURE 1-0. Basins in the Puget Sound and Adjacent Waters Study Area

Puget Sound Area



THE PUGET SOUND AREA

GENERAL DESCRIPTION

The Puget Sound Study Area, in the northwestern portion of the State of Washington, is a broad trough between the crests of the Olympic and Cascade Mountain Ranges. The Area extends from the Canadian border to within 50 miles of the Columbia River.

The Study Area covers 13,200 square miles of land, 200 square miles of lakes and reservoirs, and 2,500 square miles of salt water.

POPULATION

In 1960, a total of 1.75 million people lived in the Study Area. This was 61% of the population within the State of Washington. Sixty-two percent of the population is located in Seattle and Tacoma or the urban fringes of those cities.



PHOTO 1-3. Seattle—U.S. Bureau of Outdoor Recreation Photo.

ACCESS

The Cascade and Olympic Mountain Ranges, the river valleys and Puget Sound are geographical features which influence travel to and within the Study Area. They restrict access, but they also make travel enjoyable and exciting, providing the traveler with many recreation and scenic attractions.

During the winter months, rain limits boat and auto travel in the lower elevations, and heavy snows make off-highway motor vehicle access in the mountains difficult if not impossible. During the pleasant spring, summer, and fall months, however, millions of people explore the environment by land, air, and water.

ROADS

Several major highways pass through the Puget Sound Study Area. Interstate 5 traverses it from north to south, allowing ready access to and from the Vancouver, British Columbia, and Willamette Valley, Oregon, areas. Roads radiating out from Interstate 5 along the shoreline and through the numerous river valleys lead the automobile traveler to a variety of recreation attractions.

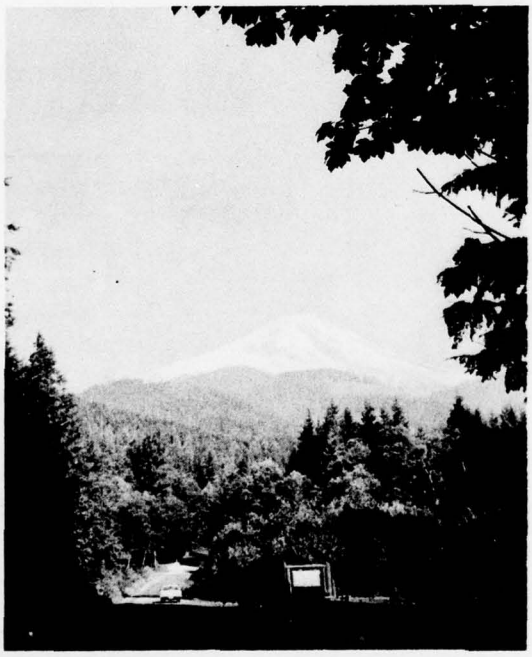


PHOTO 1-4. Mt. Baker viewed from a U.S. Forest Service Road—U.S. Bureau of Outdoor Recreation Photo.

East and west the Area is traversed by three main roads which cross the Cascade Mountain Range: U.S. Highway 2 through Stevens Pass; Interstate 90 through Snoqualmie Pass; and U.S. Highway 410 through Chinook Pass. The routes provide mass access to the many recreation attractions in the mountainous eastern portion. Another road, the North Cross State Highway across the northern Cascades, is scheduled for completion by 1970. This highway, when opened, will bring the Area closer for recreationists from interior north-central Washington and Canada. U.S. Highway 101 takes the traveler from Interstate 5 to the Olympic Peninsula. U.S. Highway 410 gives Puget Sound residents easy access to the Pacific Ocean. Numerous secondary roads also are found throughout the lower elevations.

Roads penetrate into many attractive areas within the national forests and national parks located in the Cascade and Olympic Mountain Ranges. Trails starting where roads leave off provide access into remote, roadless country. The Cascade Crest Trail traverses the Cascade Range from north to south, winding in and out of the Area along its eastern boundary.

RAIL

Four transcontinental railroads serving the Study Area are: Northern Pacific, Great Northern, Chicago, Milwaukee, St. Paul and Pacific, and Union Pacific. These do not contribute significantly to recreation use. Three of these railroads cross the Cascade Mountains and terminate in the Seattle metropolitan area. The fourth, Union Pacific, connects at Portland, Oregon, for its transcontinental services. The Great Northern railroad connects the Seattle-Tacoma metropolitan area with Vancouver, B.C.

WATER

The tidal waters of Puget Sound not only provide good harbors for ocean-going ships, but the 2,500 square miles of nearly land-locked salt water, plus the fresh water areas, furnish the pleasure boater with excursions of never ending enjoyment. Many



PHOTO 1-5. Pleasure boating, a popular activity—U.S. Bureau of Outdoor Recreation Photo.

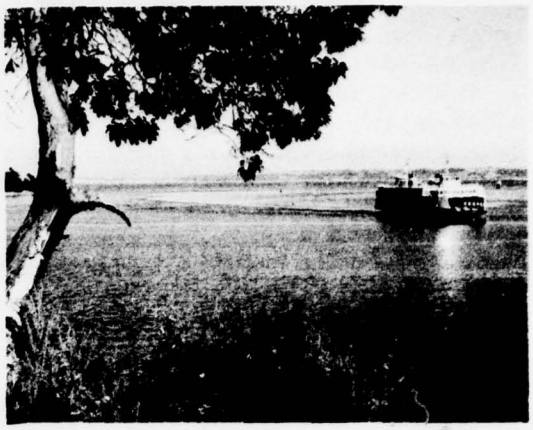


PHOTO 1-6. Seattle to Winslow Ferry—U.S. Bureau of Outdoor Recreation Photo.

islands are accessible only by boat; other areas are more readily available by boat than by automobile.

Nine public ferry routes transport nearly six million passengers and more than three million automobiles back and forth between the heavily populated metropolitan centers and less congested areas of Puget Sound. Ferry boats link interesting loop drives around several of the islands and peninsulas to the west of urban centers. During the summer, excursion boats operate between Seattle and Victoria on Vancouver Island in British Columbia. Year-round ferry service is maintained between Victoria and Port Angeles on the Olympic Peninsula. Four new giant ferries were recently added to the system.

AIR

The Seattle-Tacoma International Airport, midway between the two cities, is served by several major domestic airlines and is the largest in the Study Area for both passenger and cargo services. Five other airports are also served by commercial airlines. These are Bellingham Municipal, Olympic Municipal, Clallam County near Port Angeles, King County Airport in Seattle, and the Tacoma Municipal Airport.

In addition, approximately 70 airfields accommodate private aircraft. Many float planes may be found individually parked along the fresh and salt water shorelines in front of their owner's homes.

NATURAL RESOURCES

LAND

The Area is a pleasant setting of fertile valleys, forests, and mountains. Land elevation varies from sea level in the central portion to nearly 8,000 feet in the Olympic Mountains and to more than 10,000 feet in the Cascade Range. Three great volcanic peaks, Mount Rainier (l4,410 feet) Glacier Peak (10,528), and Mount Baker (10,778 feet), are the highest points.

The mountainous areas are administered mostly by the Federal Government. The valley ownership pattern is a composite of Federal, State, county, municipal and private lands.

CLIMATE AND WATER

The Area has an abundant supply of water for recreational use. The barriers formed by the Olympic and Cascade Mountains have a direct bearing on the precipitation, which averages about 598 inches per year. Precipitation varies from about 17 inches a year in the Port Townsend area, within the rainshadow of the Olympics, to over 100 inches in the Cascades and up to 200 inches on the Olympic Peninsula. The mean annual precipitation in Seattle is 35 inches. Precipitation occurs mostly during the winter months generally as rain in the lower elevations, and with heavy snows common in the higher elevations. The

average annual snowfall at the ski lodge on Mount Baker is 41 feet and at Paradise Inn on Mount Rainier nearly 50 feet. The dense forest areas are excellent watersheds, providing an abundance of water for domestic, industrial, agricultural and recreation uses.

The outstanding feature of the Study Area is the over 1,500,000 acres of interior salt water which is flanked by forests, bluffs, and lowlands. The complex shoreline, with many extensive bays and inlets, and more than three hundred islands offers beauty, adventure, and shelter. This feature is undoubtedly a drowned river valley; the present pattern of embayment being formed by rivers existing during the interglacial period.

The rivers show the effects of the glacial period. U-shaped valleys with vertical rock faces are common in the area, particularly in the Olympic Mountains. The major and some of the minor stream systems which flow into the Puget Sound include:

Major	Minor
Nooksack River	Dungeness River
Skagit River	Little Quilcene River
Stillaguamish River	Dosewallips River
Snohomish River	Duckabush River
Nisqually River	Hamma Hamma River
Puyallup River	Goldsborough Creek
Cedar River	Mills Creek
Green River	Deschutes River
Skokomish River	Samish River
Elwha River	Big Quilcene River
	Tuhuya River



PHOTO 1-7. Lower Puget Sound—U.S. Bureau of Outdoor Recreation Photo.

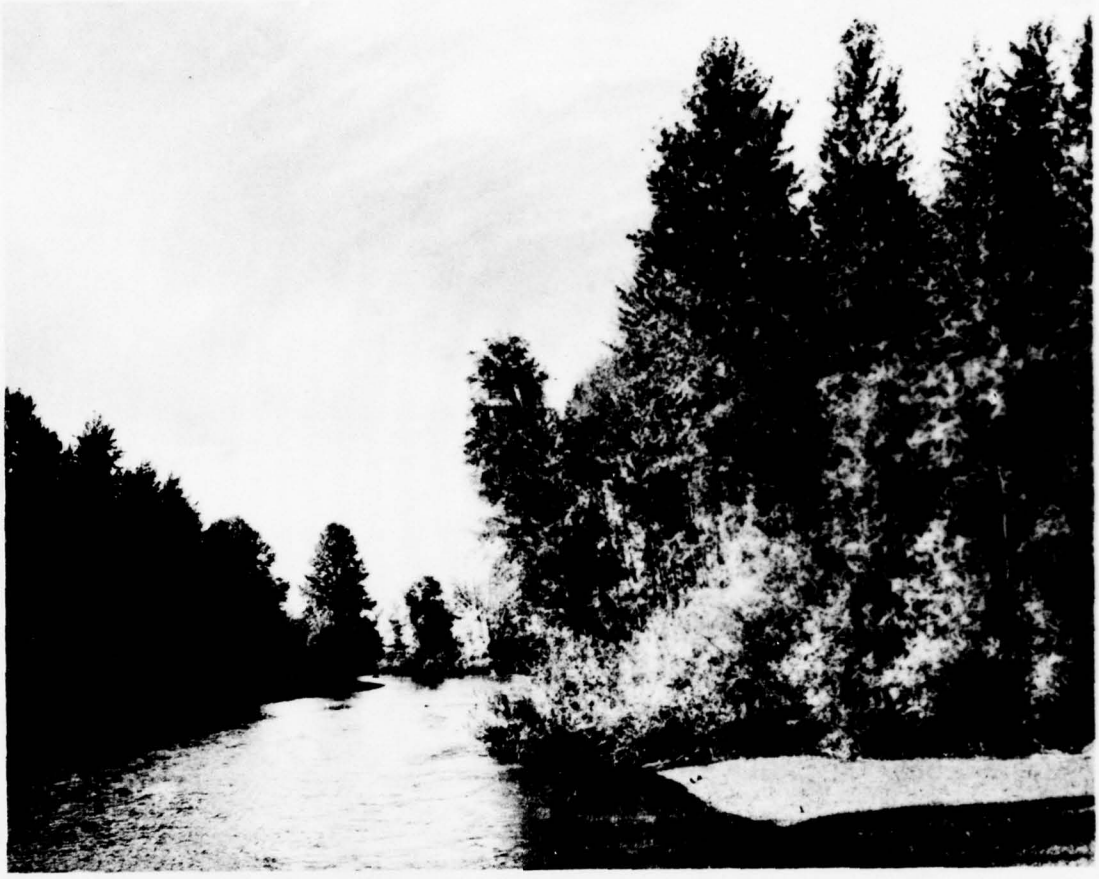


PHOTO 1-8. Skokomish River—U.S. Bureau of Outdoor Recreation Photo.

The waters of Puget Sound are of outstanding importance for navigation, recreation and marine life. The many streams and lakes are important as suppliers of municipal and industrial water, and for recreation, fish and wildlife uses. There are more than 2,800 lakes and reservoirs, ranging from a fraction of an acre in size to Lake Washington which covers more than 22,000 acres. Many of the lakes are small and are located in the higher elevations. Approximately 1,100 lakes are at elevations of 2,500 feet or higher.

VEGETATION

The segments of the Puget Sound Study Area—the narrow fringe of shoreline, the humid western slopes of the Cascades, and the towering mountain ranges—each have distinctive flora. Climatic and topographic factors influence the type of vegetation, its relative abundance and composition. Flora covers the landscape with a variegated carpet. Within a few miles distance the flora changes from marine to alpine species.

Dense forests intermingle with open pastures and agricultural lands between the salt water shores and the heights of the Cascade Mountains. At higher elevations, the coniferous species predominate. At lower elevations, many deciduous species are common. These trees, especially in the autumn, contribute spectacularly to the natural beauty of a normally pastel-colored countryside. The forest floors are carpeted with ferns, mosses and shrubs. A wide variety of attractive shrubs and beautiful wild flowers grow throughout the area. Distinctive plants grow in association with bogs, lakes, estuaries and meadows.

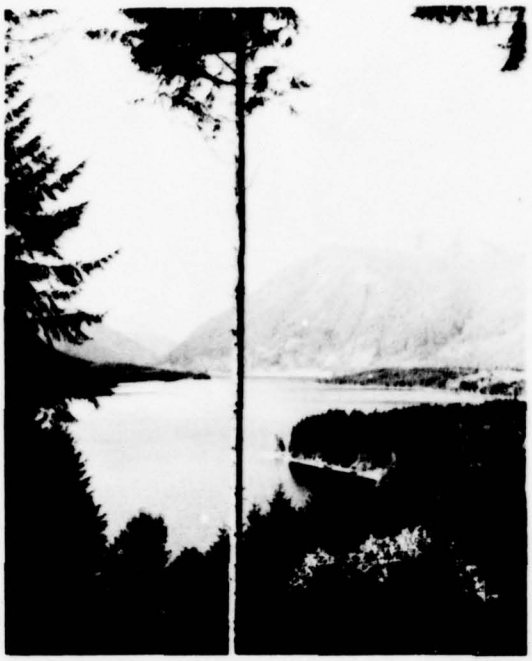


PHOTO 1-9. Lake Cushman—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-10. Bear Grass—U.S. Forest Service Photo.



PHOTO 1-11. Cleaning salmon—U.S. Bureau of Outdoor Recreation Photo.

FISH AND WILDLIFE

The abundant animal life induced white inhabitants to the Pacific Northwest and the Puget Sound Area. Although passage of time has not materially reduced the importance of this natural resource, much hunting and fishing has shifted from necessity to pleasure.

Of all the varieties of fish found in Puget Sound Study Area waters, the anadromous species are the most valuable from a commercial as well as a recreation standpoint. The chinook, coho, chum, sockeye and pink salmon, steelhead and searun cutthroat trout and Dolly Varden are produced in the fresh water streams and lakes and nurtured by salt water feeding grounds. The rivers, streams, reservoirs, ponds and lakes contain rainbow, Dolly Varden, cutthroat and brook trout, bass, crappies, and perch, as well as many other spiny-ray species. As game fish, these trout and spiny-ray species provide an important recreation fishery throughout the year.

The salt water salmon sport fishery provides year-round recreation, but it is at its best from May through October. During this period, maturing chinook, pink and coho salmon on their returning migrations to home streams readily hit sport gear. Other species, such as halibut, lingcod, rockfish, sole, flounder, surfperch and surf smelt, are also sought by sport fishermen. Clams, crabs and oysters attract many thousands of recreationists each year.

Certain areas of the Cascade Range support good populations of elk, deer, black bears, and

mountain goats. Fur-bearing mammals today are more important for their wildlife recreation value than as an adjunct to the economy. Game birds and waterfowl are plentiful and contribute to the aesthetic as well as the recreational values. Various marine and other species of animal life enhance the broad spectrum of wildlife resources. Hunting for recreation and nature observation are important activities.

GEOGRAPHIC CATEGORIES

The Study Area's natural recreation resources fall into four geographic categories, the Olympic Mountains, the Shore Line Fringe, Puget Sound, and the Cascade Mountains.

The Olympic Mountains

The Olympic Mountains are a part of the Coastal Range and lie between Puget Sound and the Pacific Ocean. The area is characterized by broken and eroded peaks, serrated ridges, alpine valleys, lakes and cascading streams. Dense forests cover this area of outstanding scenic beauty which offers much recreational opportunity.

Biologic resources contribute significantly to the recreational desirability of the Olympic Mountains. The pattern of plant life, arranged in horizontal belts known as life zones, becomes evident as one moves upward to the ridgetops. Douglas-fir and western hemlock are the major forest trees in the area. Between the 1,500 and 3,500 foot elevations, these trees grow in association with white pine and Pacific silver fir. Near timberline, Douglas-fir is joined by Alaska yellow cedar, alpine fir, and mountain hemlock. Above timerline the vegetation consists mainly of low-lying plants; wildflowers are everywhere. The Elwha and Dungeness Basins are especially rich in mountain wildflowers.

Many species of wildlife inhabit the Olympic Mountains. Visitors can expect to see some wildlife species in the densely forested valleys and more in the high, more open mountains. The black-tailed deer are probably the most numerous of the large animals. They can often be seen feeding in the early morning or evening. Elk, black bears, and marmots occur in sizeable numbers.

The bird life is another natural resource. As many as 140 kinds of birds may be observed throughout the year. The many streams and lakes support a variety of fish.



PHOTO 1-12. Clam digging—Washington State Dept. of Commerce and Economic Development Photo.

These attractions, along with a suitable climate, provide opportunity for a variety of enjoyable outdoor recreation activities in the Olympic Mountains.

The Shoreline Fringe

The shoreline fringe portion primarily includes the urban and agricultural lands between the waters of the Sound and the mountains. It varies in width from a few hundred feet in the West Sound Basins to several miles in the eastern basins.

The many miles of salt water shoreline with inlets and bays attract recreationists from the heavily populated Seattle-Tacoma area. The rivers lose much of their velocity as they leave the mountains, building up broad deltas, sloughs and marshes where the Sound and rivers meet. These deltas, sloughs, and marshes give shelter to such waterfowl as ducks and geese.

This country was once covered by stands of Douglas-fir, hemlock and western red cedar. As the area was settled and developed, much of it was cleared and brought under cultivation. Large portions of the cultivated lands subsequently have been urbanized. In the less densely populated areas, second growth forests alternate with pastures and farms, an enticing pastoral scene for the sightseer.



PHOTO 1-14. Beach on Whidbey Island—U.S. Bureau of Outdoor Recreation Photo.

Most wildlife has been driven from the shoreline fringe by urban development. Deer and upland game birds, such as pheasant, dove, and quail, still inhabit the more remote sections, adding to the recreational appeal of the area.

Puget Sound

This section includes the salt water areas and more than 300 islands. The salt water forms an inland sea extending 80 miles from north to south and up to eight miles in width. The islands range in size from Whidbey Island, the second largest island in the



PHOTO 1-13. Recreationists on Hurricane Ridge—U.S. Bureau of Outdoor Recreation Photo.

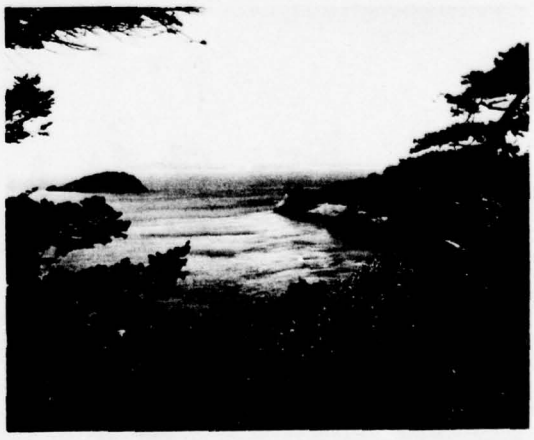


PHOTO 1-15. View from Deception Pass—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-16. San Juan Islands—U.S. Bureau of Outdoor Recreation Photo.

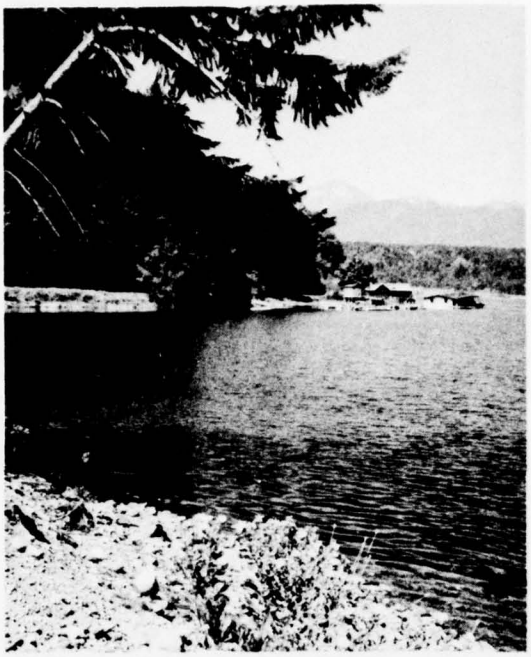


PHOTO 1-17. Hood Canal—U.S. Bureau of Outdoor Recreation Photo.

contiguous United States, to spots of land covering less than an acre. Some have commercial importance; others are suitable only for agriculture, private residences, resorts, or as destinations for recreationists.

Along the shores of the islands, madronas and conifers rise above the rocks, white sand and gravelly beaches. From the water, the woods seem to be a leafy tangle, highlighted in summer by the inflorescence of dogwood and currant. Most of the islands are wooded, but some are so arid that cacti flourish.

The waters of the Sound contain an extraordinary variety of marine life. Shellfish are abundant. Salmon is the chief fish having recreation value. Of no less importance is the wildlife on the islands. Deer are common. Wild goats, possibly descendants of domestic varieties, inhabit some islands. Eagles soaring above the rocky cliffs excite sightseers, and waterfowl attract hunters.



PHOTO 1-18. Mt. Rainier—U.S. Forest Service Photo.

The Cascade Mountains

The Cascade Mountains area might be divided into four major recreation destinations: the Mount Rainier country, the Snoqualmie country, Glacier Peak to Eldorado Peak, and the Mount Baker-Mount Shuksan territory. These areas include recreational lands possessing outstanding qualities, some of which are of national significance.



PHOTO 1-19. Mt. Shuksan—U.S. Bureau of Outdoor Recreation Photo.

The rocks and land forms tell a long, exciting story of deposition, volcanic eruptions, and uplifting and sculpturing of the earth's surface. During the past million years, eruptions built cones, which now appear at intervals, on top of the Cascade Range. Highest of these are Mount Rainier, 14,410 feet; Mount Baker, 10,778 feet; and Glacier Peak, 10,528 feet. As the lands rose, rivers cut deep narrow valleys,

dissecting the region into the ridges and peaks that we know today.

Glaciers aided the rivers in the formation of the landscape. Many of the small lakes found at the higher altitudes were formed as a result of glacier activity. Today these lakes and remaining smaller glaciers provide many recreation opportunities in this section of the Puget Sound Study Area.

The main forest tree of the Cascades, as in the Olympic Mountains, is the Douglas-fir. Throughout the entire Cascade Mountain area, wild flowers create a pleasing colorful display. Climatic variety and short, intense growing seasons produce flowers of many species. Changes in the flora from the low to high elevations compare to the change in life zones from the Puget Sound to the Arctic Circle. This majestic setting of forests and flowers is enhanced by an abundance of wildlife.

Glacial streams and upland lakes may be too cold to support much aquatic life, but many of the lakes and clear streams provide excellent fishing. The dominant species is the rainbow trout.

During the winter months, heavy snows provide for excellent winter sports opportunities. Mountain climbing is a popular activity.

MAN-MADE RESOURCES

The man-made recreation resources provide opportunity for a variety of activities, including boating, fishing, water skiing, swimming, picnicking, camping and various forms of urban recreation.

Recreation facilities are often provided on artificial lakes or reservoirs created in connection with private and public multiple purpose and hydroelectric power projects. Prominent among these are Ross and Diablo Lakes on the main stem of the Skagit River. The Soil Conservation Service's small watershed program has also created smaller but usable reservoirs close to the population centers which have recreational potential.

In addition to reservoirs, historical and archeological attractions are of definite value for recreation.



PHOTO 1-20. Entrance to Lake Cushman—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-21. Diablo Lake—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-22. Outdoor salmon bake—U.S. Bureau of Outdoor Recreation Photo.

HISTORY AND ARCHEOLOGY

History

Important contributions to American history have been made within the Area. The recently created San Juan Island National Historical Park commemorates the successful settlement, by arbitration, of a serious international boundary dispute between the United States and Great Britain.

Important periods in American history left an imprint on the Study Area. These include the period of exploration and fur trade, the period of settlement, and the period of industrial development. Coal mining and the lumber industry were especially important to economic development. Port Gamble, in Kitsap County, is one of the best surviving examples on the Pacific Coast of a mid-nineteenth century company-owned lumber town. It has been declared eligible for designation as a Registered National Historic Landmark. There are other historic sites in the Study Area which offer similar opportunity for conservation and historic interpretation, but little has been done about most of them. These should not be overlooked.

Archeology

The archeological resources are not fully known. Recovered artifacts indicate that the area was inhabitated at least 5,000 years ago. During a study of "Old Man House" in Kitsap County at the entrance to Agate Passage, evidence was collected to indicate that significant cultural changes took place during the interaction of invading Plateau and Coastal Maritime cultures.

Fossil studies have traced geologic transformation from the embayment of the primeval sea, which covered most of the Pacific Northwest, to the present time. Paleozoic rocks contain fossil specimens of the early marine life. Fossils of dinosaurs representative of the age of reptiles have been unearthed on the San Juan Islands. The shales and sandstones, the gold-bearing gravel of the Sauk River, and the coal deposits were derived from swampy flats that once extended along the edge of the present Puget Sound.

These features have value as a recreation resource of general public interest.

The discussion of the archeologal and historical heritage and resources has been separated into four periods:

1. Indian (6000 B.C.–1850 A.D.)
2. Exploration and Fur Trade (1592-1841)
3. Settlement (1842-1888)
4. Post-Statehood (1889-Present)

Indian–(6000 B.C.–1850 A.D.) The earliest known inhabitants were the American Indians. Rela-



PHOTO 1-23. Enjoying Indian dances—U.S. Bureau of Outdoor Recreation Photo.

tively rapid settlement accompanied by the dislocation of the Indian tribes and the movement of the Indians to reservations in the 1850's make a full, coherent description of the Indian people impossible.

Indians may have inhabited the Area as early as 6000 B.C. Archeological investigations have uncovered a variety of materials, particularly points, probably representing the middle periods of the Columbian era (about 1000 B.C. to 1000 A.D.). Artifacts of the type belonging to the Olcott Complex have also been found.

The Indians of the Puget Sound Study Area were relatively short and stocky. Linguistically, they were of the Salish group, with the exception of the Chemakum, living on the northeastern corner of the Olympic Peninsula.

The Salish winter village consisted of one or several large rectangular houses. A number of families linked by relationships of varying degrees might inhabit these structures made from planks split from large trees. In the summer when village groups separated into family food-gathering units, the Indians lived in portable lodges.

To keep his social standing, an "upper" class Indian did not keep his wealth. On the contrary, it was considered an honor to the individual and his family if he gave away a large portion of his material possessions at potlatches which were held for this purpose. The Indian invited large numbers of people to these big feasts and presented gifts to all of the important guests. The more important the guest the greater the value of the gift he received. To uphold his honor, a person receiving a present was also supposed to give a potlatch. For the ordinary tribal member, the feast was an opportunity to eat and celebrate.

The most important food was probably the salmon. Journeys to catch and dry fish for winter use took the Indians from the Washington mainland into the San Juan Islands and elsewhere. Hunting for deer, elk, bear, and many smaller animals plus the gathering of shellfish, camas roots, berries, and nuts gave variety to their diet. Waterfowl, hair seal, and porpoise were also taken by the Indians. Agriculture and the domesticated animals, other than the dog, were virtually absent from the Salish culture.

Exploration and Fur Trade (1592-1841)—The history of the white man in the Puget Sound Area dates back to 1592 when Apostolos Valerianos (Juan de Fuca), searching for the Northwest Passage to India, supposedly found the strait later named after him. Historical records do not substantiate this discovery, however. In 1787, Captain Charles Barkley found the strait and named it the "Strait of Juan de Fuca."

The Nootka Convention of 1790 was directly responsible for opening up the Puget Sound territory. England sent Captain George Vancouver to enforce the terms of the treaty. In 1792, Vancouver entered the inland waters of Puget Sound and the Straits of Georgia. He spent two and a half years exploring the area. Vancouver named many features, such as Mount Rainier, Admiralty Inlet, Mount Baker, Puget Sound, Hood Canal, Whidbey Island and Vashon Island. The Captain claimed the territory for England at a site near the present city of Everett.

During the next 50 years, the fur trade dominated the commercial life of the Pacific Northwest, but was not a major activity in the Study Area. The British fur companies were not interested in exploiting the possibilities in lumbering and fishing. They discouraged settlement, developed the agricultural resources of the river valleys only partially, and looked with horror on any prospecting for minerals. Few British and no Americans even traveled through the Puget Sound country north of Nisqually Flats where Fort Nisqually was located.

Around 1840, a great wave of American settlers, inspired by Jason Lee and Marcus and Narcissa Whitman and by the passage of the Homestead Act, pushed into the region. The first major American exploration occurred in 1841 when the Wilkes Expedition initiated its systematic charting of the Puget Sound Area. Their observatory was located at the original site of Fort Nisqually near the mouth of Sequallitchew Creek.

Settlement (1842-1888). In the summer of 1843, the Americans organized a provisional government for the whole Northwest, including Puget Sound. American claims to the region north of the Columbia River were dubious, so no serious attempt was made to extend control by the provisional government to what is now Washington.

In the fall of 1843, a large wagon train of American immigrants entered the Northwest. Two years later after more wagon trains and sailing ships had arrived with more Americans, a group of families settled north of the Columbia; then moved to lower Puget Sound near what is now Olympia, Washington.

In 1846, Michael Simmons and a band of American pioneers set up a small grist mill on Budd

Inlet, and the settlement of Tumwater grew up around it. Shortly thereafter the town of Olympia was established.

In 1846, treaty negotiations between the United States and Great Britain made official what was already true in fact. British occupied the Fraser River Valley and Vancouver Island; Americans occupied the lower Columbia River Valley and all lands as far north as the 49th parallel. The treaty contained ambiguous wording to the effect that the boundary went through the middle of the channel in the San Juan archipelago. For several years, this led to considerable argument. There was more than one channel, and the islands in the channel were settled by colonists claiming allegiance to one flag or the other. Indirectly this led to the "Pig War," which began in 1859 and was not settled until 1872.

Intertribal Indian wars during 1847-1848 led to establishment of Fort Steilacoom which was built to protect American settlers.

In 1848, following the excitement created by the Whitman massacre in the Walla Walla area, the Oregon Country was organized as a territory of the United States. The boundaries laid out made the territory much too large, and in 1851 the settlers north of the Columbia requested Congress to allow them to govern themselves. Their request was heeded when on March 2, 1853, the Territory of Washington was established. The total population was 3,900. By this time, American settlers had started small towns at Walla Walla, Vancouver, Steilacoom, Olympia, Seattle, on Whidbey Island and Bellingham Bay, and a few other places.

In 1849, the Snoqualmie Indians became enraged at the influx of white settlers to the Sound. Led by Chief Patkanim, they attacked Fort Nisqually, killing Leander Wallace, an American. The first district court north of the Columbia held under the jurisdiction of the territory of Oregon met at Steilacoom in October 1849 to try his accused murderers. Two of the six defendants were hanged. The American settlers then felt more secure about venturing farther north.

Three treaties had been negotiated by Governor Isaac Stevens by the end of January 1855 with the main Indian tribes along the coast west of the Cascades. These were the Medicine Creek Treaty (December 26, 1854), the Point Elliot Treaty (January 22, 1855), and the Point No Point Treaty (January 25, 1855). In these documents, the Indians agreed to give up title to their lands and live in an area to be set aside for them, although their rights to fish and hunt at certain places were to be protected.

A rash of Indian wars from 1855-1857 created considerable turmoil. Numerous battles took place, including an attack on Seattle, naval shelling of the Indian village at Port Gamble, and several encounters in the White and Green River valleys and near Naches Pass. The settlers built numerous blockhouses and forts for protection.

In the 1870's, the Northern Pacific Railroad completed the line through Montana Territory to Puget Sound, giving territorial Washington a direct rail connection with the East. Tacoma was linked with this railroad line in 1887 and Seattle in 1893.

Post-Statehood (1889-Present). In 1889, the year of the great Seattle fire, Washington was admitted into the Union. The capital was placed at Olympia. In 1890, the State's population was 357,000. A total of 78,000 people lived in the cities of Seattle and Tacoma. The Great Northern Railway extended its lines to Puget Sound in 1890 as a major competitor to the Northern Pacific Railroad.

The railroad-induced prosperity was short lived. The panic of 1893 hit the towns around Puget Sound very hard. Lumber mills went out of business and farm produce would not sell. The railroads, which had taken the credit for prosperity, now were blamed for the hard times.

Gold and silver mines were developed in Snohomish County with Monte Cristo the focus of activity.

In 1897, gold discoveries in the Yukon brought about a dramatic change. Almost immediately after the news of the Klondike gold strike arrived in the United States, Seattle changed from a quiet, depression-ridden seaport to a howling madhouse of gold-crazed argonauts determined to get to the Yukon by any means possible. Discovery of gold in the north brought tremendous and permanent growth to Seattle and all of western Washington. Population of the State more than doubled in a decade.

The Alaskan excitement had barely subsided when World War I struck the economy of the State. Again there was feverish activity. Shipbuilding eclipsed the construction activity of the late 1890's. Airplane manufacturers scoured the forests of the region for wood suitable for constructing aircraft. By 1920, it appeared that Washington was on the way to economic independence and political maturity.

In the early 1920's, however, a collapse in agricultural markets affected business adversely.

Deforestation of the apparently inexhaustible timber stands of the western mountains forced mills to close.

The nationwide depression of the 1930's hit the towns of Puget Sound with savage force. Agriculture, already hurt, was prostrated. Lumber mills closed everywhere; many never reopened. Millions of dollars of Federal money were poured into the State for relief and construction of multi-purpose hydroelectric and reclamation dams along the Columbia River system. The production of low-cost electric power in turn made possible the development of a light metals industry and aircraft manufacturing in the Pacific Northwest.

Federal public works expenditures were further increased by the coming of World War II. In addition to Federal appropriations for power dams and reclamation, billions of dollars worth of war contracts in shipbuilding, airplane construction and atomic development were awarded in the State. Construction of military bases added to the Federal public works expenditures. Population mounted rapidly. Agriculture and lumbering became relatively less important. The dependence of heavy industry and diversified manufacturing on low-cost electricity gave stability to the State's economy.

AGENCY RESPONSIBILITIES

The U.S. Congress through Public Law 89-72 (July 1965) authorized Federal agencies to give full consideration to outdoor recreation in investigating and planning any Federal navigation, flood control, reclamation, hydroelectric or multiple-purpose water resource project. The responsibilities of the various public agencies involved in recreation in the Puget Sound Study Area are varied in interest and endeavor.

FEDERAL

Department of Agriculture

Recreation is an important element in the U.S. Forest Service's multiple-use management of the four national forests administering over two million acres of land and water in the Study Area. These lands offer a wide range of public outdoor recreation opportunities.

Through its program of technical assistance to private landowners, the Soil Conservation Service works closely with the Soil and Water Conservation Districts in identifying recreation needs and programs for individuals and groups of farmers.

Department of the Army

Through its civil works program, the Corps of Engineers makes an important contribution to the water-oriented recreation opportunities. The Corps meets recreational needs by providing facilities, lands, and access at water resource projects; by assisting in the construction of small boat harbors; by providing flood control; and by constructing jetties, beach erosion projects, and navigation channels.

Department of the Interior

The National Park Service administers five areas within the Study Area, Mt. Rainier National Park, Olympic National Park, North Cascades National Park, Ross Lake National Recreation Area, and San Juan Island National Historical Park. In addition, the National Park Service programs include surveys concerning the preservation, protection and development of natural, scientific and historic features through archeological salvage, the National Landmark Program, and grants-in-aid assistance to the State under the Historic Preservation Act (Oct. 1966). The Service also is engaged in a new long-range program, Parkscape, U.S.A.

The Fish and Wildlife Service administers numerous programs in close cooperation with its State counterparts in the interest of managing the fish and wildlife resources. Such programs help fulfill the outdoor recreation demand for hunting and fishing.

The Bureau of Outdoor Recreation, through the Land and Water Conservation Act (Sept. 1964) and coordination responsibilities, assists the State, its political subdivisions and Federal agencies in the acquisition and development of outdoor recreation sites and in the development of state-wide and regional outdoor recreation plans.

The Federal Water Pollution Control Administration is directly involved in outdoor recreation through its program and by cooperation with State agencies in determining the needs for water quality standards for both consumptive use and water contact activities.

Although to date the Bureau of Reclamation has not constructed any projects in the Puget Sound Area, recreational facilities are provided when feasible at facilities constructed by this agency.

Federal Power Commission

The Federal Power Commission issues licenses for power projects. Prior to the approval of applications for new or renewal licenses for hydroelectric power projects, the applicant must have an approved plan for the development of the present and future public recreation potential of the project.

Department of Health, Education and Welfare

As the health agency of the Federal Government, the Public Health Service provides counsel and advice on matters relating to health and sanitation for other Federal agencies planning or constructing recreation facilities. Under a specific memorandum of agreement with the National Park Service, Public Health Service personnel are assigned to actively assist in designing public water supply and sewage disposal facilities at public use areas. In addition, annual inspections are provided for water supply, waste disposal, food handling, solid waste disposal and other items of sanitary significance at public park installations.

Department of Housing and Urban Development

The Department of Housing and Urban Development administers several programs that assist in developing recreation opportunities. The Open Space Land Program assists municipalities, counties and other political entities in the acquisition and development of open space land within urban or urbanizing areas. The Urban Beautification Program assists municipalities in upgrading, improving or renovating publicly-owned or controlled lands, many of which are recreation sites. The Historic Preservation Program assists states, counties and municipalities in the cost of acquisition, restoration and/or improvement of sites or structures of architectural or historical significance in urban areas.

Department of Transportation

Through the **United States Coast Guard,** the Department makes an important contribution in the area of recreational boating. Several lighthouses, patrol cutters, and small boat stations are located throughout the Puget Sound Area to provide safe navigation and assistance in emergencies to the pleasure boaters.

The Federal Aviation Administration offers aid in the development of airfields and provides assistance to the pilots of private aircraft.

Department of Commerce

The Weather Bureau provides climatological data for planning and developing recreation areas. Weather forecasts and warnings are of value and assistance to recreationists.

The Coast and Geodetic Survey provides nautical charts and certain publications such as tide tables. Of special interest to recreation boaters are the small-craft charts that are issued annually.

STATE OF WASHINGTON

The State of Washington is directly involved in outdoor recreation through the programs of 12 agencies.

State involvement may be broadly classified as:
Land and facility ownership and management
Program planning, coordination and liaison
Recreation enhancement
Environment controls

Land and Facility Ownership and Management

The Washington State Parks and Recreation Commission is the custodian and manager of areas of scenic beauty, irreplaceable natural resources and outstanding recreational opportunity. Commission planning programs provide for program expansion in accordance with recreation resource capability and demand. The Commission maintains active liaison with local units of government.

The Department of Natural Resources administers State grant lands for multi-purpose use including recreation, and maintains liaison with local and private forest land owners.

The Department of Fisheries administers certain tidelands and other areas for public use. The **Department of Game** manages and develops public hunting and fishing areas for recreation use.

The Department of Highways maintains numerous picnic and rest areas adjacent to public highways as well as scenic highways and viewpoints.

The Interagency Committee for Outdoor Recreation, an eleven member group including six State



PHOTO 1-24. Lake Cushman State Park—Washington State Parks and Recreation Commission Photo.

representatives and five gubernatorial appointees, has the responsibility of allocating funds from a State outdoor recreation account to State and local agency projects which are consistent with an orderly plan for the acquisition and improvement of outdoor recreation lands in the State.

Program Planning, Coordination and Liaison

The Planning and Community Affairs Agency provides for the coordination of recreation planning to identify goals and to translate these goals into programs.

The Department of Water Resources coordinates multi-purpose water resource planning programs including recreation.

Recreation Enhancement

The Department of Commerce and Economic Development conducts a tourist promotion program which encourages the widespread use of the recreational resources.

The Departments of Fisheries and Game conduct programs of fish, shellfish and game management and enhancement for recreational purposes.

The State Canal Commission conducts surveys and encourages the enhancement of pleasure boating facilities.

Environmental Controls

The State Department of Health has statutory responsibility for the establishment of water quality standards and sanitation regulations through their adoption by the State Board of Health. The Department provides technical assistance to Federal and State agencies and supervision and consultation to County Health Departments which, by statute, enforce State and local health requirements.

The Water Pollution Control Commission develops and promulgates policies, rules and regulations and standards for the prevention, control, or abatement of waste discharges and other practices adversely affecting water quality. The objective of the Commission is to maintain the highest possible standards of water purity consistent with public health and enjoyment; the propagation and protection of wildlife, fish, and other aquatic life, and the industrial development of the State.

LOCAL

Some counties and larger cities in the Puget Sound Study Area supply recreation areas, facilities and programs for local residents. City and county facilities also accommodate nonresidents.

The Puget Sound Governmental Conference, the policy arm of the Central Puget Sound Regional Planning Program, represents the cities of Bremerton, Everett, Seattle, and Tacoma and the counties of King, Kitsap, Pierce, and Snohomish. The Conference has the responsibility for a continuing research and planning program oriented toward seeking solutions to problems confronting the four-county region as a whole.



PHOTO 1-25. Boating facilities at Suquamish—U.S. Bureau of Outdoor Recreation Photo.

ECONOMIC EVALUATION OF RECREATION AND THE TOURIST INDUSTRY

Relatively little research has been done in the field of recreation economics. It is difficult to place a dollar value on recreation. In order to make a systematic and meaningful economic analysis, one aspect of recreation–tourism–has been selected. Some statistical information and data on tourism are available and indicative of the total recreation picture.

In terms of employment, tourism is the fourth largest and probably the fastest growing basic industry in the Pacific Northwest. Only the food, defense, and forest products industries account for greater employment. The tourist industry is expected to be at least the number three industry in the Pacific Northwest by 1985 and may grow to be the largest industry by the year 2000. Although these estimates are for the Pacific Northwest, they give an insight into the economic importance of the recreation and tourist industry within the Puget Sound Study Area.

Tourist expenditures (as opposed to resident recreation expenditures) in the Pacific Northwest in 1964 were estimated to be about $900 million. Expenditures are expected to rise to $2,210 million in 1985 and $6,765 million in 2010. Additional leisure time and higher incomes will allow families to *spend more time and money on recreation. Generally,* as family income increases, the proportion of income spent on necessities such as food and shelter either remains fairly constant or declines. Recreation expenditures usually increase as income increases.

Estimated present distribution of tourist expenditure by type is as follows:*

Food–33%	Other Retail purchases–18%
Lodging–13%	Recreation–7%
Transportation–17%	Miscellaneous–12%

*Based on averages of nine tourist expenditure studies, California Tourist Trade, Report of the State Assembly Interim Committee on Ways and Means, 1962.

It is estimated that the $900 million in tourist expenditures equals about two-thirds of the total tourist and recreation spending. An additional 33% for resident recreation spending would bring the total estimated tourist and recreation expenditures to $1.3 billion for 1964 in the Pacific Northwest. Of this amount, 45.4% ($606 million) was spent in the State of Washington.

The outdoor recreation demand for 1960 was estimated to be about 300,000,000 activity occasions for the State and 144,000,000 activity occasions for the Puget Sound Study Area. By comparing these two figures, it is estimated that nearly 50% (or approximately $300 million) of the State's total tourist and recreation expenditures for 1964 were made within the Area. During 1966, an estimated $51 million in recreation boating expenditures were made in the Study Area.

Other factors which illustrate the growth of the tourist industry are earnings of the hotel and motel industries and average annual employment.

Earnings of the hotel and motel industries in Washington increased from $16 million in 1950 to $27 million in 1964, with an accelerated income of $29 million in 1962, because of the influx of tourists who came to the World's Fair. Average annual employment in the hotel industry in 1955 was 7,600, compared to 9,300 in 1963. Total employment in the tourist industry in Washington was approximately 45,000 during 1963.

The expenditures by government agencies for the acquistion and development of recreation areas in the Pacific Northwest are increasing. During 1965, the annual recreation expenditures in the Pacific Northwest by government agencies were:

Federal	36
State	25
Local	31
	$92 million

Although data is not available, it should be noted that the sum spent by private interests is significant and is probably growing in amount.

SUPPLY

Recreation resources might be called the "raw materials" of outdoor recreation. They are those natural and man-made features which appeal to the human senses and improve the physical and spiritual well-being of the individual.

At first thought, the term "recreation resources" brings to mind opportunities for activities such as picnicking, boating, fishing, hunting, and camping. In the more fundamental sense, however, the recreation resources are much more than suitable settings for physical activities. They appeal to all or any number of the senses. In the long run, their value to an individual and their significance to a nation lie in those qualities which provide mental stimulation, inspiration, satisfaction, and appreciation of the outdoor resource and events that have gone before. The mountain meadow, for example, is more than a setting for physical activity. To some, its chief recreation value may be derived from an array of wild flowers, the sound of a nearby stream as it leaps and splashes its way to the valley below, the fragrance of encircling stands of fir and cedar, the coolness and crispness of the oncoming night, and the special indefinable qualities of a wild setting.

Strolling over the grounds of yesterday's frontier outpost enables one to reconstruct and, in some degree, relive the adventures and varied experiences of the early settlers. Historic and archeologic sites tell something of early man's struggle and his various cultures. The many differing land forms remain as vivid evidence of the geologic events which, in large part, are responsible for the present scenic and biologic values. All of these are the basic ingredients of recreation supply.

This section deals with the existing and potential outdoor recreation resources in the Study Area. The summary of the supply of publicly-owned areas is based on information obtained from a 1964 nationwide inventory of recreation areas conducted by the Bureau of Outdoor Recreation and from information supplied by the U.S. Forest Service, the National Park Service, and the State of Washington. The summary of private facilities was tabulated from information contained in the 1965 inventory of private enterprises by the National Association of Soil and Conservation Districts.

The term recreation areas used in this report includes publicly and privately owned urban and non-urban areas designated by the administrator or owner as available for public outdoor recreation use. The summaries include a total of over 1,400 existing areas and sites offering recreation opportunities.

EXISTING PUBLICLY ADMINISTERED AREAS

In 1964, there were 966 publicly administered recreation sites within the Puget Sound Study Area; 196 of these were Federally administered, 360 administered by the State, 99 by the counties, and 311 by cities and other local agencies. The publicly administered areas covered 4,098,435 acres.

Table 1-1 summarizes the outdoor recreation resources and facilities by agency. Acreages have been broken down by a recreation resource land classification system recommended by the Outdoor Recreation Resources Review Commission and adopted by the Bureau of Outdoor Recreation. On a percentage basis, the total 4,098,435 acres of public recreation lands are broken down by the land classification system as follows:

Class I–**High Density Recreation Areas**–areas intensively developed and managed for mass use–0.1%.

Class II–**General Outdoor Recreation Areas**–areas subject to substantial development for a wide variety of specific recreation uses–0.7%.

Class III–**Natural Environment Areas**– various types of areas that are suitable for recreation in a natural environment and usually in combination with other uses–72.5%.

Class IV–**Unique Natural Areas**–areas of outstanding scenic splendor, natural wonder, or scientific importance–5.4%.

Class V–**Primitive Areas**–undisturbed roadless areas characterized by natural, wild conditions, including "wilderness areas"–21.2%.

Class VI–**Historic and Cultural Sites**–sites of major historic or cultural significance, either local, regional, or national–0.1%.

Much of the acreage in Class III is administered by the Forest Service and by the State for multiple

TABLE 1-1, Summary of existing publicly-administered outdoor recreation resources, Puget Sound Study Area

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acre)	Snow Skiing Lifts	Tows	Total 1964 Visitation
Federal																	
Forest Service	2,244,253	330	11,492	1,880,300	3,198	348,932	1	963	265	N.A.	N.A.	10	—	2	9	36	1,662,171
Park Service	1,097,732	—	5,785	352,461	218,789	518,895	1,802	1,039	469	1,211		—	—	—	—	—	1,967,540
Military Res.	94,125	—	3,193	90,885	30		17	2	120	—	168	4	12,600	23	—	—	32,170
Other Federal	2,793	—	138	2,337	—	318	—	—	6	195	—	—	—	—	—	—	909,800
Total Federal	3,438,903	330	20,608	2,325,983	222,017	868,145	1,820	2,004	870	1,406	168	14	12,600	25	9	36	4,571,681
State																	
Dept. of Fish	638	—	104	191	276	—	67	—	—	7	—	1	—	1	—	—	236,500
Dept. of Game	16,858	—	897	15,961	—	—	—	—	—	1,356	7,507	151	—	4	—	—	287,918
Dept. of Nat. Res.	608,910[1]	—	188	608,642	80	—	—	68	71	76	—	4	—	3	—	—	3,449,688
Parks & Rec. Com.	19,557	30	2,661	16,213	599	—	54	2,386	2,797	6,455	1,132	15	—	63	—	—	5,528,585
Total State	645,963	30	3,850	641,007	955	—	121	2,454	2,868	7,894	8,639	171	—	71	—	—	9,502,691
County	4,192	328	1,313	2,288	50	212	1	38	962	1,380	276	11	2,700	89	—	—	1,824,133
City & Other Local	9,377	3,802	1,465	3,479	151	466	14	103	1,512	9,348	905	41	72,550	67	—	—	17,063,050
Total	4,098,435	4,490	27,236	2,972,757	223,173	868,823	1,956	4,596	6,212	20,028	9,988	237	87,850	252	9	36	32,961,555

[1] does not include tidelands and shorelands

uses. Managed primarily for timber production, fish and wildlife, watershed, and other purposes, these lands have been maintained largely in an undeveloped condition, with the exception of roads and logging operations. Consequently, these areas supply considerably less opportunity for general outdoor recreation than do the developed acreages. Primary recreation use is for hunting, fishing, and hiking. The lands offer some picnicking and camping opportunities without extensive development and provide a natural backdrop to many of the highways. It is estimated that about 0.05% of these Class III acreages are suitable for development into Class II areas, such as campgrounds and picnic areas.

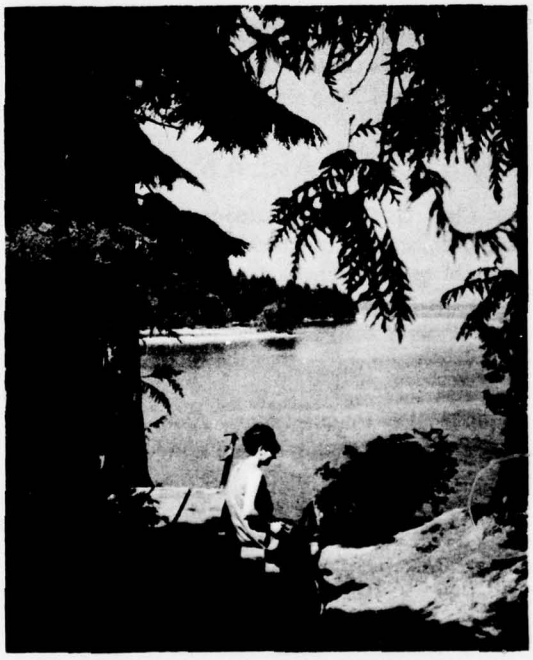


PHOTO 1-26. Penrose Point State Park—U.S. Bureau of Outdoor Recreation Photo.

An analysis of the total acreage of recreation lands shows that 83.9% are administered by the Federal Government, 15.8% by the State, 0.1% by counties, and 0.2% by local agencies. Of the total 32,961,555 visits to recreation areas 13.8% were to Federal areas, 28.8% to State areas, 5.5% to county areas, and 51.9% to local parks. Federal areas received an average of 1.35 visits per acre; State areas, 14.71 visits per acre; county areas, 435.15 visits per acre; and local parks received an average of 1,819.67 visits per acre.

The number of areas and the total acreage available for recreation mean little unless qualified by the capacity of the recreation resource. The capacity of a resource to serve recreation needs is a more accurate measure of supply than acreage. Capacity is a result of an area's location and accessibility and the degree of development. For some activities, such as hunting and wilderness travel, large acreages are essential, but for the majority of experiences, it is not the number of acres but the degree of development that is most important. Location and improvement are thus in many cases the key to effective supply.

In 1964, there was a total of almost 11,000 family camp and picnic units within the publicly administered recreation lands. Of these units, 27% are on Federal lands, 49% on State, 9% on county, and 15% on lands administered by local agencies. Counties and local parks are often highly developed for games and other activities not supplied on Federal or State areas.



PHOTO 1-27. Campers at Kopachuck State Park—Washington State Parks and Recreation Commission Photo.

The "Pleasure Boating Study" for the Puget Sound and Adjacent Waters Comprehensive Study reported 21 publicly operated rental boat moorages. A total of 3,882 wet and 786 dry moorage spaces are available at these public facilities..

PROGRAM OF PRINCIPAL RECREATION SUPPLIERS

National Park Service

There are three national parks, one national recreation area, and one national historical park within the Study Area. These include:

Mt. Rainier National Park—169,360 acres

Olympic National Park—375,020 acres

North Cascades National Park—444,600 acres

San Juan Island National Historical Park—1,752 acres

Ross Lake National Recreation Area—107,000 acres

During 1964, there were 1,967,540 visits to the portions of the national parks within the Study Area. Mount Rainier is principally a summer day-use area. Approximately 75% of the total visits to the Park are made by Washington residents, and more than 90% of the visitors come for the day only. Olympic National Park has a higher percentage of overnight visitors. It offers some excellent hiking and riding areas.

Three of the areas were established after 1964. The Historical Park was authorized in 1965, and the North Cascades National Park and Ross Lake National Recreation Area were established during 1968.

United States Forest Service

All or part of four national forests are found within the Area. The Forest Service administers 2,244,253 acres. Of these, 363,953 acres are managed with recreation as the key resource value. The remaining 1,880,300 acres are managed under the multiple-use concept and classified as Class III recreation lands. On these Class III lands, dispersed-type recreation activities, such as hunting and hiking, are integrated with timber production, watershed management, and other resource uses.

There are 1,653 miles of existing trails on the national forest lands.

Because of their close proximity to metropolitan areas, the Forest Service lands receive heavy recreation use. During 1964, 1,662,000 visits were recorded on the Forest Service recreation areas. The figure does not include sightseers who drove through the forests without utilizing recreation facilities.

The U.S. Forest Service has a detailed recreation resource inventory and plan for each of the four national forests. The plans indicate the need in national forests for the management of the forest environment and the development of additional facilities, and the designation and dedication of additional recreation areas to accommodate increasing use and to protect the recreation resources.

The two Forest Service wilderness-type areas within the Study Area are the Pasayten Wilderness and the Glacier Peak Wilderness. One other has been proposed by the agency.



PHOTO 1-28. Heather Meadows, Mt. Baker National Forest—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-29. Picnickers at Kopachuck State Park—Washington State Parks and Recreation Commission Photo.

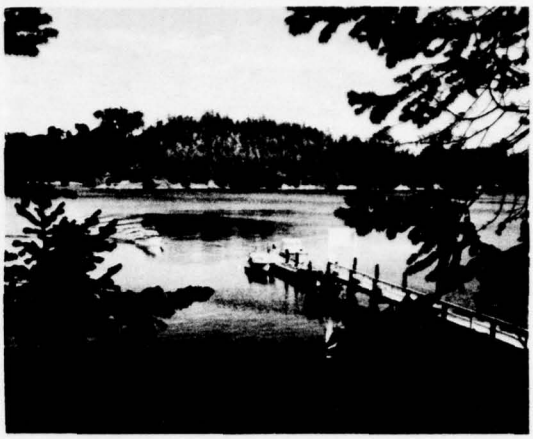


PHOTO 1-30. Prevost Harbor State Marine Park—U.S. Bureau of Outdoor Recreation Photo.

State Parks and Recreation Commission

Sixty-nine areas are administered by the State Parks and Recreation Commission. In addition, 30 small islands in the San Juans, some being scarcely more than rocks, are leased from the Federal Government. Suitable islands will be developed for boat access and recreation use. Others will be maintained in their natural condition.

The Commission administers four types of areas: State parks, State recreation areas, State marine parks, and State heritage sites. During 1964, more than 5,500,000 visits were recorded to these State areas.

State Department of Natural Resources

Approximately 609,000 acres of State Grant and Forest Board lands lie within the Study Area.

Most of these lands were dedicated by Congress at the time of statehood to provide funds for schools and institutions. They are managed by the Department of Natural Resources, which has been authorized to use lands for certain recreation purposes. Six hundred eight thousand six hundred forty-two acres are categorized as Bureau of Outdoor Recreation Class III, Natural Environment Areas. Principal recreation uses are hunting, fishing, hiking, and sightseeing. During 1964, approximately 3,450,000 visits were made to these areas.

The Department recently initiated a long-range planning program for the identification and development of recreation areas on these State-owned lands.

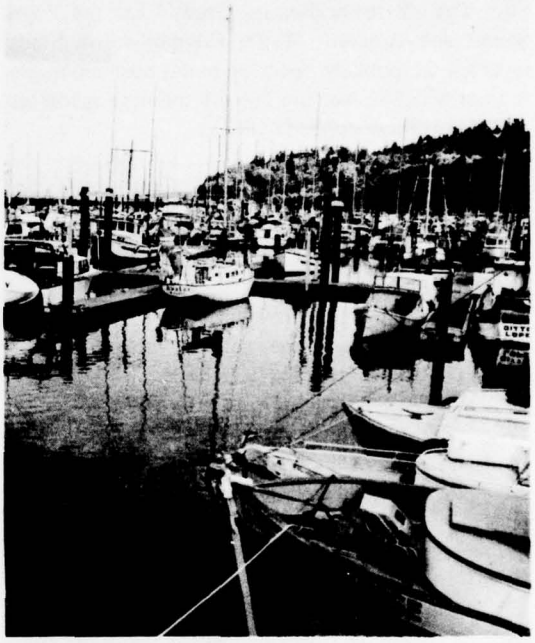


PHOTO 1-31. Shilshole Marina, Seattle—U.S. Bureau of Outdoor Recreation Photo.

Only minimum basic facilities will be provided, such as access, tables, drinking water, and sanitation.

In addition, the Department of Natural Resources leases lands to other State agencies, local units of government, sportsmen, and boating groups, and commercial resort operators for recreation develop-

ment. By this means, the Department has been able to meet its revenue return responsibilities while at the same time contributing to the expansion of the outdoor recreation supply.

State Departments of Game and Fisheries

The State Department of Game administers numerous public hunting and fishing areas within the Area. During 1964, about 290,000 visits were recorded to the approximately 17,000 acres administered by this agency. There are a total of 151 boat access sites on the Department of Game's 175 recreation areas. These sites provide the major source of public assess to the waters. The Department of Fisheries administers approximately 10 miles of tidelands for public shellfish gathering including 5 miles at Cattle Point, 1 mile on Saratoga Passage, 3 miles at Penn Cove, and 1 mile at Point Whitney.

County and City Parks

County and city parks are located where the need for recreation facilities is the greatest, within or near the urban centers.

During 1964, the 100 county recreation areas and 309 city parks recorded about 19,000,000 visits or 52% of the total recreation visits to publicly administered recreation areas. Acreage of county and city parks comprise only 0.3% of the Area's total.

EXISTING PRIVATELY ADMINISTERED AREAS

With the increases in population and the economic potential of the recreation and tourist industry, commercial interests will play an important role in satisfying the need for outdoor recreation opportunities. Privately operated areas usually offer fairly specialized facilities and services requiring a high degree of public contacts and management. Well-developed large establishments offering a variety of activity options prove more profitable than smaller developments.

Non-profit private organizations, such as the Nature Conservancy and youth, church, and civic organizations, also contribute significantly to the recreation supply. They provide land and facilities near population centers. Many carry out conservation programs for the public. Organizations such as the YMCA, Boy Scouts, Girl Scouts, Camp Fire Girls, and church groups operate resident and day camps, often on public lands.

The following list of private facilities available for public use was tabulated by the Soil Conservation Service from a 1965 inventory carried out by the National Association of Soil and Conservation Districts. The inventory reported a total of 479 private operators within the Study Area.

TABLE 1-2. Inventory of existing private outdoor recreation facilities, Puget Sound Study Area, 1965

	Number of enterprises	Reported capacity at one time (people)		Number of enterprises	Reported capacity at one time (people)
Archery	6	74	Golf, Putting	4	355
Boating	36	1,439	Hiking	43	3,891
Camping, Tent	72	5,460	Horseback Riding	41	1,018
Camping, Trailer	25	2,114	Hunting, Big Game	1	250
Camping, Transient	4	844	Hunting, Small Game	21	306
Camping, Pack	3	112	Hunting, Waterfowl	39	453
Children's Play	6	235	Ice Skating	4	330
Dog Trials	1	12	Motorcycling	2	160
Drag Racing	2	150	Nature Observation	38	3,536
Enjoying Scenery	24	1,692	Picnicking	56	7,548
Fishing, Lakes & Rivers	140	10,812	Pony Riding	5	52
Fishing, Pond	25	1,445	Rural Living	52	3,068
Fishing, Stream	10	289	Shooting, Stocked Game	2	40
Games, Field	19	1,651	Shooting, Target	13	429
Go-Cart Racing	4	65	Skin Diving	1	6
Golfing, 9 hole	31	2,232	Snow Skiing	5	2,200
Golfing, 18 hole	17	2,448	Swimming	91	10,866
Golfing, Par-3	1	72	Tobogganing	1	16
Golf, Driving	3	110	Water Skiing	3	56

The Washington Statewide Outdoor Recreation and Open Space Plan reported the following categories of facilities not covered in the NACD inventory:

	Number of establishments
Drive-in-Theaters	25
Flying	74
Organization Camps, youth	67
Organization Camps, adult	17
Resorts	211
Sightseeing Cruises	10
Trailer Parks	294
Vacation Farms	10

The "Pleasure Boating Study" reported 119 privately operated rental boat moorages with a total of 8,415 wet and 2,892 dry moorage spaces. In addition, there are 80 privately operated boat launching facilities.

During recent years, recreation has become recognized as an important by-product of the private forest lands. Most private timber company lands are open to some form of public use. In the State of Washington, more than four million acres of industrial tree farm holdings have been opened to hunters. In addition, several timber companies have developed recreation sites for camping and picnicking by visitors.

There are also numerous private clubs operated on a membership basis which offer outdoor activities. Recently there has been a trend toward providing recreation facilities within some of the new housing developments.

Utility companies are recognizing and accepting the recreation significance of their developments. There are over twenty hydroelectric power projects in the Study Area, and about half of them are privately operated. Public recreation facilities have been provided at several of the projects, and recreation improvements will be provided at other suitable projects at some later date. When applying to the Federal Power Commission for licensing or relicensing of hydroelectric projects, private and public power companies are required to submit a plan for the recreation development of the project. The Federal Power Commission in coordination with other federal and State agencies, may stipulate that project development and operation include adequate provisions for public recreation use.



PHOTO 1-32. Privately operated boat launch—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-33. Interpretive display at Old Man House—Washington State Parks and Recreation Commission Photo.

EXISTING SPECIAL INTEREST AREAS

The following tables include a tabulation of existing archeological and historical areas, outstanding natural areas, and boating rivers.

ARCHEOLOGICAL AND HISTORICAL AREAS

Table 1-3 contains a listing of the designated historical and cultural sites tabulated from the Washington Statewide Outdoor Recreation and Open Space Plan.

OUTSTANDING NATURAL AREAS

Table 1-4 lists designated outstanding natural areas. The data were collected from materials contained in the Bureau of Outdoor Recreation nationwide inventory, the Washington Statewide Outdoor Recreation and Open Space Plan, and from information supplied by the Forest Service

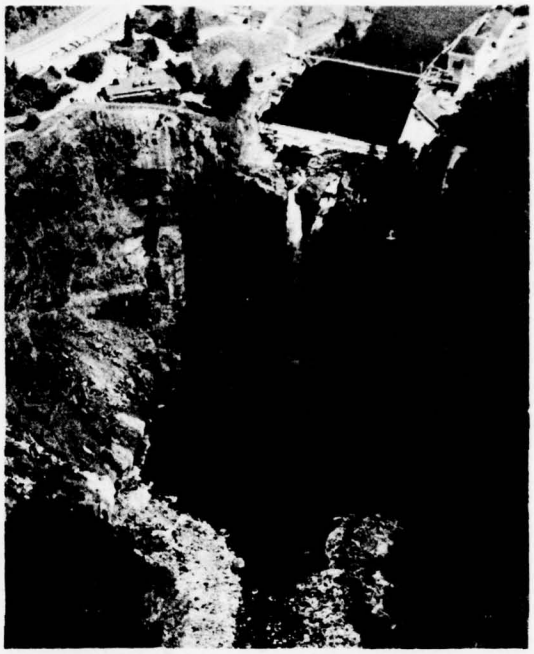


PHOTO 1-34. Snoqualmie Falls—U.S. Bureau of Outdoor Recreation Photo.

TABLE 1-3. Designated historic and cultural sites, Puget Sound Study Area

Site	Administering Agency	County	Basin	Class VI Acres
Brown's Point Lighthouse	Pierce County Parks Board	Pierce	Puyallup	1
Captain Wallace's Grave	State Parks and Recreation Commission	Pierce	Puyallup	1
Chief Sealth Cemetery Heritage Site	State Parks and Recreation Commission	Kitsap	West Sound	1
Des Moines Memorial County Park	King County Parks and Recreation Department	King	Cedar-Green	1
Fall City Park	King County Parks and Recreation Department	King		1
Fort Casey State Park	State Parks and Recreation Commission	Island	Whidbey	2
Fort Flagler State Park	State Parks and Recreation Commission	Jefferson	West Sound	20
Indian cemeteries and monuments	Fort Lewis, Department of Defense	Pierce	Nisqually-Deschutes	17
Grand Army of Republic Cemetery	Seattle Park Department	King	Cedar-Green	2
Memorial Park	Bellingham Board of Park Commissioners	Whatcom	Nooksack	5
Town of Port Gamble	(Registered National Historic Site)	Kitsap	West Sound	?
Old Fort Townsend State Park	State Parks and Recreation Commission	Jefferson	West Sound	18
Old Man House Heritage Site	State Parks and Recreation Commission	Kitsap	West Sound	1
Peace Arch State Park	State Parks and Recreation Commission	Whatcom	Nooksack	10
Pioneer Square, Prefontaine Place, Tillikum Place, City Hall Park, and McGraw Square	Seattle Park Department	King	Cedar-Green	1
Rothschild House Heritage Site	State Parks and Recreation Commission	Jefferson	West Sound	1
San Juan Island National Historic Park	National Park Service	San Juan	San Juan	1,752*
Slaughter Memorial	City of Auburn	King	Cedar-Green	1
Volunteer Park	Seattle Park Department	King	Cedar-Green	3

* Authorized for acquisition

TABLE 1-4. Designated outstanding natural areas,Puget Sound Study Area

Area	Acres	Basin
Wildflower Acres, near Marysville	25	Snohomish
Cattle Point Tidelands, San Juan Island	13	San Juan
Fossil Bay, Sucia Island	Unknown	San Juan
Mud Bay Tidelands, Lopez Island	44	San Juan
Spencer Spit Tidelands, Blakely Island	34	San Juan
Schmitz Park Preserve, Seattle	50	Green
Little Mountain Park, Mt. Vernon	4	Skagit
Marymoor County Park, near Lake Sammamish	50	Cedar
Saratoga Passage Tidelands, Whidbey Island	30	Whidbey
Penn Cove Tidelands, Whidbey Island	46	Whidbey
Silver Lake, Everett	4	Snohomish
Pigeon Creek, Everett	40	Snohomish
Point Whitney and Tidelands, Dabob Bay	74	West Sound
Snoqualmie Falls	Unknown	Snohomish
Shine Tidelands, Hood Head on Hood Canal	29	West Sound
Oak Head Vicinity Tidelands, Toandos Peninsula on Hood Canal	25	West Sound
Federation Forest, Southeast of Enumclaw	120	Puyallup
Pinnacle Peak, south of Enumclaw	80	Puyallup
Baker Hot Springs Geological Area (T.38N.,R9E.,Sec.30)	1	Skagit
Rainbow Falls Scenic Area (T.30N.,R.11E.,Sec.10)	20	Skagit
North Fork Falls Scenic Area (T.30N.,R11E.,Sec.10)	5	Skagit

SCENIC AND RECREATIONAL HIGHWAYS

During the Fortieth State Legislative Session an Act (SSB 424) was passed designating twenty-five highway areas within the State as Scenic and Recreational Highways. Scenic and recreational routes are those which not only offer a landscape of outstanding aesthetic, historical or cultural value, but also encourage a leisurely viewing of this landscape while creating no undue hazards to other route users.

All or portions of eight of the State Scenic and Recreational Highways are in the Study Area. These include:

1. Primary State Highway No. 2, or the Sunset Highway, from approximately 2 miles southeast of North Bend to Snoqualmie Pass.

2. Primary State Highway No. 1, or the Pacific Highway, from Nugent's Bridge over the Nooksack River near Bellingham easterly to Austin Pass near Mt. Baker.

3. Primary State Highway No. 9, or the Olympic Highway, on the Olympic Peninsula.

4. Primary State Highway No. 16, or the North Cross State Highway, from the Hansen Creek Bridge near Lyman easterly along the Skagit River to and past Diablo Dam.

5. Secondary State Highway No. 1D, beginning at a junction with primary State Highway No. 1 near Anacortes, to the Keystone ferry slip on Whidbey Island.

6. Secondary State Highway No. 9A, from Laird's Corner on Highway No. 9 near Port Angeles, to and past the western boundary of the Elwha Basin.

7. Secondary State Highway No. 9E, beginning at a junction with primary State Highway No. 9 near Discovery Bay, to the vicinity of Shine on Hood Canal.

8. Primary State Highway No. 21, or the Kitsap Peninsula Highway, from State Highway No. 9 near Union, northerly to Port Gamble.

The primary consideration in the designation or development of a scenic route is to enhance the traveler's experience. A scenic route should be one which incorporates beauty with safety, utility, and economy. A designated route should traverse and provide access to areas of scenic interest and beauty. It should be integrated with the surrounding environment so as not to prove a distraction from values worthy of protection.

The roads are but one element in the composition of a scenic route. The scenic corridors adjacent to the right-of-way complete the visual appearance of a scenic route.

BOATING RIVERS

Touring the natural waterways is akin to hiking and riding in the back country. Unspoiled rivers represent an element of irreplaceability and become increasingly important with passage of time.

Table 1-5 tabulates boating rivers within the Study Area as compiled from information supplied by the Washington Foldboating Club:

TABLE I-5. Recreation boating rivers, Puget Sound Study Area

River	Estimated Miles	Basin	River	Estimated Miles	Basin
Nooksack	49	Nooksack	Tolt	4	Snohomish
Nooksack, Middle Fork	6	Nooksack	Pilchuck	18	Snohomish
Nooksack, South Fork	8	Nooksack	Skykomish	40	Snohomish
Skagit	78	Skagit	Beckler	4	Snohomish
Sauk	25	Skagit	Sammamish	12	Cedar
Suiattle	8	Skagit	Cedar	26	Cedar
Baker	6	Skagit	Green	53	Green
Stillaguamish	15	Stillaguamish	Puyallup	28	Puyallup
Stillaguamish, North Fork	26	Stillaguamish	White	38	Puyallup
Stillaguamish, South Fork	20	Stillaguamish	Carbon	10	Puyallup
Pilchuck Creek	6	Stillaguamish	South Prairie Creek	10	Puyallup
Snohomish	18	Snohomish	Nisqually	35	Nisqually
Snoqualmie	35	Snohomish	Deschutes	12	Deschutes
Snoqualmie, North Fork	12	Snohomish	Skokomish	8	West Sound
Snoqualmie, Middle Fork	16	Snohomish	Dungeness	2	Dungeness
Snoqualmie, South Fork	8	Snohomish		636	

Approximately one-third of the above total includes river stretches which contain dangerous rapids and should be run only by expert white water boaters.

RECREATION WATERS

Water is a key factor of recreation supply. It is essential for many outdoor activities and adds to the enjoyment and attractiveness of others.

Fortunately, the Puget Sound Study Area is endowed with an abundant supply of waters suited for recreation. Not including rivers and streams, 17% of the total area is water surface; 93% of this is salt water. In addition, there are several thousand miles of streams and rivers, many of which are suitable for some sort of recreation activity.

Table 1-6 summarizes the total supply of water by the 11 basins:



PHOTO 1-35. Fishing off Point No Point—U.S. Bureau of Outdoor Recreation Photo.

TABLE 1-6. Total surface waters by basin, Puget Sound Study Area

Basin	Salt Water (Acres)	Lakes and Reservoirs (acres)
Nooksack-Sumas	234,199	7,094
Skagit-Samish	101,395	25,946
San Juan	236,792	880
Whidbey-Camano	387,901	747
Stillaguamish	3,859	1,799
Snohomish	49,652	13,790
Cedar-Green	44,602	33,711
Puyallup	23,623	6,702
Nisqually-Deschutes	17,610	8,082
West Sound	385,499	12,030
Elwha-Dungeness	68,311	1,423
Total	1,553,443	112,204



PHOTO 1-36. Swimming at Belfair State Park— Washington State Parks and Recreation Commission Photo.

Not all of these waters are available for recreation because of adjacent private lands, access problems, or lack of supportive facilities. Most of them would provide significant opportunities if and when adequate access and suitable related lands and facilities are provided.

With the provision of adequate access and adjacent lands, it is assumed that all of the salt water and 90,000 acres of lakes and reservoirs would be suitable for boating. The four largest lakes (Washington, Ross, Whatcom, and Sammamish) comprise 43,716 surface acres.

During periods of severe weather much of the water supply, especially the salt water, larger lakes, and lakes and rivers within the snow zone, would be unavailable to recreationists. During the peak recreation season when favorable weather is expected, adverse climatic conditions do not restrict access and use.

The shoreline provides superior recreation opportunities, such as beachcombing and clam digging. The tidelands support a variety of shell fish for commercial and personal use. Some tidelands have natural values worthy of conservation. As with water areas, the major factor limiting the recreation use of the shoreline is access. Urbanization, private lands, adverse topography, and railroad tracks inhibit public use in many areas. The Puget Sound Governmental Conference reports that of the 665 miles of salt water shoreline in Pierce, King, Kitsap, and Snohomish Counties, only 3½% is designated for park and recreational purposes.

Puget Sound, with its 2,500 square miles of salt water and numerous islands and harbors, is one of the most outstanding resources of its type in the Nation. Its proximity to population concentrations and its available resources give it the potential to satisfy great recreation pressures during the future.

POTENTIAL SUPPLY

Those resources that can satisfy future recreation needs if properly developed and made available for public use constitute the potential recreation supply. The Study Area, with its many and varied waters and other attractions, possesses a wealth of these potential opportunities. Unfortunately, information identifying and summarizing the total potential supply is not available.

Potential recreation sites and areas are obviously available on State and Federal lands. As a result of the recreation inventory of national forest lands, the Forest Service reports that an additional 1,100 acres of campground and 500 acres of picnic ground will be developed on their lands by 1975, finances permitting. An additional 5,500 acres could be developed for these purposes between 1976 and the year 2000. The Forest Service also plans to establish numerous special interest areas and an additional 42,000 acres of wilderness.

The National Park Service is preparing plans for the recreation development of the recently authorized San Juan Island National Historical Park, North Cascades National Park, and Ross Lake National Recreation Area. These areas offer significant recreation opportunities.

The State Parks and Recreation Commission has identified 25 potential State park areas within the Area. The State Department of Natural Resources plans to develop additional campgrounds and picnic areas. The State Department of Game proposes to provide the recreationists with an additional 131 lake and 50 salt water fishing access sites, two big game areas, 15 small game areas, 18 waterfowl areas, plus access easements along important fishing rivers.

Private lands are available for acquisition by public agencies or private interests for recreation purposes. An inventory of possible sites now in private ownership is not available.

Large private acreages and public holdings that do not now provide significant recreation facilities which could wholly or partially be utilized for public enjoyment include Indian lands, agricultural and forest lands, military and U.S. Coast Guard reservations, and municipal watersheds.

INDIAN LANDS

Indian lands are a private resource which could supplement the future recreation supply. There are nine reservations with a total of 65,605 acres within the boundaries. Many of these lands are adjacent to salt and fresh waters. In addition, there are 372 acres of tribal lands in scattered tracts near the mouth of the Elwha River and 33 acres adjacent to the city of Tacoma. There are also a number of Public Domain Allotments scattered throughout the Study Area.

Of the total reservation lands, 5,481 acres are tribal lands, 25,174 are allotted Indian lands, and the remaining 34,950 acres are privately owned non-Indian lands. Due to the amount of interspersed private land, there are few contiguous areas of Indian land. The administration and utilization of the allotted Indian land are complicated by multiple undivided heirship interests. Most are jointly owned, without division, by all the heirs of the original owner. These complexities make planning of any realistic, long-range resource development program difficult.

The extent of the use of Indian lands for recreation depends upon decisions by the Indian owners to manage their lands for this purpose as an economically profitable venture. The Bureau of Indian Affairs is attempting to encourage recreation use as a means of economic development.

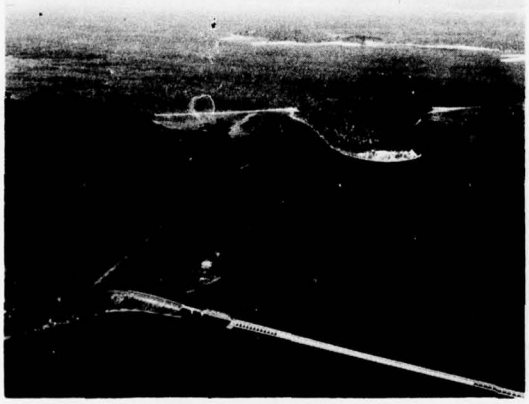


PHOTO 1-37. Hood Head, an area suited for recreation development—U.S. Bureau of Outdoor Recreation Photo.

AGRICULTURAL AND FOREST LANDS

There are approximately 697,961 acres of agricultural and range lands and 4,147,000 acres of privately owned forest land within the Study Area.

Much of the farm land is located along the rivers, and many sites are suited for recreation development. This same land is unsuited for urban or industrial development because it is susceptible to periods of flooding or high-water tables. The U.S. Department of Agriculture has recognized the value of farm lands for recreation uses and has established a loan program administered by the Farmers Home Administration. Through this program, individual farmers or groups of farmers may convert their lands to income-producing recreation enterprises.

Timber companies often allow limited recreation use of their forest lands. In future years private forest land owners will provide for a wider range of opportunities on their lands as a service to the community and/or for financial reasons.

Agricultural and forest lands provide needed open spaces and green belts within or near urban areas.

MILITARY AND COAST GUARD LANDS

There are over 100,000 acres of land administered by the Federal Government for military purposes. It is the policy of the Government to restore and improve the natural resource of these lands.

In addition, there are many U.S. Coast Guard installations scattered throughout the Area on the salt water shoreline. The Coast Guard is converting their lighthouses to operation by remote control.

As military and Coast Guard requirements change, certain areas will be declared surplus to Federal need and made available to public agencies for recreation or other public purposes. Some of these areas are close to population centers and possess

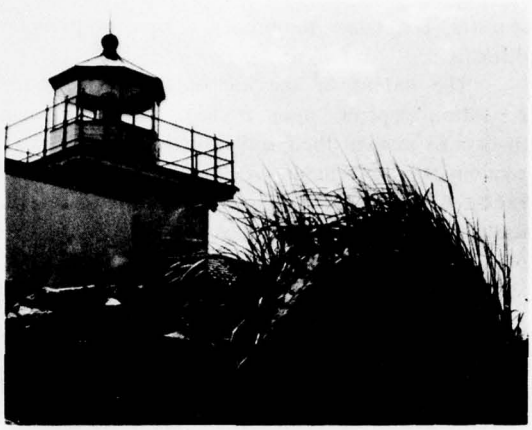


PHOTO 1-38. Lighthouse on Point No Point—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-39. Fort Lawton—U.S. Bureau of Outdoor Recreation Photo.

important recreation values. The 1,108-acre Fort Lawton on the shores of Puget Sound and within the city of Seattle is a good example; the Sand Point U.S. Naval Air Station on Lake Washington is another.

MUNICIPAL WATERSHEDS

The residents of the Puget Sound Study Area have a relatively adequate supply of water for domestic use. Four major cities, Seattle, Tacoma, Everett, and Bremerton, maintain watersheds totaling about 529 square miles, about one-third of a million acres. Many of the smaller cities and towns administer smaller watersheds for municipal use.

Use and management controls are strictly enforced in these areas to minimize pollution of the water supply. Where such quality controls are adequate, treatment by simple disinfection only is required prior to public consumption. In watersheds, possible water contamination through human recreational activity has acted as a deterent to the utilization of the areas for this purpose. Limited recreation use, such as hunting, fishing and hiking is tolerated on portions of some watersheds, but is not encouraged. For all intensive purposes, a majority of the areas are closed to public access.

Watersheds comprise an important element of the open space system. They must be maintained in a relatively natural state. As such, they may be considered as being held in reserve for future public use. Although public use is presently limited in watersheds, the treatment of water supplies would permit optimum utilization of municipal watersheds for recreation. There are numerous small watersheds which may become unsuitable for watershed use if the water supply becomes inadequate for the growing population and if service could be better supplied by the major municipal systems. The larger watersheds may even become unnecessary for municipal needs if and when desalinization becomes practical. Abandoned watersheds could serve as recreation areas.

POTENTIAL SPECIAL INTEREST AREAS

Potential special interest areas include archeological and historical areas, outstanding natural areas, and scenic highways.

ARCHEOLOGICAL AND HISTORICAL AREAS

There are numerous potential archeological and historical areas within the Area. Known sites are inventoried within the basin plans. With the assistance of volunteers and an 11-member State Advisory Council, the State Parks and Recreation Commission is conducting a State historical survey. Information from the incompleted survey is not available for use in this appendix.

OUTSTANDING NATURAL AREAS

Eighty-nine potential outstanding natural areas are proposed for classification. Many of these are geological and scenic areas inventoried by the U.S. Forest Service. The basin plans include tabulations of these areas.

SCENIC HIGHWAYS

Eight State Scenic and Recreational Highways have been designated within the Study Area. The State system in no way precludes the establishment of local scenic routes in the cities or counties. In addition to the existing scenic routes, many miles of secondary or "back country" roads traversing beautiful countryside or within scenic publicly administered lands provide delightful travels. The numerous ferry routes also have potential for inclusion within a scenic highway system.

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GROWTH OF RECREATION

A century ago, the State of Washington—called the Evergreen State—was largely wilderness. On the western side of the Cascade Mountains, dense forests of spruce, Douglas fir, cedar and hemlock were broken only by a few natural openings, Indian trails and the skid roads of early loggers.

Some of this early character remains today, but the inexorable march of civilization has left its mark. Trains and autos follow rail and asphalt where once only the Indian silently walked. Steamships and ferries cross the waters and airplanes trail their jet contrails overhead.

The Puget Sound Study Area contains an almost unlimited combination of natural resources capable of supporting recreation practically unmatched anywhere in the Nation. The Sound itself, with over 2,900 miles of shoreline, is one of the most important small-boat areas of the world. The calm waters of its sheltered bays are heavily used for swimming and water skiing, and some of the finest fishing, clam digging and crabbing in the country is afforded the recreationist. The State Department of Fisheries reported 120,000 recreation visits for shellfish gathering on the Puget Sound shoreline during 1967. Parks and forest camps provide opportunities for camping and picnicking.

The State's Park System was established in 1912. By 1939 the System consisted of 55 parks, 16 of which were in the Study Area. Eighty-six State parks, 12 marine parks, and 28 historical geological sites made up the System in 1965, with almost one-half of the sites being in the Area.

Accurate attendance counts for recreation use are not available for all units of the State parks during the early days. However, available statistics indicate State parks in the Area attracted over 300,000 visits in 1940. This use increased to almost seven million visits in 1965.

Hunting and fishing licenses issued in the State totaled about 220,000 in 1940 and had increased to nearly 653,000 in 1960. Salmon fishermen made 825,000 trips on Puget Sound during 1965 as compared to 698,000 trips in 1957.

Recreation use of the national forests of the State has shown phenomenal growth—from 632,091 visits in 1939 to over 4,600,000 in 1964. Of 1964 national forest visitation, more than 1,600,000 visits occurred in the Study Area.

Mount Rainier National Park attendance increased from 457,000 in 1940 to 1,544,300 in 1963. Olympic National Park likewise had an increase in attendance from 91,863 in 1940 to 1,834,573 in 1963.

Boating, ranked eleventh in popularity in the Nation, has grown rapidly in Washington. The U.S. Coast Guard recorded 61,845 boat registrations in the State in 1961 and almost 100,000 in 1962. The Washington State Department of Commerce and Economic Development estimated the total pleasure boat count as of June 1965 as 222,719. It is estimated that approximately 180,000 of these boats are in the Study Area.

Outdoor recreation has become a major leisure time activity, and it is constantly growing in importance. ORRRC, in its report to the President and Congress in 1962, stated that, nationally, recreation demand is surging upward; that people are seeking the outdoors as never before; and that by the year 2000 the demand for recreation should triple the demand of 1960. In "Outdoor Recreation Trends," a 1967 report by the Bureau of Outdoor Recreation, it is shown that, nationwide, between 1960 and 1965 there was a 51% increase in the number of recreation experiences enjoyed during the summer. This portion of the Comprehensive Water Resource Study for Puget Sound and Adjacent Waters indicates that the outdoor recreation demand in the Study Area may increase over three times between 1960 and 2000 and may double between the years 2000 and 2020.

There is a growing public awareness that recreation opportunities and a pleasant environment play an important role in a purposeful and happy existence. Several bond issues have been approved by the voters to facilitate the provision of needed recreation opportunities. The residents of Whatcom and Snohomish Counties have approved $2½ and $2 million bond issues, respectively, for the acquisition and development of outdoor recreation areas. In 1968, the voters of King County approved 7 of the 12 Forward Thrust capital improvement bond issue propositions for a total of $334 million in public improvements. $118 million is for parks and recreation and another $40 million is for a domed

multi-purpose stadium. In 1968, the city of Seattle adopted a six-year, $67 million program for the undergrounding of utility distribution wires and street improvements. Concerned citizens have formed The Washington Environmental Council to encourage citizen, legislative, and administrative action toward the protection and restoration of the natural and historic heritage, and the creation of an urban environment which reflects these values, through creative planning, education, and wise stewardship. During the 1968 general election, the voters of the State of Washington approved several bills designed to improve the conditions within which they live. $25 million in State bonds were authorized to be allocated by the Pollution Control Commission, along with Federal funds, to speed the construction of sewage-treatment plants; a $40 million State bond issue was passed for the purchase and development of outdoor recreation areas and facilities; and the Legislature was authorized to provide that open space lands used for recreation or enjoyment of natural beauty be valued for purposes of taxation on the basis of the use to which such property currently is being applied. Public interest and citizen involvement are essential ingredients of a strong and effective recreation and environmental protection program. Recent actions have set the foundation for such a program.

OUTDOOR RECREATION DEMAND AND NEEDS

The following discussion analyzes the outdoor recreation demand and needs for the years 1960, 1980, 2000 and 2020. Recreation demand is an expression of total participation in outdoor recreation activities which would occur if opportunities to participate were available. Recreation needs are those opportunities required to satisfy demand beyond the carrying capacity of existing facilities and areas.

RECREATION DEMAND

Basically, present and future recreationists will demand lands, waters, and facilities of the proper type, quality, and quantity and in the right location in the outdoors that are consistent with their general recreation habits and desires.

The residents of the Puget Sound Study Area are vigorous people interested in the out-of-doors. They spend many of their leisure hours participating in the variety of outdoor recreation activities offered in an area full of natural attractions. The Area is also popular as a destination area for out-of-state visitors, including Canadians.

FACTORS INFLUENCING DEMAND

Demand is dependent upon a number of complex variables that are continually changing in the socio-economic structure, the most notable being population. However, based on present trends toward more leisure time, higher income, and greater mobility, demand in the years ahead will increase more rapidly than population. Thus, the four primary factors which influence outdoor recreation demand are: population, leisure time, income, and mobility.

Population

Population plays the dominant role in the estimation of existing and future outdoor recreation demands. Without people, there would not be any demand. The two aspects of population that have the greatest impact on demand are numerical growth and distribution.

Natural population increase (increases of birth over death) and the increase of immigration into the Puget Sound Study Area over emigration may increase the population to an estimated 6.8 million by the year 2020. Based on this figure alone, without considering the effects of increased leisure time, disposable income, and mobility, the demand for outdoor recreation will increase four times between the years 1960 and 2020.

In addition, the increasing concentration of the population in urban and metropolitan areas will have a tremendous effect on recreation demand, concentrating it within and adjacent to the population centers. Families living in and within the suburbs of the urban areas tend to participate more frequently in outdoor recreation than small town and farm families. As the places in which most of the people live become more congested, the need to escape from the man-made confines increases.

Leisure Time

Due to a number of interrelated factors, more leisure time is predicted for the future. The Stanford Research Institute estimates that there will be an average of 49.4 hours of leisure time available per capita per week by the year 1980. Life expectancy is increasing, allowing people more retirement years. Technological improvements in labor saving devices at home will free housewives for more leisure activities than they now have. Most important of all, the average work week is expected to decrease from 39 hours in 1960 to approximately 32 hours by the year 2000.

In 1960, the average duration of paid vacations per year was two weeks; by 2000, this figure is expected to increase to 3.7 weeks. In addition, the average number of paid holidays per year is expected to increase from 6.3 days in 1960 to 10.1 days by the year 2000.

Leisure time not only allows participation in recreation activities, but it also controls the distance people will travel to enjoy the out-of-doors. Since short intervals of leisure time are more common than longer periods, short trips for recreation are more common than longer excursions. Visitation to a



PHOTO 1-40. Picnicking at Lake Cushman State Park—Washington State Parks and Recreation Commission Photo.

recreation site is a product of the population of the origin area and the distance from the origin area to the site. If a participant has a choice between two identical areas, he will normally choose the area nearest to his residence.

Income

ORRRC found that, in general, participation in outdoor activities goes up as income does. Participation rates varied from 18.5 days per person for a family with an annual income less than $3,000 to 49.7 total days per person for a family with an income of $15,000 or over. Participation steadily increases from the $3,000 to the $7,500 bracket, declining slightly thereafter. This relationship between income and activity is especially pronounced for inhabitants of large metropolitan areas.

An increasingly greater percentage of the Study Area's population is receiving real incomes sufficiently large to purchase virtually all of their basic needs. Additional real income must, therefore, be expected to result in still greater demand for outdoor recreation opportunities. Variations in rates of participation due to income levels are most noticeable in pursuits such as boating, flying, and golfing which require substantial monetary outlays.

Mobility

As income and leisure time increase, the American public, already the most mobile people in the world, are expected to travel more than ever. Vehicle and travel routes will be continually improved to reduce travel time. Automobiles will be improved, and new types of aircraft and boats may be designed which will give added ease and interest to personal travel. These advances will effect the use patterns of the recreating public and may cause the modification of present outdoor activities and the introduction of now unknown ones.

These advances will not only enable people to visit areas more often, but they will allow trips to more distant areas.

OTHER FACTORS AFFECTING DEMAND

Other factors affecting outdoor recreation demand in less perceptible ways are age composition, sex ratio, education level, and occupational categories. Many of these elements are interrelated with each other and the primary factors previously discussed.

Age

Activity preferences change with age. As might be expected, the older people get, the less they engage in the more vigorous activities. Swimming, bicycling, and playing are, primarily, activities of the young, while camping, fishing, sightseeing, and walking for pleasure are less affected by age. The following applies to Central Puget Sound Area of *Snohomish, King, Pierce, and Kitsap Counties:*

Population age grouping [1]

Age Group	% of Total 1960	1976	Projected % of Total 1985	2000
Under 25	44.50	46.90	47.86	48.76
25-44	26.15	24.28	24.77	25.37
45-64	20.12	19.09	18.03	16.91
65 & Over	9.23	9.73	9.34	8.96

[1] Project Open Space. Puget Sound Governmental Conference.

In the future, not only will there be more people, there will be a greater percentage of young people. The proportion of the inhabitants under 25 years of age, the most active group in terms of participation in outdoor recreation activities, is expected to increase from 44.5% in 1960 to 48.8% by the year 2000.

Sex

Males engage in outdoor recreation activities somewhat more than females. However, significant variations, due to sex, are limited to certain activities such as hunting and fishing. Since activities such as swimming, driving, picnicking, and camping are family oriented, females seem to participate just as much as males in these pursuits. During 1960, 50.2% of the Area's inhabitants were males.

Education

ORRRC reports that the greater the number of years of schooling, the higher the rate of participation in outdoor activities. This is probably due to the relationship between education and income. The following is reported for the four-county Central Puget Sound Area:

Percent participation in outdoor recreation[1]

Education Level	Vacations	Trips	Outings
Grade School	54%	48%	74%
High School	63%	58%	81%
College	67%	63%	85%

[1] Project Open Space. Puget Sound Governmental Conference.

The education level of the Area's residents is expected to increase.

Occupation

It is assumed the trend toward a shift in the occupational composition of the population with more people in the professional and technical categories will continue. ORRRC reported that the rate of participation in outdoor activities for professional and technical workers is more than double that of farm workers.

All of these factors, with their changing character and innumerable unknowns exert a tremendous influence on the demand for outdoor recreation. The task of predicting future demand is complicated by the changing character of the known variables, along with limited quantitative data coupled with the absence of universally accepted standards and procedures. Also, new developments cannot be overlooked, for it is recognized that the introduction of new activities and methods of transportation can cause a chain reaction that can alter the demand for certain outdoor activities to a considerable extent.



PHOTO 1-41. Young adventures—U.S. Forest Service Photo.

FLUCTUATIONS IN RECREATION USE

The use of outdoor resources is not uniformly distributed throughout the year. Outdoor recreational activities show participation patterns with definite seasonal and daily variations in visitation. For most pursuits, the months of June, July, and August are when most activity takes place. This, of course, is primarily due to the weather and the school year. During the recreation season, the heaviest use is experienced on holidays and weekends when leisure time is available for the longest periods.

Any change in the work week and especially any adjustments to the school year would have marked effects upon recreation use patterns.

TRENDS IN OUTDOOR RECREATION

Since the end of World War II, many trends have been noted in outdoor recreation. Following is a list of some of the more significant ones:

1. Camping
   - A. Increased use of trailers and pickup-mounted camping units.
   - B. Increased use of other modern conveniences.
2. Water Sports
   - A. More people are owning boats, and the boats are becoming bigger, faster, and fancier.
   - B. Skin diving and water skiing have become popular.
3. Travel
   - A. Many people are buying trail bikes, snowmobiles and four-wheel drive vehicles.

B. The number of people flying their own airplanes or renting airplanes for pleasure is increasing. Advances are being made in aircraft design, making flying safer and more efficient. Individuals may be able to afford vertical takeoff and landing type aircraft in the future. This would make numerous recreation areas available by air.

4. Winter sports and modern ski area developments are becoming numerous as winter activities increase in popularity.
5. There is a growing national appreciation of the values of outdoor recreation and beauty.
6. Private enterprises are playing an increasingly important role in satisfying outdoor recreation needs.
7. Greater numbers of local agencies are supplying recreation and natural areas within and near the urban areas.
8. An increasing percentage of new subdivisions are being planned and developed to include both recreation facilities and open space for use by the residents.

These trends are expected to continue into the future. The recreation planner must be continuously alert for new or changing trends, and plans must be modified accordingly.

AN ESTIMATION OF DEMAND

This section provides an estimate of the present and future outdoor recreation demand for opportunities within the Puget Sound Study Area.

The estimates of demand provide a basis for the formulation of an action program to meet expected water-related recreation needs for the target years 1980, 2000 and 2020.

Demand Procedure.

For convenience, the analysis of demand has been separated into four parts:

(a) Determination of participating population.
(b) Selection of participation rates.
(c) Determining existing and future demand.
(d) Conversion of activity occasions into recreation days.

Determination of Participating Population. The size and distribution of the population provides a basis for determining recreation demands. In 1960, three metropolitan areas of over 40,000 population



PHOTO 1-42. *Skiers enjoying the Cascades*—U.S. Bureau of Outdoor Recreation Photo.

(Seattle, 864,109, Tacoma, 214,930; and Everett, 40,304) contained 1,119,343 people or 63% of the total of 1,757,600 inhabitants. The metropolitan population is concentrated mostly along the southeastern shore of Puget Sound. The influence of population centers outside the Study Area boundaries and their effects upon the utilization of the recreational opportunities must also be considered in the demand computation. In 1960, the Portland-Vancouver area had a population of 851,361; the Vancouver, B.C., area, a population of 790,165; and the Victoria, B.C., area, 154,152 inhabitants.

In the analysis of demands, the participating population or that population residing inside or outside of the Area which would seek recreation opportunity in the Area needs to be determined. The following assumptions were made in determining the participating population for the year 1960:

1. The metropolitan areas are the focal point from which a high percentage of the participating population originates. Within the Puget Sound Study Area, these would include Everett, Seattle, and Tacoma. Population centers located outside of the Area, but whose service areas extend into the Area, include Yakima, Portland-Vancouver, and Victoria and Vancouver in British Columbia. Service area determinations were made for each of these seven population centers.

2. Within the recreation service areas of a metropolitan area, 60% of the recreation demand would be focused in the day-use zone (within 40-60 road miles), and another 30% of the demand would be satisfied in the weekend use zone (40 to 125 road

miles from the population center). When ferries or boats had to be used for travel, these figures were reduced. The remaining 10% would be vacation or extended trips beyond the limits of the weekend use zone.

3. The demand generated by the Area's population not within the three metropolitan areas would be contained within the Study Area. Although a portion of the demand generated by the non-metropolitan population would flow out of the Area, it is assumed that the inflow of demand from non-metropolitan areas outside of the Area and from metropolitan areas more than 125 miles from the Area's boundary would equal this outflow of demand.

4. The residents of a population center lacking in a given type of recreation might be willing to travel farther for the satisfaction of their desires than would the residents of another center not so lacking. The Puget Sound Study Area, however, contains a wide variety of recreational opportunities due to its close proximity to ocean, forests, mountains, etc. It is, therefore, assumed that there is no particular lack in the opportunities available.

A recreation service area is defined as that area extending outward from a population center to which the residents are drawn for the satisfaction of a majority of their recreational pursuits.

To determine the participating population for 1960, the proportional areas of the day-use zone falling within the Area, expressed as a percentage, were applied to 60% of the respective metropolitan area population to determine the effect of that population on the Area. The same procedure is applied to 30% of the metropolitan area populations for the weekend use zones. The sum of these two figures is the participating population for the given metropolitan area. This procedure is repeated for each of the metropolitan areas inside or within 125 miles of the Area to determine total metropolitan participating population. This figure is added to the non-metropolitan population to determine the total participating population. Using 1960 population, the participating population or that population seeking recreation opportunity in the Puget Sound Study Area was computed to be 1,700,000. Of this total, 62% originated from metropolitan areas in and adjacent to the Area. The day use of one-hour travel zone accounted for 69% of the total.

In determining the participating populations for the years 1980, 2000, and 2020 several assumptions were made:

1. The participating populations for the Study Area and the basins would increase at the same rate as the total Study Area population.

2. Although other population centers would undoubtedly become metropolitan areas over 40,000 inhabitants during future years, their populations have been considered as non-metropolitan for the purpose of computation of participating populations for the target years.

3. Although there will certainly be advances in the modes of transportation allowing a person to travel farther to enjoy leisure time, the service areas determined for 1960 were assumed to remain constant for the years 1980, 2000 and 2020.

The population is expected to increase from 1.8 million in 1960 to 2.7 million by 1980, 4.3 million by 2000, and 6.8 million by the year 2020. In other words, there will be a 1.5 fold increase in population by 1980, 2.4 fold increase by 2000, and a 3.8 fold increase by the year 2020. To determine the participating population for 1980, 2000 and 2020, the preceding rates were applied to the 1960 participating population.

Table 1-7 summarizes the participating population calculations by basins for the years 1960, 1980, 2000, and 2020.

Selection of Participation Rates. The participation rates (activity occasions per year per activity per person) utilized in this study were derived from two sources; the Puget Sound Governmental Conference's (PSGC) household survey and the Outdoor Recreation Resources Review Commission's demand survey (ORRRC).

The participation rates for the effective metropolitan population were those developed by the PSGC after an interview of 600 urban households in King, Pierce, and Snohomish Counties during 1963.

ORRRC developed participation rates for the four census regions of the United States based on data compiled from a home interview by the Bureau of Census in 1960. The Puget Sound Study Area is within the Western Census Region. To develop rates for the non-metropolitan population, a ratio of the ORRRC rates compared to PSGC was utilized. It was assumed that the ratio of participation rates in SMSA's in the Western Census Region, to the participation rates in the non-SMSA's in the Western Census Region, was similar to the ratio of participation rates of the metropolitan areas in the Area to the participation rates of the Area's non-metropolitan population.

TABLE 1-7. Population seeking outdoor recreation opportunities in the Puget Sound Study Area (in thousands)

Basin	Metropolitan				Non-Metropolitan				Total			
	1960	1980	2000	2020	1960	1980	2000	2020	1960	1980	2000	2020
Nooksack-Sumas	130	195	312	494	44	66	106	167	174	261	418	661
Skagit-Samish	48	72	115	182	74	111	178	281	122	183	293	463
Stillaguamish	47	71	113	179	33	50	79	125	80	121	192	304
Snohomish	177	266	425	673	62	93	149	236	239	359	574	909
Cedar-Green	214	321	514	813	94	141	226	357	308	462	740	1,170
Puyallup	115	173	276	437	49	74	118	186	164	247	394	623
Nisqually-Deschutes	80	120	192	304	99	149	238	376	179	269	430	680
West Sound	171	257	410	650	86	129	206	327	257	386	616	977
Elwha-Dungeness	14	21	34	53	34	51	82	129	48	72	116	182
San Juan Islands	16	24	38	61	25	38	60	95	41	62	98	156
Whidbey-Camano Islands	42	63	101	160	48	72	115	182	90	135	216	342
Study Area Total	1,054	1,583	2,530	4,006	648	974	1,557	2,461	1,702	2,557	4,087	6,467

Since the PSGC demand survey was made in 1963, the figures had to be adjusted to reflect a decrease in participation rates per person to the year 1960, the year of the base population utilized. The adjustment for growth in participation rates was computed utilizing the composite growth factors developed by ORRRC for each of the various activities. This is done with the assumption that the Area's socio-economic factors and trends are similar to the average nationwide trends.

The formula utilized in determining the non-metropolitan participation rates during 1960 was:

$$N = \frac{PSR \times ONR}{OSR}$$

Where:

N = Non-metropolitan rate for 1960
PSR = PSGC participation rate adjusted to 1960
ONR = ORRRC non-SMSA participation rate
OSR = ORRRC SMSA participation rate.

In other words, the ratio of the ORRRC SMSA participation rates to the ORRRC non-SMSA participation rates was assumed to equal the ratio of the PSGC participation rates to the non-metropolitan participation rates.

To account for increases in participation due to increases in leisure time, income, and mobility and changes in the other socio-economic factors affecting demand, the 1960 participation rates were adjusted by applying the increase rates of participation developed by ORRRC and expressed as a percentage change from 1960-1976 and 1960-2000. These incremental trends were plotted graphically to determine the percentage increase for target years 1980, 2000, and 2020. The percentage increases were applied to the 1960 participation rates. This was done with the assumption that the national rates would be similar to those to be experienced in the Study Area.

Table 1-8 tabulates the participation rates for the participating population 12 years or older for the years 1960, 1980, 2000, and 2020.

Determining Existing and Future Demand. To determine outdoor recreation demand, the previously stated participation rates were applied to the metropolitan and non-metropolitan participating populations. This was done assuming that the participation rates of that segment of the participating population less than 12 years old are the same as those for people 12 or older.

The total demand for recreation resources in the Puget Sound Study Area was estimated to be 144 million activity occasions during 1960. From information in the Washington Statewide Outdoor Recrea-

TABLE 1-8. Number of activity occasions (participation rates) per person by outdoor recreation activity for the Puget Sound Study Area.

Activity	Metropolitan				Non-Metropolitan			
	1960	1980	2000	2020	1960	1980	2000	2020
Swimming	10.50	14.70	18.41	22.05	5.06	7.08	8.87	10.63
Power and Other Boating	5.97	8.54	10.68	12.84	3.85	5.51	6.89	8.28
Sailing	0.25	0.36	0.45	0.54	0.16	0.23	0.29	0.34
Water Skiing	1.43	2.52	3.54	4.69	1.25	2.20	3.09	4.10
Camping	4.21	6.47	8.45	10.40	5.45	8.37	10.93	13.46
Picnicking	7.69	8.96	9.84	10.70	7.36	8.57	9.41	10.25
Hiking	3.47	5.26	6.55	7.82	2.11	3.20	3.98	4.75
Driving for Pleasure and Sightseeing	17.10	20.62	22.98	25.15	15.37	18.54	20.66	22.61
Playing Games and Sports	9.46	13.24	17.00	20.67	6.94	9.72	12.47	15.16
Attending Sport Events	5.85	6.61	7.22	7.84	4.67	5.28	5.78	6.26
Walking for Pleasure	11.68	14.17	16.14	18.10	6.53	7.92	9.02	10.12
Bicycling	3.25	3.23	3.30	3.36	3.99	3.97	4.05	4.13
Horseback Riding	0.54	0.63	0.72	0.82	1.14	1.33	1.53	1.73
Winter Sports	0.82	1.00	1.26	1.53	0.65	0.80	1.00	1.21
Fishing	5.93	6.07	6.07	6.06	7.40	7.58	7.57	7.56
Hunting	1.29	1.27	1.20	1.12	5.12	5.03	4.75	4.46
Total Activity Occasions/Person	89.44	113.65	133.81	153.69	77.05	95.33	110.29	125.05

tion and Open Space Plan, it can be estimated that the total recreation demand in the State during 1960 was 300 million activity occasions. In other words, approximately one-half of the total State outdoor recreation demand was exerted on the Area.

Figure 1-1 summarizes the demand by individual outdoor recreation activities for the years 1960, 1980, 2000 and 2020. Recreation activities are separated into two broad classifications, water related and non-water related. Although non-water related recreation demands are not particularly germane to water resource requirements, these activities are included to show total demand and activity interaction.

In 1960, driving for pleasure and sightseeing were the most popular activities, followed by walking for pleasure, playing games and sports, and swimming. Swimming was the most popular water related activity. From 1960 to 2020, outdoor recreation demand may increase more than six-fold to about 920 million activity occasions. During this same time period, demand for water related opportunities may increase from 63 million to 447 million activity occasions.

Figure 1-2 shows the total outdoor recreation demand by basins and island areas.

Conversion of Activity Occasions into Recreation Days. The total demand is converted from activity occasions into recreation days, a term defined as a visit by one individual to a recreation development or area for recreation purposes during a reasonable portion or all of a 24-hour period. Since preliminary studies indicate that the average person will participate in 2.5 activities during a recreation day, annual recreation days can be determined by dividing the total demand in activity occasions by 2.5. Therefore, expressed in recreation days, the total outdoor recreation demands for the target years are:

1960	57,654,000	recreation days.
1980	109,104,000	recreation days.
2000	204,105,000	recreation days.
2020	369,372,000	recreation days.

Accuracy of Demand Estimates The estimates of demand by activity for the years 1980 and onward are highly questionable and must be used cautiously. Not only are they based upon factors as nebulous as the expected population by 2000 and 2020, but it also must be realized that existing travel methods and recreation uses may be modified and new methods and activities introduced in the future. Activities may vary in growth rate due to unforseen changes in the living standards and habits of the people. Recreation activities, like modes of clothing, have style and may come and go. These demand estimates can, however, be more reliably used as foundation for the establishment of short range objectives and to provide scale and perspective to programs of longer range.

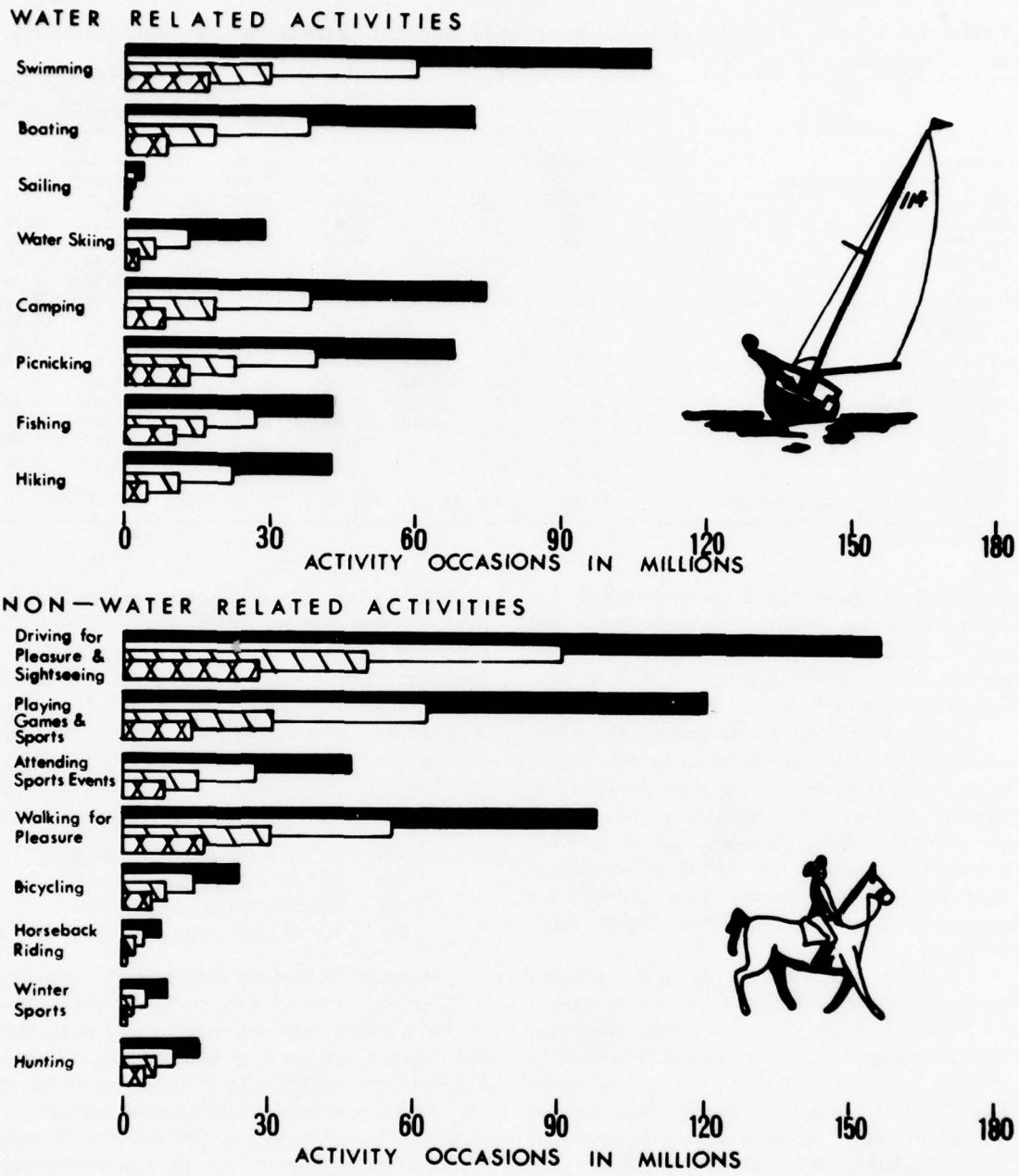
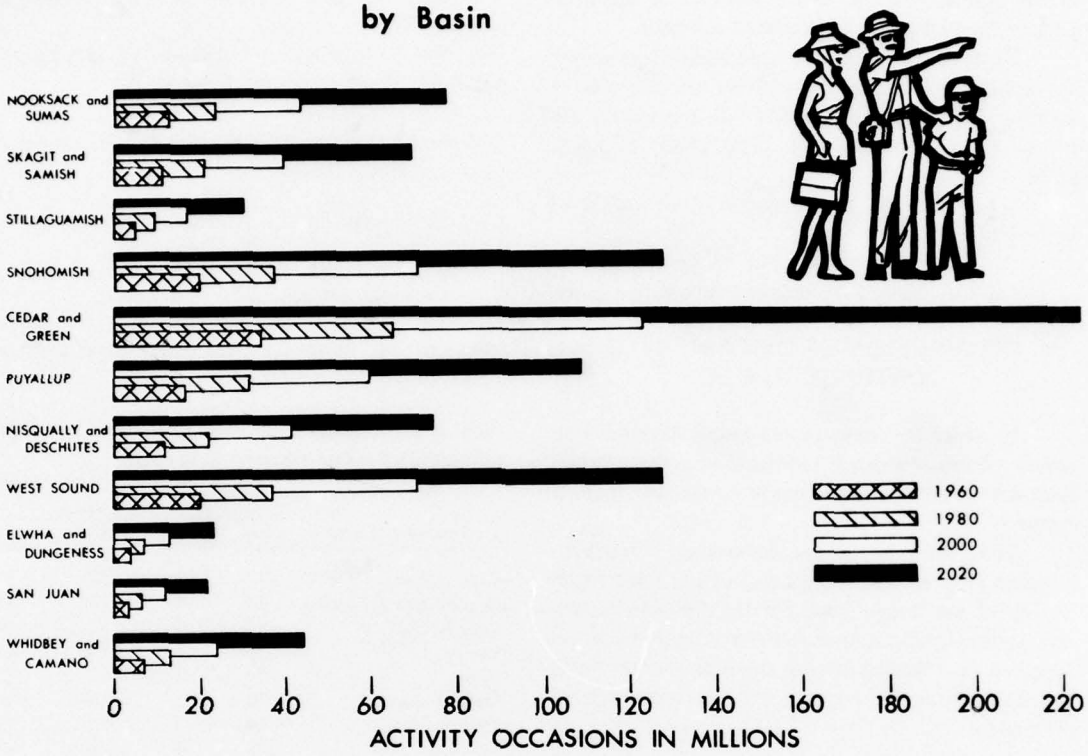


FIGURE 1-1. Outdoor Recreation Demand

Puget Sound Study Area

FIGURE 1-2. Outdoor Recreation Demand by Basin



RECREATION NEEDS

For purposes of this study only the needs of the water related activities are discussed. The analysis of demand shows that about one-half of the total present demand is for water related activities.

Recreation needs were determined by relating the estimated demand by activity to the existing supply. Three steps were involved in determining the recreation needs for the years 1960, 1980, 2000, and 2020:

(1) Conversion of demand into units required by activity,

(2) Conversion of units into area required,

(3) Comparison of requirements with supply.

CONVERSION OF DEMAND INTO UNITS REQUIRED

In order to compare recreation demand with supply, demand which is expressed in activity occasions was converted into facility or acreage requirements.

The first step in the conversion of activity-occasion (demand) into units required was the formulation of the design loads for the individual activities. Design load is defined as the maximum visitation expected on a Sunday during the peak month. Table 1-9 summarizes the design loads for water related activities.

TABLE 1-9. Outdoor recreation design loads, Puget Sound Study Area (activity occasions)

Activity	1960	1980	2000	2020
Swimming	169,900	357,500	714,600	1,354,800
Boating	99,200	213,300	425,700	811,100
Sailing	4,200	9,100	18,300	34,400
Water Skiing	36,000	95,400	214,200	449,200
Camping	97,400	224,800	469,300	914,100
Picnicking	143,000	250,300	439,400	756,500
Fishing	116,600	179,400	286,500	452,600
Hiking	48,400	110,200	219,300	414,200

In determining design loads the following formula was utilized:

$$DL = \frac{AD \times PM \times WE}{WM}$$

where:

DL = Design load

AD = Annual demand

PM = Percent of annual demand occurring during peak month[1]

WE = Percent of annual demand occurring on weekends[2]

WM = Number of weekend days during peak month[3]

[1] Assumed to be 1/3 of the percentage of annual use occurring during the summer.

[2] Assumed to be 50%.

[3] Assumed to be 9 days.

The Puget Sound Governmental Conference reported the following percentage breakdown of recreation visitation by the four seasons:

TABLE 1-10. Seasonal patterns of outdoor recreation activities in the Puget Sound Study Area

Type of Activity	Percent of Occasions			
	Fall	Winter	Spring	Summer
All Activities	17	8	18	57
Swimming or Beach Use	14	4	18	64
Water Skiing	7	3	6	84
Fishing	15	8	20	57
Sailing	14	5	19	62
Power Boating	15	5	16	64
Other Boating	17	3	22	58
Camping	16	4	14	66
Hiking	22	7	19	52
Hunting	71	10	6	13
Skiing and Winter Sports	5	79	14	2
Horseback Riding	18	3	13	66
Bicycling	6	3	25	66
Golfing	24	10	19	47
Playing Outdoor Games	16	5	16	63
Picnicking	15	6	19	60
Pleasure Walking	19	7	21	53
Pleasure Driving	17	10	20	53
Attending Sports Events	28	7	19	46

To determine unit requirements the following formula was used:

$$U = \frac{DL}{P \times TR}$$

where:

U = Units[1] required to satisfy demand.

DL = Design load for given activity.

P = Number of people per average party.[2]

TR = Turnover rate.[2]

[1] The term unit is explained as follows for the various activities:

Activity	Unit
Picnicking	One Unit is 0.10 acres including a parking space, usually a table with benches, and cooking facilities; and available water, waste disposal, and sanitation facilities.
Camping	One unit is 0.14 of an acre including a parking space, a tent or trailer space, a table with benches, and a fireplace; and available water, waste disposal, and sanitary facilities.
Boating (moored)	One unit is 0.01 acres of land including a parking space; a moorage space; available water, waste disposal, and sanitation facilities; and 10 acres of water.
Boating (trailered)	One unit is 0.04 acres of land including trailer parking space and a proportionate share of a launching facility; available water, waste disposal, and sanitation facilities; and 10 acres of water.
Boating (car top or other)	One unit is 0.02 acres of land including a parking space and access to the water; available water, waste disposal, and sanitation facilities; and three acres of water or ¼ mile of stream.
Swimming (natural waters)	One unit includes 0.02 acres of beach area; 0.003 acres of swimmable water; and available parking, water, waste disposal, change house, and sanitation facilities.
Swimming (pool)	One unit includes 120 square feet of deck area; 60 square feet of water area; and available parking, water, waste disposal, change house, and sanitation facilities.
Sailing	One unit is 0.01 acres of land including a parking space; a moorage space; available water, waste disposal, and sanitation facilities; and four acres of water.
Hiking	One unit includes one parking space; 0.05 of a mile of trail; and a share of water, waste disposal, and sanitation facilities.
Water Skiing	One unit is 0.04 acres of land including a car/trailer parking space and a proportionate share of a launching facility; waste disposal, water, and sanitation facilities; and 40 acres of water.

[2]

Activity	People/Party	Turnover Rates	Activity	People/Party	Turnover Rates
Picnicking	4	1.6	Water Skiing	3	4.5
Camping	4	1	Sailing	3.5	1.5
Boating	3.5	1.5	Hiking	3.5	1
Swimming	4	3			

Table 1-11 shows the units required to satisfy outdoor recreation demand by activity.

TABLE 1-11. Outdoor recreation requirements in units, Puget Sound Study Area

Activity	1960	1980	2000	2020
Swimming[1]				
Natural Waters	7,360	15,490	30,970	58,710
Pools	6,800	14,300	28,580	54,190
Boating[2]				
Moored	2,830	6,100	12,160	23,170
Trailered	7,560	16,250	32,440	61,800
Car Top	8,500	18,290	36,490	69,520
Sailing	810	1,740	3,480	6,560
Water Skiing	2,670	7,070	15,860	33,280
Camping	24,350	56,200	117,320	228,520
Picnicking	22,350	39,120	68,660	118,210
Fishing	Covered in Appendix XI			
Hiking	13,820	31,490	62,640	118,350

[1] An estimated 48% of the swimming demand during the peak season is for man-made pools.

[2] An estimated 15% of the pleasure boats are moored, 40% are trailered, and 45% are transported on or within autos.

CONVERSION OF UNITS INTO AREA REQUIRED

Table 1-12 shows the area required to satisfy water related outdoor recreation demand for the years 1960, 1980, 2000 and 2020.

The following formula was used in converting units into area:

$$AR = U \times A$$

where:

AR = Area required
U = Units required
A = Area per unit

COMPARISON OF REQUIREMENTS WITH SUPPLY

Outdoor recreation needs were determined by relating requirements to existing supply. In doing this, existing developments were assumed to be of the

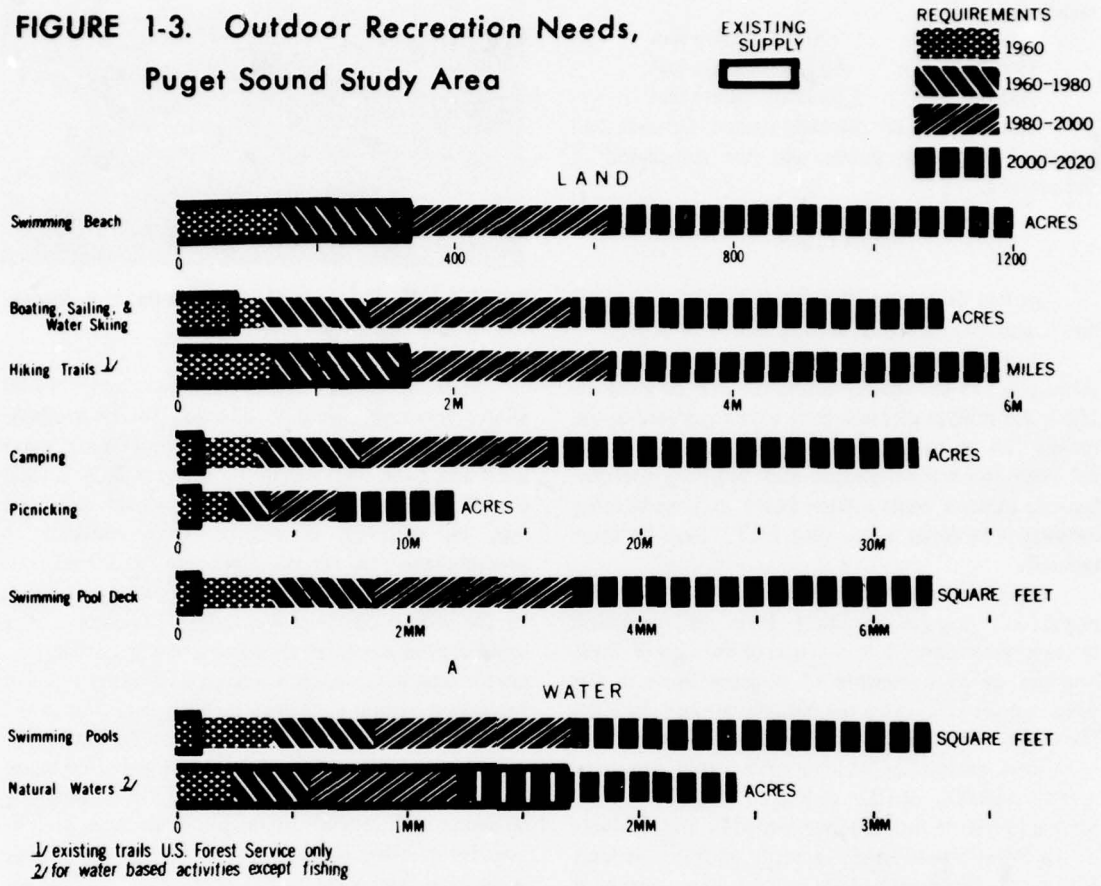
TABLE 1-12. Outdoor recreation requirements in area, Puget Sound Study Area.

Activity		1960		1980		2000		2020	
		Land	Water	Land	Water	Land	Water	Land	Water
Swimming									
Natural Waters	Acres	145	20	310	45	620	95	1,200	175
Pools	Sq.Ft.	815,000	408,000	1,716,000	858,000	3,430,000	1,715,000	6,503,000	3,252,000
Boating									
Moored	Acres	30	28,000	60	61,000	120	122,000	230	232,000
Trailered	Acres	300	76,000	650	163,000	1,300	324,000	2,500	618,000
Car Top	Acres	170	26,000	365	55,000	730	109,000	1,400	209,000
Sailing	Acres	10	3,200	15	6,900	35	14,000	65	26,000
Water Skiing	Acres	105	197,000	285	283,000	635	635,000	1,300	1,331,000
Camping	Acres	3,400		7,900		16,000		32,000	
Picnicking	Acres	2,200		3,900		6,900		12,000	
Hiking	Miles	690		1,600		3,100		5,900	

desired quality. This is not always true. Many established improvements are badly in need of rehabilitation or replacement.

Figure 1-3 illustrates the needs in land and water area for water related outdoor recreation activities.

FIGURE 1-3. Outdoor Recreation Needs, Puget Sound Study Area



ACTIVITY NEEDS

The following is a discussion of the water related activity needs.

SWIMMING

In addition to actual swimming, this outdoor activity includes sunbathing and other beach activity. Beach activities are more popular than swimming. Not more than one-quarter of the recreationists at a swimming area are in the water at one time. Although beaches may also provide shellfish gathering, beachcombing, fishing, walking for pleasure, and natural open space, these uses were not considered in this analysis.

Areawise, there is an adequate supply of beaches to satisfy swimming needs until the year 1980. However, there are existing deficiencies in two of the basins, and there may be localized deficiencies within urban areas. To satisfy swimming needs by the year 2020, an additional 865 acres of beaches need to be made available for public use.

In cities, where need for swimming areas is the greatest, man-made pools are a practical solution to satisfying demand. Pools are in short supply throughout most of the Study Area. In addition to the existing facilities, the following pool area is needed to satisfy demand.

1960 to 1980	770,000 square feet
1980 to 2000	857,000 square feet
2000 to 2020	1,537,000 square feet

The impact of privately-owned beaches and pools not open to public was not considered or determined.

BOATING

In this disucssion, the boating activity includes power and other boating, sailing, and water skiing.

A phenomenal growth in pleasure boating has taken place in the nation during the past 20 years. In 1950, 3.5 million pleasure craft were registered in the nation; 10 years later there were seven million; by 1965, 45 million people were enjoying pleasure boating in some eight million boats, and the boating industry was doing a booming $2.7 billion business annually.

In the Study Area approximately 34% of the population engages in some form of recreation boating as compared to a national average of 20%. The per capita ownership of pleasure boats in the Area is more than twice the national average. In 1966 there were 94 boats per 1,000 people compared with a national average of 41 boats per 1,000. Approximately 180,000 of the estimated 223,000 private pleasure boats in the State are owned by the residents of the Puget Sound Study Area. In addition, at least 30% of the Washington boat owners living outside of the Area plus many out-of-state residents bring their craft into the Area.

Of the pleasure boats owned within the Area, 51% are outboards; 35% canoes, prams, rowboats, etc.; 10% inboards; and 4% sailboats.

The number of pleasure boats in the Area is expected to rise at a rate one percent greater than the average annual population growth. Pleasure craft may increase from approximately 180,000 in 1966 to about 1,035,000 by 2020.

These large numbers of boats create a great need for shoreline facilities. Basically, this need is for boat launching and moorage facilities. Moorages may be wet or dry, temporary or permanent, and can be designed for summer or winter use or both.



PHOTO 1-43. Shilshole Marina, Seattle—U.S. Bureau of Outdoor Recreation Photo.

During 1966, 21,000 summer and 11,000 winter moorage spaces in addition to the available facilities were needed to satisfy demand on salt water areas and Lake Washington. By the year 2020, a total of 179,000 summer and 135,000 winter moorages may be required. If wet moorages continue to predominate over dry moorages, up to 100 miles of shoreline may be needed to satisfy moorage demands by the year 2020. Since wet moorage facilities utilize significant amounts of shoreline and adjacent waters, choice area which could be utilized for other types of recreation or non-recreation uses, the acceptance and use of the more efficient and less expensive dry moorage facilities needs to be promoted. Dry moorages or dry land marinas, specially designed buildings to accommodate boats by the hundreds, have become popular in other parts of the nation where suitable waterfront land is scarce and expensive and where the demand for storage and service is great. Most of these dry land marinas have been built through private investment. During 1966, 23% of the moorage spaces in the Study Area were dry. This appendix estimates that by the year 2020 this figure may reach at least 45%.

To satisfy 1960 demands, an additional 200 acres of land developed for boating activities is needed. By the year 2020, this need may increase to 5,100 acres unless additional launching and moorage facilities are provided. By the year 2020, an additional 1,130 launching ramp lanes may be needed to provide access to marine waters.

The most severe shortage of facilities exists on the east shores of Puget Sound. Steep topography in

many areas and lack of sheltered areas desirable for the location of improvements complicate the situation. Urbanization, industrialization, and railroad rights-of-way have added to the problem of providing access to the waters. Boating sites need access from the surrounding upland area and require enough flat land to allow for development of parking and sanitation facilities. In contrast to the eastern shore, the sparsely populated western shorelines of Puget Sound have more natural sites for the future development of access and moorage facilities.

Areawide, there is an adequate supply of water to satisfy pleasure boating demands at least until the year 2000. However, deficiencies may occur within several of the basins at an earlier date. Due to the nature of the boating activity, water use can be transferred from a basin low in boating water to an adjacent basin with surplus waters. Water skiing requires over one-half of the water surface needed for recreation. Any decrease in projected water skiing demand or regulation of this activity will diminish surface area requirements.

Most pleasure boating takes place on the Sound and on the lakes. Rivers have not been extensively used. A great potential for river boating exists. The use of rivers by pleasure boaters is expected to increase. Rivers with significant recreation and scenic values need to be maintained in their free flowing state for boating and other recreation activities.

CAMPING AND PICNICKING

Although not required, the availability of bodies of water contributes to the enjoyment received from camping and picnicking. Shoreline sites possess scenic qualities and offer a variety of opportunities. The "Pleasure Boating Study" found that there is a very high demand for camping and picnicking facilities accessible to pleasure boaters.

Many existing areas are overcrowded on summer weekends and holidays. Overuse of facilities causes noise and congestion and results in the deterioration and destruction both of natural features and of man-made improvements. Overuse puts undue stress on water and sanitation facilities and creates greater problems in administration, management, and maintenance of developments. Many camping and picnic units reported in the Supply chapter of this Appendix are below standard and in need of rehabilitation or replacement.



PHOTO 1-44. Boat launching on Hood Canal—U.S. Bureau of Outdoor Recreation Photo.

Camping

Additional camping facilities are needed. To satisfy 1960 demand, there was a deficiency of 2,400 acres of campground. The need may increase to 31,000 acres by the year 2020 if no additional facilities are provided. The above figures do not include the necessity for buffer zones on the periphery of developed areas. The amount of buffer needed would approximate the acres of development needed.

Since an undetermined percentage of campers prefer primitive sites, some of the needs can be satisfied on minimum development areas. Public lands subject to periodic flooding or inundation would be suitable places for the provision of minimum developed campgrounds.

Picnicking

An additional 1,400 acres of picnic areas are needed to satisfy 1960 demand. The need may increase to 11,200 acres by the year 2020 without the provision of additional areas. Some of the picnicking demand can be satisfied on developed areas. Many picnics are held informally, along the roadside, at the beach, on a grassy hillside, or on a friend's property. An estimated 40% of the picnickers will utilize areas not developed for picnicking. This reduces the actual 1960 and 2020 development needs to 840 and 6,720 acres, respectively. These figures do not include buffer zones.

Picnicking is popular in both urban and non-urban areas. There is a need for a proper balance between facilities in communities and in rural areas.



PHOTO 1-45. Gravel bar along Skykomish River–U.S. Bureau of Outdoor Recreation Photo.

HIKING

Areawide, and only considering existing national forest trails, there are enough trails to satisfy hiking demands until the year 1980. However, since the Forest Service trails are located in the mountainous areas, there may be localized deficiencies of trails near or within urban areas. The supply of trails outside the national forest lands was not inventoried. By the year 2020, approximately 4,000 additional miles of trail will be needed to satisfy hiking demand. Also, an undetermined percentage of existing trails are substandard and in need of rehabilitation or relocation.

Trails also are needed to satisfy portions of the horseback riding, cycling, and walking for pleasure demands. These activities are considered non-water related and were not considered in the analysis of trail needs. Their inclusion would increase trail requirements by about 100%.

Trail systems need to have various destinations and numerous access points and interconnecting links to encourage both short or long trips. Ample parking is needed at major access points, and overnight rest areas, not more than 15 to 20 miles apart, are needed. Trails adjacent to bodies of water or that provide access to water are the most popular.

The greatest need for trails is within the day-use range of metropolitan centers. Trails within cities receive heavy use. They provide for recreation and serve an open space function by providing a greenbelt link between cities and rural areas. Both river and salt water shorelines offer excellent opportunities for the establishment of "hiking ways."

WATERFRONT RESORTS AND HOMES

Private resorts are needed within the Study Area. Data are not available, however, for determining demand and need. Associated with resorts, improvements such as boat launching and moorage facilities, camping facilities, and airfields will be needed.

Waterfront homes are prevalent. Both salt and fresh water shorelines within or near population centers are occupied by permanent residences. Recently there has been an increase in the construction of waterfront "vacation" or "weekend" homes. Numerous residential-recreational communities are being developed on choice waterfront lands to serve permanent as well as temporary residents. The islands, the lake shores, the western shores of Puget Sound, and the Hood Canal area are particularly popular. These lands are becoming increasingly difficult to acquire, and many have started to use river and stream banks as a location of "second" homes.

DRIVING FOR PLEASURE AND SIGHTSEEING

Although not considered among water related activities, driving for pleasure and sightseeing are greatly enhanced by the abundance of water within the Study Area.

Travel is a necessary ingredient of outdoor recreation. Although weather conditions are an influence, driving for pleasure and sightseeing may take place during any season. Sightseeing ranges in intensity from the casual viewing of natural or man-made features to the rather detailed study of specific elements. As might be expected, casual sightseers are in the majority.

Since driving for pleasure and sightseeing do not occur necessarily on lands dedicated to recreation, specific analysis of needs has been excluded from this study.

Roads and highways, viewpoints, and wayside rest areas are the basic requirements for the motoring recreationist. There is a shortage of wayside facilities throughout the Area. Since the most recreation travel takes place on a daily basis, facilities within a day-use range of urban areas need to be developed first.

Systems of scenic routes, primary and secondary, urban and rural, need to be designated. Additional roads are needed to provide access to recreation attractions or to provide a greater diversity in travel routes. All levels of government need to cooperate in designating routes which are outstanding for their scenic qualities or portray interesting aspects of the countryside and its historic or cultural development.

PROTECTION OF RECREATION RESOURCES

The tourist and recreation industry is one of the four top ranking industries in the Pacific Northwest. Some authorities feel that by the year 2000 it may be the largest industry in terms of numbers employed. To assure the economic importance of tourism and recreation and to satisfy the recreation demands of the people, there is a need to protect the recreation resources to guarantee continued public use and enjoyment.

The Puget Sound Study Area has been endowed with an abundant collection of natural attractions of excellent quality, and the existence of man upon the land has left gifts of archeological, historical, and cultural significance. When white men first came to the Puget Sound country, the untouched shoreline, rivers, forests, and mountains indicated that this would be a good place to live. Unfortunately, here as elsewhere in the nation, man has exploited the natural resources, limiting their usefulness for future generations to enjoy. In our cities and along our shorelines, many natural features worthy of preservation have been replaced with human efforts. Lands which should have been conserved for the use of many have all too often been reserved by the few. There are numerous outstanding natural features which are worthy of preservation for recreation purposes. These include such resources as underwater marine areas, tidelands, geological areas, and scenic rivers. Unique features need to be protected from destruction or misuse.

Many areas are significant from a scientific or educational point of view. Scientists from the University of Washington and other institutions of higher learning have active marine biological study programs within the Area. Specific localities have significance from the standpoint of the marine biologist. Unrestricted recreation use could be disastrous to the flora and the fauna of these intertidal areas. Dredging operations would destroy scientific values. In recreation and other development, care needs to be taken to protect certain areas for scientific and educational purposes.

Agricultural, forested, and natural areas need to be retained within urban and suburban regions. Open spaces within developed areas are not only places for recreational opportunities, they also assure that the natural landscape does not disappear entirely from the environs where people spend most of their time.

Outdoor recreation is a legitimate and important use of water. Water is essential for several forms of recreation and adds to the enjoyment of many others. In its 1962 report, the Outdoor Recreation Resources Review Commission stated that "Water is a focal point of outdoor recreation." The beauty and cleanliness of recreation waters and the lands surrounding them must be protected and, in some cases, improved to assure a high quality of recreation

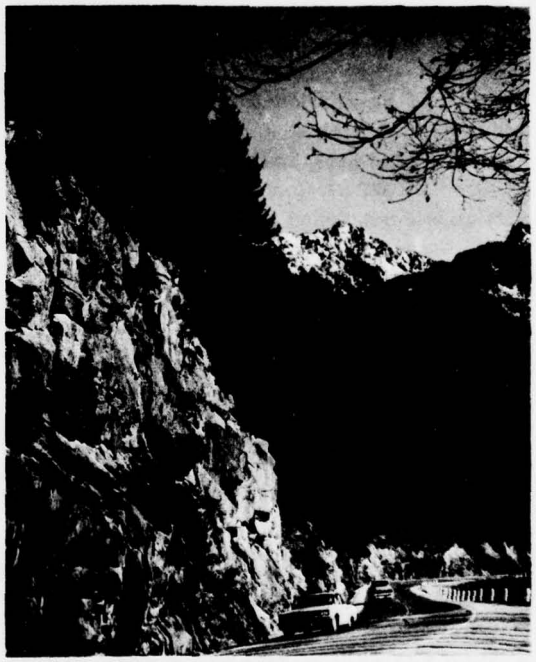


PHOTO 1-46. Stevens Pass Highway—U.S. Bureau of Outdoor Recreation Photo.

experience. The value of water for recreation can be reduced or even destroyed by pollution.

The water quality factors that affect recreation vary with type of activity. Bacterial concentrations, water clarity, and appearance are important considerations for water contact activities. For boating, appearance and the presence of floating debris are factors.

Fortunately, the waters within the Area are of a quality well-suited for recreation. However, several localized water quality problems exist around highly developed municipal and industrial areas. For example, the Federal Water Pollution Control Administration has reported eight pulp and paper mills which discharge a total of 72 billion gallons of inadequately treated wastes into the waters annually. This pollution is damaging to marine life and degrading to water quality. Pulp mills befoul the air as well as the water.

Several rivers in the eastern one-half of the Area carry high levels of bacteria, making them unsuitable for water contact activities. Some rivers are murky in appearance because of glacial till and sediment from soil erosion. Sediment not only creates turbidity and affects the beds of the streams and lakes, but is a carrier of many of the other pollutants such as bacterial contamination and plant food materials which encourage undesirable algal growth.

Other water quality problems are caused by discharge of inadequately treated municipal wastes into waters, inadequate treatment of wastes from waterfront residences, and the presence of floating debris on salt waters. Commercial and Federal watercraft using Puget Sound also discharge inadequately treated wastes. The problem is most serious near large port facilities, but wastes are widely spread by the character of the source. The quality of the beaches may also be adversely affected. Logs lost from commercial log rafts are a serious hazard to pleasure boaters and water skiers. During a twelve month period in 1965 and 1966, 9,110 pleasure boats were damaged by water-borne debris on the salt waters of the Area.

Recreation activities can also contribute to increased water pollution. The discharge from recreation areas and pleasure boats is of relatively small dimension, but recreationists and recreation suppliers should assume some responsibility for protecting the water for their own use. Adequate sanitation facilities are needed at recreation areas to prevent soil and water contamination. Most pleasure boats have no



PHOTO 1-47. Nooksack Falls—U.S. Bureau of Outdoor Recreation Photo.

waste treatment facilities, and shoreline accommodations are often unavailable. As a result, wastes are often discharged directly into the water or hidden among the vegetation of a secluded shoreline. In many instances, the provision and maintenance of sanitation facilities in recreation areas have not kept pace with rapidly increasing use. As a result, optimum use of such areas is not possible and deterioration of overtaxed facilities and unsanitary conditions are often encountered. The increasing number of visitors to recreation areas has created a need for planning and constructing adequate health-related facilities. All public agencies and private enterprises, groups, or individuals having responsibility for the planning, development, design, operation or maintenance of recreation areas need to apply high standards of public health in the administration of programs. Recreation suppliers need to work with the U.S. Public Health Service or the State Department of Health to assure an adequate level of performance in this regard.

In the past, little thought was given to recreation in the development of reservoirs. Reservoirs were operated without consideration to effect upon recreation use. Heavy drawdowns during the recreation

season and the presence of stumps gives evidence to this. Recently the importance of recreation use of reservoirs has been recognized, and development procedures and operational methods of new or planned projects have been adjusted accordingly. In this Area with its abundance of varied water bodies, reservoirs need to be maintained in a condition as similar to natural bodies of water as possible so that they can fulfill a part of the recreation need. The usefulness of some of the existing reservoirs needs to be improved, including removal of stumps at several projects.

The activities of man affect water bodies in various and often conflicting ways. Water pollution from human, agricultural and industrial wastes is one example. The conflicts arising between the various users of water and associated shoreline is another. Competition for use of water and adjacent lands is great from many sides. Water is needed for industrial, municipal, agricultural, and other uses beside recreation; and the shorelines are often attractive for many types of development. Conflicts between the various users of water and associated shoreline will become more serious with growing demands. Comprehensive planning on local, regional and State levels is needed to alleviate these problems.

In addition, the various forms of recreation often conflict with each other. Speed boating in a limited area, for example, can be a serious hazard to swimmers, a nuisance to fishermen, and a distraction to those wishing to relax. As water based recreation pressures increase, relatively strong measures to control the recreation use of some of the waters may be necessary. An example would be the zoning of water bodies to restrict certain activities. Activities such as motor boating and water skiing are incompatible with the more passive activities of fishing and swimming when occuring on limited water area. In the future, use of some lakes may have to be controlled. Regulative zoning of water areas for recreation should not be necessary on most of Puget Sound. Only a few salt water locations that have a number of amenities or a number of conflicting uses, such as Elliott Bay and Shilshole Bay near Seattle, may need to be zoned in some way to control use.

Not all water related recreation activities take place on the surface of the water or on lands adjacent to it. In the future, added emphasis may be placed on "underwater" recreation, relieving some of the need for surface acres. The improvement of equipment and the introduction of new devices may promote under-



PHOTO 1-48. Historic hotel on San Juan Island—U.S. Bureau of Outdoor Recreation Photo.

water activities. The sheltered waters of Puget Sound offer excellent opportunities for underwater exploration and spear fishing. The bottom of the Sound undoubtedly has mineral and agricultural values and will be exploited for these purposes. Unique underwater marine areas need to be protected for recreational and scientific purposes. The underwater resource needs to be inventoried, and recreational and scientific values classified.

In addition to natural resources, the archeological and historical values which are a significant part of the outdoor heritage need to be conserved and in some instances preserved to provide enjoyment and inspiration for present and future generations.

ORRRC categorized archeological and historical sites as Class VI recreation areas and stated that, "The primary management objective should be to effect such restoration as may be necessary to protect them from deterioration, and to interpret their significance to the public. Suitable access and prevention of overuse are equally essential." It is also necessary to protect these sites from vandals or from souvenir collectors.

Throughout the Nation, public and private effort toward historic preservation have been increas-

ing. In the Puget Sound Study Area, interest in historic preservation is high, but economic forces operating to effect change have normally assumed precedence over intangible values. In too many cases, cultural and historical sites have been lost to land uses which provide a higher economic return on the respective lands; in other cases, the high cost of historic restoration has discouraged such attempts.

Many archeological and historical sites are worthy of preservation, restoration, and/or interpretation. With the population "explosion" the Study Area is experiencing, and with the related increase in urban and industrial growth and associated land modification, valuable sites and features need to be identified and protected from incompatible development. The more significant historic sites will be identified under the procedures of the Historic Preservation Act (Public Law 89-665 dated October 15, 1966).

Customs of the various Indian tribes should also be preserved. Only a few older Indians remain who are knowledgeable about their tribal ceremonies, dances, and language. The younger generation, torn from their traditions in search of more materialistic things, is not interested in perpetuating the traditions of their ancestors. Colorful and interesting Indian ceremonies and languages need to be recorded before they are lost forever.

VISITOR INFORMATION SYSTEM

Visitor information services are needed to impart knowledge and information which will enhance the opportunity for people to more fully enjoy the available recreation resources. Many people do not visit areas or drive certain roads because they are not aware of the opportunities available. Visitor information services are needed to alleviate this situation. The following is quoted from the National Park Service Administrative Manual:

> "Through interpretation, understanding; through understanding, appreciation; through appreciation, protection."

Proper interpretation integrates the people with the resource. Visitor information or interpretive services are a necessary part of most recreation developments. Purposes of an interpretive program are:

(1) To give facts about an area, what it is, how it came to be, and what it means to the visitor.

(2) To assist the visitor in understanding, appreciating, and enjoying an area.

(3) To develop an ability to observe.

(4) To develop a curiosity about natural, historical, or cultural attractions.

(5) To develop a concern for conservation and stimulate intelligent use of the natural and man-made resources.

(6) To broaden mental and spiritual horizons.

Interpretive services stimulate the curiosities of the visitors and lead to meaningful experiences when visiting attractions. Among numerous types of interpretive devices are:

(1) Information centers
(2) Museums
(3) Nature trails
(4) Self-conducted and/or guided tours
(5) Campfire lectures
(6) Exhibits
(7) Bulletin boards
(8) Signs
(9) Maps
(10) Brochures
(11) Braille trails for the blind

Types of interpretive services used vary from place to place with the type of recreation area and with the quality and character of the recreation attraction. The programs and services offered should be based upon what the visitor comes to see and should offer enough variety to satisfy the varying visitor interests.



PHOTO 1-49. Interpretive sign at Seabeck—U.S. Bureau of Outdoor Recreation Photo.

MEANS TO SATISFY NEEDS

The broad recreation goal is to promote the well-planned development and protection of the existing recreation resources to provide opportunity for the satisfaction of present and future outdoor recreation demands. If this goal is reached, the residents of and the visitors to the Study Area will be furnished with an adequate supply of diversified opportunities of high quality and in the proper locations. The residents of the expanding urban areas will be provided with pleasant environs in which to live.

From the foregoing chapter, it is apparent that outdoor recreation is playing and will continue to play a significant role in the development of the natural resources. To fully realize the recreation potential of the Puget Sound Study Area, two major problem areas require immediate attention. These problems concern (1) the provision of additional recreation areas and access to accommodate the best possible public use of recreation waters and adjacent lands commensurate with demand, and (2) the protection of recreation resources to provide a variety of high quality recreation opportunities and to maintain or enhance the environment within which 6.8 million people may live by the year 2020.

The following action program is general in nature. A more detailed program may be found within the Washington Statewide Outdoor Recreation and Open Space Plan.

RECREATION AREAS AND ACCESS

The Area contains a wealth of various outdoor resources. Since many of these resources presently are unusable or inaccessible to the public, they do not provide an adequate supply of outdoor recreation opportunities. The demand for water related opportunities exceeds the existing supply of outdoor recreation facilities. Additional accessible recreation developments, lands, and waters of the desired type and quantity should be provided in the proper locations to satisfy public needs.

RECREATION AREAS

Public agencies and private enterprises will have to initiate or accelerate programs of providing outdoor recreation opportunities. Recreation suppliers should make every effort to locate additional facilities and areas adjacent to desirable water resources. The acquisition and/or development of recreation areas and access points on lands adjacent to existing waters will receive precedence over the construction of additional reservoirs for recreation use. Investments to acquire and develop recreation opportunities at existing water resources, leaving the streams and rivers in a free-flowing condition, should provide the greatest range of total recreation benefits.

Additional impoundments will attract recreation use, however. When multi-purpose water impoundments are developed, recreation should receive equal consideration with other purposes, and appropriate recreation facilities should be provided as a part of the total project. Reservoirs should be designed and operated so as to provide the best practical pool levels and downstream flow enhancements for public recreation use.

Several thermal power plants may be constructed within the Area. These plants require water for heat dissipation. Of the three types of cooling systems (once-through, cooling towers, and cooling ponds) one, cooling ponds, could be of benefit to recreation. A pond capable of serving a 1,000 megawatt thermal power plant would require about 1,500 acres of surface area. Such a lake would be quite shallow at one end and about 50 feet deep at the other. Cooling ponds developed in other parts of the Nation are being used for recreational purposes. In addition, a 1,000 MW thermal-nuclear power plant requires a minimum exclusion area having a radius of 3,000 feet. According to Federal regulations, this area must be owned and controlled by the plant owner. The area required would contain 650 acres on an inland site and about 325 acres for a waterfront site. Activities unrelated to the operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result.

The owner may, with Federal approval, allow public recreation use of the exclusion areas and cooling ponds. Since this may be of significance in the Study Area, the public recreation use of these lands and waters should be encouraged.

There are many public recreation lands within the Area. However, most of these lands are located in the mountainous portions. There is a deficiency of recreation lands within or near the cities and adjacent to the major water resources. Greatest demand for outdoor opportunities is within or near the population centers. The resource may exist but, in many cases, may not be available to the public. In cities, desirable recreation lands have been developed for purposes that will provide immediate economic return.

Where the present combination of public and private recreation lands is inadequate, or where other types of development threaten to occupy desirable recreation lands, high priority should be given to the acquisition of lands for public recreation. Emphasis should be placed on the acquisition of waterfront lands adjacent to lakes and major rivers within one-hour's drive of urban areas and on the salt water shoreline and islands. Waterfront lands needed to satisfy existing or future recreation needs should be purchased now as a long term investment. Since waterfront property is limited and in demand, it will become disproportionately higher priced in the future. If waterfront lands are not acquired prior to their conversion to non-recreation uses, both the lands and developments may have to be acquired in the future to provide for public recreation use. An example of where this may occur is Miller Spit, eight miles west of Shilshole Marina in Seattle. Many other examples exist within or near urban areas.

There is a lack of knowledge regarding the recreation resource itself. Some of the public agencies have inventoried potential recreation resources on their respective lands, but there is no reliable comprehensive inventory of potential recreation areas. A statewide inventory and classification of potential recreation resources on public and private lands should be made as a basis for a sound recreation land acquisition program. An inventory could be accomplished through the use of aerial photos, a system similar to the one being employed throughout Canada.

Public interests should accelerate programs of supplying recreation opportunities if demands are to be satisfied. To accomplish this, funding at all levels



PHOTO 1-50. San Juan Islands—U.S. Bureau of Outdoor Recreation Photo.

of government and at the private level will have to be increased. Public agencies should take full advantage of bond issues and State or Federal assistance programs to increase necessary funding. Federal financial assistance programs will have to be strengthened to satisfy the recreation demands of the people. Adequate funding is a particular problem in view of the escalating price of land.

The creation of a revolving fund for land purchases by private foundations may be another method of obtaining needed and timely funding. To acquire recreation lands at the best possible price and to prevent costly and harmful delays, private money could be used to purchase lands as soon after authorization as possible. When government funds become available, the land would be sold to a public agency. Even modest amounts of money from private foundations would be useful in coping with emergency situations. Several organizations, such as the Nature Conservancy and the Izaak Walton League, have created such programs to assist in satisfying recreation needs.

Private enterprise will play an important role in satisfying recreation demand and in shaping the environment. There are three basic types of private recreation enterprises: profit seeking or commercial; nonprofit organizations such as the YMCA; and participant-financed developments, such as privately-owned membership clubs. Publicly-administered recreation developments should be compatible with and not compete with private developments.

As recreation pressures increase and with the charging of fees for the use of publicly-administered

areas, commercial interests will find it more and more profitable to venture into the business of supplying recreation opportunities and food, lodging, transportation, and other services. Timber companies are finding that the opening of their private forest lands for public use is good public relations and a service to the community. Industrial interests have the obligation of assuring that industrial development is compatible with the environment and does not harm the natural values which attract many visitors and residents.

As with public agencies, the major obstacle confronting the private development of recreation areas is one of insufficient funds. Governmental, technical and financial assistance and commercial loan programs need to be improved to provide incentive to the private developers of recreation facilities. Credit for financing private recreation development is difficult to obtain. Lending institutions are concerned with the seasonality of recreation, the limited managerial ability or experience of the promoters, the adverse effects of downturns in the economy upon such enterprises, and the limited equity capital being advanced by the mortgages.

If the Government could provide the basic technical assistance and generate needed data, the lending institutions would be encouraged to finance sound loans for the development of outdoor recreation enterprises. Information should be gathered concerning where private recreation is going and what its future role will be. Surveys in the field of private recreation could include a detailed analysis of the economics of private outdoor recreation enterprises, an exploration of private-government relationships, and studies of the market factors involved in privately managed outdoor recreation facilities. Methods of informing private owners regarding existing legislation or findings which encourage the private recreation development of land should be pursued.

An important and unmeasured segment of the private sector is that which families provide for themselves, at home, on their own vacation lands, or on a friend or relative's property. Studies need to be made to determine the importance of these opportunities.

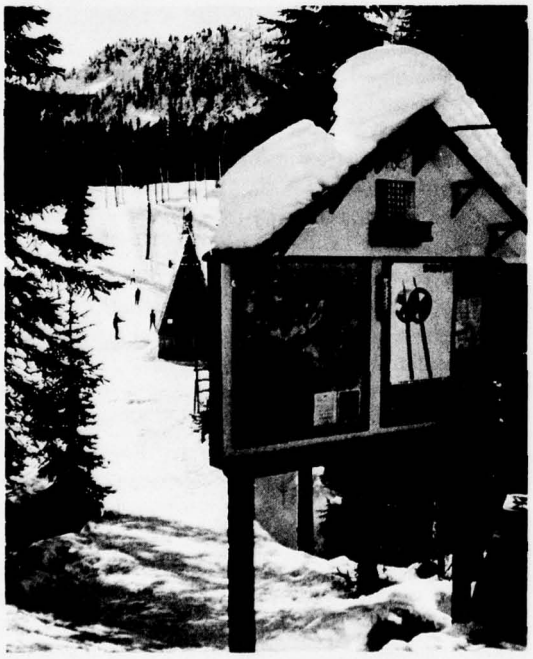


PHOTO 1-51. Privately developed ski area—U.S. Bureau of Outdoor Recreation Photo.

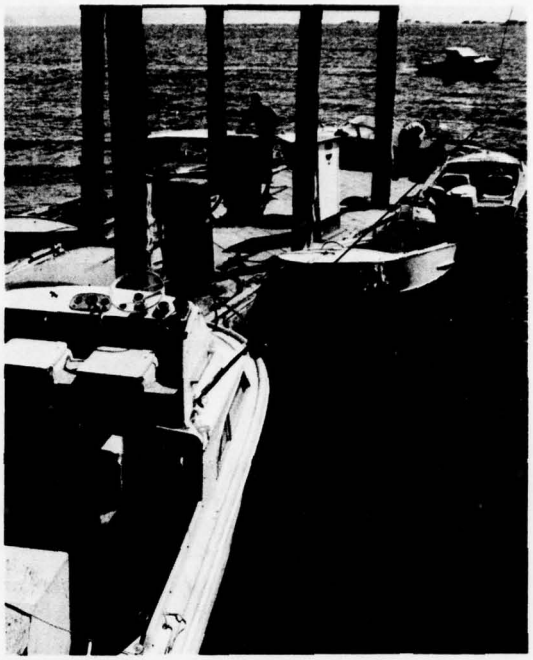


PHOTO 1-52. Privately operated service facility—U.S. Bureau of Outdoor Recreation Photo.

ACCESS

The inadequacy of public access is a major problem affecting the recreational use of the waters.



PHOTO 1-53. Private homes on Hood Canal—U.S. Bureau of Outdoor Recreation Photo.

To assure efficient utilization of existing waters and the adjacent shorelines, more access will have to be provided.

The lineal development of private homes and other structures along waterfronts has prohibited public access in many areas. In urban areas, apartment houses and other shoreline developments constructed over the water on piling or on fills restrict access to and use of the public waters. Lands should be acquired for public recreation use and access ahead of the development of desired areas for residential or commercial purposes. In areas where vacation homes are popular, the cluster development of residences around a community waterfront park area should be encouraged to facilitate maximum use and benefit from waterfront lands. In urban areas, the same principal should be applied in the location of apartments. Priorities of waterfront development should be established by local agencies. Marinas, a legitimate use of waterfront land, should have a higher priority than shopping centers at the water's edge. Commercial development not dependent upon water access should be located or relocated inland.

The enactment of legislation and the implementation of planning would greatly assist in regulating the development and use of lands, tidelands, shorelands, and waters. Zoning ordinances need to be effectively and uniformly enforced to provide for the orderly development of the shorelines as well as other areas.

In many areas, railway tracks restrict public use of shore lines and access to water resources. Access easements with road access and numerous pedestrian crossings should be acquired along the railway right-of-ways to provide for public use of affected lands. Since railroad tracks may include main lines with frequent trains at high speed, the crossings of such lines should be facilitated with warning signals for the public, or even better, by an underpass or overpass. The danger to the public from railroad trains should not be underestimated, especially in view of the fondness people have for walking along railroads. The feasibility of abandoning the waterfront railway tracks and transforming the right-of-ways into recreation ways should be explored.

Access is also restricted by the presence of private lands. Waterfront scenic-access easements should be acquired through selected private waterfront lands. Trails should be developed through the easements and the lands could tie in and be used jointly with State-owned tide and shorelands. State tide and shorelands should be kept in public ownership since they are valuable recreation resources. Where levees are needed along river stretches for flood control purposes, arrangements should be made to allow for public access along the levees.

There are several large and numerous smaller municipal watersheds within the Area. Limited public use is tolerated on some of the watersheds, while others are closed to public access. Since these areas comprise forested lands with lakes and rivers close to population centers, they could make a contribution to the satisfaction of recreation needs. Limited public access and recreation use should be permitted on watersheds until such a time when the demand for recreation space threatens to saturate available resources outside of the watersheds. At that time, intensive use should be accommodated with the recreationists assisting in the cost sharing. When and if watersheds are no longer used for municipal water supply, suitable areas should be developed for public recreation. To determine the effects of recreation and other human activity on the quality of water from forested watersheds, in 1964 the Forest Service requested the U.S. Public Health Service to undertake a study. The resulting study, the Northwest Watershed Project, measured various quality parameters for a period of 18 months from three large drainage areas subjected to various degrees of human access controls from closed to intensive use. The results of the Project, which was scheduled for release at the end of calendar year 1968, were not available for use in this appendix.

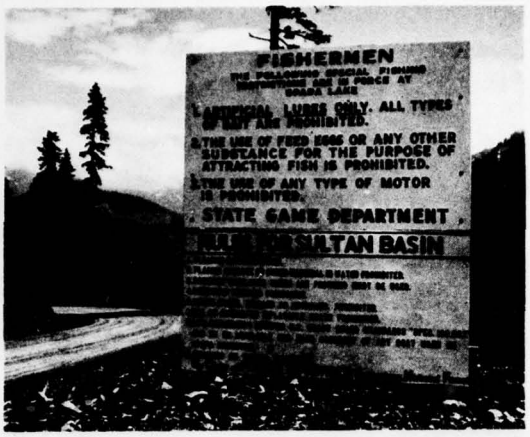


PHOTO 1-54. Entrance to Everett's municipal watershed—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 1-55. Municipal watershed closed to recreation use—U.S. Bureau of Outdoor Recreation Photo.

A network of scenic routes is needed to provide travel links between recreation attractions and to enhance the opportunities for that large segment of the population which enjoys driving for pleasure and sightseeing. The existing State Scenic and Recreational Highway System should be complemented with local systems. Roadside recreation facilities should be developed along the routes and the scenic corridors adjacent to the roads should be maintained in an attractive manner. Hiking and riding trails could be developed within portions of the roadside zones of some of the scenic routes.

The cross-sound ferry boats operated by the State are attractions worthy of retention. When other forms of mass or rapid transit are developed, they should also provide access to recreation areas and attractions.

PROTECTING THE RESOURCES

Rapidly expanding development in the Study Area requires that lands and waters available or needed for recreation and open space be adequately protected for public use and enjoyment. Recreation resources should be protected not only from competing land uses but also from incompatible use which could diminish satisfaction gained from recreation experiences and pleasant surroundings.

Every effort should be made to set aside unique features for recreation use. The more vivid and interesting natural, archeological, and historical areas should be identified, classified, protected, and interpreted within a statewide system of special interest areas. Whenever possible, development should include facilities for those activities that are compatible with the primary purposes of the areas.

A survey of the underwater resource should also be made, and those values found worthy of protection should be set aside under a statewide system of marine preserves.

Historic and archeological sites are not always adaptable for recreation use. In addition to their inherent value, they should have sufficient appeal to arouse general public interest. In many instances, perhaps because of their limited or specialized nature, the features may be of purely academic interest and, therefore, unsuited to general use and enjoyment. If they are in attractive natural surroundings, historic and archeologic resources may be incorporated into a larger park or recreation area. Some, on the other hand, may be of sufficient importance to merit preservation and interpretation regardless of setting.

When significant archeological, historical or natural features are destroyed or inundated as the result of water resource projects, interpretive centers or displays depicting the history of the particular area should be maintained as adjuncts to the recreation facilities. If public displays are not a desirable solution for the dissemination of information, the area's heritage could be interpreted through bro-

chures. Of course, nothing can take the place of preserved or restored sites in their original location.

Many rivers and streams in the Area are still in their natural, free-flowing condition. In other parts of the Nation, man-made dams and associated facilities have radically altered the natural conditions. In most cases, water resource developments are necessary to protect lives and property or for the economic well being of the people. Project plans are considered carefully to make certain that they benefit the majority of the people. The effects of the project upon lands downstream are analyzed. Alternatives such as flood plain zoning, desalination, and nuclear power are fully explored. In some cases, upstream impoundments may improve the river quality below the dam by augmenting stream flows during dry periods. In other cases, impoundments have harmed stream flows or have themselves filled the space once occupied by a beautiful river and valley. Important recreation rivers or portions thereof must be protected for public use and enjoyment. A statewide classification and system of recreation rivers offers a promising method for reserving certain rivers or portions thereof for recreation purposes. Progress to protect rivers of national significance has been made in the establishment in 1968 of a National Wild and Scenic Rivers System. The Skagit and its tributaries are under consideration for inclusion within the System. Additional studies should be made to identify recreation rivers for inclusion within a statewide system. Free-flowing rivers are unrenewable resources; once valleys are inundated, the rivers are lost forever. Studies to determine minimum and optimum rivers flows for recreation use should also be conducted.

Flood protection can encourage flood plain occupancy with little thought to the need for natural areas along the rivers. Where flood protection is necessary, zoning ordinances that consider natural beauty, recreation and open space should be put into effect prior to the development of the protected lands. The key to resolving flood losses in the Puget Sound Study Area may be the construction of a few necessary impoundments, with a stronger emphasis on intelligent planning and regulated use of lands exposed to flood hazard. Only if less hazardous alternate sites are not available for industrial or residential purposes, should a degree of flood protection, higher than that needed for reasonable protection of agricultural resources, be provided on a natural flood plain. Agriculture, certain forms of recreation, and other flood tolerant uses should be given priority in flood plain management.

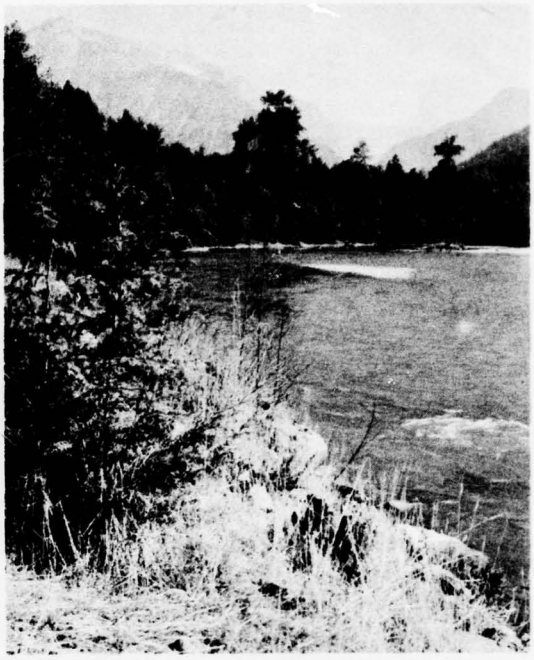


PHOTO 1-56. Skagit River—U.S. Bureau of Outdoor Recreation Photo.

Counties and municipalities should be encouraged by the State to plan and zone lands adjacent to recreation rivers and other important recreation attractions in such a way as to take advantage of and protect recreation values. Zoning ordinances are known to lack permanence, especially in those areas where the demand for land is high. In such instances, scenic and access easements may prove a more effective means of protecting waterfront lands from intensive land development.

It is within the power of the private landowner to take pride in his land and to maintain it to please himself as well as others. Private landowners should take the initiative in setting voluntary imposed land use and development controls to maintain the scenic and natural quality of their land. Through such legal means as scenic easements to public agencies or private conservation land trusts, individual property owners may permanently safeguard the beauty of their lands.

The overhead utility line is one of the principal intruders into valuable scenic resources. The presence of overhead electric power and utility transmission

lines usually do not compliment or enhance environmental qualities. Until new methods are developed to conduct high voltage electric power from the source to market areas, it may not be economically feasible to conceal all power or utility lines beneath the ground. However, undergrounding is presently a feasible solution to the intrusion problem for low voltage electric and utility distribution lines within market areas. Since underground costs are equal to or sometimes less than the cost for aerial cable, low voltage electric and utility distribution lines should be placed underground.

Until equipment and high voltage transmission lines can economically be placed underground, it is the responsibility of the suppliers to make environmental intrusions as aesthetically pleasing as possible. Attention should be given to route selection to avoid adverse impacts on the landscape. The appearance of equipment can also be improved.

The electric and utility industries are cognizant of the problem and are searching for new methods to minimize adverse impacts on scenic qualities. Industry has earmarked substantial funds to maintain or improve the aesthetic quality of the environment while transmitting and distributing electric power. The goal of industry and of the public is to eliminate a large portion of the equipment from view and to improve the appearance of that which cannot be hidden. Public recreation use of the right-of-ways for purposes such as hiking and horseback riding should also be accommodated.

In localized situations, air and water pollution have become serious problems. Pollution has damaged recreation resources and has harmed the general livability of some areas. The air and water should be kept clean for the health and enjoyment of the people. Progress is being made to solve this problem.



PHOTO 1-57. Air pollution from pulp mill—U.S. Bureau of Outdoor Recreation Photo.

In 1967, the State enacted the Washington Clean Air Act. Under this legislation the Puget Sound Air Pollution Control Agency formulated rules to halt the ever-increasing discharge of air contaminants. The regulations, which apply to King, Pierce, and Snohomish counties, will eventually be enforced in all 12 counties in northwest Washington. The State has adopted water quality standards for the rivers, streams, and coastal waters. The standards are high and permit safe recreation use in most waters. A continuing program of water quality improvement is scheduled to be completed by 1972. To be successful, air and water pollution control regulations will have to be strictly enforced.

SUPPLEMENTAL CONSIDERATIONS

The recreation objectives cannot be accomplished unless resources are developed in accordance with long-range comprehensive plans and unless legislative actions are taken.

PLANNING

An orderly, planned development of the environment is a prerequisite to satisfying outdoor recreation and other public needs. Only through the proper planning and subsequent development will it be possible to integrate individuals in a relaxed and healthful manner with their everyday surroundings. In many communities, this has not been accomplished.

Direction should be given to efforts in all forms of land uses so that the overall result will be an environment pleasing and useful to the people. Statewide comprehensive planning, of which recreation is an integral part, is a continuous process in

Washington. Cities and counties and/or regional organizations should prepare, adopt and implement long-range comprehensive plans using the State plan and the Puget Sound and Adjacent Waters Comprehensive Water Resource Study as guides. The local plans should provide for adequate recreation opportunities and open space.

All outdoor recreation programs should be planned and developed at a pace consistent with the increase in demand. To optimize user satisfaction, changes in recreation tastes and interests should be anticipated and considered in planning programs. Continued studies and surveys will have to be made to determine the preferences of the participating population. Future programs should remain flexible to allow for necessary adjustments.

To date, recreation development has been rather piecemeal. An organized, concerted effort with bold and imaginative programs is required of public and private interests to develop the recreation potential of the Puget Sound Study Area to the optimum degree commensurate with demand. To encourage the coordinated recreation development of the lands associated with the navigable waters in the Study Area, a Puget Sound Recreation Waterway is proposed by this study. This proposal should be studied in detail at a later date subsequent to the completion of the Puget Sound and Adjacent Waters Comprehensive Study and should include both United States and Canadian interests.

Since this appendix considers only the United States portion of a larger area possessing similar recreation resources, the relationship of the Canadian resources was not thoroughly explored. Interaction of recreation use was considered in the demand analysis since the International Boundary is not a physical limitation in utilizing natural resources common to the two countries. The existence of the political boundary does handicap natural resource planning, however. In future planning, efforts should be made to overcome this situation.

LEGISLATION

Many of the needed actions cannot be accomplished unless assisted by legislative measures. Legislation has been enacted which greatly affects recreation lands and opportunities in the Puget Sound Study Area. Much more is needed.

The following pages give information on some existing laws and puts forth thoughts on some new, much needed legislation concerning recreation.

There are several methods of providing land for recreational use, including eminent domain and zoning. These have been used throughout the United States with varying degrees of success.

The legislature of the State of Washington has given its cities and counties broad authority relating to eminent domain. "Under RCW 8.04.070 there must be three basic findings before land can be condemned for public use:

(1) that the use is really a public use;

(2) that the public interests require it;

(3) that the property appropriated is necessary for the purpose."

A problem presents itself when the power of eminent domain is used and that problem is public use: What is it? Who decides, in any given case, whether the use is public? Legislation should be enacted which would proclaim the preservation of recreation lands and opportunities a public purpose and a necessary public use.

Zoning is a land use control measure under which the State, counties, and cities have authority to impose regulations on activities which, otherwise unregulated, would be dangerous and injurious to the health, safety, morals, and general welfare. In the State of Washington this power, specifically the power of zoning, is not unlimited. It must be used reasonably and such use must be necessary.

A major need concerning zoning is new legislation which would define the authority and set forth procedures to follow when zoning of land is necessary. This legislation should also state when and under what particular circumstances zoning is required. In Washington there has been little use of the State's power to regulate land use for the preservation of open space, but there is a growing need for such controls, particularly to preserve scenic beauty along highways and to control use of river valleys.

Other needed zoning legislation concerns flood plains. Flood plains are often well suited as recreational areas. The State of Washington has delegated authority concerning flood plains to local levels of government. Authority should be concentrated to allow for State zoning of flood plains to regulate the use and development of these areas.

Several states, including Connecticut, Indiana, Iowa, and Wisconsin, have channel encroachment of flood plain regulations which prevent certain types of development within prescribed limits of flood plains. State government also can do much to encourage

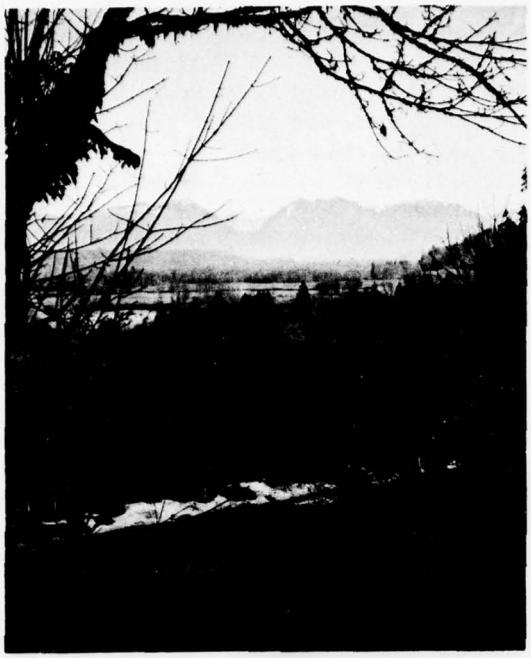


PHOTO 1-58. Flood plain along Skykomish River– U.S. Bureau of Outdoor Recreation Photo.

flood plain management on the local level through education and technical and financial assistance. Other measures to regulate flood plain development include building codes, health regulations, open space acquisition, and tax inducements to encourage the locating of certain improvements outside of flood plains.

Urban zoning ordinances should be revised. Flexible zoning ordinances can encourage inclusion of more open space by incorporating various special provisions for this purpose. Chiefly, these provisions are: (1) planned unit development provisions which allow a zoning commission to waive the ordinary "per lot" requirements on a larger tract in favor of commission review of the entire development, including adequate public open space, and (2) floor area bonuses, which otherwise would not be permitted, in exchange for the inclusion of public open space and plazas at ground or roof level.

A third powerful tool is taxation which, along with eminent domain and zoning, can assist in making available more recreational opportunities. Washington State's tax assessment practices have caused the conversion of privately-owned open space and recreational lands to other uses. Woodlands, farm and recreation lands are appraised for tax purposes on the market value concept of "highest and best use" which is frequently measured from recent sales of properties in the same area for residential or industrial sites. High taxes on open space lands often force sales of such land for urban and industrial development. Many local governments promote such industrial development so as to broaden the tax base and meet rising costs.

The exemption or reduction of taxes on open space lands would encourage the preservation of open spaces lands for public use. The Constitution of the State of Washington states:

> " . . . such property as the legislature may by general laws provide shall be exempt from taxation . . . "

Legislation should be passed which would allow taxation of lands which have been designated by local units of government as recreation or open space on their value for conservation. A preferential tax program should be implemented for application to owners who dedicate their lands for open space or recreation purposes. Taxes on these properties would be exempted or reduced accordingly. In 1968, through the passage of House Joint Resolution No. 1, the voters gave the State Legislature authority to provide such legislation.

Other legislative action which would make available open space land in urban areas is in the form of tax relief for private development of open space. Rigid property tax structure tends to discourage the development of commercial buildings with setbacks, plazas, plantings, fountains, etc., on ground level. The ground level area of commercial buildings, if developed with setbacks, etc., are taxable, but not revenue producing. Legislation should be enacted which would give tax relief on commercial buildings which, under guidance and compliance with an open space program, were constructed with ground floor open space development. Tax relief could also be given to commercial property owners who beautify parking lots with vegetative plantings and develop "rest areas" within parking lots.

Eminent domain, zoning, and taxation are three measures which collectively can be used to implement a program of preserving, maintaining and acquiring recreational lands. There are other legislative actions which should be taken in order to implement a sound recreation program.

Federal legislative action would provide some additional lands for recreation. In the disposition of

Federal surplus real property, local and State agencies may acquire lands for historic purposes, public health and education, fish and wildlife conservation, and public airports without monetary consideration. For public recreation, agencies are required to pay 50% of the fair market value. The Federal Property and Administrative Services Act of 1949 should be amended to allow Federal surplus real property to be acquired for public recreation on the same basis as other public purposes.

The Federal Highway Administration officially prohibits camping at interstate rest areas. The State of Oregon has obtained F.H.A. authorization to provide access from an existing interstate rest area to an adjacent state park campground. Oregon has also sought to increase the number of rest areas but present F.H.A. regulations limit these. Federal legislation should be passed which would relax regulations on the number of rest areas and allow access to adjacent recreation areas. Legislation has been passed establishing a State system of scenic and recreational highways. Additional legislative action is needed to establish statewide systems of special interest areas, marine preserves, and recreation rivers.

Another area where legislative action should be taken concerns public recreation use of municipal watersheds. The recommendations of studies made to evaluate public health, economic and other factors related to public use of these areas should be incorporated into legislation restricting, limiting, or allowing recreation use of watersheds.

In urban areas, public use and scenic value of shorelines have been restricted and degraded through incompatible and unsightly development. State legislation should be enacted to encourage strict local control for zoning and other actions regarding the development and use of the shoreline of navigable waters. In addition, tidal and estuarine areas should be considered for zoning. Like flood plains, these areas are important for recreation and as a habitat for wildlife. Legislation should be enacted to prevent further sale of publicly owned tide and shorelands to private interests.

The State Legislative Budget Committee and the State Legislative Council, in response to Senate Resolution 1967 Ex. 15, have prepared legislative proposals relative to lands administered by the State. Proposals pertaining to recreation use of State lands include:

1. Permission for the Board of Natural Resources to reconvey to any county for county park purposes forest lands acquired from the counties by the State pursuant to RCW 76.12.030, and authorizing the Department of Natural Resources to manage any timber lands included in such a reconveyance to the extent that this is consistent with park purposes and meets with the approval of the Board of County Commissioners.

2. Authority by the Board of Natural Resources and other State agencies to keep trust and other State lands, including those under lease for grazing or agricultural purposes, open for hunting, fishing, and other compatible recreation uses unless posting is necessary in order to prevent damage to crops or other land cover, improvements on the land, to the lessee or to the general public, or is necessary to avoid undue interference with carrying forward an agency program.

3. Amend existing law to permit the Board of Natural Resources discretionary authority to retain rural freshwater shorelands (class II shorelands) now in State ownership, for various public purposes including recreational use.

Note: Present law gives the upland owners preferential right to buy abutting rural freshwater shorelands and, in effect, requires that the State sell these lands if the abutting upland owner wishes to purchase them. It would appear adequate from the viewpoint of any private interest concerned to provide that the upland owner have a preferential right to purchase these lands if the shorelands are to be offered for sale into private ownership, or to provide that any sale or use of these lands not unduly interfere with the use of the upland by the adjacent private owner.

4. Legislation may be needed to update present oyster reserve legislation to permit other beneficial public uses of some portion of the existing oyster reserve or remove any tidelands from this classification if not being used for these purposes. It is intended, however, that any such legislation would not interfere with the original or current public objective being served by the setting aside of some tidelands as oyster reserves.

5. Legislation may be desirable to clarify the respective roles of the Commissioner of Public Lands, the Board of Natural Resources, and other parties of interest relative to any future modification or revocation of the present or future withdrawals of State trust land administered by the Department of Natural Resources and by other State agencies for purposes of

public recreation. Since modification or even revocation of trust land withdrawals are likely to come up from time to time, provision of statutory machinery for the orderly resolution of possible differences over the most beneficial use of State trust land would be desirable.

6. To the extent possible within the constraints of the State Constitution and the Enabling Act relative to State trust land, legislation is recommended to permit the Board of Natural Resources to require that lands that may be leased primarily for private recreation purposes be open to the public on compliance with reasonable terms and conditions or to allow the Board to give reasonable preference to recreation uses, allowing public uses over leases for exclusive private use.

7. Legislation is suggested to allow recreational and other beneficial public use of State lands not now open to such public use where such use would be consistent with existing and continuing principal uses of another nature.

ALTERNATIVE WAYS TO SATISFY NEEDS

People would be encouraged to change their recreation activity habits if suitable alternatives were available. There are numerous alternative means to satisfy outdoor recreation needs. Some of the more significant alternatives are: distribution of use, lengthening of recreation season, and substitution of uses.

DISTRIBUTION OF USE

There are recreation developments and resources which receive much less than capacity use. Optimum use of these areas would help to alleviate overuse at the popular sites. Better dispersion or distribution of recreationists would accomplish this objective.

One of the best tools for accomplishing this distribution is through promotion. Normally, the better known areas will continue to draw heavy use through word-of-mouth publicity and because of their "status" appeal. Promotion campaigns can be aimed at getting greater use at lesser known, but equally attractive, areas. Maps, brochures, and other information disseminated by the management agencies, Chambers of Commerce and similar groups supply the media for promoting these areas.

An adequate and well-planned access program is a prerequisite for obtaining dispersion of recreation use. It is of little consequence that an area contains abundant outdoor recreation resources if there are no satisfactory means of getting the user into the resources. The establishment and promotion of high quality scenic routes will help in the distribution of recreation use.

LENGTHENING OF RECREATION SEASON

Almost 60% of the recreation use occurs during the summer, and approximately one-half of this use takes place on weekends. This is due to climate and the availability of leisure time.

There will be no significant climatic changes, although many new innovations in recreation equipment are making climate less of a factor. There is, however, the distinct possibility of changes in schedules for schools and employment and a gradual elimination of the weekend concept. These changes will occur when the public is ready and willing to accept all of the ramifications involved. In the meantime, much can be done to encourage midweek and early and late season visitation, thereby gaining a more optimum use of facilities and reducing peak use problems.

In charge areas, rates can be lowered for midweek and other low use periods. Land management agencies can keep certain sites open and maintained longer to encourage pre and post season visitors. The advantages of "off-season" or midweek use also needs to be publicized.

Any lengthening in the recreation season or change in the weekend use concept would diminish the number of facilities and size of areas needed to satisfy annual recreation demands.

SUBSTITUTION OF USES

The substitution of uses can, if properly applied, be used as a tool to help satisfy recreation

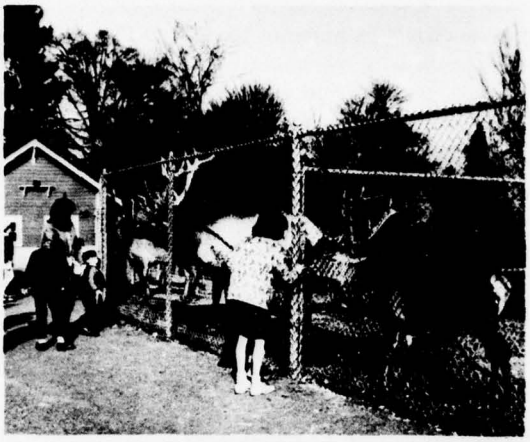


PHOTO 1-59. Point Defiance Park, Tacoma—U.S. Bureau of Outdoor Recreation Photo.

needs. Imagination in developing new and promoting presently unpopular activities will help reduce overuse of presently accepted opportunities. An example of this is the promotion and consequent development of cross-country skiing which can take place away from the crowded slopes in areas not suitable for downhill development. This form of skiing provides a means for persons to enjoy the sport without the cost of lift tickets.

If kept abreast of new innovations in outdoor recreation equipment, such as sno-mobiles and trail bikes, land management agencies can provide appropriate facilities and trails and thereby utilize areas not suitable to other uses. Too often, however, the sudden pressure from these new interests causes even greater congestion on existing facilities because alternate facilities are lacking. Initiative and appropriate development can turn these problems into administrative advantages.

The substitution of uses is particularly significant within urban areas. The development of indoor recreation and cultural opportunities, amusement centers, scenic and interpretive tours, swimming pools, and high production fishing areas can satisfy some of the needs which would normally be satisfied in the country. The beautification of the cities can diminish the desires of the inhabitants to escape to rural or natural areas.

These alternatives should be explored as a means to satisfying a portion of the increasing outdoor recreation needs.

EVALUATION

COSTS

The discussion covers the costs associated with the provision of opportunities to satisfy water related outdoor recreation needs. Costs pertaining to the development of exterior access roads, acquisition of easements, provision of scenic routes, protection of recreation resources, interpretive services, and the payment of property taxes have not been included.

Recreation costs consist of the value of all goods and services used in constructing, operating, and maintaining recreation opportunities. Table 1-13 summarizes costs by basins and for the Study Area:

TABLE 1-13. Water related outdoor recreation costs, Puget Sound and Adjacent Waters

Basin	Improvements							Total Development	Land Acquisition Including Buffer	Avg. Annual O.M.R. Costs*
	Campground	Picnic Area	Trails	Beaches	Swimming Pools	Boating Facilities Inc. Small Boat Basins	Planning and Design			
Nooksack-Sumas										
1960-1980	$6,916,000	$1,085,000	$	$192,000	$1,415,000	$3,603,000	$3,304,000	$16,515,000	$9,165,000	$543,000
1980-2000	·	·	·	·	·	·	·	15,000,000	12,100,000	·
2000-2020	·	·	·	·	·	·	·	27,300,000	22,500,000	·
Skagit-Samish										
1960-1980	12,824,000	1,085,000	·	84,000	850,000	3,666,000	4,627,000	23,136,000	12,678,000	644,000
1980-2000	·	·	·	·	·	·	·	26,800,000	15,900,000	·
2000-2020	·	·	·	·	·	·	·	43,900,000	27,400,000	·
Stillaguamish										
1960-1980	9,380,000	791,000	·	·	100,000	185,000	2,614,000	13,070,000	7,350,000	301,000
1980-2000	·	·	·	·	·	·	·	13,500,000	7,300,000	·
2000-2020	·	·	·	·	·	·	·	25,900,000	14,300,000	·
Whidbey-Camano										
1960-1980	5,320,000	525,000	480,000	372,000	105,000	7,838,000	3,660,000	18,300,000	10,150,000	500,000
1980-2000	·	·	·	·	·	·	·	17,300,000	14,500,000	·
2000-2020	·	·	·	·	·	·	·	27,200,000	24,700,000	·
Snohomish										
1960-1980	19,096,000	2,254,000	·	96,000	3,950,000	11,865,000	9,315,000	46,576,000	14,324,000	1,191,000
1980-2000	·	·	·	·	·	·	·	52,000,000	17,500,000	·
2000-2020	·	·	·	·	·	·	·	90,000,000	33,200,000	·
Cedar-Green										
1960-1980	7,770,000	2,030,000	762,000	·	7,975,000	10,615,000	7,288,000	36,440,000	17,985,000	1,177,000
1980-2000	·	·	·	·	·	·	·	49,500,000	20,500,000	·
2000-2020	·	·	·	·	·	·	·	64,300,000	40,300,000	·
Puyallup										
1960-1980	9,324,000	1,288,000	102,000	·	2,215,000	6,714,000	4,911,000	24,554,000	10,835,000	684,000
1980-2000	·	·	·	·	·	·	·	36,700,000	18,900,000	·
2000-2020	·	·	·	·	·	·	·	55,100,000	32,940,000	·
Nisqually-Deschutes										
1960-1980	9,002,000	889,000	300,000	24,000	911,000	2,497,000	3,406,000	17,029,000	4,922,000	539,000
1980-2000	·	·	·	·	·	·	·	22,900,000	7,300,000	·
2000-2020	·	·	·	·	·	·	·	40,000,000	13,700,000	·
West Sound										
1960-1980	13,510,000	1,477,000	756,000	·	1,123,000	18,003,000	8,717,000	43,586,000	18,626,000	1,165,000
1980-2000	·	·	·	·	·	·	·	55,000,000	27,100,000	·
2000-2020	·	·	·	·	·	·	·	83,000,000	50,700,000	·
Elwha-Dungeness										
1960-1980	1,372,000	385,000	·	60,000	975,000	2,645,000	1,359,000	6,796,000	1,463,000	195,000
1980-2000	·	·	·	·	·	·	·	9,500,000	3,200,000	·
2000-2020	·	·	·	·	·	·	·	14,700,000	5,100,000	·
San Juan										
1960-1980	2,212,000	336,000	180,000	·	100,000	5,619,000	2,112,000	10,559,000	4,645,000	299,000
1980-2000	·	·	·	·	·	·	·	9,600,000	6,600,000	·
2000-2020	·	·	·	·	·	·	·	16,500,000	11,700,000	·
Study Area										
1960-1980	96,726,000	12,145,000	2,580,000	828,000	19,719,000	73,250,000	51,313,000	256,561,000	112,143,000	7,238,000
1980-2000	·	·	·	·	·	·	·	307,800,000	150,900,000	·
2000-2020	·	·	·	·	·	·	·	487,900,000	276,540,000	·
Total	·	·	·	·	·	·	·	1,052,260,000	539,583,000	·

* O.M.R.– Operation, Maintenance and Replacement.

BENEFITS

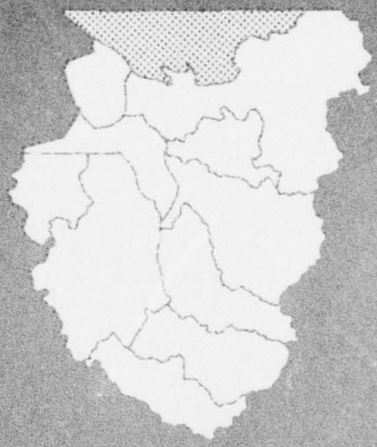
To determine monetary benefits accruing to the users, a unit day value is applied to the total recreation days of demand expected for water related activities. Supplement No. 1 to Senate Document 97, entitled "Evaluation Standards for Primary Outdoor Recreation Benefits," provides a range of values and criteria to select a value. The following recreation day values have been selected for the basins:

Nooksack-Sumas	$1.20
Skagit-Samish	1.20
Stillaguamish	1.15
Whidbey-Camano	1.20
Snohomish	1.10
Cedar-Green	0.80
Puyallup	1.05
Nisqually-Deschutes	1.05
West Sound	1.20
Elwha-Dungeness	1.25
San Juan	2.00

This unit day value expresses only estimated monetary benefits expected to accrue to the recreationist from the use of the facilities and does not in any way attempt to set a value on the resource itself. In other words, it is a measurement of what the user would be willing to pay. The value is only an average in that different values would be determined for specific areas or projects.

In addition to the monetary benefits to the users, there are many tangible and intangible benefits that are related to recreation. Tangible benefits not measured include such important considerations as expenditures by tourists and recreationists for goods and services and the enhancement of land values attributable to presence of recreation resources and opportunities. Intangible recreation benefits, though recognized as having real value in satisfying demands, cannot be measured in monetary terms. These benefits are related to the protection of natural features, the enhancement of historical attractions, and benefits accruing to society from aesthetic values such as natural beauty and open space.

Nooksack-Sumas Basins



NOOKSACK — SUMAS BASINS

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

This area is bounded on the north by the Canadian border, on the west by the Strait of Georgia, and on the south and east by the Samish and Skagit River drainage basins. The Nooksack-Sumas Basins, lying almost entirely within Whatcom County, include those portions of the Nooksack, Sumas, and Chilliwack Rivers within the United States in the local drainage area tributary to the Strait of Georgia between the Samish River drainage and Canada. Land and water area within the Basins is 1,256 square miles.

Croplands are mainly located on the rich alluvial lowlands in the western portion of the area. The lands above the croplands are highly variable, mountainous, and mostly covered by timber.

Population and Economy

Whatcom County has shown an irregular but steady growth, with the population about half urban and half rural. In the last 20 years, Whatcom County has grown in population from 60,000 in 1940 to 75,000 in 1963. It is estimated that population will reach 92,000 by 1980, 124,000 by 2000 and 169,000 by the year 2020.

Bellingham, a city of 36,500, located in the western portion of the Nooksack Basin, is the principal trading center for the area. Forest products, oil refineries, aluminum production, farming, and commercial fishing are the principal industries.

Visitors from the Vancouver, B.C. and Seattle metropolitan areas constitute a major impact upon the recreation resources of the Basins.

Access

The area is accessible by the main north-south route through Western Washington, Interstate Highway 5, which carries considerable traffic. State Highway 542 intersects Interstate 5 a few miles outside the Nooksack Basin in Bellingham. State Highway 542 follows the Nooksack River to Mount Baker and terminates at a resort area. Forest Service roads and trails furnish additional access into the mountainous areas.

Boat travel is common on the salt water areas, and there are several airports in the western portion of Nooksack Basin.

Climate

The climate is cool in the summer and mild in winter. The mean annual precipitation varies from 32 inches at Puget Sound to over 100 inches on Mount Baker. About 75% of the precipitation falls during the period of October through March. Heavy snowpacks are characteristic of the mountain areas. Mean daily temperatures in the winter vary from 39° F near the Strait of Georgia to 27° F in the mountains and in the summer from 62° F near the Strait of Georgia to 57° F in the mountains.

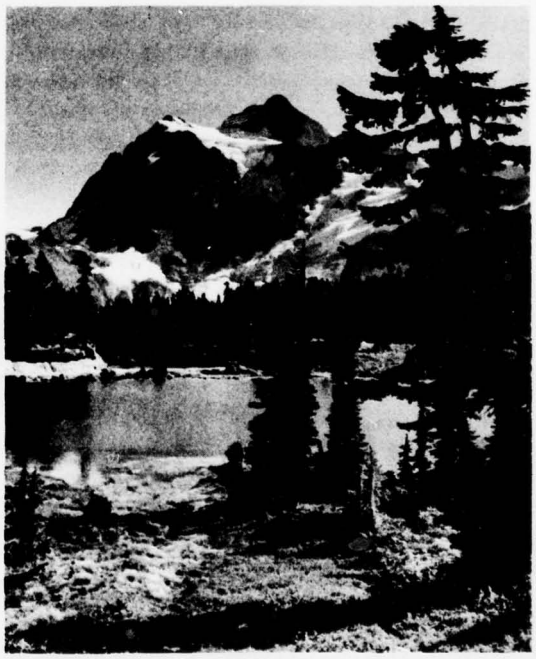


PHOTO 2-1. Mt. Shuksan from Heather Meadows— U.S. Bureau of Outdoor Recreation Photo.

The drier months during the late spring, summer, and early fall are the most attractive for most recreational pursuits. During the winter months, winter sports activities are popular in the mountains.

Land Ownership

About 34% of the land is administered by the Federal Government and 11% by the State. The remaining area is mostly in private ownership. Figure 2-1 designates major public ownerships.

Recreation Features

The area with its miles of salt water shoreline in the west, mountainous area in the central and eastern portions, lakes and many miles of rivers and streams is well-suited to provide a wealth of varied recreation opportunities. For example, the Heather Meadows area near Mt. Baker is an outstanding scenic attraction and winter sports area.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 75 publicly-administered outdoor recreation sites within the Basins. Twenty-three are administered by Federal agencies, 30 by the State, and 22 by the county and cities. Of the 357,130 acres classified as available for public visitation, 203,277 acres are within the Mt. Baker National Forest and 68,600 are in the North Cascades National Park.

Table 2-1 summarizes the existing supply by administering agency.

The eastern one-third of the Nooksack Basin is almost entirely administered by the Forest Service and the National Park Service. During 1964, the Forest Service reported the following breakdown of visitation by primary purpose of visit:

Camping	12,007	visits
Picnicking	9,501	"
Organization Camping	555	"
Winter Sports	97,540	"
Hunting	5,392	"
Fishing	1,100	"
Hiking and Riding	400	"
Wilderness Travel	397	"
General Enjoyment and Sightseeing	10,346	"
Gathering Forest Products for pleasure	797	"
Scientific Study and Hobbies	100	"
Other Activities	3,207	"
TOTAL	141,342	visits

Winter sports are the most popular activities on Forest Service lands, Mt. Baker being a very popular snow skiing area. No visitation figures are available for the National Park which was established in 1968.

During 1964, the State's areas received a visitation of 1,830,778 people, or 79% of the total visitation to publicly-administered recreation areas within the basins. There are three State Parks in the area: Birch Bay, Larrabee, and Peace Arch. Birch Bay and Larrabee are located on the salt water shoreline.

TABLE 2-1. Summary of existing publicly-administered outdoor recreation resources, Nooksack-Sumas Basins

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq.Ft.)	Swim Beach (Acre)	Snow Skiing Lift	Tow	Total 1964 Visitation
Federal																	
Forest Service	203,277		4,481	198,796				93	39						3	10	141,342
Park Service	68,600					68,600											
Military Res.																	
Other Federal	35		35														
Total Federal	271,912		4,516	198,796		68,600		93	39						3	10	141,342
State																	
Dept. of Fish.	6		6														3,000
Dept. of Game	1,078		19	1,059						130	395	8					9,956
Dept. of Nat. Res.	81,130[1]		48	81,082				3		21				2			919,100
Parks & Rec. Com.	2,150		227	1,913			10	243	489	1,292	90	1		2			898,722
Total State	84,364		300	84,054			10	246	489	1,443	485	9		4			1,830,778
County	31		31						2	70		1		1			N.A.
City & Other Local	823	74	76	666	2		5		198	360	25	1	2,400	2			338,302
Total	357,130	74	4,923	283,516	2	68,600	15	339	728	1,873	510	11	2,400	7	3	10	2,310,422

[1] Does not include shorelands and tidelands

The acreage of and visitation to these areas is as follows:

State Park	Acres	Visitation 1956	1963	1966
Birch Bay	172	132,541	379,242	417,166
Larrabee	1,965	82,825	197,277	265,168
Peace Arch	13	105,370	271,220	383,990

There has been a three-fold increase in the visitation to these State Parks from 1956 to 1966.

Figure 2-1 shows the location of the existing publicly administered outdoor recreation sites and areas. Table 2-2 describes the individual sites.

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least ten private operators offer facilities for public use. These include:

Activity	No. of enterprises	Capacity at one time (people)
Rural Living	2	110
Tent Camping	4	438
Trailer Camping	5	494
Transient Camping	1	700
Picnicking	4	480
Golfing, 9 hole	1	72
Golfing, 18 hole	3	432
Golfing, Par-3	1	72
Fishing, fresh Water	6	245
Fishing, Salt Water	5	154
Horseback Riding	3	30
Pony Riding	3	27
Swimming	4	1,300
Boating	3	77
Snow Skiing	1	500

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the Nooksack-Sumas Basins, there are 234,199 acres of salt water, 7,094 acres of lakes and reservoirs, and many miles of rivers and streams. About 63 miles of the rivers are suitable for boating.

There are popular skin diving areas at Birch Bay and near Eliza Island.



PHOTO 2-2. Peace Arch State Park—Washington State Parks and Recreation Commission.

Potential Supply

In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation uses in Whatcom County. The appraisal disclosed that there is a high potential for developments related to vacation cabins, camping, picnicking, bicycling and motorcycling, golfing, sightseeing, vacation farm, water sports, and winter sports activities. The potential for improvements related to fishing, hunting, and riding was rated as medium.

The recreation development potential of the salt water shoreline south of Bellingham is limited due to steep topography and a railroad lying along the shore. North of Bellingham and on the islands just west, there are numerous potential areas including a potential State park on Eliza Island.

Although much of the suitable shoreline of Lake Whatcom is crowded with homesites, there is room for additional recreation sites to accommodate public needs. Lake Whatcom is a beautiful, large lake, with opportunity existing for a major park development on its west side. Recreation development and use will have to be compatible with the use of Lake Whatcom as a source of municipal water supply for Bellingham. In addition, there are several smaller lakes which could accommodate additional recreation use.

The Nooksack River and its adjacent lands constitute a significant resource with many sites suitable for recreation development. Numerous major and minor recreation developments are feasible throughout the Nooksack drainage. In addition, during summer low waters, extensive gravel bars and

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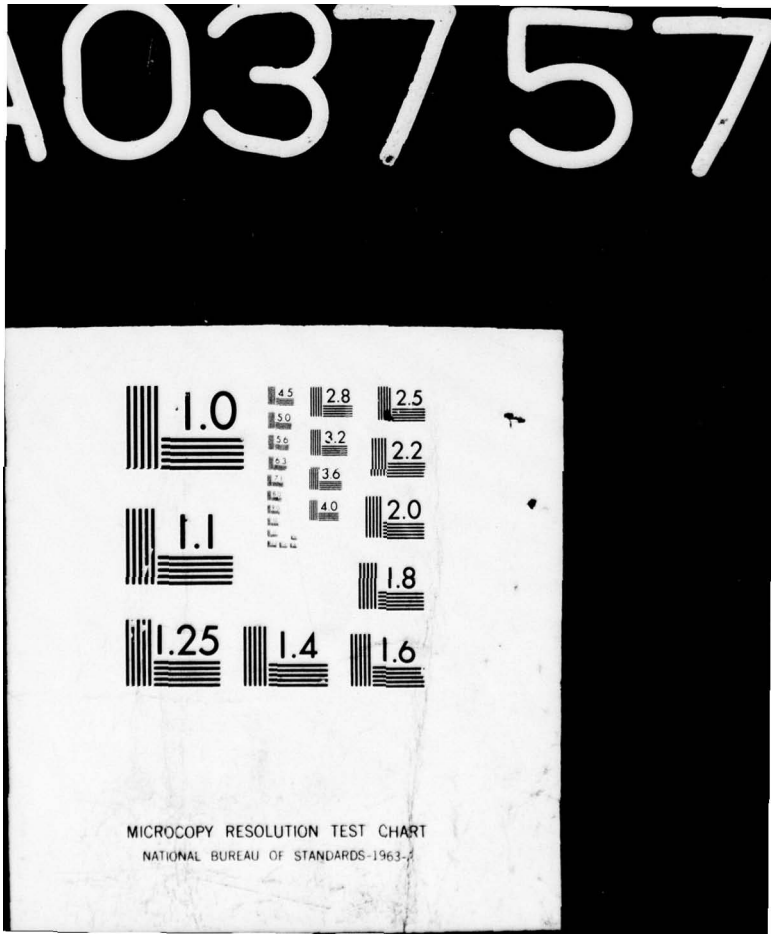

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TABLE 2-2. Existing recreation sites in the Nooksack-Sumas Basins.

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	Schriebers Meadow	2			
▲ 2	Douglas Fir	11	27	4	
▲ 3	Nooksack	6	16		
▲ 4	Bridge	3	9		
▲ 5	Excelsior	4	9		
△ 6	Lummi Island Recreation Area	35			
▲ 7	Silver Fir	10	26	5	
▲ 8	U.S. Cabin	1			Shelter
▲ 9	Bear Creek	1			"
▲ 10	Little Chilliwack	1			"
▲ 11	Indian Creek	1			"
▲ 12	Selesia Creek	1			"
▲ 13	Kulshan Cabin	2			"
▲ 14	Green Creek Trail	1			"
▲ 15	Ridley Creek Trail	1			"
△ 16	Hannegan Pass	1			
▲ 17	Hannegan Horse Camp	6	6		
△ 18	Austin Pass	15		30	
▲ 19	The Mountaineers	1			Organization Camp
▲ 20	The Firs Missionary and Bible Conference	4			"
▲ 21	Mt. Baker	405			Winter Sports Area
△ 22	Artist Point	1			Observation Point
△ 23	Panorama Dome	1			"
State					
□ 1	Fazon Lake	1			Boat Launching
□ 2	Silver Lake	1			"
□ 3	Terrell Lake	2			"
□ 4	Toad Lake	1			"
□ 5	Weiser Lake	1			"
□ 6	Whatcom Lake	3			"
□ 7	Bellingham State Game Fish Hatchery	6			
□ 8	Lake Whatcom State Game Fish Hatchery	4			
□ 9	Pheasant Habitat	80			Public Hunting
State (cont'd)					
□ 10	Pheasant Habitat	9			Public Hunting
□ 11	Pheasant Habitat	10			"
□ 12	Pheasant Habitat	10			"
□ 13	Pheasant Habitat	10			"
□ 14	Pheasant Habitat	13			"
□ 15	Lake Terrell Waterfowl Area	927			Public Hunting and Boat Launching
□ 16	Nooksack Salmon Hatchery	6			
□ 17	North Fork Nooksack River	20			
□ 18	Larrabe Mountain	80			
□ 19	Maple Creek	80			
□ 20	Birch Point	48			
□ 21	Hutchinson Creek	45			
■ 22	Lower Racehorse Creek	40	3		
□ 23	Lummi Island	42			Boat Landing Swimming Beach
□ 24	North Fork Nooksack River	90			
□ 25	Read Creek Ponds	40			
□ 26	Squalicum Hill	160			
■ 27	Birch Bay State Park	172	142	245	Swimming Beach
■ 28	Larrabee State Park	1,965	101	145	Boat Launching Swimming Beach
□ 29	Peace Arch State Park	13		99	
□ 30	Whatcom Lake	1			Boat Launching
County					
○ 1	Alderwood Bennett Hill	5			
○ 2	Birch Bay	10		70	
○ 3	Fish Point	5			
○ 4	Lake Whatcom	7			Boat Launching Swimming Beach
○ 5	Truax	4		2	
City					
⌓ 1-3	Lynden	272		40	Swimming Pool
⌓ 4-17	Bellingham	551		158	Boat Launching; Swimming Beach

*Site No. refers to map on opposite page.

brushy areas along the Nooksack River could be utilized for some forms of recreation.

The National Forest and National Park lands in the eastern portion and the State lands in the central portions are good sources of potential supply. The Forest Service reports 33 acres of campground and 19 acres of picnic areas are scheduled for development from 1964 to 1975. About 300 acres are planned for development from 1976 to the year 2000. An additional 440 acres are being held in reserve by the Forest Service to meet unforseen needs.

Some of the 81,000 acres of undeveloped Class III recreation lands administered by the State Department of Natural Resources are suitable for recreation development, expecially those areas adjacent to water bodies. The Department of Natural Resources plans to develop additional sites. The State Department of Game plans to acquire and develop 14 lake and 12 salt water fishing access areas plus shoreline easement along rivers as well as two waterfowl areas and three small game areas.

There are many suitable areas in private lands along the salt water shoreline, along the numerous rivers and streams, and adjacent to the lakes which could be developed for recreation purposes. Figure 2-4 identifies waterfront lands with possible recreation potential.

Of the 12,311 acres of land within the Lummi Indian Reservation, 4,764 are privately-owned non-Indian lands, 7,535 are allotted Indian lands, and 12 acres are owned by the Tribe. Some of the lands on the shores of Bellingham Bay and the strait of Georgia have high recreation values. Eventually, the owners may take advantage of their economic value by developing them for recreation use.

Special Interest Areas

Archeological and Historical Areas. There are two designated historic sites within the area—Memorial Park, administered by the Bellingham Board of Park Commissioners and Peace Arch State Park, administered by the State Parks and Recreation Commission.

The following is a breakdown of the archeological and historical resources into four periods: Indian; Exploration and Fur Trade; Settlement; and Post-Statehood.

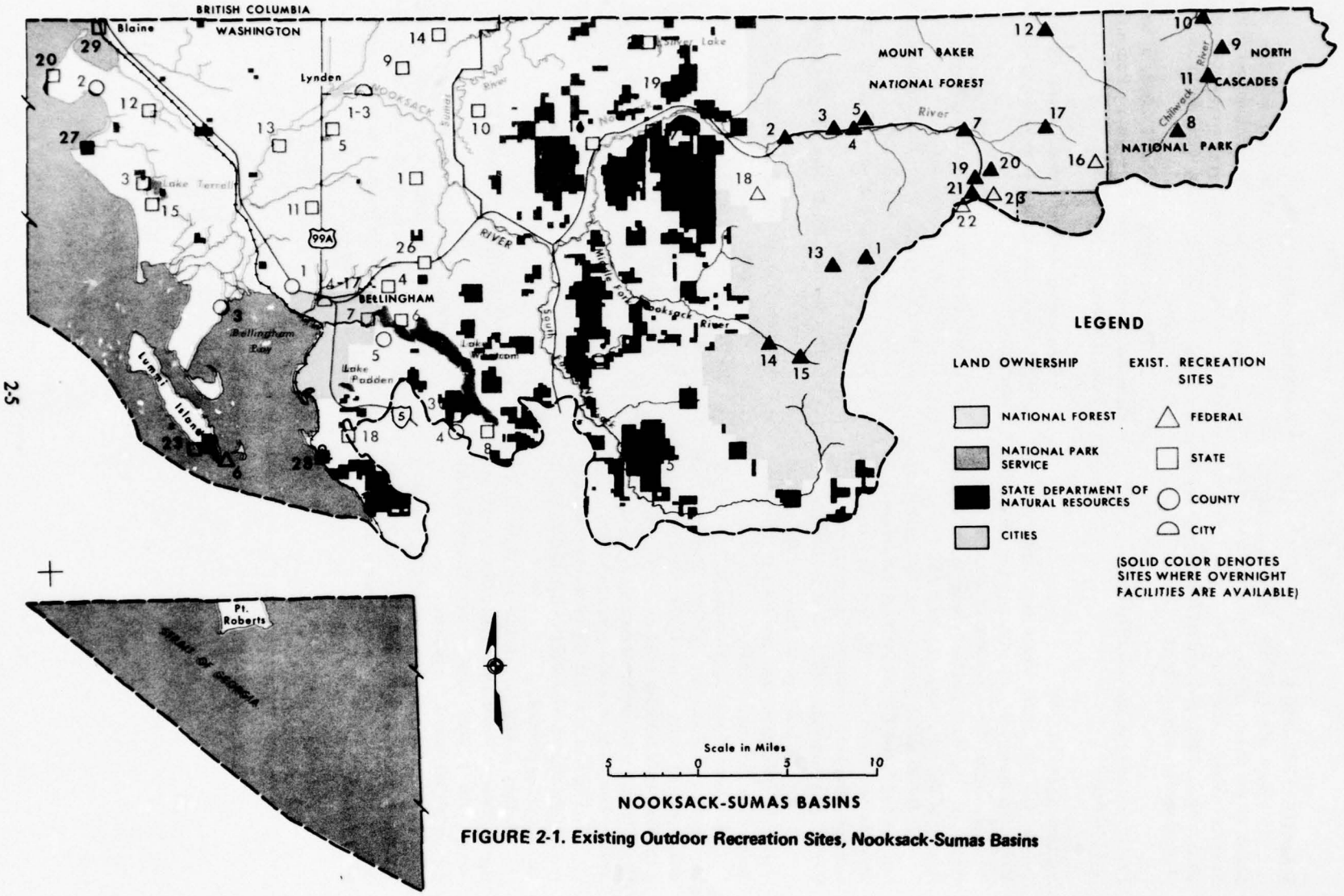


FIGURE 2-1. Existing Outdoor Recreation Sites, Nooksack-Sumas Basins

Indian (6000 B.C.-1850 A.D.)

1. Village sites have been recorded on Lummi Island, at the mouth of the Nooksack River, in the Nooksack Valley, and near the Sumas Mountains. Shell mounds, house pits, and artifacts may be found at these sites of ancient villages.

Exploration and Fur Trade (1592-1841)

None

Settlement (1842-1888)

1. On the beach about two miles east of Marietta is the site of old Fort Bellingham established in 1858 under the command of Captain George Pickett of "Pig War" and Gettysburg fame. Nothing remains of this fort, except the site itself.

2. On Bancroft Street, in the city of Bellingham, is the house Pickett built for his Indian wife while he was stationed at the fort. Unfortunately, this house has been "renovated" so many times that it bears little resemblance to the original dwelling.

3. A brick building standing near the railroad station in Bellingham was constructed during the Fraser River gold rush of 1858.

4. Traces of the old Whatcom Trail to the gold bars along the Fraser are marked. This trail also designates the route of the Collins Overland Telegraph line, built between 1864 and 1867, which was to be joined with similar lines running from New York to London by way of Alaska and Siberia.

5. The first saw mill site in northern Washington is at the edge of Whatcom Creek in Bellingham on the post office grounds.

6. Pioneer Park in Ferndale and Marietta Village are historic sites. Pioneer Park has several log and frame 19th century rural homes furnished with appropriate artifacts of the period.

7. The monument commemorating the 1846 Treaty of Washington which settled the boundary between the United States and Canada is located on Point Roberts.

Post-Statehood Period (1889-Present)

1. There are several wooden mansions and brick and stone business and civic buildings in the southern part of Bellingham. They were built during the boom of 1890-1893 when railroad construction was most active.

2. The Berthusen barn in Lynden, a well-preserved example of turn-of-the-century farm architecture, is located in a special park.

Outstanding Natural Areas. There are nine potential outstanding natural areas within the Basins, identified as follows:

1. Bellingham Bay marine area, southern limit of Bellingham Bay-10 acres.
2. Church Mountain Fossil Bed geological area (Sec. 35, T40N, R7E)-5 acres.
3. Pillar Cliff geological area (Sec. 32, T40W, R8E)-5 acres.
4. Mt. Shuksan scenic area (T39N, R9 and 10E)-3,750 acres.
5. Galena Falls geological area (Sec. 17, T39N, R9E)-5 acres.
6. Wells Creek Falls scenic area (Sec. 16, T39N, R8E)-25 acres.
7. Mt. Baker scenic area (T38N, R7 and 8E 4,000 acres.
8. Mt. Baker Glacial geological areas (T38N, R7 and 8E)-2,650 acres.
9. Nooksack Falls (Sec. 31, T40N, R8E.)-5 acres.

SUMMARY-PRESENT & POTENTIAL

The demand for outdoor recreation opportunities is increasing. The diverse recreation resources within the Nooksack-Sumas Basins will satisfy future needs if they are protected and properly developed for public enjoyment.

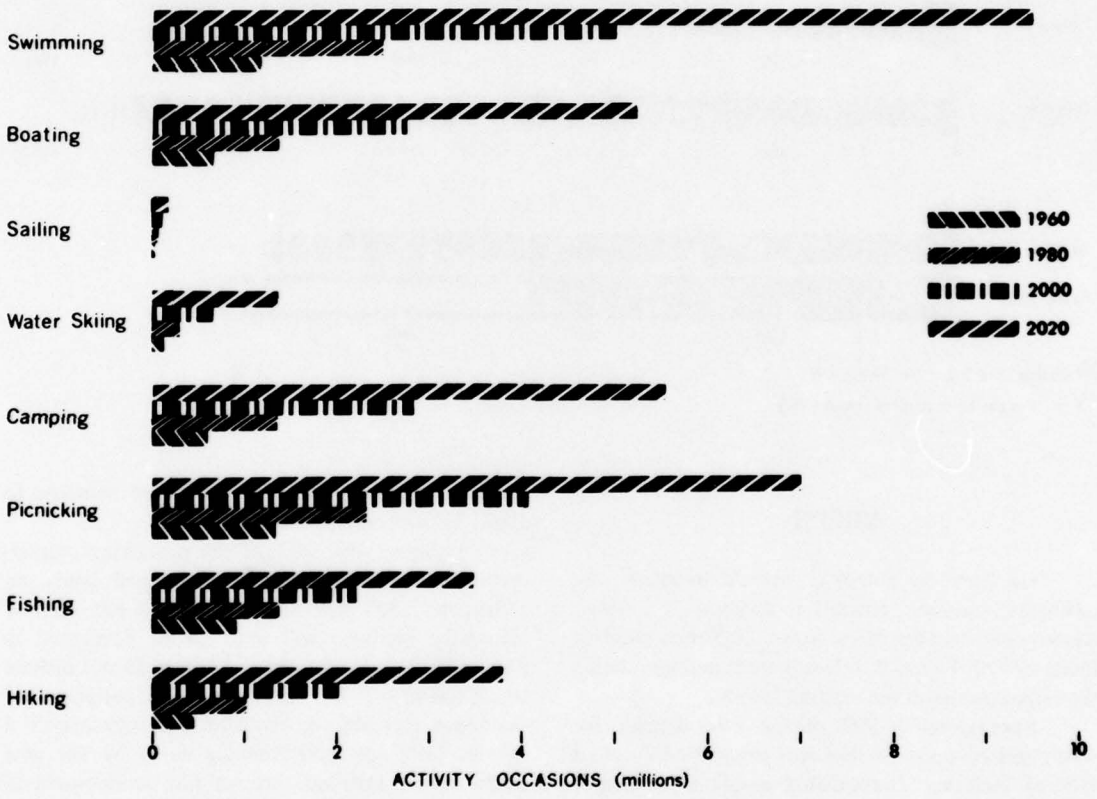
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Nooksack-Sumas Basins was estimated to be more than 12 million activity occasions during 1960. Forty-two percent of this demand was for water related activities. By the year 2020, there may be over a six-fold increase in recreation demand.

Figure 2-2 illustrates the estimated and projected recreation demand by water related activities.

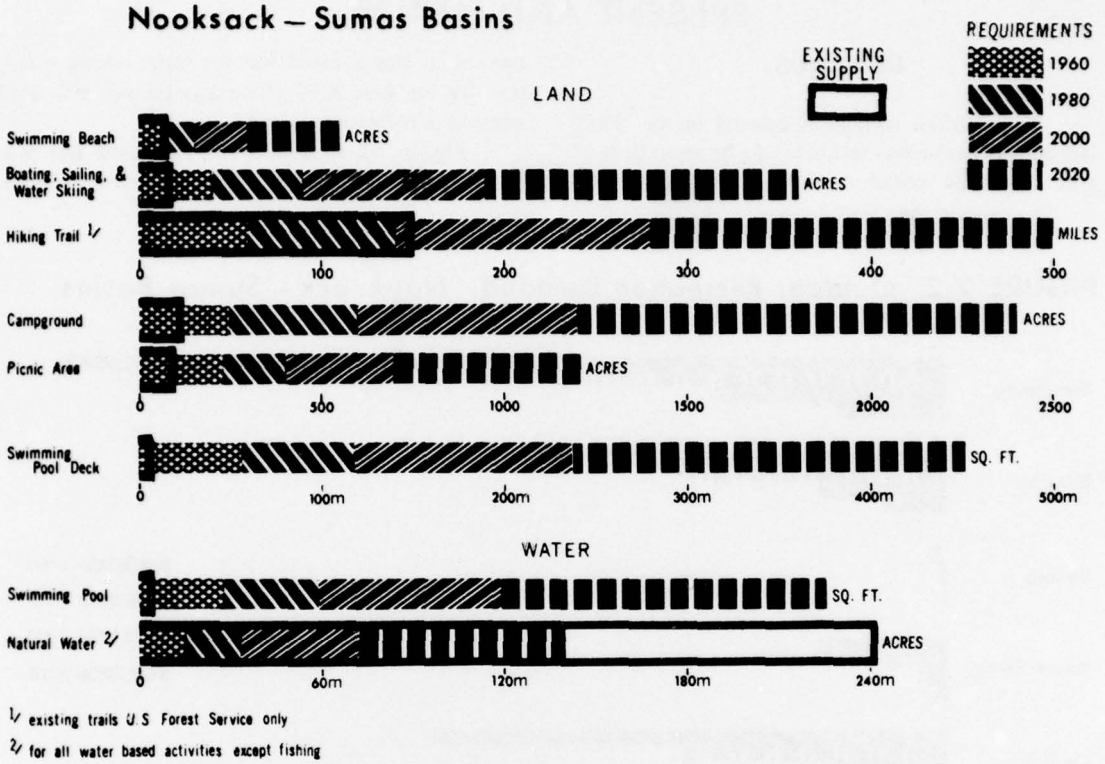
FIGURE 2-2. Outdoor Recreation Demand, Nooksack – Sumas Basins



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	2,100,000	2,900,000	5,000,000
1980	4,100,000	5,200,000	9,300,000
2000	7,800,000	9,300,000	17,100,000
2020	14,400,000	16,300,000	30,700,000

FIGURE 2-3. Outdoor Recreation Needs, Nooksack – Sumas Basins



NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Nooksack-Sumas Basins is illustrated on Figure 2-3. Needs are found by relating the requirements to the existing supply.

Approximately 30% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating, camping and picnicking demands. Beaches are of sufficient quantity to satisfy 1960 swimming demand only, and the supply of swimming pools is inadequate. Existing trails should handle hiking use until the year 1980. There are enough natural waters to satisfy all forseeable recreation requirements.

In addition to lands needed for boat launching facilities and parking, an additional 600 rental moorage spaces were needed to satisfy 1966 boating demands. For the year 2020, this need increases to about 3,100 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 2,300 acres of camping and 635 acres of picnicking facilities will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately one-third of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing public lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, harbors of refuge, recreation rivers, special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are needed to satisfy the recreation and environmental requirements of the people. Future revisions of Washington's statewide recreation plan will study and identify specific needs for the above purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 15% of all the water related recreation demands in the Nooksack-Sumas Basins would be satisfied at lakes, 30% at rivers and streams, 10% at swimming pools, and 45% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 20% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 25, 35 and 20% respectively.

SPECIFIC RECREATION PROBLEMS

Untreated wastes from the pulp, board, and paper mill in Bellingham are discharged directly into inner Bellingham Harbor and are dispersed in near-surface waters throughout Bellingham and Samish Bays. The high waste concentrations result in serious water quality degradation. In addition, the discharge of raw and partially treated domestic waste into Bellingham Harbor causes conditions hazardous to human health.

The rapid urban, residential, and industrial growth of the Bellingham area is causing conflicts in land use. Waterfront lands well-suited and needed for public recreation use are being developed for other purposes. This problem will become more serious in the future as desirable undeveloped waterfront lands become more in demand for a variety of uses.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

In 1964, there were 75 publicly-administered developed recreation sites within the Nooksack-Sumas Basins. Some of the existing facilities need to be rehabilitated, and additional developments should be provided on many existing areas.

In addition to the developed sites, there are approximately 284,000 acres of publicly-administered undeveloped Class III general recreation lands. Some of these lands, expecially those with water access, could be developed for water related recreation activities. The long range programs of management agencies include plans for the development of needed recreation sites.

State tide and shorelands administered by the Department of Natural Resources are in the following locations:

1. Fresh water shorelands
   a. Nooksack River
   b. North Fork Nooksack River
   c. Middle Fork Nooksack River
   d. South Fork Nooksack River
   e. Lake Whatcom, southern two-thirds
2. Salt water tidelands
   a. Two stretches along Gooseberry Point
   b. Three sections of Lummi Island
   c. Several locations along the Strait of Georgia

Tide and shorelands have significant potential for the satisfaction of recreation demands. During the lower summertime flows, the gravel bars and brushy areas along the rivers can be used for activities such as hiking, picnicking and camping. The saltwater tidelands are also valuable for beach activities. Adequate access to these areas is needed to promote their use by the public. Retention of State-owned tide and shorelands in public ownership in a clean and sanitary condition is necessary.

Aquisition and Development of New Areas

Areas on Existing Waters. Most of the existing recreation lands are in the mountainous eastern portion of the Nooksack Basin. With the exception of the State shore and tidelands, those public lands in the central portion which are suitable for water related recreation development are mostly on minor streams. Additional recreation areas should be acquired and developed by public or commercial interests on the major rivers and on the waters in the central and western portion of the Nooksack Basin. As the Bellingham and other urban areas expand, efforts need to be made to provide for adequate recreation areas and open space within and near the urban areas.

Figure 2-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly other areas not identified which would be suitable for recreation development. Areas in National Forest and National Park lands are not indicated on

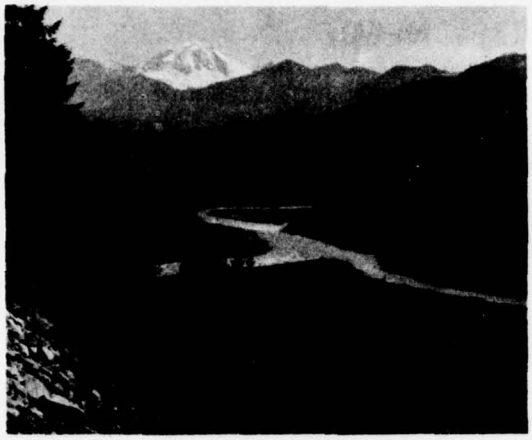


PHOTO 2-3. Nooksack River and Mt. Baker—U.S. Bureau of Outdoor Recreation Photo.

the map since potential sites on these lands have been inventoried by the respective agencies.

In addition to the acquisition and development of recreation lands, waterfront scenic-access easements need to be established along both sides of the Nooksack River and its forks, along portions of the shoreline of Lake Whatcom, and along portions of the salt water shoreline. Easements should also be acquired along lesser rivers and streams within urban areas and areas destined to be developed for residential purposes. Where possible, easements should be tied in with the tide and shorelands owned by the State. Trails are needed within the riverside easements to accommodate hikers, horseback riders, cyclists, and fishermen. Further studies need to be conducted to identify waterfront strips suitable for protection as scenic-access easements.

To satisfy recreation objectives, the natural flood plains along the Nooksack River and its North, Middle, and South Forks should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

The railway tracks along the salt water shoreline from Bellingham south and along the entire eastern shore of Lake Whatcom restrict public use. The possibility of providing safe public use easements adjacent to the tracks needs to be explored. If these railway routes are ever abandoned, public agencies could develop recreation ways along the rights-of-way.

In planning for additional areas, there is a need to explore the feasibility of establishing international parks on the salt water shoreline and in the Cascades.

Future Water Developments. Existing waters will satisfy water-based recreation demands until the year 2020. An exception is in urban areas where additional swimming pools are needed.

Although there is little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists and the reservoir area itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas.

Numerous archeological, historical, outstanding natural and underwater marine areas have been identified. The effects of proposed water resource as well as other projects upon these irreplaceable attractions require special consideration. The more significant and interesting features should be classified, protected, and properly developed for public enjoyment and scientific purposes.

Further archeological surveys are needed on Birch Bay, at the sites recorded by Emmons in the Nooksack Valley, and along the inland reaches of the Nooksack River. The latter may be of considerable significance owing to its aboriginal connections with the Chilliwack and Fraser Rivers.

The North Cascades are a unique resource of nationwide significance. Large portions of this area are administered with recreation and wilderness as the primary management objectives.

Recreation Rivers

Certain rivers or portions thereof in the Nooksack Basin have high value in satisfying recreation objectives, and the retention of suitable rivers or river segments in a natural state is worthy of consideration.

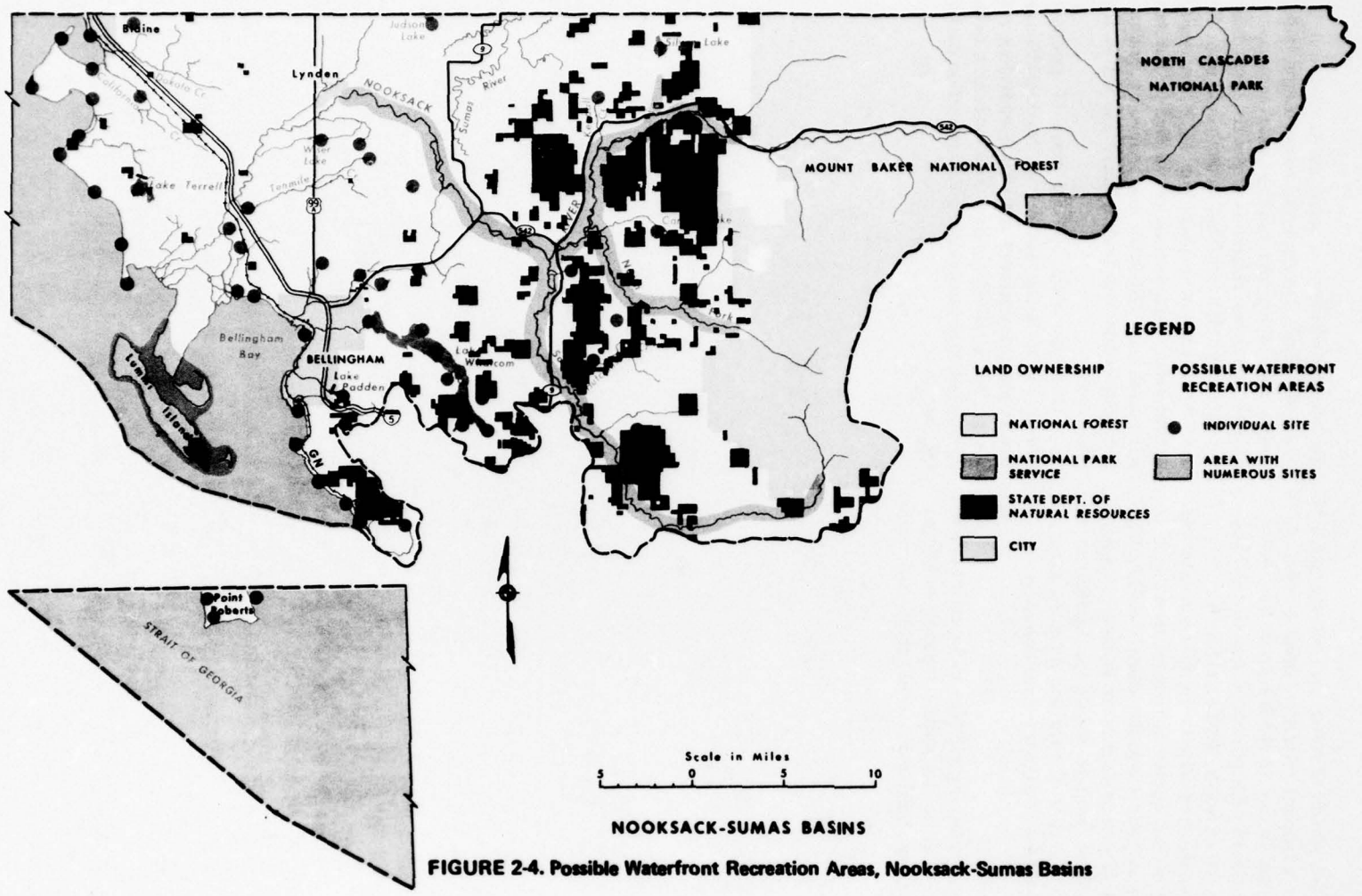


FIGURE 2-4. Possible Waterfront Recreation Areas, Nooksack-Sumas Basins

A State system of recreation rivers is suggested to protect important recreation rivers or river segments for public use. In the Nooksack Basin, rivers which may quality for protection include the Nooksack River and its North, Middle and South Forks.

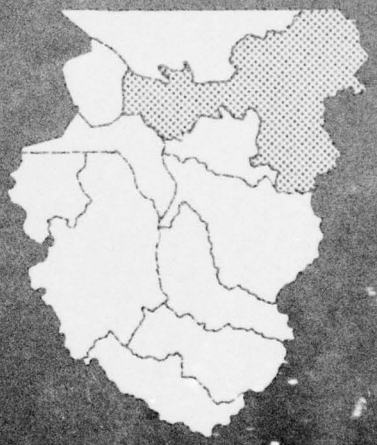
Water resource projects which would adversely affect the natural quality of rivers or river segments designated as State recreation rivers should not be developed. If alternative sites are available, necessary water resource projects should be located above designated stretches of river and operated so as to provide optimum flows to the recreation rivers.

Private Sector

Private enterprise will play an important role in providing facilities to satisfy outdoor recreation demands. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Resorts, organization camps, trailer camps, and fishing and hunting areas will accommodate significant recreation demands throughout the Basins; privately operated winter sports areas are and will become increasingly popular in the mountainous areas; boat marinas are needed on the salt water and Lake Whatcom; and swimming, golfing, and tennis clubs will receive heavy use within the urban areas.

There are over 260,000 acres of privately owned forest lands within the Nooksack-Sumas Basins, plus many acres of agricultural lands along the rivers. The owners of some of these lands need to be encouraged to accommodate public recreation use on their areas.

Skagit-Samish Basins



SKAGIT — SAMISH BASINS

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

The Skagit Basin's western boundary includes a portion of Puget Sound; the crest of the Cascade Mountains forms the eastern boundary. The Samish River is within a small basin adjacent to the western end of the much larger Skagit River drainage.

The Basins contain an area of 3,184 square miles, including the Skagit River and its tributaries, the Samish River, ten offshore islands, and 158 square miles of salt water.

The Skagit River is the largest river in the Puget Sound Study Area and the most significant for recreation. Its principal tributaries are the Sauk, Suiattle and Baker Rivers. The upper reaches of the Basin are mountainous with deep valleys and turbulent streams. Below the town of Concrete the valley widens and emerges into a broad 68,000 acre delta.

About 90% of the land area is classified as *woodland.*

Population and Economy

In 1963, the population was about 54,000 with 44% residing in urban areas. Potential exists for considerable population growth. The projected population for 1980, 2000 and 2020 is 64,000, 87,000 and 118,000 respectively. Principal urban areas and their 1966 populations are Anacortes, 8,630; Mount Vernon, 8,375; Sedro Woolley, 3,850; and Burlington, 2,924.

Forest products, agriculture, and oil refineries are the principal industries.

Seattle and Vancouver, B.C. are the cities which contribute the most in recreational visitation to the Basins.

Access

The area is accessible by Interstate 5, the main north-south route through Western Washington. State Highway 20 bisects Interstate 5 a few miles above Mount Vernon and follows the Skagit River up to the Ross Lake Dam where it is now under construction. When completed, the highway will allow travelers to enter the Skagit Basin from Eastern Washington from the Methow Valley region near Winthrop. The Basins are readily accessible from the west by water.

Airports provide air access to the central and western portions. Forest Service roads and trails provide access into the mountainous eastern reaches.

Climate

The wide ranges in elevation throughout the Skagit River Basin, varying from mean sea level to 10,000 feet, result in marked differences in temperature and precipitation. Extremes in temperature recorded in or near the Basin have reached a maximum of 109°F at Newhalem and a minimum of -14°F at Darrington Ranger Station and at Mount Baker Lodge.

About 75% of the precipitation falls during the period of October through March. Heavy winter snows occur in the higher elevations and remain until late spring or early summer. The average snowfall is 530" at Mount Baker Lodge and 5.9" at Anacortes.

The total annual precipitation varies from 108" at Mount Baker Lodge to 26" at Anacortes and averages 45" annually at Sedro Woolley.

The drier late spring, summer, and early fall months are favored by most recreationists; however, winter snows are a resource for the skiing enthusiast.

Land Ownership

About 70% of the land area is administered by the Federal Government and 5% by the State. The Federal lands are within the eastern one-half of the Skagit Basin. The State lands are scattered throughout the central and western portions. The remaining lands are mostly within private ownership. Figure 3-1 designates major public ownerships.

Recreation Features

The area has long been famous for its mountains, wilderness, streams, lakes, salt water, islands, and shorelands. The Skagit River is well known for its natural beauty; and tremendous salmon and steelhead

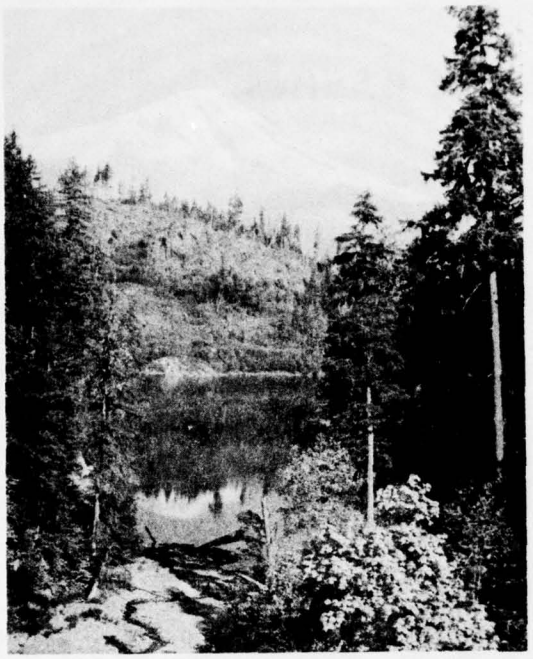


PHOTO 3-1. Mt. Baker and Baker Lake—U.S. Bureau of Outdoor Recreation Photo.

runs and the man-made Baker, Diablo, and Ross Lakes are popular recreation attractions. Deception Pass, separating these Basins from Whidbey Island, is one of the major "beauty spots" within the Puget Sound Study Area. The North Cascades are a recreation and scenic attraction of national significance.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 124 publicly-administered outdoor recreation sites within the Basins. Seventy-eight are administered by the National Park Service and Forest Service, 34 by the State, and 12 by the cities. Of the 1,487,345 acres classified as being available for public visitation, 900,888 acres are within the Mt. Baker National Forest and 483,000 acres are under Park Service administration. The two Park Service areas, the North Cascades National Park and the Ross Lake National Recreation Area, were established in 1968.

About 350,000 acres of National Forest lands are within the Pasayten Wilderness and the Glacier Peak Wilderness. During 1964, the Forest Service reported the following breakdown of visitation by primary purpose of visit:

Camping	24,545 visits
Picnicking	7,205 visits
Swimming	300 visits
Winter sports	50 visits
Hunting	17,463 visits
Fishing	31,613 visits
Hiking and Riding	9,212 visits
Canoeing	100 visits
Organization Camping	686 visits
Wilderness Travel	2,303 visits
General Enjoyment and Sightseeing	61,857 visits
Gathering Forest Products for Pleasure	2,401 visits
Scientific Study and Hobbies	750 visits
Motor Vehicle Trail Travel	227 visits
Other Activities	1,020 visits
Total	159,732 visits

During 1964, the State areas received 1,124,817 of the 1,435,524 visits reported on publicly-administered areas. These mostly occurred on lands managed by the Department of Natural Resources. There are five State Park areas in the Basins with the following acreage and visitation:

State Park	Acres	Visitation 1963	Visitation 1966
Bay View State Park	24	109,919	59,160
Donovan State Park	2	3,975	9,482
Heart Lake Recreation Area	127	Unknown	Unknown
Northwest Island Marine Park	1	Unknown	Unknown
Rockport Recreation Area	447	8,562	13,364

The reason for the rather striking decrease in visitation to Bay View State Park is not known; however, there was a significant increase in visitation to the other areas for which records were kept.

At Diablo Lake in the northeastern part of the Skagit Basin, the Seattle Department of Lighting offers tours of its dam and power plant and a boat

trip up Diablo Lake to the Ross Dam power plant. About 25,000 people enjoy these tours annually.

Figure 3-1 shows the location of the existing publicly-administered outdoor recreation sites and areas. Table 3-2 describes the individual sites.

The following table summarizes the existing supply by administering agency:

TABLE 3-1. Summary of existing publicly administered outdoor recreation resources, Skagit-Samish Basins

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l.	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Total 1964 Visitation
Federal															
Forest Service	900,888		27	551,809	120	348,932		249	60			7		1	159,732
Park Service	483,000		3,750	156,100	139,600	183,500	50	121	9						NA
Military Res.															
Other Federal															
Total Federal	1,383,888		3,777	707,909	139,720	532,432	50	370	69			7		1	159,732
State															
Dept. of Fish	56		20	36											14,000
Dept. of Game	12,817		58	12,759						401	841	16		3	56,612
Dept. of Nat. Res.	88,730[1]			88,730											922,090
Parks & Rec. Com.	601		464	137				130	91	85				1	129,115
Total State	102,204		542	101,662				130	91	486	841	16		4	1,124,817
County															
City & Other Local	1,253	237	323	223	4	466		42	90	86	208	2		2	150,975
Total	1,487,345	237	4,642	809,794	139,724	532,898	50	542	250	572	1,049	25		7	1,435,524

[1] Does not include tidelands and shorelands.

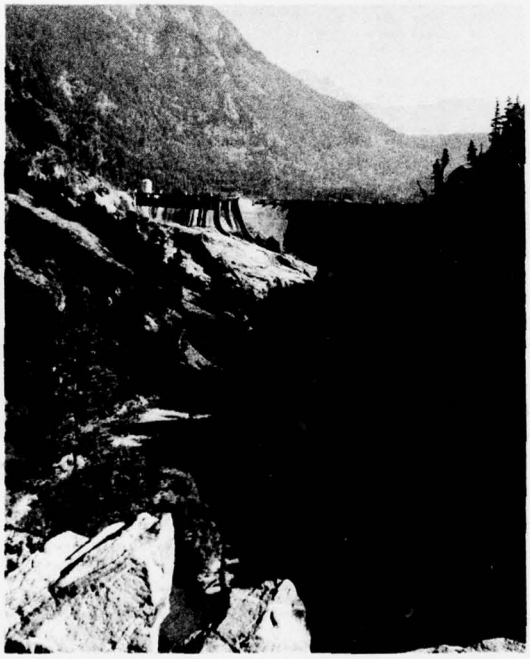


PHOTO 3-2. Diablo Dam—U.S. Bureau of Outdoor Recreation Photo.

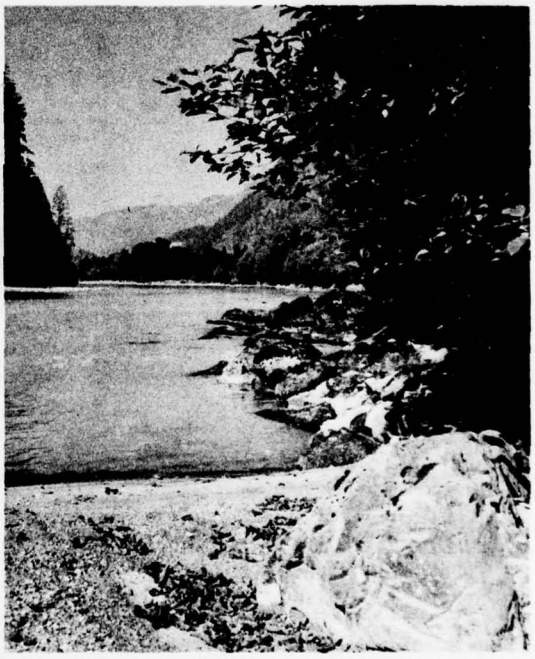


PHOTO 3-3. Sauk River—U.S. Bureau of Outdoor Recreation Photo.

TABLE 3-2. Existing recreation sites in the Skagit-Samish Basins

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	Morovitz	3	2		
▲ 2	Baker Lake	7	14	2	Boat Launching
▲ 3	Boulder Creek	3	5	1	
▲ 4	Maple Grove	3	6		
▲ 5	Horseshoe Cove	17	27	11	Boat Launching Swimming Beach
▲ 6	Park Creek	6	12		
▲ 7	Sulphide Creek	1			Shelter
△ 8	Lower Park Creek	1		2	
▲ 9	Baker Lake Resort	19			Boat Launching
▲ 10	Clear Creek	4	9	5	
▲ 11	Hyakchuck	3	2		
▲ 12	Whitechuck	4	11		
▲ 13	Crystal Creek	1			Minimum Developed Campground
▲ 14	Bedal	6	18	5	
▲ 15	Sloan Creek	3	7		
▲ 16	Chokwich	4	12	1	
▲ 17	South Fork	2	8		
▲ 18	Twin Peaks	1	4		
▲ 19	Tyee Pool	1	2		
▲ 20	Kennedy Creek	14	4		
▲ 21	Owl Creek	1			Minimum Developed Campground
▲ 22	Rainy Camp	1			"
▲ 23	Red Creek	1			"
▲ 24	White Mountain	1			"
▲ 25	Curry Gap	1			"
▲ 26	Sitkum Creek	1			"
▲ 27	Meadow Mountain	3			"
▲ 28	Fire Chief	2			"
▲ 29	Lake Byrne	2			"
▲ 30	Goat Lake	3			"
▲ 31	Buck Creek	17	44	19	
▲ 32	Downey Creek	3	11		
▲ 33	Sulphur Creek	3	15		
▲ 34	River Bar	1	3		
▲ 35	White Pass	3			Shelter
▲ 36	Reflection Pond	2			Minimum Developed Campground
▲ 37	Blue Lake	3			"
▲ 38	Canyon Creek	1			Shelter
▲ 39	Eight Mile	1			Minimum Developed Campground
▲ 40	Image Lake	4			Shelter
▲ 41	*Image Horse Camp*	2			Minimum Developed Campground
▲ 42	Lady Camp	4			"
▲ 43	Mowich	2	3		
▲ 44	Monte Cristo	2	3	5	
▲ 45	Coal Lake	2	2	1	
▲ 46	Twin Bridges	1	1	3	
▲ 47	Lake Kelcema	4			Minimum Developed Campground
▲ 48	Marble Creek	40	27	6	
▲ 49	Bacon Creek	2	6		
▲ 50	Goodell Creek	4	10	3	
▲ 51	*Hozomeen*	6	12		Boat Launching
▲ 52	Roland Point	1	2		
▲ 53	Rainbow Point	1	4		
▲ 54	Colonial Creek	28	39		
▲ 55	Lightning Creek	2	6		
▲ 56	Cat Island	3	7		
▲ 57	Little Beaver Creek	1	7		
▲ 58	Big Beaver	6	7		
▲ 59	Mineral Creek	7	18	5	
▲ 60	Perry Creek	1			Minimum Developed Campground
▲ 61	Twin Rocks	1			"
▲ 62	*Still Well*	1			Shelter
▲ 63	Beaver Pass	1			Minimum Developed Campground
Federal (cont'd)					
▲ 64	10 Mile	1			Minimum Developed Campground
▲ 65	Devil's Park	1			"
▲ 66	Devil's Pass	1			Shelter
▲ 67	Bear Skull	1			"
▲ 68	Little Fish	1			"
▲ 69	Elbow Basin	1			Minimum Developed Campground
▲ 70	Stranberg	1			Shelter
▲ 71	Deer Lick	1			"
▲ 72	Middle Cabin	1			"
▲ 73	Meadow	1			Minimum Developed Campground
▲ 74	Rock Cabin	1			Shelter
▲ 75	Cascade Pass	3			Minimum Developed Campground
▲ 76	Diablo Lake Resort	5			Resort
▲ 77	Ross Lake Resort	1			"
▲ 78	Colonial Creek	5			Boat Launching Minimum Developed Campground
State					
□ 1	Samish Salmon Hatchery	8			
□ 2	Skagit River Salmon Hatchery	48			
□ 3	Beaver Lake	1			Boat Launching
□ 4	Big Lake	1			"
□ 5	Cain Lake	1			"
□ 6	Campbell Lake	3			"
□ 7	Clear Lake	1			"
□ 8	Erie Lake	1			"
□ 9	Ketchum	1			"
□ 10	McMurray Lake	1			"
□ 11	Samish Lake	1			"
□ 12	Sixteen Lake	1			"
□ 13	Volger Lake	1			"
□ 14	Skagit River	2			Public Fishing
□ 15	Skagit River	1			Boat Launching Swimming Beach
□ 16	Skagit River	3			Public Fishing
□ 17	Skagit River	2			Boat Launching Swimming Beach
□ 18	Skagit River	2			Boat Launching
□ 19	Skagit River	3			"
□ 20	Barnaby Slough	519			Steelhead Rearing Pond
□ 21	Birds View State Game Fish Hatchery	30			
□ 22	Pheasant Habitat	8			Public Hunting
□ 23	Pheasant Habitat	10			"
□ 24	Pheasant Habitat	10			"
□ 25	Pheasant Habitat	10			"
□ 26	Pheasant Habitat	10			"
□ 27	Skagit Waterfowl Area	12,192			Boat Launching
□ 28	South Skagit	173			
□ 29	Heart Lake Camp	35			
■ 30	Bay View State Park	24	110	59	Swimming Beach
□ 31	Donovan State Park	2		10	
□ 32	Heart Lake Recreation Area	127			
□ 33	Northwest Island Marine Park	1			
■ 34	Rockport Recreation Area	447	20	22	
City					
⌂ 1-7	Anacortes	717	42	38	Boat Launching Swimming Beach
⌂ 8	Burlington	8		12	
⌂ 9-11	Mt. Vernon	516		40	Boat Launching
⌂ 12	Fidalgo Playground	12			

*Site No. refers to map on opposite page.

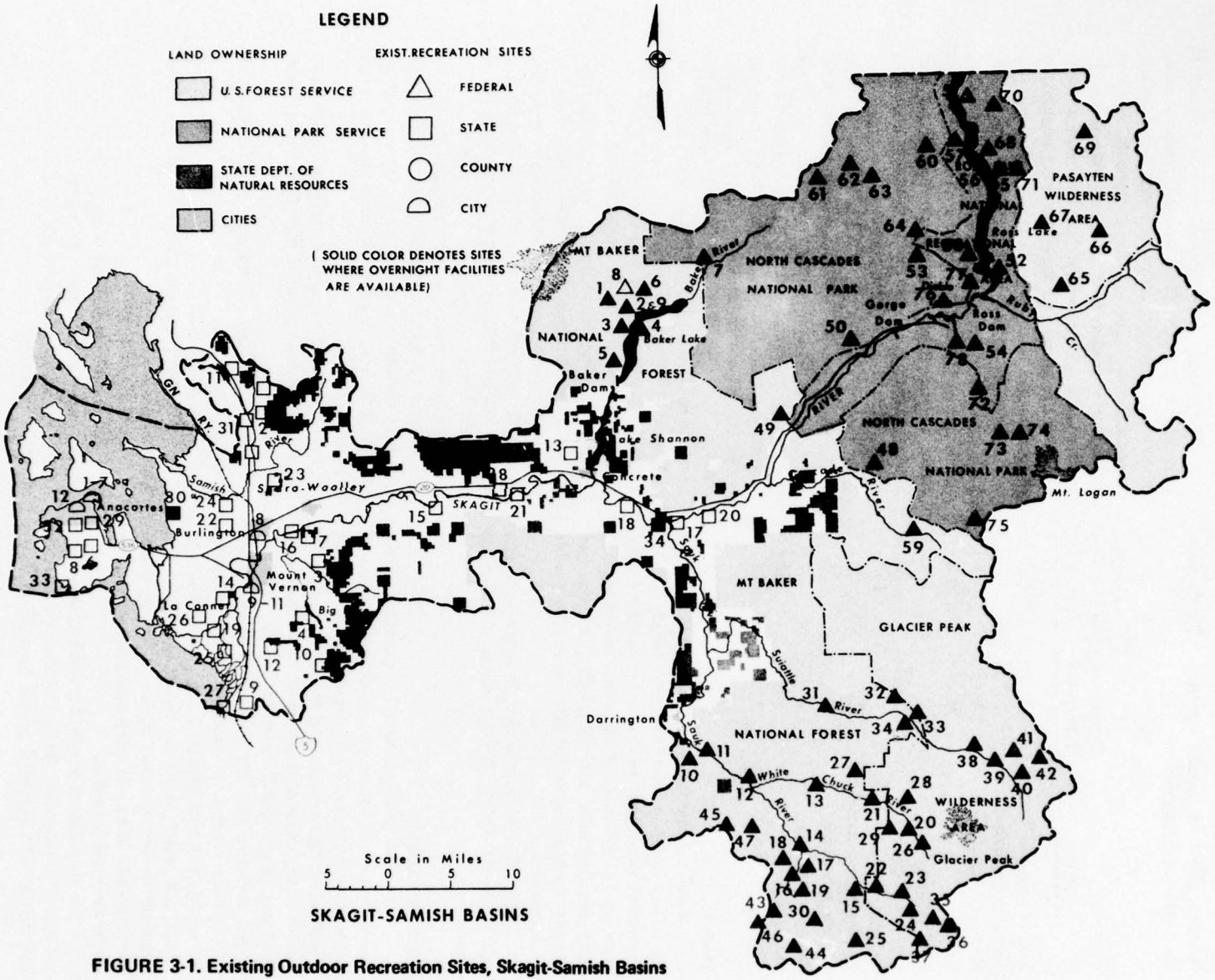


FIGURE 3-1. Existing Outdoor Recreation Sites, Skagit-Samish Basins

Existing Privately-Administered Areas

In addition to areas administered by public agencies, about 16 private operators offer facilities for public use. These include:

Activity	Number of Enterprises	Capacity at One Time (People)
Rural Living	2	120
Scenic Enjoyment	2	40
Nature Observation	4	410
Hiking	4	160
Tent Camping	1	140
Trailer Camping	2	70
Golfing, 18-Hole	1	144
Fishing, lakes and rivers	2	70
Fishing, salt water	2	56
Horseback Riding	2	22
Swimming	5	360
Hunting	2	75

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the Skagit-Samish Basins, there are 101,395 acres of salt water, 25,946 acres of lakes and reservoirs, and many miles of rivers and streams. Approximately 120 miles of river are useable for boating.

There are four popular skin diving areas-Rosario Beach, Sunset Beach, Fidalgo Head and Guemes Head.

Potential Supply

There is a great potential for recreation development along the salt water shoreline, the miles of rivers and streams, and on the lakes. In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation use in Whatcom, Skagit and Snohomish Counties. The appraisal indicates that there is a high potential for development related to vacation cabins, camping, picnicking, motorcycling, golf, sightseeing, vacation farms, and water sports in the Skagit Basin. The potential for improvements related to fishing, waterfowl hunting, riding, shooting preserves, and winter sports was rated as medium.

The shorelines of Similk Bay and Fidalgo Island are suited for recreation developments as are many of the islands. The potential of the land adjacent to Skagit, Padilla and Samish Bays for recreation sites is limited due to extensive tidal flats and marshy areas.

The Skagit, Sauk, and Suiattle Rivers are a tremendous resource. Their shoreline could accommodate an elaborate system of major and minor recreation areas. The tree-lined channels of these rivers provide boaters with rewarding experiences. In addition, during the summertime low waters, there are extensive gravel bars along the rivers available to recreationists.

There are several lakes throughout the Skagit Basin suitable to accommodate additional recreation developments. The most notable are Diablo and Ross Lakes in the Basin's eastern portion, Baker and Shannon Lakes in the central portion, plus numerous smaller lakes in the western portion.

The National Forest and Park Service lands in the eastern one-half of the Skagit Basin and the State lands in the central portion are very important sources of potential supply. The Forest Service reports that 160 acres of campground and 55 acres of picnic ground are scheduled for development from 1964 to 1975. More than 800 acres are planned for development from 1976 to the year 2000. An additional 400 acres are being held in reserve by the Forest Service to meet unforseen needs.

Some of the more than 88,000 acres of undeveloped Class III recreation lands administered by the State Department of Natural Resources are suitable for recreation site development, especially those areas adjacent to bodies of water. The Department of Natural Resources plans to develop many of its potential sites.

The State Department of Game plans to acquire and develop 15 lake and 6 salt water fishing access sites plus shoreline easements along rivers as well as one big game area, 3 waterfowl areas, and one small game area.

The State Parks and Recreation Commission has identified four possible state park areas. These include:

1. Saddle Bag Island-near southern tip of Guemes Island
2. Cypress Island
3. Young Island-on Burrow's Bay south of Anacortes
4. Cascade River.

There are many other areas on private lands suitable for development for recreation purposes. Figure 3-4 indicates waterfront lands with possible recreation potential.

Special Interest Areas

Archeological and Historical Areas. The following is a breakdown of the archeological and historical resource into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.-1850 A.D.)

The Skagit constitutes the largest river, as well as the major focus of aboriginal habitation of the mainland between the Fraser and Columbia Rivers. Fifty-seven shell mound sites have been recorded: (1) on or near the present delta margin, (2) inland on dry slough courses or earlier delta margins, (3) on the flanks of uplands formed of glacial deposits.

On the Swinomish Indian Reservation are the remains of a tribal long house. It was in existence before January 1855, when Governor Isaac Stevens visited the site.

There is an Indian cemetery on the Suiattle River just within the boundary of the Mt. Baker National Forest. The site is still occasionally used for burial purposes.

Exploration and Fur Trade (1592-1841)

During June 1792, Vancouver spent five days at Strawberry Bay on Cypress Island where his crew brewed spruce beer to ward off scurvy, filled water casks, and fished. He thought the juniper trees on the island were cypress and named the island accordingly. No signs of their encampment remain.

Settlement (1842-1888)

1. The town of La Conner, founded in 1867, a few miles southeast of Anacortes on the Swinomish Slough is one of the oldest towns in this area. Historic features include numerous old buildings including the old City Hall and those within the picturesque shopping center.

2. Farther east of La Conner in the upper Skagit Valley are the visible remains of a gold rush to Ruby Creek in the 1870's. Although most of these areas are flooded by hydroelectric dams, parts of the old Cascade Wagon Road built in 1895 are visible.

3. The remains of Monte Cristo, a ghost town of the Rockerfeller-backed mining speculation in the late 1880's, are in the mountains east of Everett. The site is being developed into a privately operated recreation enterprise.

Post-Statehood (1889-Present)

In Anacortes are several business structures dating back to the business boom and crash of the 1890's. In addition, many charming old houses may be seen.

Outstanding Natural Areas. There are four existing outstanding natural areas in the Skagit Basin. These include:

1. Little Mountain Park in Mt. Vernon-4 acres.
2. Baker Hot Springs Geological Area (Sec. 30, T38N, R9E)-1 acre.
3. Rainbow Falls Scenic area (Sec. 19, T38N, R9E)-20 acres.
4. North Fork Falls Scenic Area (Sec. 10, T30N, R11E)-5 acres.

In addition, 22 areas have been identified as potential outstanding natural areas. These include:

1. The South Fork Skagit River delta-2,000 acres.
2. Skagit Scenic River-the Skagit River near the town of Sedro Woolley upstream to the Gorge powerhouse near the town of Newhalem; the Cascade River from its mouth to the junction with its north and south forks and up the South Fork to the boundary of the Glacier Peak Wilderness; the Suiattle River from its mouth to the Glacier Peak Wilderness boundary at Milk Creek; the Sauk River from its mouth to the junction with the North Fork of the Suak to the Glacier Peak Wilderness boundary-acres unknown.
3. Cypress Island-5,210 acres.
4. Mt. Shuksan scenic area (T38 and 39N, R9 and 10E)-4,250 acres.
5. Mt. Baker scenic area (T38N, R7 and 8E)-6,500 acres.
6. Mt. Baker glacial geological areas (T38N, R7 and 8E)-1,000 acres.
7. Big Tree scenic area No. 1 (Sec. 25, T37N, R8E)-5 acres.
8. Sulphur Creek Lava Flow geological area (T37N, R8E)-6,000 acres.
9. Schriebers Meadow Cinder Cone geological area (Sec. 18, T37N, R8E)-140 acres.
10. Dillard Point scenic area (Sec. 22, T37N, R8E)-5 acres.
11. Spawning Beds scenic area (Sec. 25, T38N, R9E)-1 acre.
12. Baker River scenic area (T37N, R9E)-6,000 acres.
13. Sulphur Hot Springs Geological area (Sec. 19, T32N, R14E)-1 acre.
14. Kennedy Hot Springs geological area (Sec. 1, T30N, R13E)-1 acre.

15. Meadow Mountain geological area (Sec. 13, T31N, R11E)-1 acre.

16. Monte Cristo scenic area (T29N, R11E)-3,600 acres.

17. Mineral Springs geological area (Sec. 29, T30N, R12E)-3 acres.

18. Sloan Creek Tree Grove scenic area (Sec. 29, T30N, R12E)-40 acres.

19. Garnet Creek geological area (Sec. 20, T30N, R12E)-5 acres.

20. Lost Creek geological area (Sec. 18, T30N, R12E)-1 acre.

21. White Chuck Goat scenic area (Sec. 8 and 9, T31N, R11E)-300 acres.

22. White Creek Cliff scenic area (Sec. 21, T34N, R10E)-4 acres.

SUMMARY-PRESENT & POTENTIAL

The demand for outdoor recreation opportunities is increasing. The diverse and abundant recreation resources within the Skagit-Samish Basins will satisfy future needs providing they are protected and properly developed for public enjoyment.

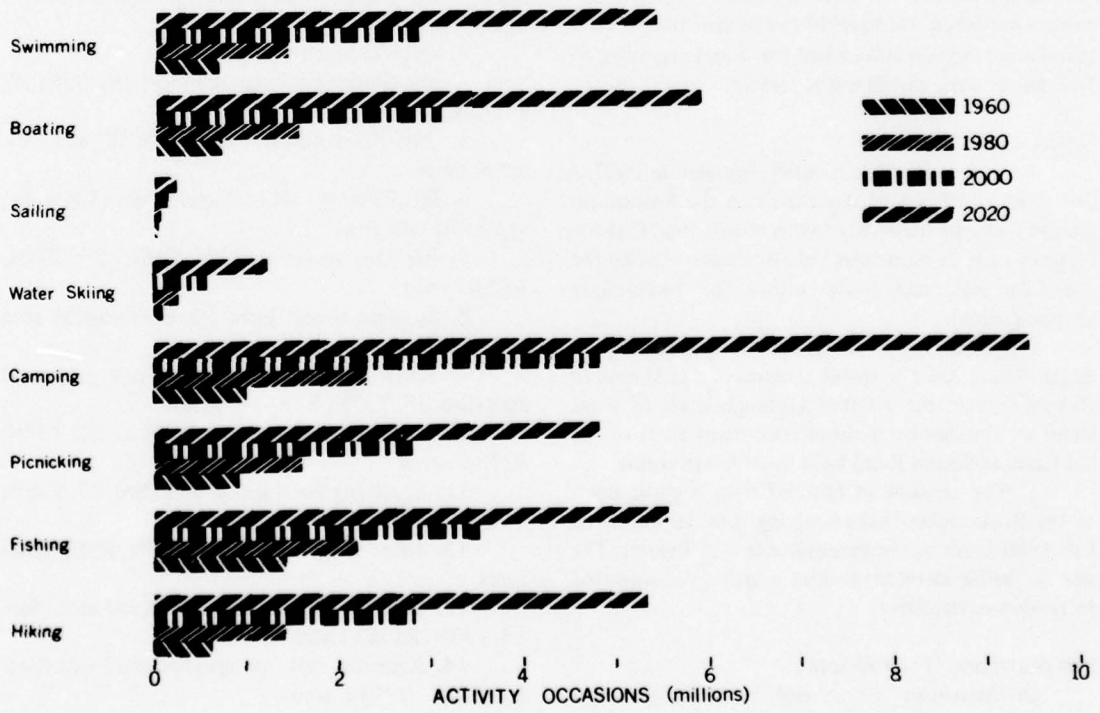
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Skagit-Samish Basins was estimated to be over 11 million activity occasions during 1960. Forty-nine percent of this demand was for water related activities. By the year 2020 there may be more than a six-fold increase in recreation demand.

Figure 3-2 illustrates the estimated and projected recreation demand by water related activities.

FIGURE 3-2. Outdoor Recreation Demand, Skagit—Samish Basins



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	2,200,000	2,300,000	4,500,000
1980	4,300,000	4,000,000	8,300,000
2000	8,300,000	7,100,000	15,400,000
2020	15,200,000	12,300,000	27,500,000

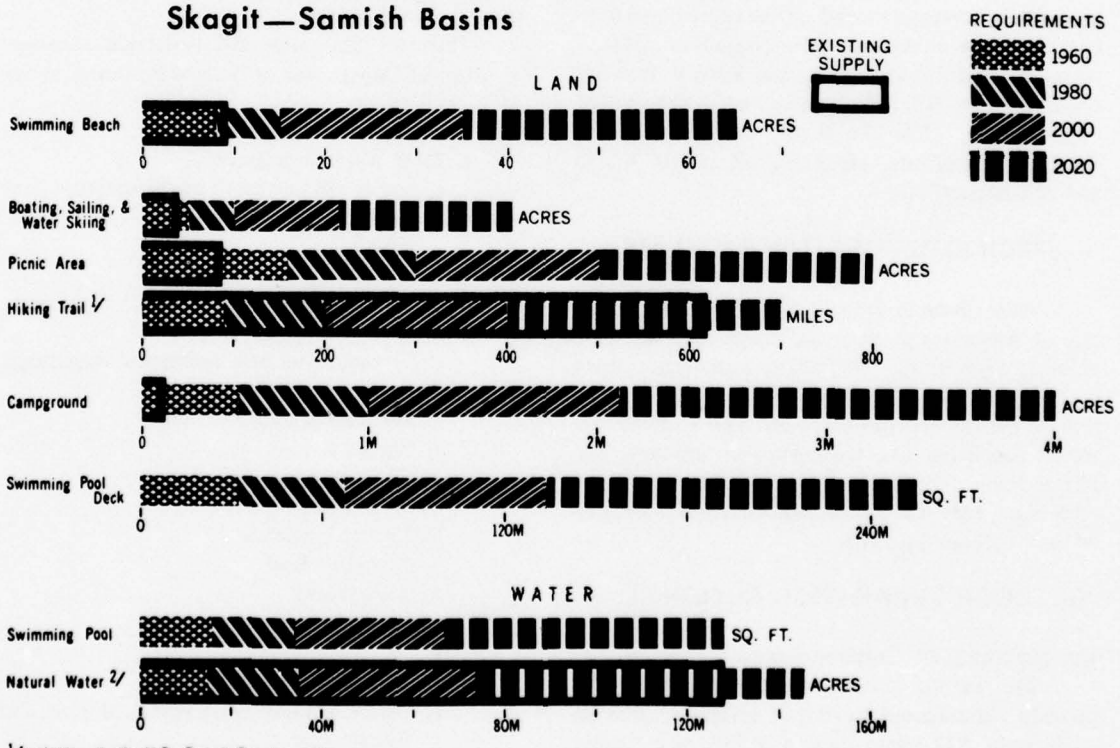
NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Skagit-Samish Basins is illustrated on Figure 3-3. Needs are found by relating the requirements to the existing supply.

Approximately 40% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating, camping and picnicking demands. Beaches and pools are of sufficient quantity to satisfy 1960 swimming demands only. Existing trails should handle hiking use almost until the year 2020. There are enough natural waters to satisfy recreation requirements past the year 2010.

In addition to lands needed for boat launching facilities and parking, an additional 1,188 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 7,200 rental moorage spaces.

FIGURE 3-3. Outdoor Recreation Needs, Skagit—Samish Basins



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 3,900 acres of camping and 460 acres of picnicking facilities will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately 35% of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, harbors of refuge, recreation rivers, special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will study and identify specific needs for the above purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 30% of the water related recreation demands in the Skagit-Samish Basins would be satisfied at lakes and reservoirs, 35% at rivers and streams, 10% at swimming pools, and 25% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based on Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume the Federal agencies could provide 30% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 20, 30 and 20% respectively.

SPECIFIC RECREATION PROBLEMS

Waste disposal from industrial sources in the city of Anacortes produce surface patches of highly colored, aesthetically displeasing waste-water along portions of the city's waterfront. In addition, pollution of the Skagit River below Mt. Vernon makes the water unsuitable for water-contact activities. The Skagit River pollution problem is in the process of correction, while the problem at Anacortes is scheduled for correction by 1972.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

The existing improvements within the 124 publicly administered developed recreation sites include only 542 camp units and 250 picnic units. Some of the existing facilities need to be rehabilitated, and additional developments should be provided on many existing areas.

In addition to developed sites, there are approximately 810,000 acres of publicly administered undeveloped Class III general recreation lands. Some of these lands, especially those with water access, would accommodate water related recreation developments and should be developed accordingly. The long-range programs of the management agencies plan for the development of needed sites.

There are State tide and shorelands administered by the Department of Natural Resources in the following locations:

1. Fresh Water Shorelands
   a. Skagit River near marblemount, near Rockport, and from above Concrete to mouth
   b. Four portions of Sauk River
   c. Suiattle River near confluence with Sauk River.
   d. Cascade River near confluence with Skagit River.
   e. Portions of Lake Shannon
   f. Big Lake
   g. Clear Lake
   h. Sixteen Lake
2. Salt Water Tidelands
   a. Burrows Island
   b. Allan Island.
   c. Hat Island.
   d. Jack Island
   e. Vendovi Island
   f. Portions of Guemes, Cypress, Sinclair, and Fidalgo Islands.

Tide and shorelands have significant value in the satisfaction of recreation demands. During the lower summertime flows, the gravel bars and brushy areas along the rivers can be used for activities such as hiking, picnicking and camping. The tidelands are important for shell fish gathering, beach combing and other activities. Adequate access should be provided to these areas to promote their use by the public. Retention of State-owned tide and shorelands in public ownership in a clean and sanitary condition is necessary.

Acquisition and Development of New Areas

Areas on Existing Waters. Most existing recreation lands are in the mountainous eastern one-half of the Skagit Basin. There are undeveloped State-owned lands scattered throughout the central and western portion; but, with the exception of shore and tidelands, only a few have frontage on major rivers or lakes. Satisfaction of recreation demands depends upon the provision of additional recreation lands by public or private interests in the central and western portion of the Skagit Basin. As the Anacortes and other urban areas expand, efforts need to be taken to provide for adequate recreation areas and open space within and near urban areas.

Figure 3-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly other areas not identified which would be suitable for recreation development. Areas on National Forest and Park lands are not indicated on the map since the respective agencies have inventoried the potential sites on these lands.

A park system needs to be developed on Fidalgo Island. The system would include several lakes, salt water shorelands, and other attractions south of Anacortes. The individual sites within the system should be connected by trails and scenic roads. This park system would complement the opportunities offered at Deception Pass State Park.

In addition to acquisition and development of recreation lands, waterfront scenic-access easements are needed along both sides of the Skagit, Sauk, and Suiattle Rivers and along portions of the salt water shoreline. Easements should also be acquired along lesser rivers and streams within urban areas and areas destined to be developed for residential purposes. Where possible, easements should be tied in with the tide and shorelands owned by the State. Trails need to be developed within the riverside easements to accommodate hikers, horesback riders, cyclists, and fishermen. Convenient road access to the easements is a prerequisite to recreation use.

To satisfy recreation objectives, the natural flood plains along the Skagit River should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

Future Water Development. Existing waters will satisfy water based recreation demand almost until the year 2020. An exception is in urban areas, where additional swimming pools are needed.

Although there is little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas.

Numerous archeological, historical, outstanding natural, and underwater marine areas have been identified. The effect of proposed water resource and



PHOTO 3-4. Skagit and Similk Bays—U.S. Bureau of Outdoor Recreation Photo.

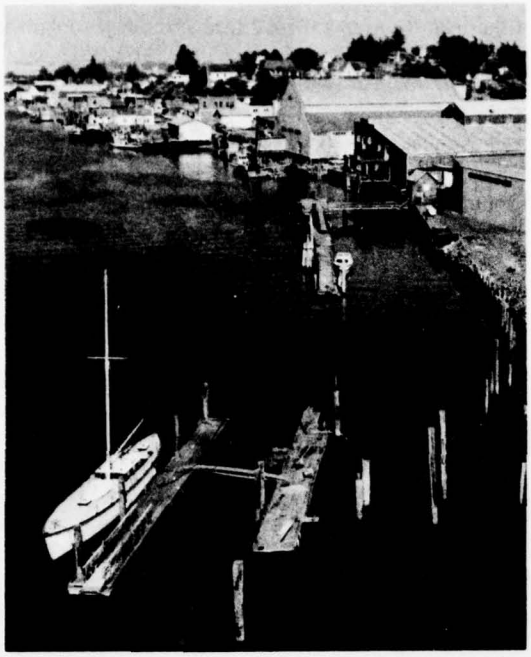


PHOTO 3-5. Historic Town of La Conner—U.S. Bureau of Outdoor Recreation Photo.

other projects upon these irreplaceable attractions require special consideration. The more significant and interesting features should be classified, protected, and properly developed for public enjoyment and scientific purposes.

Archeological sites are still being located in the alluvium of the Skagit Delta. Most sites appear to be relatively recent. A study of the changes of the complex drainage system of the lower Skagit River might reveal older sites. Although sites have been recorded in the vicinity of Concrete, the archeology of the upper Skagit River is virtually unknown. An archeological survey undertaken here might reveal early complexes similar to the ones on the inland Stillaguamish drainage.

The North Cascades are a unique resource of nationwide significance. Large portions of this area are administered with recreation and wilderness as the primary management objectives.

Recreation Rivers

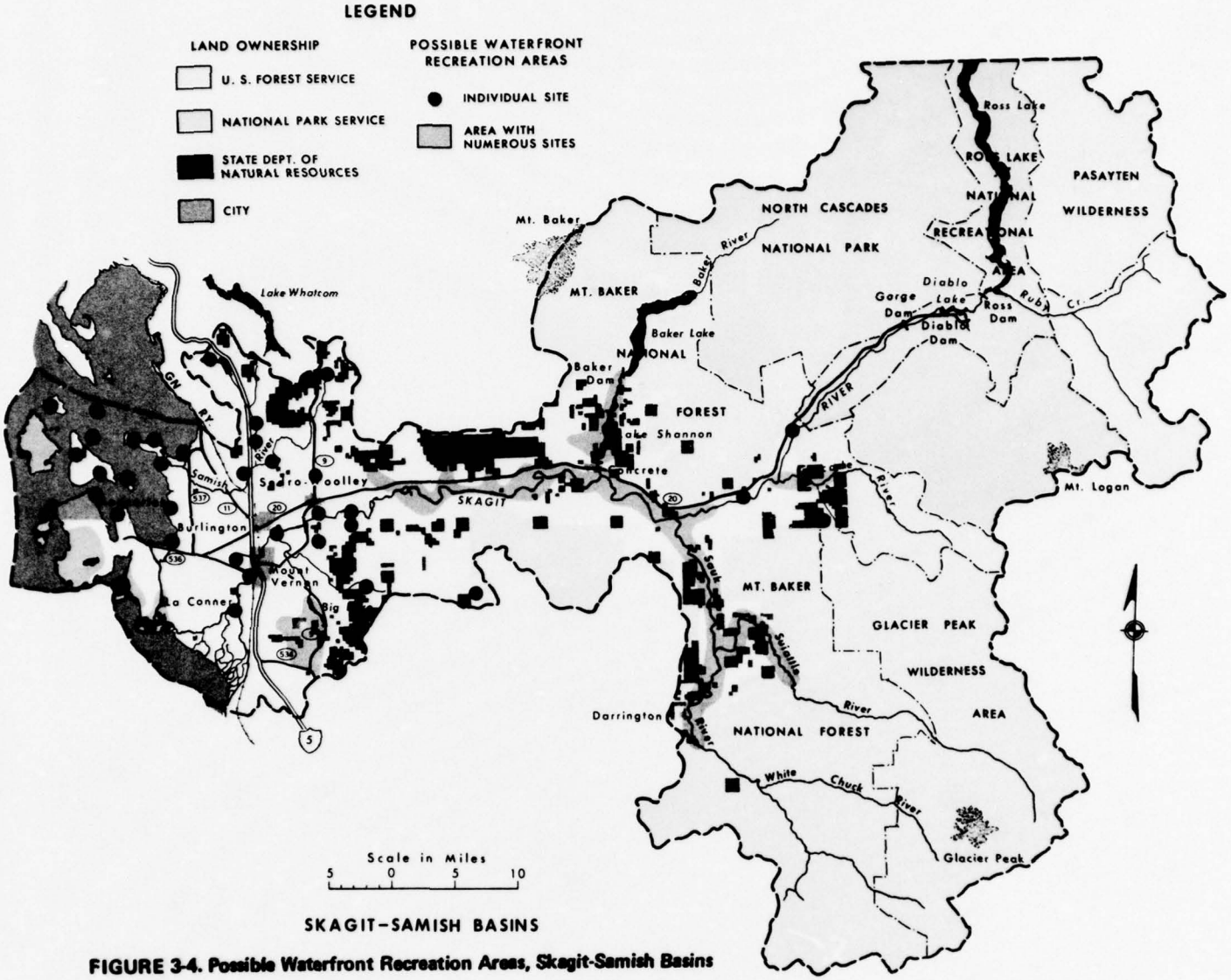
Certain rivers or portions thereof should be retained in their natural state to satisfy present and future recreation needs. Portions of the Skagit, Cascade, Suiattle, and Sauk Rivers have been identified for possible inclusion within the National Scenic River System. With the addition of the Whitechuck River, these same rivers have been proposed for inclusion within a statewide system of natural rivers.

The Skagit River system has high value in satisfying recreation objectives, and the retention of the above rivers or river segments in a natural state is suggested.

Private Sector

Private enterprise will play an important role in providing facilities to satisfy outdoor recreation demands. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Since the Skagit River is a well-known fishing river, resorts and guide services are gaining in popularity. Increased public awareness of the attractions of the North Cascades will make the development of commercial facilities in the mountainous eastern portion of the Skagit Basin financially feasible. On the salt water shoreline, privately operated marinas help to satisfy boating demands. Within the towns and cities, swimming, golfing, and tennis clubs will receive heavy use.

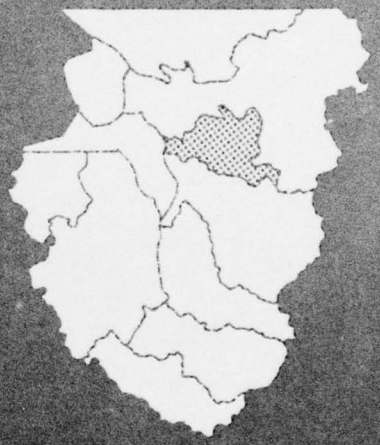
There are over 295,000 acres of privately-owned forest lands within the Skagit and Samish Basins plus many acres of agricultural lands along the rivers. The owners of some of these lands need to be encouraged to accommodate public recreation use on their areas.



SKAGIT–SAMISH BASINS

FIGURE 3-4. Possible Waterfront Recreation Areas, Skagit-Samish Basins

Stillaguamish Basin



STILLAGUAMISH BASIN

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

The Stillaguamish Basin is located in the northeastern portion of the Puget Sound Area about 50 miles north of the city of Seattle. It extends from tidewater to the western spur ranges of the Cascade Mountains, encompassing some 684 square miles. The major drainage basins include Pilchuck Creek and the North and South Forks of the Stillaguamish River. The Basin's topography is varied, ranging from low, rolling terrain in the west to steep and mountainous in the southeast.

Forests are the major land cover, extending over some 86% of the land area. Agricultural lands located along the coastal shelf and in alluvial lowlands of river valleys make up most of the remaining area.

Population and Economy

Basin population in 1963 was about 18,000, mostly rural. There are no major population centers in the area, the largest town being Arlington with less than 2,500 people. It is estimated that the population will reach 30,000 by 1980, 49,000 by 2000, and 78,000 by the year 2020.

Principal industries in the Basin are agriculture, forest products, and a few other industrial plants. Most raw materials produced are processed outside the Basin.

The Basin is mostly within one hour's travel from Seattle. The proximity to this population center subjects the Basin, particularly the western portion, to fairly heavy recreation pressure.

Access

Interstate Highway No. 5, crossing in a north-south direction, provides ready access to the Basin's western portion. State Highway 530 is the major east-west link, running from the Stanwood area up the North Fork of the Stillaguamish drainage area. The west portion is also served by many State and county roads throughout the lowland area. The mountainous eastern portion is much less developed with only a few county roads extending up the river valleys. Forest Service roads, connecting with the county system, extend into the higher elevations in some areas. Most of these higher elevation roads are closed during the winter by snow.

Climate

The climate is typical of the Puget Sound Area, marked by cool summers and mild winters. Precipitation ranges from 30 to 40 inches along the coastal plain to over 100 inches in the mountainous area, mostly falling from October to June. Heavy snow packs occur in areas above 3000 feet elevation.

Excepting winter sports use, most recreational opportunities occur during the summer months when precipitation is least.

Land Ownership

Of the Basin's 438,000 acres, 57% or about 250,000 acres is in public ownership consisting of 71% National Forest, 28% State, 2% other Federal, and less than 1% county and municipal. Private ownership is primarily in the western portion. Figure 4-1 designates major public ownerships.

Recreational Features

Water based recreation opportunities are few by comparison with other Puget Sound Basins. Frontage on Puget Sound itself is restricted to tideflat areas in the upper reaches of Port Susan and Skagit Bay. While small lakes are numerous in the mountain areas, the only large lake is Lake Cavanaugh. Most water based recreation is concentrated along the streams and rivers. The South Fork of the Stillaguamish is the most outstanding. Other recreational attractions include the high mountain area in the eastern half of the Basin. This area covers some 25,000 acres of alpine or subalpine terrain and supports a ski development on Mt. Pilchuck. Old mining camps are attracting increasing numbers of visitors.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 35 publicly administered outdoor recreation sites within the Basin. Sixteen of

TABLE 4-1. Summary of existing publicly-administered outdoor recreation resources, Stillaguamish Basin.

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Snow Skiing Lifts	Tows	Total 1964 Visitation
Federal																	
Forest Service	172,302		131	172,170			1	159	45			3			1	3	311,829
Park Service																	
Military Res.	5,230			5,230				2	8		18						2,020
Other Federal																	
Total Federal	177,532		131	177,400			1	161	53		18	3			1	3	313,849
State																	
Dept. of Fish.	61			61													16,000
Dept. of Game	81		81							95	146	8		1			7,180
Dept. of Nat. Res.	70,890			70,890				20	8	14				1			903,120
Parks & Rec. Com.																	
Total State	71,032 [1]		81	70,951				20	8	109	146	8		2			926,300
County	30		27	3				25	5	15							1,750
City & Other Local	583	40	53	490					1					1			2,139
Total	249,177	40	292	248,844			1	206	67	124	164	11		3	1	3	1,244,038

[1] Does not include shorelands and tidelands

these areas are administered by the Forest Service, 14 by the State and 5 by county and cities.

Table 4-1 summarizes the existing supply by administering agency.

The Forest Service lands are located within the mountainous eastern one-third. During 1964, the Forest Service reported the following breakdown of visitation by primary purposes of visit:

Camping	30,556 visits
Picnicking	12,664 "
Winter Sports	24,410 "
Hunting	8,270 "
Fishing	38,668 "
Hiking and Riding	19,179 "
Organization Camping	3,059 "
General Enjoyment and Sightseeing	163,347 "
Gathering Forest Products for Pleasure	5,209 "
Scientific Study and Hobbies	1,302 "
Motor Vehicle Trail Travel	273 "
Other Activities	4,892 "
Total	311,829 visits

General enjoyment and sightseeing was by far the most popular activity on Forest Service lands.

Figure 4-1 shows the location of the existing publicly administered outdoor recreation sites and areas. Table 4-2 describes the individual sites.

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least four private operators offer facilities for public use. These include:

Activity	No. of Enterprises	Capacity at One Time (people)
Nature observation	1	75
Hiking	1	75
Field games	1	75
Fishing, ponds	2	250
Fishing, lakes, rivers	1	52
Swimming	1	75

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. Within the designated boundary of the Stillaguamish Basin there are 3,859 acres of salt water, 1,799 acres of lakes, and many miles of rivers and streams. Approximately 70 miles of river are suitable for boating.

Potential Supply

Potential for recreation development along the salt water shoreline is very limited due to extensive tidal flats and adjacent wet lands. However, the shorelines of the Stillaguamish River and some of the smaller rivers and creeks are well-suited for site development.

In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation use in Snohomish County. The appraisal disclosed that there is a high potential for development related to vacation cabins, camping, motorcycling, fishing, golfing, sightseeing, riding, shooting preserves, and water sports. The potential for improvements related to picnicking, vacation farms, and winter sports was rated as medium in Snohomish County.

The 840-acre Lake Cavanough in the Basin's western one-half could satisfy significant recreation needs since it is close to the populated Everett area.

Notable potential supply sources are the State lands in the Basin's central portion and the Forest Service lands in the eastern portion. The Forest Service reports that 41 acres of campground and 42 acres of picnic grounds are scheduled for development from 1964 to 1975, and over 200 acres are planned from 1976 to the year 2000. An additional 500 acres of potential occupancy sites are being held *in reserve by the Forest Service to meet unforeseen* needs.

The State Department of Natural Resources plans to develop several of the potential sites on its lands. The State Department of Game plans to acquire and develop three lake fishing access sites and two waterfowl areas.

There are many suitable areas on private lands in the Basin's central and western portions which could be developed for recreation purposes. Figure 4-4 indicates waterfront lands with possible recreation potential.



PHOTO 4-1. North Fork of Stillaguamish River–U.S. Bureau of Outdoor Recreation Photo.

Special Interest Areas

Archeological and Historical Areas. The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.–1850 A.D.)

About 30 sites are recorded in Snohomish County, about half of which are along present shorelines or on the margin of uplands which were adjacent to deep sloughs at the time of occupation. The remaining and most important sites are several miles inland along the South Fork of the Stillaguamish in the vicinity of Arlington and Granite Falls. Surface collections have been made in these locations on terraces or flats 25 to 400 feet above the present sea level. The major locality, the Olcott site, yielded numerous large leaf-shaped bipoints, thick and thin bifaces, cobble choppers, and scrapers.

Exploration and Fur Trade (1592–1841)

None

Settlement (1842–1888)

Remains of the Rockefeller-backed mining speculation of the late 1880's may be found in and around the town of Silverton in the Stillaguamish Valley. Several old buildings are still standing, more or less.

Post-Statehood (1889-Present)

None

Outstanding Natural Areas. There are eight potential outstanding natural areas identified in the Basin. All of the following are in the Mt. Baker National Forest:

1. Higgins Fossils geological area (Sec.33, T.33 N., R8E.) - 4 acres.
2. Half-mile Falls scenic area (Sec.19, T.32 N., R.8E) - 5 acres.
3. Snow Gulch scenic area (Sec. 29 and 30, T.32 N., R.9E - 300 acres.
4. Three Finger scenic area (T.31 N., R9E) 3,800 acres.
5. Deer Creek Road Fossils geological area (Sec. 8, T.30 N., R10E) - 1 acre.
6. Perry Creek scenic area (T.30N., R10E) - 1,800 acres.
7. Big Four geological area (T.29 and 30 N., R10E) - 6,800 acres.
8. Gold Basin geological area (Sec. 24, T.30 N., R8E) - 120 acres.

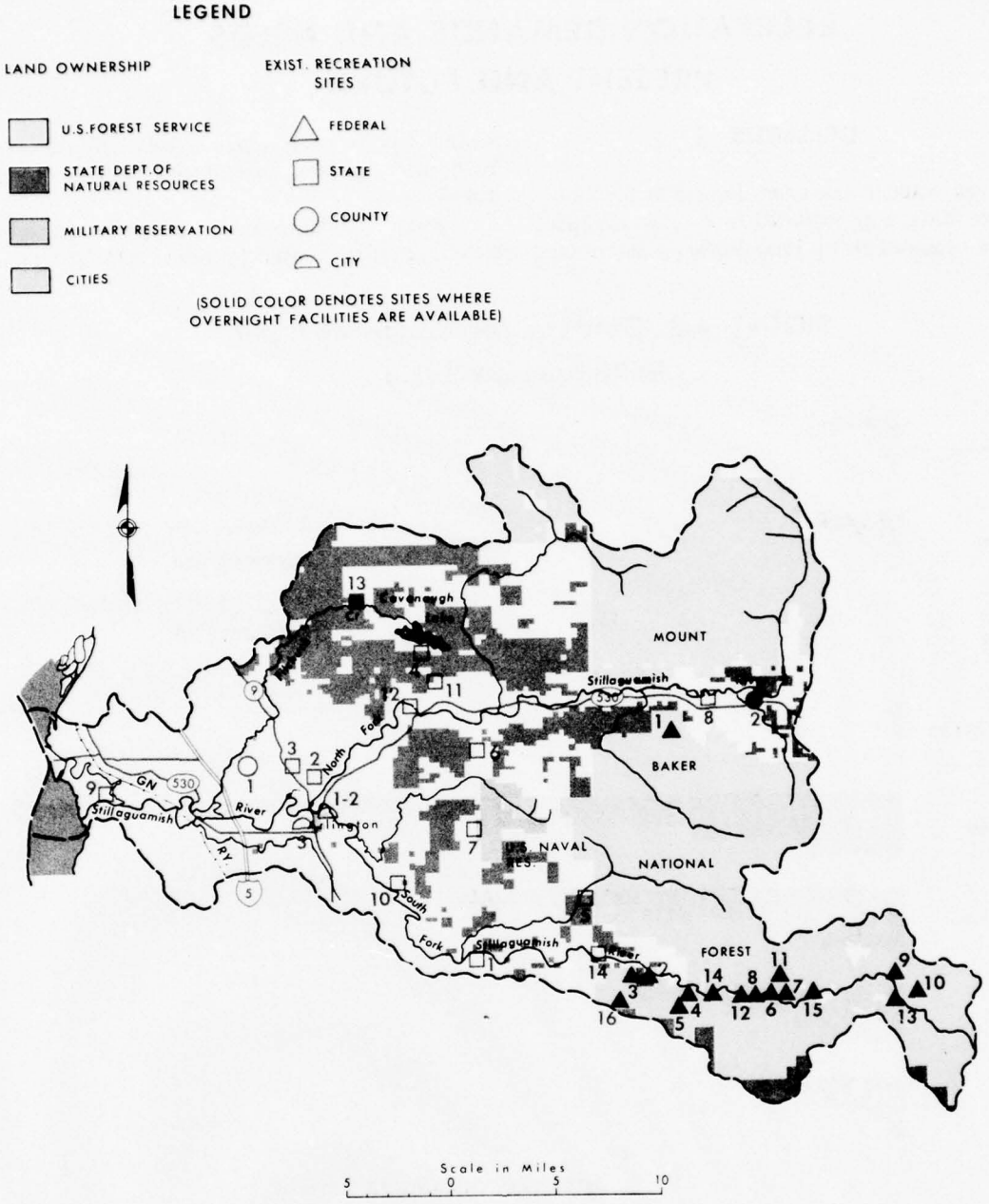
TABLE 4-2. Existing recreation sites in the Stillaguamish Basin.

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	French Creek	9	20	10	
▲ 2	Turlo Camp	6	18		
▲ 3	Verlot Camp	6	22	3	
▲ 4	Hemple Creek	4	3	10	
▲ 5	Gold Basin	30	59	13	
▲ 6	Sunnyside	3	7	2	
▲ 7	River Bar	1	6		
▲ 8	Red Bridge	6	10		
▲ 9	Coal Creek	1	3	2	
▲ 10	Big Four	1	4	2	
▲ 11	Old Bridge	1	2		
▲ 12	Boardman	1	2	3	
▲ 13	Beaver Creek	1	2		
▲ 14	Wiley Creek Scout Camp	10			Organization Camp
▲ 15	Snohomish County School Camp	25			Organization Camp
▲ 16	Mt. Pilchuck	80			Winter Sports Area
State					
□ 1	*Granite Falls Fishway*	61			
□ 2	Armstrong Lake	1			Boat Launching
□ 3	Bryant Lake	1			"
□ 4	Cavanaugh Lake	2			"
□ 5	Canyon Creek	160			Public Fishing
□ 6	Riley Lake	1			Boat Launching
State (cont'd)					
□ 7	Twin Lake	1			Boat Launching, Swimming Beach
□ 8	North Fork Stillaguamish River	16			Public Fishing
□ 9	Stillaguamish River	1			Boat Launching
□ 10	South Fork Stillaguamish River	1			Boat Launching
□ 11	New Arlington State Game Fish Hatchery	35			
□ 12	Old Arlington State Game Fish Hatchery	22			
■ 13	Pilchuck Creek	40	20	7	Swimming Beach
□ 14	Robe	40			
County					
○ 1	Pilchuck Creek Roadside	3			
● 2	Squire Creek	27	25	5	
City					
⌓ 1-2	Arlington	53		1	Swimming Beach
⌓ 3	Snohomish County School Grounds	530			

*Site No. refers to map on opposite page.

SUMMARY
PRESENT AND POTENTIAL

The demand for outdoor recreation opportunities is increasing. With the Stillaguamish Basin near the populated Seattle and Everett areas, it is important that the recreation resources within the Basin be properly protected and developed to satisfy future needs.



STILLAGUAMISH BASIN

FIGURE 4-1. Existing Outdoor Recreation Sites, Stillaguamish Basin

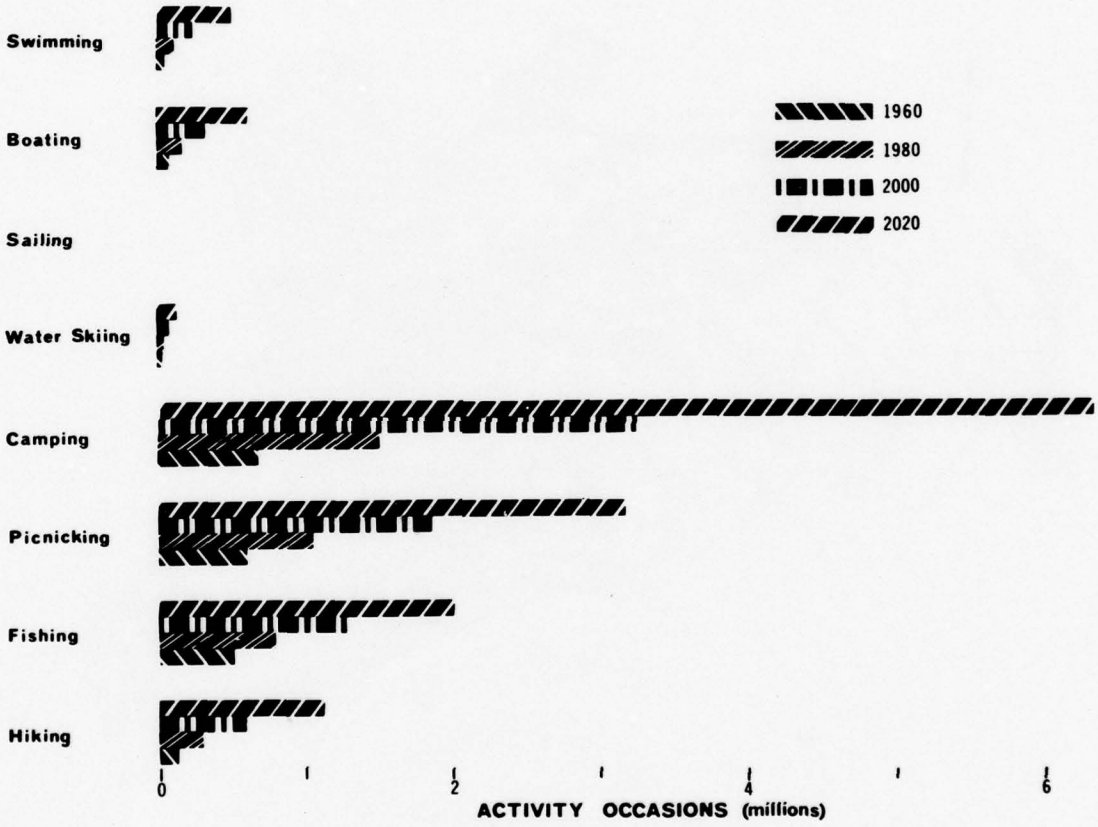
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Stillaguamish Basin was estimated to be over 5 million activity occasions during 1960. Forty percent of this demand was for water related activities. By the year 2020, there may be a six-fold increase in recreation demand.

Figure 4-2 illustrates the estimated and projected recreation demand by water related activities.

FIGURE 4-2. *Outdoor recreation demand,* Stillaguamish Basin



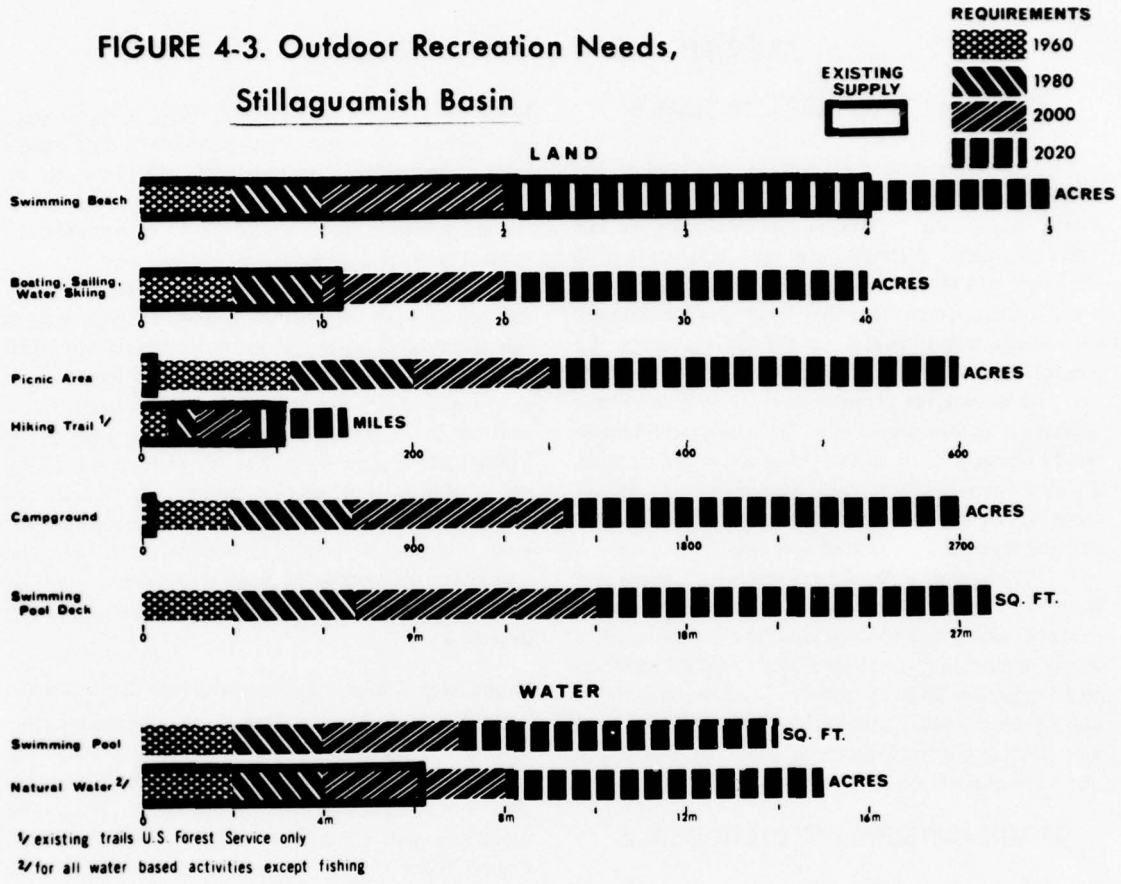
Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	830,000	1,200,000	2,030,000
1980	1,600,000	2,100,000	3,700,000
2000	3,000,000	3,800,000	6,800,000
2020	5,500,000	6,500,000	12,000,000

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Stillaguamish Basin is illustrated on Figure 4-3. Needs are found by relating the requirements to the existing supply.

FIGURE 4-3. Outdoor Recreation Needs, Stillaguamish Basin



Approximately 55% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 picnicking and camping demands. Beaches are of sufficient quantity to satisfy swimming demands past the year 2000, but there is an existing deficiency of swimming pools. Existing Forest Service trails should handle hiking use until after the year 2000. Natural waters will adequately accommodate recreation demand until 1990. After that year surplus water use can be transferred to the Whidbey and Camano Islands.

Although there is a surplus of lands developed for boating activities, an additional 306 rental moorage spaces were needed in 1966. For the year 2020, this need increases to 1,880 rental moorages.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 2,700 acres of campground and 360 acres of picnic area will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately one-third of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, recreation rivers,

special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will study and identify specific needs for these purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

The water related recreation resources of the Stillaguamish Basin are limited to many miles of river, a few lakes, and approximately five miles of salt water shoreline. Although the resources are not as abundant and attractive as those of the basins to the north, it is important that they be properly developed to provide opportunities to the people from the nearby Everett and Seattle areas.

As a desirable planning goal, 15% of the water related recreation demands in the Stillaguamish Basin would be satisfied at lakes, 75% at rivers and streams, 2% at swimming pools, and 8% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 20% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 35, 30 and 15% respectively.

SPECIFIC RECREATION PROBLEMS

Numerous sources of wastes along the Stillaguamish River result in hazardous water pollution of the lower reaches of the river.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

In 1964, there were 35 publicly administered developed recreation sites within the Stillaguamish Basin. Some of the existing facilities are in need of rehabilitation, and additional developments need to be provided on several existing areas.

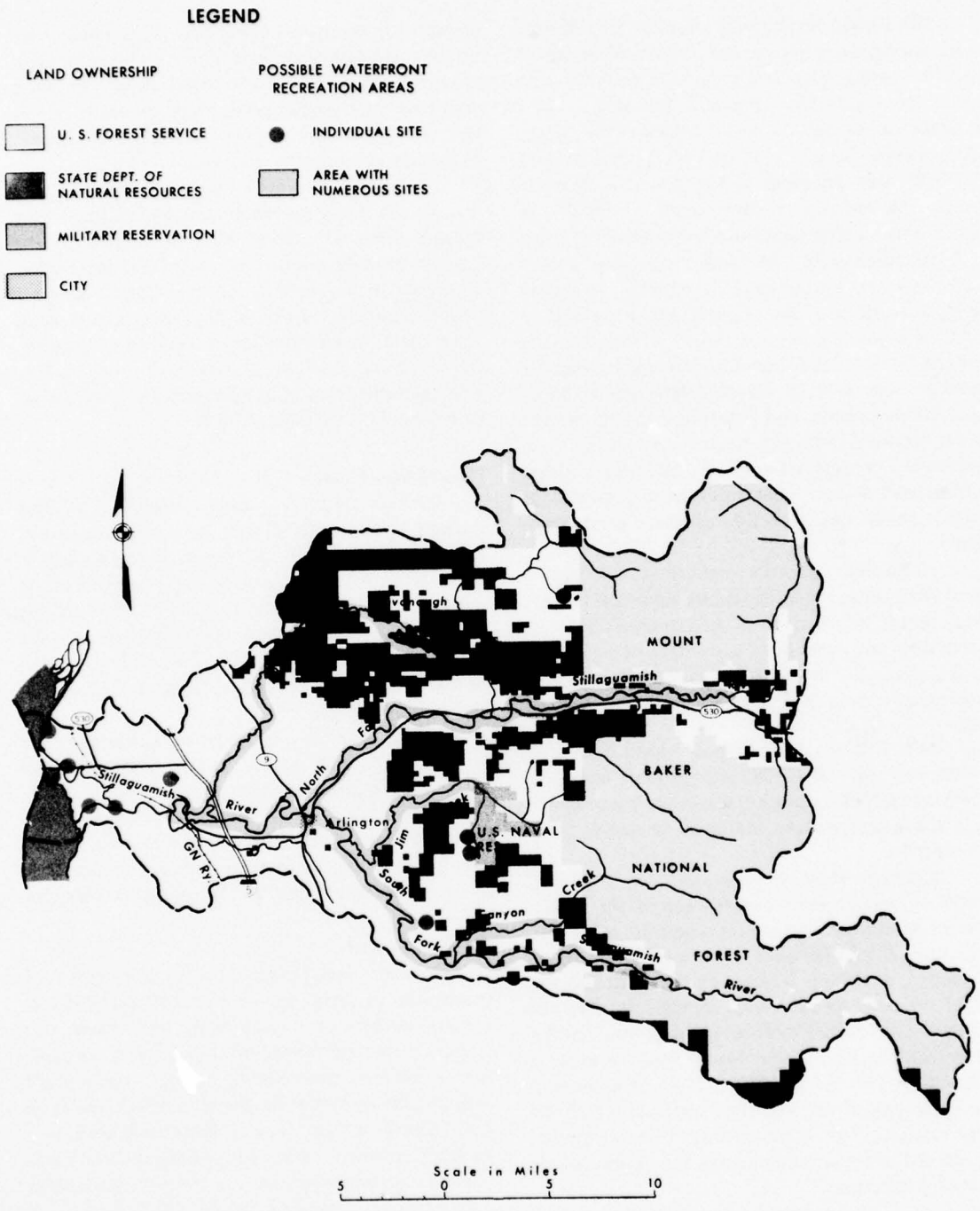
In addition to developed sites, there are approximately 250,000 acres of publicly-administered undeveloped Class III general recreation lands. Some of these lands, especially those with frontage on bodies of water, would accommodate water related recreation developments and need to be developed accordingly. The long-range programs of the management agencies' plan for the development of needed recreation sites.

There are State shorelands on several miles of the South Fork of the Stillaguamish River, around the shoreline of Lake Cavanaugh, and on a few small stretches of miscellaneous rivers and streams. With the provision of better access, these shorelands can be utilized in satisfying recreation needs. During the lower summertime flows, the gravel bars and brushy areas can be utilized for hiking, picnicking and camping, while a narrow band of public land around Lake Cavanaugh would accommodate hikers and fishermen. Retention of State-owned shorelands in public ownership in a clean and sanitary condition is necessary.

Acquisition and Development of New Areas

Areas on Existing Waters. Approximately one-half of the existing publicly administered recreation sites are in the southeastern corner of the Basin along the South Fork of the Stillaguamish River. The remaining sites are widely scattered throughout the Basin. There is only a single one-acre site on the Stillaguamish River, one two-acre site on Lake Cavanaugh, and three existing sites on the North Fork of the Stillaguamish River. Almost all lands adjacent to the Stillaguamish River and its North Fork and the lower one-half of the South Fork are within private ownership and are not available for public recreational use. Satisfaction of recreation demands depends upon the provision of additional recreation areas by public agencies or private interests.

Figure 4-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly other areas not identified which would be suitable for recreation development. Areas on the National Forest are not indicated on the map since the Forest Service has already inventoried the recreation potential of its lands.



STILLAGUAMISH BASIN

FIGURE 4-4. Possible Waterfront Recreation Areas, Stillaguamish Basin

The United States Navy operates a 5,000-acre naval reservation in the central portion of the Basin. There are several lakes and streams in the reservation which are usable for recreation. The area is open to public access, but due to the nature of the agency administering the area, only minimal recreation facilities have been provided. If the land ever becomes surplus to military requirements, it should be acquired by a public agency for recreational purposes.

In addition to the acquisition of recreation lands, waterfront scenic-access easements are needed along both sides of the Stillaguamish River and its North and South Forks and along Pilchuck, Jim and Canyon Creeks. Trails should be developed within the riverside easements to accommodate hikers, horseback riders, cyclists, and fishermen, and to provide access between parks. Convenient road access to the easements is a prerequisite to recreation use. Further studies need to be conducted to identify waterfront strips suitable for protection as scenic-access easements.

To satisfy recreation objectives, the natural flood plains along the Stillaguamish River and Portage Creek should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

Future Water Development. Existing waters within and adjacent to the Stillaguamish Basin will satisfy foreseeable recreation demands. An exception is in urban areas, where additional swimming pools are needed.

Although there is little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas

Numerous archeological and outstanding natural areas and one historical area have been identified in the Basin. The effects of proposed water resource and other projects upon these irreplaceable attractions requires special consideration. The more significant and interesting features should be classified, protected, and properly developed for public enjoyment and scientific purposes.

Further archeological surveys should be conducted. An intensive reconnaissance of the rolling uplands from the shores of Puget Sound to the Cascade foothills needs to be undertaken in an effort to locate manifestations of the Olcott complex, which is perhaps the earliest encountered in Western Washington to date. This survey could be extended to the north and south in an attempt to provide a link with ostensibly similar complexes in the lower Fraser Canyon and the Columbia Valley.

Recreation Rivers

Certain rivers or portions thereof should be retained in their natural state to satisfy present and future recreation needs. A State system of recreation rivers is suggested to protect important recreation rivers or river segments for public use. In the Stillaguamish Basin, rivers which may qualify for protection include the North and South Forks of the Stillaguamish River plus Deer, Boulder, Squire, Jim and Canyon Creeks.

Water resource projects which would adversely affect the natural quality of the rivers or river segments designated as State recreation rivers should not be developed. If alternative sites are available, necessary water resource projects should be located above designated stretches of river and operated so as to provide optimum flows to the recreation rivers.

Private Sector

The economic potential for the development of commercial privately operated recreation facilities is not as great here as in many of the other basins; one exception is winter sports developments. Other facilities which may prove popular enough to be a profit making venture would be trailer camps, a resort on Lake Cavanaugh or on any larger reservoirs constructed, hunting areas, and fishing ponds. Commercial interests will move into the picture whenever a need exists that can be profitably filled.

There are 146,000 acres of privately owned forest lands within the Stillaguamish Basin, plus many acres of agricultural land along the rivers. The owners of some of these lands need to be encouraged to accommodate public recreation use of their areas.

Whidbey-Camano Islands



WHIDBEY — CAMANO ISLANDS

PRESENT STATUS

DESCRIPTION OF ISLANDS

Physical Description

Whidbey and Camano Islands comprise Island County which is located at the northern end of Puget Sound. The county is bounded on the north by Deception Pass and Fidalgo Island; on the east by Skagit Bay; on the south by Admiralty Inlet; and on the west by Rosario Strait, Admiralty Inlet and the Strait of Juan de Fuca. The land and water area is about 206 square miles, or 134,000 acres.

Whidbey, the largest island in Puget Sound, extends in a north-south direction. It is about 40 miles long and from one to ten miles wide. Three small islands, Ben Ure, Strawberry and Smith, are included in Island County.

Much of the land is undulating to rolling upland that ranges in elevation from 100-300 feet with occasional uplands rising to an elevation of 500 feet. Several small prairie areas occur along the coast at elevations of less than 100 feet, constituting beds of former glacial lakes and some lagoons of former seas.

There are no large streams. Most of the streams flow intermittently, serving as outlets for excess water. A few streams, principally in the southern part of Whidbey Island, are fed by springs and flow throughout the year. There are several small fresh-water lakes.

Population and Economy

The Islands' population in 1963 was estimated to be about 20,000. Most of the population is now, and is expected to be, concentrated near the shores and in the towns, such as Oak Harbor, Coupeville, Glendale, etc. The projected populations are as follows:

Year 1980-27,000
Year 2000-36,000
Year 2020-50,000

Lumbering, agriculture, recreation and military establishments form the base of the local economy.

Visitors from the Seattle area use the Islands' recreation resources intensively.

Access

Access to the two main Islands is by highway or ferry. At the north end of Whidbey Island, the Deception Pass bridge from Fidalgo Island is a well-known scenic attraction. Highway 525 extends the length of the Island and a good system of roads provides access to all areas. Ferry connections link the southern end of the Island to the mainland. Access to Camano Island is by bridge from Stanwood in Snohomish County. The bridge, on State Highway 532, is connected to a good county road system on the Island.

Travel to and along the shores of the Islands by pleasure boats is very common. There are a few public airfields on Whidbey Island.

Climate

Island County has one of the most uniform marine climates of any area in the United States. The Islands are sheltered from the cold continental winds by the Cascade Range on the east. Temperatures modified by the prevailing westerly winds and by the salt air rarely go below zero or about 90°F.

Records at Coupeville show an average annual precipitation of 18.64 inches with Everett having an average annual precipitation of about 33 inches. The normal rainfall on the southern end of Whidbey Island is probably 10-15 inches more than at Coupeville. The precipitation mostly occurs during the winter months.

Dry and wet seasons are fairly distinct in Island County with mostly clear days during the dry season and foggy or overcast days in the wet season. The precipitation generally comes as gentle showers or as fog or mist and very infrequent light snowfall. Thunderstorms, hail, and cloudbursts are unusual.

High winds are unusual and the total number of windy days is small. During the summer the prevailing winds are from the northwest and during the winter southwesterly winds prevail. Winds on the northern part of Whidbey Island are influenced by the Strait of Juan de Fuca, and are generally stronger than elsewhere in the county.

TABLE 5-1. Summary of existing publicly-administered outdoor recreation resources, Whidbey-Camano Islands

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pool (Sq Ft)	Swim Beach (Acre)	Total 1964 Visitation
Federal															
Forest Service															
Park Service															
Military Res.	579		579												
Other Federal															
Total Federal	579		579												
State															
Dept. of Fish	76		1		75										11,000
Dept. of Game	948		21	927						20	90	2			2,000
Dept. of Nat. Res.	3,980[1]		50	3,930				10	3	5					89,953
Parks & Rec. Com.	2,466		168	2,296			2	471	409	680	173	3		5	863,233
Total State	7,470		240	7,153	75		2	481	412	705	263	5		5	966,186
County	5		3	2											N.A.
City & Other Local	65	8	5	52					38		25	11	1,800		27,000
Total	8,119	8	827	7,207	75		2	481	450	705	288	16	1,800	5	993,186

[1] *Does not include tidelands.*

Land Ownership

Nearly 90% of the land area is in private ownership of which about 17% is cropland, 63% is forested and the remainder is in other uses.

There are several military reservations on Whidbey Island. About 7,000 acres of State lands are scattered over Whidbey and Camano Islands.

Recreation Features

The Islands provide an outstanding environment for recreation and a base for salt water fishing and other outdoor activities. Their extensive shorelines and excellent beaches, resorts, pleasant roads, charming towns and older buildings, historic sites, large Naval installations at Ault Field and Oak Harbor and spectacular Deception Pass attract many visitors. In addition, the favorable climate is attractive to recreationists.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 21 publicly-administered outdoor recreation sites with 18 under State administration.

Table 5-1 summarizes the existing supply by administering agency.

Figure 5-1 shows the location of the existing publicly-administered outdoor recreation sites and areas. Table 5-2 describes the individual sites:

TABLE 5-2. Existing recreation sites in the Whidbey-Camano Islands

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
State					
☐ 1	Saratoga Passage Recreation Tidelands	30			Natural Area
☐ 2	Penn Cove	46			"
☐ 3	Deer Lake	1			Boat Launching
☐ 4	Goss Lake	1			"
☐ 5	Whidbey Island Game Farm	180			
☐ 6	Pheasant Habitat	168			Public Hunting
☐ 7	Pheasant Habitat	10			"
☐ 8	Pheasant Habitat	9			"
☐ 10	Oak Harbor	579			"
■ 11	Rhododendron Park	50	10	3	
■ 12	Camano Island State Park	134	92	124	Boat Launching *Swimming Beach*
■ 13	Deception Pass State Park	1,763	335	203	Boat Launching and Moorage; Swimming Beach
☐ 14	Fort Casey State Park	137		41	Historical Site Boat Launching Swimming Beach
State (cont'd)					
■ 15	South Whidbey Island Recreation Area	85	44	41	Swimming Beach
☐ 16	Useless Bay Recreation Area	116			
☐ 17	Strawberry Island Marine Park	4			
☐ 18	Fort Ebey	227			
County					
○ 1	W-1 Picnic Area	5			
City					
⌓ 1	City of Langley	2		1	Boat Launching
⌓ 2	City of Oak Harbor	63		37	Boat Launching Swimming Pool and Beach

*Site No. refers to map on opposite page.

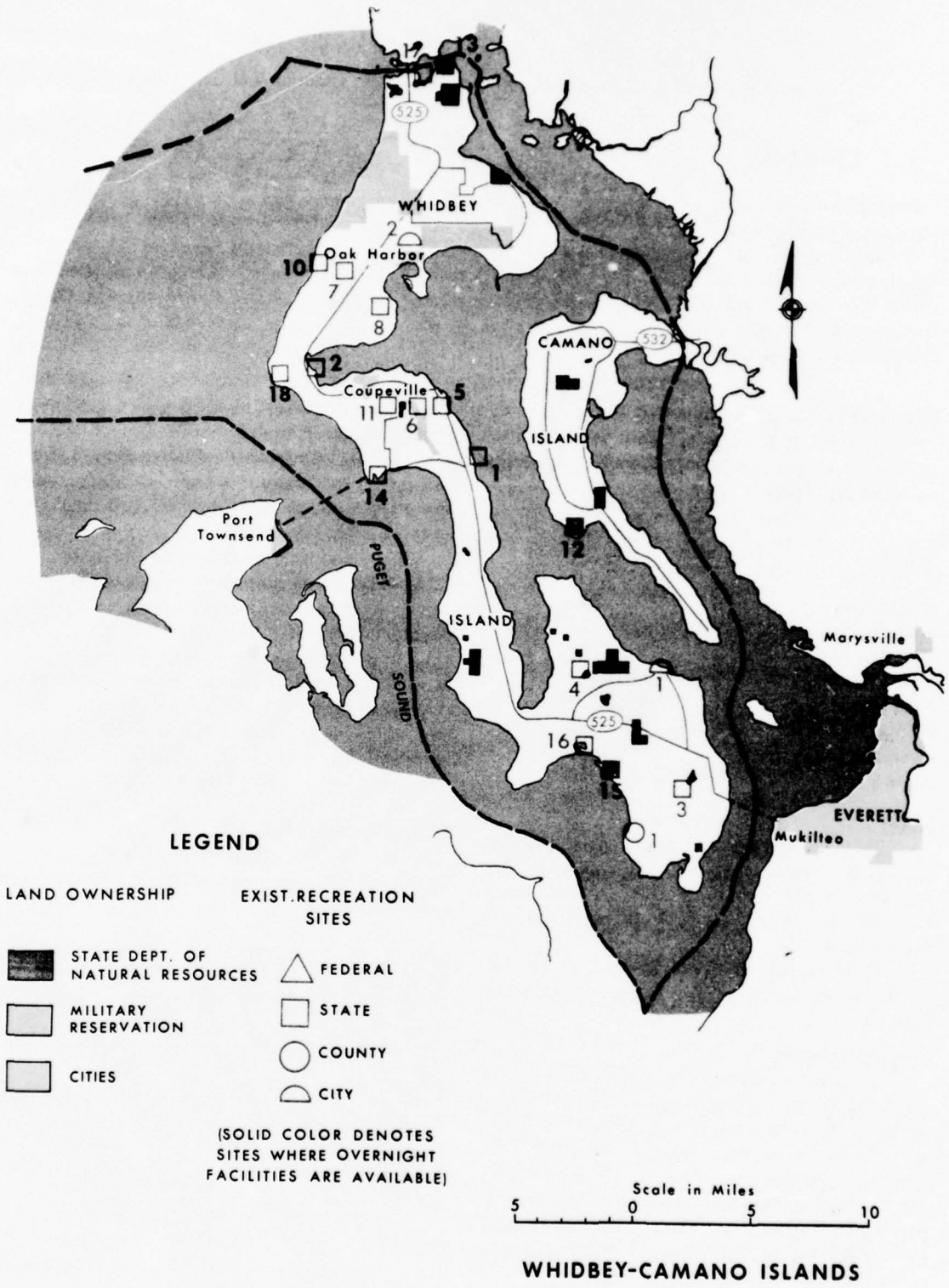


FIGURE 5-1. Existing Outdoor Recreation Sites, Whidbey-Camano Islands

There are presently seven State Park areas on the islands with visitation and size as shown:

State Park	Acres	Visitation 1956	1963	1966
Camano Island State Park	134	71,223	143,598	149,975
Deception Pass State Park	1,763	461,326	616,778	839,270
Fort Casey Heritage Site	137	8,600	60,721	127,657
Fort Ebey Recreation Area	227	---	Unknown	Unknown
Useless Bay Recreation Area	116	---	Unknown	Unknown
South Whidbey Recreation Area	85	---	28,252	51,662
Strawberry Island Marine Park	4	Unknown	Unknown	Unknown

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least 11 private operators offer facilities for public use. These include:

Activity	No. of enterprises	Capacity at one time (people)
Rural Living	9	200
Scenic Enjoyment	1	25
Tent Camping	2	112
Trailer Camping	5	242
Field Games	1	300
Fishing, Salt Water	8	613
Swimming	1	300
Boating	5	350

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the Whidbey-Camano Islands area there are 387,901 acres of salt water and 880 acres of lakes.

There are popular skin diving areas at Columbia Beach, Langley, Keystone, Fort Casey, and Deception Pass.

Potential Supply

The miles of salt water shoreline now in private ownership could contribute significantly to future public recreation through the development of public use and public easement programs. Because of its character, location, and topography, Whidbey Island has a greater potential for recreation development than Camano Island. The western shore of Whidbey Island has many excellent beaches. The eastern side has several excellent small boat harbors.

The State Department of Natural Resources administers over 3,000 acres of undeveloped lands. The Department plans to develop potential sites to help satisfy increasing demands.

The State Department of Game plans to acquire and develop one lake and ten salt water fishing access sites as well as six waterfowl and two small game areas for public enjoyment.

There are many suitable areas on private shorelands which are suitable for recreation development. Figure 5-4 indicates waterfront lands with possible recreation potential.

Developments at the existing State Parks could be expanded to satisfy increasing pressures. If national defense needs change, portions of the military reservations on Whidbey Island could be converted into public recreation areas, such as has been the case with Fort Casey and Fort Ebey.

Special Interest Areas

This section includes a tabulation of archeological and historical areas, outstanding natural areas, and scenic routes.



PHOTO 5-1. Deception Pass State Park—Washington State Department of Commerce and Economic Development Photo.

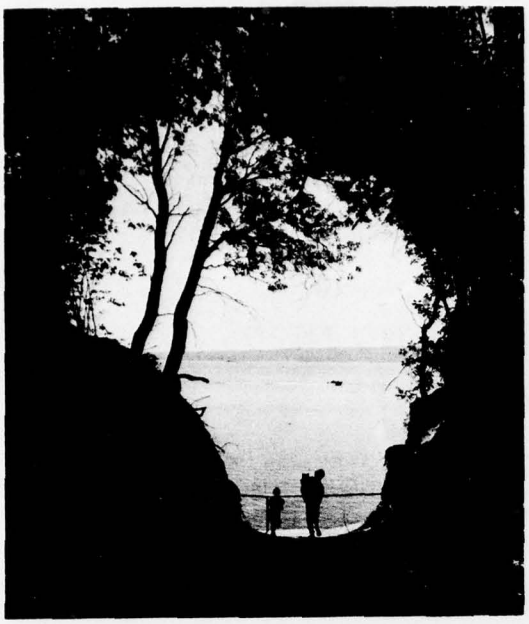


PHOTO 5-2. Camano Island State Park—Washington State Parks and Recreation Commission Photo.

Archeological and Historical Areas—The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian Period (6000 B.C.–1850 A.D.)

Surveys by Bryan have revealed about 95 archeological sites on Whidbey and Camano Islands, a large proportion of them on the northern half of Whidbey and particularly near Penn Cove. On the basis of historical and archeological evidence, the latter localities and the general radius of the Skagit River were the most populous areas in Western Washington during later prehistoric times.

Archeological sites include:

1. The Penn Cove Park, Snatelum Point, and Mineral Springs sites at Penn Cove.
2. Dugualla Bay, Cornet Bay, Rosario Beach, and Ebey's Prairie on Whidbey Island.
3. Camano City on Camano Island.

On Whidbey and Camano Islands, a series of semi-circular trench and embankment enclosures with ends abutting on steep bluffs have been discovered. Similar features are found on southern Vancouver Island, the Gulf Islands, and the San Juan Islands, sometimes in association with burial cairns.

A quantity of material has been recovered from Ebey's Prairie immediately west of Penn Cove. In the neighborhood of ponds on this prairie, some of which may have persisted since glacial times, artifacts consisting chiefly of chipped projectile points and also a few ground slate and nephrite objects have been found. Remains of large Pleistocene animals have been observed in sea bluffs near Penn Cove, although never in association with man.

Exploration and Fur Trade Period (1592-1841)

None

Settlement Period (1842-1888)

1. Whidbey Island's strategic location at the eastern end of the Strait of Juan de Fuca led military experts to build a number of coastal defense fortifications on the west shores of the island. The oldest was Fort Nugent, built on West Beach during the Indian Wars, but it was never used. Fort Ebey was also built at West Beach as a temporary camp. It was abandoned at the end of World War II.

2. In Coupeville there are wooden buildings more than a century old. The more interesting preserved structures are either log buildings or "salt-box" houses of a kind common to New England in the 1850's. Many of the buildings once used for business are vacant much of the year, but they annually house an art festival that emphasizes the historical background of the community.

3. Because of the fear of Indian raids, the settlers built several blockhouses, four of which were partially restored and are still standing at or near their original sites. The Alexander Blockhouse is located at the end of the street paralleling the Coupeville waterfront. The Ebey Blockhouse is set on the bluff overlooking the Strait of Juan de Fuca. The Crockett Blockhouse, a replica of the original fort, is located a few hundred yards south of the entrance to Fort Casey State Park. The Davis Blockhouse is located in the Coupeville cemetery.

Post-Statehood Period (1889-Present)

1. Fort Casey, south of Coupeville, was built as part of the coastal defense system at the beginning of the 20th century. Garrisons were stationed there during both World Wars I and II. This fort is now part of the State Parks system. A lighthouse at Admiralty Head, within the fort grounds, is the visitor center for the State Park.

2. A Utopian colony, established at Freeland

near the end of the 19th century, was abandoned as a colony in 1904.

Outstanding Natural Areas–Two existing outstanding natural areas are: the 30-acre Saratoga Passage Tidelands and the 46-acre Penn Cove Tidelands, both on Whidbey Island. Deception Pass, within the State Park of the same name, is a very interesting attraction. No potential outstanding natural areas have been identified.

SUMMARY–PRESENT AND POTENTIAL

The demand for outdoor recreation opportunities is increasing. If properly protected and developed, the recreation resources on Whidbey and Camano Islands will satisfy significant future outdoor recreation needs.

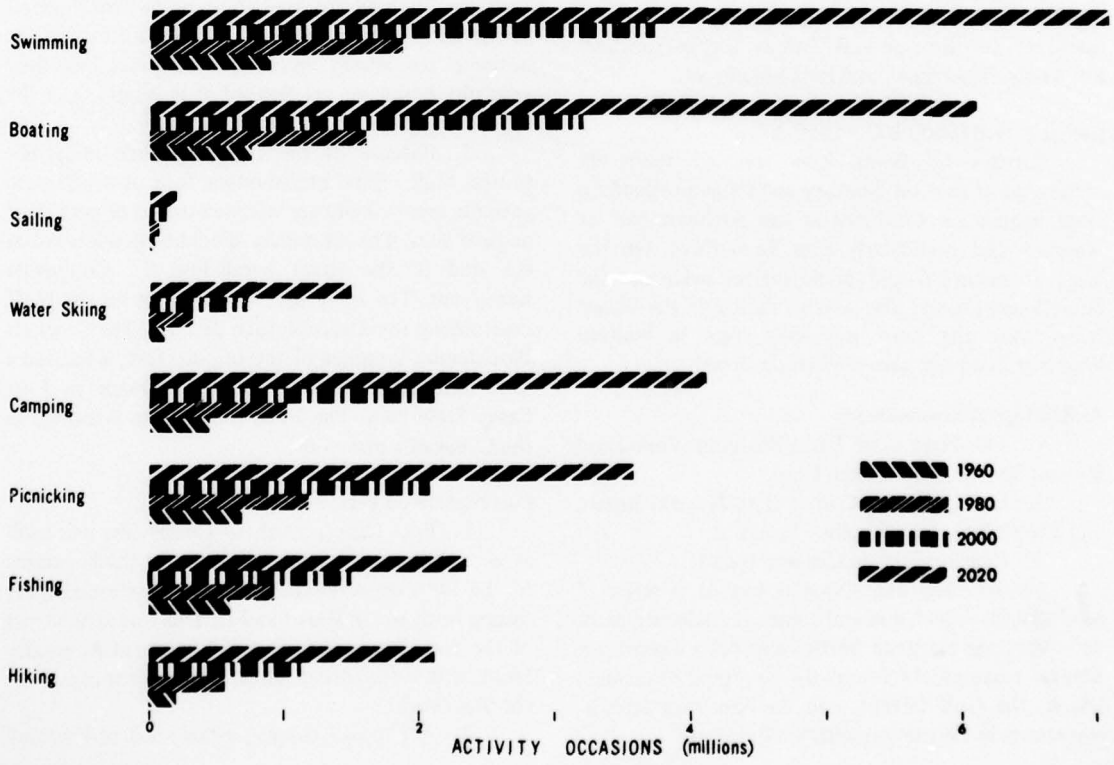
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Whidbey-Camano Islands area was estimated to be almost 7 million activity occasions during 1960. Fifty-five percent of these activity occasions was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demand.

Figure 5-2 illustrates the estimated and projected recreation demand by water related activities.

FIGURE 5-2. Outdoor Recreation Demand, Whidbey—Camano Islands



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	1,500,000	1,200,000	2,700,000
1980	3,000,000	2,200,000	5,200,000
2000	5,800,000	3,900,000	9,700,000
2020	10,800,000	6,700,000	17,500,000

NEEDS

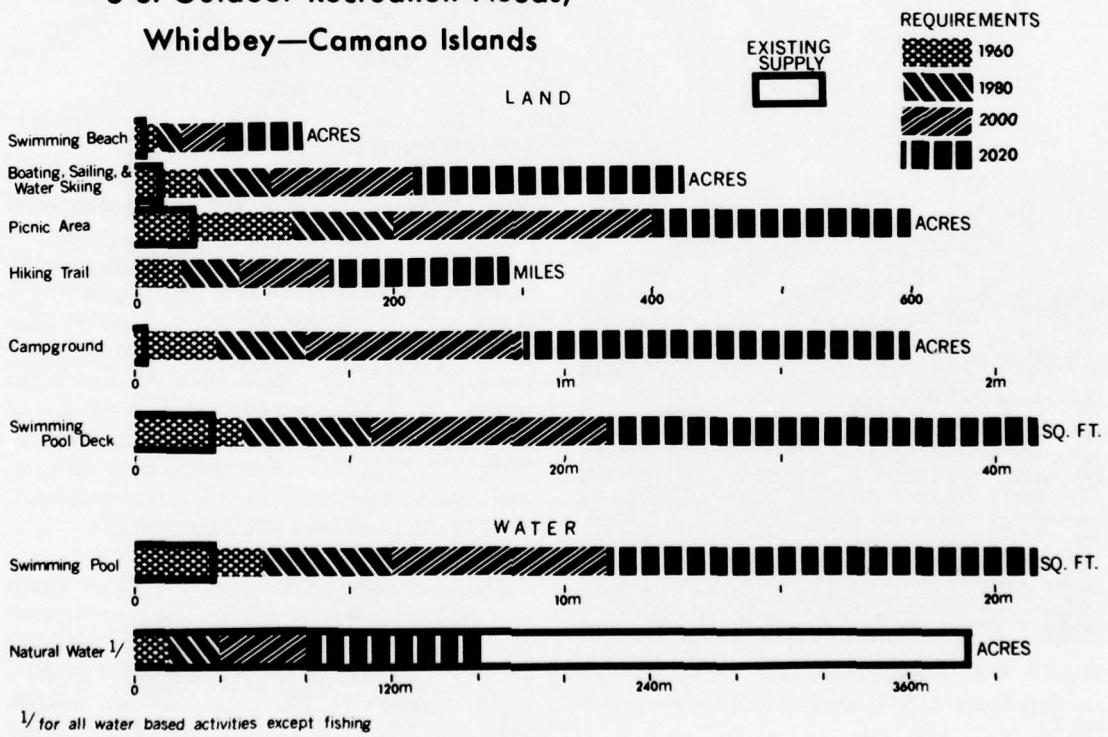
The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities on the Islands is illustrated on Figure 5-3. Needs are found by relating the requirements to the existing supply.

Approximately 50% of the 1960 demand for water related opportunities was unsatisfied due to lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating, camping, and picnicking demands. Beaches and pools are also of insufficient quantity to meet 1960 swimming demands. Since the mileage of existing trails is unknown, trail needs for hiking cannot be determined. There are enough natural waters to satisfy all foreseeable recreation requirements.

In addition to lands needed for boat launching facilities and parking, an additional 3,215 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 13,200 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an

5-3. Outdoor Recreation Needs, Whidbey—Camano Islands



1/ for all water based activities except fishing

additional 1,800 acres of camping and 320 acres of picnicking facilities will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately 10% of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing public lands.

In addition to indicated needs, scenic routes, waterfront access, harbors of refuge, special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will study and identify specific needs for the above purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 15% of the water related recreation demands on the Whidbey-Camano Islands would be satisfied at lakes and pools and 85% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based on the plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 10% of the water related opportunities, while the State, county and local agencies, and private interests could provide 40, 25 and 25% respectively.



PHOTO 5-3. Triangle Cove and Livingston Bay, Camano Island—U.S. Bureau of Outdoor Recreation Photo.

SPECIFIC RECREATION PROBLEMS

A situation which is making it more difficult for public agencies to acquire waterfront lands for recreational purposes, is the tremendous surge in the development of housing tracts and individual vacation residences along the choice shorelines. This will become an even greater problem if and when a bridge is built from the Everett area to the southern end of Whidbey Island.

OUTDOOR RECREATION ACTION PLAN

Improvements of Existing Areas

Additional facilities should be constructed on several of the existing areas, and some developments need to be rehabilitated.

Approximately two-thirds of Whidbey Island's tidelands are State owned and administered by the Department of Natural Resources. Only a small portion of the tidelands around Camano Island are owned by the State. These tidelands need to be retained in public ownership since they are of significant value in satisfying recreation demands. Better access should be provided to these tidelands which are of importance for activities such as beach combing, swimming, and shellfish gathering.

Acquisition and Development of New Areas

Satisfaction of recreation demands depends upon the provision of additional areas by public agencies or commercial interests. Figure 5-4 indicates waterfront lands needing investigation for possible park sites. Several of the sheltered bays could be

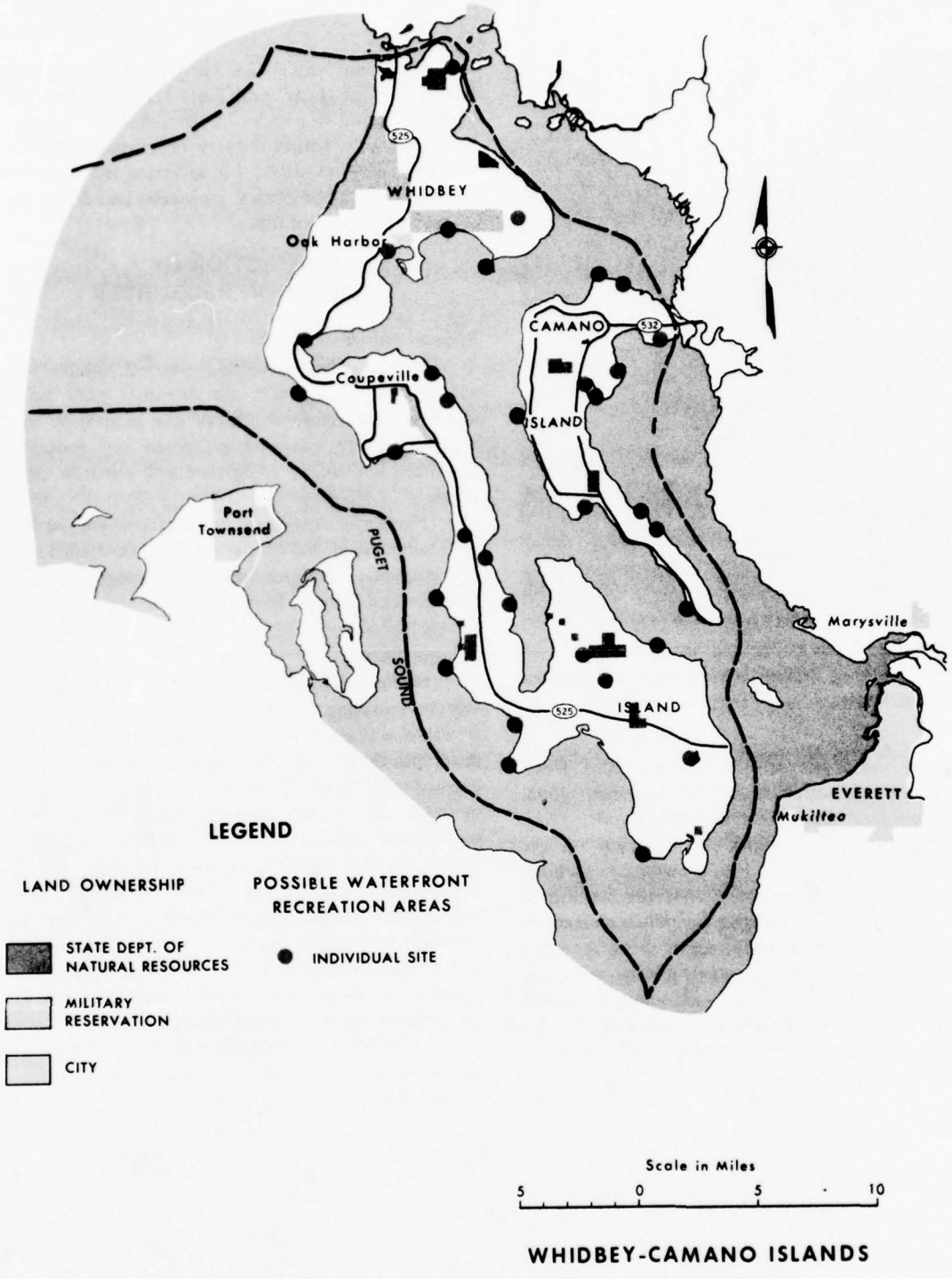


FIGURE 5-4. Possible Waterfront Recreation Areas, Whidbey-Camano Islands



PHOTO 5-4. Steep bluffs and sandy beaches, west side of Whidbey Island—U.S. Bureau of Outdoor Recreation Photo.

designated and developed as harbors of refuge. There are undoubtedly other areas not identified which would be suitable for recreation development.

Steep shoreline bluffs are common on the Islands. In many cases, the topography prevents shoreline housing development, but the beach area itself is sandy and quite usable for public recreation. Public agencies need to acquire scenic-access shoreline easements. These can be used jointly with the tidelands owned by the State. Such a program would be appropriate on those beach areas bounded by steep bluffs. Convenient access to the easements should be provided.

There are several U.S. Navy bases on Whidbey Island. One of them, Ault Field Naval Air Station, includes about five miles of shoreline. If suitable lands presently within military reservations become surplus to Federal needs, it is suggested that they be acquired by a public agency or agencies and dedicated to public recreational use.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas

Numerous archeological, historical, outstanding natural, and underwater marine areas have been identified. The more significant and interesting features should be classified, protected, and properly developed for public enjoyment and scientific purposes.

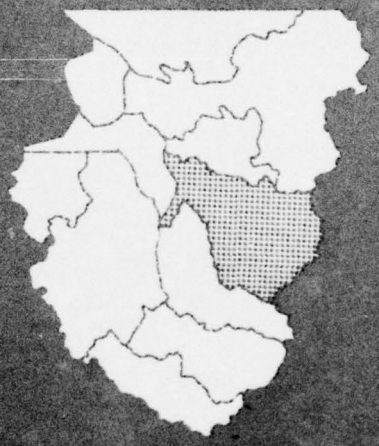
Further archeological investigations are needed with emphasis placed on the semi-circular trench and embankment enclosures found near steep bluffs on Whidbey and Camano Islands.

Private Sector

Commercial interests will plan an important role in providing facilities to accommodate recreationists and tourists. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Private facilities such as resorts, marinas, and trailer camping areas will become increasingly commonplace, especially on Whidbey Island. As the resident population expands, private clubs offering golfing, tennis, and swimming opportunities will become popular. The Islands, with their favorable topography and weather, are well suited for golf course development. The nearness of Whidbey Island to excellent salmon fisheries should encourage the rental of boats for group fishing excursions.

In addition to boating facilities, airfields could be developed by public or private interests near popular resort areas.

Snohomish Basin



SNOHOMISH BASIN

PRESENT STATUS

DESCRIPTION OF BASIN

Physical Description

The Snohomish Basin is located in the east-central portion of the Puget Sound Study Area immediately north of the Seattle metropolitan complex. The Basin extends from tidewater to the crest of the Cascade Mountains, encompassing some 1,978 square miles. The major drainage basin within the area is the Snohomish River. Some 20 miles upstream from its mouth, the Snohomish divides into two major tributaries, the Skykomish to the north and the Snoqualmie to the south. Major tributaries to this system include the Pilchuck, Sultan, Tolt, North and South Forks of the Skykomish, and the North, Middle and South Forks of the Snoqualmie Rivers. Topography within the Basin is extremely varied ranging from low, rolling, terrain adjacent to tidewater to steep and mountainous along the eastern border.

Forest cover predominates in the Basin, extending over 82% of the land area. Agricultural lands, which make up most of the remaining area, occur throughout the coastal lowlands and extend inland along the alluvial river bottoms.

Population and Economy

The 1963 Basin population was estimated at about 178,000, mostly urban. Everett, located on Possession Sound at the Basin's western edge, is the largest city with an estimated population of over 52,000. The Basin's population may reach 303,000 by 1980, 486,000 by 2000 and 780,000 by the year 2020.

Aerospace, agriculture, and forest products are the principal industries. The expansion of the Boeing Company's facilities to the Paine Field area is a major development affecting the growth of the Basin.

The Basin is less than an hour's drive from the Seattle metropolitan area which has a population of about 1,000,000. This subjects much of the Basin to heavy recreation use.

Access

The major north-south highway, Interstate No. 5, transverses the Basin on the western side. Interstate No. 5, plus State and County roads, provides ready access to much lowland area. Major east-west links are U.S. Highway No. 2 and Interstate Highway No. 90 along the major river drainages and extending through Stevens and Snoqualmie Passes into the interior of the State. Private, County and Forest Service roads give limited access into the mountainous eastern half of the Basin, although most of this area is accessible only by trail.

Boat transportation is common along the salt water shoreline. A State-owned ferry provides vehicle access from Mukilteo to Whidbey Island. There are also several airports within the Basin.

Climate

The climate is typical of the Puget Sound Area, which is noted for cool summers and mild winters. Precipitation varies from 30-40 inches along the coastal shelf to over 100 inches in the mountainous areas, mostly occurring between October and June. Heavy snow is common above 3,000 feet elevation.

Other than winter sports, most recreational activities occur during the drier months.

Land Ownership

Of some 1,216,120 acres in the Basin, 52% or 628,370 acres is in public ownership. Private lands occur mostly in the Basin's western half. Figure 6-1 designates major public ownerships.

Recreational Features

Water based recreation resources include about 50 miles of shoreline on Puget Sound, numerous lakes, rivers, and small streams. Better known large fresh water areas include Sultan Reservoir, Lake Stevens and the Snohomish, Snoqualmie and Skykomish Rivers. The eastern half of the Basin contains many attractive, small high-elevation lakes. A group of such lakes are included within the proposed Alpine

TABLE 6-1. Summary of existing publicly-administered outdoor recreation resources, Snohomish Basin

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gen'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Snow Skiing Lifts	Tows	Total 1964 Visitation
Federal																	
Forest Service	419,809	130	6,833	412,816	30			149	43						2	14	559,940
Park Service																	
Military Res.																	
Other Federal																	
Total Federal	419,809	130	6,833	412,816	30			149	43						2	14	559,940
State																	
Dept. of Fish	24		9		15												4,000
Dept. of Game	987		123	864						15	865	23					71,570
Dept. of Nat. Res.	132,350[1]		10	132,340				25	30	21		2					48,430
Parks & Rec. Com.	2,194		38	2,156				105	150	210	430	1		2			632,106
Total State	135,555		180	135,360	15			130	180	246	1,295	26		2			756,106
County	1,367	52	51	1,143		120	1		54	80			2,700	3			112,230
City & Other Local	620	134	347	95	44				159	510	105	4	3,000	8			296,016
Total	557,351	316	7,411	549,414	89	120	1	179	436	836	1,400	30	6,000	13	2	14	1,724,292

[1] Does not include tidelands and shorelands.

Lake Wilderness in the Snoqualmie National Forest. Other recreational attractions include the mountainous areas of the Cascade Range which contain about 104,000 acres of alpine and sub-alpine terrain and a large section of the Glacier Peak Wilderness. There are large winter sports developments at Stevens and Snoqualmie Passes.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, the Basin contained 112 publicly administered outdoor recreation areas. The Forest Service administered 24 areas; the State, 55; County, 9 and the Cities, 24. Of the 557,351 acres of land classified available for public visitation, 419,809 acres are within National Forests. Table 6-1 summarizes the existing supply by administering agency.

Figure 6-1 shows the location of the existing publicly-administered outdoor recreation sites and areas. Table 6-2 describes the individual sites.

The National Forest lands are in the Basin's mountainous eastern half. In 1964, the Forest Service reported a visitation by primary purposes as follows:

	Mt. Baker N.F. (Visits)	Snoqualmie N.F. (Visits)	Total Visits
Camping	292	34,900	35,192
Picnicking	130	65,900	66,030
Winter Sports		266,502	266,502
Hunting	275	6,530	6,805
Fishing	1,419	52,309	53,728
Hiking and Riding	709	5,969	6,678
Organization Camping		1,200	1,200
General Enjoyment and Sightseeing	250	113,698	113,948
Gathering Forest Products for Pleasure	193	1,526	1,719
Scientific Study and Hobbies	48	2,685	2,733
Other Activities	181	5,224	5,405
Total	3,497	556,443	559,940

Information regarding the five State Park areas has been compiled as follows:

Area	Acres	Visitation 1958	1963	1966
Edmonds Recreation Area	1	----	Unknown	Unknown
Mt. Pilchuck State Park	1,973	10,004	41,745	62,728
Mukilteo Recreation Area	14	66,850	321,908	202,489
Twin Falls Recreation Area	160	---	Unknown	Unknown
Wenberg State Park	46	189,102	196,045	268,824

The recorded visitation to these areas doubled between 1958 and 1966.

Existing Privately-Administered Areas

In addition to areas administered by public agencies, about 58 private operators offer facilities for public use. The Basin's proximity to the heavily populated Seattle area accounts for this high number of private facilities.

Activity	Number of Enterprises	Capacity at one time (people)
Rural Living	2	110
Enjoying Scenery	6	485
Nature Observation	10	1,050
Hiking	9	1,000
Tent Camping	3	210
Trailer Camping	1	53
Transient Camping	1	35
Picnicking	12	740
Field Games	5	600
Archery	1	20
Target Shooting	1	50
Children's Play	1	15
Golfing - 9 hole	5	360
Golfing - 18 hole	2	288
Golf Driving Range	1	10
Putt Golfing	1	75
Pond Fishing	10	690
Lake, River Fishing	6	263
Salt Water Fishing	12	1,025
Stream Fishing	2	80
Hunting Big Game	1	250
Hunting Waterfowl	2	85
Horseback Riding	4	50
Swimming	19	2,770
Snow Skiing	2	1,000
Tobogganing	1	4

The observation area at Snoqualmie Falls, with an annual visitation of 300,000, is a popular privately administered recreation area. It includes recently improved visitor facilities at the Puget Sound Power and Light Company power development.

Water

Water is a key factor of supply being essential for many outdoor activities and adding to the enjoyment of others. In the Snohomish Basin there are 49,652 acres of salt water, 13,790 acres of lakes and reservoirs, and many miles of streams. About 150 miles of rivers are suitable for boating.

There are popular skin diving areas near Point Wells and Edmonds.

Potential Supply

The salt water shoreline, the many miles of rivers and streams, and the numerous lakes can



PHOTO 6-1. Wenberg State Park—Washington State Parks and Recreation Commission Photo.

TABLE 6-2. Existing recreation sites in the Snohomish Basin

Site No. *	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	Denny Creek	15	41	5	
▲ 2	Camp Joy	10	5		
▲ 3	Commonwealth	3	3	2	
▲ 4	Taylor River	10	21		
▲ 5	Bear Lake	10			Shelter
▲ 6	Snoqualmie Lake	5	4		
▲ 7	Pratt Lake	8			Minimum Developed Campground
▲ 8	Annette Lake	5			" " "
△ 9	Asahel Curtis	4		26	
△ 10	Deception Falls	1		4	
▲ 11	Snoqualmie Summit	220			Winter Sports Area
▲ 12	Tye Canyon	3	2		
▲ 13	Money Creek Camp	13	17	6	
▲ 14	San Juan	5	12		
▲ 15	Troublesome Creek	7	29		
▲ 16	W. Fork Miller River	3	4		
▲ 17	Barclay Lake	1	4		Shelter
▲ 18	Beckler River	12	2		
▲ 19	Foss River	18	5		
▲ 20	Necklace Valley	1			Shelter
▲ 21	Big Heart Lake	1			"
▲ 22	Lake Janus	1			"
▲ 23	Deception Lake	1			"
▲ 24	Glacier Lake	1			"
State					
□ 1	Skykomish Fish Hatchery	9			
□ 2	Sunset Falls Fishway	15			
□ 3	Alice Lake	1			Boat Launching
□ 4	Ames Lake	1			" "
□ 5	Cassidy Lake	2			" "
□ 6	Chain Lake	2			" "
□ 7	Chochrane Lake	5			" "
□ 8	Connor Lake	1			" "
□ 9	Crabapple Lake	1			" "
□ 10	Flowing Lake	1			" "
□ 11	Fontal Lake	1			" "
□ 12	Goodwin Lake	1			" "
□ 13	Hannan Lake	1			" "
□ 14	Langlois Lake	1			" "
□ 15	Lost (Devil's) Lake	1			" "
□ 16	Margaret Lake	1			" "
□ 17	Martha Lake	1			" "
□ *18*	*Panther Lake*	*?*			*Public Fishing*
□ 19	Shoecraft Lake	3			Boat Launching
□ 20	Stevens Lake	1			" "
□ 21	Skykomish River	1			Public Fishing
□ 22	Snohomish River	1			Boat Launching
□ 23	Snoqualmie River	5			" "
□ 24	Bosworth Lake	1			" "
□ 25	Loma Lake	1			" "
□ 26	Roesiger Lake	1			" "
□ 27	Storm Lake	1			" "
□ 28	Ebey Island Game Farm	420			
State (cont'd)					
□ 29	Tokul Creek State Game Fish Hatchery	85			
□ 30	*Pheasant Habitat*	14			*Public Hunting*
□ 31	Pheasant Habitat	430			" "
□ 32	Smith Island	15		8	Boat Launching
□ 33	Abel Johnson	10		2	
■ 34	Ashland Lakes	190	4		
□ 35	Boundary Camp	80			
□ 36	Crystal Creek	34			
□ 37	Duffey Creek	75			
□ 38	Echo Interchange	50			
□ 39	Lake Hancock	206			Boat Launching
□ 40	Lewis Creek	20			
■ 41	May Creek	10	4	3	
□ 42	Middle Fork Bridge	160			
□ 43	Mt. Si Scenic Campground	20			
■ 44	Olney Creek	10	10	10	
□ 45	Olney Creek Falls	80			
□ 46	Sixteen	34			
□ 47	Thompson Lake	34			
■ 48	Wagner Bridge	40	5	5	
□ 49	Young's River	10	2	2	
■ 50	Wenberg State Park	46	100	117	Boat Launching Swimming Beach
□ 51	Edmonds Recreation Area	1			
■ 52	Mt. Pilchuck State Park	1,973	5	6	Winter Sports
□ 53	Twin Falls Recreation Area	160			
□ 54	Mukilteo Recreation Area	14		27	Boat Launching Swimming Beach
□ 55	Elk Creek	80		1	
County					
○ 1	Fall City County Park	40			
○ 2	Fall City Park No. 14	1			
○ 3	Si View Park	5			Swimming Pool
○ 4	Tolt River County Park	90			
○ 5	Valley Memorial	6			
○ 6	Shorelands Park	2		4	Swimming Beach
○ 7	Lake Roesiger Park	3			
○ 8	Granite Falls	120			
○ 9	Port of Everett	1,100		50	Swimming Beach
City					
⌓ 1-7	City of Edmonds	31		93	Swimming Beaches
⌓ 8-9	City of Lynnwood	21		20	
⌓ 10-17	City of Everett	2,521			Boat Launching. Swimming Pool and Beaches
⌓ 18	City of Marysville	13		6	
⌓ 19-22	City of Snohomish	19		15	Boat Launching Swimming Beach
⌓ 23	City of Monroe	5		10	
⌓ 24	Camp Waskowitz	10		15	

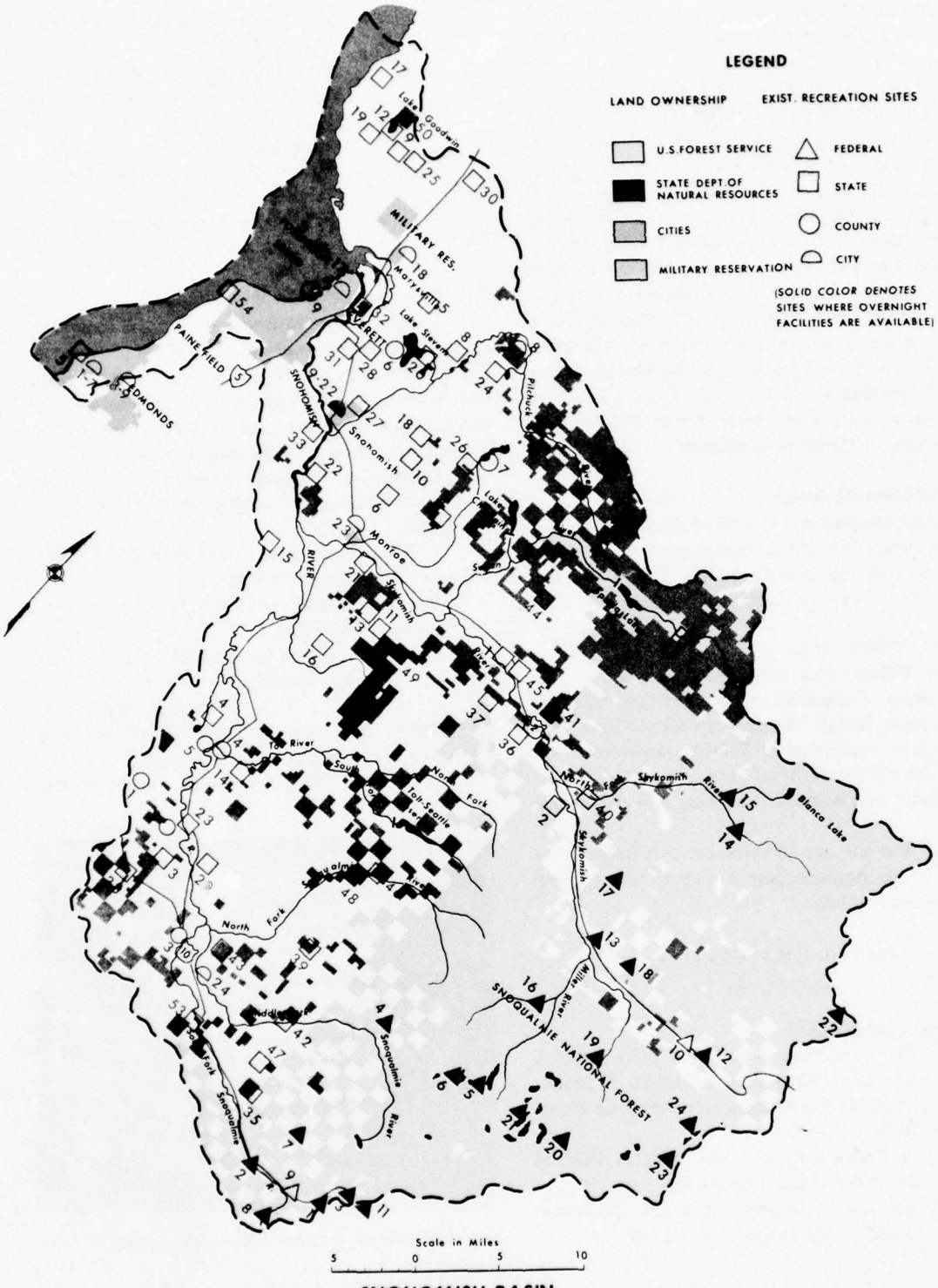
*Site No. refers to map on opposite page.

support many more recreation developments than are now provided. Abundant suitable sites are located along the rivers.

In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation use in Snohomish and King Counties. In Snohomish County the appraisal disclosed that there is a high potential for development related to vacation cabins, camping, motorcycling, fishing, golf, sightseeing, riding, shooting preserves, and water sports. Similar findings were found for King County with the exceptions that the potential for picnicking and winter sports facilities was rated as high and for fishing facilities as medium.

The National Forest land in the Basin's eastern half and the State lands in the central portion are excellent sources of potential supply. The Forest Service reports that 401 acres of campground and 185 acres of picnic ground are scheduled for development from 1964 to 1975. About 2,000 acres are planned for development from 1976 to 2000. An additional 700 acres of potential development sites have been reserved for unforseen needs.

The State Department of Natural Resources plans to develop additional sites on its lands. The State Department of Game plans to acquire and develop 29 lake and 3 salt water fishing access sites as well as one waterfowl and 3 small game areas. The



SNOHOMISH BASIN

FIGURE 6-1. Existing Outdoor Recreation Sites, Snohomish Basin

State Parks and Recreation Commission has identified one potential State park area at Wallace Falls on the Wallace River.

There are also many areas on private lands in the Basin's western portion suitable for development for recreation purposes. Figure 6-4 indicates waterfront areas with possible recreation potential.

The city of Everett manages a 78 square mile municipal watershed on the Sultan River. The city of Seattle manages a 64.5 square mile municipal watershed on the Tolt River. These lands are Federal, State, city, and privately owned. Access and recreational use of these watersheds is controlled. These areas constitute an important potential recreation resource. The State Department of Natural Resources plans to manage the State lands within the Sultan Basin on a multiple use basis consistent with State Department of Health requirements.

Special Interest Areas

Archeological and Historical Areas. The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.-1850 A.D.)

1. Village sites have been recorded on the Snoqualmie, Snohomish, Skykomish and Pilchuck Rivers. Near Duvall on the Snoqualmie River, the Washington Archeological Society excavated a site and recovered a quantity of perishable materials, such as basketry and wooden fishhooks, as well as stone tools.

2. The site of a potlatch house is located near Priest Point. Archeological studies at this location might prove fruitful.

Exploration and Fur Trade (1592-1841)

None

Settlement (1842-1888)

1. Governor Isaac Stevens in 1855 signed a treaty with the Indians at Point Elliot. A bronze tablet in Mukilteo marks the treaty site which is now a State Park.

2. A Catholic mission was built in 1858 at Priest Point on the Tulalip Reservation.

3. Forts were constructed during the Indian wars in the mid-1850's at the following sites:

a. Fort Alden-2½ miles above Snoqualmie Falls.
b. Fort Ebey-on Ebey Island in the Snohomish River.
c. Fort Henderson-1½ miles below Snoqualmie Falls.
d. Fort Smalley-½ mile west of North Bend.
e. Fort Tilton-3 miles below Snoqualmie Falls.

Post-Statehood (1889-Present)

1. The Great Northern Railway's main line through Stevens Pass is the scene of the worst railroad disaster in the United States history. In 1910, more than 100 people were killed when an avalanche swept two passenger trains, stalled at the entrance to the Stevens Pass tunnel, into the canyon below.

Outstanding Natural Areas. There are four established outstanding natural areas in the Basin. They are:

1. Wildflower Acres near Marysville-25 acres.
2. Silver Lake in Everett-4 acres.
3. Pigeon Creek in Everett-40 acres.
4. Snoqualmie Falls

The Forest Service has identified the following 5 areas for potential classification:

1. Alpine Lakes wilderness (T22-26N, R12-14E)-42,250 acres in Puget Sound drainages; 122,100 acres in drainages east of Cascades.

2. Deception Falls scenic area (T26N, R13E)-100 acres.



PHOTO 6-2. Deception Falls—U.S. Forest Service Photo.

3. Franklin Falls scenic area (T22N, R11E)-200 acres.

4. Humpback Trail botanical area (T22N, R10E)-100 acres.

5. Deception Falls botanical area (T26N, R13E)-100 acres.

SUMMARY-PRESENT & POTENTIAL

There is an abundant supply of recreation resources within the Snohomish Basin. Their nearness to population centers makes them particularly suitable for satisfying increasing outdoor recreation needs.

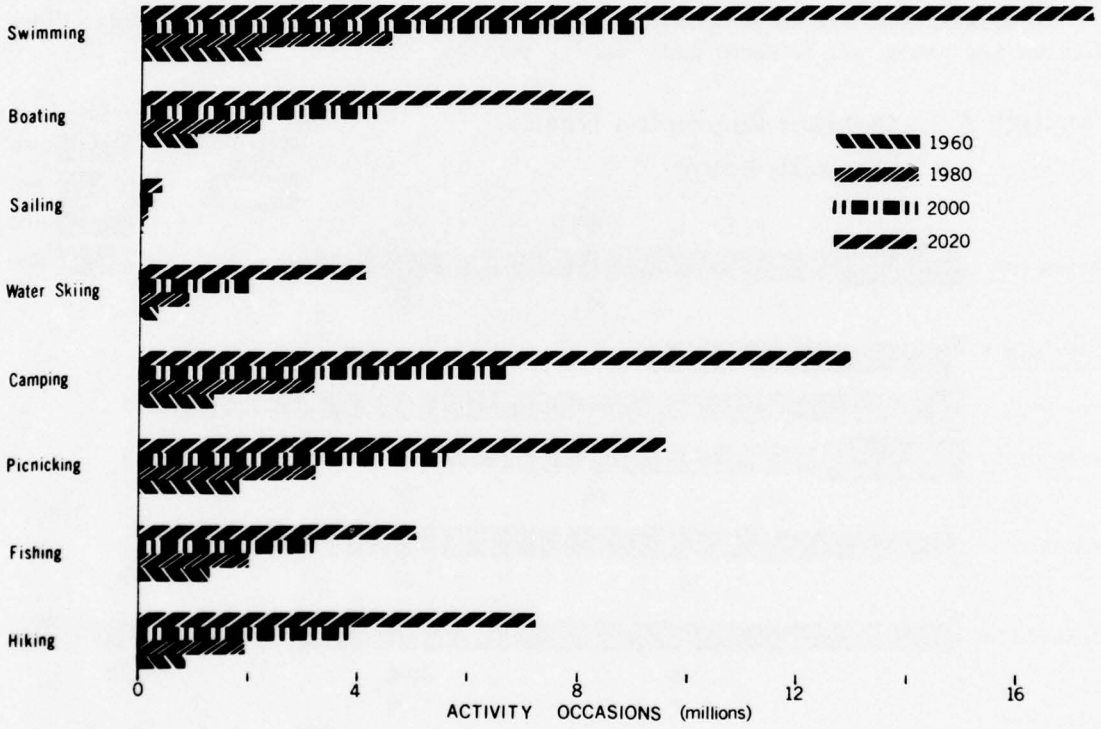
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Snohomish Basin was estimated to be almost 20 million activity occasions during 1960. Forty-five percent of this demand was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demand.

Figure 6-2 illustrates the estimated and projected recreation demand by water related activities.

FIGURE 6-2. Outdoor Recreation Demand, Snohomish Basin



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	3,600,000	4,300,000	7,900,000
1980	7,200,000	7,700,000	14,900,000
2000	14,000,000	14,000,000	28,000,000
2020	26,000,000	24,700,000	50,700,000

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Snohomish Basin is illustrated in Figure 6-3. Needs are found by relating the requirements to the existing supply.

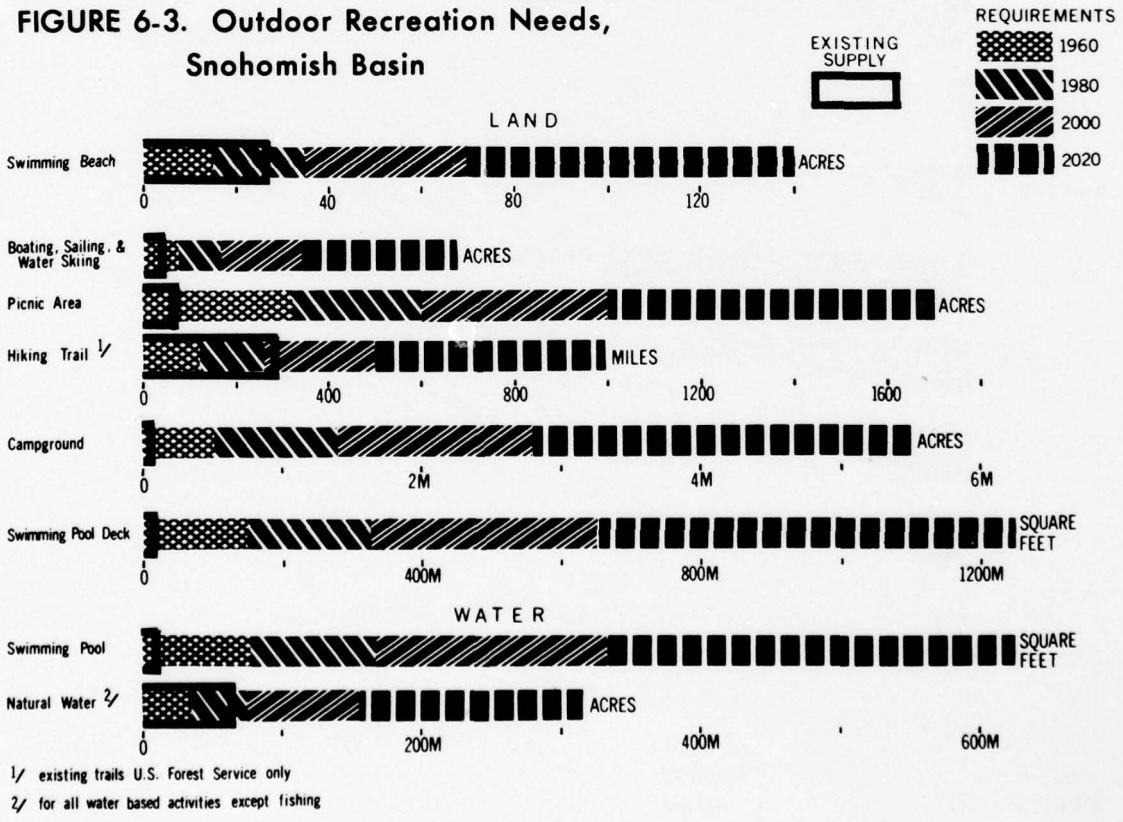
Approximately 45% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating, camping and picnicking demands. Beaches are of sufficient quantity to satisfy swimming demand until the year 1970, but there is a deficiency of swimming pools. Existing Forest Service trails will handle hiking use until the year 1980. There are enough natural waters to satisfy water based recreation demands until 1975. After that year a portion of the surplus water use may be transferred to the adjacent Whidbey and Camano Islands.

In addition to lands needed for boat launching facilities and parking, an additional 2,651 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 22,300 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 5,500 acres of campground and 1,000 acres of picnic area need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately two-thirds of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, recreation rivers, special interest areas, interpretive facilities, open spaces, and beaches and trails for activities other than swimming and hiking, are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will study and identify specific needs for these purposes.

FIGURE 6-3. Outdoor Recreation Needs, Snohomish Basin



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 35% of the water related recreation demands in the Snohomish Basin would be satisfied at lakes and reservoirs, 25% at rivers and streams, 15% at swimming pools, and 25% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 30% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 20, 30 and 20% respectively.

SPECIFIC RECREATION PROBLEMS

There are problems of water and air pollution from sources within the city of Everett. Bacteria levels in the lower Snohomish River and Everett Harbor approach or at times exceed those recommended by the Washington State Pollution Control Commission. Air pollution from industrial sources impairs scenic qualities and the general livability of the area. The Snoqualmie River, near the town of Snoqualmie, is also unsuitable for water-contact activities. Some of the lakes within the Basin are suffering from water pollution caused by the development of the shorelines for residential purposes.



PHOTO 6-3. Snoqualmie River south of Carnation— U.S. Bureau of Outdoor Recreation Photo.

Three situations which have an impact upon the availability of lands for public outdoor recreation are: the spread of urban and industrial areas, the presence of railroad tracks along the salt water shoreline from Everett south, and the existence of two large municipal watersheds within the central portion of the Basin.

With increasing need for suitable land areas for various purposes, a succession of conflicts over land use will occur. Comprehensive planning with resultant effective land use regulations will alleviate the problem by determining the highest and best uses for lands. Since many of the situations have more than county-wide implications, implementation of comprehensive planning on a regional rather than a county basis is suggested.

Railroad tracks follow the shoreline of Puget Sound from Everett south to Seattle. Their presence restricts access and recreational development of the waterfront. The railroad right-of-way has also prevented the development of this narrow band of level land along the shoreline for other purposes.

In addition to the two large municipal watersheds in the Basin, the 78-square mile Sultan River Watershed and the 64.5-square mile Tolt River Watershed, there are four small watersheds, one of which will be abandoned to become a 48-acre park. At present, municipal and State Department of Health policies limit public use of the watersheds. Some forms of recreation are permitted on a portion of the Sultan River Watershed, but public use is not encouraged. The Tolt River Watershed is closed to public access. On the positive side, the watersheds comprise an important part of the open space system and, as such, may be considered as future recreation areas, especially those portions which are in public ownership. Approximately one-half of the area within the Tolt River Watershed is publicly owned, and almost all of the Sultan River Watershed is either within State or Federal ownership.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

There are approximately 110 publicly administered developed recreation sites within the Basin. Many have very minimal developments and could accommodate additional improvements. Some developed facilities need to be rehabilitated.

In addition to the developed sites, there are approximately 550,000 acres of publicly administered undeveloped Class III general recreation lands. A portion of these lands could be developed for recreational activities. Management agencies plan to develop needed recreation sites in their long-range programs.

There are State shorelands along all of the Snohomish River; most of the Skykomish and Snoqualmie Rivers; portions of the Sultan, Wallace and North Fork of the Skykomish Rivers; and around several of the lakes. In addition, the State owns two stretches of tidelands north of Everett. With the provision of better access, these lands can be utilized in satisying recreation needs. During lower flows, the lands along the rivers can be utilized for hiking, picnicking, and camping. The tidelands are of similar value. Retention of these lands in public ownership in a clean and sanitary condition is necessary.

Acquisition and Development of New Areas

Areas on Existing Waters. The existing recreation sites are fairly evenly distributed throughout the Basin. However, there is a lack of public recreation lands on the salt water shoreline and on the major lakes and rivers. There are only three publicly administered recreation areas on the salt water shoreline. With the exception of State shorelands, the lands adjacent to the Snohomish and the middle and lower portions of the Skykomish and Snoqualmie Rivers are privately owned and are not open for public access. Satisfaction of recreation demands depends upon the provision of additional recreation areas by public agencies or private interests.

Figure 6-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly other areas not identified which would be suitable for recreation development. Areas in the National Forest have not been indicated on the map since the Forest Service has already inventoried the recreation potential of its lands.

The residents of the Seattle and Everett metropolitan areas place heavy pressures on the recreation resources of the Snohomish Basin. The increasing populations will greatly increase the need for recreation areas. Several of these needed recreation developments may take the form of large parks administered by regional or local authorities. As the Everett and other urban areas expand, efforts need to be taken to provide for adequate recreation areas and open space within and near the populated areas.

Public access to recreation attractions is restricted by municipal watersheds and railroad rights-of-way. Limited recreation use is tolerated on a portion of the area within the watersheds, while a majority of the areas are closed to public access and use. Limited recreation use for activities such as hiking, fishing, and hunting needs to be allowed on all public lands within watersheds. At a time when the recreation resources on surrounding lands become saturated, the watersheds should provide more intensive recreation use; and the consideration of sharing the costs of necessary developments between recreation and other users should be explored. If watersheds or portions thereof become surplus to domestic water needs, suitable areas should be transformed into parks.

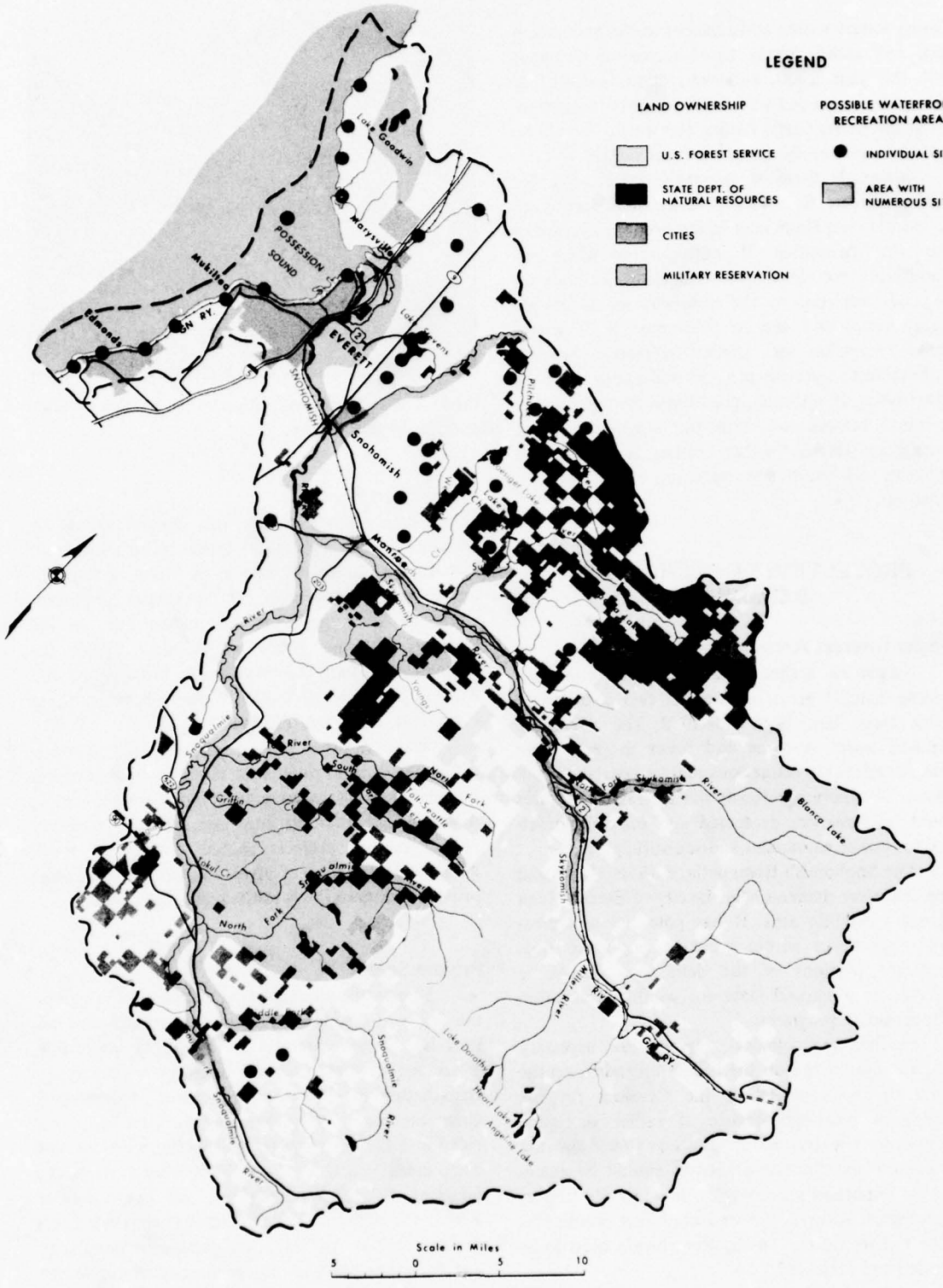
The railway tracks along the salt water shoreline south of Everett restrict public use. The possibility of providing safe public use easements adjacent to the tracks needs to be explored. If the railway route is ever abandoned, public agencies could develop recreation ways along the right-of-way.

Scenic-access easements are needed along the shoreline north of Everett and along both sides of the Snohomish, Skykomish, and Snoqualmie Rivers. Easements should be acquired along lesser rivers and streams within urban areas and areas destined to be developed for residential purposes. Where possible, easements should be tied in with the tide and shorelands owned by the State. Trails need to be developed within the easements and convenient road access provided. Further studies are needed to identify waterfront strips suitable for protection as scenic-access easements.

To satisfy recreation objectives, the natural flood plains along the Snohomish, Skykomish and Snoqualmie Rivers should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

To accommodate concentrations of people who will be living near or within the area, the development of rapid transit facilities seems inevitable. When these transit facilities are constructed, access to recreation areas within or near urban areas via rapid transit should be provided. Surplus streets and parking lots within cities served by rapid transit could be transformed into parks, plazas, and walkways.

Future Water Development. With the exception of swimming pools which are needed in urban areas,



SNOHOMISH BASIN

FIGURE 6-4. Possible Waterfront Recreation Areas, Snohomish Basin

existing waters within and adjacent to the Snohomish Basin will satisfy water based recreation demands until the year 2000. However, additional surface waters may be needed after 1990 to alleviate deficiencies in the Cedar-Green Basins. Reservoirs should be located in areas easily accessible from Seattle.

Although there is presently little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir area itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas.

Numerous archeological, historical and outstanding natural areas, as well as two underwater marine areas, have been identified. The effects of proposed water resource and other projects upon these irreplaceable attractions require special consideration. The more significant and interesting features should be classified, protected and properly developed for public enjoyment and scientific purposes.

The Snohomish River delta, with its islands and numerous river channels near the city of Everett, is an important wildlife area. It has potential as recreational open space within a heavily populated area. Significant portions of the delta area should be preserved in a natural state for wildlife, recreation and open space programs.

Further archeological surveys are necessary along the Sound and on the rolling uplands from the Sound to the foothills of the Cascades for the purpose of locating evidence of earlier aboriginal occupancy. The courses of Quilceda Creek and the Skykomish and Snohomish Rivers should be examined for important archeological sites. In addition to archeological surveys, the traditions and ceremonies of the Indians on the Tulalip Reservation need to be recorded and preserved.



PHOTO 6-4. Skykomish River—U.S. Bureau of Outdoor Recreation Photo.

Recreation Rivers.

Certain rivers or portions thereof should be retained in their natural condition to satisfy present and future recreation needs. A State system of recreation rivers is suggested to protect important rivers or river segments for public use. In the Snohomish Basin, rivers which may qualify for protection include the Skykomish, Snoqualmie and its Middle and North Forks, Wallace, Beckler, Miller Foss, Tolt, Tyee and Pilchuck.

Water resource projects which would adversely affect the natural quality of rivers or river segments designated as State recreation rivers should not be developed. If alternate sites are available, necessary water resource projects should be located above designated stretches of river and operated so as to provide optimum flows to the recreation rivers.

Private Sector

Due to the abundance of people within or near the Basin, the supplying of outdoor recreation facilities by private interests should prove profitable. There are several privately operated winter sports areas within the Basin and more may be developed. Other recreation improvements which are being provided at a financial gain to the supplier are picnic and camp areas, winter sports facilities, resorts, swimming facilities, fishing opportunities, and hunting areas. Within the urban areas, boat marinas and swimming, golfing, and tennis clubs are gaining in popularity. The private sector will play an increasingly important

role in the satisfaction of outdoor recreation demands. Commerical interests will rapidly move into the picture whenever a need exists that can be profitably filled.

There are over 465,000 acres of privately owned forest lands within the Basin, plus many acres of agricultural land along the rivers. These lands are close to the populated areas. The owners of some of these lands need to be encouraged to accommodate public recreation use on their areas.



PHOTO 6-5. Stevens Pass Winter Sports Area—U.S. Bureau of Outdoor Recreation Photo.

Cedar-Green Basins



CEDAR — GREEN BASINS

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

The Cedar-Green Basins are located in the east-central portion of the Puget Sound Study Area and include the Seattle metropolitan complex. The Basins extend from the waters of Puget Sound eastward to the crest of the Cascade Mountains. The topography varies from level to rolling in the western one-half, to mountains in the eastern portion. Two large lakes, Washington and Sammamish, are within the Basins. The Cedar and Green Rivers are the two main drainages.

Population and Economy

In 1963, the Basins' population was almost one million, mainly within the Seattle metropolitan area located on the shores of Puget Sound and Lake Washington. This concentrated population results in extreme pressures upon the Basins' recreation areas and facilities. The population may reach 1,479,000 by 1980, 2,376,000 by 2000, and 3,816,000 by the year 2020.

The major industries within the Cedar-Green Basins are aircraft, shipbuilding and other manufacturing industries.

Access

The Cedar-Green Basins are readily accessible by Interstate Highway 5, which traverses the western portion of the Basins from north to south. Interstate Highway 405 provides access from Interstate Highway 5 along the eastern shore of Lake Washington. The major east-west access through the Basins is via Interstate Highway 90, which crosses Snoqualmie Pass.

Many State and county roads provide access to the lower elevations. Access through the Basins' mountainous one-half is limited due to restrictions placed upon the public use of the Seattle and Tacoma municipal watersheds.

The Basins' populated portion is served by air, train, and bus access. Boat travel is common on salt and fresh waters, and three State-operated ferry routes provide vehicle and passenger access across Puget Sound. Access to and from Canada is available via the Seattle to Victoria steamship and hydrofoil, both popular attractions.

Climate

The climate is cool in summer and mild in winter. The mean annual precipitation varies from 35 inches in Seattle to over 100 inches at the crest of the Cascade Mountains where heavy snow is characteristic. About 75% of the precipitation falls from October through March.

Most recreational opportunities occur during the summer when precipitation is light.

Land Ownership

Of some 702,677 acres of land within the Basins, 30% or about 216,000 acres is publicly owned. The publicly owned land is mostly Seattle and Tacoma watersheds in the Basins' eastern one-half.

Recreational Features

Major recreation attractions are the waters and shorelines of Puget Sound, Lake Washington, and



PHOTO 7-1. Shilshole Marina and Seattle—U.S. Bureau of Outdoor Recreation Photo.

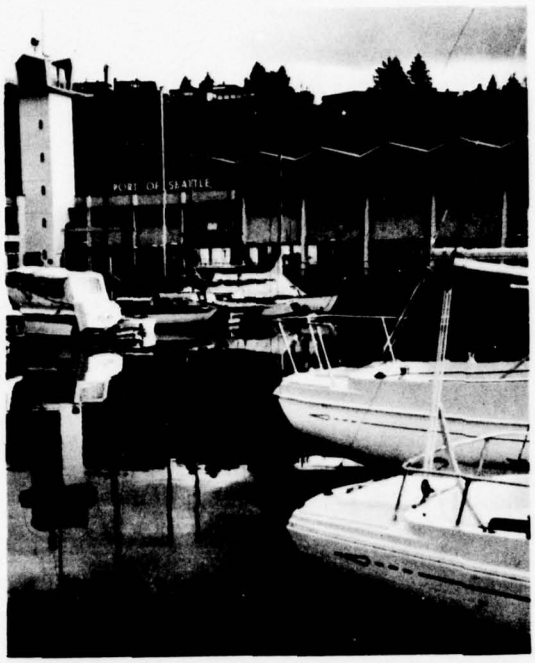


PHOTO 7-2. Shilshole Marina—U.S. Bureau of Outdoor Recreation Photo.

Lake Sammamish. A 12-mile section of the Green River Gorge from the town of Kanasket to the Kummer Bridge is a unique area and has been aptly called "a ribbon of wilderness through our midst." The shorelines of the Cedar River, as well as many other rivers, streams, and smaller lakes, possess numerous recreation amenities. The urban parks within the Seattle metropolitan area are important recreation attractions which receive a large amount of use.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 244 publicly-administered outdoor recreation sites within the Basins. One is



PHOTO 7-3. Lake Sammamish State Park—Washington State Parks and Recreation Commission Photo.

administered by a Federal agency, 38 by the State, 34 by the counties, and 171 by the cities. Developments on the National Forest lands are quite minimal since use is restricted due to the existence of the Seattle and Tacoma municipal watersheds. Of the total 16,000,000 visits to publicly-administered recreation areas, 13,600,000 took place in city parks. Table 7-1 summarizes the existing supply by administering agency.

The Lake Washington Ship Canal, which connects Puget Sound with Salmon Bay, Lake Union, and Lake Washington, is utilized by many pleasure boaters. The U.S. Army Corps of Engineers operates the Hiram M. Chittenden Locks on the Ship Canal. During 1962, the year of the Seattle World's Fair, over 80,000 vessels went through the locks; almost 48,000 of these were pleasure craft. In addition, two million people visited the locks during 1962. The Hiram M. Chittenden Locks are complemented by seven acres of botanical gardens containing plants from many countries.

There are four State Park areas in the Basins. The following table shows the acreage of and visitation to these areas:

State Park	Acres	Visitation		
		1956	1963	1966
Bridle Trails Equestrian Park	480	73,480	85,309	132,047
Des Moines Recreation Area	1		Unknown	Unknown
Lake Sammamish	383	275,220	416,661	564,657
Saltwater Recreation Area	88	269,443	441,367	608,610

The visitation to these areas more than doubled between 1956 and 1966.

TABLE 7-1. Summary of existing publicly-administered outdoor recreation resources, Cedar-Green Basins

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim beach (Acre)	Total 1964 Visitation
Federal															
Forest Service	71,280			71,280											18,128
Park Service															
Military Reserv.	1,158		1,158						20		50		2,600	2	3,000
Other Federal	97		97							120					848,700
Total Federal	72,535		1,255	71,280					20	120	50		2,600	2	869,828
State															
Dept. of Fish	43		43							2					80,000
Dept. of Game	185		29	156						250	550	25			79,750
Dept. of Nat. Res.	16,090[1]			16,090					10	10					5,235
Parks & Rec. Com.	983	30	100	853				60	526	1,840	340	2		9	973,252
Total State	17,301	30	172	17,099				60	536	2,102	890	27		9	1,138,237
County	1,344	181	682	339	50	92			603	200	100	3		58	1,024,610
City & Other Local	4,010	2,037	299	1,569	98		7		754	7,500	531	16	20,300	46	13,563,086
Total	95,190	2,248	2,408	90,287	148	92	7	60	1,913	9,922	1,571	46	22,900	115	16,595,761

[1] does not include tidelands and shorelands

The Seattle parks and recreation system includes a total of almost 3,500 acres. Sites range in size from the 460-square foot Tilikum Place (Chief Seattle's Statue) to the 342-acre Green Lake Park. Public facilities include such things as swimming beaches and pools, rose gardens, golf courses, playgrounds, scenic boulevards, boat moorages, recreation centers, museums, and a zoo. The Seattle Center, the site of the 1962 World's Fair, is a beautiful area offering indoor as well as outdoor activities.

Figure 7-1 shows the location of the existing publicly-administered outdoor recreation areas. Table 7-2 describes the individual sites and areas.

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least 72 private operators offer facilities for public use. The presence of heavily populated Seattle area within the Basins accounts for this high number of private operators. These facilities include:

Activity	Number of Enterprises	Capacity at one Time (people)
Rural Living	1	10
Scenic Enjoyment	5	322
Nature Observation	11	1,206
Hiking	10	1,106
Tent Camping	9	1,005
Picnicking	21	996
Field Games	8	306
Archery	1	20
Target Shooting	5	260
Children's Play	4	210
Golfing, 9 hole	7	504
Golfing, 18 hole	5	720
Putt Golfing	2	45
Pond Fishing	3	125
Lake, River Fishing	4	147
Hunting Waterfowl	1	20
Horseback Riding	12	635
Pony Riding	1	10
Swimming	22	2,451
Boating	1	28
Water Skiing	1	28
Ice Skating	3	280

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the Cedar-Green Basins, there are 44,602 acres of salt water, 33,711 acres of lakes and reservoirs, and many miles of rivers and streams. About 90 miles of rivers are suitable for boating.

There are popular skin diving areas near Saltwater State Park and Alki Point.

Potential Supply

In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation use in King County. The

TABLE 7-2. Existing recreation sites in the Cedar-Green Basins.

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
△ 1	Lake Washington Ship Canal	97			
State					
□ 1	Green River Salmon Hatchery	40			
□ 2	Fenwick Lake	1			Boat Launching
□ 3	Fish Lake	1			"
□ 4	Green River Stream	1			"
□ 5	Holm Lake	1			"
□ 6	Meridian Lake	1			"
□ 7	Twelve Lake	1			"
□ 8	Walker Lake	1			"
□ 9	Wilderness Lake	1			"
□ 10	Dollioff Lake	1			"
□ 11	Morton Lake	1			"
□ 12	Steel Lake	2			"
□ 13	Maple Valley	99			
□ 14	Green River Gorge	36			
□ 15	Des Moines Recreation Area	1			
■ 16	Salt Water Recreation Area	88	60	206	Swimming Beach Boat Launching
□ 17	Mahler Recreation Area	31			
□ 18	Issaquah Salmon Hatchery	3			
□ 19	Desire Lake	1			Boat Launching
□ 20	Martha Lake	1			"
□ 21	Phantom Lake	1			"
□ 22	Serene Lake	1			"
□ 23	Shadow Lake	3			"
□ 24	Shady Lake	1			"
□ 25	Spring Lake	1			"
□ 26	Stickney Lake	1			"
□ 27	Washington Lake	2			"
□ 28	Washington Lake	1			
□ 29	Beaver Lake	1			
□ 30	Pine Lake	1			
□ 31	Auburn Game Farm	156			
□ 32	Seward Park State Game Fish Hatchery	4			
□ 33	Echo Lake	1			Boat Launching
□ 34	Boren Lake	1			"
□ 35	Hobart	40			
□ 36	Osborne Park	4		10	
□ 37	Bridal Trails Recreation Area	480		20	
□ 38	Lake Sammamish Recreation Area	383		300	Boat Launching; Swimming Beach
County					
○ 1	Angle Lake	11		110	Boat Launching; Swimming Beach
○ 2	Chelsea	3			
○ 3	Des Moines Memorial County Park	2			
○ 4	Des Moines	5			
○ 5	Farmer's Park	10		15	
○ 6	Isaac Evans	120		30	
○ 7	Lake Sawyer	3			Boat Launching
○ 8	Lakewood	34		20	Swimming Beach
○ 9	Ravensdale	8			
○ 10	Seahurst	140		60	Swimming Beach
○ 11	Skyway	20			
○ 12	Steel Lake	23			Swimming Beach
○ 13	Sunset	18			
○ 14	Valley Ridge	29			
○ 15	White Center	12			
○ 16	William E. Moshier Memorial County Park	15			
○ 17	Bellevue Highlands	11		5	
○ 18	Eastgate	25		16	
○ 19	Enatai	1		4	Swimming Beach
○ 20	Grandridge	80			
○ 21	Hamlin	43		20	
○ 22	Hillwood	22			
○ 23	Inglemoor	2			
○ 24	Island Crest	39		10	
○ 25	Juanita	29		160	Swimming Beach
○ 26	Lake Hills	10		10	
○ 27	Lynnwood	2			
○ 28	Marymoor	486		100	
○ 29	Richmond Beach	40		40	Swimming Beach
○ 30	Richmond Highlands	4			
○ 31	Sunnybank	1			
○ 32	J.E. McCoiluh Pioneer Park	77		3	
○ 33	Perrinville	18			
○ 34	Silver Lake	1			Boat Launching
City					
⌂ 1-27	Seattle	734	54	290	Boat Launching Swimming Pools and Beaches
⌂ 28-32	Auburn	25			
⌂ 33	Des Moines	8		6	
⌂ 34	Kent	20		6	
⌂ 35	Kent School District	255			
⌂ 36	Highline College Campus	50			
⌂ 37-49	Bellevue	108		21	Boat Launching Swimming Beach
⌂ 50	Bothell	11		12	
⌂ 51-53	Kirkland	21		3	Swimming Beach
⌂ 54-56	Mountlake Terrace	28			
⌂ 57-151	Seattle	2,507		343	Boat Launching; Swimming Pools and Beaches
⌂ 152-166	Renton	111		65	Swimming Pools and Beaches
⌂ 167	Yarrow Point	2			
⌂ 168	Medina	10			
⌂ 169-170	Mercer Island	117			
⌂ 171	Redmond	3		8	

*Site No. refers to map on opposite page.

appraisal disclosed that there is a high potential for development related to vacation cabins, camping, motorcycling, picnicking, golf, sightseeing, riding, water sports, and winter sports.

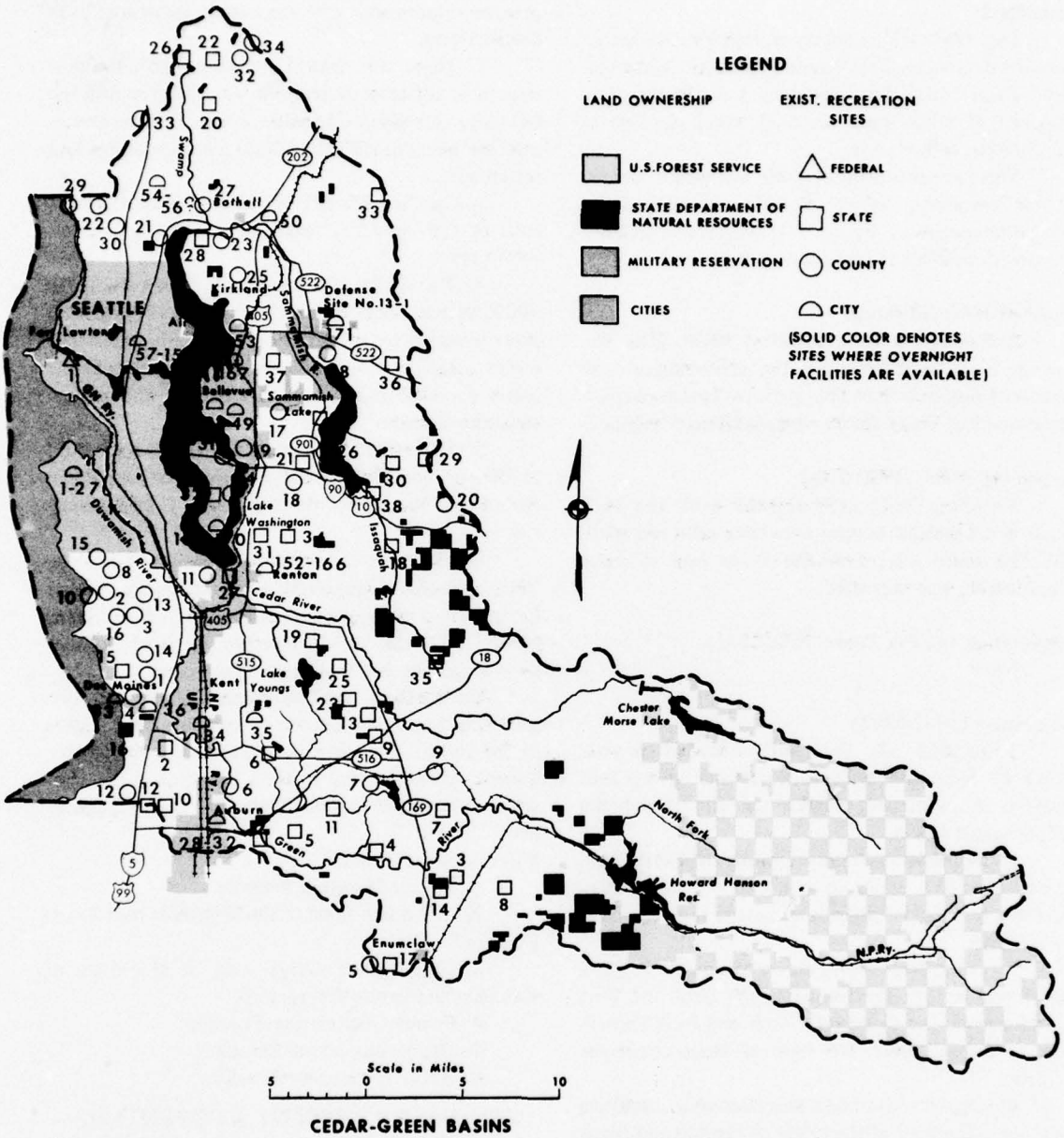
Additional recreation areas can be developed on the shorelines of salt waters, lakes and rivers. Within the cities, outdoor pools would be of significant importance for water related recreation activities.

The State Parks and Recreation Commission has identified a potential State park area in the Green River Gorge. The Commission is in the process of acquiring additional lands for the existing Lake Sammamish State Park.

The State Department of Natural Resources plans to develop additional sites on its lands, and the State Department of Game plans to acquire and develop 23 lake and one salt water fishing access sites as well as one small game area.

King County plans to acquire and develop 15 additional county park areas within the Basins.

The Basins' eastern one-half is within the Cedar River Watershed of the city of Seattle (92,000 acres) and the Green River Watershed of the city of Tacoma (148,000 acres). About one-third of these lands are administered by the U.S. Forest Service, while a large share of the Cedar River Watershed is owned by the city of Seattle. There are two large reservoirs and miles of streams within the watersheds. At present, public access is restricted and recreation use is discouraged in order to preserve raw water quality



CEDAR-GREEN BASINS

FIGURE 7-1. Existing Outdoor Recreation Sites, Cedar-Green Basins

and make it possible for the cities to deliver a potable water supply to their customers at a minimum cost. When the demand for recreation becomes critical, recreation facilities would be feasible within the watersheds.

Two fairly large military reservations are within the city of Seattle, Fort Lawton on Puget Sound and Sand Point Naval Air Station on Lake Washington. Portions of these sites are well suited for use as outdoor recreation areas.

There are also many suitable waterfront areas in private ownership which could be developed for recreation purposes. Figure 7-4 indicates waterfront lands with possible recreation potential.

Special Interest Areas

Archeological and Historical Areas. The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.-1850 A.D.)

Relatively little archeological work has been done in the Basins. Several sites have been recorded; the Marymoor site, near the lower end of Lake Sammamish, was excavated.

Exploration and Fur Trade (1592-1841)

None

Settlement (1842-1888)

1. In 1851, the first settlers landed on Alki Point to form the nucleus which has grown into Seattle. A monument marks the site where the settlers came ashore.

2. Monuments commemorating the Indian Massacres of 1855 stand in the Green River Valley between Kent and Auburn and within the city limits of Auburn.

3. Three forts were built in the mid-1850's as a protection against the Indians: Fort Dent and Fort Duwamish on the Duwamish River and Fort Thomas on the Green River. No signs of these structures remain.

4. A large vein of coal was discovered, resulting in the development of the towns of Preston and Black Diamond. Many old buildings, mines, and mining equipment may be found in this area southeast of Seattle.

5. Pioneer Square commemorates the site where the first pioneer village of Seattle clustered around Yesler Mill.

Post-Statehood (1889-Present)

1. In 1889, a fire destroyed Seattle's business district. After the fire, a land fill was made around many of the buildings. Today, underground passages provide opportunity for interesting excursions into Seattle's past.

2. There are many interesting old business structures adjacent to Seattle's waterfront and in the Georgetown section of Seattle. Some of these structures are being rehabilitated into charming stores and restaurants.

3. The Pike Place Public Market in Seattle was built in 1907 and has remained a tourist attraction for 60 years.

4. The Alaska-Yukon-Pacific Exposition in 1909, Seattle's first World's Fair, was held on the site now occupied by the University of Washington. The entire campus still takes its configuration from the location of the Fair buildings. Some of the original structures remain.

5. The Hiram M. Chittenden Locks were built in 1916 to complete the Lake Washington Ship Canal from Puget Sound to Lake Union and Lake Washington.

6. Seattle's second World's Fair was held in 1962. The fair grounds, now known as the Seattle Center, is a very popular attraction. The "Space Needle" provides an opportunity for a spectacular view of the city and mid-Puget Sound area.

Outstanding Natural Areas. There are two established and six proposed outstanding natural areas in the Basins. The existing areas include the 50-acre Schmitz Park Preserve in West Seattle and 50 acres within Marymoor County Park near Lake Sammamish.

Potential areas include:

1. Mercer Slough in Bellevue
2. The north slope of the Highlands near Beach Drive in Seattle.
3. Green River Gorge west of the town of Kansaket to Flaming Geyser Park.
4. Poverty Bay marine shoreline.
5. Des Moines marine shoreline.
6. Alki Point marine shoreline.

SUMMARY-PRESENT & POTENTIAL

The presence of the Seattle area within the Basins results in a heavy use of and demand for recreation resources, especially for those within or near the metropolitan area. It is important that the outdoor recreation resources be properly protected and developed to satisfy the needs of the people.

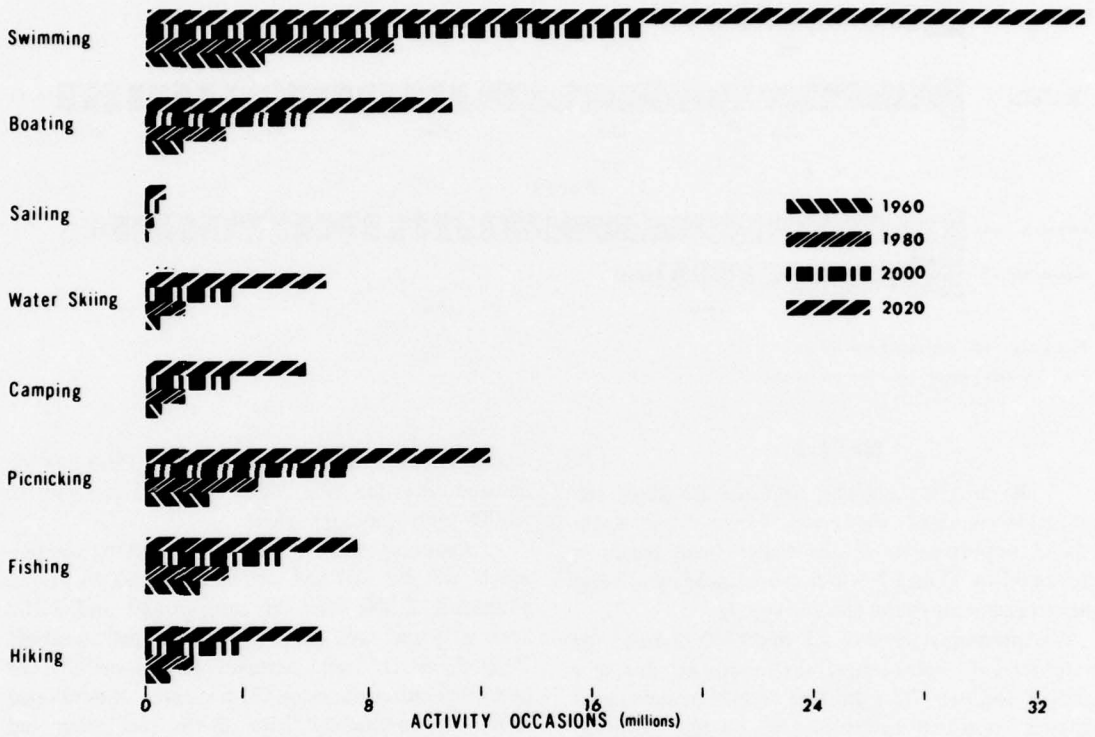
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Cedar-Green Basins was estimated to be almost 34 million activity occasions during 1960. Thirty-five percent of these activity occasions were for water related activities. By the year 2020 there may be more than a six-fold increase in recreation demand.

Figure 7-2 illustrates the estimated and projected recreation demand by water related activities.

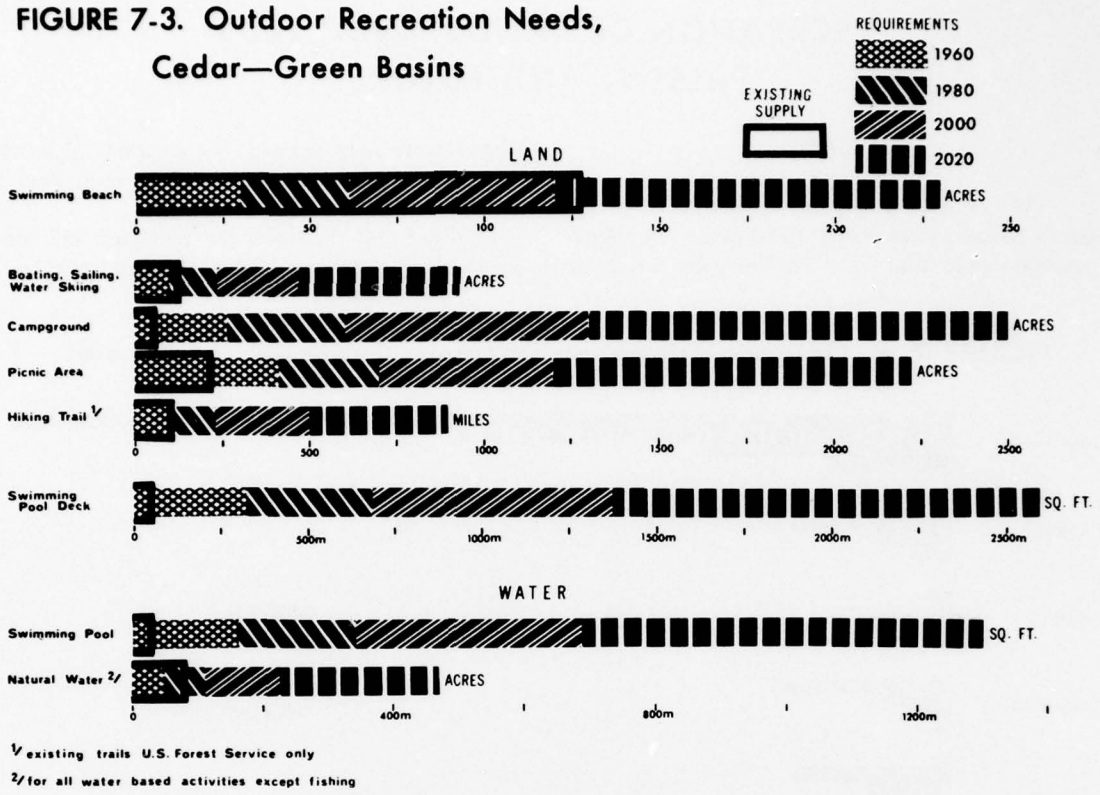
FIGURE 7-2. Outdoor Recreation Demand, Cedar—Green Basins



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	4,700,000	8,800,000	13,500,000
1980	9,400,000	16,400,000	25,800,000
2000	18,100,000	30,800,000	48,900,000
2020	33,600,000	55,900,000	89,500,000

FIGURE 7-3. Outdoor Recreation Needs, Cedar—Green Basins



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Cedar-Green Basins is illustrated on Figure 7-3. Needs are found by relating the requirements to the existing supply.

Approximately 25% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating, camping, and picnicking demands. Beaches are of sufficient quantity to satisfy swimming demands until the year 2000, but there is a deficiency of swimming pools. Existing Forest Service trails will only satisfy 1960 hiking demands. There are enough natural waters to satisfy water based recreation needs until 1970. Between 1970 and 2010, at which time the waters of the West Sound Basins may become saturated, a portion of the surplus water use can be transferred to the western portion of Puget Sound.

In addition to lands needed for boat launching facilities and parking, an additional 1,582 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 54,000 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 2,500 acres of campground and 1,100 acres of picnic area need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed lands. Approximately 15% of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, recreation rivers, special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will identify specific needs for the above purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 40% of the water related recreation demands in the Cedar-Green Basins would be satisfied at lakes and reservoirs, 10% at rivers and streams, 25% at swimming pools, and 25% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal land ownership, plans and program of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 5% of the water related opportunities, while the State, county and local agencies, and private interests could supply 20, 45 and 30% respectively.

SPECIFIC RECREATION PROBLEMS

With the tremendous increase in the population of the Seattle metropolitan area, difficulties encountered in the provision of sufficient facilities and areas to satisfy recreation demands have become a serious problem. There is a large difficiency in available opportunities, and demand is increasing at a faster rate than recreation supply. The natural resources are abundant, but means to properly utilize them are not. This problem is especially acute within the Seattle area which is growing with too little thought given to the preservation and public use of the many natural attractions. Inadequate control of urban development and the lack of adequate financing for recreation contribute to the problem.

Positive steps have been taken to alleviate problems of water pollution. The degradation of Green Lake, a popular recreation attraction within Seattle, has been arrested as had the pollution of Lake Washington. However, other situations are becoming apparent. The pressure of residential development on the shores of Lake Sammamish and other lakes in the Basins are resulting in water pollution of recreational waters. All wastes discharged in the Lake Washington drainage basin including Lake Sammamish, Lake Washington, Lake Union, the Ship Canal, and Elliot and Shilshole Bays are to be intercepted and treatment provided under the programs of the Municipality of Metropolitan Seattle.

The value of salt waters for recreation is affected by floating debris, wastes discharged from ships, and municipal sewage. In addition, a rather unusual problem which is becoming increasingly serious is the invasion of salt water from Shilshole Bay into Salmon Bay and the Lake Washington Ship Canal through the Hiram M. Chittendon Locks. The Army Corps of Engineers is presently studying methods for controlling the problem.

Two large municipal watersheds restrict the public recreation use of the entire eastern one-half of the Basins. Seventy-three percent of the 143 square mile Cedar River watershed is owned by the city of Seattle, and 24% is owned by the Federal Government and administered by the Forest Service. Approximately 45% of the 231 square mile Green River watershed is publicly owned. Both watersheds possess significant recreation attractions of definite value to the nearby population centers. Seattle's Cedar River watershed is closed to public access, and public use of Tacoma's Green River watershed is rigidly controlled. Tacoma is attempting to tighten its control by acquiring nearly 10,000 acres in half-mile strips along either side of the Green River.

Public access to and use of the shorelines and waters within or near the Seattle metropolitan areas are severely restricted by industrial and residential developments, roads, and railroads. Industrial structures predominate Seattle's waterfront; private resi-

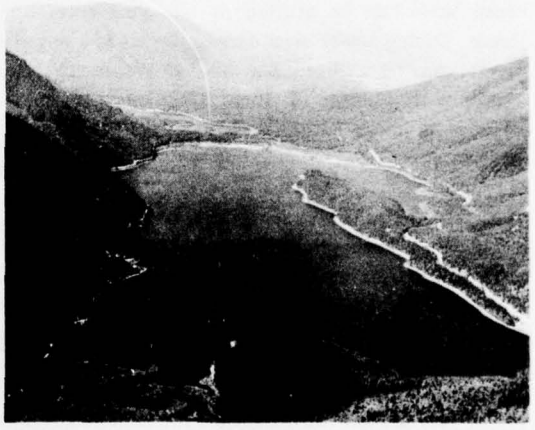


PHOTO 7-4. Chester Morse Lake, Seattle Municipal Watershed—U.S. Bureau of Outdoor Recreation Photo.

dences surround Lake Washington and much of Lake Sammamish; roads parallel portions of the waterfront where public recreation ways and beach areas would be more appropriate; high-rise apartments are encroaching upon Lake Washington; and railway tracks follow the shoreline of Puget Sound from Elliot Bay north, follow the southeastern and northwestern portions of Lake Washington, and follow the entire eastern side of Lake Sammamish, as well as portions of the Cedar and Green Rivers.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

In 1964, there were about 240 publicly-administered developed outdoor recreation sites within the Basins. Some have minimal developments and could accommodate additional improvement. At other areas, existing facilities need to be rehabilitated.

In addition to developed sites, there are over 90,000 acres of publicly-administered undeveloped Class III general recreation lands. Public access to most of these lands is restricted due to the policy regarding the administration and use of municipal watersheds. There are undoubtedly many sites on these public lands which could be suitable for needed recreation development.

There are State shorelands along the Sammamish River from Hollywood to Lake Washington, along the Cedar River from Renton to north of Maple Valley, and along the Green River from Tukwila to Black Diamond. With the provision of better access, these lands can be utilized in satisfying recreation needs. During lower river flows, the lands along the rivers can be utilized for hiking, picnicking, and camping. Retention of these shorelands in public ownership in a clean and sanitary condition is necessary

Acquisition and Development of New Areas

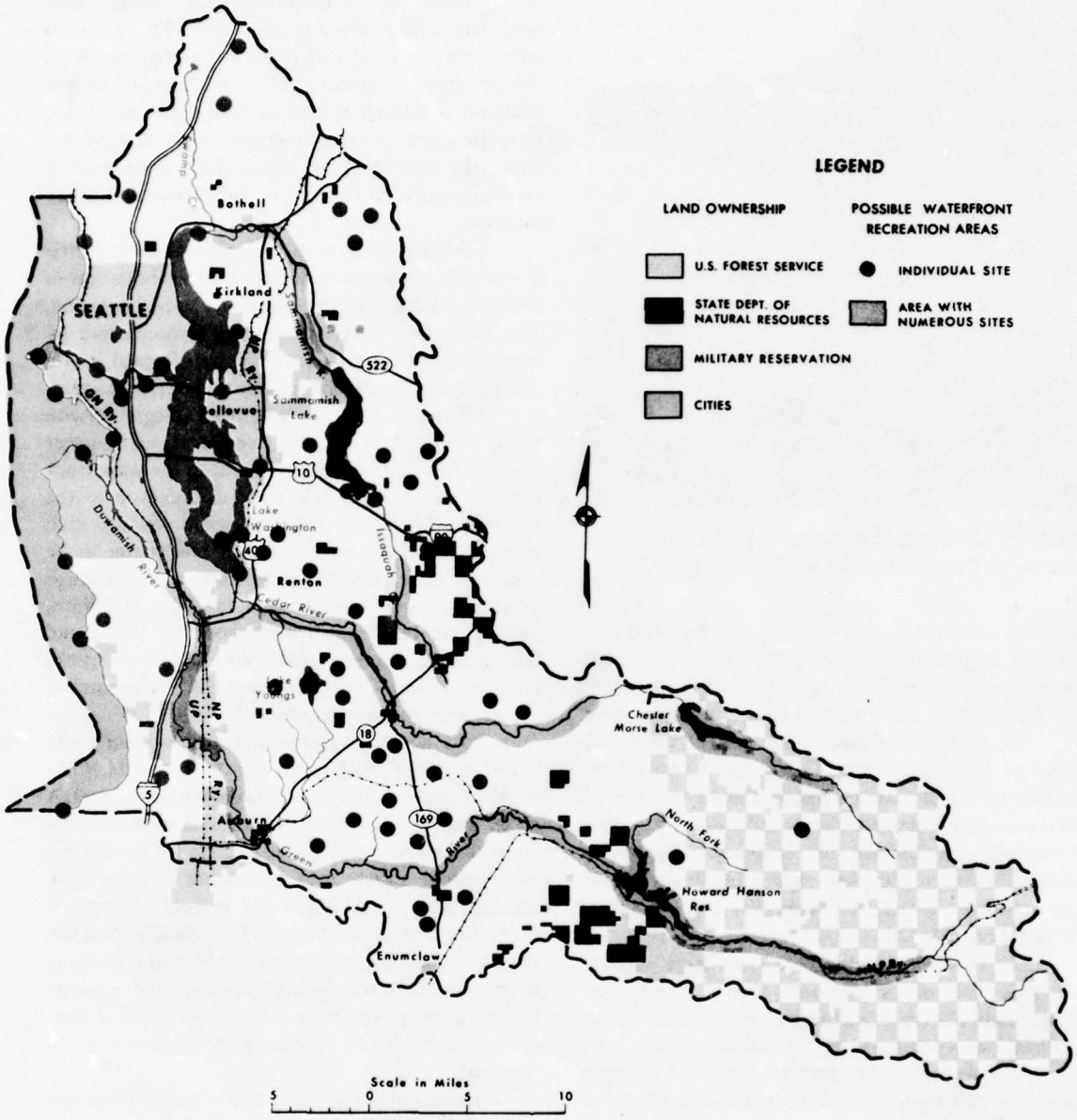
Areas on Existing Waters. Additional recreation areas should be established within the Cedar and Green Basins to provide opportunities for the rapidly growing population of the Seattle metropolitan area and to protect natural attractions worthy of preservation. The King County Planning Department estimates that from 1960 to 1985 approximately 4,800 acres of the open space land adjacent to the cities will be annually developed for streets, homes, stores, industries, and other urban uses. Immediate actions are needed to assure that adequate lands are set aside for public use and enjoyment. Due to the escalating land values, even a small delay will result in a substantial increase in the cost of providing recreational opportunities.

Figure 7-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly many other areas not indicated which are suitable for recreation development by public or private interests. Areas on the National Forest have not been indicated on the map since the Forest Service has already inventoried the recreation potential of its lands.

Public access to and use of the entire eastern one-half of the Cedar and Green Basins is severely restricted or not permitted due to the policy regarding the recreation use of Seattle's and Tacoma's municipal watersheds. Limited recreation use for activities such as hiking, fishing, and hunting should be allowed on all public lands within watersheds. At a time when the recreation resources on surrounding lands become saturated, the watersheds could be developed for more intensive recreation use, and the consideration of sharing the costs of necessary developments between recreation and other users should be explored. The city of Kent is proposing to utilize three of its watershed areas, Clark Springs, Icy Creek, and Kent Springs, plus adjacent lands as parks to help meet the increasing recreation needs of the public. If watersheds or portions thereof become surplus to domestic water needs, suitable areas need to be transformed into parks.

Two military bases within Seattle, Fort Lawton and Sand Point Naval Air Station, are on the waterfront and include lands needed for recreation development. If suitable lands within military reservations become surplus to Federal needs, they should be acquired by a public agency and dedicated to public recreational use. The Federal Government has proposed to declare a portion of Fort Lawton as surplus in the near future. This site on the shoreline of Puget Sound would make an excellent multipurpose municipal park and should be developed as such. Until that time when lands are declared surplus, the military needs to encourage and accommodate public use of its lands.

Railway tracks restrict the recreation use of many miles of salt and fresh water shoreline. The possibility of providing safe public use easements adjacent to the tracks should be explored. If railway routes are ever abandoned, public agencies could



CEDAR-GREEN BASINS

FIGURE 7-4. Possible Waterfront Recreation Areas, Cedar-Green Basins

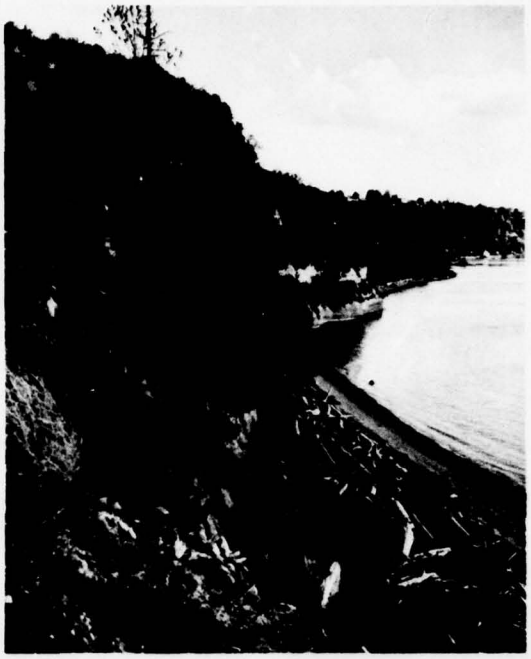


PHOTO 7-5. Seattle's shoreline at Fort Lawton—U.S. Bureau of Outdoor Recreation Photo.

develop recreation ways along the rights-of-way. Similar treatment could be given certain secondary shoreline roads, especially when the service provided by the roads, is duplicated by nearby parallel routes.

Scenic-access easements are needed along both sides of the Sammamish, Green, and Cedar Rivers. Easements should also be acquired along lesser rivers and streams within urban areas and areas destined for residential development. Where possible, easements should be tied in with State shorelands. Trails need to be developed within the easements and convenient road access provided.

To satisfy recreation objectives, large portions of the flood plains along the Cedar, Green, and Sammamish Rivers should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

In 1968, the voters of King County approved a $118,000,000 recreation bond issue, a portion of the County's "Forward Thrust" program. This is a significant effort designed to provide needed recreation opportunities, and its passage shows the concern of the people to improve the quality of their environment. The recreation bond issue includes the acquisition and development of additional recreation areas and provides for the establishment of a waterfront boulevard within the city of Seattle. This proposal would cover 16 miles of Elliot Bay waterfront from the northern boundary of Fort Lawton to the southern boundary of Lincoln Park. Parks and other recreation and tourist attractions would be provided along the boulevard. A Sammamish River park is another significant element of the "Forward Thrust" program.

Closely tied in with the proposal for a Seattle waterfront boulevard should be the rehabilitation of Seattle's waterfront along Elliot Bay and Lake Union. The Elliot Bay waterfront, which is dominated by commercial structures, could be transformed into a charming area in which recreation, shopping, restaurant, and tourist facilities have been integrated with those commercial interests dependent upon water access. The older buildings adjacent to the waterfront need to be restored as a colorful backdrop to the shoreline. Recreation facilities could include such improvements as a marina with a breakwater to be used as an esplanade, pedestrian ways, a large aquarium, a maritime museum including old ships, and wharfs transformed into shopping, picnic and fishing areas. Day-use parks are needed at several locations around Lake Union, and the lake's shoreline should undergo a general clean-up.

Boat access is presently available from Puget Sound to Lake Washington via the Hiram M. Chittenden Locks and the Lake Washington Ship Canal. A rather unique opportunity is available to extend the limit of continuous small boat access by providing a boat passage structure at the mouth of Lake Sammamish. This would allow the passage of pleasure boats from Shilshole Bay to Lake Washington and then to Lake Sammamish and back again. Such an improvement would greatly enhance the pleasure boating activity within the Seattle metropolitan area. A study is needed to determine the feasibility of this proposal.

To accommodate the concentration of people who will be living near or within the Seattle area, the development of rapid transit facilities seems inevitable. When constructed, rapid transit facilities should provide access to recreation areas within or near the urban area. Since rapid transit would, in part, replace the automobile as a means of travel to and within the

cities, surplus streets and parking lots could be transformed into urban parks, plazas, and walkways.

Future Water Development. With the exception of swimming pools, which are needed in urban areas, existing waters in the Cedar-Green Basins and in the adjacent West Sound Basins will satisfy water-based recreation demands until the year 1990. After that date, additional surface acres of water may be needed at locations with easy access from Seattle.

Although there is presently little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir area itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas.

Several archeological sites, numerous historical and outstanding natural areas, and two underwater marine areas have been identified. The effect of proposed water resource and other projects upon these irreplaceable attractions requires special consideration. The more significant and interesting features need to be classified, protected, and properly developed for public enjoyment and scientific purposes.

Since few archeological sites are known, and many have undoubtedly been destroyed by the growth of the urban metropolis, archeological surveys should be undertaken prior to the loss of the lands to developers.

Recreation Rivers.

Certain rivers or portions thereof should be retained in their natural condition to satisfy present and future recreation needs. A State system of recreation rivers is suggested to protect important recreation rivers or river segments for public use. In the Cedar-Green Basin, rivers which may qualify for protection include the Sammamish River and portions of the Cedar and Green Rivers. The Green River, from the town of Kanasket to Kummer Bridge, is of particular value for recreation.

Water resource projects which would adversely affect the natural quality of rivers or river segments designated as State recreation rivers should not be developed. If alternative sites are available, necessary water resource projects should be located above designated stretches of river and operated so as to provide optimum flows to the recreation rivers.

Private Sector

Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Due to the abundance of people within the Basins, the supplying of certain outdoor recreation facilities by private interests will prove profitable. Recreation opportunities which may be provided at a financial gain to the supplier include camp and picnic areas, resorts, swimming facilities, and fishing and hunting areas. Within the urban areas, boat marinas, sightseeing tours, and swimming, golfing, and tennis clubs are popular. The private sector will play an increasingly important role in the satisfaction of outdoor recreation demands.

There are almost 100,000 acres of privately-owned forest lands within the Basins, plus many acres of agricultural land along the rivers. These lands are close to the centers of population, and some could accommodate recreation use. Unfortunately, most private forest lands are within municipal watersheds and are closed to public access. The owners of suitable lands outside of municipal watersheds need to be encouraged to accommodate public recreation use of their lands.

Puyallup Basin





PHOTO 8-1. Carbon River and Mt. Rainier—U.S. Bureau of Outdoor Recreation Photo.

PUYALLUP BASIN

PRESENT STATUS

DESCRIPTION OF BASIN

Physical Description

The Puyallup Basin extends from the waters of Puget Sound in the west to Mount Rainier. The eastern portion is mountainous and is cut by numerous river valleys, while the western portion is level to gently rolling. The major rivers are the Puyallup, White and Carbon which originate from the mountain glaciers.

Forests are the principal land cover, including about 85% of the total land area. Croplands are mostly located on the alluvial lowlands of the river valleys. Above the alluvial bottoms, the lands are mostly forested.

Population and Economy

In 1963, the population within the Basin was almost 325,000. The population may increase to 450,000 by 1980, 721,000 by 2000 and 1,158,000 by the year 2020. The largest city is Tacoma on Commencement Bay, with a 1967 metropolitan area population of more than 156,000. There are many small population centers surrounding Tacoma. The Basin's eastern one-half is sparsely settled.

The forest products industries have the greatest economic importance, with the major portion of the industrial plants located in Tacoma.

Access

Interstate Highway No. 5 provides the major vehicle access routes in the western portion, while U.S. Highway No. 410 is the major access route from Interstate 5 eastward through the mountains. Several county and State roads furnish additional access to the lower elevations, while the higher elevations are accessible by National Park and National Forest roads and trails.

There are several airports in the western portion and extensive boat travel is common in the salt water areas. Ferries provide access from Tacoma to Vashon Island and from Steilacoom to Anderson Island.

Climate

The climate is cool in the summer and mild in winter with an annual precipitation varying from 40 inches in the western portion to over 120 inches on Mt. Rainier. In the higher elevations, heavy snows are common. About 75% of the precipitation falls during the period of October through March.

The spring, summer and fall weather is well suited for many outdoor pursuits. Winter snows are attractive for skiing and other winter sports.

Land Ownership

Most of the areas in higher elevations are in Federal ownership with about 18% National Forest and 17% National Park. The southwestern tip is within the McChord Field and Fort Lewis military reservations and the remainder is mostly privately owned. Figure 8-1 designates major public ownerships.

Recreation Features

The outdoor attractions of the Puyallup Basin include the waters and shorelines of Puget Sound and of the lakes and rivers. There are numerous lakes and miles of rivers throughout the Basin. The most notable recreation area is Mt. Rainier National Park.

Point Defiance Park, within the city of Tacoma, is an excellent large urban park of the type which is needed in heavily populated cities. It offers diverse opportunities and attractions within a pleasant waterfront setting. Another attraction is the commercial flower bulb farms in the Basin's western portion.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 118 publicly-administered outdoor recreation sites within the Basin. Twenty are administered by Federal agencies, 21 by the State, 21 by the county and 56 by the cities. The city areas received over 2,000,000 visits or about one-half of the total visitation reported.

TABLE 8-1. Summary of existing publicly-administered outdoor recreation resources, Puyallup Basin

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools, (Sq. Ft.)	Swim Beach (Acre)	Snow Skiing Lift	Tow	Total 1964 Visitation
Federal																	
Forest Service	135,677	200		135,442	35			100	38					1	3	9	
Park Service	133,800		28	49,286	35,200	49,286		226	120	580							750,000
Military Res.	165		135		30				10								150
Other Federal	1,498		6	1,492					12	60							31,000
Total Federal	271,140	200	169	186,220	35,265	49,286		326	180	640				1	3	9	1,069,061
State																	
Dept. of Fish	5		5							1							10,000
Dept. of Game	289		279	10						110	515	7					28,700
Dept. of Nat. Res.	13,500[1]		80	13,340	80												7,890
Parks & Rec. Com.	899		36	742	120		1	138	128	337				2			211,188
Total State	14,693		400	14,092	200		1	138	128	448	515	7		2			257,778
County	861	87	343	431					231	780	15	2		13			625,433
City & Other Local	1,380	1,215	77	86			2		61	474		5	38,400	6			2,307,455
Total	288,074	1,502	989	200,829	35,465	49,286	3	464	600	2,342	530	14	38,400	22	3	9	4,259,727

[1] Does not include tidelands and shorelands.

Table 8-1 summarizes the existing supply by administering agency.

Most of this recreation acreage is in Federal ownership. The National Forest and National Park lands are in the Basin's mountainous eastern one half. Mt. Rainier National Park is of national significance, attracting visitors from all over the world.

In National Forest areas during 1964, visitation by purpose of visit was reported as follows:

Camping	8,699	visits
Picnicking	11,300	"
Winter Sports	189,999	"
Hunting	11,004	"
Fishing	16,997	"
Hiking and Riding	7,994	"
Organization Camping	15,000	"
General Enjoyment and Sightseeing	18,001	"
Gathering Forest Products for Pleasure	6,512	"
Scientific Study and Hobbies	1,208	"
Other Activities	1,197	"
TOTAL	287,911	visits

The most popular activity on Forest Service lands was winter sports, with the Crystal Mountain Winter Sports Area attracting many skiers.

There are five State Park areas within the Basin: Captain Wallace's Grave Heritage Site, Dash Point Recreation Area, Federation Forest State Park, Mahler Recreation Area, and Rigney Recreation area. During 1966, there were over 300,000 visits to these areas. From 1963 to 1966, a 65% increase in visitation was experienced in State Park areas.

Figure 8-1 shows the location of the existing publicly-administered outdoor recreation sites and areas. Table 8-2 describes the individual sites.

Existing Privately-Administered Areas

In addition to areas administered by the public agencies, at least 52 private operators offer facilities for outdoor recreation. This large number is due to the presence of Tacoma within the Basin and to the nearness of the Seattle area. The private facilities include:

Activity	Number of Enterprises	Capacity at one time (people)
Scenic Sites	1	300
Nature Observation Sites	1	300
Hiking Trails	1	300
Tent Camping Sites	2	1,838
Trailer Camping Sites	1	70
Picnicking Sites	4	1,308
Archery Ranges	1	10
Target Shooting Ranges	3	47
Go-Cart Racing Tracks	2	30
Children's Play Grounds	1	10
Golf Course, 9 hole	6	432
Golf Course, 18 hole	3	432
Putt Golfing Course	1	20
Fishing Ponds	3	350
Lake, River Fishing Facilities	1	35
Salt-Water Fishing Facilities	10	312
Horseback Riding Stables	5	68
Swimming Beaches	4	550
Boating Water	5	175
Snow Skiing Areas	1	300
Motorcycling Tracks	1	150
Drag Racing Tracks	2	150

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the Puyallup Basin there are about 23,600 acres of salt water, 6,700 acres of lakes and rivers, and many miles of streams. About 85 miles of river are suitable for boating.

There are two popular skin diving areas in the Basin: Day Island and Tacoma Narrows.

Potential Supply

In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation use in Pierce County. The appraisal disclosed that there is a high potential for development related to camping, motorcycling, picnicking, golf, sightseeing, riding, shooting preserves, vacation farms, water sports, and winter sports.

Additional recreation areas could be developed throughout the Basin on the miles of salt water and fresh water shorelines. The development potential on the salt water is restricted by steep topography, railroad tracks, industrial structures, and roads and highways. There are, however, some sites scattered along the shoreline suitable for recreation purposes. Several lakes within or adjacent to the Tacoma area could accommodate additional recreation use, and many recreation areas could be developed on the Basin's rivers and streams.

The National Park and the National Forest lands within the eastern portion have great recreation potential. On National Forest lands there are 202 acres of campground and 121 acres of picnic areas scheduled for development by 1975. An additional 1,450 acres are planned for development between 1976 and 2000.

The lands administered by the State Department of Natural Resources are a source for potential recreation opportunities. The Department plans to develop potential recreation sites on its lands. The State Department of Game plans to acquire and develop four lake and two salt water fishing access sites as well as one small game area.

Some of the lands within the Fort Lewis Military Reservation would be suitable for public recreation use if made available.

There are many areas on private lands suitable for development for recreation purposes. Figure 8-4 indicates waterfront lands with possible recreation potential.



PHOTO 8-2. A high mountain lake—U.S. Bureau of Outdoor Recreation Photo.

Special Interest Areas

Archeological and Historical Areas. The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.-1850 A.D.)

Several village sites have been discovered on the Puyallup River.

Exploration and Fur Trade (1592-1841)

1. Near Dupont a marker identifies the original site of Fort Nisqually, founded in 1833.

2. The site of the Wilkes Observatory, constructed during the American exploration of the Study Area in 1841, is identified on Dupont Power Company lands.

3. At Point Defiance Park, a bronze plaque memorializes the Charles Wilkes' expedition which landed near Tacoma in 1841.

Settlement (1842-1888)

1. Steilacoom, the oldest incorporated townsite in Washington, was built as a land speculation operation in 1854. The United States Army established Fort Steilacoom here, which served as military headquarters during the Indian Wars of 1855-1858. Appropriate markers note the location of the oldest Catholic church north of the Columbia River; also the first Protestant church built north of the Columbia. The original jail (built in 1858) and several old houses still stand. In the cemetery of Fort Steilacoom, now

TABLE 8-2. Existing recreation sites in the Puyallup Basin.

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	The Dalles Camp	25	37	22	
▲ 2	Silver Springs Camp	25	49	7	
▲ 3	Corral Camp	12	10		
▲ 4	Twin Camps	5	4	3	
▲ 5	Echo Lake	1			2 Shelters
▲ 6	Arch Rock	1			Observation Point and Shelter
△ 7	Dry Creek	1		6	
▲ 8	Camp Sheppard	14			Organization Camp
▲ 9	Presbytery of Seattle	42			"
▲ 10	Hearthside Club	1			"
▲ 11	Crystal Chalet	1			"
▲ 12	Deep Creek	22			Resort
▲ 13	Silver Springs Lodge	5			"
▲ 14	John Muir School Ground	5			Nature Trail
▲ 15	Crystal Mountain	1,280			Winter Sports Area
△ 16	Mud Mountain	1,498		12	
▲ 17	Mowich Lake	1	5		
▲ 18	Ipsut Creek	3	33		
▲ 19	Sunrise	10	63		
▲ 20	White River	13	125		
State					
□ 1	Puyallup Salmon Hatchery	5			
□ 2	American Lake	12			Boat Launching
□ 3	Bonney Lake	1			"
□ 4	Killarney Lake	1			"
□ 5	Geneva Lake	1			"
□ 6	North Lake	1			"
□ 7	South Tacoma Game Farm	80			
□ 8	Puyallup State Game Fish Hatchery	169			
□ 9	South Tacoma State Game Fish Hatchery	11			
□ 10	Pheasant Habitat	10			Public Hunting
□ 11	Carbon River	80			
□ 12	Greenwater Camp	131			
□ 13	Midlands	80			
□ 14	Pinnacle	80			Natural Area
□ 15	West Fork	80			
□ 16	White River No. 1	100			
□ 17	White River No. 2	30			
□ 18	Capt. Wallace's Grave	1			Historical Site
□ 19	Dash Point Recreation Area	252	138	77	Swimming Beach
State (cont'd)					
□ 20	Federation Forest	612		51	Natural Area
□ 21	Rigney Recreation Area	3			
County					
○ 1	Enumclaw County Park	169		20	Swimming Pool
○ 2	Lakota County Park	19			
○ 3	Mud Mountain Dam County Park	56			
○ 4	American Lake Park, No.	4		25	Swimming Beach
○ 5	American Lake Park, So.	14		30	"
○ 6	Brown's Point Playfield	5			
○ 7	Brown's Point Lighthouse	5		10	
○ 8	Colgate Playfield	10		5	
○ 9	Dash Point Park	5		20	Swimming Beach
○ 10	Dawson Playfield	10			
○ 11	Edgemont Playfield	5		3	
○ 12	Forest Park	5			
○ 13	Gonyea Playfield	14			
○ 14	Lake Tapps Park	80		4	Boat Launching
○ 15	Lake Tapps Park, West	7		4	
○ 16	Lakewood Park	5		5	
○ 17	Mayfair Playfield	4			
○ 18	Riverside Park	40		5	
○ 19	Spanaway Park	400		100	Boat Launching Swimming Beach
○ 20	Edgewater Park	2			
○ 21	Sunset Terrace Playfield	3			
City					
⌓ 1	City of Buckley	8		2	
⌓ 2-37	City of Tacoma	1,224			Boat Launching Swimming Pools and Beaches
⌓ 38	City of Carbonado	38		3	
⌓ 39	City of Dupont	1			
⌓ 40-43	City of Fircrest	12			Swimming Pool
⌓ 44	City of Milton	5			
⌓ 45-46	City of Orting	18		5	
⌓ 47-49	City of Puyallup	93		37	
⌓ 50	City of Ruston	2			
⌓ 51	City of South Prairie	2			
⌓ 52-53	City of Steilacoom	7		5	Boat Launching Swimming Beach
⌓ 54-56	City of Sumner	7		9	

*Site No. refers to map on opposite page.

the Western State Hospital, a stone marker memorializes William Wallace, the first Governor of Idaho Territory who is buried there.

2. Near Parkland a monument to the last campsite of the 1853 wagon train, which left the Oregon Trail and crossed the Cascade Mountains by way of the little Naches River and Naches Pass, has been constructed.

3. Fort Malone was built during the Indian Wars of the 1850's. Although no traces remain, its site has been identified as being at East Meridian Street in Puyallup.

4. A replica of Fort Nisqually is located in Point Defiance Park. The fort was relocated from its original location, and some of the original materials were used in the reconstruction.

5. Several forts were built during the Indian wars of the 1850's. Included were:

a. Fort Hicks in South Prairie on the Puyallup River.

b. Fort Maloney on the north bank of Puyallup River near Puyallup.

c. Fort McAllister in South Prairie.

d. Fort Pike on the White River

e. Fort Posey on the White River.

f. Fort Slaughter on Muckleshoot Prairie.

g. Fort White on the Puyallup River.

No traces remain of these structures.

Post-Statehood (1889-Present)

1. There are several buildings in Tacoma dating from the late 19th century.

2. The first bridge at Tacoma Narrows collapsed in 1940 during a severe wind storm; because of this unique event, the site already has historic value.

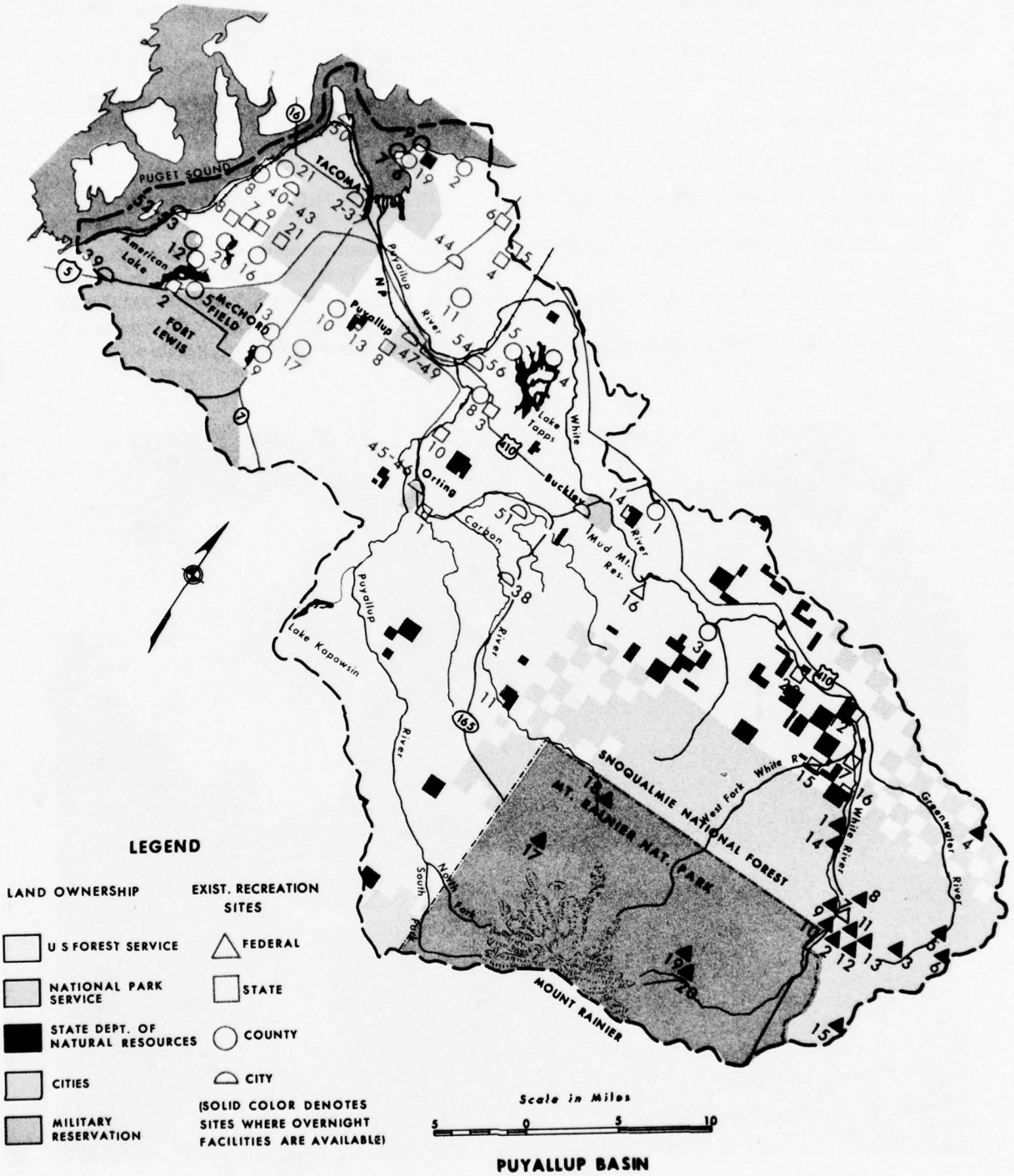


FIGURE 8-1. Existing Outdoor Recreation Sites, Puyallup Basin

Outstanding Natural Areas. There are two established and seven potential outstanding natural areas in the Basin. Existing areas include:

1. Federation Forest, southeast of Enumclaw-120 acres.
2. Pinnacle Peak, south of Enumclaw-80 acres.

Potential areas include:

1. Farm Lake, Western Washington State Hospital, Steilacoom-50 acres.
2. Western Washington Prairie, Fort Lewis-500 acres.
3. Tacoma Narrows marine shoreline (east side).
4. Poverty Bay marine shoreline, near Redondo.
5. Conover Grove botanical area (Sec.13, T18N, R9E)-30 acres.
6. John Muir Grove botanical area (Sec. 6, T18N, R10E)-5 acres.
7. Snoquera Falls scenic area (Sec. 16 and 21, T18N, R10E)-60 acres.

SUMMARY-PRESENT & POTENTIAL

The population near and within the Puyallup Basin will place increasingly heavy pressures upon the outdoor recreation resources. It is important that the resources be properly protected and developed to provide the needed recreation opportunities.



PHOTO 8-3. Point Defiance Park, Tacoma—U.S. Bureau of Outdoor Recreation Photo.

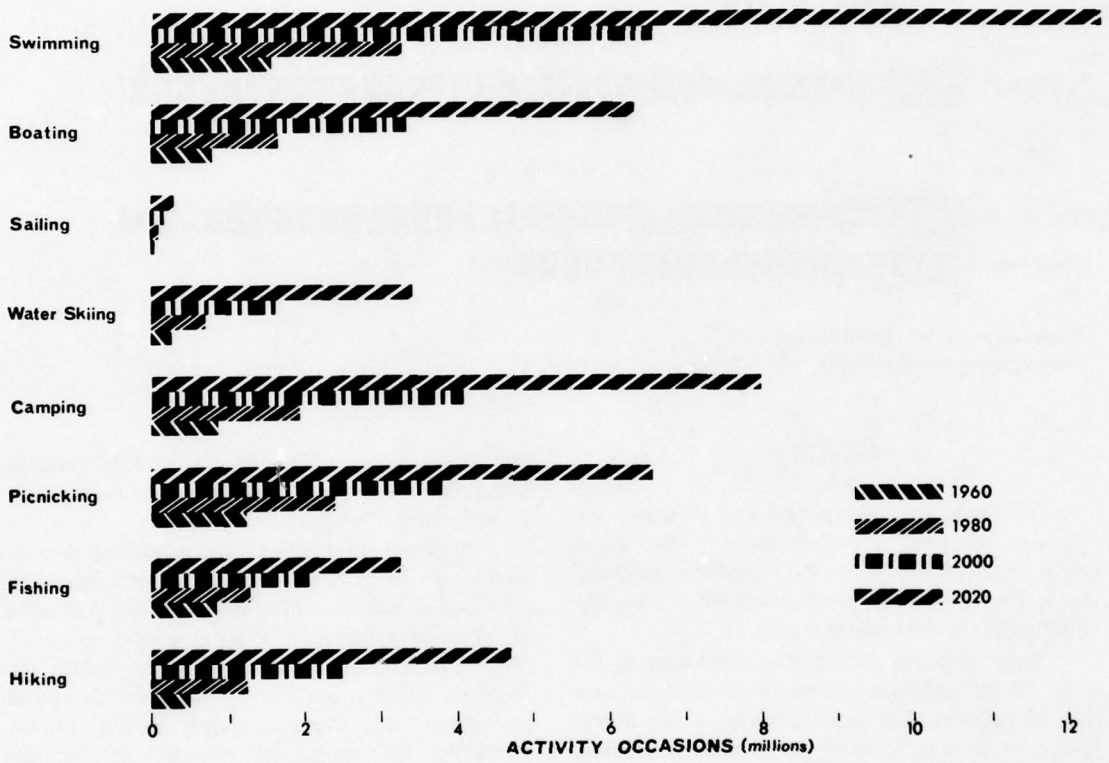
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Puyallup Basin was estimated to be more than 16 million activity occasions during 1960. Thirty-seven percent of this demand was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demand.

Figure 8-2 illustrates the estimated and projected recreation demand by water related activities.

FIGURE 8-2. Outdoor Recreation Demand, Puyallup Basin



Expressed as recreation days, the demand would be:

Year	Water-Related	Non-Water Related	Total Demand
1960	2,500,000	4,100,000	6,600,000
1980	5,000,000	7,600,000	12,600,000
2000	9,700,000	14,000,000	23,700,000
2020	18,000,000	24,200,000	43,200,000

FIGURE 8-3. Outdoor Recreation Needs, Puyallup Basin



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Puyallup Basin is illustrated in Figure 8-3. Needs are found by relating the requirements to the existing supply.

Approximately 25% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed land is inadequate to satisfy 1960 boating, camping and picnicking demands. Beaches are of sufficient quantity to satisfy swimming needs until the year 1980, but the supply of swimming pools is inadequate. Existing Forest Service trails should sufficiently handle hiking use until the year 1980. Natural waters will not satisfy future water based recreation demands. A portion of the surplus water use can be transferred to the West Sound Basins, which have a surplus of recreation waters until the year 2010.

In addition to lands needed for boat launching facilities and parking, an additional 413 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 17,600 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 3,300 acres of campground and 570 acres of picnic area will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately one-half of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, special interest areas, interpretive facilities, open spaces, and beaches and trails for activities other than swimming and hiking, are necessary to satisfy the recreation and environmental needs of the people. Specific needs for these purposes will be covered in future revisions of Washington's statewide recreation plan.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 35% of the water related recreation demands in the Puyallup Basin would be satisfied at lakes and reservoirs, 30% at rivers and streams, 15% at swimming pools, and 20% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 20% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 20, 35 and 25% respectively.

SPECIFIC RECREATION PROBLEMS

There is a serious air pollution problem from industrial sources in Tacoma. Polluted air is a nuisance to the residents of the Tacoma and surrounding areas, and it impairs the scenic qualities of an area which extends for many miles around the city.

The polluted waters of Commencement Bay with the resulting high bacterial concentrations make water-contact sports undesirable along portions of Tacoma's shoreline. During the recreation season, high turbidity seriously affects the appearance of the waters of the White, Carbon, and Puyallup Rivers. The murky conditions are due to glacial silt emanating from glaciers at their headwaters. The city of Tacoma has initiated a municipal and industrial waste collection and treatment program which will result in improved water quality conditions.

Railroad tracks follow the shoreline of Puget Sound from Tacoma south. The railroad right-of-way has prevented the development of waterfront lands for recreation and other purposes. Much of this land is at the base of a rather steep bluff.

Mud Mountain Reservoir, southeast of Enumclaw, is operated solely to provide flood control to the Puyallup River Valley and is of very little use for recreation. Due to its impact on a natural river valley, its construction has had a negative effect on recreation opportunities. Water is only stored to prevent downstream flooding and released when river flows decrease. The reservoir is empty during the summer recreation season. During the fall, winter and spring the reservoir elevation fluctuates widely and often at a rapid rate, making it unsafe for public use. If the project was operated with a suitable summer pool, major recreation facilities could be developed and well utilized along the shoreline.

When Lake Tapps was constructed, stumps and some trees were not removed from the land to be impounded. The resulting debris is unsightly and is a safety hazard to the boaters and the water skiers.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas.

An undetermined percentage of the 118 publicly administered developed recreation sites within the Basin could accommodate additional facilities. Some developed facilities need to be rehabilitated. In addition to developed sites, approximately 200,000 acres of publicly administered undeveloped Class III lands are available for public recreation use. Many sites within these public lands could be developed for recreational activities. The long-range programs of the management agencies plan for the development of needed recreation sites.

Studies are needed to determine the feasibility of changing the operation of Mud Mountain Reservoir to allow its use for recreation, and debris should be removed from Lake Tapps to improve its usefulness.

There are State shorelands along the White River northeast of Lake Tapps and near the confluence with Greenwater River and along the Puyallup River near the town of Sumner. With the provision of better access, these lands can be utilized to satisfying recreation needs. During low river flows, these lands can be utilized for recreational acitivities such as hiking, picnicking, and camping. Retention of State-owned shorelands in public ownership in a clean and sanitary condition is necessary.

Acquisition and Development of New Areas

Areas on Existing Waters. There is a lack of recreation areas on the salt water shoreline and along the shorelines of rivers and lakes to satisfy future as well as present outdoor recreation demands. The satisfaction of recreation demands depends upon the provision of additional recreation areas by public agencies or private interests. As the Tacoma and other

urban areas expand, efforts should be taken to provide for adequate recreation areas and open space within and near populated areas.

Figure 8-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly many other areas not indicated which are suitable for recreation development. Areas in the National Forest and National Park have not been indicated on the map since the potential recreation resources of these lands have already been inventoried.

There are about 15 small municipal watersheds within the Basin ranging in size from 8 to 215 acres. These watersheds encompass lands suitable for recreation development and use, but at present most of them are closed to the public. Limited recreation use of municipal watersheds would help satisfy existing and future needs. However, prior to such use, studies to determine type and capacity of recreation use consistent with watershed purpose should be conducted. If watersheds or portions thereof become surplus to domestic water needs, suitable areas could be transformed into parks. A former watershed in the Puyallup Basin has been developed into a 25-acre park.

To satisfy recreation objectives, portions of the flood plain along the Puyallup River should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

Scenic-access easements are needed along both sides of the White, Puyallup and Carbon Rivers and South Prairie Creek. Easements should also be acquired along lesser rivers and streams within urban areas and areas destined for residential development. Where possible, easements should be tied in with State shorelands. Trails need to be developed within the easements and convenient road access provided. Further studies are needed to identify waterfront strips suitable for protection as scenic-access easements.

Railway tracks restrict the recreation use of the salt water shoreline from Tacoma south. The possibility of providing safe public use easements adjacent to the tracks needs to be explored. If railway routes are ever abandoned, public agencies could develop recreation ways along the right-of-way.

The southeastern tip of the Basin is within the Fort Lewis Military Reservation and McChord Air Force Base. There are several lakes within the Military Reservation. Public recreation use of suitable areas within the Fort Lewis Military Reservation should be encouraged and accommodated. If desirable lands within the military bases become surplus to Federal needs, it is suggested that they be acquired by a public agency and developed for recreation use.

Future Water Development. With the exception of swimming pools which are needed in urban areas, existing waters in the Puyallup Basin and in the adjacent West Sound Basins will satisfy water based recreation demands until the year 1990. After that date additional surface acres of water may be needed in locations with easy access from Tacoma.

Although there is presently little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir area itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation. In the Puyallup Basin, reservoir operation should include programs of sedimentation control.

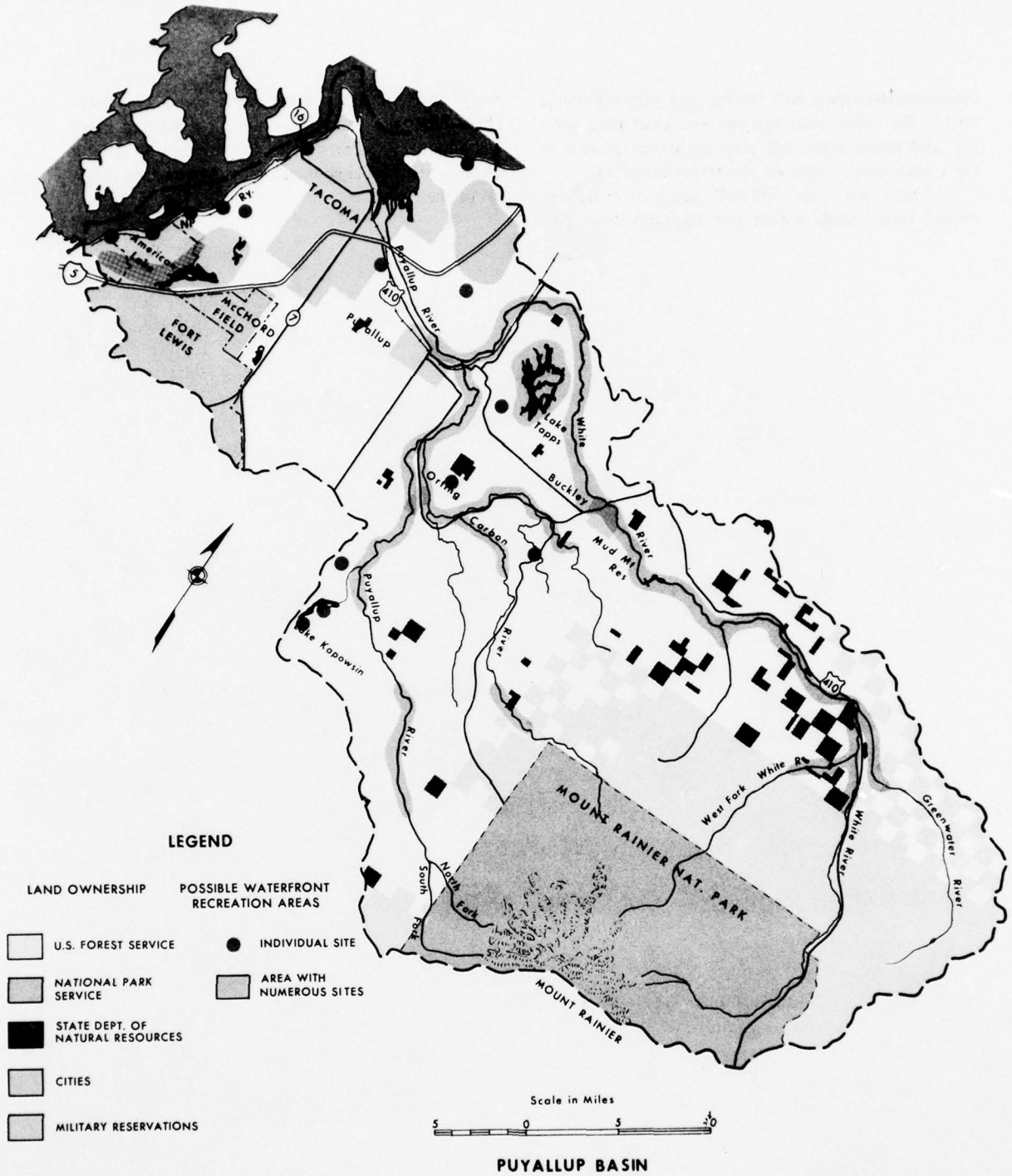
PROTECTION OF RECREATION RESOURCES

Special Interest Areas.

Several archeological sites, numerous historical and outstanding natural areas, plus two underwater marine areas, have been identified. The effects of proposed water resource and other projects upon these irreplaceable attractions require special consideration. The more significant and interesting areas should be classified, protected, and properly developed for public enjoyment and scientific purposes.

Private Sector

Due to the abundance of the people near or within the Basin, the supplying of certain outdoor recreation facilities by private interests should prove profitable. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Recreation opportunities that could feasibly be provided by commercial interests include winter sports facilities, camp and picnic areas, resorts,



PUYALLUP BASIN

FIGURE 8-4. Possible Waterfront Recreation Areas, Puyallup Basin

swimming facilities, and fishing and hunting areas. Within the cities, boat marinas and swimming, golfing, and tennis clubs will play an important role in the satisfaction of outdoor recreation demands.

There are over 300,000 acres of privately-owned forest lands within the Puyallup Basin plus many acres of agricultural lands along the rivers. These lands are close to populated areas and could accommodate recreation use. The owners of suitable areas need to be encouraged to accommodate public use of their lands.

Nisqually-Deschutes Basins



NISQUALLY — DESCHUTES BASINS

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

The eastern portion of the Nisqually Basin is within the Mount Rainier National Park. The western portion of Nisqually and Deschutes Basins touch on the southernmost tip of Puget Sound. The Nisqually River originates from the glaciers on the southwesterly slopes of Mt. Rainier, and the Deschutes River originates in the hills south of Alder Lake. Both rivers empty into Puget Sound.

Croplands are common on the rich alluvial lowlands in the western portion of the Basins. The uplands are highly variable and are mainly forested. Five-sixths of the total land area is classified as forest.

Population and Economy

The 1963 population was estimated to be almost 70,000. The population may increase to 75,000 by 1980, 105,000 by 2000, and 147,000 by the year 2020. The largest city is Olympia, the capitol of the State of Washington. In 1967, the population of Olympia was about 20,880.

The main industry within the Basins is the production of wood products.

Access

Interstate Highway No. 5, State and county roads provide access to western and central portions of the Basins. State highways extend up the Nisqually River valley into the mountainous areas. National Forest and National Park roads and trails furnish additional access into the scenic Federal lands.

There are several airports, primarily in the central and western sections. Pleasure boats are a common means of travel in the salt water areas.

Climate

The climate is cool in summer and mild in winter. The mean annual precipitation varies from 40 inches near Puget Sound to over 120 inches on Mt. Rainier. About 75% of the precipitation falls during the period of October through March with heavy snowfall common in the mountainous areas.

The drier months during the late spring, summer and early fall are the most attractive for recreation. However, winter sports are popular in the higher elevations.

Land Ownership

Approximately 26% of the land area is Federally administered. The National Forest and National Park lands in the east account for 13% and the Fort Lewis Military Reservation in the west accounts for another 13%. About 12% throughout the Basins is administered by the State. The remaining 62% is mostly privately owned. Figure 9-1 designates the major public ownerships.

Recreation Features

Mount Rainier National Park and Puget Sound are the most significant recreation features. There also are numerous lakes and several rivers affording recreation opportunities.

RECREATION SUPPLY

Existing Publicly Administered Areas

In 1964, there were 42 publicly-administered outdoor recreation sites within the Basins, with 26 administered by the State. Of the 225,432 acres classified as being available for public visitation, 166,005 are Federally owned. Approximately one-half of the Federal acreage is within a military reservation on which public access and recreational use is limited.

Table 9-1 summarizes the existing supply by administering agency.

Mt. Rainier National Park in 1964 received 74% of the total visitation to publicly-administered recreation areas.

Figure 9-1 shows the location of the existing publicly-administered outdoor recreation areas. Table 9-2 describes the individual sites.

TABLE 9-1. Summary of existing publicly-administered outdoor recreation resources, Nisqually-Deschutes Basins

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l.	Boat Access	Boat Lnch'g. Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Total 1964 Visitation
Federal															
Forest Service	43,828			42,515	1,313			33							20,849
Park Service	35,560		7	12,375	9,589	13,589		397	340	631					650,540
Military Res.	86,617		1,300	85,300			17		70		100	4	10,000	20	21,000
Other Federal															
Total Federal	166,005		1,307	140,190	10,902	13,589	17	430	410	631	100	4	10,000	20	692,389
State															
Dept. of Fish	5				5										40,000
Dept. of Game	22		19	3						260	1,330	18			NA
Dept. of Nat. Res.	58,990[1]			58,990											37,900
Parks & Rec. Com.	105			105											NA
Total State	59,122		19	59,098	5					260	1,330	18			77,900
County	20		10	10						50					2,750
City & Other Local	285	15	98	172				61	137	335			550	1	101,727
Total	225,432	15	1,434	199,470	10,907	13,589	17	491	547	1,276	1,430	22	10,550	21	874,766

[1] Does not include tidelands and shorelands.

TABLE 9-2. Existing recreation sites in the Nisqually-Deschutes Basins.

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
	Federal				
▲ 1	Big Creek Camp	9	30		
▲ 2	Cora Lake	2	3		
▲ 3	Sunshine Point	9	22		
▲ 4	Paradise	23	65	125	
▲ 5	Longmire	40	110		Overflow Area Only
▲ 6	Cougar Rock	70	200	50	
	State				
□ 1	Deschutes Falls Fishway	5			
□ 2	Chambers Lake	1			Boat Launching
□ 3	Hicks Lake	1			"
□ 4	McIntosh Lake	2			"
□ 5	Munn Lake	1			"
□ 6	Offutt Lake	1			"
□ 7	Patterson Lake	1			"
□ 8	Saint Clair Lake	1			"
□ 9	Ward Lake	1			"
□ 10	Lawrence Lake	1			"
□ 11	Clear Lake	3			"
□ 12	Clear Lake	1			"
□ 13	Harts Lake	2			"
	State (cont'd)				
□ 14	Lons Lake	1			Boat Launching
□ 15	Mineral Lake	1			"
□ 16	Ohop Lake	1			"
□ 17	Rapjohn Lake	1			"
□ 18	Whitman Lake	1			"
□ 19	Tanway Lake	1			"
□ 20	Lake Lawrence	14			"
□ 21	Muck Creek	40			
□ 22	National Wayside	40			
□ 23	Lewis County Bridge Camp	36			
□ 24	Pleasant Valley Camp	32			
□ 25	Tanway Creek	30			
□ 26	Jones Beach Recreation Area	105			
	City				
⌓ 1-6	City of Olympia	277	36	126	Swimming
⌓ 7-8	City of Rainier	2		1	
◓ 9	City of Yelm	3	5	2	
◓ 10	City of Roy	3	20	8	

*Site No. refers to map on opposite page.

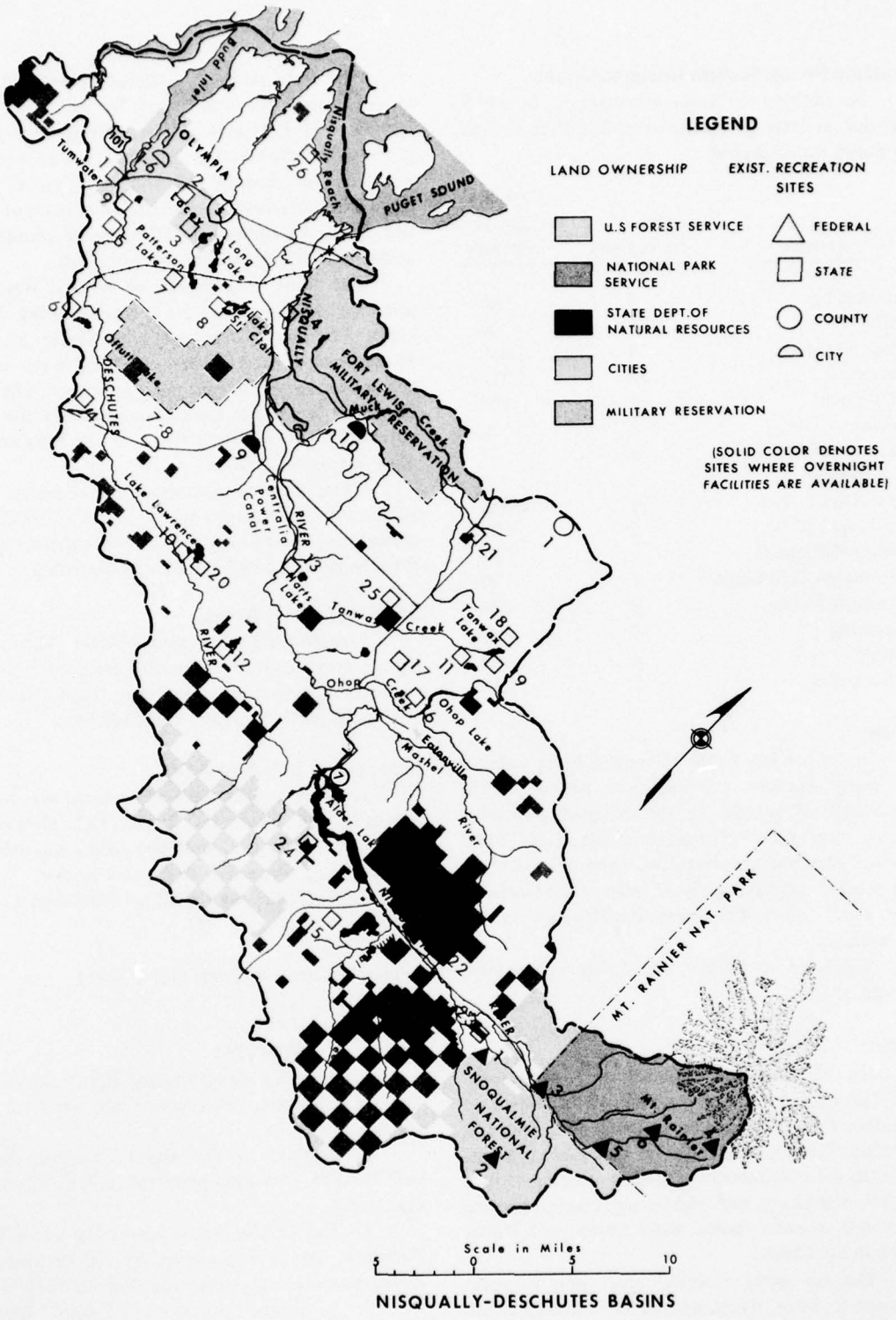


FIGURE 9-1. Existing Outdoor Recreation Sites, Nisqually-Deschutes Basins

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least 41 private operators offer facilities for public use, including:

Activity	No. of Enterprises	Capacity at One Time (People)
Rural Living	4	65
Hiking	3	60
Trailer Camping	3	2,450
Picnicking	10	2,320
Field Games	1	100
Archery	1	20
Golfing, 9 Hole	1	72
Pond Fishing	1	5
Lake, River Fishing	11	4,550
Salt Water Fishing	2	70
Hunting Waterfowl	3	60
Shooting Stocked Game	1	20
Horseback Riding	9	136
Swimming	7	490
Boating	4	77
Motorcycling	1	10

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the Nisqually-Deschutes Basins, there are 17,610 acres of salt water, 8,082 acres of lakes and reservoirs, and many miles of rivers and streams. Approximately 35 miles of the Nisqually River and 12 miles of the Deschutes River are suitable for boating.

There is one popular skin diving area at Dana Passage.

Potential Supply

In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreation use in Pierce and Thurston Counties. The appraisal indicates that there is a high potential for development related to camping, motorcycling, picnicking, golf, sightseeing, riding, shooting preserves, vacation farms, water sports, and winter sports in the Basins.

The salt water shoreline areas, plus the areas adjacent to lakes, rivers, and streams provide excellent opportunities to accommodate additional recreation areas and facilities.

The National Park, National Forest and State lands provide a potential supply for recreation development. The Fort Lewis Military Reservation is also potentially valuable. The Forest Service reports that 132 acres of campground and 72 acres of picnic ground are scheduled for development between 1964 and 1975. An additional 750 acres are planned for development from 1976 to the year 2000.

The State Department of Natural Resources plans to develop potential recreation sites on its lands. The State Department of Game plans to acquire and develop 7 lake and 2 salt water fishing access sites as well as one small game area. The State Parks and Recreation Commission has identified two potential State park areas, one at Elbow Lake and the other at Cranberry Lake.

There are also numerous parcels of private lands adjacent to water bodies which would be suitable for recreation development. Figure 9-4 indicates waterfront lands with possible recreation potential.

Special Interest Areas

Archeological and Historical Areas—The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.-1850 A.D.)

1. Village sites have been recorded on the Nisqually and Deschutes Rivers, Eld, Henderson, and Budd Inlets, and Mud Bay. Shell mounds are found at the sites on the salt water shoreline.
2. There are several Indian cemeteries in Fort Lewis.

Exploration and Fur Trade (1592-1841)

None

Settlement (1842-1888)

1. A marker designates the end of the Oregon Trail at Tumwater. Portions of the trail are still visible.
2. Portions of the David Chambers house, built in 1845, have been preserved on Lake Chambers near Lacey.
3. The Crosby house across the creek from Tumwater, has been preserved by the Daughters of Pioneers as a typical pioneer home of the 1850's.
4. A bronze plaque on Capitol Way in Olympia marks the spot where the first territory capitol building stood.

5. The Bush House near Tumwater was the first Negro home in the Study Area. In order to preserve it, the Olympia Soroptomists have purchased the structure.

6. The Medicine Creek Treaty site is designated by a highway marker. Here on Christmas Day, 1854, Governor Isaac Stevens signed an agreement with a number of Indian groups whereby the Indians relinquished their tribal lands to the settlers.

Post-Statehood (1889-Present)

None

Outstanding Natural Areas–There are four potential outstanding natural areas; two are within the Snoqualmie National Forest. The four areas include:

1. Deschutes River near Tumwater–100 acres.
2. Nisqually River Delta, east of Olympia–3,000 acres.
3. Julia Falls scenic area (Sec. 14 and 23, T.14 N., R.7 E)–32 acres.
4. Sawtooth Ridge scenic area (T.14 N., R.7 E)–1,213 acres.

The Nisqually River Delta is also an important waterfowl area.



PHOTO 9-1. Nisqually River Delta–U.S. Bureau of Outdoor Recreation Photo.

SUMMARY–PRESENT AND POTENTIAL

The demand for outdoor recreation opportunities is increasing. The recreation resources within the Nisqually-Deschutes Basins will satisfy future needs providing they are protected and properly developed for public enjoyment.

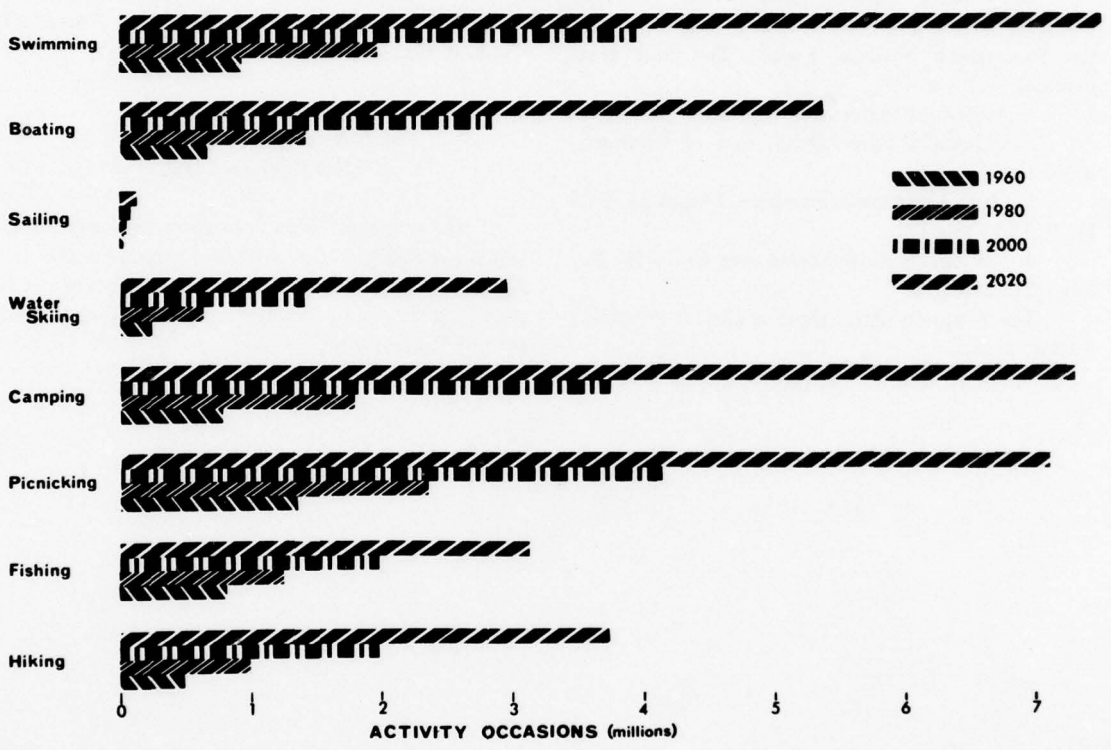
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Nisqually-Deschutes Basins was estimated to be almost 12 million activity occasions during 1960. Forty-four percent of this demand was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demand.

Figure 9-2 illustrates the estimated and projected recreation demand by water related activities.

FIGURE 9-2. Outdoor Recreation Demand, Nisqually—Deschutes Basins



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	2,100,000	2,600,000	4,700,000
1980	4,200,000	4,600,000	8,800,000
2000	8,000,000	8,400,000	16,400,000
2020	14,900,000	14,600,000	29,500,000

FIGURE 9-3. Outdoor Recreation Needs, Nisqually—Deschutes Basins



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Nisqually-Deschutes Basins is illustrated on Figure 9-3. Needs are found by relating the requirements to the existing supply.

Approximately 25% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed land is inadequate to satisfy 1960 boating, camping, and picnicking demands. Beaches are of sufficient quantity to satisfy swimming demands until the year 1980, but the supply of swimming pools is inadequate. Existing Forest Service trails will sufficiently handle hiking use until 1970. Natural waters will not satisfy future water based recreation demands. A portion of the surplus water use can be transferred to the West Sound Basins, which have a surplus of recreation waters until the year 2010.

In addition to lands needed for boat launching facilities and parking, an additional 674 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need may increase to 2,800 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 2,900 acres of campground and 600 acres of picnic areas need to be developed to satisfy 2020 demands. These acres do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately 60% of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to illustrated needs, urban parks, scenic routes, waterfront access, harbors of refuge, recreation rivers, special interest areas, interpretive facilities, open spaces, and beaches and trails for activities other than swimming and hiking, are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will study and identify specific needs for these purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 40% of the water related recreation demands in the Nisqually-Deschutes Basins would be satisfied at lakes and reservoirs, 15% at rivers and streams, 10% at swimming pools, and 35% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 20% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 25, 35 and 20%, respectively.

SPECIFIC RECREATION PROBLEMS

The glacial-fed rivers and streams have a high sediment content with a resulting murky appearance which detracts from recreation values.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

Some developed facilities need to be rehabilitated, and many existing sites could accommodate additional improvements.

In addition to developed sites, there are approximately 200,000 acres of publicly-administered undeveloped Class III general recreation lands. Some of these lands, especially those with frontage on bodies of water, would accommodate water-related recreation developments and should be developed accordingly. The long range programs of the management agencies plan for the development of needed facilities on these lands. The plans for the management and development of the National Forest and National Park lands are coordinated between the two respective agencies.

The shorelands of two large sections of the Nisqually River and the tidelands along the southern one-third of Budd Inlet are owned by the State. These lands need to be retained in public ownership since they can be utilized in satisfying recreation needs. Better access to the State-owned tide and shorelands will be required to promote their use for recreation, and the lands should be maintained in a clean and sanitary condition.

A large portion of the western part of Nisqually Basin, including approximately 20 miles of Nisqually River shoreline plus several lakes, is within the Fort Lewis Military Reservation. Public recreation use is allowed and accommodated in certain areas. If desirable lands within the reservation become surplus to Federal needs, it is suggested that they be acquired by a public agency and developed for recreation use.

Acquisition and Development of New Areas

There are very few recreation areas on the salt water shoreline and on the major rivers and lakes within the Basins. To satisfy present and future outdoor recreation demands, many additional recreation areas should be acquired and developed by public agencies or private interests. As the Olympia and other urban areas expand, efforts need to be taken to provide for adequate recreation areas and open space within the near populated areas.

Figure 9-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly many other areas not identified which are suitable for recreation development. Areas in the National Forest and National Park have not been indicated on the map since the potential recreation resources of these lands have already been inventoried.

Scenic-access easements need to be established along both sides of the Nisqually and Deschutes Rivers and along portions of the salt water shoreline. Easements should also be acquired along lesser rivers and streams within urban areas and areas destined for residential development. Trails are needed within the easements and convenient road access provided. Further studies need to be conducted to identify waterfront strips suitable for protection as scenic-access easements.

To satisfy recreation objectives, the flood plain along the Nisqually River and a portion of the flood plain along the Deschutes River should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

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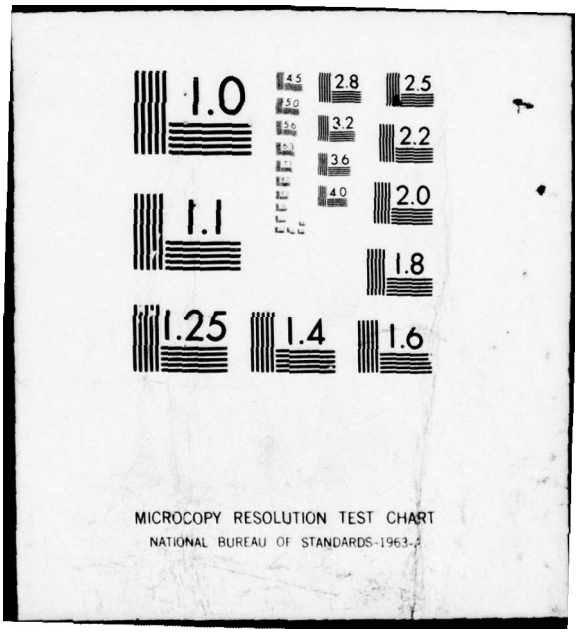
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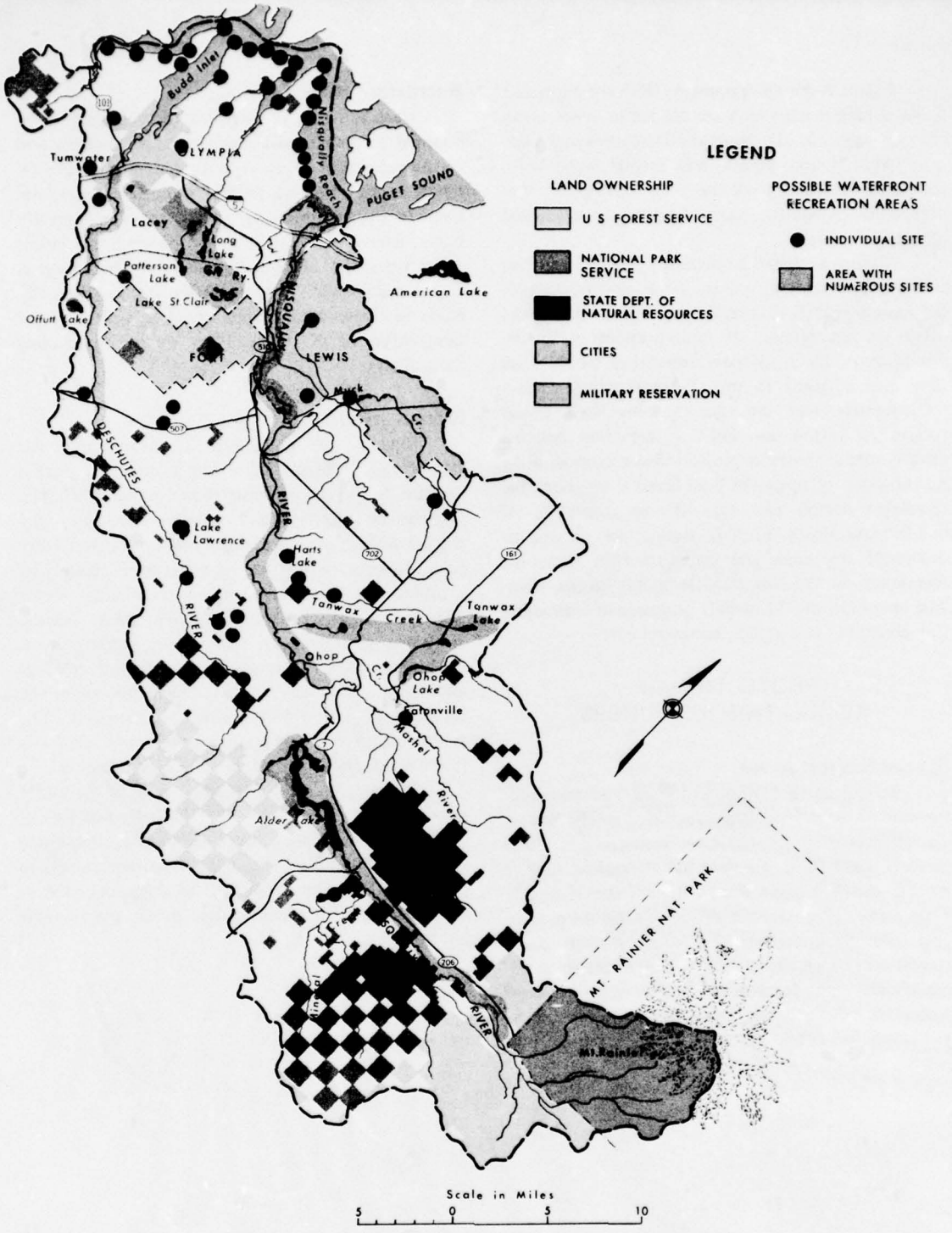
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NISQUALLY -DESCHUTES BASINS

FIGURE 9-4. Possible Waterfront Recreation Areas, Nisqually-Deschutes Basins

Future Water Development—With the exception of swimming pools which are needed in urban areas, existing water in the Nisqually-Deschutes and adjacent West Sound Basins will satisfy water-based recreation demands until the year 1990. After that date, additional surface acres of water may be needed to satisfy demand.

Although there is presently little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir area itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation. In the Nisqually-Deschutes Basins, reservoir operation should include programs of sedimentation control as well as flow enhancement.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas

Several archeological, historical, and outstanding natural areas have been identified in the Basins. The effects of proposed water resource and other projects upon these irreplaceable attractions require special consideration. For instance, the Nisqually Flats area has been identified as a possible deep water port site. Such development could severely harm recreation and wildlife values worthy of preservation. Significant and interesting special interest areas within the Nisqually and Deschutes Basins should be protected for public enjoyment and scientific purposes.

Recreation Rivers

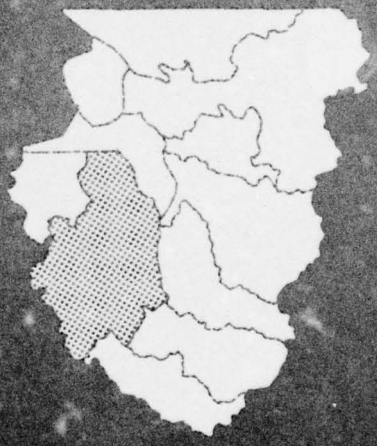
Certain rivers or portions thereof need to be retained in their natural state to satisfy present and future recreation needs. A State system of recreation rivers is suggested to protect important recreation rivers or river segments for public use. The Nisqually River, from Puget Sound to the power house below Alder Lake, should be investigated for designation as a recreation river. The protection of the Nisqually River in a near-natural state could be tied in with a designation of Nisqually Flats as an outstanding natural area.

Private Sector

Due to the abundance of people near the Basins, the supplying of certain outdoor recreation facilities by private interests should prove profitable. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Recreation opportunities that could feasibly be provided by commercial interests include winter sports facilities, camp and picnic areas, resorts, swimming facilities, and fishing and hunting areas. Within the cities, boat marinas, swimming, golfing, and tennis clubs will play an important role in the satisfaction of outdoor recreation demands. The private sector will play an increasingly important role in the satisfaction of outdoor recreation demands.

There are over 340,000 acres of privately owned forest lands within the Nisqually and Deschutes Basins plus many acres of agricultural lands along the rivers. Some of these areas could accommodate recreation use. The owners of suitable areas need to be encouraged to accommodate public use of their lands.

West Sound Basins



WEST SOUND BASINS

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

The West Sound Basins possess a great variety of recreation resources. The eastern one-half is relatively gentle in topography, while the western portion is magnificently rugged. The eastern one-half is interlaced with beautiful salt water waterways, numerous islands and attractive shorelines.

The Olympic Mountains in the western one-half rise abruptly from Hood Canal. Here stream and glacial action have worn the sharply folded sandstones and slaty rocks into a series of rugged peaks and steep-walled valleys.

In the eastern one-half, glacial action resulted in the formation of numerous lakes and pothole-type ponds. About 87% of the land area is forested.

Population and Economy

The 1967 population was estimated to be 134,000. The population may reach 175,000 by 1980, 274,000 by 2000, and 433,000 by the year 2020.

The larger towns include Bremerton, Port Townsend and Shelton. Bainbridge and Vashon Islands, just across the Sound from Seattle, have become popular residence areas for people employed in Seattle.

The forest products industries are the major economic activity. Recreation, tourism, and the Puget Sound Navy Yard are the other most significant contributors to the Basins' economy.

Heavy recreation use is received from residents of the Seattle and Tacoma metropolitan areas.



PHOTO 10-1. Bremerton—U.S. Bureau of Outdoor Recreation Photo.

Access

Access to the West Sound Basins is by ferries, the Tacoma Narrows Bridge, or via U.S. Highway 101. Boat travel from the populated eastern portions of the Study Area to and through the West Sound Basins' bountiful waters is a common and popular recreation activity.

Many State and county roads provide access to the Basins' eastern one-half, although vehicle access to the eastern shore of Hood Canal is limited. The Hood Canal Floating Bridge in the north and several State highways in the south provide access from the Kitsap Peninsula to the Olympic Peninsula.

U.S. Highway 101 is the major artery used for recreation travel on the Olympic Peninsula. County roads traverse up several of the drainages into the Olympic Mountains. National Forest and National Park roads and trails provide access into the Federal areas.

There are airfields in the Sequim, Port Townsend, Bremerton and Shelton areas.

Climate

The climate is cool in the summer and mild in the winter. The annual precipitation varies from about 17 inches near Port Townsend to more than 200 inches in the Olympic Mountains. Heavy snow packs are characteristic of the mountain areas.

The drier late spring, summer and early fall months are the most popular for outdoor activities.

Land Ownership

The Basins' western portion is within the Olympic National Park and the Olympic National



PHOTO 10-2. Boaters at Point No Point—U.S. Bureau of Outdoor Recreation Photo.

Forest. About 18% of the total land area is within the National Forest and 8% within the National Park. More than 120,000 acres of State-owned lands are widely scattered over the area. There are four Indian Reservations and several military reservations within the Basins.

Recreation Features

The West Sound Basins have the most extensive salt water recreation resources of any basin or island area within the Study Area. The central and eastern portions are completely interlaced with sheltered waters which are augmented by attractive islands, bays and fresh water lakes. In the western portion, the beautiful Olympic Mountains seem to rise from the clear waters of Hood Canal. Numerous streams, plus Lake Cushman, provide further attractions within the mountainous reaches. Many people are attracted by the beautiful rhododendrons in the Port Townsend area and along the Quilcene River.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 149 publicly-administered outdoor recreation sites within the Basins, 14 are Federal, 97 are State, 26 are county and 12 are city. Of the 460,654 acres classified as being available for recreation use, 73% are administered by Federal agencies and 26% by State agencies. During 1964, State Parks received about 1,678,000 of the total visitation of approximately 2,342,000.

Table 10-1 summarizes the existing supply by administering agency.

During 1964, the Forest Service reported the following breakdown of visitation by primary purpose of visit:

Camping	29,250 visits
Picnicking	21,600 "
Swimming	75 "
Winter Sports	500 "
Hunting	31,420 "
Fishing	23,550 "
Hiking and Riding	9,480 "
General Enjoyment and Sightseeing	24,450 "
Gathering Forest Products for Pleasure	1,220 "
Scientific Study and Hobbies	650 "
Cross-Country Travel	300 "
Motor Vehicle Trail Travel	650 "
Other Activities	1,210 "
Total	144,355 visits

The abundant recreation attractions are reflected in part by the following 24 State Park areas:

State Park	Acres	Visitation 1963	Visitation 1966
Belfair State Park	79	226,393	297,510
Blake Island Marine Park	475	38,882	36,987
Chief Seattle's Grave Heritage Site	1	635	400
Dosewallips Recreation Area	425	134,667	192,275
Eagle Island Marine Park	10	Unknown	Unknown
Fay-Bainbridge State Park	17	72,926	78,363
Fort Flagler State Park	804	64,397	117,294
Fort Ward Recreation Area	137	Unknown	Unknown
Fort Worden Recreation Area	209	Unknown	Unknown
Illahee Recreation Area	75	124,957	317,302
Jarrel Cove Marine Park	38	7,788	15,408
Kitsap Memorial State Park	45	84,685	97,001
Kopachuck Recreation Area	104	88,128	227,391
Lake Cushman Recreation Area	581	116,491	160,434
Old Fort Townsend State Park	241	Unknown	Unknown
Old Man House Heritage Site	1	1,135	1,080
Penrose Point Recreation Area	168	71,628	97,768
Pleasant Harbor Marine Park	1	1,220	5,658
Potlatch Recreation Area	143	103,099	226,367
Rothschild House Heritage Site	5	891	3,589
Scenic Beach Recreation Area	71	Unknown	Unknown
Sequim Bay Recreation Area	87	190,293	208,814
Squaxin Island Marine Park	31	Unknown	13,081
Twanoh Recreation Area	175	179,863	271,615

TABLE 10-1. Summary of existing publicly-administered outdoor recreation resources, West Sound Basins.

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Total 1964 Visitation
Federal															
Forest Service	229,857		20	228,137	1,700			165	32						144,355
Park Service	111,170		700	38,490	10,400	61,580		112							59,000
Military Res.	376		21	355					12					1	6,000
Other Federal	14			14						15					6,400
Total Federal	341,417		741	266,996	12,100	61,580		277	44	15				1	219,355
State															
Dept. of Fish	167			10	90		67			3		1		1	47,000
Dept. of Game	424		265	159						75	2,685	40			29,150
Dept. of Nat. Res.	114,070[1]			114,070				10	20	5		2			234,295
Parks & Rec. Com.	4,082		1,543	2,019	479		41	1,033	924	1,894	99	6		30	1,678,588
Total State	118,743		1,808	116,258	569		108	1,043	944	1,977	2,784	49		31	1,989,033
County	318	8	166	144				13	67	145	161	5		14	54,860
City & Other Local	176	27	127	19	3				12	83	11	1	6,100	1	79,350
Total	460,654	35	2,842	383,417	12,672	61,580	108	1,333	1,067	2,220	2,956	55	6,100	47	2,336,198

[1] Does not include tidelands and shorelands.

Between 1963 and 1966, State Park area use increased 57%. Figure 10-1 shows the location of publicly-administered outdoor recreation areas. Table 10-2 describes the individual sites.

TABLE 10-2. Existing recreation sites in the West Sound Basins.

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	Falls View	6	24	3	Observation Point
▲ 2	Collins	4	16	1	
▲ 3	Hamma Hamma	5	23		
▲ 4	Lena Creek	7	14		
▲ 5	Lena Lake	6	10		
▲ 6	Steelhead	2	5		
▲ 7	Rainbow	3	7	7	
▲ 8	Big Quilcene	1	4	1	
△ 9	Mt. Walker	2		10	Observation Point
▲ 10	Brown Creek	6	6		
▲ 11	Seal Rock	20	32	10	Public Oyster Beds
▲ 12	Elkhorn	8	24		
△ 13	Quilcene National Fish Hatchery	14			
▲ 14	Dosewallips		112		
State					
□ 1	Point Whitney Shellfish Lab	46			Swimming Beach
□ 2	Lilliwap Recreation Tidelands	10			
□ 3	George Adams Salmon Hatchery	6			
□ 4	Hood Canal Salmon Hatchery	4			
□ 5	Minter Creek Salmon Hatchery	13			
□ 6	Point Whitney Tidelands	34			
□ 7	Shine Recreation Tidelands	29			Boat Launching Swimming Beach
□ 8	Toandos Peninsula Tidelands	25			
□ 9	Aldrich Lake	1			Boat Launching
□ 10	Bay Lake	4			"
□ 11	Benson Lake	1			"
□ 12	Buck Lake	1			"
□ 13	Cady Lake	1			"
□ 14	Carney Lake	1			"
□ 15	Clara Lake	1			"
□ 16	Crescent Lake	1			"
□ 17	Crocker Lake	1			"
□ 18	Isabella Lake	1			"
□ 19	Island Lake	1			"
□ 20	Jackson Lake	1			"
□ 21	Kitsap Lake	1			"
□ 22	Leland Lake	1			"
□ 23	Long Lake	1			"
□ 24	Lost Lake	1			"
□ 25	Maggie Lake	1			"
□ 26	Mason Lake	1			"
□ 27	Panhandle Lake	20			"
□ 28	Panther Lake	1			"
□ 29	Spencer Lake	1			"
□ 30	Summit Lake	1			"
□ 31	Tahuya Lake	1			"
□ 32	Tarboo Lake	1			"
□ 33	Tee Lake	1			"
□ 34	Tiger Lake	1			"
□ 35	Twin Lake	1			"
□ 36	Misery Point	2			"
□ 37	Retsil	1			"
□ 38	Union City	1			"
□ 39	Devereaux Lake	1			"
□ 40	Haven Lake	2			"
□ 41	Horseshoe Lake	2			"
□ 42	Mission Lake	2			"
□ 43	Phillips Lake	1			"
□ 44	Prickett Lake	1			"
□ 45	Wildberry Lake	10			"
□ 46	Wildcat Lake	1			"
□ 47	Wooten Lake	1			"
□ 48	Wye Lake	1			"
□ 49	Shelton State Game Fish Hatchery	77			
□ 50	Skokomish River	104			
□ 51	Union River Waterfowl Range	9			Public Hunting
□ 52	Hole in the Wall	40			
□ 53	Lake Cushman	40			
□ 54	Airport Picnic Area	3		4	
□ 55	Camp Bob	10		2	
□ 56	Camp Correll	20		3	
□ 57	Camp Spillman	10		4	
□ 58	Camp "2"	40			
□ 59	Fosen's Lake Camp	7		2	
□ 60	Hartstene Island	25			
□ 61	Horse Camp	15			
□ 62	Howell Lake	40			Boat Launching
□ 63	Jorstad Creek	40			
□ 64	Kamenga Canyon	40			
□ 65	Keycenter	53			
□ 66	Maplewood	43			
□ 67	Paul Sharp Scenic Picnic Area	15		3	
□ 68	Square Lake	46			
■ 69	Whitman's Cove	22	10	2	Boat Launching
■ 70	Belfair Recreation Area	79	194	99	Swimming Beach
■ 71	Blake Island Marine Park	475	36	10	Swimming Beach Boat Moorage
State (cont'd)					
□ 72	Chief Seelth Cemetery Heritage Site	1			
■ 73	Dosewallips Recreation Area	425	115	25	Swimming Beach
□ 74	Eagle Island Marine Park	10			
■ 75	Fay Bainbridge State Park	17	45	44	Boat Launching Swimming Beach
■ 76	Fort Flagler State Park	804	41	33	Boat Launching and Moorage Swimming Beach
□ 77	Fort Ward	137		10	
■ 78	Jarrel Cove Marine Park	38	10	8	Boat Moorage Swimming Beach
■ 79	Illahee Recreation Area	75	30	79	Boat Launching and Moorage Swimming Beach
■ 80	Kitsap Memorial Recreation Area	46	43	79	Swimming Beach
■ 81	Kopachuck Recreation Area	104	52	86	Swimming Beach
■ 82	Lake Cushman Recreation Area	581	80	18	Boat Launching Swimming Beach
■ 83	Old Fort Townsend State Park	241	28	26	Swimming Beach
□ 84	Old Man House Heritage Site	1			
■ 85	Penrose Point Recreation Area	168	95	87	Boat Moorage Swimming Beach
□ 86	Pleasant Harbor Marine Park	1			Boat Moorage Swimming Beach
■ 87	Potlatch Recreation Area	143	33	20	Swimming Beach
□ 88	Rothschild House Heritage Site	5			
■ 89	Scenic Recreation Area	71	20		Swimming Beach
■ 90	Sequim Bay Recreation Area	87	108	94	Boat Launching and Moorage Swimming Beach
■ 91	Squaxin Island Marine Park	31	13		Boat Moorage Swimming Beach
■ 92	Twanoh Recreation Area	175	91	205	Boat Launching and Moorage Swimming Beach
□ 93	Devil's Lake Camp	40			
□ 94	Dry Creek	30			
□ 95	Duckabush River	18			
□ 96	Morrowstone Island Waterfowl Range	159			Public Hunting
□ 97	Fort Worden	209			
County					
○ 1	Agren Memorial Park	31			
○ 2	Burton Acres	68		15	Boat Launching Swimming Beach
○ 3	Dockton County Park	20		30	Swimming Beach
○ 4	Point Robinson County Park	10			
○ 5	Crescent Lake Park	3			
○ 6	Rosedale Playfield	3			
○ 7	Silverdale Waterfront Park	1			Swimming Beach
○ 8	Suquamish Wayside Park	1			
○ 9	Suquamish Park	8			
○ 10	Parkwood Park	19			
○ 11	Courthouse Playground	1			
○ 12	Morgan Hill Playground	1			
● 13	North Beach Park	1	5	3	Swimming Beach
○ 14	Burley County Park	9			
○ 15	Kingston Kolakole Park	3			
○ 16	North Bainbridge Agate Park	13		3	Swimming Beach
○ 17	Fairy Dell Park	4			"
○ 18	Square Lake	5			Boat Launching Swimming Beach
○ 19	Harper County Park	28		3	Boat Launching
○ 20	Jefferson County Memorial Park	4			
● 21	Chimacum Park	8	8	2	
○ 22	East Quilcene Park	1			
○ 23	East Beach Park	1		2	Swimming Beach
○ 24	Oak Bay Park	44			Boat Launching Swimming Beach
○ 25	Quilcene Park	4		6	
○ 26	W. R. Hicks Park	7		4	Boat Launching Swimming Beach
City					
⌓ 1-5	Bremerton	117			Swimming Pool
⌓ 6	Paulsbo	1			
⌓ 7-8	Port Townsend	20		5	
⌓ 9-10	Shelton	13		7	Swimming Pool
⌓ 11	Winslow	5			
⌓ 12	Marina	20			Boat Launching and Moorage Swimming Beach

*Site No. refers to map on opposite page.

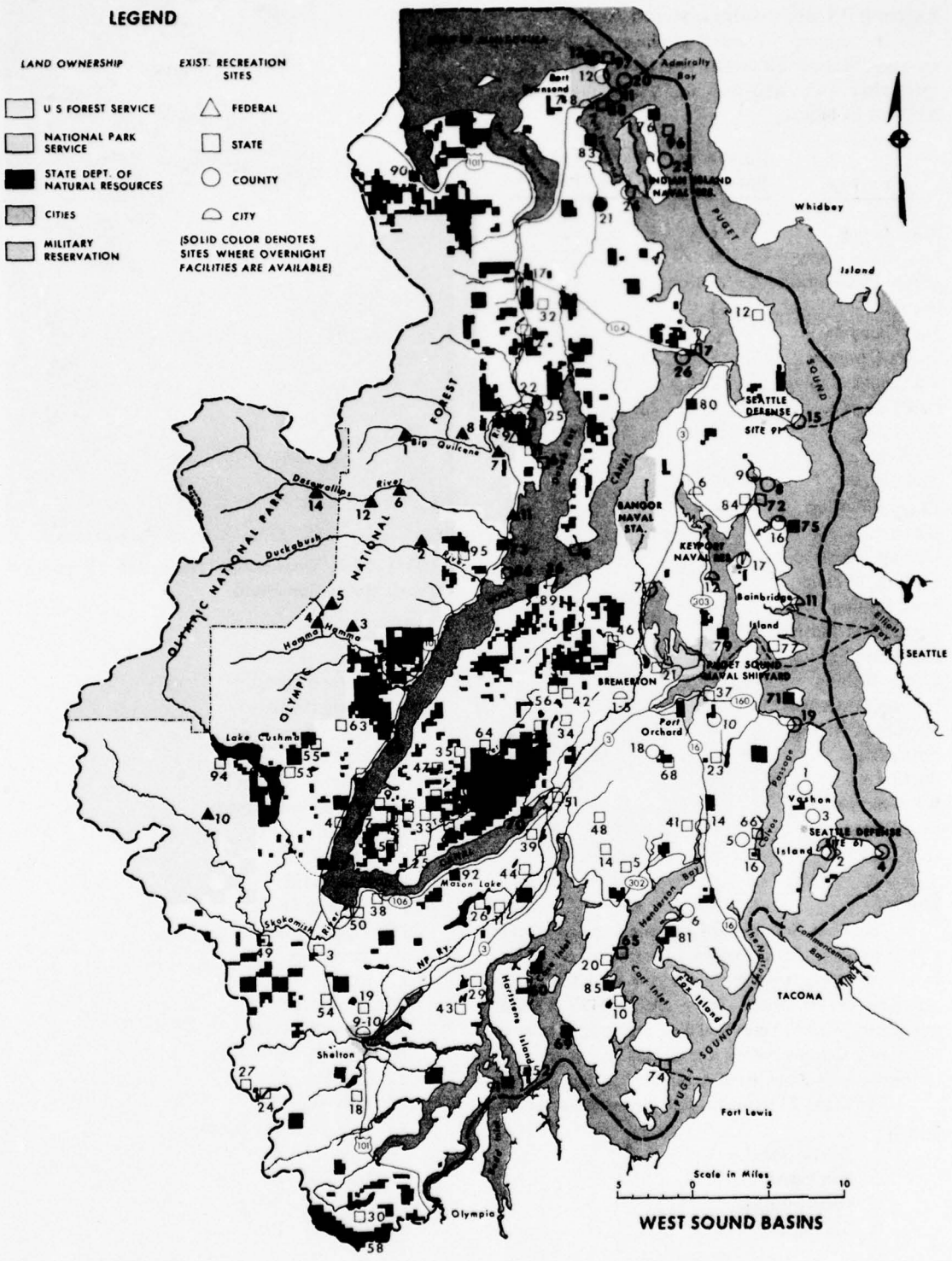


FIGURE 10-1. Existing Outdoor Recreation Sites, West Sound Basins

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least 80 private operators offer facilities for public use. Activities for which facilities are provided include:

Activity	Number of Enterprises	Capacity at One Time (People)
Rural Living	11	803
Enjoying Scenery	4	250
Nature Observation	9	440
Hiking	13	1,135
Tent Camping	3	179
Trailer Camping	5	207
Transient Camping	2	109
Pack Camping	2	770
Picnicking	4	1,696
Field Games	2	240
Archery	2	4
Target Shooting	4	72
Go-Cart Racing	1	30
Golfing, 9-Hole	7	504
Golfing, 18 Hole	3	432
Pond Fishing	4	200
Lake, River Fishing	2	70
Salt Water Fishing	28	1,467
Stream Fishing	1	4
Hunting Waterfowl	4	32
Horseback Riding	4	40
Swimming	23	8,242
Boating	14	385
Water Skiing	1	2
Skin Diving	1	6
Dog Trials	1	12

Water

The West Sound Basins abound in water areas highly suitable for recreational use. Water is the key factor of supply to several outdoor activities and is supplemental to others. There are 385,499 acres of salt water, 12,030 acres of lakes, and many miles of rivers and streams within the Basins. Eight miles of the Skokomish River are suitable for boating.

There are 27 popular skin diving areas in the Basins.

1. Tolivia Shoal
2. Fox Island
3. Point Fosdick
4. Gig Harbor
5. Vashon Island
6. Blake Island
7. Agate Pass
8. Gamble Bay
9. Sisters
10. Hood Canal Bridge
11. Lofall
12. Pulali Point
13. Pleasant Harbor
14. Seabeck Dock
15. Triton Head
16. Stavis Bay
17. Eldon
18. Hoodsport
19. Point No Point
20. Foulweather Bluff
21. Ludlow
22. Klas Rock
23. Port Townsend Canal
24. Colvos Rocks
25. Irondale
26. Townsend Jetty
27. Discovery Bay



PHOTO 10-3. Dosewallips River—U.S. Bureau of Outdoor Recreation Photo.

Potential Supply

The West Sound Basins are well endowed with natural resources needed to satisfy future recreation needs. The miles of salt water and fresh water shoreline will accommodate many recreational developments through the establishment of new public use areas. Facilities at many existing areas could be improved and expanded to satisfy increasing visitation.

The National Forest and National Park lands in the western portion, the State lands through the area, and the military reservations are good sources of potential supply. The Forest Service reports that 123 acres of campground and 12 acres of picnic ground are scheduled for development from 1964 to 1975. An additional 230 acres are planned from 1976 to 2000.

The State Department of Natural Resources plans to develop potential sites on its lands. The State Department of Game plans to acquire and develop 33 lake and 8 salt water access sites as well as 3 waterfowl and 3 small game areas.

The State Parks and Recreation Commission has identified seven potential State parks in the Basins. These include:

1. Anderson Lake–south of Port Townsend.
2. Wolfe Property–north of Hood Canal Floating Bridge.
3. Stretch Island–northeast of Hartstine Island.
4. Cutts Island–southwest of Raft Island.
5. Oro Bay–southern part of Anderson Island.
6. Manchester Fuel Depot (surplus Navy property)–east of Bremerton.
7. Miller Spit–north of Bainbridge Island.

McNeil Island is presently administered by the Federal Government as a penitentiary. If vacated, the 4,616 acre island could be transformed into a recreation area of statewide significance.

Many areas on private lands are suitable for development into recreation areas. Figure 10-4 indicates waterfront lands with possible recreation potential.

Special Interest Areas

Archeological and Historical Areas The following is a breakdown of the archeological and historical resources into four periods: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

Indian (6000 B.C.–1850 A.D.)

On the Kitsap Peninsula, near the west approach to the Agate Pass Bridge, is one of the most important archeological sites on Puget Sound. Old Man House, the site of an Indian longhouse, has yielded prehistoric, proto-historic, and historic materials. No one knows for certain when the first structure was built on the site, but the latest was built around 1850 as the home of Sealth, Chief Seattle. In the 1870's the structure was burned by government authorities in a deliberate attempt to root out the Indian culture and to "civilize" the natives. Sealth is buried in a nearby Indian cemetery in Suquamish. The State Parks Commission has an interpretive display at the site and has conducted archeological "digs." As outlined by excavation, Old Man House appeared to measure approximately 530 feet by 40 to 60 feet.

Exploration and Fur Trade (1592–1841)

A marker at Discovery Bay commemorates the discovery and naming of the Bay by Vancouver in 1792.

Settlement (1842–1888)

1. Fort Malikoff was built in Port Gamble prior to 1853. Nothing remains of the structure.
2. At Port Madison is an old British cemetery dating to 1854.
3. Old Fort Townsend, built during the Indian alarms of the 1850's, is near Port Townsend. The State has developed a park with interpretive displays on the site.
4. Port Gamble was the location of the first Pope and Talbot mill, established in 1853. Many early buildings in this town still survive.
5. In Port Ludlow an old hotel and the home of Cyrus Walker, who started the town, still stand.
6. Many business buildings and residences in Port Townsend have characteristic Victorian architecture and are historic attractions. One, the Fowler Building, was constructed in 1874 as a court house.
7. At the pioneer cemetery in Seabeck, there are old tombstones dating back more than eight decades. Many of the remains are those of men killed in logging accidents in the days before safety regulations were common.

Post-Statehood (1889–Present)

1. The Puget Sound Navy Yard at Bremerton was established in 1891 and has been continuously

used for the last 75 years. The battleship Missouri of World War II fame may be visited within the Navy Yard.

2. The sites of Forts Worden and Flagler, built for coastal defense, are located near Port Townsend. These areas are now within the State Park system.

Outstanding Natural Areas. There are three established and nineteen potential outstanding natural areas in the Basins. The established areas include:

1. Point Whitney and tidelands, Dabob Bay–74 acres.

2. Shine Tidelands, Hood Head on Hood Canal–29 acres.

3. Hazel Point Tidelands, Toandos Peninsula on Hood Canal–25 acres.

The potential areas identified include:

1. South Fork Skokomish scenic area (Sec. 26, T.22 N., R5W)–110 acres.

2. Mildred Lakes scenic area (T.25 N., R5W)–790 acres.

3. Deep Channel off Fletcher Bay, Bainbridge Island–10 acres.

4. Anderson Lake, near Port Townsend–440 acres.

5. Quartermaster Harbor marine shoreline, Vashon and Maury Islands.

6. Miller Bay marine shoreline, Kitsap Peninsula.

7. Buckhorn Mountain geological area (Sec.18, T.28 N., R3W)–150 acres.

8. Tyler Peak scenic area (T. 26, 27 and 28 N., R3W)–250 acres.

9. St. Peters Dome geological area (Sec. 6 and 7, T.25 N., R3W)–250 acres.

10. The Brothers geological area (Sec. 13, T.25 N., R4W)–100 acres.

11. Cabin Creek geological area (Sec. 29 and 32, T.25 N., R3W)–150 acres.

12. Lena Lake Slide geological area (Sec. 26 and 35, T.25 N., R4W)–100 acres.

13. Mt. Henderson scenic area (T.24 N., R4&5W)–3,500 acres.

14. Mt. Pershing geological area (Sec. 24, T.24 N., R4W)–200 acres.

15. Mt. Washington scenic area (T.23 & 24 N., R4 & 5W)–10,000 acres.

16. Hamma Hamma Falls scenic area–13 acres.

17. Dungeness scenic area (T.288 N., R3W; T.27 N., R3 & 4W)–15,000 acres.

18. Mt. Walker scenic area (T.27 N., R2W)–500 acres.

19. Hood Head at entrance to Hood Canal–200 acres.

Fourteen of the potential areas are in the Olympic National Forest.

SUMMARY–PRESENT AND POTENTIAL

The abundant recreation resources within the West Sound Basins have the capacity to satisfy significant recreation needs, provided the resources are properly protected and developed for public enjoyment.

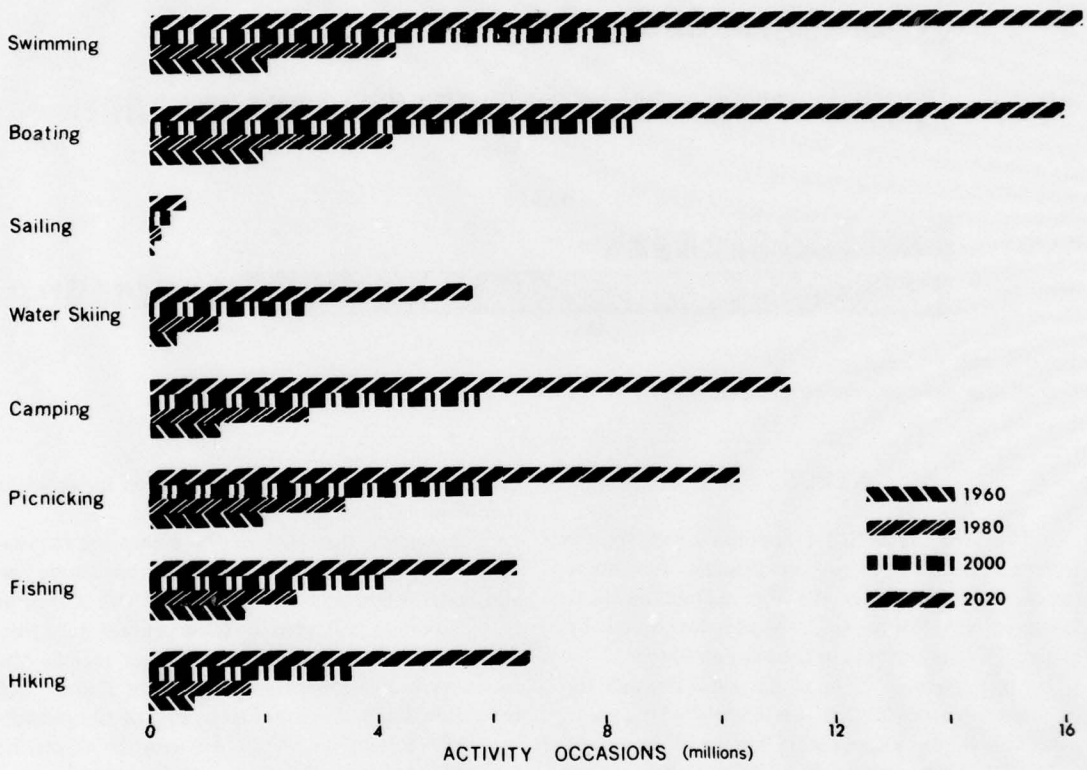
RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the West Sound Basins was estimated to be almost 20 million activity occasions during 1960. Fifty-one percent of this demand was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demand.

Figure 10-2 illustrates the estimated and projected recreation demand by water related activities.

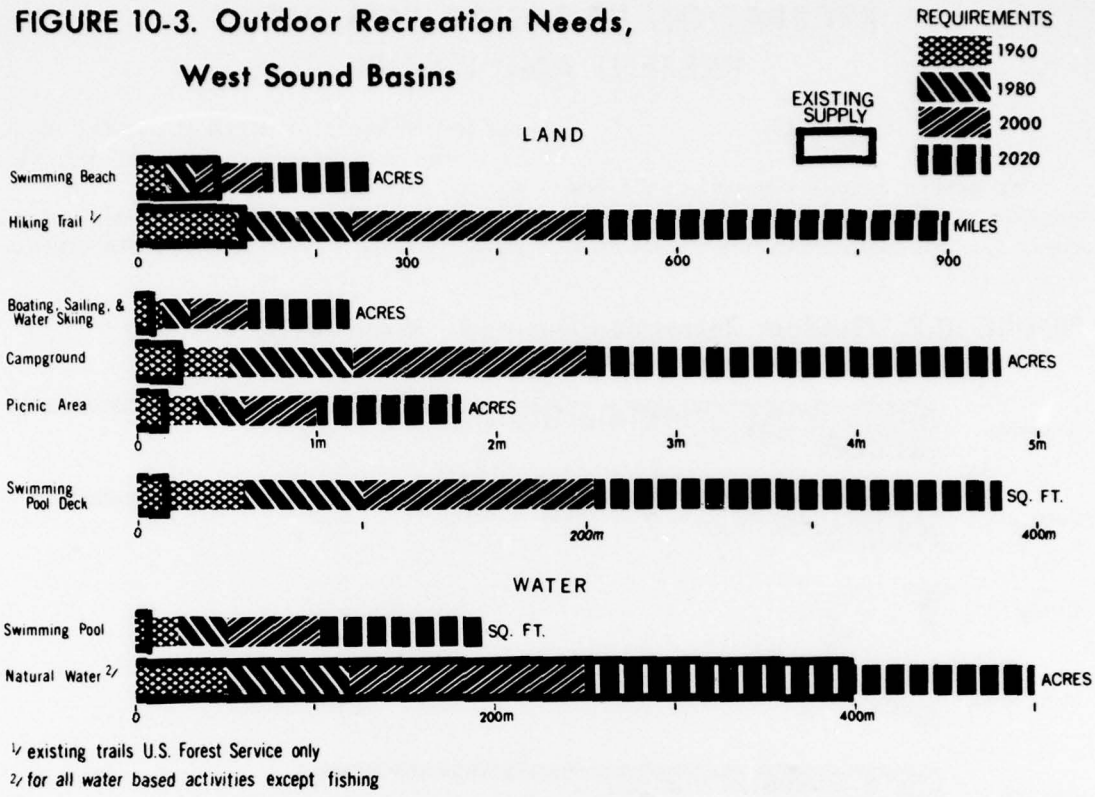
FIGURE 10-2. Outdoor Recreation Demand, West Sound Basins



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	4,000,000	3,900,000	7,900,000
1980	8,100,000	6,900,000	15,000,000
2000	15,700,000	12,500,000	28,200,000
2020	29,200,000	21,800,000	51,000,000

FIGURE 10-3. Outdoor Recreation Needs, West Sound Basins



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the West Sound Basins is illustrated on Figure 10-3. Needs are found by relating the requirements to the existing supply.

Approximately 25% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating, camping, and picnicking demands. Beaches are of sufficient quantity to satisfy swimming demand past the year 1980, but the supply of swimming pools is inadequate. Existing Forest Service trails meet only 1960 hiking demands. There are enough natural waters to satisfy water based recreation requirements until the year 2010, at least.

In addition to lands needed for boat launching facilities and parking, an additional 7,526 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 33,600 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 4,600 acres of campground and 950 acres of picnic areas will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately 20% of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing public lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, harbors of refuge, recreation rivers, special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will identify specific needs for these purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

Due to the abundance of surface waters and the wealth of other recreation attractions, the well-planned development of the natural resources within the West Sound Basins will provide for a tremendous amount of opportunities to satisfy recreation demand.

As a desirable planning goal, 20% of the water related recreation demands in the West Sound Basins would be satisfied at lakes and reservoirs, 15% at rivers and streams, 10% at swimming pools, and 55% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 10% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 35, 30 and 25% respectively.

SPECIFIC RECREATION PROBLEMS

Air pollution has an adverse effect upon the scenic qualities within the Basin. Fumes from the pulp mill at Port Townsend befoul the air for many miles. There are several other sources of air pollution which have unpleasant localized effects.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

Many existing publicly administered recreation sites within the West Sound Basins could accommodate additional facilities, and some existing facilities need to be rehabilitated.

In addition to developed sites, there are approximately 383,417 acres of undeveloped publicly-administered Class III general recreation lands. There are many sites within these public lands which could be developed for recreational activities. The long-range plans of the management agencies plan for the development of needed facilities.

State tide and shorelands are scattered throughout the Basins. These lands need to be retained in public ownership and better access provided to facilitate recreation use.

There are several military reservations and U.S. Coast Guard establishments within the Basins. The Federal Government should develop portions of these lands for public recreation. If desirable lands within the military bases or Coast Guard installation become surplus to Federal needs, it is suggested that they be acquired by public agencies and developed for recreation use. To date, three surplus military reservations, Fort Ward, Fort Warden, and Fort Flagler, have been acquired for State Parks; and action has been taken to acquire a fourth, Manchester Fuel Depot. The Manchester Fuel Depot, on the shores of Puget Sound east of Bremerton, would make an excellent State park and should be developed accordingly. Lands within the Coast Guard installation on Point-No-Point may be declared surplus in the near future. This site would make an excellent recreation area.

Acquisition and Development of New Areas

Areas on Existing Waters. There is a lack of recreation areas on the salt water shoreline and on the lakes and rivers to satisfy future outdoor recreation demands. To satisfy recreation demands, many additional recreation areas should be acquired and developed by public agencies or private interests. As the urban areas expand, efforts need to be taken to provide for adequate recreation areas and open space within and near populated areas.

Figure 10-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly many other areas not identified which are suitable for recreation development. Areas in the National Forest and National Park have not been included on the map since the potential recreation resources on these lands have already been inventoried.

A park system which includes many areas offering diversified recreation opportunities is needed on the Kitsap Peninsula. The system should include many lakes and several salt water waterfront areas. Ideally, the individual sites within the system would be connected by trails and scenic roads. Similar park systems could be established near Shelton and within the northeast corner of the Olympic Peninsula. In addition, the sheltered bays and islands on the southern part of Puget Sound offer excellent oppor-

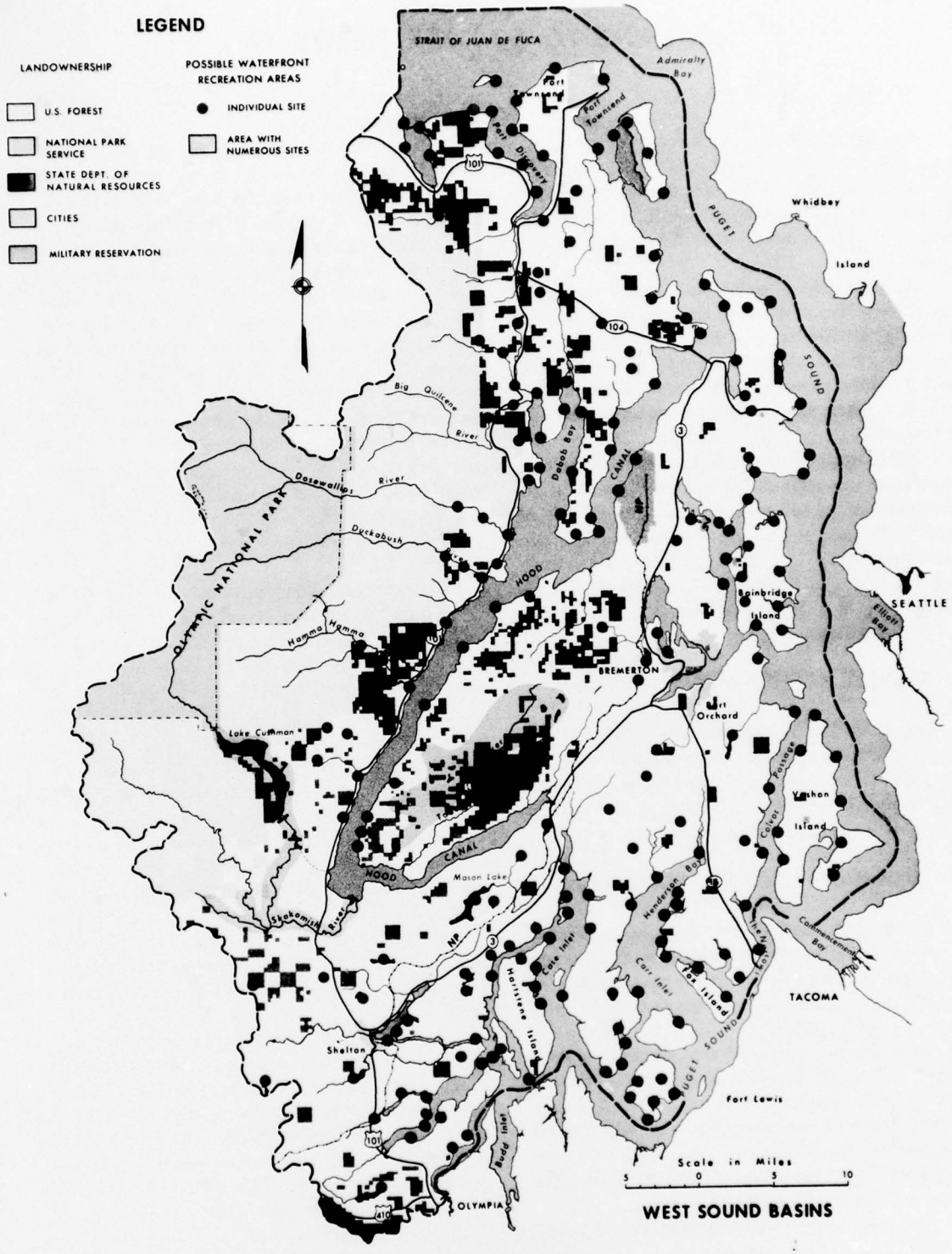


FIGURE 10-4. Possible Waterfront Recreation Areas, West Sound Basins

tunities for the development of numerous parks within easy access from population centers.

Besides the good road access needed to most recreation areas within the Basins, good water access and boat moorage facilities should be provided at many parks on the salt water shoreline. Recreational air travel by private aircraft is gaining in popularity. To accommodate air travel, airfields need to be developed within easy reach of suitable private and public recreation facilities.

Scenic-access easements should be established along many miles of the salt water shoreline and along the Skokomish and its North and South Forks, the Hamma Hamma, Duckabush, Dosewallips, Big Quilcene, and Little Quilcene Rivers, to protect the waterfront lands for public use. Easements are also needed along lesser rivers and streams within urban areas and areas destined for residential development. Where possible, easements should be tied in with State shore and tidelands. Trails need to be developed within the easements and convenient road access provided. Further studies need to be conducted to identify waterfront strips suitable for protection as scenic-access easements.

The recently constructed Hood Canal Floating Bridge has a great effect on travel to the Olympic Peninsula. Traffic over the floating bridge is about 2½ times the previous ferry traffic over the same route. Vehicle access to the West Sound Basins from the heavily populated areas of the Puget Sound Study Area is limited to several ferry routes and to highways 410, through Olympia, and 16, across the Tacoma Narrows Bridge. The feasibility of a bridge across the central or northern portion of Puget Sound has been in the discussion stages for several years. Such a bridge would make the West Sound Basins more accessible to the residents of the Seattle and Everett areas, increasing recreation visits. This bridge may also encourage the spread of urbanization into the area, a factor which could have an adverse effect upon recreation and environmental values worthy of protection. From a recreational point of view, it would be advisable to locate a cross-Sound bridge in an area where it would not encourage the rapid urbanization of the eastern portion of the West Sound Basins.

Future Water Development. With the exception of swimming pools which are needed in urban areas, existing waters will satisfy water based recreation demand in the West Sound Basins until after the year 2010.



PHOTO 10-4. One of many lakes on Kitsap Peninsula—U.S. Bureau of Outdoor Recreation Photo.

Although there is little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas

Numerous archeological sites, historic sites, outstanding natural areas, and underwater marine areas have been identified. The effects of proposed water resource and other projects upon these irreplaceable attractions require special consideration. The more significant and interesting features should be classified, protected, and properly developed for



PHOTO 10-5. Ideal recreation area developed for residences—U.S. Bureau of Outdoor Recreation Photo.

public enjoyment and scientific purposes.

Port Townsend is a historical and picturesque city. Many of its old buildings need to be restored and a historic theme for the preservation of the city's environment should be encouraged.

Archeological investigations are needed along the west shore of Puget Sound, on Hood Canal, and along the Skokomish River.

Recreation Rivers

Certain rivers or portions thereof need to be retained in their natural condition to satisfy present and future recreation needs. A State system of recreation rivers is suggested to protect important recreation rivers or river segments for public use. In the West Sound Basins, rivers which may qualify for protection include the Skokomish River and its North and South Forks, Hamma Hamma River, Duckabush River, Dosewallips River, and the Big Quilcene River.

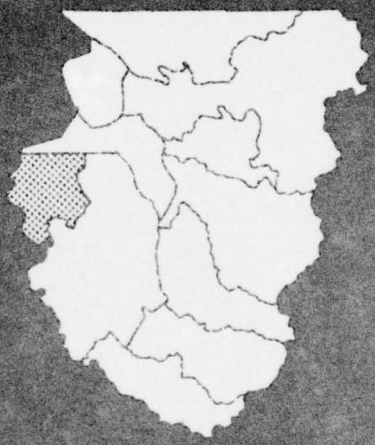
Water resource projects which would adversely affect the natural quality of rivers or river segments designated as State recreation rivers should not be developed. If alternative sites are available, necessary water resource projects should be located above designated stretches of river and operated so as to provide optimum flows to the recreation rivers.

Private Sector

The outlook for the healthy growth of the tourism and recreation industry in the West Sound Basins is very promising. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Recreation opportunities that could feasibly be provided by commercial interests include winter sports facilities, resorts, camp and picnic areas, and fishing and hunting areas. Within the cities and towns, boat marinas and swimming, golfing, and tennis clubs will play an important role in the satisfaction of outdoor recreation demands.

There are over 660,000 acres of private forest land, plus many acres of agricultural lands within the Basins. Some of these areas could accommodate recreation use. The owners of suitable areas need to be encouraged to accommodate public use of their lands.

Elwha-Dungeness Basins



ELWHA — DUNGENESS BASINS

PRESENT STATUS

DESCRIPTION OF BASINS

Physical Description

These Basins comprise an association of salt water shoreline, alluvial river bottoms, winding ridges, deep canyons, and rugged peaks. Rivers radiate from the high rugged center of Elwha and Dungeness Basins and flow northward into Strait of Juan de Fuca.

Lands above the alluvial bottoms are used for agriculture and forest products. Forests predominate as the elevation increases.

Population and Economy

The 1967 population was about 28,500. The population may reach 30,000 by 1980, 41,000 by 2000 and 57,000 by the year 2020. Port Angeles, with a population of about 15,800 is the largest city. Much recreation demand in the Basins is generated by the people from the heavily populated Seattle-Tacoma area.

The economy of the Basins is based principally on agriculture, forestry and tourism. The largest single industry is wood pulp and paper manufacturing.

Access

U.S. Highway 101 serves the area, traversing the northern portion from east to west. County roads extend up the major drainages, and National Forest and National Park roads and trails continue into the mountainous interior. Much recreation use results from people driving the 330 mile Olympic Peninsula Loop.

Access through the salt waters by private boat is common. Ferry service is available from Port Angeles to Victoria, B. C. An airport at Port Angeles accommodates both commercial and private aircraft.

Climate

Most of the area experiences moderate to heavy precipitation during the winter months, except the northeastern portion which lies in the "rain shadow" of the Olympics. The average annual rainfall in Sequim is only 16.8 inches, the lightest found in the Puget Sound Study Area. Snow prevails in the higher elevations. The dry summers are most popular for recreation, although winter snows attract the winter sports enthusiasts.

Land Ownership

About 75% of the land is in Federal ownership with about 60% in Olympic National Park and 15% in Olympic National Forest. The remaining 25% in State and private ownership lies in the northern portion.

Recreation Features

The main recreation attractions of the Basins are the salt water, rivers and streams, and the spectacular Olympic Mountains. Hurricane Ridge is a popular destination for recreationists. The recreation opportunities are many and varied. In the lower elevations recreationists enjoy camping along the streams and salt water shoreline; fishing for salmon, steelhead, and resident trout; fishing for dungeness crab; hunting for deer, elk, game birds; gathering mushrooms, berries, and wildflowers; boating; and viewing the scenery. In the high country, sightseeing, hiking, mountain climbing, high lake fishing, snow skiing and other related activities available in alpine areas are popular.

RECREATION SUPPLY

Existing Publicly-Administered Areas

In 1964, there were 19 publicly administered outdoor recreation sites in the Basins. Table 11-1 summarizes the existing supply by administering agency.

Of the total of 770,383 visits to publicly administered recreation areas during 1964, the Olympic National Park received over 500,000.

The U.S. Fish and Wildlife Service manages the 556 acre Dungeness National Wildlife Refuge on Dungeness Spit. Recreation use of this area increased from 5,000 visits during 1964 to 10,000 visits in 1966.

TABLE 11-1. Summary of existing publicly-administered outdoor recreation resources, Elwha-Dungeness Basins

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Total 1964 Visitation
Federal															
Forest Service	67,335			67,335				15	8						18,085
Park Service	263,850		1,300	96,210	24,000	142,340		183							508,000
Military Res.															
Other Federal	556			556					4						5,000
Total Federal	331,741		1,300	164,101	24,000	142,340		198	12						531,085
State															
Dept. of Fish.	104		20	84						1					2,000
Dept. of Game	24			24								1			N.A.
Dept. of Nat. Res.	26,070[1]			26,070											16,000
Parks & Rec. Com.	27			37					2			1		1	21,798
Total State	26,235		20	26,215					2	1		2		1	39,798
County	216			216						40					2,500
City & Other Local	182	15	60	107					62			1			197,000
Total	358,374	15	1,380	190,639	24,000	142,340		198	76	41		3		1	770,383

[1] Does not include tidelands and shorelands.

Figure 11-1 shows the location of the publicly administered outdoor recreation areas. Table 11-2 describes the individual sites.

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least 96 private operators offer facilities for public use. Activities for which facilities are furnished include:

Activity	No. of Enterprises	Capacity at One Time (people)
Rural Living	7	250
Enjoying Scenery	5	270
Nature Observation	2	55
Hiking	2	55
Tent Camping	47	1,365
Trailer Camping	2	700
Pack Camping	1	10
Golfing, 9 hole	1	72
Pond Fishing	2	75
Salt Water Fishing	35	5,688
Stream Fishing	7	205
Hunting Small Game	1	6
Hunting Waterfowl	27	136
Pony Riding	1	15
Swimming	1	50
Boating	2	123
Skin Diving	1	6
Snow Skiing	1	400
Ice Skating	1	50

Water

The primary water resources are the rivers, salt water and a few lakes. In the Elwha-Dungeness Basins, where water is a key factor of recreation supply, there are 69,311 acres of salt water, 1,423 acres of lakes, and many miles of rivers and streams.

There are two popular skin diving areas, Dungeness Spit and Port Angeles.

Potential Supply

In 1967, the Soil Conservation Service examined the opportunities for future development of resources for recreation use in Clallam County. The appraisal indicates that there is a high potential for



PHOTO 11-1. Snowplay during June—U.S. Bureau of Outdoor Recreation Photo.

development related to camping, fishing, sightseeing, and vacation farms in the Basins and a medium potential for improvements related to water sports.

The many miles of salt and fresh water shorelines are capable of supporting much additional recreation facilities and areas. The National Forest and National Park lands are significant sources of future supply although much of these are relatively inaccessible. Parts of these areas are being preserved in their natural state with only trail access available.

The Forest Service plans to develop 16 acres of campground and two acres of picnic ground between 1964 and 1975 and another 40 acres between 1976 and 2000. An additional 60 acres will be kept in reserve to accommodate unforeseen camping and picnicking needs.

State lands in the northern portion are a source of supply for future developments. The State Department of Natural Resources plans to develop potential sites on its lands. The State Department of Game plans to acquire and develop one lake fishing access site and one waterfowl area.

Many privately owned lands adjacent to water bodies are suitable for recreational development. Figure 11-4 indicates waterfront lands with possible recreation potential.

Special Interest Areas

Archeological and Historical Areas. An archeological survey has been undertaken on the north side of the Olympic Peninsula, but no date is available. No historical sites have been identified.

Outstanding Natural Areas. There are four potential natural areas within the Basins which include:

1. Dungeness Spit-1,600 acres.
2. Morse Creek, above U.S. Highway 101.



PHOTO 11-2. Hurricane Ridge, Olympic National Park—U.S. Bureau of Outdoor Recreation Photo.

3. Dungeness River, fish hatchery to Three Forks.
4. *Tyler Peak scenic area* (T27 and 28N, R4W)-20,000 acres.

SUMMARY-PRESENT & POTENTIAL

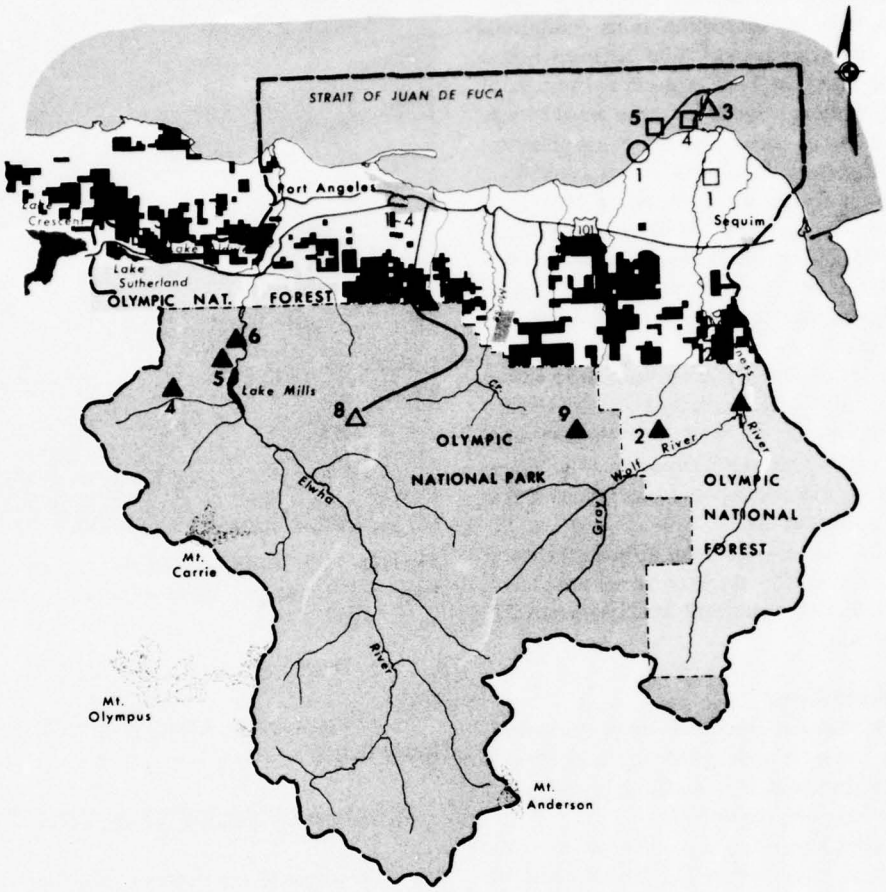
The demand for outdoor recreation opportunities is increasing. It is important that the recreation resources be protected and properly developed to satisfy the needs of the public.

RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

DEMANDS

The outdoor recreation demand in the Elwha-Dungeness Basins was estimated to be almost 4 million activity occasions during 1960. Forty-three percent of this demand was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demands.

Figure 11-2 illustrates the estimated and projected recreation demand by water related activities.



LEGEND

LAND OWNERSHIP

- U.S.FOREST SERVICE
- STATE DEPARTMENT OF NATURAL RESOURCES
- NATIONAL PARK SERVICE
- MILITARY RESERVATION
- CITIES

EXIST.RECREATION SITES

- FEDERAL
- STATE
- COUNTY
- CITY

(SOLID COLOR DENOTES SITES WHERE OVERNIGHT FACILITIES ARE AVAILABLE)

Scale in Miles

5 0 5 10

ELWHA-DUNGENESS BASINS

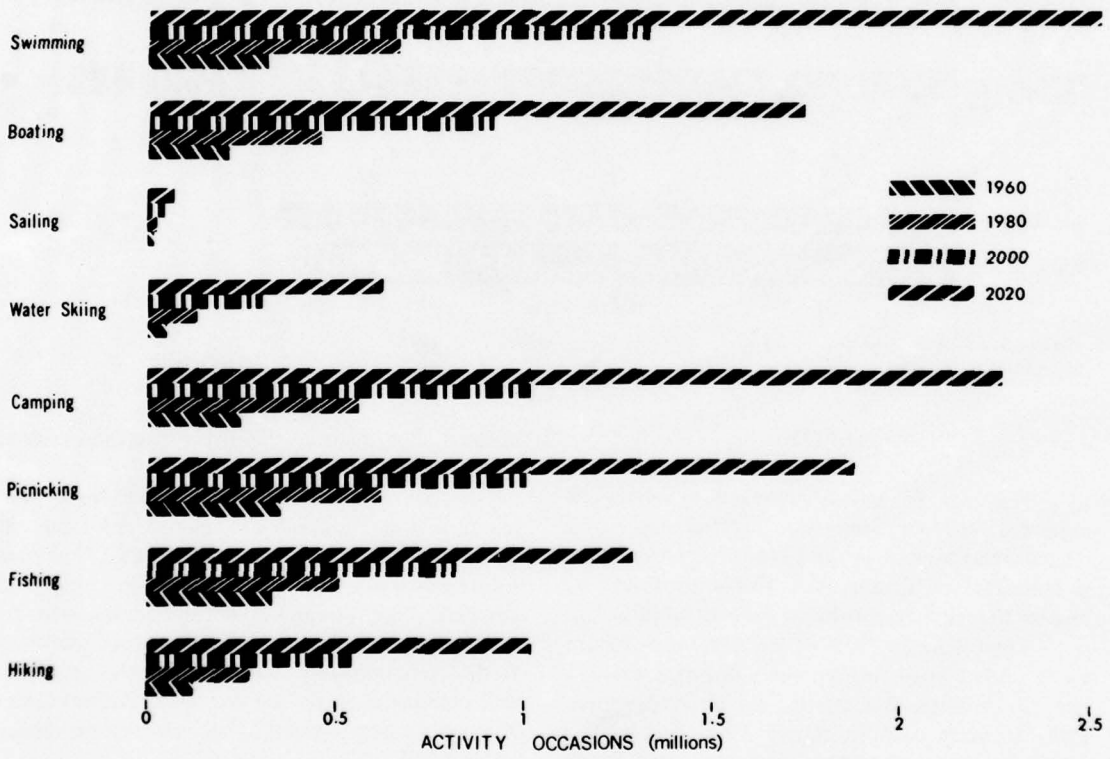
FIGURE 11-1. Existing Outdoor Recreation Sites, Elwha-Dungeness Basins

TABLE 11-2. Existing recreation sites in the Elwha-Dungeness Basins

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
▲ 1	Dungeness Forks	6	9	8	
▲ 2	Slab	2	6		
△ 3	Dungeness National Wildlife Refuge	556		4	
▲ 4	Olympic Hot Springs		45		
▲ 5	Altaire		24		
▲ 6	Elwha		20		
▲ 7	Heart O'The Hills		84		
△ 8	Hurricane Ridge				Viewpoint
▲ 9	Deer Park		10		
State					
□ 1	Epperson Creek Ponds	4			
□ 2	Dungeness Hatchery	100			
State (cont'd)					
□ 3	Sutherland Lake	24			Boat Launching
□ 4	Graveyard Spit Marine Park	1			
□ 5	Dungeness State Park	36		2	Boat Launching Swimming Beach
County					
○ 1	Voice of America	216			
City					
⌓ 1-4	City of Port Angeles	182		62	Boat Launching

*Site No. refers to map on opposite page.

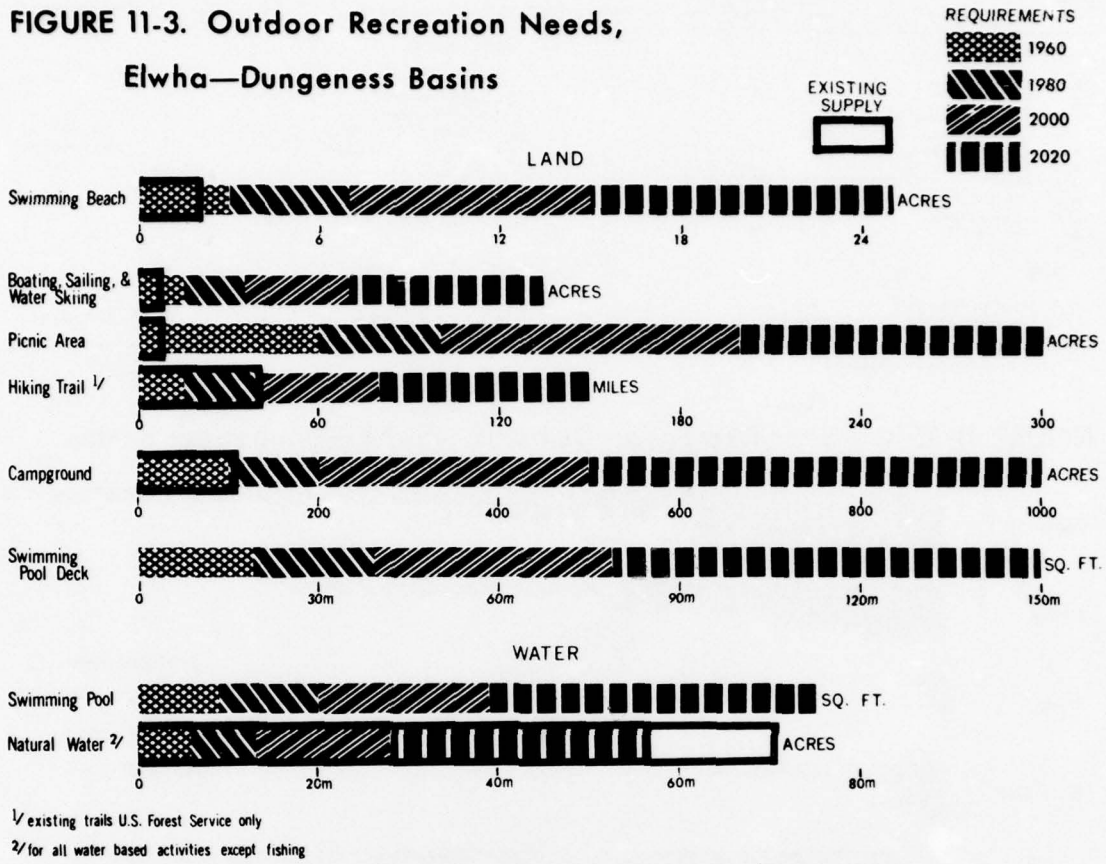
FIGURE 11-2. Outdoor Recreation Demand, Elwha—Dungeness Basins



Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	650,000	850,000	1,500,000
1980	1,300,000	1,500,000	2,800,000
2000	2,500,000	2,700,000	5,200,000
2020	4,600,000	4,600,000	9,200,000

FIGURE 11-3. Outdoor Recreation Needs, Elwha—Dungeness Basins



1/ existing trails U.S. Forest Service only

2/ for all water based activities except fishing

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the Elwha-Dungeness Basins is illustrated in Figure 11-3. Needs are found by relating the requirements to the existing supply.

Approximately 40% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed lands is inadequate to satisfy 1960 boating and picnicking demands. Campgrounds meet 1960 camping demands only. There is a deficiency of beaches and pools to satisfy 1960 swimming demands. Existing Forest Service trails will handle hiking use until the year 1980. There are enough natural waters to satisfy all foreseeable recreation requirements.

In addition to lands needed for boat launching facilities and parking, an additional 925 rental moorage spaces were needed to satisfy 1966 boating demand. For the year 2020, this need increases to 3,000 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 900 acres of campground and 170 acres of picnic area will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately one-fourth of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing public lands.

In addition to indicated needs, urban parks, scenic routes, waterfront access, interpretive facilities, open spaces, and beaches and trails for activities other than swimming and hiking are necessary to satisfy the recreation and environmental needs of the people. Future revisions of Washington's statewide recreation plan will identify specific needs for these purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

As a desirable planning goal, 10% of the water related recreation demands in the Elwha-Dungeness Basins would be satisfied at lakes, 30% at rivers and streams, 10% at swimming pools, and 50% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based on Federal land ownership, plans and programs of recreation suppliers, expected population concentrations, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 20% of the required water related opportunities, while the State, county and local agencies, and private interests should supply 35, 25 and 20% respectively.

SPECIFIC RECREATION PROBLEMS

There is a water pollution problem at Port Angeles which damages sea life and degrades water quality for recreation use. Industrial and municipal wastes are discharged into the waters of Port Angeles Harbor. More than two miles of the city's waterfront is bacterially contaminated. Industrial wastes from pulp and paper mills are found throughout Port Angeles Harbor and eastward as far as Dungeness Spit. The pulp and paper mills also contribute to air pollution. The city of Port Angeles now has a sewage treatment plant under construction which will materially improve water quality.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

Several of the 19 publicly-administered developed recreation sites within the Basins could accommodate additional facilities. Some developed facilities need to be rehabilitated.

In addition to developed sites, over 300,000 acres of publicly-administered lands are available for public recreation use. About one-half of this acreage will be maintained as wilderness with minimal developments. There are potential sites on the non-wilderness areas which should be developed for recreation use. The long range programs of the management agencies plan for the development of needed facilities on these lands.

Dungeness Spit is one of the finest salt water related outdoor recreation resources within the Puget Sound Study Area. The Spit, which is seven miles long and includes close to 20 miles of beaches, is protected within the Dungeness National Wildlife Refuge. Recreation use is presently restricted by inadequate access. The Spit serves as an invaluable haven for waterfowl from October until April. From May through September, recreational use would not harm the purpose for which the National Wildlife Refuge was established. Better road access and recreation facilities should be developed on the mainland at the base of the Spit. Trail access should be provided from the road to and along the Spit which will be maintained in a natural condition. Pleasure boating facilities are needed within New Dungeness Harbor and Bay.

The State owns the tidelands along approximately one-half of the salt water shoreline in the Basins, mostly from Port Angeles to Dungeness Spit. State tidelands need to be retained in public ownership for recreation use. Adequate access is a prerequisite to the public use of tidelands.

Acquisition and Development of New Areas

Areas on Existing Waters. There is a lack of recreation areas along the salt water shoreline and along the major rivers in the northern portion of the Basins. To satisfy recreation demands, additional recreation areas should be acquired and developed by public agencies or private interests.

Figure 11-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly other areas not identified which would be suitable for recreation development. Areas in the National Forest and National Park have not been included on the map since the potential recreation resources of these lands have already been inventoried.

Scenic-access easements need to be established along portions of the salt water shoreline and along the Elwha and Dungeness Rivers and Morse, Ennis, Valley, Tumwater, and Indian Creeks. Trails are needed within the riverside easements to accommodate recreationists. Further studies need to be con-

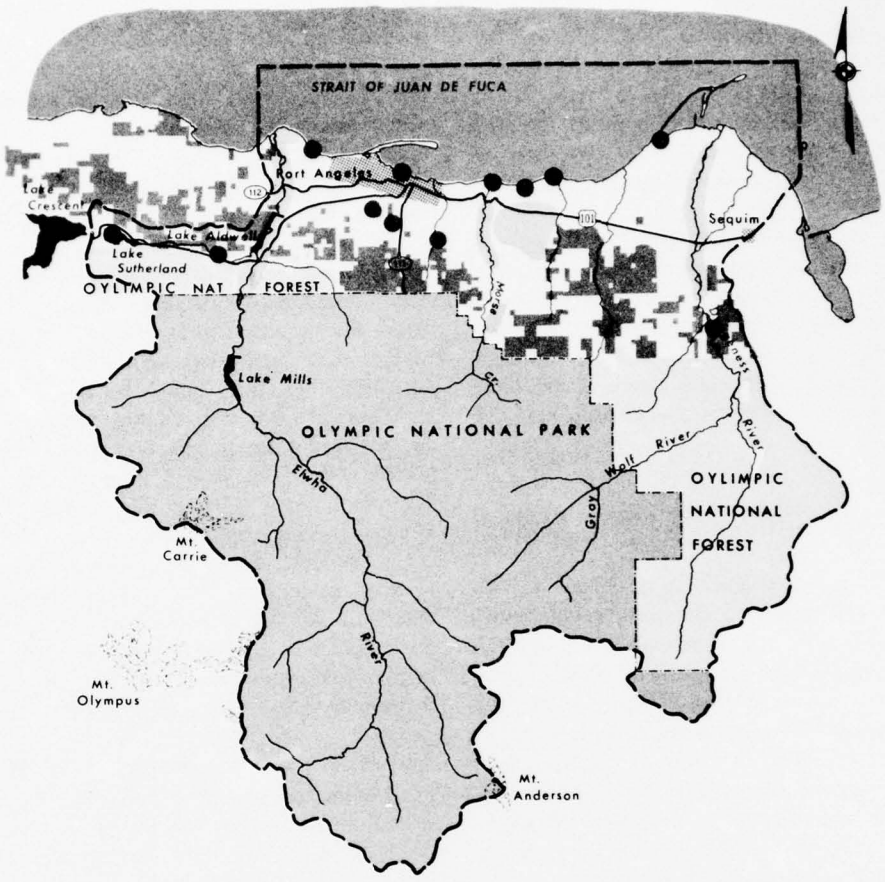


FIGURE 11-4. Possible Waterfront Recreation Areas, Elwha-Dungeness Basins

ducted to identify waterfront strips suitable for protection as scenic-access easements.

To satisfy recreation objectives, the flood plains along the Elwha and Dungeness Rivers should be preserved as open space. Recreation, agriculture, and other open space uses, being subject to less damage from flooding than more intensive development, need to be encouraged on this type of land.

Future Water Development. With the exception of swimming pools which are needed in urban areas, existing waters within the Elwha-Dungeness Basins will satisfy all foreseeable water-based recreation demands.

Although there is little need for additional recreation waters, some modification of the natural river flows may be required for necessities other than recreation. If multi-purpose water impoundments are developed, recreation facilities on the lands adjacent to the reservoirs would attract recreationists, and the reservoir area itself would receive recreation use. Highest recreation benefits attributable to reservoir projects will accrue with the maintenance of optimum pool levels throughout the recreation season and with the augmentation of downstream flows. Further studies are needed to determine minimum and optimum river flows for recreation.

PROTECTION OF RECREATION RESOURCES

Special Interest Areas

Four outstanding natural areas and two underwater marine areas have been identified and other special interest areas may be discovered. The effects of proposed water resource and other projects upon these irreplaceable attractions require special consideration. The more significant and interesting features should be classified, protected, and properly developed for public enjoyment and scientific purposes.

Recreation Rivers

Certain rivers or portions thereof should be retained in their natural condition to satisfy present and future recreation needs. A State system of recreation rivers is suggested to protect important recreation rivers or river segments for public use. In the Elwha-Dungeness Basins, rivers which may qualify for protection include the Elwha and Dungeness Rivers and Morse Creek.

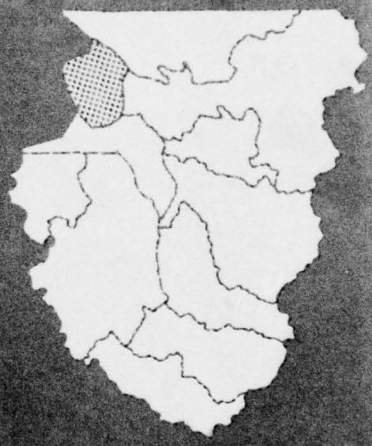
Water resource projects which would adversely affect the natural quality of rivers or river segments designated as State recreation rivers should not be developed. If alternative sites are available, necessary water resource projects should be located above designated stretches of river and operated so as to provide optimum flows to the recreation rivers.

Private Sector

Private enterprise will play a major role in supplying facilities to satisfy outdoor recreation needs. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. Recreation opportunities that could be provided by commercial interests include winter sports facilities, camp and picnic areas, resorts, swimming facilities, fishing facilities and areas, and hunting areas. Within the towns and cities, boat marinas and swimming, golfing and tennis clubs will play an important role in the satisfaction of outdoor recreation demands.

There are 33,660 acres of privately-owned forest lands plus privately-owned agricultural lands within the Basins. Some of these areas could accommodate recreation use. The owners of suitable areas need to be encouraged to accommodate public use of their lands.

San Juan Islands



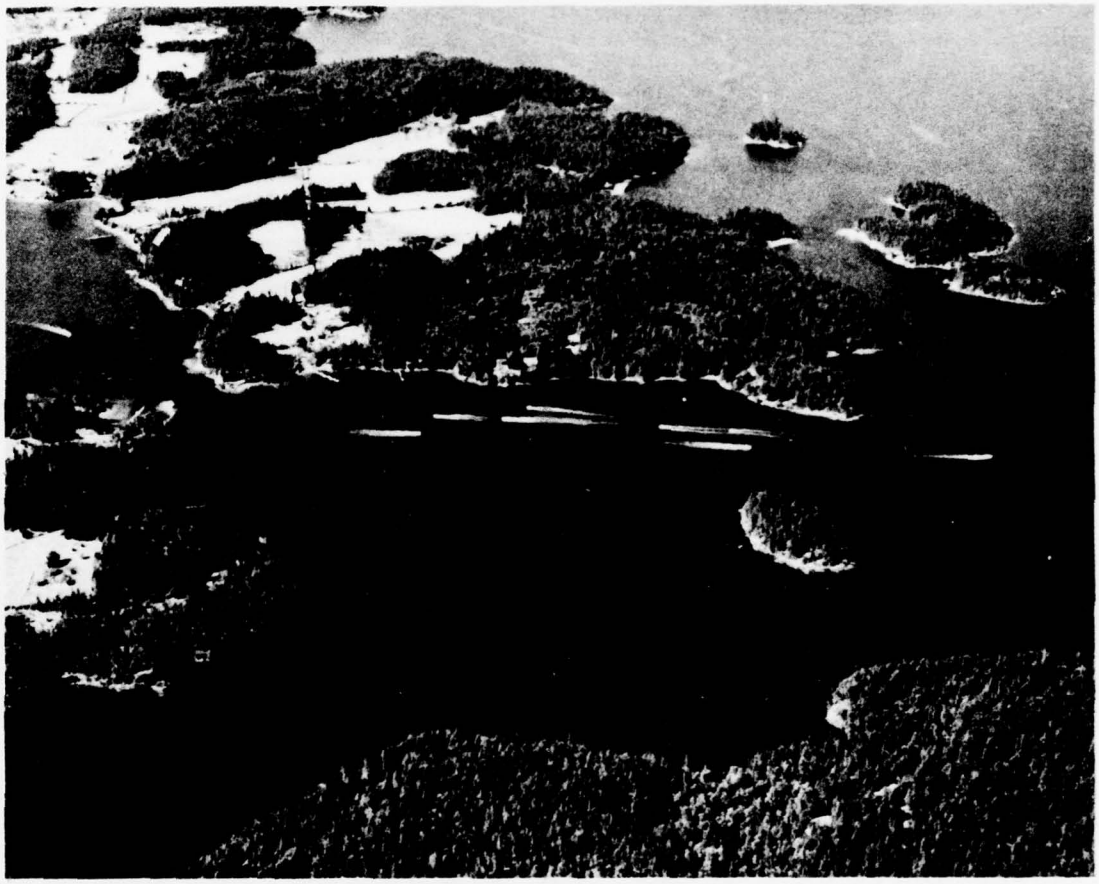


PHOTO 12-1. *West Sound*—U.S. Bureau of Outdoor Recreation Photo.

SAN JUAN ISLANDS

PRESENT STATUS

DESCRIPTION OF ISLANDS

Physical Description

The San Juan Islands constitute a significant attraction for the tourist vacation trade. As an island group set off by themselves, they possess a certain quaintness and charm not found elsewhere in the Study Area. They have a moderate climate, and in conjunction with their excellent scenic qualities, offer a wide variety of water-oriented and other types of recreation opportunities.

The San Juan Islands group includes over 170 islands lying between the Strait of Juan de Fuca and the Strait of Georgia west of the Bellingham-Anacortes area. These islands appear to be the exposed peaks of a submerged mountain range that once connected Vancouver Island, British Columbia, with the U.S. mainland.

The Islands are generally wooded and rocky with precipitous slopes along the shores. Many are deeply indented by narrow fjord-like inlets. Topographic relief ranges from sea level to the highest point, Mt. Constitution, 2,409 feet, on Orcas Island.

- The Islands have a total of about 375 miles of coastline. Although 270 miles of tidelands remain in State ownership, only a small percentage of the adjacent shoreline has been reserved for public use and enjoyment.

Population and Economy

The population is concentrated on three of the largest islands; Orcas, San Juan, and Lopez. In 1963, 2,600 people lived on the Islands with Friday Harbor being the only incorporated town. There are several smaller towns and communities on some of the larger islands. It is estimated that the population may reach 2,800 by 1980, 3,700 by 2000, and 5,100 by the year 2020. Recreation and tourism are becoming the most important economic activities and are expected to become even more important in the future. The Islands are becoming attractive as an area for retirement homesites or summer vacations. Individual home site development and residential subdivisions have increased substantially the last few years. During 1956 to 1960, the number of summer seasonal cottages increased 49%.

Offshore fisheries are an important economic asset. The waters throughout the Islands are one of the Pacific Northwest's major fishing areas for various marine fishes and salmon. Friday Harbor is the home base for a small fishing fleet and a small cannery.

Other economic activities such as agriculture and lumbering have declined. Livestock and livestock products have replaced crops as the principal agricultural activity. The harvesting of timber has declined significantly during the past few years.

The principal deterrents to a rapid growth of the recreation and tourist industry have been the distance of the Islands from mainland population centers and inconvenient access. These deterrents will be overcome by the unusual recreation attraction of the area, particularly as demand for outdoor recreation in the Pacific Northwest continues to grow.

Access

Water travel to the Islands is largely by ferry, although private boat travel is becoming increasingly popular. The major portion of the travelers use the Washington State Ferries from Anacortes, with inter-island stops at Lopez, Shaw, Orcas and San Juan Islands. Daily trips stop at these islands and extend to Sidney, British Columbia. The average travel time between Anacortes and Sidney, including stops, is about three hours.

In addition to water transportation, charter air service is available from Seattle, Anacortes and Bellingham, as well as from other points. Airports, as reported by the Washington State Aeronautics Commission, are available on San Juan, Lopez, Orcas, Blakely, Shaw, Spieden, Stuart, and Waldron Islands. Small boat harbors exist at various locations. There are charming country roads on the larger islands which provide enjoyable sightseeing from the automobile or bicycle.

Climate

One of the greatest assests is the climate. The climate is moderate and relatively dry with an average

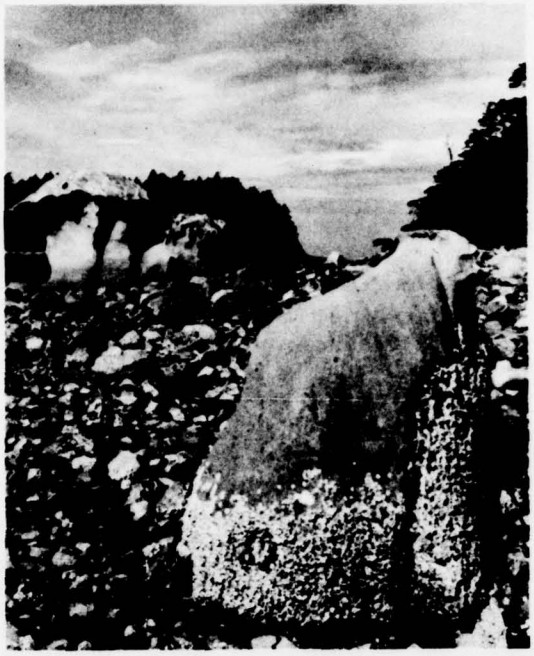


PHOTO 12-2. Sucia Island—U.S. Bureau of Outdoor Recreation Photo.

rainfall of only 28 inches, mostly occurring during the winter months. The summers are cool with *midsummer afternoon temperatures averaging only* 70° F. The winters are normally mild with small variation in daily temperature. In January the average maximum temperatures range from 43 to 45 degrees, and the minimum temperatures from 30 to 35 degrees. Snowfall is very infrequent.

Land Ownership

Most of the area is privately owned with only about 13,000 acres in public ownership.

Recreation Features

The San Juan Islands are among the most scenic and outstanding recreation attractions in the Pacific Northwest. With greater emphasis on safeguarding and increasing the number of public-use areas and quality-type commercial facilities, the Islands have the potential of becoming an outstanding year-round vacation land and water sportsmen's paradise. Significant assets include opportunities for abundant water-oriented recreation activities and an excellent mild and dry climate.

Sucia Island is noted for its unusual rock formations, fossil beds, and as a safe anchorage for pleasure boaters. The view from Mt. Constitution on Orcas Island is spectacular. Rabbit hunting is popular on several of the islands.

RECREATION SUPPLY

Orcas Island attracts the largest number of visitors, principally because of resort facilities and Moran State Park, donated to the State by shipbuilder, Robert Moran. This park embraces 4,900 acres of land and has many attractions, including Mt. Constitution, the highest point in the islands, Cascade Lake, and two well-stocked trout fishing lakes. Facilities for camping (tent and trailer), boating, cooking, picnicking, swimming, water skiing, and other recreational activities are available.

Puget Sound Interclub Association donated part of Sucia Island to the State for development and use by pleasure boaters. This group of 42 member clubs worked about five years raising funds to buy the Sucia Island land to preserve it for public use.

In 1962, the Washington State Department of Natural Resources set aside 82½ acres of State-owned water frontage on the southeast tip of Orcas Island near Obstruction Pass for the development of a public recreation area.

The renowned Historical Museum on Orcas has been constructed from cabins of original homesteaders. These cabins were marked, taken apart, and moved to the site of the present Museum at Eastsound where they were reconstructed. At present, there are three cabins with fireproof vaults which will house, among other items, the famous Ethan Allen collection of Indian relics. The financing of the museum has been entirely through donations and the work done by local residents.

There are some 40 resorts, motels and hotels on the Islands with a wide assortment of accommodations available to the public. These are mostly on the islands of Lopez, Orcas and San Juan. The largest resort is Rosario on Orcas Island. The heart of the resort is the once world famous Moran Mansion.

Due to the favorable characteristics of the San Juan Archipelago waters, the area is outstanding for its rich and diverse species of both plant and animal marine life. A marine laboratory was established in 1904 by the University of Washington. It was first housed in a cannery and later on a four-acre plot just



PHOTO 12-3. Sucia Island Marine Park—U.S. Bureau of Outdoor Recreation Photo.



PHOTO 12-4. Matia Island Marine Park—U.S. Bureau of Outdoor Recreation Photo.

south of the ferry slip at Friday Harbor, San Juan Island. The laboratory soon outgrew its limited space and by an Act of Congress in 1921, 484 acres of a military preserve across the bay was ceded to the University for a marine laboratory. The laboratory and its programs are of important public interest to island visitors.

Existing Publicly-Administered Areas

In 1964, there were 27 publicly-administered outdoor recreation sites on the Islands. Twenty-two are administered by the State. The table on the following page summarizes the existing supply by administering agency.

Jones Island and Matia Island are National Wildlife Refuges and Turn Island is a part of San Juan National Wildlife Refuge. The recreation use of these areas has increased from about 9,000 visits in 1964 to 35,000 visits during 1966. Recreation use and development of wildlife refuges are limited, however, since significant recreation pressures and development would defeat the purpose for which

TABLE 12-1. Summary of existing publicly-administered outdoor recreation resources, San Juan Islands.

Agency	Total Acres	Bureau of Outdoor Recreation Classification (Acres) I	II	III	IV	V	VI	Family Units Camp	Picnic	Parking Spaces Gn'l	Boat Access	Boat Lnch'g Ramps	Swim Pools (Sq. Ft.)	Swim Beach (Acres)	Total 1964 Visitation
Federal															
Forest Service															
Park Service	1,752						1,752								NA
Military Res.															
Other Federal	593			275		318									18,700
Total Federal	2,345			275		318	1,752								18,700
State															
Dept. of Fish	91				91										9,500
Dept. of Game	3		3								90	3			NA
Dept. of Nat. Res.	3,110[1]			3,110											265,675
Parks & Rec. Com.	6,040		85	5,955				206	78	117		1		11	120,583
Total State	9,244		88	9,065	91			206	78	117	90	4		11	395,758
County															
City & Other Local															
Total	11,589		88	9,340	91	318	1,752	206	78	117	90	4		11	414,458

[1] Does not include tidelands.

these island refuges were established. These refuges are currently under study to determine the possibility of their inclusion within the National Wilderness System. All three of the islands are administered as State Marine Parks under a Bureau of Sports Fisheries and Wildlife-Washington State Parks and Recreation Commission agreement.

The State Parks and Recreation Commission has established numerous Marine Parks as well as conventional State Parks on the Islands. During 1964, the State Park areas received 120,583 of the 414,458 visits reported on publicly-administered areas.

Figure 12-1 shows the location of the existing publicly administered outdoor recreation sites and areas. Table 12-2 describes the individual sites.

There are eleven State Park areas on the Islands, including:

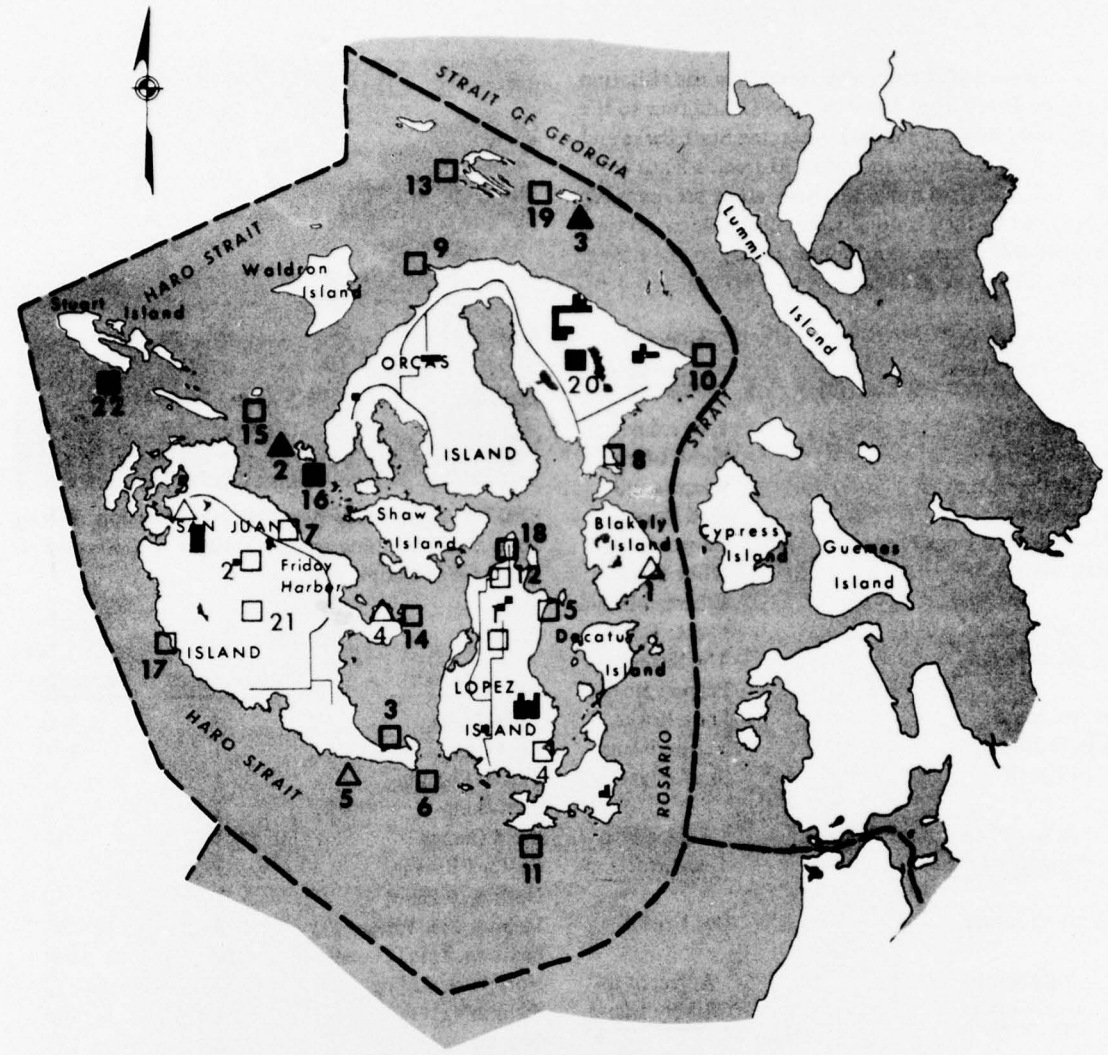
State Park	Acres	Visitation 1963	Visitation 1966
Flat Top Island Marine Park	49	Unknown	96,160*
Jones Island Marine Park	179	10,996	*
Lime Kiln Point Recreation Area	40	Unknown	Unknown
Lopez Recreation Area	27	Unknown	Unknown
Moran State Park	4,934	74,403	84,227
Posey Island Marine Park	1	1,480	*
Prevost Harbor Marine Park	40	5,000	*
Reid Harbor Marine Park	45	6,000	*
Sucia Island Marine Park	474	22,568	*
Turn Island Marine Park	35	2,328	*
Matia Island Marine Park	145	3,938	*

*Beginning in 1966, the attendance at the State Marine Parks in the San Juan Islands was not broken down by individual park. The total attendance was 96,160.

TABLE 12-2. Existing recreation sites in the San Juan Islands

Site No.*	Site Name	Total Acres	Camp Units	Picnic Units	Miscellaneous
Federal					
△ 1	Blakely Island	225			
▲ 2	Jones Island National Wildlife Refuge	188			
▲ 3	Matia Island National Wildlife Refuge	145			
△ 4	San Juan National Wildlife Refuge	35			
△ 5	San Juan Island National Historical Park	**1,752			
State					
□ 1	Hummel Lake	1			Boat Launching
□ 2	Egg Lake	1			"
□ 3	Cattle Point Recreational Tidelands	13			Natural Area
□ 4	Mud Bay Recreational Tidelands	44			Natural Area
□ 5	Spencer Spit Recreational Tidelands	34			Natural Area
□ 6	Cattle Point Camp	100			Swimming Beach
□ 7	Sportsman Lake	1			Boat Launching
□ 8	Obstruction Pass	20			
□ 9	Pt. Doughty	57			
□ 10	Pt. Lawrence	109			
State (cont'd)					
□ 11	Iceberg Point	24			
□ 12	Lopez Trailer Park	80			
■ 13	Sucia Island Marine Park	474	45		Boat Moorage Swimming Beach
■ 14	Turn Island Marine Park	35	4		Swimming Beach
□ 15	Flat Top Island Marine Park	49			
■ 16	Jones Island Marine Park	179	16	15	Boat Moorage Swimming Beach
□ 17	Lime Kiln Point Recreation Area	40			
□ 18	Lopez Recreation Area	27			
■ 19	Matia Island Marine Park	145	10		Boat Moorage Swimming Beach
■ 20	Moran State Park	4,934	124	63	Boat Moorage and Launching Swimming Beach
□ 21	Miscellaneous Marine Parks on San Juan Islands	100			
■ 22	Reid and Prevost Harbors Marine Parks	84	7		Boat Moorage Swimming Beach

*Site No. refers to map on opposite page.
**Authorized. Land acquisition and development incomplete.



LEGEND

LAND OWNERSHIP

STATE DEPT. OF NATURAL RESOURCES

CITIES

EXIST. RECREATION SITES

FEDERAL

STATE

(SOLID COLOR DENOTES SITES WHERE OVERNIGHT FACILITIES ARE AVAILABLE)

Scale in Miles

5 0 5 10

SAN JUAN ISLANDS

FIGURE 12-1. Existing Outdoor Recreation Sites, San Juan Islands

There was about a 50% increase in the visitation to State Parks from 1963 to 1966.In addition to the previously listed State Park areas, the State Parks and Recreation Commission leases 30 small islands from the Federal Government. These areas are undeveloped, but in their natural state offer wilderness-type and wildlife observation opportunities to the recreationists. They are as follows:

Adjacent to San Juan Island	Adjacent to Orcas Island
Barron Island	Low Island
Posey Island	Knob Island
Battleship Island	Wasp Island
Low Island	Gull Rock
North Pacific Rock*	Danger Rock*
Halftide Rock*	White Rock
	Freeman Island
Adjacent to Stuart Island	Parker Reef
	The Sisters
	Peapod Rocks
Rock Island	Shoe Rocks
Ripple Island	Victim Island
Gull Reef*	Skull Island
Adjacent to Waldron Island	Adjacent to Decatur Island
Skipjack Island	*Dot Rock**
Adjacent to Lopez Island	Adjacent to Blakely Island
Mummy Rocks	Pointer Island
Secar Rock	Lawson Rock*
Hall Island	
Iceberg Island	

*These areas are underwater or nearly so, or have reef-like character at high tide.

Existing Privately-Administered Areas

In addition to areas administered by public agencies, at least 39 private operators offer facilities for public use. There are numerous popular resorts, of which Rosario on Orcas is the best known. The privately-administered outdoor recreation facilities include:



PHOTO 12-5. View from Mt. Constitution, Moran State Park—Washington State Parks and Recreation Commission Photo.

Activity	Enterprises	Capacity at One Time (People)
Rural Living	14	1,400
Tent Camping	1	175
Trailer Camping	1	35
Picnicking	1	8
Field Games	1	30
Go-Cart Racing	1	5
Golfing, 9-Hole	1	72
Fishing, Salt Water	5	56
Hunting, Small Game	20	300
Horseback Riding	2	37
Swimming	4	165
Boating	2	123

Water

Water is a key factor of supply, being essential for many outdoor activities and adding to the enjoyment of others. In the San Juan area there are 236,792 acres of salt water and 880 acres of lakes and reservoirs.

A few of the many skin diving areas are:

1. Parker Reef
2. Orcas Island Reef
3. Orcas Ferry Dock
4. Reid Rock
5. Pile Point
6. Lime Kiln
7. Roche Harbor
8. Speiden Island

Potential Supply

An excellent potential for recreation development exists on the miles of salt water shoreline within the area. In 1967, the Soil Conservation Service examined the opportunities for further development of resources for recreational uses in San Juan County. The appraisal disclosed that there is a high potential for development related to vacation cabins, camping, vacation farms, and water sport activities.

Although additional facilities may be added to the existing areas and new public sites may be acquired, the primary source of potential supply is on the private lands. Many of these sites will likely remain in private ownership to be developed by private enterprise for public enjoyment. Figure 12-4 identifies waterfront lands with possible recreation potential.

The State Department of Game plans to acquire and develop one lake and six salt water fishing access sites plus one big game area and one small game area for public use.

The State Parks and Recreation Commission has identified ten potential State park areas on the Islands. These include:

1. Beach Haven Resort–West side of Orcas Island on President Channel.
2. Edward Chavalier Property–Stuart Island.
3. Canoe Island–Near Shaw Island.
4. Cattle Point–Southern tip of San Juan Island.
5. Decatur Head–East side of Decatur Island.
6. Shaw Island.
7. Obstruction Pass–Between Orcas and Obstruction Islands.
8. Griffin Bay–Southeast side of San Juan Island.
9. Spencer Spit–Northeast side of Lopez Island.[1]
10. Henderson Camp–South end of Lopez Island.

Special Interest Areas

Archeological and Historical Sites–These sites are divided into four periods including: Indian, Exploration and Fur Trade, Settlement, and Post-Statehood.

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[1] Acquired by the Washington State Parks and Recreation Commission during 1967.

Indian (6000 B.C.-1850 A.D.)

The San Juan Islands constitute the best known archeological region in the Study Area. About 287 sites have been recorded, and at least 11 have been tested or evacuated. Artifacts may be found at many of the sites. Archeological sites excavated include:

1. Jekyll's Lagoon, Turn Point, Lime Kiln, Moore, Mackaye and Cattle Point sites on San Juan, Stuart and Lopez Islands.
2. Garrison on San Juan Island.
3. Richardson on Lopez Island.
4. Argyle Lagoon on San Juan Island.
5. Fossil Bay and Fox Cove on Sucia Island.

Exploration and Fur Trade (1592-1841)

None

Settlement (1842-1888)

American Camp and English Camp on San Juan Island contain the major physical remains of two military fortifications. On the high ground above Griffin Bay are the remnants of American fortifications. Captain George Picket ordered these built to defend against any possible attack from the British naval base on Vancouver Island. On Garrison Bay are the remains of the British camp which was built after General Winfield Scott (U.S. Army) and Rear Admiral R. Lambert Baynes (Royal Navy) agreed to a joint occupation of the Island. The forts were constructed during a period of boundary disputes between the United States and England concerning the jurisdiction of the San Juans. In 1965, Congress authorized the establishment of a 1,750 acre San Juan Island National Historical Park to preserve and interpret these two historic sites. The Park will also commemorate an outstanding example of successful arbitration of a major dispute between two great powers.

Post-Statehood (1889-Present)

1. At the north end of San Juan Island in Roche Harbor is an old hotel, which dates from an early 20th century, semi-feudal limestone company that operated the town. Remains of limestone mining and processing activities are scattered throughout the Islands.

2. The Moran estate is on Orcas Island. It was the former home of Robert Moran who made his fortune in shipbuilding during and immediately following the Alaska gold rush. It is now operated as the Rosario, a resort.

3. An old quarry site is located on Sucia Island. The stone was used for paving streets in Seattle.

Outstanding Natural Areas–There are four established outstanding natural areas on the Islands, including:

1. Cattle Point Tidelands on San Juan Island–13 acres.
2. Fossil Bay on Sucia Island.
3. Mud Bay Tidelands on Lopez Island–44 acres.
4. Spencer Spit Tidelands on Blakely Island–34 acres.

In addition, there are six potential outstanding natural areas:

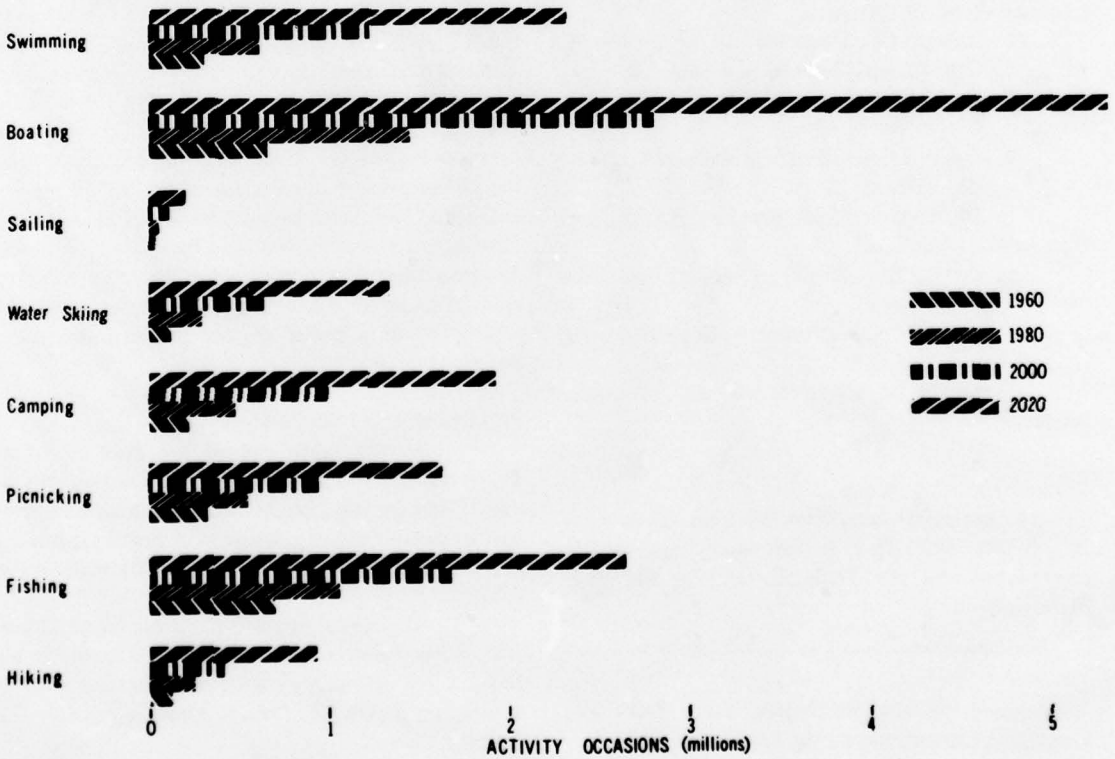
1. Mt. Disney on Waldron Island–400 acres.
2. Parker Reef south of Sucia Island–18 acres.
3. Whale Rocks off Cattle Point on San Juan Island–2 acres.
4. Belle and Bird Rocks between Dacatur and Burroughs Island–2 acres.
5. Colville Island off Lopez Island–15 acres.
6. Thompson Rocks between Lopez and Whidbey Island–2 acres.

SUMMARY–PRESENT AND POTENTIAL

The demand for outdoor recreation opportunities is increasing. The outstanding recreation resources within the San Juan Islands will satisfy future needs providing they are protected and properly developed for public enjoyment.

RECREATION DEMANDS AND NEEDS PRESENT AND FUTURE

FIGURE 12-2. Outdoor Recreation Demand, San Juan Islands



DEMANDS

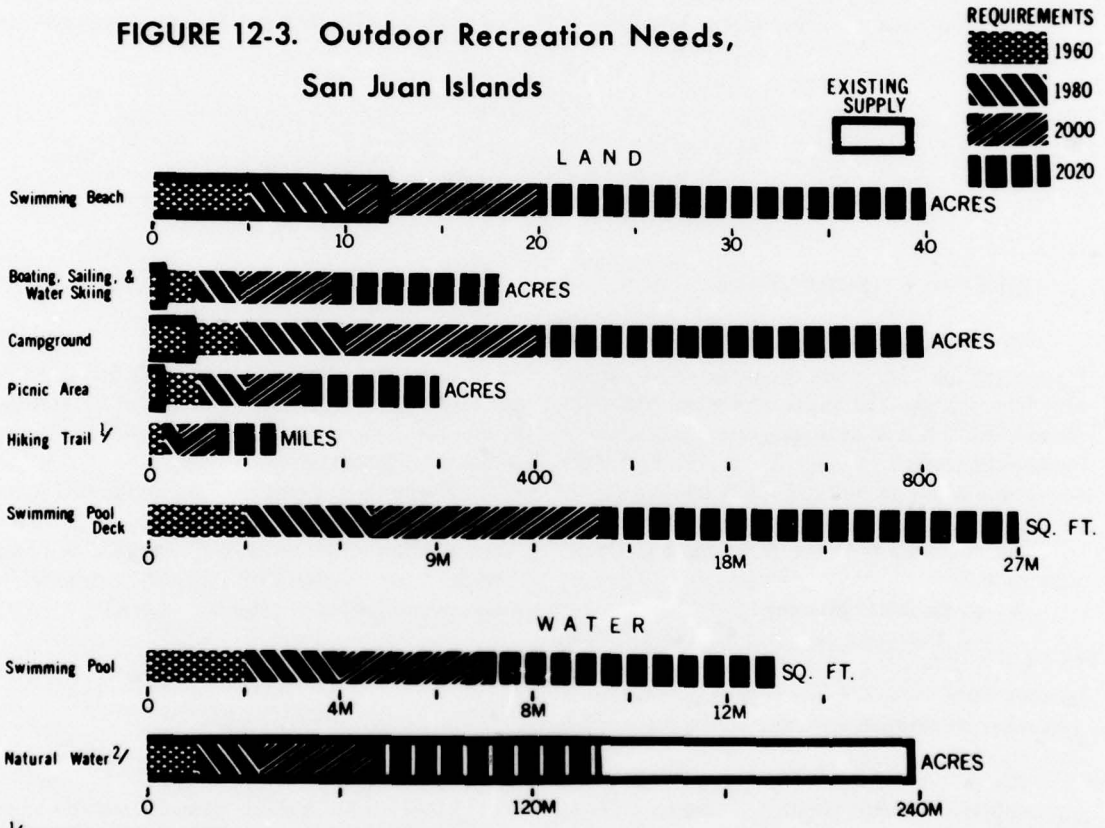
The outdoor recreation demand in the San Juan Islands was estimated to be more than 3 million activity occasions during 1960. Seventy-two percent of this demand was for water related activities. By the year 2020, there may be more than a six-fold increase in recreation demand.

Figure 12-2 illustrates the estimated and projected recreation demand by water related activities.

Expressed as recreation days, the demand would be:

Year	Water Related	Non-Water Related	Total Demand
1960	1,000,000	400,000	1,400,000
1980	1,900,000	600,000	2,500,000
2000	3,500,000	1,200,000	4,700,000
2020	6,500,000	2,100,000	8,600,000

FIGURE 12-3. Outdoor Recreation Needs, San Juan Islands



1/ existing supply unknown

2/ for all water based activities except fishing

NEEDS

The area, by activity, required to satisfy the estimated outdoor recreation demand for water related opportunities in the San Juan Islands is illustrated on Figure 12-3. Needs are found by relating the requirements to the existing supply.

Approximately 45% of the 1960 demand for water related opportunities was unsatisfied due to a lack of facilities. The existing supply of developed

lands is inadequate to satisfy 1960 boating, camping, and picnicking demands. Beaches are of sufficient quantity to satisfy swimming demand until after the year 1980, while the supply of swimming pools will not meet 1960 demands. Since the mileage of existing trails is not known, trail needs for hiking cannot be determined. There are enough natural waters to satisfy all foreseeable recreation requirements.

In addition to lands needed for boat launching facilities and parking, an additional 2,105 rental moorage spaces were needed to satisfy 1966 boating demands. For the year 2020, this need increases to almost 9,200 rental moorage spaces.

Assuming that 40% of the picnicking requirements will be satisfied on undeveloped lands, an additional 760 acres of camping and 170 acres of picnicking facilities will need to be developed to satisfy 2020 demands. These acreages do not include the necessary buffer zones on the periphery of developed recreation lands. Approximately one-fourth of the picnicking and camping needs by the year 2020 can be satisfied through the development of suitable areas on existing publicly administered lands.

In addition to indicated needs, scenic routes, waterfront access, harbors of refuge, special interest areas, interpretive facilities, open spaces and beaches and trails for activities other than swimming and hiking are needed to satisfy the recreation and environmental requirements of the people. Future revisions of Washington's statewide outdoor recreation plan will identify needs for the above purposes.

MEANS TO SATISFY NEEDS

OVERALL RECREATION GOALS

The recreation and tourist industry is likely to become the most important economic activity in the San Juan Islands. The major recreation goal is to promote well-planned development and protection of the existing resources to provide opportunity for the satisfaction of the present and future outdoor recreation demands of the people and to assure the economic importance of the recreation and tourist industry.

As a desirable planning goal, 10% of the water related recreation demands in the San Juan Islands would be satisfied at lakes and pools and 90% on salt water oriented areas. This allocation of demand is based upon existing water and associated land resources.

Based upon the plans and programs of recreation suppliers, expected population concentration, as well as outdoor recreation needs, it seems reasonable to assume that Federal agencies could provide 5% of the required water related opportunities, while the State, county and local agencies, and private interests could supply 50, 20 and 25%, respectively.

SPECIFIC RECREATION PROBLEMS

Water frontage needed and suitable for public recreation use is rapidly being developed for vacation home sites. From 1956 to 1960, the number of vacation residences increased by 49%.

The power transmission lines constructed across the centers of Blakely and Decatur Island are intrusions upon the environment of the beautiful San Juan Islands. These structures with their associated cleared rights-of-way are out of place in this area.

OUTDOOR RECREATION ACTION PLAN

Improvement of Existing Areas

There are 27 publicly-administered developed recreation sites on the Islands. Many lack adequate development. For instance, only 246 camp units and 100 picnic units have been developed on over 14,000 acres of public recreation lands. Over one-half of the sites have no camp or picnic facilities. Additional

improvements need to be provided at existing publicly-administered areas as well as at some private areas.

The above acreage includes lands that are presently being acquired for the recently authorized San Juan Island National Historical Park. Development will proceed in accord with the plans of the National Park Service. In 1967, the State of Washington donated two parcels of land, American Camp and English Camp, to the Federal Government for inclusion within the National Historical Park. Both areas had previously been administered by the Washington Parks and Recreation Commission as heritage sites.

Most of the tidelands are owned by the State and administered by the State Department of Natural Resources. These tidelands have significant value in the satisfaction of recreation demand. Better access to these shore areas should be provided to promote their use by the public, and the lands need to be retained in public ownership.

Thirty-five small islands and rocks plus other properties are owned by the Federal Government and administered by the Bureau of Land Management, with thirty of the island and rocks under lease to the Washington State Parks and Recreation Commission. The Parks and Recreation Commission should acquire certain of these Bureau of Land Management areas and dedicate them for public recreation use. Some should be maintained in their natural state, while others could be developed for more intensive recreation use. Certain islands have definite wildlife values and should be acquired and managed as refuges by the Bureau of Sports Fisheries and Wildlife.

Acquisition and Development of New Areas

Immediate action is necessary to acquire and develop additional recreation lands to satisfy recreation demands and to preserve the natural qualities of the Islands.

Additional recreation areas are needed on the following islands:

1. Patos
2. Clark
3. Doe
4. James
5. Stuart
6. Freeman
7. Posey
8. Skipjack
9. San Juan
10. Canoe
11. Decatur
12. Shaw
13. Lopez
14. Waldron
15. Orcas
16. Blakely

Patos Island is owned by the U.S. Coast Guard. A large portion of the Island may be declared surplus for Federal needs. If so declared, the land should be acquired by a public agency for public recreation use.

Figure 12-4 indicates waterfront lands needing investigation for possible park sites. There are undoubtedly many sites other than those identified which are suitable for recreation development by public or private interests. A joint Federal, State and local study needs to be made on the San Juan Islands to determine those islands or island areas which should be preserved and developed for outdoor recreation and the management and administration of these islands that will best serve the public interest. Due to international significance of the recreation development of the San Juan Islands, Canadian interests should be represented on the study team.

Since a major form of access to recreation areas is by private pleasure boat, recreation areas should mainly be established at those sites where safe small boat moorage is available. Suitable moorages at recreation areas will serve as needed harbors-of-refuge.

An increasingly popular mode of access is by private aircraft. Commercial and publicly-administered recreation areas need to be located on sites with convenient access from airfields.

The tourist and recreation industry will continue to be an important segment of the economy of the Islands. The extent to which the economic potential of the area is realized will, in a large measure, depend upon the exercise of planning and zoning authority by the county over the development of the islands. Plans should be prepared and implemented to provide direction for the residential and economic growth on the islands.

PROTECTION AND RECREATION RESOURCES

The San Juan Islands are a unique and outstanding natural resource. Any acquisition or development of land for public outdoor recreation should be based on conservation of the resources as well as upon public demand.

Power transmission lines across some of the islands are environmental intrusions. It is unfortunate that these lines could not have been submerged in the

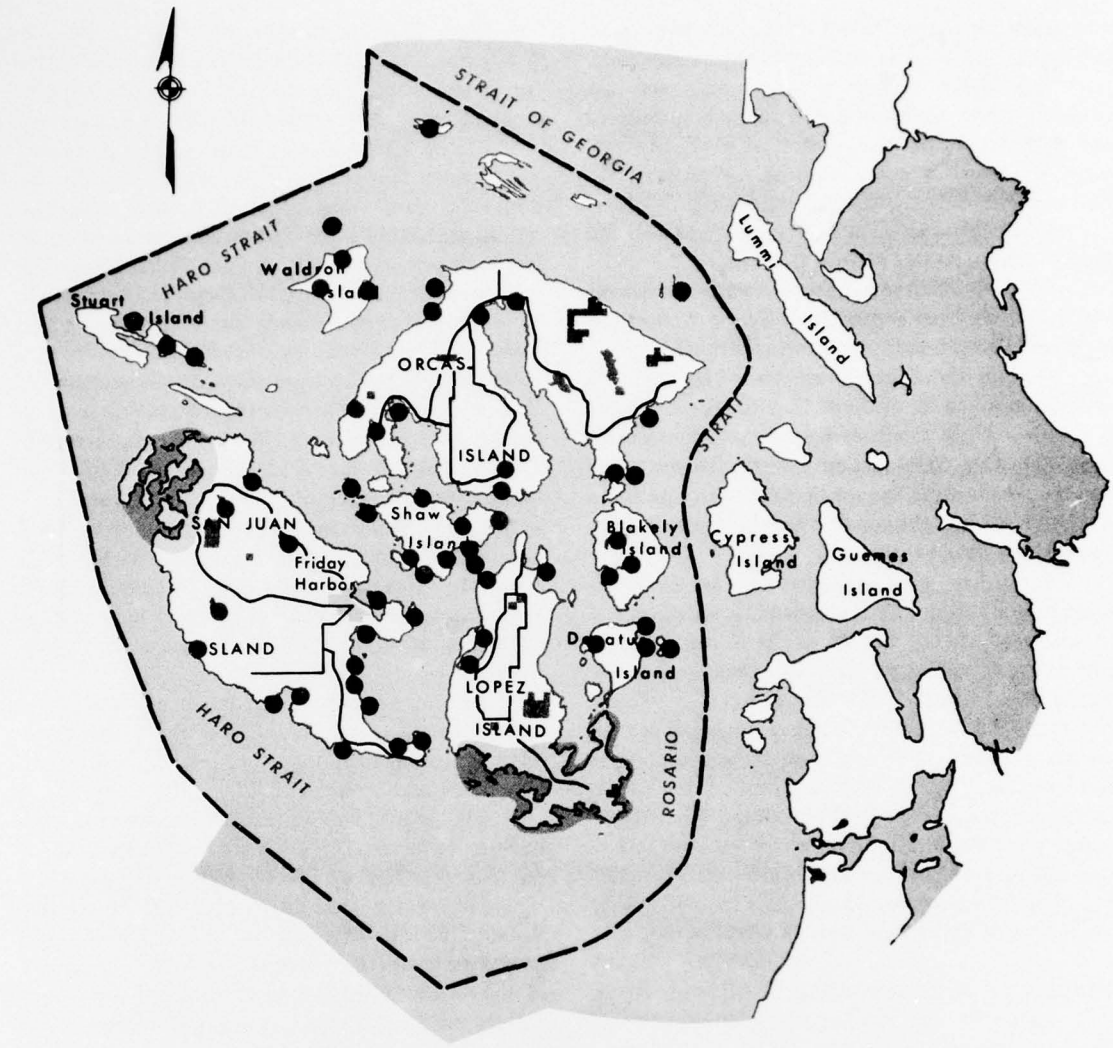


FIGURE 12-4. Possible Waterfront Recreation Areas, San Juan Islands

water, eliminating the need for a land crossing. Actions to lessen their adverse impact upon the natural beauty are needed. It is suggested that the sections of the transmission lines within a waterfront zone of appropriate width be buried beneath the ground. Vegetation could then be allowed to grow on the right-of-way to screen the structures from the shoreline and water.

Numerous archeological, historical, outstanding natural, and underwater marine areas, have been identified. These irreplaceable attractions should be classified, protected, and properly developed for public enjoyment and scientific purposes.

Washington H.B. No. 63 of 1923 established the waters of San Juan County and Cypress Island as a marine biological preserve. The University of Washington, which has an active marine biological study program in the San Juans, has identified the following intertidal areas as possessing important scientific values:

1. False Bay, San Juan Island.
2. Jekyll's Lagoon, San Juan Island.
3. Argyle Lagoon, San Juan Island.
4. Guss Island in Garrison Bay.
5. Eagle Point, San Juan Island.
6. Lime Kiln Light, San Juan Island.
7. Turn Rock and Iceberg Point in San Juan Channel.
8. Smith Island, Battleship Island, Cactus Island, Turn Island, and Matia Island.
9. Point Gorge and Park Bay, Shaw Island.

In the establishment of recreation areas, the scientific values of the above areas need to be respected. A representative from the University's Friday Harbor Laboratory has suggested that certain subtidal biological preserves be protected for scientific study. These areas include the stretch of water extending from Lopez Sound northward between Lopez and Blakely Islands into East Sound, Peavine Pass, Peapod Rocks, Black Rock, and Parker's Reef. The collection of animals or plants should be restricted on intertidal and subtidal biological preserves.

Further archeological investigations are needed to determine if any earlier cultures than presently known inhabited the Islands. Recent discoveries on the Gulf Islands and Vancouver Island suggest that this might be the case.

Private Sector

Commerical private interests should be encouraged to develop recreation facilities. Commercial interests will rapidly move into the picture whenever a need exists that can be profitably filled. The San Juans have great potential as an outstanding resort and hotel area. Visitors, if they wish, can leave their cars on the mainland and travel to the Islands' resorts via ferry, aircraft, or pleasure boat. Once on the Islands, the visitors could rent bicycles or motorbikes to tour the Islands via the charming county roads.

Private interests need to promote the tourist and recreation attractions through the usual means of advertisement. The belief that the Islands should only be visited during the summer months should be dispelled by developing an image that will properly present the assets of the area as a place to be visited throughout the year. A "San Juan Islands–The Year-Around Playground" campaign would promote the operation of commercial facilities, profitable on a 12-month basis.

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