UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SELECTED SOURCES OF GEOLOGIC, HYDROLOGIC, AND RELATED INFORMATION FOR THE PUGET SOUND REGION, WASHINGTON

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ILLUSTRATIONS

INTRODUCTION

This informal compilation has been prepared to facilitate the acquisition of available earth-sciences information about the Puget Sound region. Specifically, it is intended for use in assessing the environmental impact of the proposed Northern Tier Pipeline and associated facilities in this region.

This compilation consists of an annotated bibliography of available maps and reports, along with index maps showing the locations of data sites and mapped areas. The references listed here have been chosen to provide optimum regionwide coverage of geologic, hydrologic, and related information for this "overview" assessment. The list is by no means exhaustive, but includes reasonably complete, authoritative references for areas of the "prime" route and alternative routes through this region. The annotations and index maps are provided to assist the reader in selecting and locating data sources for specific assessment needs.

The bibliography is organized into 10 general categories by area or topic (p. 3); annotated references are listed alphabetically by author within each category. Of the index maps, Figure 2 shows the areas of selected geologic maps and reports which cover the prime pipeline route in the Puget Sound region. Figures 3 and 4 show, respectively, surface-water and water-quality data stations. Figure 5 shows flood-report coverage, and figure 6 depicts water-quality report coverage in western Washington.

Although the map index figure 2 refers only to the prime pipeline route in the region, references pertaining to alternative routes may be found under specific headings in the bibliography. For example, references and maps in the "Northern Puget Sound and Admiralty Inlet" category provide geologic and hydrologic information relevant to alternative routes north of the prime route.

ANNOTATED BIBLIOGRAPHY

This bibliography, largely annotated, includes references pertinent to the following subjects:

Geology

Hydrology (surface-water, groundwater, water quality)

Puget Sound marine environment

Seismic hazards

The bibliography figure 1 (see sketch map) is divided into these categories:

North Olympic Peninsula

Hood Canal vicinity

Southern Puget Sound

Eastern Puget Sound and lowlands

Northern Puget Sound and Admiralty Inlet

Cascade Mountains and foothills

Puget Sound area (general)

Geologic mapping along the pipeline route in western Washington

Seismic Hazards

Summary papers for the Puget Sound area

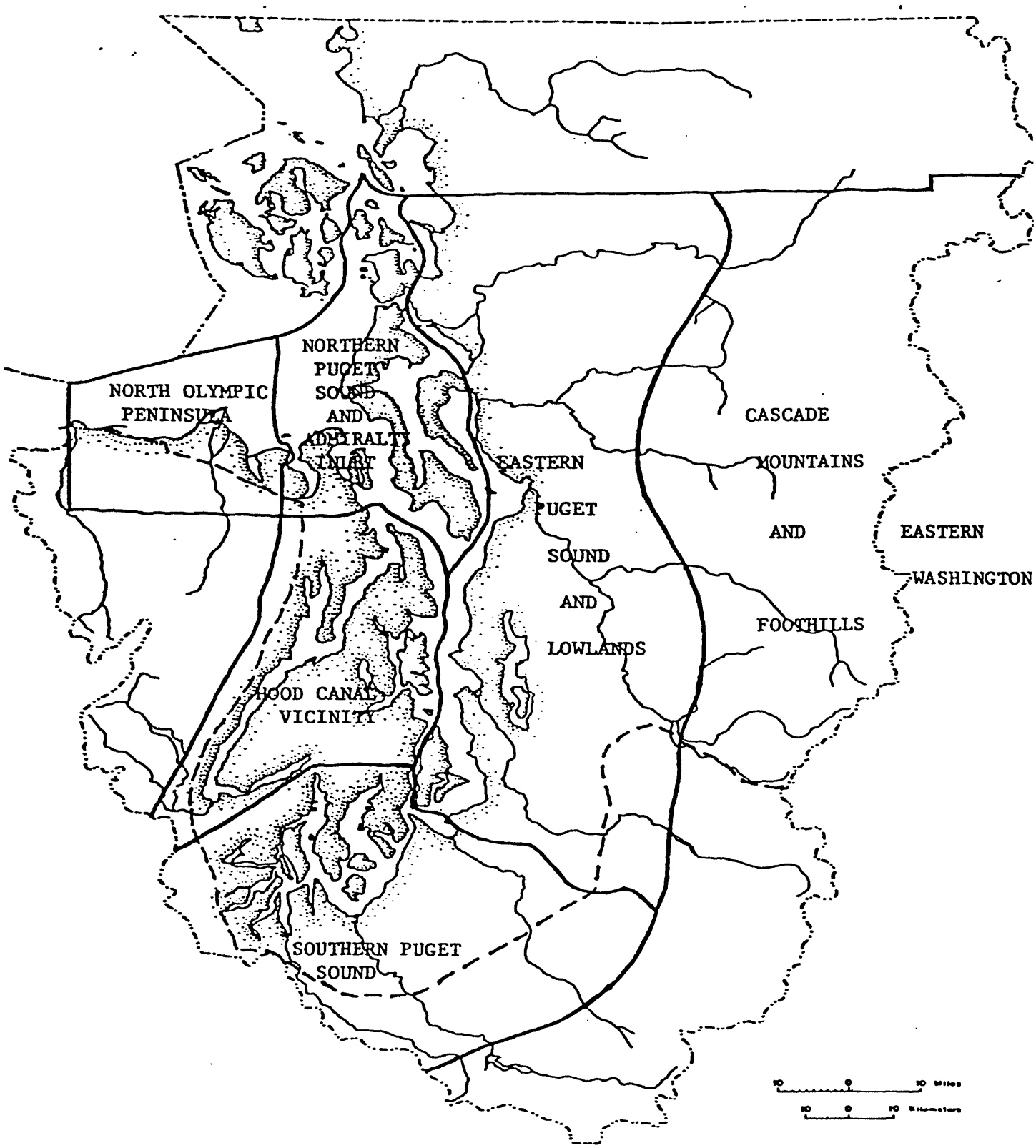

Figure 1.--Sketch map of the Puget Sound region, showing geographic subregions used in this compilation and the proposed Northern Tier Pipeline prime route(dashed line).

Northern Olympic Peninsula: a selected bibliography

ANDERSON, FRANZ E.
1968 SEAWARD TERMINUS OF THE VASHON CONTINENTAL GLACIER IN THE STRAIT OF JUAN DE FUCA. MAR. GEOL., VOL. 6, PP. 419-438.
(PAPER FOCUSES ON THE STRATIGRAPHY AND PALEO-ENVIRONMENT OF THE SEDIMENTARY UNITS FOUND IN CORES TAKEN AND HOW THESE UNITS ARE RELATED TO THE VASHON CONTINENTAL GLACIATION OF PUGET SOUND. THE ICE POSITION OF THE JUAN DE FUCA LOBE IS EXAMINED AND RELATED TO THE PAST DEPOSITIONAL ENVIRONMENTS. THERE IS NO SEDIMENTARY EVIDENCE THAT THE VASHON-JUAN DE FUCA ICE LOBE PENETRATED TO THE PACIFIC OCEAN. IT APPEARS LIKELY THAT THE VASHON ICE WAS HALTED IN THE EASTERNMOST PORTION OF THE STRAIT AND FORMED A SERIES OF TERMINAL AND RECESSIONAL MORAINES.)
(1B022D968ANDF01)

BIPPES, JACKIE E.
1973 OIL TERMINAL SITE COMPARISONS IN WASHINGTON STATE. M.S.E. THESIS, UNIVERSITY OF WASHINGTON, 90 PAGES.
(DISCUSSES POLLUTION, LEGISLATION, OFFSHORE TERMINALS, SPM'S (SINGLE POINT MOORINGS), AND THE ENERGY CRISIS AND CONCLUDES THAT AN SPM INSTALLATION AT PORT ANGELES WOULD BE THE BEST SITUATION FOR OIL IN PUGET SOUND.)
(1A003U973BIPJ01)

Brown, R.D., Jr., H.D. Gower, and P.D. Snavely, 1960(1961), Geology of the Port Angeles-Lake Crescent area, Clallam County, Washington: U.S. Geological Survey Oil and Gas Invest. Map OM-203.

Shows geology and structure of Tertiary rocks near Port Angeles at a scale of 1/62,500.

Danner, W.R., 1948, Contribution to the geology of the Olympic Mountains Washington(M.S. thesis): Univ. Wash., Seattle, 67 p.

Haushild, W.L. and LaFrance, D.E., 1978, Low-flow characteristics of streams on the Olympic Peninsula, Washington: U.S. Geological Survey Open-File Rept. 77-812.

HERLINVEAUX, R. H.
1954 TIDAL CURRENTS IN JUAN DE FUCA STRAIT. J. FISH. RES. BD CAN., VOL. 11, NO. 6, PP. 799-815.
(THREE SERIES OF DIRECT CURRENT OBSERVATIONS TAKEN IN JUAN DE FUCA STRAIT IN 1952 HAVE BEEN ANALYZED. A LINEAR RELATIONSHIP BETWEEN THE DIFFERENCE IN SEA LEVEL ON THE OCEAN COAST AND THE STRAIT OF GEORGIA AND TIDAL CURRENTS HAS BEEN SHOWN WHICH HOLDS FROM THE SURFACE TO LOWER DEPTHS. CURRENT VELOCITIES IN A CROSS-SECTION CAN BE PREDICTED AT ANY TIME
(1B022F454HERR02)

HERLINVEAUX, R. H., AND J. P. TULLY
1961 SOME OCEANOGRAPHIC FEATURES OF JUAN DE FUCA STRAIT. JOUR. FISH. RES. BD. OF CANADA 18 1027-1071
(AN EXTENSIVE DESCRIPTION OF THE PROPERTIES OF THE WATER, OCEANOGRAPHIC STRUCTURE AND CURRENTS IN THE JUAN DE FUCA STRAIT IS GIVEN. LITERATURE PUBLISHED FROM THE 1920'S TO 1960 IS SUMMARIZED IN THIS PAPER. SEVERAL CORRELATIONS WITH METEOROLOGICAL CONDITIONS OVER THE SAME PERIOD ARE PRESENTED. INCLUDED ARE GRAPHS, CHARTS, AND TABLES.)*
(B022E61HERR01,B022F61HERR01,B022G61HERR01)

Lindquist, J.W., 1961, Geology and paleontology of the Fork area, Dungeness and Graywolf Rivers, Clallam County, Washington(M.S. thesis): Univ. Wash., Seattle, 185 p.

LOEHR, LINCOLN C. AND ELAINE ELLINGER
1974 A DESCRIPTION OF THE OCEANOGRAPHIC ENVIRONMENT OF THE WASHINGTON COAST AND THE STRAIT OF JUAN DE FUCA. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, AND DIVISION OF MARINE RESOURCES, 146 PAGES.
(THIS REPORT COMPILES, ANALYZES AND EVALUATES AVAILABLE PHYSICAL AND ENVIRONMENTAL INFORMATION FOR THE COAST OF WASHINGTON FROM THE COLUMBIA RIVER NORTH TO CAPE FLATTERY AND THENCE EAST TO SMITH ISLAND. THIS INFORMATION IS USED IN A FEASIBILITY STUDY OF OFFSHORE MONOBUOY AND RELATED PETROLEUM TRANSFER FACILITIES.)
(1B022M974LOEL01,1B022H974LOEL01)

Noble, J.B., 1960, A preliminary report on the geology and ground-water resources of the Sequim-Dungeness area, Clallam County, Washington: Washington Div. Water Resources, Water Supply Bull. 11, 43 p.

PETERSON, D. R.
1957 AN INVESTIGATION OF POLLUTION IN THE VICINITY OF PORT ANGELES. WASHINGTON POLLUTION CONTROL COMM., TECHNICAL BULLETIN NO. 23. 35 PAGES.
(WATER CURRENT, BACTERIOLOGICAL, SALINITY, TEMPERATURE AND SPENT SULFITE LIQUOR MEASUREMENTS WERE MADE DURING THE SUMMER OF 1957 TO EVALUATE THE EXTENT OF DOMESTIC AND INDUSTRIAL POLLUTION IN PORT ANGELES HARBOR. DISSOLVED OXYGEN, SALINITY, SPENT SULFITE LIQUOR, AND TEMPERATURE VALUES ARE TABULATED.)*
(B003J57PETD01,B003H57PETD01,B003F57PETD01)

STACEY, R. A. AND J. P. STEELE
1970 GEOPHYSICAL MEASUREMENTS IN BRITISH COLUMBIA. CANADA DEP. ENERGY, MINES AND RESOURCES, EARTH PHYSICS BRANCH, VICTORIA, 17 PAGES, 2 MAPS.
(BATHYMETRIC, GRAVITY AND MAGNETIC MEASUREMENTS ARE PRESENTED FOR THE STRAIT OF GEORGIA BETWEEN VANCOUVER ISLAND AND WASHINGTON, U.S.A.)
(2B022D970STAR01,2K022D970STAR01)

Smith, L.H., Olsen, H.A., and Fox, W.W., 1951, Soil survey of Clallam County, WAshington: U.S. Dept. Agric. Soil Conserv. Surv. Rept.

STEIN, J. E. AND OTHERS
1963 AN OCEANOGRAPHIC SURVEY OF PORT ANGELES HARBOR. PROC. 11TH PACIF. NW. IND. WASTE CONF. 1963, PP. 172-202.
(CHEMICAL, PHYSICAL, AND BIOLOGICAL MEASUREMENTS WERE MADE IN PORT ANGELES HARBOR TO DETERMINE THE INFLUENCE OF PULP MILL WASTES ON THE BIOTA. CONCLUSIONS IN THE REPORT INDICATE THAT ENVIRONMENTAL CONDITIONS ARE SATISFACTORY FOR A NORMAL MARINE ECOLOGICAL COMMUNITY.)
(1B003J963STEJ01,1B003H963STEJ01)

STEIN, J. E. AND J. G. DENISON
1966 PORT ANGELES WATER QUALITY MONITORING PROGRAM. RAYONIER INC., OLYMPIC RES. DIV., REP. NO. H 10--1-1.
(A SERIES OF ANNUAL WATER QUALITY SURVEYS WERE CARRIED OUT IN PORT ANGELES HARBOR. THE PURPOSE OF THE SURVEYS WAS TO EVALUATE THE COMPATIBILITY OF THE MULTIPLE USES FOR THESE RECEIVING WATERS. THE MAJOR USES WERE FOUND TO BE WASTE ASSIMILATION AND DISPERSAL, LOG STORAGE, SPORTS FISHING, NAVIGATION AND BOATING. IT WAS CONCLUDED THAT ALL OF THESE USES WERE COMPATIBLE. CONSEQUENTLY, THE INSTALLATION OF EXTENSIVE ABATEMENT FACILITIES WOULD NOT INCREASE OR ENHANCE THE MULTIPLE USES OR THE WATER QUALITY OF THE HARBOR.)
(1B012M966STEJ01)

TOLLEFSON, ROGER, JOHN G. DENISON, AND ERICK TOKAR
1971 OUTFALL LOCATION STUDIES--PORT ANGELES, WASHINGTON. ITT RAYONIER INC., OLYMPIC RES. DIV., REF. NO. H 10--1-3, 21 PAGES PLUS TABLES, FIGURES, PROCESSED.
(A SUBMARINE OUTFALL LOCATION IS PROPOSED FOR THE ITT RAYONIER PORT ANGELES MILL. THIS WILL EXTEND EAST-NORTHEAST FROM THE MILL FOR 7,990 FEET. THE FINAL 990 FEET WILL BE A 48 PORT DIFFUSER SECTION BEARING 0 DEGREES NORTH. THE ESTIMATED MINIMUM DILUTION WILL BE 100 TO 1 AT THE BOIL, WITH AN AVERAGE DILUTION OF 1400 TO 1 PREDICTED AT THE POINT OF COMPLETE MIXING. THE RESULTANT WATER MASS WILL MOVE OUT OF THE AREA ON THE FIRST TIDE 80 PER CENT OF THE TIME. CLASS AA EXTRAORDINARY WATER QUALITY CRITERIA WILL BE MET.)
(1B003J971TOLR01)

U. S. ARMY CORPS OF ENGINEERS
1971 REPORT ON SURVEY OF EDIZ HOOK FOR BEACH EROSION AND RELATED PURPOSES, PORT ANGELES, WASHINGTON. SEATTLE DISTRICT, SEATTLE, WASHINGTON.
(EDIZ HOOK EXTENDS EASTERLY FROM THE MAINLAND INTO THE STRAIT OF JUAN DE FUCA, AND ACTS AS A BREAKWATER TO PORT ANGELES HARBOR. EDIZ HOOK IS IN AN ACTIVE STATE OF EROSION. THE DESTRUCTION OF THE HOOK AND THE PROTECTED HARBOR IT AFFORDS WILL PREVENT SHIPMENT BY WATER INTO AND OUT OF THE HARBOR AND WILL FORCE RELOCATION OF THE COAST GUARD STATION AT THE EAST END OF THE HOOK. THIS WOULD DESTROY THE ECONOMIC BASE OF THE AREA.)
(1B022M971USCE01)

U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
1950 LOCAL CLIMATOLOGICAL SUMMARY WITH COMPARATIVE DATA, 1949, PORT ANGELES. GOVT PRINT. OFF., WASHINGTON, D.C.
(1B022B950USDC01)

WAGNER, R. A. AND OTHERS
1957 AN INVESTIGATION OF POLLUTION IN NORTHERN PUGET SOUND. WASH. ST. POLLUT. CONTROL COMMN, TECH. BULL. NO. 22, 26 PAGES.
(DATA COLLECTED IN BELLINGHAM, FIDALGO, AND PADILLA BAYS DURING 1957 WERE USED TO EVALUATE WATER QUALITY CONDITIONS. DISSOLVED OXYGEN, SPENT SULFITE LIQUOR AND COLIFORM M. P. N. WERE TABULATED.)
(1I022J957WAGR01)

Hood Canal vicinity: a selected bibliography

Bortleson, G. C., and Foxworthy, B. L., 1974, Relative susceptibility of lakes to water quality degradation in the southern Hood Canal area: U.S. Geol. Survey Misc. Inv. Series, Map I-853-B.

Cummans, J.E., 1977, Low-flow characteristics of streams on the Kitsap Peninsula and selected adjacent islands, Washington: U.S. Geol. Survey Open-File Rept. 76-704, 19 p.

Report presents low-flow information for streamsites for Kitsap Peninsula by utilizing available records of streamflow at continuous-record gaging stations and miscellaneous discharge measurements. Data presented on low-flow characteristics of streams at 90 sites; an additional 56 sites listed show no flow.

Dinsmore, J.P., 1953, Geology of the Hamma Hamma and North Fork Skokomish River Valleys(M.S. thesis): College of Puget Sound, Tacoma, 69 p.

Frisken, J.G., 1965, Pleistocene glaciation of the Brinnon area, east-central Olympic Peninsula, Washington(M.S. thesis): Univ. Wash., Seattle, 75 p.

GARLING, M. E. AND OTHERS
1965 WATER RESOURCES AND GEOLOGY OF THE KITSAP PENINSULA AND CERTAIN ADJACENT ISLANDS. WASH. ST. DIV. WAT. RESOURCES, WAT. SUPPLY BULL. NO. 18, 309 PAGES.
(THE REPORT AREA INCLUDED ALL OF KITSAP COUNTY AND PARTS OF MASON, PIERCE, AND KING COUNTIES. THE GEOLOGICAL ORIGIN AND COMPOSITION OF THE AREA WERE DESCRIBED. THE LOCATION OF WELLS IN RELATION TO GLACIAL DEPOSITS AND THE ORIGINS AND POTENTIAL SOURCES OF GROUND-WATER WERE DISCUSSED. GROUND-WATER WAS ANALYZED FOR ITS CHEMICAL QUALITY. INCREASED WITHDRAWALS OF GROUND-WATER IN AREAS SUBJECT TO CONTAMINATION BY WATERS OF UNDESIRABLE QUALITY FROM DEEPER AQUIFERS OR FROM PUGET SOUND COULD LEAD TO DETERIORATION IN WATER QUALITY.)
(1DC12D965GARM01)

Hamlin, W.H., 1962, Geology and foraminifera of the Mount Walker-Quilcene-Leland Lake area, Jefferson County, Washington(M.S. thesis): Univ. Wash., Seattle, 127 p.

Molenaar, D. and Noble, J.B., 1970, Geology and related ground-water occurrence, southeastern Mason County, Washington: Wash. Dept. Wat. Resour. Water-Supply Bull. No. 29, 145 p.

Molenaar, D., and Cummans, J.E., 1973, Water resources of the Skokomish Indian Reservation, Washington: U.S. Geological Survey Open-File Rept., 58 p.

Results of a study to provide general information on the water resources of the Skokomish Indian Reservation for use by the tribal council in protecting and conserving quantity and quality of available water.

Richardson, Donald, 1974, Streamflow in the southern Hood Canal area, Washington as related to land-use planning: U.S. Geol. Survey Misc. Inv. Map I-853-C.

A map-type report presenting basic information and interpretation of low-flow characteristics of streamflow for the southern Hood Canal area.

Sceva, Jack E. Geology and ground-water resources of Kitsap County, Washington. 1956.

TODD, MARGARET R.
1939 THE GLACIAL GEOLOGY OF THE HAMMA HAMMA VALLEY AND ITS RELATION TO THE GLACIAL HISTORY OF THE PUGET SOUND BASIN. THESIS, UNIVERSITY OF WASHINGTON, 48 PAGES. (DESCRIPTION OF THE VASHON AND ADMIRALTY TILLS.) (1FP22D939TODM01)

WASHINGTON STATE DEPARTMENT OF FISHERIES
1971 CRITERIA GOVERNING THE DESIGN OF BULKHEADS, LAND FILLS, AND MARINAS IN PUGET SOUND, HOOD CANAL, AND STRAIT OF JUAN DE FUCA FOR PROTECTION OF FISH AND SHELLFISH RESOURCES. WASH. ST. DEP. FISH., OLYMPIA, WA, 12 PAGES. (THE CRITERIA PRESENTED IN THIS REPORT WILL BE IMMEDIATELY IMPLEMENTED IN REVIEW OF APPLICATIONS TO CONSTRUCT FACILITIES ALONG THE SEASHORE, PARTICULARLY BULKHEADS, LANDFILLS, AND MARINAS IN ALL MARINE WATERS LYING EAST OF CAPE FLATTERY AT THE ENTRANCE TO THE STRAIT OF JUAN DE FUCA. GENERAL PROVISIONS SUCH AS TIMING OR CONSTRUCTION METHODS WILL ALSO BE PRESCRIBED. THESE CRITERIA ARE BASED ON SOUND BIOLOGICAL DATA AND WILL SUPPLEMENT WHATEVER REQUIREMENTS ARE SPECIFIED BY OTHER LOCAL, STATE, OR FEDERAL AGENCIES IN THEIR REVIEW OF THESE APPLICATIONS.) (1AO12W971WSDF01,1AO12U971WSDF01)

WILDERMUTH, R., S. O. PERKINS, R. E. PASCO, AND E. H. HUBBARD
1939 SOIL SURVEY OF KITSAP COUNTY, WASHINGTON. U. S. DEPT. OF AGRICULTURE, BUREAU OF CHEMISTRY AND SOILS, GOVERNMENT PRINTING OFFICE.
(STUDY OF SOIL TYPES, CLIMATE, AND LAND TYPES INCLUDING COASTAL BEACH, COASTAL BENCH, TERRACE PHASE, AND TIDAL MARSH. LARGE SOIL SURFACE MAP.)*
(A008D39WILR01)

YOSHINAKA, MARION S. AND NANCY J. ELLIFRIT
1974 HOOD CANAL-PRIORITIES FOR TOMORROW. U.S. DEP. INTER. FISH WILDL. SERV., PORTLAND, OR, 97 PAGES.
(THIS IS A SPECIAL REPORT ON THE ECOLOGICAL ASPECTS, NATURAL AND CULTURAL RESOURCES, LAND AND WATER USES AND USE CONFLICTS, AND GUIDELINES FOR THE CONSERVATION AND MANAGEMENT OF HOOD CANAL, WASHINGTON. INFORMATION PRESENTED IN THIS REPORT WILL BE USEFUL DURING INVESTIGATIONS CONDUCTED UNDER AUTHORITY OF THE FISH AND WILDLIFE COORDINATION ACT.)
(1F008M974YOSM01,1F012M974YOSM01)

Anderson, I.E., 1948, Floods of the Puyallup and Chehalis River basins, Washington: U.S. Geol. Survey Water-Supply Paper 968-B, 124 p.

Flood-runoff characteristics are determined for Puyallup and Chehalis Rivers.

Anderson, W.W., Ness, A.O., and Anderson, A.C., 1955, Soil survey of Pierce County, Washington: U.S. Agriculture Soil Survey Rept., Ser. 1939, No. 27, 88 p.

ANONYMOUS
1973 PUYALLUP RIVER BASIN WATER QUALITY MANAGEMENT PLAN--PART III OF IV, PUYALLUP RIVER AND COMMENCEMENT BAY. HYDROSCIENCE, INC., WESTWOOD, N.J., 81 PAGES. (ALTERNATIVES FOR A GENERAL SEWAGE DISPOSAL PLAN FOR THE PUYALLUP RIVER BASIN IN PIERCE COUNTY, WASHINGTON ARE DISCUSSED. EVALUATIONS OF THE EFFECTS ON RIVER AND BAY WATER QUALITY BY EXISTING AND PROPOSED WASTEWATER TREATMENT AND DISPOSAL WERE ACCOMPLISHED BY CONDUCTING A FIELD SURVEY OF PUYALLUP RIVER AND COMMENCEMENT BAY, REVIEWING HISTORICAL WATER QUALITY DATA, AND USING A STEADY STATE WATER QUALITY MODEL TO ANALYZE THESE DATA.)

COLLIAS, E. E., AND OTHERS
1962 PHYSICAL AND CHEMICAL DATA FOR SOUTHERN PUGET SOUND AUGUST 1957 - OCTOBER 1958. UNIV. OF WASH., DEPT. OF OCEANOGRAPHY, TECHNICAL REPORT NO. 67. 151 PAGES. (DATA TABULATED IN THIS REPORT ARE PRINCIPALLY FROM THAT PORTION OF PUGET SOUND SOUTH OF TACOMA NARROWS. OBSERVED DATA WHICH ARE TABULATED INCLUDE TEMPERATURE, SALINITY, DISSOLVED OXYGEN, PHOSPHATE, AND SPENT SULFITE LIQUOR. CURRENT VELOCITIES WERE MEASURED AT SELECTED STATIONS.)*
(E022F62COLE01,E022G62COLE01)

Cummans, J.E., 1974, Flood profiles and inundated areas along the lower Nisqually River, Washington: U.S. Geol. Survey Water-Resources Inv. 42-73, 9 p.

Flood profiles are developed covering the reach from near the river mouth to river mile 6.4. Report describes historical floods, including that of December 1933.

Cummans, J.E., 1974, Flood profiles and inundated areas along the Skokomish River, Washington: U.S. Geol. Survey Water-Resources Inv. 62-73, 20 p.

Flood profiles covering the main stem Skokomish River and reaches of the South and North Forks Skokomish River and Vance Creek are developed to identify areas subject to flooding from streams. Maximum expected flows for streams, as well as expected recurrence intervals for floods are given.

Longfield, R.J., 1974, Floods of January 1974 in Washington: U.S. Geol. Survey Open-File Rept., 13 p.

Describes floods of Jan. 14-21 which were record flows in parts of Washington. Included are estimates of recurrence intervals for 39 gaging stations in southern Washington (but including Nisqually and Deschutes basins of Puget Sound region).

Mundorff, M.J., J.M. Weigle, and G.D. Holmberg, 1955, Ground water in the Yelm area, Thurston and Peirce Counties, Washington: U.S. Geological Survey Circular 356, 58 p.

Describes the geology and quality and quantity of groundwater near Yelm, Washington.

Myers, D.A., and Cummans, J.E., 1973, Water resources of the Nisqually Indian Reservation, Washington: U.S. Geol. Survey Open-File Rept., 30 p.

Ness, A.O., Glassey, T.W., Lunsberry, C. and Poulsen, E.N., 1958, Soil Survey for Thurston County, Washington: U.S. Dept. Agriculture, Soil Conservation Service Ser. 1947, No. 6, 79 p. 26 maps.

Ness, A.O., and Fowler, R.H., 1960, Soil survey of Mason County, Washington: U.S. Dept. Agric. Soil Conservation Serv. Ser. 1951 No. 9. 76 p.

Noble, John B., and E.F. Wallace, 1966, Geology and ground-water resources of Thurston County, Washington, Volume 2: Wash. Dept. Conserv., Div. Water Resour., Wat. Supp. Bull. 10, 141 p.

Describes the bedrock and surficial geology of Thurston County in relation to the quantity and quality of ground-water resources. Volume 2 includes detailed geologic and hydrologic descriptions.

PETERSEN, RICHARD E. AND JEROME E. STEIN
1960 A CHEMICAL AND STATISTICAL ANALYSIS OF THE WATERS OF SOUTHERN PUGET SOUND. RAYONIER INC., OLYMPIC RES. DIV., 169 PAGES.
(SAMPLES WERE TAKEN IN TEN AREAS OF SOUTHERN PUGET SOUND OVER A THREE YEAR PERIOD, THE FIRST YEAR OF WHICH THE PULP MILL AT SHELTON WAS OPERATING. THE MEANS, STANDARD DEVIATIONS, AND CORRELATION COEFFICIENTS WERE CALCULATED FOR TEMPERATURE, CHLORINITY, DISSOLVED OXYGEN, BIOLOGICAL OXYGEN DEMAND, ALKALINITY, PEARL BENSON POSITIVE MATERIAL, AND PH.)
(1E003J960PETR01)

SORLIE, GREG
1975 BACKGROUND INFORMATION FOR WATER RESOURCES MANAGEMENT PLANNING IN THE WESTERN AND SOUTHERN PUGET SOUND BASINS. WASH. ST. DEP. ECOLOGY, WATER RESOURCE INFORMATION SYSTEM, TECH. BULL. NO. 18, 167 PAGES.
(PRESENTS RESULTS OF INITIAL STUDIES ON THE WATER RESOURCES OF THE SOUTHERN AND WESTERN PUGET SOUND AREA WHICH ARE ORIENTED TOWARD MANAGEMENT PLANNING. SURFACE WATER, GROUND WATER, FLOOD DAMAGE PROBLEMS, POTENTIAL RESERVOIR SITES AND GENERAL WATER SUPPLY REPORTS ARE INCLUDED.)
(1D012M975SORG01,1E012M975SORG01)

Veatch, F.M., Kimmel, G.E., and Johnston, E.A., 1966, Surface- and ground-water conditions during 1959-61 in a part of the Flett Creek basin, Tacoma, Washington: U.S. Geol. Survey Open-File Rept., 42 p.

The surface and ground waters and subsurface geology of lower Flett Creek basin near Tacoma were studied from 1959 to 1961. The report discusses subsurface geologic conditions, occurrence and movement of ground water, streamflow characteristics, and ground water-surface water relationships.

Wallace, Eugene F., and Dee Molenaar, 1961, Geology and ground-water resources of Thurston County, Washington: Wash. Dept. Conserv., Div. Water Resources, Wat. Supp. Bull. 10, 254 p.

Describes the bedrock and surficial geology of Thurston County in relation to quantity and quality of ground-water resources. Volume 1 is largely well-logs.

ANDERSON, A. C., C. C. NIKIFOROFF, W. J. LEIGHTY, L. L. ANDERSON, E. H. HUBBARD, H. J. MAKER, H. A. OLSON, R. E. PASCO, C. T. WALDO
1947 SOIL SURVEY OF SNOHOMISH COUNTY, WASHINGTON. U. S. DEPARTMENT OF AGRICULTURE, BUREAU OF CHEMISTRY AND SOILS, GOVERNMENT PRINTING OFFICE, WASHINGTON, 76 PAGES. (A COMPREHENSIVE STUDY OF SOIL TYPES, CLIMATE, AND SPECIAL LAND TYPES.)*
(A008D47ANDA01)

Anderson, C. A., 1965, Surficial geology of the Fall City area, Washington: University of Washington M.S. thesis, 70 p.

A detailed study of the Pleistocene glaciation of the Fall City area. Includes physiographic maps showing the ice front, glacial lakes, deltas, and drainage during various stages of the Vashon recession. Accompanied by a geologic map at the scale of 2½ inches to the mile.

ANONYMOUS
1972 A LAND USE SUITABILITY ANALYSIS FOR THE CEDAR RIVER AND GREEN RIVER BASINS, SUMMARY REPORT. PUGET SOUND GOVERNMENTAL CONFERENCE, SEATTLE, WASHINGTON, 100 PAGES. (PRESENTS AN INVENTORY OF SOIL TYPE AND DRAINAGE CHARACTERISTICS, FLOOD PLAINS, SURFICIAL GEOLOGY, SAND, GRAVEL, AND ALLUVIUM DEPOSITS, LANDSLIDE AND EROSION HAZARDS, AND CROP PRODUCTION CAPABILITY USED FOR A LAND USE SUITABILITY ANALYSIS OF THE CEDAR RIVER AND GREEN RIVER BASINS.)
(1DI08D972ANON01)

ANONYMOUS
1974 RIBCO WATER QUALITY MANAGEMENT STUDY, FINAL ALTERNATIVES. STEVENS, THOMPSON AND RUNYAN, INC., 138 PAGES. (THIS STUDY CONCERNS ALL SURFACE WATERS IN THE LAKE WASHINGTON-CEDAR RIVER AND GREEN RIVER DRAINAGE BASINS IN THE STATE OF WASHINGTON. IT ALSO DEALS WITH THE LAKES AND CREEKS WHICH DRAIN DIRECTLY INTO PUGET SOUND FROM THE SOUTHERN BORDER OF KING COUNTY TO MUKILTEO IN SNOHOMISH COUNTY, AND THE NEARSHORE MARINE WATERS OF THIS AREA. THIS REPORT RECOMMENDS SPECIFIC MEASURES NECESSARY TO PRESERVE THE WATER QUALITY NOW EXISTING, OR TO IMPROVE CONDITIONS IN INSTANCES WHERE PROBLEMS HAVE BEEN FOUND. THE PURPOSE OF THE REPORT IS TO SUBJECT THE ALTERNATIVES TO A CLOSER EVALUATION, AND RECOMMEND FINAL MEASURES.)

Beikman, H. M.; Gower, H. D.; Dana, T. A. M., 1961, Coal reserves of Washington: Washington Division of Mines and Geology Bulletin 47, 115 p. [King County, p. 33-62].

A comprehensive survey of the coal reserves of Washington. The introductory section discusses the classification of coal according to characteristics, abundance of reliable data, rank, reserves, and recoverability. A brief section on the geographic and geologic setting, beds, and history of mining of Washington coal deposits is followed by a discussion of the coking coal and coke in the state.

The major topics of discussion on the King County coal deposits are the geographic and geologic setting, coal beds, coal mining, and summary of reserves. The King County coal areas discussed are Newcastle-Grand Ridge, Renton, Cedar Mountain, Tiger Mountain and Niblock, Taylor, and Green River. Included are generalized columnar sections and maps, and tables of analyses and estimated reserves. The coal area map scales are at 2 1/8 miles to the inch and 1 7/8 miles to the inch.

Cline, D. R., 1969, Availability of ground water in the Federal Way area, King County, Washington: U.S. Geological Survey Open-file Report, 60 p.

Ground water supplies are produced in the Federal Way area by means of wells. Included are a map showing location of the wells, a smaller map showing approximate availability in gallons per minute, and tables listing records of wells and well logs.

Crandell, D. R.; Gard, L. M., Jr., 1959, Geology of the Buckley quadrangle, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-125, map and text on one sheet.

The bedrock geology, surficial geology, including the Osceola Mudflow, soils, structure, geologic history, and mineral resources, consisting of building stone, coal, sand and gravel, and fill material are discussed in the text. The geologic map is at a scale of 2½ inches to the mile.

Crandell, D. R., 1963, Surficial geology and geomorphology of the Lake Tapps quadrangle, Washington: U.S. Geological Survey Professional Paper 388-A, 84 p.

A detailed geologic report and geologic map of the Pleistocene and Recent deposits of the area. A major portion of the area lies in Pierce County, with only the portion northeast of the White River lying in King County. Describes the drainage, relief, climate, bedrock, regional geologic setting, depositional environments, stratigraphy and Quaternary history, palynology, weathering, age determinations, surficial deposits, structure, correlation, economic deposits, engineering geology, and 13 measured sections. Has several page-size maps showing local geologic features. Includes a geologic map at the scale of 2½ inches to the mile, and a map showing the sequence of Vashon deglaciation in the Lake Tapps quadrangle area.

Crandell, D. R., 1973, Map showing potential hazards from future eruptions of Mount Rainier, Washington: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-836, map and text on one sheet.

The text includes a discussion of mudflows, floods, tephra (airborne volcanic-rock debris), lava flows, avalanches of rock debris, and volcanic monitoring. A study of the Puget Sound basin portion of the map reveals that, although the Osceola Mudflow of about 5,700 years ago extended from Mount Rainier to a point several miles north of Auburn, there is a low risk of mudflow occurrence and resultant flooding along the White River valley downstream from Mud Mountain Dam and along the valley floor that extends north and northwest from the vicinity of Sumner.

Crandell, D. R., 1976, Preliminary assessment of potential hazards from future volcanic eruptions in Washington: U.S. Geological Survey Miscellaneous Field Studies Map MF-774, map and text on one sheet.

Discusses products and effects of eruptions and their average past frequency at major volcanoes in Washington. Tephra (airborne volcanic-rock debris) hazard zones are evaluated. King County lies within the tephra-hazard zones of Mount Rainier and Mount St. Helens. Portions of southern King County may be subject to mudflows and resultant flooding from Mount Rainier. Map scale is about 15.8 miles to the inch.

Curran, T. A., 1965, Surficial geology of the Issaquah area, Washington: University of Washington M.S. thesis, 57 p.

Presents a detailed study of the stratigraphy and Pleistocene history of the Issaquah area. Includes several physiographic maps showing the ice front, glacial lakes, deltas, and drainage during various stages of the Vashon recession. Accompanied by a geologic map at the scale of 2½ inches to the mile.

EASTERBROOK, DONALD J., D. R. CRANDELL, AND E. B. LEOPOLD
1967 PRE-OLYMPIA PLEISTOCENE STRATIGRAPHY AND CHRONOLOGY IN THE CENTRAL PUGET LOWLAND, WASHINGTON. BULL. GEOL. SOC. AM., VOL. 78, PP. 13-20.
(DRIFTS OF TWO PRE-OLYMPIA GLACIATIONS SEPARATED BY NON-GLACIAL SEDIMENTS ARE WIDESPREAD IN THE CENTRAL PUGET LOWLAND OF WESTERN WASHINGTON. THE DOUBLE BLUFF DRIFT (OLDER) AND POSSESSION DRIFT REPRESENT ADVANCES OF THE PUGET LOBE OF THE CORDILLERAN ICE SHEET MORE THAN 40,000 YEARS AGO.)
(1D022D967EASD01)

Foxworthy, B.L., and Nassar, E.G., 1975, Flood hazards in the Seattle-Tacoma urban complex and adjacent areas, Washington: U.S. Geol. Survey Open-File Rept., Basic-Data Contribution 5, 1 sheet

A map-type report that briefly describes the flood hazards for the Puget Sound region, indicates the parts of the area for which flood-hazard data are available, and lists the main sources of hydrologic information that is useful for flood-hazard analysis in conjunction with long-range planning.

Gilkeson, R. H.; Starr, W. A.; Steinbrenner, E. C., 1961, Soil survey of the Snoqualmie Falls tree farm: Weyerhaeuser Company, 10 pages plus 28 unnumbered pages. [Folio size.]

Detailed soils study of the area of the Snoqualmie Falls tree farm in King County. Describes the geomorphology, the acreage and mapping intensity, and the 81 soils series and other mapping units. Landform definitions, a glossary, and a table giving the classification and important characteristics of the soils are included.

A set of 13 map sheets, with scales of 2 inches to the mile, delineate the locations of the various soils. The primary symbols on the map units identify the series, and the suffixed symbol represents the landform on which the soil is situated.

Gower, H.D., and Wanek, A.A., 1963, Preliminary geologic map of the Cumberland quadrangle, King County, Washington: Wash. Div. Mines and Geol. Geologic Map GM-2, 1:24,000.

Griffin, W.C., Sceva, J.E., Swenson, H.A., and Mundorff, M.J., 1962, Water resources of the Tacoma area, Washington: U.S. Geol. Survey Water-Supply Paper 1499-B, 101 p.

Discusses sources of water, quantities, chemical and physical qualities, and magnitude and frequency of floods. Area includes city of Tacoma, northwestern Pierce County, and a small part of southwestern King County.

Hall, J. B.; Othberg, K. L., 1974, Thickness of unconsolidated sediments, Puget Lowland, Washington: Washington Division of Geology and Earth Resources Geologic Map GM-12, map accompanied by 3 p. of text.

The map shows that the depth to bedrock in King County ranges from less than 10 feet in the eastern portion to more than 3600 feet in the Seattle area. An accompanying three-page pamphlet describes the geology of the Puget Lowland and the sources of data, plotting methods, and limitations of the map. Map scale is 5 miles to the inch.

HENNES, ROBERT G.
1936 ANALYSIS AND CONTROL OF LANDSLIDES. UNIVERSITY OF WASHINGTON, ENGNG EXP. STN SER., BULL. NO. 91, 57 PAGES. (A COMPREHENSIVE STUDY OF LANDSLIDES AND FACTORS INFLUENCING THEIR OCCURRENCE BASED ON SAMPLE ANALYSIS FROM SEATTLE SLIDE AREAS. THE STATEMENT IS MADE THAT OBSERVATION SUGGESTS THAT UPLIFT IS THE MOST COMMON CAUSE OF SLIDES IN THE SEATTLE REGION.)
(1JHC1D936HENR01)

Hidaka, F.T., 1972, Low flows and temperatures of streams in the Seattle-Tacoma urban complex and adjacent areas, Washington: U.S. Geol. Survey Open-File Rept., Basic-Data Contribution 1, 11 p.

Low-flow data are accompanied by information on seasonal variations in water temperatures at sites selected as representing regional stream-temperature patterns for the Puget Sound basin. Included are a map showing major streams with low-flow characteristics, graphs, and tables for selected major streams.

Hidaka, F.T., 1973, Low-flow characteristics of streams in the Puget Sound region, Washington: U.S. Geol. Survey Open-File Rept., 55 p.

Presents data on low-flow characteristics of streams in the Puget Sound region including the Cedar-Green basins and the Snohomish basin. Text data presented on these basins is concerned with the occurrence of low flows, indexes of low-flow characteristics, and factors affecting low flow.

King County Div. of Hydraulics, 1977, Requirements and guidelines for storm drainage control in King County: King County Dept. of Public Works

This manual is a professional technical guide for storm drainage control in King County, to be used by engineers preparing drainage plans required by King County ordinance 2812, a surface-water runoff policy. If this guide is followed, the user might reflect a significant saving in design costs as well as commensurate saving in time required for review by King County of such plans as may be submitted for approval

Kremer, D. E., 1959, Geology of the Preston-Mount Si area: University of Washington M.S. thesis, 103 p.

Presents a detailed study of the physiography, glacial geology, stratigraphy, and structure of the Preston-Mount Si area. Includes several geologic cross sections and a geologic map at the scale of 1½ inches to the mile.

Liesch, B. A., 1955, Records of wells, water levels, and quality of ground water in the Sammamish Lake area, King County, Washington: U.S. Geological Survey Open-file Report, 193 p.

A preliminary survey of wells and springs in the Sammamish Lake area. Most of the report consists of four data tables: table 1, well data, including hardness; table 2, data on representative springs; table 3, the materials penetrated by representative wells; and table 4, the chemical analyses of selected wells. The report is accompanied by a map of the area showing the location of representative wells and springs.

Liesch, B. A.; Price, C. E.; Walters, K. L., 1963, Geology and ground-water resources of northwestern King County, Washington: Washington Division of Water Resources Water Supply Bulletin 20, 241 p.

Describes the geology, geologic history, and ground water of the northwestern part of the county. Included in the section on ground water are data on the use of ground water for public water supply, and water quality. Table 5 gives records of representative wells, records of selected springs, driller's well logs, and selected analyses of the ground water.

The accompanying geologic map and cross sections have a scale of about 1 1/3 inches to the mile. An additional map shows the location of representative wells and springs.

Livingston, V. E., Jr., 1971, Geology and mineral resources of King County, Washington: Washington Division of Mines and Geology Bulletin 63, 200 p.

A detailed report on King County. The introductory portion deals with the climate, transportation facilities, industries, land use, and water resources of the county. The geology section describes the physiography, rocks, and structure. The section on mineral resources describes the nonmetallic and metallic mineral deposits of the county ond includes a list of patented mining claims and an index to the mineral locations within King County.

The report is replete with useful maps, figures, and tables. Among the maps are those showing land ownership, published and unpublished geologic mapping, topographic mapping, detailed geologic maps of various deposits and prospects, distribution of geologic units that may contain commercial quantities of sand and gravel, metallic mineral deposits, and claim maps. A geologic map of King County at the scale of 2 miles to the inch is also included.

Luzier, J. E., 1969, Geology and ground-water resources of southwestern King County, Washington: Washington Department of Water Resources Water Supply Bulletin 28, 260 p.

A study of the geology, geologic history, and ground water of the southwestern part of the county. Included in the ground-water section are source and movement, availability by area, chemical quality, utilization, and future development of the ground-water resources. Several tables include data on 1960 population with estimates projected to 1985, stratigraphy and water-bearing properties of the principal geologic units, utilization by public-supply systems, well records, driller's logs, spring records, and chemical analyses. Accompanied by a geologic map and cross sections in color at the scale of 1 1/3 inches to the mile, and a map showing locations of wells, test holes, and springs in the report area.

MACKIN, J. HOOVER
1941 GLACIAL GEOLOGY OF THE SNOQUALMIE-CEDAR AREA, WASHINGTON
J. GEOL., VOL. 49, NO. 5, PP. 449-481.
(DISCUSSION OF THE RELATION BETWEEN PLEISTOCENE ALPINE GLACIERS OF THE CASCADES AND THE PUGET LOWLAND GLACIER.)
(1GG22D941MACJ01)

Mackin, J. H., 1941, A geologic interpretation of the failure of the Cedar Reservoir, Washington: University of Washington Engineering Experiment Station Series Bulletin 107, 30 p.

Presents an engineering geology study of the glacial history of the Cedar Reservoir area, the damsite geology, and an interpretation of the Cedar Reservoir failure.

McLerran, J. H.; Krashevski, S. H., 1954, State of Washington Engineering Soils Manual; Part 3—Soils of King County: Washington State Council for Highway Research, 107 p.

This manual, together with Part 1—The engineer and pedology, was prepared to facilitate the use of the soil survey map of King County in deriving the engineering properties of the described soils series. The introductory pages present brief general data on King County, such as climate, physiography, and geology. Most of the report is devoted to soil-profile descriptions, which present data as to type of soil, parent material, location, description, topography, drainage, vegetation, and engineering problems.

Miller, R. D., 1973, Map showing relative slope stability in part of west-central King County, Washington: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-852A, map and text on one sheet, scale 1 1/3 inches to the mile.

The text discusses the slope stability classes and their relationship to land use, and the relationship of slope instability to landslides. The map area north and south boundaries extend from the Renton area south to the Kent area, and the eastern and western boundaries extend from about 3½ miles east of the town of Maple Falls westward to include the major portians of Vashon and Maury Islands. Map scale is 1 1/3 inches to the mile.

Miller, R. D., 1974, Map showing relative compressibility of earth materials in part of west-central King County, Washingtan: U.S. Geological Survey Miscellaneous Investigations Map I-852 C, map and text on one sheet.

Discusses how knowledge of areas of differing compressibility can be valuable in determining suitability for various land uses. Results of standard-penetration and volume-change tests are reported for glacial materials. Moderately to highly compressible materials are common in the valley areas of King County. Map scale is 1 1/3 inches to the mile.

Moen, W. S., 1962, Mineral rights and land ownership in Washington: Washington Division of Mines and Geology Information Circular 36, 23 p.

An aid to differentiation between public and private ownership of all land in the State of Washington. Includes detailed information on lands that are open to mining location as well as lands that are not. Accompanied by a map of the State of Washington, at the scale of approximately 13 miles to the inch, that shows, by means of a color scale, lands open or closed to mining location.

Mullineaux, D. R., 1965, Geologic map of the Auburn quadrangle, King and Pierce Counties, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-406, one sheet.

The geologic map units are described, and distribution and thickness in the map area are given. Appropriate symbols are used to denote the geologic structure and to indicate the locations of gravel or sand pits, quarries, coal mines, prospect pits, deep exploratory drill holes, and fossil plant localities. The scale is 2½ inches to the mile.

Mullineaux, D. R., 1965, Geologic map of the Black Diamond quodrangle, King County, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-407, one sheet.

The geologic map units are described, and distribution and thickness in the map area are given. Appropriate symbols are used to denote the structure, and to indicate the locations of gravel or sand pits, quarries, coal mines, prospect pits, deep exploratory drill holes, and fossil plant localities. The map scale is 2½ inches to the mile.

Mullineaux, D. R., 1965, Geologic map of the Renton quadrangle, King County, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-405, one sheet.

The geologic map units are described, and distribution and thickness in the map area are given. Appropriate symbols are used to denote the structure, and to indicate gravel or sand pits, quarries, coal mines, prospect pits, deep exploratory drill holes, and fossil plant localities. The map scale is 2½ inches to the mile.

Mullineaux, D. R., 1970, Geology of the Renton, Auburn, and Black Diamond quadrangles, King County, Washington: U.S. Geological Survey Professional Paper 672, 92 p.

A comprehensive geologic report on an area, recently rural, which is gradually becoming urban and suburban. Describes the topography, drainage, climate, vegetation, culture, stratigraphy, lithology, Pleistocene glaciation, Holocene deposits, Osceola Mudflow and its distribution, geomorphology, geologic structure, geologic history, engineering geology including landslides, and mineral deposits including sand and gravel, stone, silica sand, oil and gas, clay, coal, peat, and topsoil. Includes a table with generalized description of the engineering properties of the principal mapped units.

Nelson, L.M., 1971, Sediment transport by streams in the Snohomish River Basin, October 1967-June 1969: U.S. Geol. Survey Open-File Report, 44 p.

Evaluation of sediment-transport characteristics of Snohomish River Basin, which covers about 1780 sq. miles and ranges in altitude from sea level to about 8000 feet. Reports results of a reconnaissance study.

Ness, A.O., D.E. Buchanan, C.G. Richins, and W.J. Leighty, 1960, Soil Survey of Skagit County, Washington: U.S. Dept. Agric. Soil Conservation S ervice Series 1951, No. 6, 91 p.

NEWCOMB, R. C.
1949 GROUND-WATER RESOURCES OF SNOHOMISH COUNTY, WASHINGTON. U.S. DEP. INTERIOR, GEOLOGICAL SURVEY, TACOMA, WASHINGTON. RELEASED FOR OFFICE USE AND LIMITED DISTRIBUTION ONLY, UNPUBLISHED.
(COMPREHENSIVE HYDROLOGIC REPORT OF THE AREA.)
(1GG22C949NEWR01,1GE22C949NEWR01)

PALLADINO, DONALD J.
1971 SLOPE FAILURES IN AN OVER-CONSOLIDATED CLAY, SEATTLE, WASHINGTON. PH.D. THESIS, UNIVERSITY OF ILLINOIS, URBANA, IL.
(DOCUMENTS AND EVALUATES THE FIELD OBSERVATIONS AND CONSTRUCTION EVENTS WHICH RELATE TO THE SLOPE FAILURE THAT OCCURRED DURING THE CONSTRUCTION OF THE SEATTLE FREEWAY, SEATTLE, WASHINGTON. ALTHOUGH THE TILL AND CLAY APPEARED TO POSSESS HIGH SHEAR STRENGTH, SLOPE FAILURE OCCURRED SHORTLY AFTER MINOR EXCAVATIONS INTO THE CLAY. A GOOD DISCUSSION OF THE GEOLOGY OF THE PUGET SOUND AREA IS GIVEN.)
(1AO22D971PALD01)

Parker, G.G., Jr., 1974, Public water supply in the Seattle-Tacoma urban complex and adjacent areas, Washington: U.S. Geol. Survey Open-File Rept., Basic Data Contribution 3 (map with text).

A map-type report of the Puget Sound basin showing those areas served by public water-supply systems with some water-use data.

Rosengreen, T. E., 1965, Surficial geology of the Maple Valley and Hobart quadrangles, Washington: University of Washington M.S. thesis, 71 p.

A detailed study of the stratigraphy and Pleistocene glaciation in the Maple Valley and Hobart areas at the eastern border of the Puget Lowland. Includes a number of physiographic maps showing the ice fronts, glacial lakes, deltas, and drainage of the Vashon maximum and recessional ice stands. Accompanied by a geologic map at the scale of 2½ inches to the mile.

SCEVA, JACK E.
1950 PRELIMINARY REPORT ON THE GROUND-WATER RESOURCES OF SOUTHERN SKAGIT COUNTY, WASHINGTON. RELEASED FOR OFFICE USE AND LIMITED DISTRIBUTION ONLY, STATE OF WASHINGTON, GROUND WATER REPORT NO. 1, U.S. GEOL. SURV., TACOMA, WASHINGTON, 40 PAGES, MIMEOGRAPHED, UNPUBLISHED.
(COMPREHENSIVE HYDROLOGIC REPORT ON THE AREA.)
(1GE12C950SCEJ01)

Snyder, D. E.; Gale, P. S.; Pringle, R. F., 1973, Soil survey of King County area, Washington: U.S. Soil Conservation Service in cooperation with Washington Agricultural Experiment Station, 100 p. accompanied by 22 map sheets.

For the western part of King County, this survey replaces the King County soil survey by E. N. Poulson and others [see entry under Poulson] published in 1952.

"This Soil Survey contains information that can be applied in managing farms, ranches, and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation." [From the authors' introductory statement].

Describes the soil associations in the King County area, and their components—the numerous soil series. Accompanying tables present data on estimated properties of the soils; engineering interpretations; degree of limitations for town and country planning; degree and kind of limitations for recreational uses; and woodland groups, wood crops, and factors in management. Includes sections on the formation and classification of the soils; the climate and geology of the area; and a map of the geologic rock units in the King County area.

Accompanied by a general soil map of the area at the scale of 3 miles to the inch, and a set of 20 orthophoto map sheets at the scale of 2½ inches to the mile forming a composite soil map of the King County area.

Stewart, J.E., and Bodhaine, G.L., 1961, Floods in the Skagit River basin, Washington: U.S. Geol. Survey Water-Supply Paper 1527, 66 p.

Report contains discussions of many features bearing on the magnitudes of past and present floods from 1815-1951, of the geologic history as it may affect flood and flood evidence, and of dike failures and inundated areas for the Skagit River basin. Includes a regional flood-frequency study.

Tubbs, D. W., 1974, Landslides and associated damage during early 1972 in part of west-central King County, Washington: U.S. Geological Survey Miscellaneous Investigations Series Map I-852-B, map and text on one sheet.

The large number of landslides which occurred in 1972 are discussed with respect to geologic, human, and climatic factors. Much of the damage caused by the slides could have been averted if these factors had been recognized and efforts made to minimize their effects. Map scale is 1 1/3 inches to the mile.

Tubbs, D. W., 1974, Landslides in Seattle: Washington Division of Geology and Earth Resources Information Circular 52, 15 p.

Discusses the climatic factors, the geologic conditions that determine the locations of the landslides, and the human activities that contribute to the production of the slides. Presents pertinent background information on the geologic history of the area.

Includes a base map of Seattle at the scale of 2 inches to the mile covering the area from Lake Washington to Puget Sound, and from the vicinity of North 145th Street to an east-west line 3 miles north of the entrance to Seattle-Tacoma International Airport. Symbols on the map indicate hazardous zones and locations of earthquakes that occurred during early 1972.

Tubbs, D. W., 1975, Causes, mechanisms and prediction of landsliding in Seattle: University of Washington Ph. D. thesis, 88 p.

Presents a detailed discussion of Seattle landslides, with particular emphasis on geologic, climatic, and human factors that contribute to slide potential. Seattle landslides of 1972 and 1974 are used as examples.

U.S. Army Corps of Engineers, 1963, Flood plain information study, Stillaguamish River, Washington: U.S. Army Engineer District, Seattle, 85 p.

Report includes records of past floods, high-water profiles, hydrographs illustrating flood conditions, and estimates of flood damage costs.

U.S. Army Corps of Engineers, 1964, Flood plain information study, Nooksack River: U.S. Army Engineer District, Seattle, 54 p.

Report contains aerial maps and surface-water profiles indicating the extent of probably flooding. Covers 37 miles of Nooksack River from mouth to forks near Deming and up South Fork 12 miles to Saxon. Includes records of past floods.

U.S. Army Corps of Engineers, 1967, Flood plain information study, Snohomish River Basin: U.S. Army Engineer District, Seattle, 7 p.

Report covers 23 miles of Snohomish River, 22 miles of Skykomish River to Gold Bar, and 44 miles of the Snoqualmie River to above the falls. Defines flood limit of 50-years and gives profiles for the 1959, the 50-, and 200-year floods.

U.S. Army Corps of Engineers, 1967, Flood plain information study, Skagit River: U.S. Army Engineer District, Seattle, 17 p.

Report covers 66 miles from mouth to near Sauk River Fork. Defines 50-year flood and a larger 200-year interval flood.

U.S. Army Corps of Engineers, 1969, Flood plain information study, Cedar River at Renton: U.S. Army Engineer District, Seattle, 34 p.

Report covers city of Renton up to river mile 9. Profiles are included for 1965 flood.

U.S. Army Corps of Engineers, 1970, Flood hazard information study, Bear and Evans Creek, Redmond and vicinity: U.S. Army Engineer District, Seattle, unpaged.

Report covers 10 miles on lower Bear and Evans creeks. Profiles are provided for January 27, 1970 high-water.

U.S. Army Corps of Engineers, 1971, Flood hazard information study, Snoqualmie River (Middle and South Forks), Snoqualmie to North Bend: U.S. Army Engineer District, Seattle, 9 p.

Report covers Snoqualmie River upstream of falls, lower 4 miles of Middle Fork, and 7 miles of South Fork. Profiles are furnished for floods after 1967.

U.S. Army Corps of Engineers, 1971, Special flood hazard information, Issaquah and Tibbetts Creek, Issaquah and vicinity: U.S. Army Engineer District, Seattle, 8 p.

Report covers Issaquah Creek 8 miles upstream from Lake Sammamish and lower 1 mile of the North and East Forks. Includes a 2.3-mile reach of Tibbetts Creek.

U.S. Army Corps of Engineers, 1973, Special flood hazard information, Pilchuck River: U.S. Army Engineer District, Seattle, 12 p.

Report defines flood plain and profile for a 12-mile reach from mouth near Snohomish to 4 miles above Machias.

U.S. Army Corps of Engineers, 1975, Flood plain information study, Snohomish River, vicinity of Snohomish to Everett, Washington: U.S. Army Engineer District, Seattle, unpaged

Shows extent and depth of flooding from a 100-year frequency flood, and delineates 4 alternative hydraulic floodways for 15 miles of Snohomish River from vicinity of Snohomish to Everett.

U.S. Army Corps of Engineers, 1975, Flood plain information study, Stillaquamish River near Arlington, Washington: U.S. Army Engineer District, Seattle, unpaged.

Shows extent and depth of flooding and a suggested floodway for a 100-year frequency flood for 6.7 miles of the Stillaguamish River, from the Highway 9 bridge at Arlington, downstream to the I-5 bridge.

Walters, K.L., and Kimmel, G.E., 1968, Ground-water occurrence and stratigraphy of unconsolidated deposits, central Pierce County, Washington: Wash. Dept. Water Resour., Water Supply Bull 22, 428 p.

Waldron, H. H., 1967, Geologic map of the Duwamish Head quadrangle, King and Kitsap Counties, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-706, one sheet.

The geologic map-units are described and there are two geologic cross sections. Appropriate symbols are used to denote the structure and to indicate the locations of gravel or sand pits, and radiocarbon sample localities. The map scale is at 2½ inches to the mile.

Waldron, H. H., 1961, Geology of the Poverty Bay quadrangle, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-158, map and text on one sheet.

Indicated on the map are structure, landslide scarps, and sand and gravel pits. The map has a scale of 2½ inches to the mile, the geologic units are in color and are indicated on the map by appropriate symbols. The accompanying text describes the Pleistocene and Recent deposits including landslides, structure, geologic history, economic resources, and engineering geology.

Waldron, H. H., 1962, Geology of the Des Moines quadrangle, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States GQ-159, map and text on one sheet.

Geologic units are shown, as well as structures, landslide scarps, and sand and gravel pits. The map is at the scale of 2½ inches to the mile. The accompanying text describes the Tertiary and Quaternary deposits of the area including landslides, and also discusses the geologic history, economic deposits, and engineering geology.

Waldron, H. H.; Liesch, B. A.; Mullineaux, D. R.; Crandell, D. R., 1962, Preliminary geologic map of Seattle and vicinity, Washington: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-354, one sheet.

Geologic units and the structure are indicated by appropriate map symbols. Included on the map sheet is a chart giving a generalized description of the engineering properties of the map-units. Among these property headings are ease of excavation, slope stability, and seismic stability. The map is at the scale of 2 inches to the mile.

State of Washington, Dept. of Ecology, 1971, Water quality report - Skagit and Samish Rivers: 29 p.

Study period Dec. 1970 - March 1971. Samples collected twice monthly at all stations. Data is tabulated to reveal water quality changes in space (upstream vs. downstream) and time (historic vs. present quality). Summarized according to winter high flow and summe low flow periods - in addition to spring & fall run off periods. Parmeters measured - D.O., pH, turbidity, temp., total coliform, metals, nitrogenous/phosphoric compounds, hardness and alkalinity.

State of Washington Dept. of Ecology, 1973, Water quality report - Stillaguamish River: Tech. report No. 73-001, Olympia, Washington, 61 p.

Interpretation of individual quarterly data and comparison of quarters to determine annual water quality trends of the Stillagumish River. Sampling period was between Dec. 1970-March 1971 (Winter high flow).

Washington Division of Geology and Earth Resources, 1976, Engineering geologic studies: Washington Division of Geology and Earth Resources Information Circular 58, 40 p.

Includes short articles on soil, ground water, and slope stability. Potential land-use problems of Puget Sound bluffs and seismic risk are also described. Discussions are applicable to much of the Puget Lowland, as well as King County.

Wilson, S. D.; Johnson, K. A., 1964, Slides in over-consolidated clays along the Seattle Freeway. In Engineering Geology and Soils Engineering Symposium, 2nd Annual, Pocatello, Idaho, March 23-25, 1964, Proceedings: Idaho Department of Highways, Boise, p. 29-43.

Presents a detailed engineering geology study of the route of the Freeway along the west side of Capitol Hill. The use of concrete piles helped to stabilize the potential slide conditions during construction. Includes tables, graphs, and cross sections.

Vine, J. D., 1962, Preliminary geologic map of the Hobart and Maple Valley quadrangles, King County, Washington: Washington Division of Mines and Geology Geologic Map GM-1, map and text on one sheet.

The text includes discussion of the stratigraphy of the Tertiary and Quaternary deposits, the structure, and the economic deposits such as coal, clay, construction stone, sand and gravel, and oil and gas possibilities. Geologic structures, mines or prospects, mined areas, and coal beds are indicated by appropriate symbols on the map. The map is at a scale of 2½ inches to the mile.

U.S. Geological Survey. Ground-water resources of Island County, Washington, with a section on quality of the ground water. By H.W. Anderson, Jr. and A.S. Van Denburgh. Open-file Rept. Tacoma, Wash., 1967. 254p.

ANONYMOUS
1972 PROTECTING AMERICA'S ESTUARIES, PUGET SOUND AND STRAITS OF GEORGIA AND JUAN DE FUCA. 20TH REP. BY COMM. ON GOVT OPERATIONS, 92ND U.S. CONGR., HOUSE, 83 PAGES. ALSO AS HOUSE REP. NO. 92-1401.
(RECOMMENDATIONS TO THE ENVIRONMENTAL PROTECTION AGENCY, COAST GUARD AND CORPS OF ENGINEERS ARE OUTLINED TO PRESERVE THE WATER QUALITY OF THE PUGET SOUND AREA. EFFECTIVE LAW ENFORCEMENT CONCERNING OIL AND SEWAGE POLLUTION BY VESSELS IS EMPHASIZED, WITH PARTICULAR PROPOSALS CONCERNING OIL SPILLS.)
(1A012M972ANON02,1A012J972ANON01)

ANONYMOUS
1975 THE TECHNICAL FEASIBILITY OF SUBMARINE PIPELINE CROSSINGS OF ADMIRALTY INLET, PUGET SOUND. D. RUSSELL ASSOCIATES, INC., SAN FRANCISCO, CA, 55 PAGES.
(THIS STUDY WAS AUTHORIZED BY THE WASHINGTON STATE LEGISLATURE TO DETERMINE THE TECHNICAL FEASIBILITY OF A SUBMARINE PIPELINE TO CONVEY CRUDE OIL ACROSS PUGET SOUND. DIFFERENT CROSSING LOCATIONS AND POTENTIAL PROBLEMS ARE EXAMINED.)
(1C0030975ANON01)

BATTELLE NORTHWEST
1973 FIELD AND LABORATORY STUDIES TO OBTAIN A COMPARATIVE BASELINE FOR ASSESSING THE IMPACT OF REFINERY DISCHARGE AND POTENTIAL OIL SPILLAGE ON THE CHERRY POINT ENVIRONS OF THE STRAIT OF GEORGIA. RICHLAND, WA, INTERIM REPORT.
(THREE PROGRAMS WERE CONDUCTED BY BATTELLE NORTHWEST IN CONJUNCTION WITH THE PROVISIONS OF ATLANTIC RICHFIELD COMPANY'S CHERRY POINT REFINERY WASTE DISCHARGE PERMIT. FIELD STUDIES TO ESTABLISH BIOLOGICAL AND CHEMICAL BASELINE INFORMATION, LABORATORY BIOASSAYS OF REFINERY EFFLUENT AND RECEIVING WATER, AND BIOASSAYS OF RECEIVING WATER DRAWN FROM ABOVE THE REFINERY OUTFALL WERE CONDUCTED.)
(1K027H973BATN01,1K022J973BATN01,1K022S973BATN01)

CANADA DEPARTMENT OF ENERGY, MINES AND RESOURCES
1946 BRITISH COLUMBIA PILOT, VOLUME I, SOUTHERN PORTION OF THE COAST OF BRITISH COLUMBIA, FOURTH (CANADIAN) EDITION. HYDROGRAPHIC AND MAP SERVICE SURVEYS AND ENGINEERING BRANCH, OTTAWA, PP. 41-79.
(EXCELLENT DESCRIPTION OF ADMIRALTY INLET AND PUGET SOUND WITH RESPECT TO PHYSICAL GEOGRAPHY AND TIDAL STREAMS.)
(1A022A946CDMR01)

CLARK, ROBERT C. JR AND JOHN S. FINLEY
1971 PUGET SOUND FISHERIES AND OIL POLLUTION--A STATUS REPORT PROC. JOINT CONF. ON PREVENTION AND CONTROL OF OIL SPILLS, WASHINGTON, D.C., PP. 139-145.
(DISCUSSES THE ECONOMIC VALUE OF THE LIVING RESOURCES--FISH, SHELLFISH, WATERFOWL, AND AQUATIC ANIMALS--OF PUGET SOUND WHICH ARE THREATENED BY POLLUTION RESULTING FROM OIL SPILLED DURING THE INCREASED TRANSPORT, HANDLING, AND USE OF PETROLEUM IN THE PUGET SOUND AREA. RESEARCH ACTIVITIES BY THE PETROLEUM INDUSTRY, STATE GOVERNMENT, AND FEDERAL AGENCIES TO MINIMIZE THE IMPACT OF OIL POLLUTION IN THE AREA ARE PRESENTED.)
(1A003J971CLAR01,1A003S971CLAR01)

COLLIAS, EUGENE E. AND OTHERS
1966 AN OCEANOGRAPHIC SURVEY OF THE BELLINGHAM-SAMISH BAY SYSTEM. VOLUME II. ANALYSES OF DATA. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, SPECIAL REP. NO. 32, 2 PAGES.
(AN OCEANOGRAPHIC SURVEY OF THE BELLINGHAM-SAMISH BAY TIDEWATER SYSTEM IN NORTHWESTERN WASHINGTON WAS CONDUCTED FROM NOVEMBER 1959 THROUGH NOVEMBER 1961. DETERMINATIONS WERE MADE OF TEMPERATURE, SALINITY, DISSOLVED OXYGEN, DISSOLVED INORGANIC PHOSPHATE, AND SPENT SULFITE LIQUOR BY CONVENTIONAL OCEANOGRAPHIC METHODS AT SELECTED LOCATIONS AND DEPTHS ON A TOTAL OF 14 APPROXIMATELY BIMONTHLY CRUISES. CURRENT MEASUREMENTS WERE MADE AT SELECTED LOCATIONS, AND THREE EXPLORATORY DIFFUSION EXPERIMENTS WERE CONDUCTED USING RHODAMINE B DYE. THE CHARACTERISTICS OF VARIOUS WATER PROPERTIES WERE DESCRIBED FOR INTERVALS DURING THE SURVEY PERIOD AND FLUSHING RATES WERE COMPUTED.)
(1ID22F966COLE01,1ID22G966COLE01)

EASTERBROOK, DONALD J.
1968 PLEISTOCENE STRATIGRAPHY OF ISLAND COUNTY, WASHINGTON. WASH. ST. DIV. WATER RESOURCES, BULL. NO. 25, 317 PAGES.
(ISLAND COUNTY CONSISTS OF TWO MAJOR ISLANDS, WHIDBEY AND CAMANO, PLUS SEVERAL SMALLER ONES. ALL OF CAMANO ISLAND AND ALL BUT THE VERY NORTHERN PART OF WHIDBEY CONSIST OF PLEISTOCENE DEPOSITS, REPRESENTING THREE GLACIATIONS AND THREE INTERGLACIATIONS. A DESCRIPTION OF THE DEPOSITIONAL HISTORY OF THE DOUBLE BLUFF GLACIATION, POSSESSION GLACIATION, FRASER GLACIATION, AND THEIR INTERGLACIATIONS IS GIVEN.)
(1G022D968EASD01)

EASTERBROOK, DONALD J.
1969 PLEISTOCENE CHRONOLOGY OF THE PUGET LOWLAND AND SAN JUAN ISLANDS, WASHINGTON. BULL. GEOL. SOC. AM., VOL. 80, NO. 11, PP. 2273-2286.
(DURING THE PLEISTOCENE, ICE SHEETS FROM CANADA MOVED ACROSS THE SAN JUAN ISLANDS AND THE PUGET SOUND LOWLANDS DEPOSITING LAYERS OF SEDIMENT. THE SEDIMENTS AND RADIOCARBON DATES OF EACH LAYER OF THE RESULTING STRATIGRAPHY ARE DESCRIBED AND A POSSIBLE GLACIAL HISTORY OF THE AREA IS DISCUSSED.)
(1A022D969EASD01)

ENGLISH, T. SAUNDERS
1976 OIL POLLUTION AND THE SIGNIFICANT BIOLOGICAL RESOURCES OF PUGET SOUND, FINAL REPORT FIELD SURVEY. WASH. ST. DEP. ECOLOGY, OLYMPIA, WA.
(SAMPLING WAS CONDUCTED IN THE OFFSHORE HABITAT. A VARIETY OF GEAR WAS EMPLOYED TO OBTAIN DATA ON BOTTOM INVERTEBRATES, FISHES, SHRIMPS, CRABS, MACROPLANKTON, MICRONEKTON, ZOOPLANKTON, FISH EGGS, AND LARVAE. SAMPLING COVERED A ONE YEAR PERIOD.)
(1A022J976ENGT01,1A022H976ENGT01)

LINCOLN, JOHN H. AND EUGENE E. COLLIAS
1975 AN OCEANOGRAPHIC STUDY OF THE PORT ORCHARD SYSTEM. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, FINAL REPORT, 200 PAGES.
(A STUDY WAS UNDERTAKEN TO INVESTIGATE THE WATER PROPERTIES, CIRCULATION, AND FLUSHING CHARACTERISTICS OF THE PORT ORCHARD SYSTEM AS A BASIS FOR SELECTING POSSIBLE WASTE DISCHARGE SITES. FIELD MEASUREMENTS WERE MADE TO DEFINE PRESENT WATER PROPERTIES AND THEIR VARIABILITY WITH TIME. OBSERVATIONS USING THE PUGET SOUND OCEANOGRAPHIC MODEL WERE MADE TO PROVIDE INFORMATION ON SYSTEM DYNAMIC BEHAVIOR AND TO INDICATE PROBABLE BEHAVIOR OF AN EFFLUENT DISCHARGED AT SPECIFIC POTENTIAL OUTFALL SITES.)
(1I003F975LINJ01)

NYBLADE, KARL
1975 OIL POLLUTION AND THE SIGNIFICANT BIOLOGICAL RESOURCES OF PUGET SOUND, FINAL REPORT FIELD SURVEY. WASH. ST. DEP. ECOLOGY, BASELINE STUDY REP. NO. 9.
(SAMPLING WAS CONDUCTED IN SELECTED INTERTIDAL AREAS IN THE SAN JUAN ISLANDS. PRIMARY OBJECTIVE OF THIS STUDY HAS BEEN TO DOCUMENT, DURING 1974-1975, THE SEASONAL OCCURRENCE, DISTRIBUTION, AND ABUNDANCE OF COMMUNITY COMPONENT SPECIES, WITH PARTICULAR ATTENTION TO ECONOMICALLY IMPORTANT SPECIES. DATA ALSO INCLUDES SEDIMENT CHARACTERISTICS, TEMPERATURE, AND SALINITY.)
(1H022H975NYBK01)

ROBERTS, RICHARD W.
1974 MARINE SEDIMENTOLOGICAL DATA OF THE INLAND WATERS OF WASHINGTON STATE, STRAIT OF JUAN DE FUCA AND PUGET SOUND. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, SPEC. REP. NO. 56, 120 PAGES.
(PRESENTS GRANULOMETRIC DATA FOR MARINE SURFACE SEDIMENT SAMPLES FROM THE STRAIT OF JUAN DE FUCA AND PUGET SOUND. DATA PUBLISHED BY THE UNIVERSITY OF BRITISH COLUMBIA IS ALSO INCLUDED.)
(1B022D974ROBR01,1A022D974ROBR01)

Van Denburgh, L.S., 1968, Chemical quality of the ground water, in Anderson, H.W., Jr., Part II, Ground-water resources of Island County: Wash. Div. Water Resources, Water Supply Bull. 25, p. 22-47.

Cascade Mountains and foothills: a selected bibliography

Erikson, E. H., Jr., 1968, Petrology of the composite Snoqualmie batholith, central Cascade Mountains, Washington: Southern Methodist University Ph. D. thesis, 111 p.

Describes the general geology, regional relationship, age, and petrology of the Snoqualmie batholith in eastern King County. Includes a geologic map at the scale of 1 inch to the mile.

Foster, R. J., 1957, The Tertiary geology of a portion of the central Cascade Mountains, Washington: University of Washington Ph. D. thesis, 186 p.

Describes the geology of the central Cascades from immediately west of Snoqualmie Pass to the Teanaway area. Included in this zone are the metamorphic and igneous rocks of the Snoqualmie Pass area. A bedrock geology map, at a scale of 1 inch to 2 miles, is included in the report.

Hirsch, R. M., 1975, Glacial geology and geomorphology of the Upper Cedar River Watershed, Cascade Range, Washington: University of Washington M.S. thesis, 48 p.

Describes the surficial deposits, landforms, and glacial history of the southeast portion of King County. Includes diagrams that show the interactions between Cascade alpine ice and continental ice in the Puget Lowland. Map scale is 1 inch to 1¼ miles.

Mackin, J. H.; Cary, A. S., 1965, Origin of Cascade landscapes: Washington Division of Mines and Geology Information Circular 41, 35 p.

An excellent interpretation of the geologic events from Eocene time to the present time that led to the current topography of the Cascade Range in Washington. Includes numerous line drawings and a selected reading list.

Porter, S. C., 1965, [Quaternary geology of the route between Yakima and Seattle via Ellensburg]. In International Association for Quaternary Research, 7th Congress, Guidebook for Field Conference J—Pacific Northwest: Nebraska Academy of Sciences, Lincoln, Nebraska, p. 34-50.

The King County part of the 5th-day route describes the glacial features at stopping points at Snoqualmie Pass, Denny Creek Forest Camp, the Snoqualmie embayment east of North Bend, the Sallal moraine, and the Issaquah delta. The stops are indicated on an accompanying geologic sketch map.

Porter, S. C., 1976, Pleistocene glaciation in the southern part of the north Cascade Range, Washington: Geological Society of America Bulletin, v. 87, no. 1, p. 61-75.

Provides a detailed discussion of the glacial deposits found in the eastern part of King County. Glacial history and deposits found along the South Fork of the Snoqualmie River are evaluated from recent mapping data.

Rasmussen, L.A., and Tangborn, W.V., 1976, Hydrology of the North Cascades region, Washington 1. Runoff, precipitation, and storage characteristics: Water Resources Research, v. 12, p. 187-202.

The time and space distributions of measured precipitation and runoff and of spring storage, which is approximately equal to the subsequent summer runoff of snowmelt and stored ground water, are analyzed for the North Cascade region of Washington.

Richardson, Donald, 1968, Glacier outburst floods in the Pacific Northwest: U.S. Geol. Survey Prof. Paper 600-D, p. D79-D86.

Describes outburst floods from Nisqually River, Kautz Creek, Tahoma Creek, and other floods originating from Mt. Rainier.

University of Washington Geology Department Staff, 1963, A geologic trip along Snoqualmie, Swauk, and Stevens Pass Highways, revised by V. E. Livingston, Jr.: Washington Division of Mines and Geology Information Circular 38, 51 p.

A guide book in the form of a road log beginning at Seattle and going east along U.S. 10 and over Snoqualmie Pass to Teanaway Junction, thence northerly over Swauk Pass (U.S. 97) to the junction with U.S. 2, thence westerly along the Stevens Pass Highway to Sultan in Snohomish County.

The King County portion of the road log begins at the east end of the floating bridge and describes the geology as seen from the highway while travelling to the eastern boundary of the county at Snoqualmi summit. The road log also indicates the distances between adjacent points as well as the cumulative mileage to any given point of interest from the beginning of the trip.

University of Washington, Department of Geological Sciences, 1972, The Alpine Lakes—Environmental Geolo University of Washington, Department of Geological Sciences, Seattle, 161 p.

Reviews the bedrock and surficial geology of the eastern King County region and describes mineral resources and potential geologic hazards of the area. A geologic map at a scale of 1 inch to 4 miles is included in the publication.

Williams, V. S., 1971, Glacial geology of the drainage basin of the Middle Fork of the Snoqualmie River: University of Washington M.S. thesis, 45 p.

Describes the surficial deposits and landforms of a portion of eastern King County. Map and diagrams portray the relationship between the middle fork glacier and the continental ice in the Puget Lowland. Includes a map of surficial geology at a scale of 1 inch to a mile.

ANONYMOUS
1962 POLLUTION OF INTERSTATE WATERS OF PUGET SOUND, STRAIT OF JUAN DE FUCA AND THEIR TRIBUTARIES AND ESTUARIES. TECHNICAL COORDINATING COMMITTEE, OLYMPIA, WA, TRANSCRIPT OF CONFERENCE, 211 PAGES.
(THE CONFERENCE DESCRIBES POLLUTION PROBLEMS IN THE WATERS OF PUGET SOUND, THE STRAIT OF JUAN DE FUCA, AND THEIR NAVIGABLE TRIBUTARIES AND ESTUARIES.)
(1A022J962ANON01)

ARTIM, ERNEST R.
1973 GEOLOGY IN LAND USE PLANNING - SOME GUIDELINES FOR THE PUGET LOWLAND. WASH. ST. DIV. MINES GEOL., INF. CIRC. NO. 47, 18 PAGES.
(DESCRIPTION AND CORRELATION OF QUATERNARY SEDIMENTS - DRAINAGE, GROUND WATER, EASE OF EXCAVATION, SUITABILITY FOR FOUNDATIONS, SLOPE STABILITY, LANDSLIDES, EARTHQUAKES, AND MINERAL RESOURCES FOR WESTERN WASHINGTON.)
(1A008D973ARTE01)

BARKER, MARY L.
1974 WATER RESOURCES AND RELATED LAND USES--STRAIT OF GEORGIA PUGET SOUND BASIN. ENVIRONMENT CANADA, GEOGRAPHICAL PAPER NO. 56, 55 PAGES, 2 MAPS.
(CONTAINS 2 MAPS OF THE STRAIT OF GEORGIA-PUGET SOUND BASIN AND THE TEXT INTERPRETS THE VARIOUS ASPECTS OF THE MAPS. MAP ONE IS A WATER USE MAP AND MAP TWO IS A GENERALIZED LAND USE MAP.)
(1A0120974BARM01,1K0120974BARM01)

SH12 BLEDSOE, L. J., et al.
1976. A study of shoreline uses and trends in aid of shoreline management for Puget Sound. Final Report Project - supplants SH10. 63 pp.

SH15 BLEDSOE, L. J. and K. E. Mesmer.
1976. A projection of land use change in the coastal zone. 80 pp.

Bodhaine, G.L., and Robinson, W.C., 1952, Floods in western Washington frequency and magnitude in relation to drainage basin characteristics: U.S. Geol. Survey Circ. 191, 124 p.

A method is presented by which the magnitude and frequency of expected floods may be estimated for any area in the region from a formula based on correlations of peak flows and drainage-basin characteristics. Report includes curves of magnitude and frequency of floods for all gaging stations with 15 years of record or more.

Bodhaine, G.L., and Thomas, D.M., 1964, Magnitude and frequency of floods in the United States, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geol. Survey Water-Supply Paper 1687, 337 p.

Report presents flood records for all known stream-gaging stations with over five years of annual flood record during the period 1912-57.

CANNON, GLENN A.
1975 OBSERVATIONS ON BOTTOM WATER FLUSHING IN A FJORD-LIKE ESTUARY. ESTUAR. COAST. MAR. SCI., VOL. 3, NO. 1, PP. 95-102.
(CURRENTS WERE MEASURED TWO METERS OFF THE BOTTOM ON A 100-M DEEP SILL OF A BASIN WITHIN PUGET SOUND, WASHINGTON, FOR A PERIOD OF TWO MONTHS. DURING THIS TIME BOTTOM WATER IN THE BASIN WAS REPLACED RESULTING IN THE OLDER WATER BEING RAISED TO SHALLOWER DEPTHS. IN-FLOW CORRESPONDED WITH MINIMUM VARIANCE IN THE VELOCITY FLUCTUATIONS AND MINIMUM TIDAL CURRENTS. OUT-FLOW OCCURRED DURING MAXIMUM VARIANCE AND TIDAL CURRENTS.)
(1A022F975CANG01)

Collings, M.R., 1973, Generalization of stream-temperature data in Washington: U.S. Geol. Survey Water Supply Paper 2029-B, 45 p.

A study conducted to determine effective relations that define site to site variation in stream temperatures, methods to estimate stream temperatures at sites where little or no data are available, and procedures to evaluate effects of water impoundment on natural stream temperatures.

Collings, M.R., 1974, Generalization of spawning and rearing discharges for several pacific salmon species in western Washington: U.S. Geol. Survey Open-File Rept., 39 p.

Collings, M.R., and Higgins, G.T., 1973, Stream temperatures in Washington State: U.S. Geological Survey Hydrologic Investigations Atlas HA-385.

Two maps and text that shows magnitudes, geograph distribution and time variations in temperatures of streams in Washington.

CRANDELL, DWIGHT R., D. R. MULLINEAUX, AND H. H. WALDRON
1965 AGE AND ORIGIN OF THE PUGET SOUND TROUGH IN WESTERN WASHINGTON. GEOLOGICAL SURVEY RESEARCH, U.S. GEOL. SURV., PROF. PAP. NO. 525-B, PP. B132-B136. (RADIOCARBON DATES FROM NONGLACIAL DEPOSITS INDICATE NONGLACIAL AGGRADATION IN THE PUGET SOUND LOWLAND FROM MORE THAN 35,000 TO 15,000 YEARS AGO. SUBSEQUENT PONDING OF THE LOWLAND DRAINAGE BY THE PUGET GLACIER LOBE DURING THE VASHON STADE OF THE FRASER GLACIATION AND DEPOSITION OF OUTWASH SEDIMENTS FROM THE PUGET LOBE RESULTED IN FURTHER AGGRADATION. AGGRADATION WAS FOLLOWED BY ADVANCE OF THE LOBE AND ICE SCOUR OF THE PUGET SOUND TROUGH TO A MAXIMUM DEPTH OF ABOUT 930 FEET BELOW PRESENT SEA LEVEL.) (1A022D965CRAD01)

Crutchfield, James A. 1973. The Puget Sound Study: A coastal zone management case. Marine Technology Society Journal 7(1): 3-8.

Cummans, J.E., Collings, M.R., and Nassar, E.G., 1975, Magnitude and frequency of floods in Washington: U.S. Geol. Survey Open-File Rept. 74-366, 46 p.

Relations are provided to estimate the magnitude and frequency of floods on Washington streams. Flood magnitude and recurrence intervals are computed from gaging stations on unregulated streams. Essentially an update of Bodhaine and Thomas (1964) based on more stations, longer record, and computed methods.

ELLINGER, ELAINE AND GEORGE SNYDER
1975 AN ANNOTATED BIBLIOGRAPHY OF THE EFFECTS OF DREDGING AND DREDGE DISPOSAL ON AQUATIC ORGANISMS IN THE PACIFIC NORTHWEST. NATIONAL MARINE FISHERIES SERVICE, ENVIRONMENTAL CONSERVATION DIVISION, SEATTLE, WA. (THIS BIBLIOGRAPHY CONSISTS OF FIVE SECTIONS. THE FIRST CONTAINS REFERENCES WHICH PROVIDE BACKGROUND PHYSICAL AND BIOLOGICAL INFORMATION ABOUT THE PROJECT REGION. DREDGING AND DISPOSAL STUDIES THAT CONCERN A SPECIFIC SITE OR AREA FORM THE SECOND AND THIRD SECTIONS. THE FOURTH SECTION INCLUDES STUDIES OF HABITAT DEVELOPMENT AND OF THE EFFECTS ON BIOTA OF CONDITIONS SUCH AS TURBIDITY AND LOWERED DISSOLVED OXYGEN LEVELS WHICH ARE ASSOCIATED WITH DREDGING AND DISPOSAL OPERATIONS. THE LAST SECTION CONTAINS GENERAL APPLICATION STUDIES AND MORE REFERENCES.) (1A022Z975ELLE01)

Folsom, M. M., 1970, The glacial geomorphology of the Puget Lowland, Washington and British Columbia; comments and selected references: Northwest Science, v. 44, no. 2, p. 143-146.

Contains an extensive list of references pertaining to the glacial geomorphology of the Puget Lowland

Foxworthy, B.L., and Richardson, Donald, 1973, Climatic factors related to land-use planning in the Puget Sound Basin, Washington: U.S. Geol. Survey Misc. Geol. Inv. Map I-851-A (map with text).

Higgins, G.T., and Hill, G.W., 1973, Analysis and summary of temperatures of streams in Washington prior to 1968: Wash. State Dept. of Ecology Misc. Rept. No. 73-003, 140 p.

Summarizes stream-temperature data collected at 327 sites in Washington prior to Dec. 31, 1967. Monthly summaries of mean, maximum, and minimum stream temperatures are compiled by calendar year for 70 thermograph and daily-observation stations. Stream-temp. data for the 70 continuous-record sites and 257 irregular-observation sites were fitted by harmonic curves which define th annual time-temp. relationship for each year of data analyzed.

Howlett, Bruce; Brodsky, Harold, 1964, Landslide hazardous areas in the central Puget Sound region (Project Open Space, volume 2—Natural Open Spaces; Report 10): Puget Sound Governmental Conference-Puget Sound Regional Planning Council, Seattle, Washington, 27 p.

Discusses the factors that contribute to landslide occurrence. Includes a delineation of landslide-hazardous areas, the effect of past landslides on slope development, landslides and public policy, landslide areas and open space, and recommendations in regard to use of landslide-hazardous areas. Includes a map at the scale of 10 miles to the inch, showing landslide-hazardous areas in the urbanizing areas in the southeastern portion of the Puget Lowland.

Appendix A lists the source maps (geologic) from which information was obtained in order to cite those formations considered to be landslide hazardous to some degree.

Appendix B consists of (1) table of landslide occurrences reported by engineers' offices, consisting of date of occurrence, location by section, township, and range, and street address; (2) a table on slide damage to King County roads; and (3) a table on typical landslide occurrences in Seattle and vicinity as reported in the Seattle Times, 1956-63. Table 3 gives the location, date, and damage reported.

Huntting, M. T., 1956, Inventory of Washington minerals; Part 2—Metallic minerals: Washington Division of Mines and Geology Bulletin 37, part 2, 2 volumes—text and maps, 428 pages plus 67 pages.

A comprehensive compilation of all of the known occurrences of metallic minerals in the State of Washington. The information has been gathered from published and unpublished reports and data.

Each mineral is described in regard to properties, uses, production, prices, ore minerals, and the geology of the deposits. Following the text description is a section listing the occurrences in alphabetical arrangement by county, and by deposit or occurrence name. Available information on each deposit or occurrence is described by location, elevation, access, owner, ore, ore minerals, extent of deposit, development, and references from which the information was obtained.

Metallic mineral occurrences in King County listed in both volumes are antimony, arsenic, bismuth, cerium, chromium, copper, gallium, gold (lode), gold (placer), iron, lead, mercury, molybdenum, silver, thorium, tin, titanium, tungsten, uranium, and zinc.

Huntting, M. T.; Bennett, W. A. G.; Livingston, V. E., Jr.; Moen, W. S., 1961, Geologic map of Washington: Washington Division of Mines and Geology, 2 sheets.

The map is a compilation of all available data from maps dealing with the geology of Washington through 1960. A total of 121 cited references were used.

A list gives the names of 302 formations, their sources in the literature, the areas in which they are found, and the 104 rock units into which they were combined. These units, with brief descriptions of each, are listed in a legend; the rock units range in age from Precambrian to Recent.

The major faults are indicated by appropriate symbols and the approximate extent of the Pleistocene glaciation is delineated. The scale of the map is 8 miles to the inch.

U.S. Geological Survey. Contamination of ground water by sea-water intrustion along Puget Sound, Washington, an area having abundant precipitation. By G.E. Kimmel. Prof. Paper 475-B. Washington, D.C., 1963.

McKee, Bates, 1972, Cascadia—The geologic evolution of the Pacific Northwest: McGraw-Hill Book Company, New York, 394 p. [The Puget-Willamette Lowland, p. 290-304].

The chapter devoted to the Puget-Willamette Lowland presents a summary of the pre-Tertiary rock exposures, the Pleistocene glaciation, the glacial sediments, the effect of the glaciation with regard to construction costs, and the glacial dating of the geologic units.

MCLELLAN, PETER M.
1954 AN AREA AND VOLUME STUDY OF PUGET SOUND, WASHINGTON. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, TECH. REP. NO. 21, 39 PAGES.
(AN INTENSIVE STUDY OF AREA AND VOLUME BY UNIT AREAS AND DEPTH INCREMENTS. TABLES PROVIDE COMPREHENSIVE PICTURE OF THE BATHYMETRIC RELATIONSHIPS OF THE VARIOUS BASINS, CHANNELS AND BAYS.)
(1A022E954MCLP01)

MAR, BRIAN W. AND OTHERS
1970. WATER QUALITY ASPECTS OF THE STATE OF WASHINGTON. WASH. ST. WAT. RES. CENTER, TECH. REP. NO. 3B, 207 PAGES.
(PRESENTS A GROSS EVALUATION OF THE WATER QUALITY OF 24 MAJOR RIVER BASINS IN WASHINGTON, PROVIDES A QUANTITATIVE COMPILATION OF INDUSTRIAL AND COMMERCIAL WASTES IN THE STATE, AND TABULATES WASTE TREATMENT EFFICIENCIES AND COSTS.)
(1A012J970MARB01)

MARK, DAVID M. AND PETER M. OJAMAA
1970 THE GLACIAL GEOMORPHOLOGY OF THE PUGET LOWLAND, WASHINGTON AND BRITISH COLUMBIA. NW. SCI., VOL. 44, NO. 2, PP. 143-146. ALSO IN NW. SCI., VOL. 46, NO. 4, PP. 336-338.
(THIS BIBLIOGRAPHY LISTS THE WORKS DEALING WITH PLEISTOCENE GLACIAL EVENTS AND PROCESSES OF THE PUGET LOWLAND. ITEMS CONCERNING HOLOCENE OR MORE STRICTLY GLACIOLOGICAL TOPICS ARE EXCLUDED.)
(1A022D970MARD01)

Mark, D. M.; Ojamaa, P. M., 1972, The glacial geomorphology of the Puget Lowland—Further comments and references: Northwest Science, v. 46, no. 4, p. 336-338.

Consists of addenda to Folsom's 1970 list.

MINTZ, D. W., R. S. BABCOCK, AND T. A. TERICH
1976 POTENTIAL LAND USE PROBLEMS OF PUGET SOUND SHORE BLUFFS. WASH. ST. DIV. GEOL. EARTH RESOURCES, INF. CIRC. NO. 58, PP. 21-33.
(PRESENTS A GUIDE TO UNDERSTANDING THE NATURAL GEOLOGIC PROCESSES THAT AFFECT BANKS ALONG THE SHORELINE IN PUGET SOUND. SUCH KNOWLEDGE SHOULD ALLOW LANDOWNERS AND LAND USE PLANNERS TO ASSESS CONDITIONS AFFECTING SHORELINE PROPERTY AND TO TAKE MEASURES THAT WOULD ALLEVIATE ANY POTENTIALLY DESTRUCTIVE SITUATION. EXAMPLES ARE DRAWN FROM FIDALGO ISLAND IN SKAGIT COUNTY.)
(1A008D976MIND01,1I008D976MIND01)

MOORE, DAVID L.
1974 WASHINGTON HARBORS AND REGIONAL FACILITIES--CHOICES FOR THE FUTURE. UNIVERSITY OF WASHINGTON, SEA GRANT PROGRAM, REP. NO. WSG-MP 74-1, 188 PAGES.
(EXAMINES THE PUBLIC POLICY IMPLICATIONS OF PORT-RELATED ISSUES AT LOCAL, STATE, AND NATIONAL LEVELS FOR WASHINGTON STATE, AND ANALYZES THE CHANGING ECONOMIC, ENVIRONMENTAL, TECHNOLOGICAL, AND INSTITUTIONAL OPPORTUNITIES THAT MUST BE CONSIDERED IN FORMULATING DURABLE STATE POLICIES.)
(1A010M974MOOD01)

Olmstead, T. L., 1969, Geological aspects and engineering properties of glacial till in the Puget Lowland, Washington: Engineering Geology and Soils Engineering Symposium, 7th Annual, Moscow, Idaho, April 9-11, 1969, Proceedings, p. 223-233.

The origin, description, and distribution of Vashon till are presented, as well as diagnostic features to aid in distinguishing till from till-like sediments. Information on engineering properties needed for design and construction is also given.

Pacific Northwest River Basins Commission; Puget Sound Task Force. Report Planning Committee, 1971, Puget Sound and Adjacent Waters—Comprehensive study of water and related land resources—Summary Report and 15 Appendices, paging varies, 1970 and 1971.

"This report describes the expected needs of the Puget Sound area's future population for water and related land resources projected to the year 2020 and presents a comprehensive plan for meeting these needs. This plan is intended as a guide to the future use of water and related land resources. Along with a plan and alternative, a discussion of the effects of the plan on the area and the requirements of implementation are included together with the conclusions and recommendations of the Puget Sound Task Force."

"The Summary Report is supplemented by 15 appendices. Appendix I contains a digest of public hearings. Appendices II through IV contain studies on the political, natural, and economic environments. Appendices V through XIV each contain an inventory of present status, present and future needs, and a means to satisfy the needs, based upon a single use or control of water. Appendix XV contains a detailed description of the Comprehensive Plan for the Puget Sound Area and its individual basins and describes the alternatives considered in formulating this multiple-purpose plan." From the Foreword to the Summary Report.

PAQUETTE, ROBERT G. AND C. A. BARNES
1951 MEASUREMENTS OF TIDAL CURRENTS IN PUGET SOUND. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, TECH. REP. NO. 6, 28 PAGES, DITTOED.
(CURRENT MEASUREMENTS AND RECORDING TECHNIQUES ARE DISCUSSED, AND RESULTS OF PUGET SOUND MEASUREMENTS SHOW THAT CURRENTS AT 5 METERS DEPTH IN TIDEWAYS 60 TO 100 METERS DEEP ARE STRONGER ON EBB AND WEAKER ON FLOOD THAN THOSE AT TWO-THIRDS THE BOTTOM DEPTH DUE TO A MIXED LAYER OF CONSIDERABLE THICKNESS.)
(1A022F951PAQR01)

U.S. Geological Survey. Drainage area data for Western Washington. By D. Richardson, Open-file Rept. Tacoma, Wash., April, 1962. 244p. (F-343-2)

Richardson, Donald; Bingham, J. W.; Madison, R. J., 1968, Water resources of King County, Washington; with a section on sediment in streams by R. C. Williams: U.S. Geological Survey Water-Supply Paper 1852 74 p.

A comprehensive report on the water resources of King County. Describes the physiography, climate, culture, precipitation, evapotranspiration, streamflow of the major drainage basins, floods, low flows, ground water including springs, quantity of water available, quality of the water, water use, and future problems. Includes a map showing locations of hydrologic sites in the county, and a generalized geologic map at the scale of 4 inches to the mile that includes statements for the water yields of the stratigraphic units in the county.

Rigg, G. B., 1958, Peat resources of Washington: Washington Division of Mines and Geology Bulletin 44, 272

A definitive, comprehensive report on the peat deposits of the State of Washington. Discusses the general description, kinds, rates of accumulation, mineral content, origin and development, and distribution by physiographic provinces and by counties. The 46 major peat deposits of King County are described as to location, areal extent, type of deposit. In most cases, there is a profile of the deposit. Included are a chapter on chemical analyses of peat samples, and a chapter on utilization of the deposits.

A list of peat areas by county, and a location map with deposit numbers keyed to the list are included, as well as physiographic descriptions of the counties that have peat deposits.

ROSS, W. M.
1973 OIL POLLUTION AS AN INTERNATIONAL PROBLEM--A STUDY OF PUGET SOUND AND THE STRAIT OF GEORGIA. UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WA, 291 PAGES. (AN ANALYSIS OF THE EXISTING LAWS AND AGREEMENTS FROM THE STATE TO THE INTERNATIONAL LEVEL, DESIGNED TO MEET THE VARIOUS ASPECTS OF OIL SPILL PROBLEMS, IS PRESENTED AND DEALS DIRECTLY WITH THE PUGET SOUND AND THE STRAIT OF GEORGIA REGION BETWEEN CANADA AND THE U.S. NO SATISFACTORY MECHANISMS HAVE BEEN DEVELOPED AT EITHER THE NATIONAL OR INTERNATIONAL LEVEL--A BILATERAL AND MULTILATERAL REGIONAL APPROACH TO OIL POLLUTION CONTROL IS PROPOSED. PROGRAM AND ADMINISTRATIVE CHANGES ARE SUGGESTED TO ENCOURAGE BETTER MANAGEMENT OF INTERNATIONAL RESOURCE PROBLEMS.) (1A003J973ROSW01,1A003M973ROSW01)

Schuster, J. E., 1973, Directory of Washington mining operations 1971-72: Washington Division of Mines and Geology Information Circular 48, 97 p.

The most recent directory of metallic and nonmetallic mining operations, and sand and gravel operations in the State of Washington. The data are presented in tabular form and consist of the name of the operator, product, and location.

King County products include copper, zinc, lead, silver, expondable shale, silica sand, quarry rock, peat, cinders, clay, roofing chips, coal, and sand and gravel.

SH11 STODDARD, ANDREW, CHRISTINE NOAH, and
v. BRIAN W. MAR.
1974. Proposed land and shoreline use model for the Puget Sound basin. 118 pp.

Strickland, Helen; Beatty, Charlotte; Zerback, Barbara, 1974, Natural disasters in the State of Washington: Compiled by the Washington State Library for the Washington State Department of Emergency Services, 183 p.

A comprehensive directory of hundreds of references on such natural disasters as floods, tsunamis, earthquakes, landslides, avalanches, windstorms, and tornadoes. Represents a detailed search in over a dozen major libraries in the State of Washington for subject material and can be a valuable source of information for local and regional planning agencies.

The reference sources are published and unpublished reports including books, newspaper articles, and theses. Entries are arranged in three broad areal divisions and also alphabetically by counties. A geographic index to the references in included.

Swift, C.H., III, 1976, Estimation of stream discharges preferred by steelhead trout for spawning and rearing in Washington: U.S. Geol. Survey Open-File Rept. 75-155, 50 p.

Using multiple-regression techniques, the measured discharges and wetted perimeters, equations were developed for estimating optimum spawning and rearing discharges for steelhead trout at unmeasured stream sites.

Tangborn, W.V., and Rasmussen, L.A., 1976, Hydrology of the North Cascades region, Washington 2. A proposed hydrometeorological streamflow prediction method: Water Resources Research, v. 12, p. 203-216.

A proposed streamflow prediction method, based only on existing runoff and precipitation measurements collected at low altutudes, has been developed for the North Cascades region of Washington.

TERICH, THOMAS A.,
1975 THE RETREATING SHORE. PACIF. NW. SEA, VOL. 8, NO. 3, PP. 4-7.
(NATURAL AND MAN-MADE EROSION PRESENTS SERIOUS PROBLEMS TO SHORELINE LAND OWNERS IN PUGET SOUND. HIGH COST AND INEFFECTUAL ATTEMPTS TO THWART LAND LOSS ARE CITED.)
(1A0080975TERT02)

Tiffany, R.K., 1929, Monthly and yearly summaries of hydrometric data in the State of Washington 1878-1928: Washington Dept. of Conservation and Development Water Supply Bull. 4, 139 p.

U.S. ARMY CORPS OF ENGINEERS
1974 CORPS LISTS PORT ALTERNATIVES. WORLD DREDG. MAR. CONSTR., VOL. 10, NO. 3, PP. 33-34.
(DISCUSSES 23 PORTS ON THE WEST COAST WHICH ARE POSSIBILITIES FOR THE IMPORT AND HANDLING OF ALASKA CRUDE OIL DELIVERED IN DEEP DRAFT SHIPS OF MORE THAN 150,000 DWT. THE POSSIBLE PORTS IN PUGET SOUND ARE FERNDALE, ANACORTES, PORT ANGELES, EVERETT, AND TACOMA. THE ALASKA PIPELINE, DESIGN OF SUPERTANKER PORTS, AND ENVIRONMENTAL CONCERNS ARE ALSO DISCUSSED.)
(1A010S974USAC01)

U.S. DEPARTMENT OF THE INTERIOR, FWPCA
1967 POLLUTION OF THE NAVIGABLE WATERS OF PUGET SOUND, THE STRAIT OF JUAN DE FUCA AND THEIR TRIBUTARIES AND ESTUARIES, WASHINGTON. PROCEEDINGS OF CONFERENCE, 2ND SESSION HELD AT SEATTLE, WASHINGTON ON SEPTEMBER 6-7, AND OCTOBER 6, 1967, 3 VOLUMES, FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, WASHINGTON, D.C.
(THE REPORT IS ON THE CONFERENCE ON POLLUTION OF THE NAVIGABLE WATERS OF PUGET SOUND, THE STRAIT OF JUAN DE FUCA, AND THEIR TRIBUTARIES AND ESTUARIES WITHIN THE STATE OF WASHINGTON FOR 1967. IT INCLUDES STATEMENTS, RECOMMENDATIONS, AND DISCUSSIONS ON--BIOLOGICAL AND FISHERIES STUDIES, SLUDGE DEPOSITS AND INDUSTRIAL WASTES, SOLID WASTE TREATMENT AND DEPOSITION, AND RELATED INFORMATION.)
(1A022J967FWPC01)

U.S. Geological Survey, 1955, Compilation of records of surface waters of the United States through September 1950, part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geol..Survey Water-Supply Paper 1316, 592 p.

Report contains records of monthly and yearly mean discharges, monthly and yearly runoff, and yearly extremes. The compilation is based on the water years 1899-1950.

U.S. Geological Survey, 1899-1960, Surface water supply of the United States, part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geol. Survey Water-Supply Papers 38, 51, 52, 66, 75, 85, 100, 135, 178, 214, 252, 272, 292, 312, 332-A, 362-A, 392, 412, 442, 462, 482, 512, 532, 552, 572, 592, 612, 632, 652, 672, 692, 707, 722, 737, 752, 767, 792, 812, 832, 862, 882, 902, 932, 962, 982, 1012, 1042, 1062, 1092, 1122, 1152, 1182, 1216, 1246, 1286, 1346, 1396, 1446, 1516, 1566, 1636, 1716.

From 1899 through September 30, 1960, daily streamflow records were published in an annual series of water-supply papers for the years indicated. Since 1960, annual volumes have been published on a state by state basis (see below).

U.S. Geological Survey, 1961-64, Surface water records of Washington: Tacoma, Washington (annual reports published for years indicated).

Daily records of streamflow or reservoir storage at gaging stations, partial-record stations, and miscellaneous sites are given.

U.S. Geological Survey, 1965-74, Water resources data for Washington, Part 1., Surface water records: Tacoma, Washington (annual reports published for years indicated).

Daily records of streamflow or reservoir storage at gaging stations, partial-records stations, and miscellaneous sites are given.

U.S. Geological Survey, 1974, Surface water supply of the United States, 1966-70, Part 12. Pacific slope basins in Washington, v. 1. Pacific slope basins in Washington except Columbia River basin: U.S. Geol. Survey Water-Supply Paper 2132, 640 p.

The report is a compilation of surface-water records covering 1966-70 water years, as in annual reports (see above).

U.S. Geological Survey, 1971, Surface water supply of the United States, 1961-65, Part 12. Pacific slope basins in Washington, v. 1., Pacific slope basins in Washington except Columbia River basin: U.S. Geol. Survey Water-Supply Paper 1932, 679 p.

The report is a compilation of surface-water records covering 1961-65 water years. The information given is nearly the same as that in the annual reports but published as a water-supply paper for general circulation.

U.S. Geological Survey, 1974, Catalog of information on water data: Office of Water Data Coordination, Reston, Va., unpaged.

The catalog presents information about water data for streams, lakes and reservoirs, estuaries, and ground water, including information about the site parameters measured, frequency of measurement, mode of data dissemination, and organization acquiring the data.

U.S. Geological Survey, 1975-76, Water resources data for Washington water year 19__: Tacoma, Washington (annual reports published for years indicated).

Water-quality data are also included in the latest series of annual reports.

U.S. Geological Survey, 19__, Map of flood-prone areas, (map title) Washington: U.S. Geol. Survey Open-File Map (reports published for years indicated).

The approximated boundaries of areas that would be inundated by floods of 0.01 probability (once in 100-year, on the average) are shown on a series of maps. Completed maps for the Puget Sound basin at a scale of 1:24,000 include: Arlington East 1956, Arlington West 1956, Auburn 1949, Belfair 1953, Bellingham North 1954, Bertrand Creek 1952, Bothell 1953, Bremerton East 1953, Bremerton West 1953, Buckley 1956, Carnation 1953, East Olympia 1959, Edmonds East 1953, Enumclaw 1956, Everett 1953, Fall City 1953, Ferndale 1952, Gig Harbor 1959, Hobart 1953, Issaquah 1950, Kirkland 1956, LaConner 1956, Lake Stevens 1956, Lake Wooten 1953, Lynden 1952, Maple Valley 1949, Marysville 1956, Mason Lake 1953, Maytown 1959, McKenna 1959, Mercer Island 1950, Monroe 1953, Mt Vernon 1956, Mt Walker 1953, Nisqually 1959, North Bend 1953, Orting 1956, Puyallup 1961, Quilcene 1953, Redmond 1950, Renton 1949, Seattle North 1949, Seattle South 1949, Snohomish 1953, Snoqualmie 1953, Stanwood 1956, Sulton 1953, Sumas 1952, Sumner 1956, Tulalip 1956, Tumwater 1959, Vashon 1949, Weir Prairie 1959. Completed maps at a scale of 1:62,500 include Potlatch 1952.

United States Geological Survey; and others, 1966, Mineral and water resources of Washington: U.S. Congress, 89th, 2nd Session, Committee on Interior and Insular Affairs, Committee Print, 436 p.; reissued as Washington Division of Mines and Geology Reprint 9, 436 p., 1966.

A comprehensive, detailed summary report on the geology, mineral resources, and water resources of the State of Washington. The first section of the report describes the geology and mineral resources of the state; the second section deals with the water resources and their development.

The geology of the Puget Lowland is discussed under the western Washington heading in the geology portion of the report. A geologic map of the state, at the scale of 1 inch to approximately 26.7 miles and showing the location of the major sedimentary, volcanic, and crystalline rocks, is within the geology portion of the text.
Among the metallic and nonmetallic minerals occurring in King County are alunite, antimony, clays, copper, gem materials, gold, iron, mercury, mica, molybdenum, peat, perlite, sand and gravel, silica silver, stone, thorium and the rare earths, tin, and uranium.

The stratigraphy and structure of the Puget Lowland indicate that it is a favorable area for oil and gas exploration. Some of the test wells already drilled had traces or shows of oil and(or) gas.

The estimated remaining reserves of coal in King County are 827,670,000 short tons, and the range in rank is from subbituminous B to high-volatile A bituminous.

The chapters on ground water in the state include a description of the occurrences, chemical quality, and dissolved solids of well water in the Puget Sound area. The streamflows of the Puget Sound basins are described in the chapters on surface water.

University of Washington, 1953, Puget Sound and approaches, a literature survey, v. 1, geography, climatology, hydrology: Dept of Oceanography, Seattle, Washington, 130 p.

An annotated bibliography of published and unpublished reports and data on the geography, climatology, and hydrology of Puget Sound prior to 1953.

Valentine, G. M., 1960, Inventory of Washington minerals; Part 1—Nonmetallic minerals, 2nd edition, revised by M. T. Huntting: Washington Division of Mines and Geology Bulletin 37, Part 1, 2 volumes—text and maps, 175 p. plus 83 p.

A comprehensive compilation of the known occurrences of nonmetallic minerals in the State of Washington. The information has been gathered from published and unpublished reports and data. Each mineral is described in regard to properties, uses, production, and prices. Included is a section listing the occurrences, arranged alphabetically by county and by deposit or occurrence name. Available information on each deposit or occurrence is described by location, description, value, and references from which the information was obtained. Occurrence numbers in the text of the report correspond to the numbers indicated on the respective maps.

Nonmetallic mineral occurrences in King County that are listed in both the text and the map volume include alunite, basalt and allied volcanic rocks, common clays and shales, refractory clays and shales, coal, diatomite, garnet, granite and allied plutonic rocks, graphite, limestone, mica, mineral waters, peat, perlite, quartz crystal, massive quartz, quartzite, sand and gravel, sandstone, silica sand, and sulfur.

Van Denburgh, A. S.; Santos, J. F., 1965, Ground water in Washington; its chemical and physical quality: Washington Division of Water Resources Water Supply Bulletin 24, 93 p.

A survey of the chemical and physical quality of ground water in Washington. In the report, the state is divided into five provinces, one of which is the Puget Sound province. The ground water in this province is discussed with regard to occurrence and general chemical character, specific constituents and properties, salt-water contamination, chemical quality variation with time, and suitability for use.

The appendix gives tabular data on the ground water of King County with regard to well and spring location, ownership, depth, aquifer, temperature, chemical analyses, dissolved solids, hardness, pH, and color. Included are a number of maps of the state showing distributions of dissolved solids, fluoride nitrate, orthophosphate and iron concentrations, and hardness-of-water values in the ground-water samples tested.

Washington Department of Conservation, 1964, Miscellaneous streamflow measurements in the State of Washington 1890 to January 1961: Water Supply Bull. 23, 292 p.

Compilation of miscellaneous streamflows (measurements made at a particular instant in time).

Washington Sea Grant Program. Bibliography of literature; Puget Sound marine environment. By E.E. Collias and A.C. Duxbury. WSG 71-6. University of Washington, Seattle, December, 1971.

State of Washington, Department of Ecology, 1977, Water quality assessment report - maps : v. 2 no. 75-8

These maps supplement information that was investigated in detail from the first volume of the water quality assessment report. The maps show water quality conditions throughout Washington State in terms of dissolved oxygen concentration, bacterial concentration, water temperature, and water turbidity. The maps were designed to be used in conjunction with the written report but could be used alone to illustrate current water quality conditi in the State. Surface waters, both marine and fres are assessed.

WASHINGTON STATE DEPARTMENT OF ECOLOGY
1973 WATER QUALITY STANDARDS. WASH. ST. DEP. ECOL., OLYMPIA, WA, 17 PAGES.
(WATER QUALITY STANDARDS ARE DEFINED FOR WATERS OF THE STATE OF WASHINGTON. THIS INCLUDES LIMITATIONS OF TOXIC INPUTS AND LISTS OF CHARACTERISTIC USES TO BE PROTECTED AND WATER COURSE CLASSIFICATIONS.)
(1A009J973WDOE01)

State of Washington, Department of Ecology, 1977, Water quality assessment report : v.1 no. 75-8, 48 p.

The purpose of this report is to assess existing water quality in Washington State, and to outline the water quality management program presently employed for improvements. This is the initial report from the State of Washington in replying with Federal Water Pollution Control Act Amendments in particular Section 305(b).

WASHINGTON STATE DEPARTMENT OF ECOLOGY
1974 DEPARTMENT OF ECOLOGY OIL BASELINE STUDY PROGRAM. D.O.E., OLYMPIA, WA, 64 PAGES.
(THIS REPORT CONSISTS OF A PROPOSED PROGRAM OF SYSTEMATIC BASELINE STUDIES FOR THE WATERS OF THE STATE OF WASHINGTON THAT WILL AID IN THE MAINTENANCE OF WATER QUALITY STANDARDS AS WELL AS ADDRESS THE SPECIFIC PROBLEMS ASSOCIATED WITH OIL CONTAMINATION OF THE MARINE ECOSYSTEM. THESE STUDIES ARE TO BE IMPLEMENTED BY THE DEPARTMENT OF ECOLOGY TO COMPLY WITH LEGISLATION REQUESTED THROUGH RCW 43.21A. 405-420.)
(1A009J974WDOE01)

Washington(State) State University. Cooperative Extension Service. Washington climate for these counties: Clark, Cowlitz, Lewis, Skamania, Thurston. Pullman, Wash., 1964.

Washington(State) State University. Co-operative Extension Service. Washington climate for these counties, Clallam, Jefferson, Island, San Juan, Skagit, Snohomish, Whatcom. By E.L. Phillips. Pullman, Wash., 1966.

WINTER, DONALD F.
1973 A SIMILARITY SOLUTION FOR STEADY-STATE GRAVITATIONAL CIRCULATION IN FJORDS. ESTUAR. COAST. MAR. SCI., VOL. 1, NO. 4, PP. 387-400.
(AN ANALYSIS IS PROVIDED OF STEADY-STATE GRAVITATIONAL CIRCULATION IN THE NEAR-SURFACE ZONE. APPROXIMATE ANALYTIC EXPRESSIONS ARE OBTAINED FOR THE VELOCITY COMPONENTS AND THE DENSITY DISTRIBUTION IN A FJORD SEGMENT WHERE CONDITIONS FOR A SIMILARITY ANALYSIS ARE SATISFIED. THE METHOD IS ILLUSTRATED BY APPLICATIONS TO HOOD CANAL AND THE CENTRAL BASIN OF PUGET SOUND, WASHINGTON, AND TO KNIGHT INLET ON THE MAINLAND COAST OF BRITISH COLUMBIA. THE FLOW DESCRIPTION PROVIDED MAY BE OF SOME USE IN STUDIES OF POLLUTANT DISPERSAL AND BIOLOGICAL PRODUCTION IN FJORDS.)
(1A022F973WIND01)

ALGERMISSEN, S. T. AND OTHERS
1973 THE PUGET SOUND, WASHINGTON, EARTHQUAKE OF APRIL 29, 1965. PRELIMINARY SEISMOLOGICAL ENGINEERING REPORT, NTIS NO. COM-73-11448/0, 59 PAGES.
(ON APRIL 29, 1965, AT 8 29 A.M. PACIFIC DAYLIGHT SAVINGS TIME, THE PUGET SOUND, WASHINGTON REGION WAS SHAKEN BY THE SECOND LARGEST EARTHQUAKE SINCE 1833. THIS REPORT IS A PRELIMINARY INTERPRETATION OF SEISMOLOGICAL DATA OBTAINED FROM PERMANENT SEISMOGRAPH STATIONS THROUGHOUT THE WORLD, TEMPORARY SEISMOGRAPH STATIONS ESTABLISHED IN THE EPICENTRAL AREA IMMEDIATELY FOLLOWING THE EARTHQUAKE, INTENSITY REPORTS, AND INSPECTION OF THE EPICENTRAL AREA. DETAILS ARE GIVEN ON DAMAGES IN SEATTLE, TACOMA, OLYMPIA AND NEIGHBORING CITIES.)
(1A022D973ALGS01)

BARKSDALE, JULIAN D. AND HOWARD A. COOMBS
1946 THE PUGET SOUND EARTHQUAKE OF FEBRUARY 14, 1946. BULL. SEISMOL. SOC. AM., VOL. 36, NO. 4, PP. 349-354.
(RECORDS INTENSITY AND DAMAGE IN SEATTLE, TACOMA, BREMERTON, AND OLYMPIA DURING THE 1946 EARTHQUAKE AND PRESENTS AN ISOSEISMAL MAP OF THE AREA. INTENSITY APPEARS TO BE RELATED TO GLACIAL DRIFT AND ALLUVIUM THAT MANTLES THE PUGET SOUND TROUGH.)
(1D022D946BARJ01)

BENNETT, LEE C, JR AND OTHERS
1971 THE DETERMINATION OF ACTIVE FAULT ZONES IN PUGET SOUND, WASHINGTON, BY MEANS OF CONTINUOUS SEISMIC PROFILING. INT. ENGNG PROPR. SEA FLOOR SOILS GEOPHYS. IDENT. SYMP. PROC., PP. 360-374.
(A CONTINUOUS SEISMIC REFLECTION SURVEY WAS MADE IN PUGET SOUND, WASHINGTON, IN ORDER TO LOCATE ZONES OF ACTIVE AND INACTIVE FAULTING. A HIGH RESOLUTION SPARKER AND A LOW FREQUENCY AIR GUN WERE USED. AS A RESULT OF THIS STUDY FAULT ZONES WHICH TRAVERSE GENERAL EAST-WEST ACROSS PUGET SOUND ARE NOW BEING LOCATED AND MAPPED. THESE FAULTS HAVE NO SURFACE EXPRESSION ON LAND DUE TO THE THICK GLACIAL OVERBURDEN. PLACEMENT OF MAN-MADE STRUCTURES IN SEISMICALLY STABLE AREAS ACROSS PUGET SOUND AND ALONG ITS SHORES WILL MAKE USE OF THIS INFORMATION TO MINIMIZE STRUCTURAL DAMAGE DURING FUTURE SEISMIC EVENTS.)
(1A008D971BENL01)

BRADFORD, D. C.
1935 SEISMIC HISTORY OF THE PUGET SOUND BASIN. SEISMOLOGICAL SOCIETY OF AMERICA, BULLETIN, VOL. 25, PP. 138-153.
(EARTHQUAKE HISTORY OF PUGET SOUND WITH DISCUSSION OF RECORDED EARTHQUAKES FROM 1833 TO 1934.)*
(A022D35BRAD01)

BYERLY, PERRY
1952 PACIFIC COAST EARTHQUAKES. OREGON STATE SYSTEM OF HIGHER EDUCATION, EUGENE, OR, 38 PAGES.
(DISTRIBUTION OF EARTHQUAKES ON THE PACIFIC COAST OF THE UNITED STATES, CAUSES OF EARTHQUAKES, INSTRUMENTAL SEISMOLOGY, AND SIZE AND EFFECTS OF EARTHQUAKES ARE DISCUSSED FIVE EPICENTERS ARE RECORDED IN PUGET SOUND.)
(1A022D952BYEP01)

CHIBURIS, E. F., PETER DEHLINGER, AND W. S. FRENCH
1965 THE TACOMA EARTHQUAKE OF APRIL 29, 1965. ORE BIN, VOL. 27, NO. 5, PP. 99-100.
(THIS SHOCK, AS LARGE OR LARGER THAN THE FAMOUS ONE OF 1949, WAS FELT OVER WASHINGTON, IDAHO, OREGON, AND BRITISH COLUMBIA, AND MEASURED 6.5 AND 7 IN MAGNITUDE ON THE RICHTER SCALE IN CALIFORNIA AND 8 ON THE MODIFIED-MERCALLI SCALE IN THE TACOMA-SEATTLE AREA. THE QUAKE WAS RELATIVELY DEEP FOR THIS REGION WITH ACTUAL DAMAGE CORRESPONDING TO THAT FROM SHOCKS AT EPICENTRAL DISTANCES OF 70 KM OR MORE.)
(1E022D965CHIE01)

CHRISTENSEN, NIKOLAS I., R. C. BOSTROM, AND R. S. CROSSON
1969 THE GRAVITY PROGRAM OF THE UNIVERSITY OF WASHINGTON. EOS, TRANS. AM. GEOPHYS. UN, VOL. 50, NO. 10, P. 548.
(REPORTS SEVERAL PROJECTS INVOLVING OBSERVATIONS OF THE EARTH'S GRAVITY FIELD IN WESTERN WASHINGTON. IN EXCESS OF 400 STATIONS HAVE BEEN ESTABLISHED WITH A LA COSTE GEODETIC METER TO INCREASE THE UNDERSTANDING OF CRUSTAL STRUCTURE AND TECTONICS IN WESTERN WASHINGTON, INCLUDING PUGET SOUND.)
(1A022D969CHRN01)

Coffman, J. L.; von Hake, C. A., editors, 1973, Earthquake history of the United States: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data Service Publication 41-1 (Revised edition through 1970), 208 p.

The most recent history of the prominent earthquakes in the United States through 1970. Includes a location map of U.S. earthquakes having an intensity of V or greater. The Washington and Oregon section lists earthquakes of intensity V and greater earthquakes, beginning with the Vancouver, Washington, earthquake of December 2, 1841. The earliest recorded earthquake in the Puget Sound area was on December 26, 1856 at Port Townsend. Also included is a descriptive and chronological list of intermediate and minor earthquakes.

COOMBS, HOWARD A. AND J. D. BARKSDALE
1942 THE OLYMPIC EARTHQUAKE OF NOVEMBER 13, 1939. BULL. SEISMOL. SOC. AM., VOL. 32, NO. 1, PP. 1-6.
(LISTS INTENSITIES FOR LOCATIONS THROUGHOUT WASHINGTON STATE AND DISCUSSES DAMAGE IN RELATION TO UNCONSOLIDATED SEDIMENTS ON THE SURFACE.)
(1A022D942COOH01)

Coombs, H. A., 1953, A summary of Washington earthquakes: Seismological Society of America Bulletin, v. 42, no. 1, p. 105.

A tabulation of earthquakes in the State of Washington for the years 1930-1951. Supplements the Townley and Allen catalog of earthquakes of the Pacific coast of the United States for the years 1769-1928. Data consists of year, day, and time of day, as well as the intensity, locality, and occurrence. Includes a map of Washington showing location and intensities of earthquakes from 1865 to 1951.

Crosson, R. S., 1972, Small earthquakes, structure, and tectonics of the Puget Sound region: Seismological Society of America Bulletin, v. 62, no. 5, p. 1133-1171.

Presents data on a network of short-period seismograph stations on bedrock around the Puget Sound region operated to obtain additional information on the seismicity, tectonics, and structure of the region. Data derived thus far indicate a low incidence of earthquakes of magnitude 5 and above in this region.

Crosson, Robert S., 1974, Compilation of earthquake hypocenters in western Washington: Department of Natural Resources, Division Geology and Earth Resources Information Circular 53, 25 p.

A summary report of earthquakes recorded on the Western Washington seismic network until the end of 1972. Includes a detailed description of instruments and data-reduction procedures.

Crosson, Robert S., 1975, Compilation of earthquake hypocenters in western Washington-1973: Department of Natural Resources, Division Geology and Earth Resources Information Circular 55, 14 p.

A summary report of earthquakes recorded on the western Washington seismic network during 1973.

Crosson, Robert S. and Richard C. Millard, 1975, Compilation of earthquake hypocenters in western Washington-1974: Department of Natural Resources, Division Geology and Earth Resources Information Circular 56, 14 p.

A summary report of earthquakes recorded on the western Washington seismic network during 1973.

CROSSON, ROBERT S.
1976 CRUSTAL STRUCTURE MODELING OF EARTHQUAKE DATA, 2, VELOCITY STRUCTURE OF PUGET SOUND REGION, WASHINGTON. J. GEOPHYS. RES., VOL. 81, NO. 17, PP. 3047-3054.
(A NONLINEAR LEAST SQUARES MODELING PROCEDURE HAS BEEN DEVELOPED TO ESTIMATE SIMULTANEOUSLY HYPOCENTER PARAMETERS, STATION CORRECTIONS, AND VELOCITY MODEL PARAMETERS BY USING P WAVE (OR S WAVE) ARRIVALS FROM LOCAL EARTHQUAKES AT A REGIONAL ARRAY. THIS PROCEDURE IS APPLIED TO P WAVE DATA OBTAINED FROM THE 14-STATION TELEMETERED SEISMOGRAPH NETWORK IN THE PUGET SOUND REGION OF WESTERN WASHINGTON. FORTY SELECTED EARTHQUAKES WITH A DEPTH DISTRIBUTION FROM NEAR THE SURFACE TO OVER 50 KM WERE USED, PROVIDING A STABLE INVERTED MODEL HAVING A LARGE STEP INCREASE IN VELOCITY IN THE UPPER 10 KM OF THE CRUST AND EXHIBITING A COMPARATIVELY LOW VELOCITY GRADIENT BETWEEN 10- AND 40-KM DEPTHS.)
(1A022D976CRORO01)

DANES, ZDENKO F. AND OTHERS
1965 GEOPHYSICAL INVESTIGATION OF THE SOUTHERN PUGET SOUND AREA, WASHINGTON. J. GEOPHYS. RES., VOL. 70, NO. 22, PP. 5573-5580.
(THE GEOLOGIC STRUCTURE OF THE PUGET SOUND AREA HAS BEEN DETERMINED ON THE BASIS OF DETAILED SURFACE GEOLOGY AND GRAVITY MAPS, MAGNETIC OBSERVATIONS, EARTHQUAKE EPICENTERS, AND WELL RECORDS. A DESCRIPTION OF THIS STRUCTURE IS GIVEN.)
(1E022D965DANZ01)

DANES, ZDENKO F. AND OTHERS
N.D. GEOPHYSICAL INVESTIGATION OF SOUTHERN PUGET SOUND AREA, WASHINGTON, USA. UNIVERSITY OF PUGET SOUND, TACOMA, 14 PAGES.
(THE PUGET SOUND LOWLANDS ARE A DEEP CRUSTAL DEPRESSION SEPARATED FROM THE OLYMPIC PENINSULA BY AN ACTIVE FAULT OF ABOUT 4,000 M THROW. THE BASIN IS DIVIDED INTO THREE MAIN PORTIONS BY AN IGNEOUS HORST WITH AN OLDER GABBROIC CORE AND YOUNGER BASALTIC LAYERS. FAULTS ALONG THE HORST ARE ACTIVE, THE NORTHERN ONE MORE SO. SURFACE GEOLOGICAL WORK IS HAMPERED BY A THICK LAYER OF GLACIAL TILL.)
(1E022D*NDDANZ01)

DANES, ZDENKO F.
1970 EARTHQUAKE OCCURRENCE IN THE STATE OF WASHINGTON. SCIENCE, VOL. 167, NO. 3917, PAGE 396.
(A TIME-LAPSE MOVING PICTURE OF EARTHQUAKE OCCURRENCES IN THE STATE OF WASHINGTON REVEALS A STORY OF ALIGNMENTS OF EPICENTERS, EARTHQUAKE SWARMS, STRESS BUILDUP AND RELEASE, AND OTHER FEATURES. THE LINES ALONG WHICH EARTHQUAKE SWARMS OCCUR ARE IN COMPLETE AGREEMENT WITH OFFSETS OF GRAVITY TRENDS. THOSE LINES, CUTTING ACROSS THE CASCADE MOUNTAINS, PASS ALMOST EXACTLY THROUGH THE ANDESITIC CASCADE VOLCANOES. VOLCANOES MAY DEVELOP ALONG THOSE PLANES OF OFFSETS WHERE FRESH BASALTS COME IN CONTACT WITH THE ACIDIC BATHOLITH, AND ARE THUS QUARTZ-ENRICHED.)
(1A022D970DANZ01)

Eppley, R. A., 1965, Earthquake history of the United States—Part 1, Stronger earthquakes of the United States

(Exclusive of California and western Nevada): U.S. Coast and Geodetic Survey Special Publication 41-1 (Revised edition through 1963), 120 p. [Originally published in 1938].

Tabular data on earthquakes of intensity V or greater in Washington and Oregon from 1841-1963. Also gives descriptive reports of intermediate and minor earthquakes for the same time period. Summary gives earthquakes felt in each state by date.

Gates, G. O., 1969, Earthquake hazards. In Olson, R. A.; Wallace, M. M., editors. Geologic hazards and public problems, Conference Proceedings, May 27-28, 1969: U.S. Office of Emergency Preparedness, Region Seven, Santa Rosa, California, P. 19-52.

Briefly discusses the potential behavior of the Seattle area to strong seismic shocks. Includes a small-scale map of shock intensities in the Puget Sound area, and a larger scale map of the seismically vulnerable areas of Seattle.

Gower, H.D., 1978, Tectonic map of the Puget Sound Region, showing locations of faults, principal folds and large-scale Quaternary deformation(in review): U.S. Geological Survey Open-File Rept.

HAWKINS, NEIL M. AND ROBERT S. CROSSON
1975 CAUSES, CHARACTERISTICS AND EFFECTS OF PUGET SOUND EARTHQUAKES. PROC. U.S. NATN CONF. ON EARTHQUAKE ENGNG, 18-29 JUNE 1975, ANN ARBOR MICH., PP. 104-112. PUBL. BY EARTHQUAKE ENGNG RES. INST., OAKLAND, CA.
(A REVIEW IS MADE OF EXISTING KNOWLEDGE ON EARTHQUAKE RECORDS FOR THE AREA. THESE RECORDS ARE COLLATED WITH CURRENT INFORMATION ON THE TECTONICS, GEOLOGY, SOIL CONDITIONS AND BUILDING PRACTICES FOR THE REGION. THIS INFORMATION IS INTERPRETED AS INDICATING THAT DIFFERENCES BETWEEN SEISMIC EFFECTS FOR THE PUGET SOUND REGION AND CALIFORNIA ARE LIKELY TO BE REPEATED IN FUTURE QUAKES AND SHOULD BE TAKEN INTO ACCOUNT FOR FUTURE PLANNING, DEVELOPMENT, AND CONSTRUCTION IN THE REGION.)
(1A022D975HAWN01)

HEISKANEN, ...
1951 ON SEATTLE EARTHQUAKES AND GRAVITY ANOMALIES. SEISMOL. SOC. AM. BULL., VOL. 41, NO. 4, PP. 303-306, 1 TABLE, 1 MAP.
(REVIEWS THE WORK OF BOWIE (1924) IN THE LIGHT OF THE SEATTLE EARTHQUAKE. SUGGESTS POSSIBLE RELATIONSHIPS BETWEEN EARTHQUAKES AND NEGATIVE GRAVITY ANOMALIES IN THE PUGET SOUND AREA.)
(1J[illegible]951HEIN01)

KAARSBERG, E. A.
1967 MAGNETIC SURVEY OF THE PUGET SOUND EARTHQUAKE ZONE. GEOPHYSICS, VOL. 32, PP. 119-123.
(EPICENTER LOCATIONS OF EARTHQUAKES ORIGINATING IN PUGET SOUND ARE DESCRIBED. THE EPICENTERS ARE DISCUSSED WITH RELATION TO SEVERAL GEOLOGICAL FACTORS. MAGNETIC SURVEYS CONDUCTED DURING THE SUMMER OF 1965 VERIFIED THE EXISTENCE OF A FAULT ZONE.)
(1A022D967KAAE01)

Miller, A. L., 1953, Earthquake lessons from the Pacific Northwest: University of Washington Engineering Experiment Station Trend in Engineering, v. 5, no. 1, p. 13-17, 32.

A brief summary of the April 13, 1949 earthquake in the Pacific Northwest and recognition of the hazards that could lead to disaster. A list of such hazards includes structural damage, falling debris, disruption of utilities, possible fires, interruption of communications and transportation, release of materials from containers, psychological effects, and earthquake motion and its effects on buildings. Accompanied by an isoseismal map of the April 13, 1949 earthquake.

NEUMANN, FRANK
1954 EARTHQUAKE INTENSITY AND RELATED GROUND MOTION. UNIVERSITY OF WASHINGTON PRESS, SEATTLE, 77 PAGES.
(INSTRUMENTAL DATA AND DESCRIPTIVE REPORTS ON DESTRUCTIVE EARTHQUAKES ARE ANALYZED. INCLUDES THE PUGET SOUND EARTHQUAKE OF 1949.)
(1A022D954NEUF01)

NEUMAN, FRANK
1961 NEW ANALYTICAL METHODS REVEAL THE PATTERN OF SEISMIC ACTIVITY IN WESTERN WASHINGTON. EARTHQUAKE NOTES, VOL. 32, NO. 3-4, PP. 37-44.
(THIS PAPER IS SUPPLEMENTARY TO A PREVIOUSLY PUBLISHED PAPER (SEE GEOPHYS. ABS. 182-3511) IN WHICH THE USE OF HYPOTHETICAL TRAVELTIME CURVES TO INTEGRATE OBSERVED VALUES IN WESTERN WASHINGTON ARE DISCUSSED. NEW DATA FROM ADDITIONAL SEISMIC STATIONS CONFIRM THE PREVIOUS RESULTS—THERE IS NO EVIDENCE IN THE PUGET SOUND AREA OF SIMPLE PARALLEL CRUSTAL LAYERING. THE MOST PRESSING PROBLEM NOW IS TO ACCOUNT FOR THE WIDE VARIATIONS IN ORIGIN TIME THAT ARE FREQUENTLY OBTAINED THIS IS DISCUSSED. THE PROBABIITY OF OCCURRENCE OF EARTHQUAKES OF A GIVEN INTENSITY IS DISCUSSED FROM AN ENGINEER'S VIEWPOINT.)
(1A022D961NEUF01)

NEUMANN, FRANK AND NORMAN RASSMUSSEN
1962 REGISTRATION OF EARTHQUAKES AT UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON. UNIVERSITY OF WASHINGTON, GEOL. DEP. SEISM. BULL. NO. 11, 31 PAGES.
(LISTS THE DATA, TIME AND LOCATION OF EARTHQUAKES DETECTED BY INSTRUMENTS IN THE GEOLOGY DEPARTMENT OF THE UNIVERSITY OF WASHINGTON IN SEATTLE.)
(1A022D962UWDG01)

NUTTLI, O. W.
1952 THE WESTERN WASHINGTON EARTHQUAKE OF APRIL 13, 1949. BULL. SEISM. SOC. AM., VOL. 42, NO. 1, PP. 21-28.
(THE EARTHQUAKE INTENSITY IS GIVEN AS VIII ON THE MODIFIED MERCALLI SCALE, THE FOCAL DEPTH WAS 70 KM, AND THE EPICENTER WAS LOCATED IN PUGET SOUND, JUST EAST OF KETRON ISLAND, 10 MILES SOUTHWEST OF TACOMA.)
(1A022D952NUT001)

OAKESHOTT, GORDON B.
1965 THE SEATTLE EARTHQUAKE, CALIFORNIA DIV. MINES AND GEOLOGY MINERAL INF. SERVICE, VOL. 18, NO. 7, PP. 140-141.
(A MODERATELY STRONG EARTHQUAKE OCCURRED ON APRIL 29, 1965 IN THE SEATTLE-TACOMA-OLYMPIA AREA, WASHINGTON, EPICENTERED NORTH OR WEST OF GIG HARBOR. THERE WERE NO AFTERSHOCKS AND DEPTH OF FOCUS WAS 40-50 KM. AREAS WITH POST-GLACIAL ALLUVIAL DEPOSITS, ARTIFICIAL FILL, AND ALLUVIUM SHOWED MOST OF THE MINOR AND SPOTTY DAMAGE. A GRAVITY SURVEY REVEALED TWO PROBABLE FAULTS UNDER GLACIAL SEDIMENTS IN THE RENTON-BREMERTON AND ALLYN-GIG HARBOR AREAS MOVEMENT ALONG EITHER COULD EXPLAIN THE EAST-WEST TREND OF GROUND BREAKAGE. DEPTH OF FOCUS MAY BE ANOTHER FACTOR IN THE WIDESPREAD MINOR-DAMAGE PATTERN.)
(1E022D965OAKG01)

RASMUSSEN, NORMAN H.
1967B WASHINGTON STATE EARTHQUAKES 1840 THROUGH 1965.
BULL. SEISM. SOC. AM., VOL. 57, NO. 3, PP. 463-476.
(A TABULATION HAS BEEN MADE OF APPROXIMATELY 850 EARTHQUAKES IN WASHINGTON STATE OR NEAR ITS BORDERS BETWEEN 1841 AND 1965. THIS LIST WAS COMPILED FROM PREVIOUSLY PUBLISHED SCIENTIFIC REPORTS, NEWSPAPER ACCOUNTS, AND UNPUBLISHED EPICENTER COMPUTATIONS FROM THE UNIVERSITY OF WASHINGTON SEISMOGRAPH STATION. SHOCKS OF INTENSITY V OR LESS ARE NOT COMPLETE PRIOR TO ABOUT 1900 BECAUSE OF SPARSE POPULATION MAKING REPORTING INCOMPLETE. THERE APPEARS TO BE AN INCREASE OF LARGER INTENSITY AND MAGNITUDE EARTHQUAKES SINCE 1936 IN WASHINGTON STATE, AND ESPECIALLY IN THE PUGET SOUND AREA SINCE 1949.)
(=AO22D967RASN02)

Rasmussen, N. H., 1969, Seismic trends in Washington State: University of Washington Office of Engineering Research Trend in Engineering, v. 21, no. 3, p. 21-23.

Continues the list 1840–1965 (Rasmussen 1967) with a table for 1966 through 1968. Includes a seismic trend map of Washington State and an accompanying table listing the linear seismic trends.

Rasmussen, N. H.; Millard, R. C.; Smith, S. W., 1974, Earthquake hazard evaluation of the Puget Sound region, Washington State: Washington State Department of Emergency Services; Washington State Office of Program Planning and Fiscal Management; U.S. Department of Housing and Urban Development; U.S. Geological Survey; and University of Washington Geophysics Program, 99 p. plus one roll of 35-mm film.

"This report has been designed to be used by land use planners and others attempting to project damage in future populated or industrialized areas in the Puget Sound basin. We feel that with the information in this report one can come to general conclusions as to the potential seismic hazard to be expected at any specific location within the Puget Sound region" [From the authors' How to Use This Report]. Following this statement, there are instructions on how to determine the seismic risk potential for a specific site.

The report is replete with tables of data and illustrations and includes a location map of all earthquakes felt over 10,000 square miles and earthquakes of intensity VI or greater for the period 1841–1974; a list of definitions of terms used in the report; and an unabridged Modified Mercalli Intensity Scale of 1931.

Also included is a 35–mm roll of film showing the county soil maps that are used in conjunction with the report. An index to the county soil maps by frame numbers is given on page 99.

Rogers, W. P., 1970, A geological and geophysical study of the central Puget Lowland: University of Washington Ph. D. thesis, 123 p.

Reports an investigation of the subsurface structure of the Puget Lowland, including much of King County. Some of the linear structures on this map are interpreted as major faults, and may be "active" at the present time. Includes a gravity map at a scale of about 1 inch to 6 miles.

STEINBRUGGE, KARL V. AND WILLIAM K. CLOUD
1965 THE PUGET SOUND, WASHINGTON, EARTHQUAKE OF APRIL 29, 1965--PRELIMINARY ENGINEERING REPORT. U.S. CST GEOD. SURV., WASHINGTON, D.C., PP. 27-51.
(DAMAGE TO ENGINEERING STRUCTURES RESULTING FROM THE APRIL 29, 1965 EARTHQUAKE EPICENTERED AT 13 MILES SOUTHEAST OF DOWNTOWN SEATTLE, WA, IS DISCUSSED AND ILLUSTRATED. COPIES OF RECORDS FROM STRONG MOTION SEISMOGRAPHS AT OLYMPIA, TACOMA, AND SEATTLE ARE SHOWN--THOSE FROM OLYMPIA AND SEATTLE ARE COMPARED WITH RECORDS FROM THE 1949 EARTHQUAKE RECORDED BY THE SAME INSTRUMENTS. THE 1949 SHOCK WAS THE STRONGER OF THE TWO AT OLYMPIA. THE SURFACE INTENSITY FOR BOTH SHOCKS WAS MODERATE OVER A WIDER AREA THAN COMPARABLE MAGNITUDE BUT SHALLOWER FOCUS CALIFORNIA EARTHQUAKES.)
(1A022D965STEK01)

STEPP, JESSE C., W. A. RINEHART, AND S. ALGERMISSEN
1965 SUMMARY OF EARTHQUAKES IN THE UNITED STATES 1963-64 AND AN EVALUATION OF THE DETECTION CAPABILITY OF THE UNITED STATES SEISMOGRAPH STATIONS--FINAL REPORT, 16 NOVEMBER 1965. ENVIRON. SCI. SERV. ADM., CST GEOD. SURV., ADV. RES. PROJECTS AGENCY, WASHINGTON, D.C., 110 PAGES.
(SEE ESPECIALLY PAGE 28, AND OTHER MATERIALS PERTAINING TO REGION 2.)
(1A022D965STEJ01)

STEPP, JESSE C.
1971 AN INVESTIGATION OF EARTHQUAKE RISK IN THE PUGET SOUND AREA BY USE OF THE TYPE 1 DISTRIBUTION OF LARGEST EXTREMES. PH.D THESIS, UNIVERSITY OF WASHINGTON.
(GUMBEL'S STATISTICAL THEORY OF THE DISTRIBUTION OF LARGEST VALUES HAS BEEN APPLIED TO A SAMPLE OF 744 EARTHQUAKES KNOWN TO HAVE OCCURRED IN THE PUGET SOUND AREA BETWEEN 1870 AND 1969. A METHOD WAS DEVELOPED FOR DETERMINING THE COMPLETENESS OF THE HISTORICAL EARTHQUAKE DATA SAMPLE THAT INVOLVES ANALYZING THE COMPLETENESS OF EACH INTENSITY CLASS. INTENSITY SAMPLES OBTAINED AT 12 PLACES WERE BASED UPON CALCULATING MISSING INTENSITIES USING A LEAST-SQUARES EQUATION. THE SAMPLES WERE FOUND TO YIELD ESTIMATES OF FUTURE ACTIVITY CONSISTENT WITH RECENT HISTORICAL EXPERIENCE.)
(1A022D971STEJ01)

STEPP, JESSE C.
1972 ANALYSIS OF COMPLETENESS OF THE EARTHQUAKE SAMPLE IN THE PUGET SOUND AREA AND ITS EFFECT ON STATISTICAL ESTIMATES OF EARTHQUAKE HAZARD. PROC. INT. CONF. MICROZONATION FOR SAFER CONSTR. RES. APPLIC., PP. 897-909.
(THE 100-YEAR SAMPLE OF EARTHQUAKES KNOWN TO HAVE OCCURRED IN THE PUGET SOUND AREA BETWEEN 1870 AND 1969 IS EVALUATED FOR COMPLETENESS AND THE QUESTION OF FITTING THE FREQUENCY FORMULA TO BIASED SAMPLES IS STUDIED. THE USUAL BIAS IN EARTHQUAKE CATALOGS AGAINST SMALL SHOCKS IS FOUND TO BE PARTICULARLY SEVERE FOR THE PUGET SOUND SAMPLE. A METHOD IS DESCRIBED FOR DETERMINING THE INTERVAL IN AN INTENSITY CLASS OVER WHICH THAT CLASS IS HOMOGENEOUS.)
(1A022D972STEJ01)

Stuart, D.J., 1961, Gravity study of crustal structure in western Washington: U.S. Geol. Survey Prof. Paper 424-C, p: C273-276.

TIEN, YU BUN
1971 SITE RESPONSE AND SEISMICITY IN THE SEATTLE AREA. DISS. ABSTR. INT., VOL. 31, NO. 10, PAGE 5966B, ABSTRACT.
(REPORTS THE FIRST ATTEMPT MADE TO CONSTRUCT A POWER-SPECTRAL RATIO MAP OF SEATTLE, TO BE USED FOR SEISMIC ZONING PURPOSES.)
(1D022M971TIEY01,1D022D971TIEY01)

TIFFIN, D. L.
1973 MARINE GEOPHYSICAL ACTIVITIES ON THE PACIFIC MARGIN. CAN. GEOL. SURV., PAP. NO. 73-1, PART A, PAGE 121. (A CLEARER AND MORE DETAILED PICTURE OF THE FLOOR STRUCTURE OF THE STRAIT OF JUAN DE FUCA RESULTED FROM A TWO-WEEK COOPERATIVE STUDY OF THE U.S. GEOLOGICAL SURVEY AND GEOLOGICAL SURVEY OF CANADA. GRAVITY, MAGNETICS, AND BATHYMETRY RECORDS ALONG WITH SUB-BOTTOM AND REFLECTION PROFILES WERE OBTAINED.)
(1B022D973TIFD01)

United States Army Corps of Eningeers. Seattle District, 1949, Report on damage resulting from earthquake of 13 April 1949: U.S. Army Corps of Engineers, Seattle District Office, 28 p. plus 15-page appendix.

A preliminary report consisting largely of general information on damage, seismological data, and damage-cost data. Discussed are location of seismic observations, characteristics of the earthquake, general description of damage, landslides, general geology of the region, foundation conditions in the principal cities, structural damage to building, and damage to bridges, utilities, and to the Seattle District facilities. Includes 5 photographic illustrations depicting structural damage. An appendix to the report describes structural damages to various buildings and installations in the area, and a tabular summarization of damage to Northern Pacific Railway Company installations. Includes a map showing the intensity boundaries in the Pacific Northwest.

U.S. Geological Survey, 1975, A study of earthquake losses in the Puget Sound, Washington Area: U.S. Geological Survey Open-File Report 75-375, 298 p.

U. S. Department of the Interior Bonneville Power Administration
1952. Communication on Fault-Offsets in Puget Sound Affecting Snohomish-Kitsap Submarine Cable Crossing. Letter from F. W. Farr, Structural Mechanical Unit to A. A. Osipovich, Chief, Transmission Design Section, dated February 21, 1952. (Problems concerning submarine geology and seismology of the area to submarine slumping.)

U.S. DEPARTMENT OF COMMERCE, COAST AND GEODETIC SURVEY
1965 ABSTRACTS OF EARTHQUAKE REPORTS FOR THE PACIFIC COAST AND THE WESTERN MOUNTAIN REGION. SEISMOLOGICAL FIELD SURVEY, SAN FRANCISCO, CALIFORNIA, REP. NO. MSA-126, GOVT PRINT. OFF., WASHINGTON, D.C., 129 PAGES. (THIS PARTICULAR ISSUE CONTAINS DETAILED REPORTS OF THE SEATTLE, WASHINGTON AREA EARTHQUAKE OF APRIL 29, 1965. MAGNITUDE WAS 6.5, AND GREATER IN SOME AREAS.)
(1D022D965USDC01)

BEAK CONSULTANTS, INC
1975 BIOLOGICAL OIL IMPACT LITERATURE REVIEW. WASH. ST. DEP. ECOLOGY. BASELINE STUDY PROGRAM--NORTH PUGET SOUND, VOL. I. TEXT 193 PAGES.
(PERTINENT LITERATURE ON THE IMPACT OF OIL UPON THE SIGNIFICANT BIOLOGICAL RESOURCES OF PUGET SOUND IS REVIEWED AND ANALYZED. POSSIBLE EFFECTS OF OIL SPILLS AND SPILLS OF PETROCHEMICAL PRODUCTS ON THE BIOTA ARE CONSIDERED. INTERPRETATIVE DATA IS SUMMARIZED BY ORGANISM AND HABITAT.)
(1AO22H975BEAC01,1AO22Z975BEAC01)

BEAK CONSULTANTS, INC
1975 BIOLOGICAL OIL IMPACT LITERATURE REVIEW. WASH. ST. DEP. ECOLOGY. BASELINE STUDY PROGRAM--NORTH PUGET SOUND, VOL. II. BIBLIOGRAPHY. 464 PAGES.
(THE REPORT IS AN ANNOTATED BIBLIOGRAPHY OF CURRENT AVAILABLE LITERATURE ON THE ECOLOGY OF THE SIGNIFICANT BIOLOGICAL RESOURCES OF PUGET SOUND AND ON THE EFFECTS OF OIL SPILLS AND PETROCHEMICAL PRODUCTS ON THOSE BIOTA. IT IS INTENDED FOR USE IN CONJUNCTION WITH COMPOSITE FACT SHEETS AND CONTAINS ALL CONSULTED SOURCES USED IN OBTAINING INFORMATION FOR THE FACT SHEETS. CERTAIN REFERENCES OF GENERAL INTEREST ON THE SUBJECT OF OIL POLLUTION AND MARINE ORGANISMS ARE ALSO INCLUDED.)
(1AO22H975BEAC02,1AO22Z975BEAC02)

Bortleson, G.C., Dion, N.P., McConnell, J.B., and Nelson, L.M., 1975, Reconnaissance data on lakes in Washington: Washington Dept. Ecology Water-Supply Bull. 43, v. 1-4.

A total of 400 lakes in western Washington were sampled in 1973-74 to obtain information on their physical, cultural, and water-quality conditions. Physical data for each lake include drainage area, lake area and volume, and lake depth. An aerial photograph and bottom contour map for each lake are shown.

COLLIAS, EUGENE E.
1970 INDEX TO PHYSICAL AND CHEMICAL OCEANOGRAPHIC DATA OF PUGET SOUND AND APPROACHES, 1932-1966. UNIVERSITY OF WASHINGTON DEPT. OF OCEANOGRAPHY SPECIAL REPORT NO. 43. WASHINTON SEA GRANT PUBLICATION 70-4. STATE OF WASHINGTON, DEPT. OF NATURAL RESOURCES. AQUACTIC LAND MANAGEMENT SERIES 1. 823 PAGES.
(PROVIDES A CONVENIENT AND RAPID REFERENCE TO THE MAJORITY OF LOCATIONS WHERE WATER SAMPLES WERE COLLECTED FOR VARIOUS PHYSICAL AND CHEMICAL DETERMINATIONS BETWEEN THE YEARS 1932 AND 1966, PROVIDES A LISTING OF THE TYPE OF DATA TAKEN, AND REFERENCES THE SOURCES FROM WHICH THESE DATA MAY BE OBTAINED.)*
(AO22F70COLE01,AO22G70COLE01)

Collias, Eugene E., McGary, Noel, and Barnes, Clifford A., 1974, Atlas of Physical and chemical properties of Puget Sound and its approaches: Washington Sea Grant Program, 235 p.

A graphic presentation defining major features of water properties in Puget Sound. Eight longitudinal profiles are presented over a 14 year span from 1952-1966, Measurements presented were made along major axes of the various channels.

Collias, E.E., and Svetlana, A.I., 1977, Puget Sound marine environment, an annotated bibliography: Washington Sea Grant Publication, Univ. of Washington Press, Seattle, 392 p.

HARRIS, R. G. AND M. RATTRAY JR
1954. THE SURFACE WINDS OVER PUGET SOUND AND THE STRAIT OF JUAN DE FUCA AND THEIR OCEANOGRAPHIC EFFECTS. UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY, TECH. REP. NO. 37, 101 PAGES. ALSO SEE HARRIS, R. G., M.S. THESIS, UNIVERSITY OF WASHINGTON, 1954.
(AVAILABLE WIND DATA FROM SEVERAL REPORTING STATIONS WERE REVIEWED, COMPILED AND COLLATED INTO WIND ROSE DIAGRAMS TO DELINEATE DOMINANT WIND DIRECTIONS AND VELOCITIES AT THESE STATIONS. SELECTED METEOROLOGICAL CONDITIONS IN PUGET SOUND ARE DISCUSSED.)
(1A022B954HARR01)

McIntosh, Cam, and Pizzo, Joseph, 1977, Compendium of current environmental studie in Puget Sound and northwest estuarine waters: Oceanographic Institute of Washington, unpaged.

A descriptive record of all current marine studies in the State of Washington

Oceanographic Institute of Washington, 1974, Offshore petroleum transfer systems for Washington State: Oceanographic Commission of Washington. 456 p.

NICHANDROS, HARRY M. AND GERALD T. ORLOB
1974. DATA REVIEW FOR ECOLOGICAL MODELING--PUGET SOUND AND ADJACENT WATERS. WATER RESOURCES ENGINEERS, WALNUT CREEK, CA., 65 PAGES.
(THE STUDY AREA ENCOMPASSES ALL INLAND WATERS EAST OF ROSARIO STRAIT AND SOUTH OF ADMIRALTY INLET. THE PURPOSE IS TO MODIFY AND APPLY MATHEMATICAL WATER QUALITY AND ECOLOGIC MODELS TO THIS AREA. THIS DATA REPORT CONSISTS OF A DESCRIPTION OF THE TYPES OF DATA REQUIRED TO CALIBRATE THE MODELS AND SPECIFIES THE SOURCE, RELIABILITY AND PERIOD OF RECORD FOR EACH DATA TYPE. INCLUDED IN THIS REPORT ARE METEOROLOGICAL, HYDROLOGICAL AND WASTE DISCHARGE DATA ON TIDES, WATER CIRCULATION, AND CHEMICAL AND BIOLOGICAL WATER QUALITY.)
(1A022J974NICH01)

Puget Sound Task Force, 1970, Water-related land resources, appendix V, of Comprehensive study of water and related land resources, Puget Sound and adjacent waters, State of Washington: Pacific Northwest River Basins Comm., Vancouver, 257 p.

The water-related land resources of agriculture, forestry, mining and intensive land use are evaluated for Puget Sound area by sub-basin.

Puget Sound Task Force, 1970, Hydrology and natural environment, appendix III, *of* Comprehensive study of water and related land resources, Puget Sound and adjacent waters, State of Washington: Pacific Northwest River Basins Comm., Vancouver, 205 p.

The natural environment of the Puget Sound area is presented in chapters on physical geography, climatology, and surface and ground water resources, including discussion on the major rivers in the 11 subbasin of the area.

Puget Sound Task Force, 1970, Flood control, appendix XII, *of* Comprehensive study of water and related land resources, Puget Sound and adjacent waters, State of Washington: Pacific Northwest River Basins Comm., Vancouver, 52 p.

Available data, probably collected prior to 1968, were compiled and evaluated by a flood control technical committee. Report gives present status and flooding potential of major streams in Puget Sound region.

Puget Sound Task force - of the Pacific Northwest River Commission, 1970, Comprehensive study of water and related land resources - Puget Sound and adjacent waters: Municipal and industrial water supply and water quality control technical committee, app. XIII Water Quality Control, 232 p.

One of 15 appendixes which contains a detailed report presenting evaluations of existing water quality problems in Puget Sound area. Projections and evaluations of the whole range of water and land resources and uses are presented adequately.

REICHERT, WILLIAM HENRY
1960 BIBLIOGRAPHY AND INDEX OF THE GEOLOGY AND MINERAL RESOURCES OF WASHINGTON, 1937-1956. WASH. ST. DIV. MINES GEOL., BULL. NO. 46.
(THE BIBLIOGRAPHY INCLUDES ARTICLES ON THE GEOLOGY AND MINERAL RESOURCES OF WASHINGTON, PUBLISHED DURING THE PERIOD JAN. 1, 1937-DEC. 31, 1956. ABSTRACTS, REVIEWS, CRITICISMS, AND DISCUSSIONS OF ARTICLES ARE INCLUDED WITH THE ARTICLES. THE APPENDIX CONSISTS OF A BIBLIOGRAPHY AND INDEX OF THESES, SPECIAL PAPERS, AND REPORTS OF COLLEGES AND UNIVERSITIES OF THE U.S. WHICH DEAL WITH THE GEOLOGY AND MINERAL RESOURCES OF WASHINGTON, AND A LIST OF ABSTRACTS OF THESES, AND A LIST OF OTHER UNPUBLISHED REPORTS AND PAPERS WHICH DEAL WITH THE ABOVE SUBJECTS.)
(1A022Z960REIW01,1A022D960REIW01)

REICHERT, WILLIAM HENRY
1969 BIBLIOGRAPHY AND INDEX OF THE GEOLOGY AND MINERAL RESOURCES OF WASHINGTON, 1957-1962. DIV. OF MINES AND GEOLOGY BULL. NO. 59, OLYMPIA, WA, 375 PAGES. AVAILABLE FROM THE DEPARTMENT OF NATURAL RESOURCES.
(1A022D969REIW01,1A022Z969REIW01)

Reichert, W.H., and D.P. Dethier, 1978, Annotated guide to sources of information on the geology, minerals, and ground-water resources of the Puget Sound region, Washington, King County section: Div. Geol. and Earth Resour. Infor. Circ. 61, 63 p.

State of Washington, Dept. of Ecology, 1973, Puyallup River Dec. 1970 - Sept. 1971 Water quality report: Tech. report no. 73-005, 75 p.

A report regarding the water quality of the Puyallup River system for a 9-month period. The Dept. of Ecology and U.S. Geological Survey and a separate agency program comprise the cooperative program which investigates sample analysis and data interpretation.

U.S. Army Corps of Engineers, 1972, Summary of hydrographs for the Pacific Northwest: U.S. Army Engineer Div., Portland, Oregon, unpaged.

Report contains hydrographs, flow duration, and monthly flow data for selected stations in the Pacific northwest.

U.S. Army Corps of Engineers and other consulting Engineers, 1974, Environmental Planning for the Metropolitan Area Cedar - Green River Basins, Washington Urban drainage study: Appendix A. Regional Sub-Basin Plans vol. 1 Cedar River Basin..

An appendix to the Urban Runoff and Basin Drainage Study. It contains general information on each of the regional drainage sub-basins within the Green and Cedar River Basins and specific descriptions of all alternative drainage plans considered, including costs and environmental assessments.

U.S. Army Corps of Engineers and Institute of Environmental Studies, University of Washington, 1975, Washington Environmental Atlas, 2nd Edition.

Contains a series of 1/750,000 scale maps portraying natural features of Washington(geology, hydrology, archeology, etc). A three-page summary text accompanies each map.

U.S. Department of Commerce, 1973, Tidal current charts, Puget Sound, northern part: National Ocean Survey, Rockville, Maryland. Serial No. 696, 12 maps.

U.S. Department of Commerce, 1973, Tidal Charts, Puget Sound, southern part: National Ocean Survey, Rockville, Maryland, 12 maps.

UNIVERSITY OF WASHINGTON, DEPARTMENT OF OCEANOGRAPHY
1953 PUGET SOUND AND APPROACHES--A LITERATURE SURVEY.
VOLUME I--GEOGRAPHY, CLIMATOLOGY, HYDROLOGY.
VOLUME II--GEOLOGY, VOLCANOLOGY, SEISMOLOGY, GEOMAGNATISM, GEODESY, HYDROGRAPHY.
VOLUME III--PHYSICAL OCEANOGRAPHY, MARINE BIOLOGY, GENERAL SUMMARY. MIMEOGRAPHED, OUT OF PRINT.
(ABSTRACTS THE CURRENT KNOWLEDGE OF EACH OF THE FACTORS THAT MAY INFLUENCE THE OCEANOGRAPHY OF PUGET SOUND, AND INCLUDES A DETAILED, ANNOTATED BIBLIOGRAPHY OF RELEVANT PUBLICATIONS AND UNPUBLISHED REPORTS AND DATA FOR EACH OF THE ABSTRACTED SUBJECTS.)
(1A022Z953UWDOO1)

VAGNERS, JURIS AND PAUL MAR
1972 OIL ON PUGET SOUND. AN INTERDISCIPLINARY STUDY IN SYSTEMS ENGINEERING. UNIVERSITY OF WASHINGTON PRESS, 648 PAGES.
(THE REPORT EVALUATES THE CURRENT STATUS OF OIL SPILL PREVENTION AND CONTROL IN PUGET SOUND, AND SUGGESTS RECOMMENDATIONS TO ALLEVIATE ANY NOTICEABLE DEFICIENCIES. SECTION ONE PRESENTS INFORMATION ON THE OIL SPILL STATISTICS AND NOTES ON PREVENTION AND CONTROL. THE SECOND SECTION PRESENTS A DESCRIPTION OF PUGET SOUND AND ITS INDUSTRIES. THE THIRD SECTION DEALS WITH THE PREVENTION AND CONTROL OF OIL SPILLS. A BIBLIOGRAPHY AND A LIST OF SOURCES OF UNPUBLISHED INFORMATION ARE INCLUDED. FOURTEEN APPENDIXES CONTAIN SUPPORTIVE INFORMATION AND DATA.)
(1A003J972VAGJ01)

Washington Sea Grant Program, 1977, The use, study and management of Puget Sound a symposium: Division of Marine Resources HG-30, Univ. of Wash.,272 p.

A symposium dealing with the management of Puget Sound. Various viewpoints are presented within three general categories--Do coastal regulations do the job intended? How should limits be established? and Are research efforts answering management questions? Proceedings held March 23-25, 1977.

WASHINGTON STATE DEPARTMENT OF ECOLOGY
1973 A SELECTED ANNOTATED BIBLIOGRAPHY ON WATER RESOURCES OF THE STATE OF WASHINGTON. WATER RESOURCES INFORMATION SYSTEM, INFORMATION BULL. NO. 7, 548 PAGES.
(THIS BIBLIOGRAPHY ON THE WATER RESOURCES OF THE STATE OF WASHINGTON IS A SELECTED LIST OF PUBLICATIONS CONTAINED IN THE WATER RESOURCES SCIENTIFIC INFORMATION CENTER DATA BASE FROM 1969 THROUGH 1972 AND COVERS A WIDE RANGE OF INFORMATION ON THE WATER RESOURCES OF WASHINGTON.)
(1A012Z973WDOE01)

WASHINGTON STATE DEPARTMENT OF ECOLOGY
1973 NORTH SOUND BASIN BIBLIOGRAPHY. WATER RESOURCES INFORMATION SYSTEM, BASIN BIBLIOGRAPHY NO. 19, 7 PAGES.
(PRESENTS 146 ENTRIES OF STUDIES AND REPORTS RELATED TO THE NORTH SOUND BASIN IN THE PUGET SOUND AREA.)
(1I022Z973WDOE01)

WASHINGTON STATE DEPARTMENT OF ECOLOGY
1973 WEST SOUND BASIN BIBLIOGRAPHY. WATER RESOURCES INFORMATION SYSTEM, BASIN BIBLIOGRAPHY NO. 18, 7 PAGES.
(PRESENTS 144 ENTRIES OF STUDIES AND REPORTS RELATED TO THE WEST SOUND BASIN IN THE PUGET SOUND AREA.)
(1D022Z973WDOE01)

WILLIAMS, R. WALTER, RICHARD M. LARAMIE, AND JAMES J. AMES
1972 STREAM CATALOG-PUGET SOUND AND CHEHALIS REGION. WASH. ST. DEP. FISH., OLYMPIA, WA. 73 PAGES.
(THIS CATALOG HAS BEEN COMPILED IN A ROUGH DRAFT FORM FOR MANAGEMENT PURPOSES. IT BRINGS TOGETHER ALL AVAILABLE PHYSICAL DESCRIPTIONS AND DATA CONCERNING THE INDIVIDUAL RIVERS, TRIBUTARY STREAMS AND ADJACENT LANDS, AS WELL AS PRESENT STATUS DATA THROUGH 1970, ASSOCIATED WITH THE VARIOUS SALMON SPECIES AND STREAM HABITAT UTILIZATION BY EACH SPECIES. A NUMBERING SYSTEM FOR THE PUGET SOUND RIVERS AND STREAMS RESULTED FROM THE CATALOGUING PROCESS.)
(1A022F972WILR01,1A022H972WILR01)

Wolcott, E.E., 1965, Lakes of Washington, v. 1, Western Washington (2d ed.): Washington Div. Water Resources Water Supply Bull. 14, 619 p.

A definitive inventory of 3,813 lakes in 19 counties of western Washington. Data on each lake include location, name, elevation, area in acres, maximum depth, use, and a brief statement on location and drainage. Some of the lakes have maps showing bottom contours.

WYDOSKI, RICHARD S.
1972 ANNOTATED BIBLIOGRAPHY ON THE ECOLOGY OF THE LAKE WASHINGTON DRAINAGE. CONIFEROUS FOREST BIOME, ECOSYSTEM ANALYSIS STUDIES, U.S./INTERNATIONAL BIOLOGICAL PROGRAM, BULL. NO. 1, 102 PAGES.
(CONTAINS 392 PUBLISHED AND UNPUBLISHED REFERENCES THAT PERTAIN TO THE NATURAL RESOURCES IN THE LAKE WASHINGTON WATERSHED, WITH PARTICULAR EMPHASIS ON THE AQUATIC ENVIRONMENT. ALL REFERENCES ARE INDEXED BY KEYWORDS.)
(1JH22Z972WYDR01)

Geologic mapping along the prime Northern Tier pipeline route in western Washington (see figure 2)

1. Brown, R.D., Jr., H.D. Gower, and P.D. Snavely, 1960(1961), Geology of the Port Angeles-Lake Crescent area, Clallam County, Washington: U.S. Geological Survey Oil and Gas Invest, Map OM-203.

   Shows geology and structure of Tertiary rocks near Port Angeles at a scale of 1/62,500.

2. Noble, J.B., 1960, A preliminary report on the geology and ground-water resources of the Sequim-Dungeness area, Clallam County, Washington: Washington Div. Water Resources, Water Supply Bull. 11, 43 p.

3. Lindquist, J.W., 1961, Geology and paleontology of the Fork area, Dungeness and Graywolf Rivers, Clallam County, Washington(M.S. thesis): Univ. Wash., Seattle, 185 p.

4. Danner, W.R., 1948, Contribution to the geology of the Olympic Mountains Washington(M.S. thesis): Univ. Wash., Seattle, 67 p.

5. Hamlin, W.H., 1962, Geology and foraminifera of the Mount Walker-Quilcene-Leland Lake area, Jefferson County, Washington(M.S. thesis): Univ. Wash., Seattle, 127 p.

6. Frisken, J.G., 1965, Pleistocene glaciation of the Brinnon area, east-central Olympic Peninsula, Washington(M.S. thesis): Univ. Wash., Seattle, 75 p.

7. Dinsmore, J.P., 1953, Geology of the Hamma Hamma and North Fork Skokomish River Valleys(M.S. thesis): College of Puget Sound, Tacoma, 69 p.

7a. Carson, R.J., 1976(1977, 1978?), Geologic map of north-central Mason County, Washington; Geologic map of the Brinnon area, Jefferson County, Washington: Wash. Dept. Nat. Resour., Div. Geol. and Earth Resour. Open-File Maps(may be inspected in Olympia, Washington).

8. TODD, MARGARET R.
   1939 THE GLACIAL GEOLOGY OF THE HAMMA HAMMA VALLEY AND ITS RELATION TO THE GLACIAL HISTORY OF THE PUGET SOUND BASIN. THESIS, UNIVERSITY OF WASHINGTON, 48 PAGES. (DESCRIPTION OF THE VASHON AND ADMIRALTY TILLS.) (1FP22D939TODM01)

9. Molenaar, D. and Noble, J.B., 1970, Geology and related ground-water occurrence, southeastern Mason County, Washington: Wash. Dept. Wat. Resour. Water-Supply Bull. No. 29, 145 p.

10. Sceva, Jack E. Geology and ground-water resources of Kitsap County, Washington. 1956.

10. GARLING, M. E. AND OTHERS
1965 WATER RESOURCES AND GEOLOGY OF THE KITSAP PENINSULA AND CERTAIN ADJACENT ISLANDS. WASH. ST. DIV. WAT. RESOURCES, WAT. SUPPLY BULL. NO. 18, 309 PAGES.
(THE REPORT AREA INCLUDED ALL OF KITSAP COUNTY AND PARTS OF MASON, PIERCE, AND KING COUNTIES. THE GEOLOGICAL ORIGIN AND COMPOSITION OF THE AREA WERE DESCRIBED. THE LOCATION OF WELLS IN RELATION TO GLACIAL DEPOSITS AND THE ORIGINS AND POTENTIAL SOURCES OF GROUND-WATER WERE DISCUSSED. GROUND-WATER WAS ANALYZED FOR ITS CHEMICAL QUALITY. INCREASED WITHDRAWALS OF GROUND-WATER IN AREAS SUBJECT TO CONTAMINATION BY WATERS OF UNDESIRABLE QUALITY FROM DEEPER AQUIFERS OR FROM PUGET SOUND COULD LEAD TO DETERIORATION IN WATER QUALITY.)
(1DC12D965GARM01)

11. Wallace, Eugene F., and Dee Molenaar, 1961, Geology and ground-water resources of Thurston County, Washington: Wash. Dept. Conserv., Div. Water Resources, Wat. Supp. Bull. 10, 254 p. Vol. 1

Describes the bedrock and surficial geology of Thurston County in relation to quantity and quality of ground-water resources. Volume 1 is largely well-logs.

11. Noble, John B., and E.F. Wallace, 1966, Geology and ground-water resources of Thurston County, Washington, Volume 2: Wash. Dept. Conserv., Div. Water Resour., Wat. Supp. Bull. 10, 141 p.

Describes the bedrock and surficial geology of Thurston County in relation to the quantity and quality of ground-water resources. Volume 2 includes detailed geologic and hydrologic descriptions.

12. Mundorff, M.J., J.M. Weigle, and G.D. Holmberg, 1955, Ground-water in the Yelm area, Thurston and Peirce Counties, Washington: U.S. Geological Survey Circular 356, 58 p.

Describes the geology and quality and quantity of groundwater near Yelm, Washington.

13. Walters, K.L., and Kimmel, G.E., 1968, Ground-water occurrence and stratigraphy of unconsolidated deposits, central Pierce County, Washington: Wash. Dept. Water Resour., Water Supply Bull 22, 428 p.

14. Crandell, D. R., 1963, Surficial geology and geomorphology of the Lake Tapps quadrangle, Washington: U.S. Geological Survey Professional Paper 388-A, 84 p.

A detailed geologic report and geologic map of the Pleistocene and Recent deposits of the area. A major portion of the area lies in Pierce County, with only the portion northeast of the White River lying in King County. Describes the drainage, relief, climate, bedrock, regional geologic setting, depositional environments, stratigraphy and Quaternary history, palynology, weathering, age determinations, surficial deposits, structure, correlation, economic deposits, engineering geology, and 13 measured sections. Has several page-size maps showing local geologic features. Includes a geologic map at the scale of 2½ inches to the mile, and a map showing the sequence of Vashon deglaciation in the Lake Tapps quadrangle area.

15. Crandell, D. R.; Gard, L. M., Jr., 1959, Geology of the Buckley quadrangle, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-125, map and text on one sheet.

The bedrock geology, surficial geology, including the Osceola Mudflow, soils, structure, geologic history, and mineral resources, consisting of building stone, coal, sand and gravel, and fill material are discussed in the text. The geologic map is at a scale of 2½ inches to the mile.

16. Gower, H.D., and Wanek, A.A., 1963, Preliminary geologic map of the Cumberland quadrangle, King County, Washington: Wash. Div. Mines and Geol. Geologic Map GM-2, 1:24,000.

17. Mullineaux, D. R., 1970, Geology of the Renton, Auburn, and Black Diamond quadrangles, King County, Washington: U.S. Geological Survey Professional Paper 672, 92 p.

A comprehensive geologic report on an area, recently rural, which is gradually becoming urban and suburban. Describes the topography, drainage, climate, vegetation, culture, stratigraphy, lithology, Pleistocene glaciation, Holocene deposits, Osceola Mudflow and its distribution, geomorphology, geologic structure, geologic history, engineering geology including landslides, and mineral deposits including sand and gravel, stone, silica sand, oil and gas, clay, coal, peat, and topsoil. Includes a table with generalized description of the engineering properties of the principal mapped units.

18. Mullineaux, D. R., 1965, Geologic map of the Auburn quadrangle, King and Pierce Counties, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-406, one sheet.

The geologic map units are described, and distribution and thickness in the map area are given. Appropriate symbols are used to denote the geologic structure and to indicate the locations of gravel or sand pits, quarries, coal mines, prospect pits, deep exploratory drill holes, and fossil plant localities. The scale is 2½ inches to the mile.

19. Mullineaux, D. R., 1965, Geologic map of the Black Diamond quadrangle, King County, Washington: U.S. Geological Survey Geologic Quadrangle Maps of the United States Map GQ-407, one sheet.

The geologic map units are described, and distribution and thickness in the map area are given. Appropriate symbols are used to denote the structure, and to indicate the locations of gravel or sand pits, quarries, coal mines, prospect pits, deep exploratory drill holes, and fossil plant localities. The map scale is 2½ inches to the mile.

20. Vine, J. D., 1962, Preliminary geologic map of the Hobart and Maple Valley quadrangles, King County, Washington: Washington Division of Mines and Geology Geologic Map GM-1, map and text on one sheet.

The text includes discussion of the stratigraphy of the Tertiary and Quaternary deposits, the structure, and the economic deposits such as coal, clay, construction stone, sand and gravel, and oil and gas possibilities. Geologic structures, mines or prospects, mined areas, and coal beds are indicated by appropriate symbols on the map. The map is at a scale of 2½ inches to the mile.

20. Rosengreen, T. E., 1965, Surficial geology of the Maple Valley and Hobart quadrangles, Washington: University of Washington M.S. thesis, 71 p.

A detailed study of the stratigraphy and Pleistocene glaciation in the Maple Valley and Hobart areas at the eastern border of the Puget Lowland. Includes a number of physiographic maps showing the ice fronts, glacial lakes, deltas, and drainage of the Vashon maximum and recessional ice stands. Accom-

21. Curran, T. A., 1965, Surficial geology of the Issaquah area, Washington: University of Washington M.S. thesis, 57 p.

Presents a detailed study of the stratigraphy and Pleistocene history of the Issaquah area. Includes several physiographic maps showing the ice front, glacial lakes, deltas, and drainage during various stages of the Vashon recession. Accompanied by a geologic map at the scale of 2½ inches to the mil

22. Anderson, C. A., 1965, Surficial geology of the Fall City area, Washington: University of Washington M.S. thesis, 70 p.

A detailed study of the Pleistocene glaciation of the Fall City area. Includes physiographic maps showing the ice front, glacial lakes, deltas, and drainage during various stages of the Vashon recession. Accompanied by a geologic map at the scale of 2½ inches to the mile.

Supplementary reports for the Northern Tier Pipeline ES Team

Map I-836 Map showing potential hazards from future eruptions of Mount Rainier, Washington

I-851 A Climatic factors related to land-use planning in the Puget Sound Basin, Washington

I-853 A Map showing spawning areas of anadromous fish in southern Hood Canal, Washington

I-853 B Relative susceptibility of lakes to water-quality degradation in the southern Hood Canal area, Washington

I-853 C Streamflow in the southern Hood Canal area, Washington, as related to land-use planning

GM-15 Slope stability map of Thurston County, Washington

GM-16 Relative ground settlement hazards of Thurston County, Washington

U.S. Geological Survey, 1975, A study of earthquake losses in the Puget Sound, Washington, area-selected pages

Puget Sound Task Force, 1970, Puget Sound and adjacent waters-Appendix III, Hydrology and natural environment--selected pages

Columbia-North Pacific Technical Staff, 1970, Columbia-North Pacific Region comprehensive framework study, Appendix V--selected pages pertaining to eastern Washington and Puget Sound

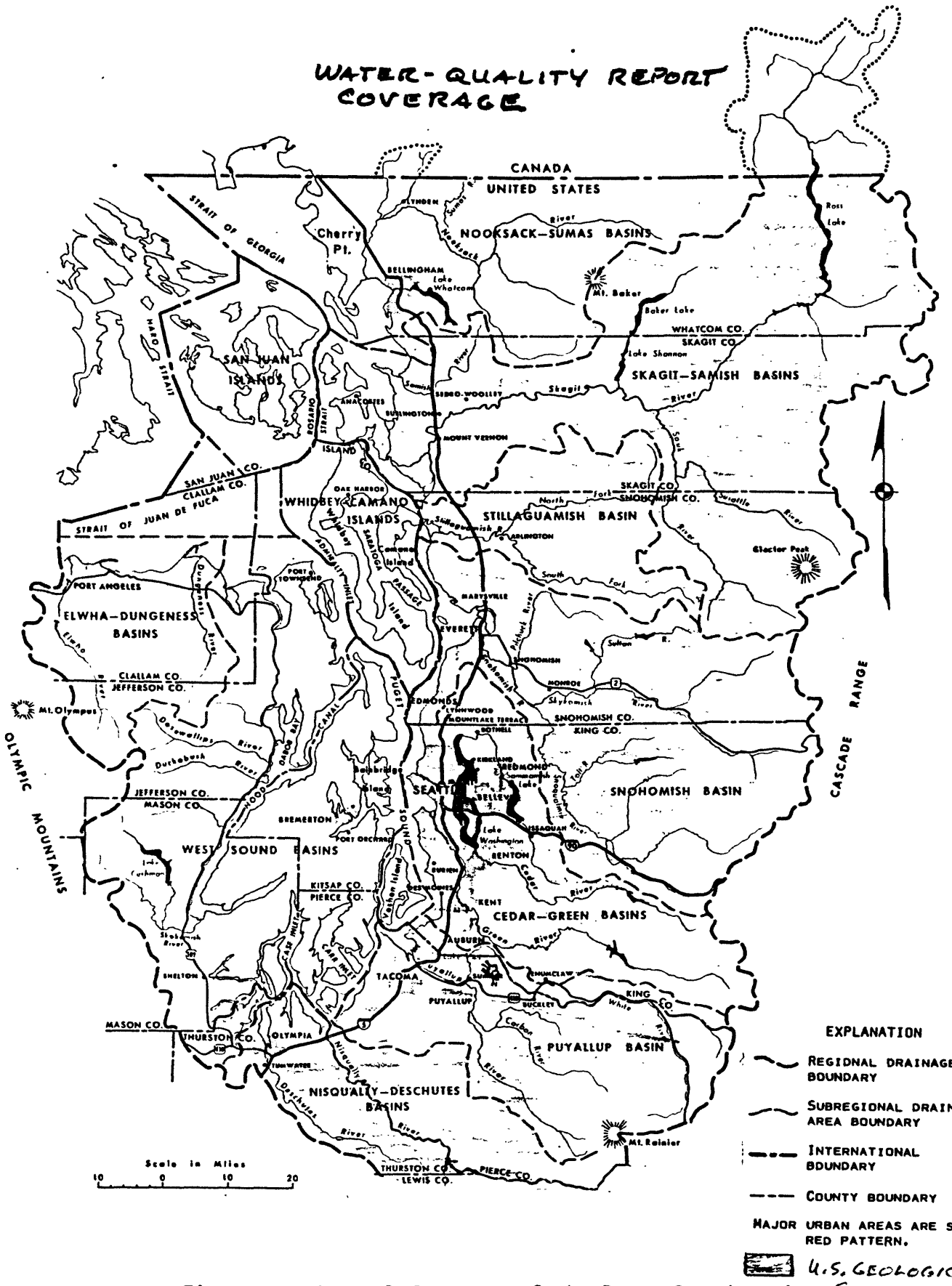

Figure 6.--General features of the Puget Sound region.

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