

TC 8526-01
FINAL REPORT

RECONNAISSANCE SURVEY OF LOWER COLUMBIA RIVER:

TASK I LIST OF MATERIAL TO EVALUATE

AUGUST 5, 1991

PREPARED FOR:
THE LOWER COLUMBIA RIVER BI-STATE PROGRAM

PREPARED BY:
TETRA TECH

IN ASSOCIATION WITH
DAVID EVANS AND ASSOCIATES
EVS CONSULTANTS

T
C
T
E
T
E
R
A
T
E
T
E
T
E

TC 8526-01
FINAL REPORT

RECONNAISSANCE SURVEY OF LOWER COLUMBIA RIVER:

TASK I LIST OF MATERIAL TO EVALUATE

AUGUST 5, 1991

PREPARED FOR:
THE LOWER COLUMBIA RIVER BI-STATE PROGRAM

PREPARED BY:
TETRA TECH
11820 NORTHUP WAY, SUITE 100E
BELLEVUE, WY 98005

IN ASSOCIATION WITH
DAVID EVANS AND ASSOCIATES
EVS CONSULTANTS

CONTENTS

	<u>Page</u>
10 INTRODUCTION	1
20 COLUMBIA RIVER BIBLIOGRAPHIC LIBRARY DATABASE	1
30 TASK 1 REFERENCE LIST	1
40 OTHER SOURCES OF INFORMATION	1

ATTACHMENTS

ATTACHMENT 1 COLUMBIA RIVER BIBLIOGRAPHIC DATABASE

ATTACHMENT 2 TASK 1 REFERENCE LIST

ATTACHMENT 3 OTHER SOURCES OF INFORMATION

TASK 1: LIST OF MATERIALS TO EVALUATE

1.0 INTRODUCTION

This list of material summarizes the data sources to be used for summarizing and characterizing the water quality in the lower Columbia River based on existing data. This deliverable consists of three attachments that include a listing of materials that have been collected and added to the Columbia River bibliographic library database (Attachment 1), a listing of studies that contain data on water, sediment, or biota that will be evaluated as part of Task 1 (Attachment 2), and a list of other sources of information, including contacts at agencies and other organizations (Attachment 3).

2.0 COLUMBIA RIVER BIBLIOGRAPHIC LIBRARY DATABASE

Attachment 1 is a listing all of the references that have been collected and input into the library database as of August 2, 1991. There are currently 161 references contained in the database. These references consist of studies identified in the McConnell (1990) report, studies collected from the Tetra Tech team's in-house libraries, studies collected from two literature searches (i.e., NTIS abstracts and Aquatic Fisheries and Science Abstracts), and studies that have been received in response to phone calls and contacts with various agencies. The library will continue to be updated as additional studies are received. Each entry is coded with a document number (for organizational purposes), a complete citation, and a set of keyword descriptors. Entries in the library apply to all aspects of the Columbia River program and are not limited to Task 1.

3.0 TASK 1 REFERENCE LIST

Attachment 2 is a list of references and data that will be evaluated as part of Task 1. It is a subset of Attachment 1 and consists of 112 entries to date. This list will also be expanded to accommodate additional material that may be received in the future. All the studies that appear to have information or data on water quality, sediment-conventionals, or contaminants, or biological data are included as part of this list. All of these studies will be evaluated to determine which studies are appropriate to use in identifying problem areas and data gaps.

4.0 OTHER SOURCES OF INFORMATION

The third attachment includes a list of all of the people and agencies that have been contacted to gather the appropriate information for inclusion in Task 1. As additional information is gathered from these other sources, it will be included in the library database and in the identification of problem areas, as appropriate.

ATTACHMENT 1:
COLUMBIA RIVER BIBLIOGRAPHIC LIBRARY DATABASE

DOCUMENT NO.: AALA001PS

LOCATION: BCRC

Aaland, Neil. 1991. Additional reference lists for Columbia River. N/A.

KEYWORDS: Task 1; Task 2; Task 3; Task 4; Task 5

DOCUMENT NO.: AMSP001FJ

LOCATION: BCRC

Amspoker, M.C., and C.D. McIntire. 1986. Effects of sedimentary processes and salinity on the diatom flora of the Columbia River estuary. Botanica Marina, Vol. 29:391-399.

KEYWORDS: Task 1; Task 4; Task 6; phytoplankton; salinity; sediment grain size; Columbia River Estuary; Baker Bay; Youngs Bay; Grays Bay; Quinns Island; methods; benthos

DOCUMENT NO.: BEAC001F

LOCATION: BCRC

Beach, R.J., A.C. Gelger, S.J. Jeffries, S.D. Treacy, and B.L. Troutman. 1982. Marine mammals and their interactions with fisheries of the Columbia River and adjacent waters, 1980-1982. National Marine Fish Service, Seattle, WA. 316 PP.

KEYWORDS: Task 1; Task 4; Task 5; marine mammals; fish; fisheries; beneficial uses; RM 20; RM 30; RM 40; RM 115; RM 125; RM 150; Bonneville Dam

DOCUMENT NO.: BEAK002FS

LOCATION: BCRC

Beak Consultants Incorporated, and Scientific Resources Incorporated. 1985. Lacamas - Round Lake diagnostic and restoration analysis. 2 Volumes, Prepared for Intergovernmental Resource Center.

KEYWORDS: Task 2; Lacamas Lake; Round Lake; bacteria; bathymetry; nutrients; zooplankton; turbidity; phytoplankton; macrophytes; fisheries; non-point sources; vegetation

DOCUMENT NO.: BEAK001F

LOCATION: BCRP

Beak Consultants Incorporated. 1978. Operational ecological monitoring program for the Trojan Nuclear Plant: Annual Report. Portland General Electric Company, Portland, OR.

KEYWORDS: Task 1; Task 4; Task 6; fish; plankton; water quality; metals; RM 72; RM 72.4; RM 73.7

DOCUMENT NO.: BEAK003F **LOCATION:** BCRC

Beak Consultants Incorporated. 1989. Human consumption rates of fish from the Columbia River. Prepared for Northwest Pulp and Paper Assoc., Bellevue, WA. 27 pp. + app.

KEYWORDS: Task 5; fisheries; beneficial uses; Bonneville Dam; McNary Dam

DOCUMENT NO.: BEAK004D **LOCATION:** BCRC

Beak Consultants Incorporated. 1989. Columbia River fish study: fish collection, fish tissue sampling and age of fish sampled. Prepared for Northwest Pulp & Paper Assoc., Bellevue, WA. 30 pp.

KEYWORDS: Task 1; Task 4; Task 5; RM 2-45; RM 125-140; RM 146-153; RM 280-298; RM 326-332; dioxins, furans, bioaccumulation; fish; beneficial uses; risk; Bonneville Dam; Columbia Estuary; Kennewick; McNary Dam

DOCUMENT NO.: BLAH001FF **LOCATION:** BCRC

Blahm, T.H., and R.J. McConnell. 1979. Impact of flow-lane disposal at Dobelbower Bar. Contract No. DACW57-76-F-0918, U.S. Army Corps of Engineers and National Marine Fish Serv. 25 pp.

KEYWORDS: Task 1; Task 4; Task 6; water quality; conventionals; zooplankton; turbidity; RM 72; Dobelbower Bay; benthos

DOCUMENT NO.: BLAH002FF **LOCATION:** BCRC

Blahm, T.H., J.T. Durkin, G.R. Snyder, T.C. Coley, and R.L. Emmett. 1990. Columbia River oil spill study June-July 1978. EPA-78-D-X-0390, National Marine Fisheries Center, Seattle, WA. 41 pp.

KEYWORDS: Task 1; Task 4; Task 6; RM 4.5; RM 105; RM 6.5; RM 10; RM 18; RM 28; oil spill; fish; benthos; sediment grain size

DOCUMENT NO.: BOLT001FF LOCATION: BCRC

Bolton, H., R. Breteler, B. Vigon, J. Scanlon, and S. Clark. 1985. National perspective on sediment quality. U.S. EPA, Office of Water Criteria and Standards Division, Washington, D.C.

KEYWORDS: Task 1; Task 2; Task 6; metals; organochlorines; pesticides; PCBs; sediment quality; organics

DOCUMENT NO.: BRIT001FF LOCATION: BCDP

Britton, J. 1989. Elochoman Slough sediment evaluation. Portland District Corps of Engineers, Portland, OR. 31 pp.

KEYWORDS: Task 1; Task 2; Task 6; Elochoman Slough; sediment grain size; dredging test

DOCUMENT NO.: BRIT002FF LOCATION: BCDP

Britton, J. 1989. Results of 1989 U.S. moorings sediment quality evaluation. Portland District Corps of Engineers, Portland, OR. 20 pp.

KEYWORDS: Task 1; Task 2; Task 6; Willamette River; sediment grain size; dredging; metals; pesticides; organics; PCBs

DOCUMENT NO.: BUCH001FF LOCATION: BCRC

Buchman, M.F. 1987. A review and summary of trace contaminant data for coastal and estuarine Oregon. National Oceanographic and Atmospheric Administration, Coastal and Estuarine Assessment Branch, Seattle, WA. 115 pp.

KEYWORDS: Task 1; Task 2; Task 4; pesticides; PCBs; organochlorines; metals; bioassays; sediment; industrial; point sources; NPDES permits; birds; water quality; fish; benthos; plankton; Columbia Estuary; histopathology; marine mammals; mammals

DOCUMENT NO.: BENS001FM LOCATION: BCRC

Bureau of Environmental Services. 1989. Columbia Slough planning study background report. Bureau of Environmental Services, City of Portland, OR. 64 pp + app.

KEYWORDS: 1; 2; 4; 5; 6; Columbia Slough; water quality;

wetlands; riparian; mammals; birds; fish; plants; beneficial
uses; point source; nonpoint source; sediment quality;
bacteria; conventionals; metals; nutrients; benthos;
bioaccumulation

DOCUMENT NO.: BURK001FS LOCATION: BCRC

Burkhalter, R.A. 1989. Personal communication (agreed order
concerning matter of remedial action by Aluminum Company of
America). Agreed order DE-90-I053, Dept. of Ecology,
Olympia, WA. 11 pp.

KEYWORDS: Task 2; groundwater quality; TCE; NPDES permit;
Vancouver; Washington; point source

DOCUMENT NO.: CALL001FF LOCATION: BCRC

Callaway, R.J., K.V. Byram, and G.R. Ditsworth. 1969.
Mathematical model of the Columbia River from the Pacific
Ocean to Bonneville Dam, Part I theory, program notes and
programs. Pacific Northwest Water Laboratory, Corvallis, OR.
82 pp.

KEYWORDS: Task 2; Task 6; RM 0; RM 146; Bonneville Dam;
tidal range; RM 28; RM 35; RM 125; river flow; transport

DOCUMENT NO.: CALL002FF LOCATION: BCRC

Callaway, R.J., and K.V. Byram. 1970. Mathematical model of
the Columbia River from the Pacific Ocean to Bonneville Dam,
Part II input-output and initial verification procedures.
Environmental Protection Agency, Water Quality Office,
Corvallis, OR. 66 pp.

KEYWORDS: Task 3; RM 0-30; tidal range; river flow; RM 146;
temperatures; modeling method

DOCUMENT NO.: CLAI001FF LOCATION: BCRC

Clairain, E.J., R.A. Cole, R.J. Diaz, A.W. Ford, R.T.
Huffman, L.J. Hunt, and B.R. Wells. 1979. Habitat
development field investigations, Miller Sands, marsh and
upland habitat development site, Columbia River, OR. Tech.
Report D-77-38, Prepared for Chief of Engineers Office, U.S.
Army, Washington, DC. 73 pp.

KEYWORDS: Task 4; Miller Sands; RM 22-25; habitat
establishment; dredged material; plants; fish; benthos

DOCUMENT NO.: CLAR001FF LOCATION: BCRC

Clark, M., and G.R. Snyder. 1970. Limnological study of the lower Columbia River, 1967-68. XFWS-A6101-14, U.S. Fish and Wildlife Service, Bureau of Comm. Fisheries, Scientific Report--Fisheries No. 610. 14 pp.

KEYWORDS: Task 1; zooplankton; conventional; salinity; RM 104; RM 87; RM 84; RM 74; RM 66; RM 49; RM 34; Willamette River; Lewis River; Kalama River; Cowlitz River

DOCUMENT NO.: CRED001AF LOCATION: BCRC

Columbia River Estuary Data Development Program. 1984. Abstracts of major C.R.E.D.D.P. publications. Columbia River Estuary Study Taskforce, Astoria, Oregon. 47 pp. + app.

KEYWORDS: Task 1; Task 2; Task 3; Task 4; Task 6; phytoplankton; vascular plants; wetlands; Columbia River Estuary; benthic infauna; zooplankton; fish; benthic epifauna; birds; mammals; marine mammals; circulation; tidal flow; salinity; bathymetry

DOCUMENT NO.: CRED002FS LOCATION: BCOC

Columbia River Estuary Data Development Program. 1983. Bathymetric Atlas of the Columbia River Estuary. Columbia River Estuary Data Development Program.

KEYWORDS: Task 2; Task 6; bathymetry; Columbia River Estuary

DOCUMENT NO.: CRED004FF LOCATION: BCRC

Columbia River Estuary Data Development Program. No Date. A literature survey of the Columbia River Estuary (Vols. 1 and 2). Columbia River Estuary Data Development Program.

KEYWORDS: Task 3; Task 4; Columbia River Estuary; RM 46; RM 0; benthos; marine mammals; birds; fish; sedimentation; plants; plankton

DOCUMENT NO.: CZUC001FJ LOCATION: BCAP

Czuczwa, J.M., and R.A. Hites. 1986. Sources and fate of PCDD and PCDE. Chemosphere. 15(9-12):1417-1420.

KEYWORDS: Task 1; fate; organochlorines; dioxin; sediments; air

DOCUMENT NO.: DAWL002FF LOCATION: BCRC

Dawley, E.H., T. Blahm, G. Snyder, and W. Ebel. 1975. Studies of effects of supersaturation of dissolved gases on fish. Bonneville Power Admin., Bureau of Reclamation, U.S. Army Corps of Engineers. 84 pp.

KEYWORDS: Task 4; fish; bioassay; gas supersaturation

DOCUMENT NO.: DAWL001FF LOCATION: BCRP

Dawley, E.M., R.D. Ledgerwood, T.H. Blahm, C.W. Sims, J.T. Durkin, R.A. Kirn, A.E. Rankis, G.E. Monan, and F.J. Ossiander. 1986. Migrational characteristics, biological observations, and relative survival of juvenile salmonids entering the Columbia River estuary, 1966-1983. Final Report. Contract DE-A179-84BD39652, Project No. 81-102, Bonneville Power Administration, Div. of Fish and Wildlife, Portland, OR, and National Marine Fisheries Service, Seattle, WA. 256 pp.

KEYWORDS: Task 1; Task 4; Task 6; RM 46.6; fish; salinity; Jones Beach

DOCUMENT NO.: DURK001FF LOCATION: BCRP

Durkin, J.T., and R.L. Emmett. 1980. Benthic invertebrates, water quality, and substrate texture in Baker Bay, Youngs Bay, and adjacent areas of the Columbia River estuary. Final Report. Contract No. 14-16-009-77-939, U.S. Fish and Wildlife Service, Ecological Services Division, Portland, OR, and National Marine Fisheries Service, Seattle, WA. 44 pp.

KEYWORDS: Task 1; Task 4; Task 6; Baker Bay; Tongue Point; salinity; sediment grain size; benthos; conventional's

DOCUMENT NO.: DURK002FF LOCATION: BCRP

Durkin, J.T., T.C. Coley, K. Verner, and R.L. Emmett. 1981. An aquatic species evaluation at four self scouring sites in the Columbia River estuary. Final Report. Contract No. DACW57-79-F-0145, U.S. Army Corps of Engineers, and National Marine Fisheries Service, Seattle, WA. 46 pp.

KEYWORDS: Task 1; Task 4; Task 6; RM 3, RM 10, RM 13, RM 18; fish, benthos, sediment grain size, salinity

DOCUMENT NO.: DURK003FF LOCATION: BCRC

Durkin, J.T., S.J. Lipovsky, and R.J. McConnell. 1979. Biological impact of a flowlane disposal project near Pillar Rock in the Columbia River Estuary. Contract No. DACW57-77-F-0621, Report to the U.S. Army Corps of Engineers, Portland District. 91 pp.

KEYWORDS: Task 4; RM 28; fish; benthos; water quality; sediment grain size

DOCUMENT NO.: EBEL001FJ LOCATION: BCRC

Ebel, W.J., J.W. Mullan, and H.L. Raymond. 1989. The Columbia River--toward a holistic understanding. In: D.P. Dodge (ed.) Proceedings of the International Large River Symposium. Can. Spec. Publ. Fish. Aquat. Sci. 106:205-219.

KEYWORDS: Task 2; Task 3; Task 4; Task 5; point source; nonpoint source; water quality; fish; hydrology; fisheries; plankton; sediment; benthos

DOCUMENT NO.: ENVI001FS LOCATION: BCDC

Envirosphere Company. 1980. Columbia River estuary data development program, Task B 3.1-2, characterization of water quality, Vol. II Appendices. Envirosphere Company, Bellevue, WA.

KEYWORDS: Task 1; Task 3; Task 6; salinity; temperature; metals; radioactivity; conventionals; river flow; Bonneville Dam; RM 5; RM 8.5; RM 14; RM 18; RM 23; RM 27; RM 31; RM 38; RM 42; RM 47; RM 50; Estuary; Wauna; Eagle Cliff; Cathamet; Astoria

DOCUMENT NO.: FIES001FS LOCATION: BCRC

Fies, T.T. 1971. Surveys of some sloughs of the lower Columbia River. Oregon State Game Commission, Fisheries Division. 58 pp.

KEYWORDS: Task 5; RM 18; RM 140; Tongue Point; Bonneville Dam; fish; catch data; beneficial uses

DOCUMENT NO.: EPAX002FF LOCATION: BCRC

Findley, C.E. 1987. Complaint and compliance order: U.S. Environmental Protection Agency vs. Pendleton Woolen Mills. Docket No. 1087-09-08-3008A U.S. EPA, Region X, Seattle, WA. 13 pp.

KEYWORDS: Task 2; Pendleton Woolen Mills; Washougal; organics; metals

DOCUMENT NO.: FIOR001FJ LOCATION: BCAP

Fiore, B.C., H.A. Anderson, L.P. Hanrahan, and L.J. Olson. 1989. Sport fish consumption and body burden levels of chlorinated hydrocarbons: A study of Wisconsin anglers. Archives of Environmental Health. 1 pp.

KEYWORDS: Task 5; PCBs; bioaccumulation; Wisconsin Anglers

DOCUMENT NO.: FISH001F LOCATION: BCRC

Fisher, J.N. 1985. Effect on Columbia River quality from raw water sedimentation basin wash-out at the Longview Weyerhaeuser pulp mill. Project No. 141-1834, Weyerhaeuser Research Report, Tacoma, WA. 12 pp + app.

KEYWORDS: RM 63; turbidity; WA; Longview; Cowlitz River; pulp mills; Task 1; Task 2; Task 6; Task 3

DOCUMENT NO.: FITZ001FJ LOCATION: BCRC

Fitzner, R.E., L.J. Blus, C.J. Henny, and D.W. Carlile. 1988. Organochlorine residues in great blue herons from the northwestern United States. Colonial Water Birds 2:293-300.

KEYWORDS: Task 1; Task 4; Task 6; birds; organochlorines; Foundation Island; Umatilla NWR; Hanford Reservation

DOCUMENT NO.: FOST001F

LOCATION: BCRC

Foster, R.F., and L.A. Carter. No Date. A compilation of basic data related to the Columbia River. H6U-69368, Hanford Atomic Products Operations, Richland, WA.

KEYWORDS: Task 1; Task 3; Task 4; Task 5; beneficial uses; bibliography; plankton; fish; river flow; radionuclides; methods; water quality

DOCUMENT NO.: FOX 001DF

LOCATION: BCRC

Fox, D.S. 1981. A review of recent scientific literature on the Columbia River estuary, emphasizing aspects important to resource managers. Draft report. Columbia River Estuary Study Taskforce, Astoria, Oregon. 146 pp.

KEYWORDS: Task 1; Task 3; Task 4; Task 6; circulation; salinity; river flow; sediment; wetlands; benthos; plankton; fish; birds; Col. Estuary; mammals; marine mammals; Baker Bay; Grays Bay; Youngs Bay; Cathlamet Bay; Trestle Bay; nutrients

DOCUMENT NO.: FOX 002FF

LOCATION: BCOC

Fox, D.S., and P. Benoit. No Date. The physical and biological characteristics of the Columbia River estuary - summarized by sub-region. Columbia River Estuary Study Taskforce, Astoria, Oregon. 247 pp. + app.

KEYWORDS: RM 0; RM 46; Task 1; Task 3; Task 4; Task 6; Baker Bay; Trestle Bay; North Channel; South Channel; Tongue Point; Youngs Bay; Lewis and Clark River; Youngs River; Central Estuary Shoals; Upper Estuary Shoals; Grays Bay; East Tongue Point;

DOCUMENT NO.: FOX003FS

LOCATION: BCOC

Fox, D.S., S. Bell, W. Nehlsen, and J. Damron. 1984. The Columbia River Estuary Atlas of physical and biological characteristics. Columbia River Estuary Data Development Program. 87 pp.

KEYWORDS: Task 1; Task 3; Task 4; circulation; salinity; plankton; benthos; wetland; fish; birds; marine mammals; mammals

DOCUMENT NO.: FRIE001E LOCATION: BCDP

Friedman and Bruya, Inc. 1991. Results of analyses of the soil samples for polynuclear aromatic hydrocarbons (PNAs) by GC-FID. Friedman & Bruya, Inc. 7 pp.

KEYWORDS: Task 1; Task 6; sediment; organics; Astoria

DOCUMENT NO.: FROS001FJ LOCATION: BCRC

Frost, P. 1990. Bald eagles on the Columbia River: Threats from persistent organochlorines. Journal of Pesticide Reform. 10(2):5-9.

KEYWORDS: Task 1; Task 4; birds; organochlorines; lower Columbia; mercury; bioaccumulation; toxicity; dioxins; furans; PCBs; DDT

DOCUMENT NO.: FUHR001FF LOCATION: BCRC

Fuhrer, G.J., and D. Evans. 1990. Use of elutriate tests and bottom-material analyses in simulating dredging effects on water quality of selected rivers and estuaries in OR and WA. Water Resources Investigation Report 89-4051, U.S. Geological Survey. 54 pp.

KEYWORDS: Task 1; Task 2; water quality; priority pollutants; sediment; point source; RM 70; Astoria, Baker Bay; conventionals; Chinook Channel; RM 33; PCBs; pesticides

DOCUMENT NO.: FUHR002FE LOCATION: BCRC

Fuhrer, G.J. 1984. Chemical analyses of elutriates, native water, and bottom material from the Chetco, Rogue, and Columbia Rivers in western Oregon. Open File Report 84-133, U.S. Geological Survey, U.S. Army Corps. 57 pp.

KEYWORDS: Task 1; Task 6; RM 0; RM 18; Cathlamet Bay; metals; pesticides; sediment grain size; conventionals; water quality; sediment; salinity; methods

DOCUMENT NO.: FUHR003FF LOCATION: BCRC

Fuhrer, G.J. 1986. Extractable cadmium, mercury, copper, lead, and zinc in the lower Columbia River estuary, Oregon and Washington. Water-Resources Investigations Report 86-4088, U.S. Geological Survey. 61 pp.

KEYWORDS: Task 1; Task 6; Baker Bay; Astoria; sediment grain size; metals; methods

DOCUMENT NO.: FUHR004FF LOCATION: BCRC

Fuhrer, G.J., and A.J. Horowitz. 1989. The vertical distribution of selected trace metals and organic compounds in bottom materials of the proposed lower Columbia River export channel, Oreg. Water-Resources Investigations Report 88-4099, U.S. Geological Survey. 40 pp.

KEYWORDS: Task 1; Task 6; metals; organic carbon; organochlorine; sediment grain size; methods; Youngs Bay; Skipanon River; Tongue Point; RM 7.5; RM 11; RM 12; RM 18

DOCUMENT NO.: FUHR005FF LOCATION: BCRC

Fuhrer, G.J., and F.A. Rinella. 1983. Analysis of elutriates, native water, and bottom material in selected rivers and estuaries in western Oregon and Washington. Open-File Report 82-922, U.S. Geological Survey, U.S. Army Corps. 147 pp.

KEYWORDS: Task 1; Task 6; organic carbon; Baker Bay; Bonneville Dam; Astoria; Youngs Bay; methods; metals; herbicides; pesticides; PCBs; priority pollutants

DOCUMENT NO.: FUHR006FF LOCATION: BCRC

Fuhrer, G.J. 1989. Quality of bottom material and elutriates in the lower Willamette River, Portland Harbor, Oregon. Water Resources Investigations Report 89-4005, U.S. Geological Survey. 30 pp.

KEYWORDS: Task 1; Task 6; metals; organochlorines; PCBs; pesticides; RM 101; RM 102; RM 103; RM 104; RM 105; RM 106; RM 107; sediment grain size; nutrients; methods

DOCUMENT NO.: FUHR007FF LOCATION: BCDP

Fuhrer, G.J., and F.A. Rinella. 1983. Analyses of elutriates, native water, and bottom material in selected rivers and estuaries in western Oregon and Washington. U.S. Army Corps of Engineers. pp. 59-66.

KEYWORDS: Task 1; Task 6; Astoria; Youngs Bay; metals; organic carbon

DOCUMENT NO.: FULT001DF LOCATION: BCRC

Fulton, L.A. 1971. A preliminary report on types and locations of pollution outfalls on the lower Columbia River. National Marine Fisheries Services, Seattle, WA.

KEYWORDS: Task 2; RM 1; RM 146; point source; industrial; domestic; thermal

DOCUMENT NO.: GARR001FF LOCATION: BCRP

Garrett, M., R.G. Anthony, J.W. Watson, and K. McGarigal. 1988. Ecology of bald eagles on the lower Columbia River: Final Report to U.S. Army Corps of Engineers, Contract No. DACW57-83-C-0100. Oregon State University, Dept. of Fisheries and Wildlife, Corvallis, OR. 189 pp.

KEYWORDS: Task 1; Task 4; RM 0; RM 65; organochlorines; metals; birds

DOCUMENT NO.: GIES001FJ LOCATION: BCRC

Giese, B.S., and D.A. Jay. 1989. Modeling tidal energetics of the Columbia River estuary. Estuarine, Coastal and Shelf Science 29:549-571.

KEYWORDS: Task 2; RM 3; RM 43; tidal range; RM 1, RM 8.3, RM 18; RM 24; RM 42; RM 53; RM 83

DOCUMENT NO.: GOVE001FS LOCATION: BCRC

Governor's Office, States of Oregon and Washington. No Date. Columbia River Estuary: Governors Nomination to the National Estuary Program. Governors Office, States of Oregon and Washington. 56 pp.

KEYWORDS: Task 4; Task 2; Task 5; beneficial uses; plankton;

fish; birds; mammals; plants; threatened species; point sources; nonpoint sources; habitat loss; pollutant loading; regulatory agencies; Columbia River Estuary

DOCUMENT NO.: HAER001FJ LOCATION: BCRC

Haertel, L., and C. Osterberg. 1967. Ecology of zooplankton, benthos and fishes in the Columbia River Estuary. Ecology, 48(3): 459-472.

KEYWORDS: Task 1; Task 4; plankton; fish; benthos; salinity; RM 2; RM 8; RM 15; RM 23; methods; Astoria

DOCUMENT NO.: HAMI001FF LOCATION: BCRC

Hamilton, P. 1984. Hydrodynamic modeling of the Columbia River estuary: Final report on the simulation work unit of the Columbia River estuary data development program. Columbia River Estuary Study Taskforce, Astoria, Oregon.

KEYWORDS: Task 3; Task 6; Columbia River Estuary; salinity; circulation; tidal flow; bathymetry

DOCUMENT NO.: HAUS001FF LOCATION: BCRC

Haushild, H.H., H.H. Stevens, Jr., J.L. Nelson, and G.R. Dempster, Jr. 1973. Radionuclides in transport in the Columbia River from Pasco to Vancouver, Washington. Geological Survey Professional paper 433-N, U.S. Government Printing Office, Washington, DC. 43 pp.

KEYWORDS: Task 1; Task 2; Pasco; Umatilla; Vancouver; point source; radionuclides

DOCUMENT NO.: HAUS002FF LOCATION: BCRC

Haushild, W.L., G.R. Dempster, Jr., and H.H. Stevens, Jr. 1975. Distribution of radionuclides in the Columbia River streambed, Hanford Reservation to Longview, Washington. U.S. Geological Survey Professional Paper 433-0, U.S. Government Printing Office, Washington, DC. 35 pp.

KEYWORDS: RM 106; RM 289; RM 330; radionuclides; Vancouver; Umatilla; Pasco; Hanford; sediment; Task 1; Task 2; Task 3; Task 6

DOCUMENT NO.: HEDG001FJ

LOCATION: BCRC

Hedges, J.I., J.H. Turin, and J.R. Ertel. 1984. Sources and distributions of sedimentary organic matter in the Columbia River drainage basin, Washington and Oregon. *Limnol. Oceanogr.* 29(1):35-46.

KEYWORDS: Task 1; vascular plant debris; sediments; organic carbon; methods; Grand Coulee Dam; Wells Dam; Rock Island Dam; Priest Rapids; McNary Dam; John Day Dam; Bonneville Dam; Astoria

DOCUMENT NO.: HEFF001FS

LOCATION: BCRP

Heffner, M. 1989. Kalama Chemical, Inc. Class II Inspection May 1988. Segment 26-001-01, Washington Dept. of Ecology, Environ. Lab. Services, Olympia, WA. 44 pp.

KEYWORDS: Task 2; Task 6; bioassay; toxicity; organics; fish; benthos; priority pollutants; sediment; water quality; point source; NPDES Permit; RM 74

DOCUMENT NO.: HENN001FJ

LOCATION: BCRC

Henny, C.J., and R.G. Anthony. 1989. Bald eagle and osprey. National Wildlife Federation Scientific and Technical Series (12):66-82.

KEYWORDS: Task 1; Task 4; Task 6; bird; organochlorine; Wenatchee; Memaloose Island; Multnomah Falls; Washougal

DOCUMENT NO.: HENN002FJ

LOCATION: BCRC

Henny, C.J., L.J. Blus, A.J. Krynitsky, and C.M. Bunck. 1984. Current impact of DDE on Black-Crowned Night-Herons in the intermountain west. *J. Wildl. Manage.* 48(1):1-13.

KEYWORDS: Task 1; Task 4; Task 6; organochlorines; birds; Three-Mile Island; Moses Lake; Foundation Island

DOCUMENT NO.: HIGL001FS

LOCATION: BCRC

Higley, D.L., S.L. Wilson, K.K. Jones, and R.L. Holton. 1983. Distributor and community structure of benthic infauna in channel and protected flat habitats of the Columbia River Estuary. Report to U.S. Army Corps of Engineers. School of Oceanography, Oregon State University, Corvallis, OR. 81 pp.

KEYWORDS: Task 1; Task 4; Columbia River Estuary; RM 0; RM 46; benthos; salinity; sediment grain size

DOCUMENT NO.: HILE001DF LOCATION: BCRP

Hileman, J., R. Cunningham, and V. Kollias. 1975. Columbia River nutrient study: In cooperation with the Washington State Department of Ecology and the Oregon State Department of Environmental Quality. EPA 910-9-75-011, Surveillance and Analysis Div., Seattle, WA Region X. 81 pp.

KEYWORDS: Task 1; Task 2; Task 6; RM 39; RM 734; nutrients; bacteria; conventionals; river flow; Snake River; Willamette River; point source

DOCUMENT NO.: HINE001D LOCATION: BCRP

Hines, W.G., P. Sturtevant, G.T. Bailey, and D.E. Anderson. 1978. River quality conditions of the lower Columbia River: A preliminary assessment. Lower Columbia River Study Group (LCRSG), An Ad Hoc Tech Comm. 81 pp + app.

KEYWORDS: RM 35-121; metals; bacteria; pulp mills; fish; river flow; zooplankton; phytoplankton; water quality; turbidity; nutrients; modeling; conventionals; Task 1; Task 2; Task 3; Task 4; Task 6

DOCUMENT NO.: HINT001FF LOCATION: BCRC

Hinton, Susan A., G.T. McCabe, Jr., and R.L. Emmett. 1990. Fishes, benthic invertebrates, and sediment characteristics in intertidal and subtidal habitats at five areas in the Columbia River estuary. Final Rep. U.S. Army Corps of Engineers, Portland, OR., and Natl. Marine Fisheries. 92 pp. + app.

KEYWORDS: Task 1; Task 4; Task 6; benthic invertebrate; fish; sediment; RM 9; RM 14; RM 16; RM 19; RM 21; RM 23; RM 25; RM 27; RM 28; Desdemona Sands; Taylor Sands; Rice Island; Miller Sands; Jim Crow Sands; sediment grain size

DOCUMENT NO.: HOLL001FS LOCATION: BCRC

Holland, C.C., K.B. Howd, and J.J. Gonor. 1989. Water quality assessment of the lower Columbia River. Oregon State University, Marine Resource Management Program, Oregon. 50 pp.

KEYWORDS: Task 2; Columbia River Estuary; RM 0-46; point sources; nonpoint sources; organics; metals; water quality; vegetation; habitat

DOCUMENT NO.: HOLT001FS LOCATION: BCRC

Holton, R.L. 1984. Final report on the benthic infauna work unit of the Columbia River. College of Oceanography, Oregon State University, Corvallis, OR. 179 pp. + app.

KEYWORDS: Task 1; Task 4; Task 6; benthic infauna; Columbia River Estuary; Baker Bay; Grays Bay; Desdemona Sands

DOCUMENT NO.: HUBB001FF LOCATION: BCDC

Hubbard, L.E., T.A. Herrett, R.L. Kraus, and R.L. Maffatt. 1989. Water resources data, Oregon, Water year 1989, Vol. 2, Western Oregon. U.S. Geological Survey, Water Resources Division. 314 pp.

KEYWORDS: Task 1; Task 3; Task 6; water quality; discharge; metals; organics; conventionals

DOCUMENT NO.: HUBB002FF LOCATION: BCRC

Hubbell, D.W., and J.L. Glenn. 1973. Distribution of radionuclides in bottom sediments of the Columbia River. Prof. Paper 443-L, U.S. Geological Survey.

KEYWORDS: Task 1; radionuclides; sediment; RM 0; RM 64; sediment grain size; transport

DOCUMENT NO.: IRSC001FS LOCATION: BCRC

Intergovernmental Resource Center. 1987. 1987 Water Quality Management Plan for Clark County. Intergovernmental Resource Center, Vancouver, WA. 101 pp.

KEYWORDS: Task 2; nonpoint sources; agricultural; urban; water quality; Clark County; Washington; conventionals;

turbidity

DOCUMENT NO.: JACK001FF LOCATION: BCRC

Jacknow, J., J. Ludke, and N. Coon. 1986. Monitoring fish and wildlife for environmental contaminants: The National Contaminant Biomonitoring Program. Fish and Wildlife Leaflet 4, U.S. Fish and Wildlife Service, Washington, D.C. 16 pp.

KEYWORDS: Task 4; fish; birds; pesticides; bioaccumulation; nationwide; organochlorines

DOCUMENT NO.: JAY 001FS LOCATION: BCRC

Jay, D. 1984. Circulatory processes in the Columbia River estuary: Final report on the circulation work unit of the Columbia River estuary data development program. Columbia River Estuary Study Taskforce, Astoria, Oregon. 169 pp. + app.

KEYWORDS: Task 3; Task 6; RM 2; RM 18; RM 255; salinity; tidal flow; bathymetry; circulation; North Channel; South Channel; Columbia River Estuary

DOCUMENT NO.: JOHN001FS LOCATION: BCRC

Johnson, A., and D. Norton. 1988. Screening survey for chemical contaminants and toxicity in sediments at five lower Columbia River ports - September 22-24, 1987. Washington State Department of Ecology, Olympia, WA. 20 pp.

KEYWORDS: Task 1; Task 6; Task 2; priority pollutants; sediment quality; Camas; Vancouver; Kalama; Longview; Ilwaco; Reed Island; RM 124; 118, RM 105, RM 75, RM 67, RM 3, bioassay; point source; toxicity

DOCUMENT NO.: KCRM001F LOCATION: BCRC

Kcrma, K. 1986. Water quality information for lower Columbia River: Corps of Engineers turning basin project. #NPPPL-NR-85-010. Port of Kalama, Kalama, WA. 4 pp.

KEYWORDS: Task 1; Task 2; Task 6; conventionals; water quality; dredging

DOCUMENT NO.: KEEN001 LOCATION: BCRC

Keenan, R.E., A. Parsons, E. Ebert, P. Boardman, S. Huntley, and M. Sauer. 1990. Assessment of the human health risks related to the presence of dioxins in Columbia River fish. Chem Risk, Portland, ME. 100 pp. + app.

KEYWORDS: Task 4; Task 5; Task 1; dioxins, beneficial uses; fish; fisheries; pulp mills; point source; risk; furans; toxicity; PCBs; Puget Island; Cathlamet Bay; Astoria; Marsh Island; Westport Slough; histopathology

DOCUMENT NO.: KRAH001FJ LOCATION: BCRC

Krahn, M.M., L.J. Kittle, Jr., and W.D. MacLeod, Jr. 1986. Evidence for exposure of fish to oil spilled into the Columbia River. Marine Environmental Research 20:291-298.

KEYWORDS: RM 30; RM 87; RM 100; RM 125; fish; oil spill; St. Helens; WA; organics; Task 1; Task 2; Task 6; Task 4

DOCUMENT NO.: LARA001FJ LOCATION: BCRC

Lara-Lara, J.R., B.E. Frey, and L.F. Small. 1990. Primary production in the Columbia River estuary II. Grazing losses, transport, and a phytoplankton carbon budget. Pacific Science 44(1):38-50.

KEYWORDS: Task 1; Task 4; phytoplankton; zooplankton

DOCUMENT NO.: LEE001FJ LOCATION: BCRP

Lee II, H., and R. Randall. No Date. Cancer risk associated with sediment quality. U.S. EPA, Hatfield Marine Science Center. p. 676.

KEYWORDS: Task 1; Task 6; sediment quality; benthos; bioaccumulation

DOCUMENT NO.: LEE001FJ LOCATION: BCAP

Lee, C.O., J.A. Strand and A.E. Neuissl. 1988. Modes of toluene uptake in adult chinook salmon. In: Proceedings - First Annual Meeting on Puget Sound Research, Vol. 2. Puget Sound Water Quality Authority. p. 619.

KEYWORDS: Task 1; fish; bioaccumulation; Washington Coast;

organics

DOCUMENT NO.: LOWE001FJ

LOCATION: BCRC

Lowe, T., T. May, W. Brumbaugh, and D. Kane. 1985. National Contaminant Biomonitoring Program: Concentrations of seven elements in freshwater fish, 1978-1981. Arch. Environ. Contam. Toxicol. 14:363-388.

KEYWORDS: Task 1; Task 4; metals; fish; bioaccumulation; Cascade Locks; Willamette River

DOCUMENT NO.: MAY001FS

LOCATION: BCRC

May, T., and G. McKinney. 1981. National Pesticide Monitoring Program: cadmium, lead, mercury, arsenic, and selenium concentrations in freshwater fish, 1976-77. Pesticides Monitoring Journal. 15(1):14-38.

KEYWORDS: Task 1; Task 4; Willamette River; Bonneville Dam; metals; fish; bioaccumulation

DOCUMENT NO.: MCAN001FJ

LOCATION: BCRC

McAnally, Jr., W.H., J.V. Letter, Jr., J.P. Stewart, W.A. Thomas, and N.J. Brogdon, Jr. 1984. Application of Columbia hybrid modeling system. J. Hydraul. Eng. 110(5):627-642.

KEYWORDS: Task 3; Task 6; bathymetry; river flow; modeling method; tidal range; transport; sedimentation; Columbia River Estuary

DOCUMENT NO.: MCAN002FJ

LOCATION: BCRC

McAnally, Jr., W.H., J.V. Letter, Jr., J.P. Stewart, W.A. Thomas, and N.J. Brogdon, Jr. 1984. Columbia River hybrid modeling system. J. Hydraul. Eng. 110(3):300-311.

KEYWORDS: Task 3; river flow; Columbia River Estuary; sediment transport; modeling method

DOCUMENT NO.: MCCA001FF LOCATION: BCRC

McCabe, Jr., G.T., and Susan A. Hinton. 1990. Benthic infauna and sediment characteristics in the Columbia River near Westport, Oregon, August 1989. Final Report. U.S. Army Corps of Eng., Portland, OR, and Natl. Marine Fisheries. 14 pp.

KEYWORDS: Task 1; Task 4; Task 6; Puget Island; Westport; RM 43; benthic invertebrates; sediment

DOCUMENT NO.: MCCA002FF LOCATION: BCRC

McCabe, Jr., G.T., S.A. Hinton, R.L. Emmett, and R.J. McConnell. 1990. Benthic invertebrates, sediment characteristics, and demersal fishes off Cottonwood Island, Columbia River, before and after rock groin construction, 1987-1988. Final Report. U.S. Army Corps of Engineers, Portland, OR, and National Marine Fisheries Service, Seattle, WA. 17 + app.

KEYWORDS: Task 1; Task 4; Cottonwood island; RM 68; RM 71; benthic invertebrate; fish, sediment

DOCUMENT NO.: MCCA004DF LOCATION: BCRC

McCabe, Jr., G.T. 1991. Biological sampling at a proposed new site for area D, an in-water dredged-material disposal site in the lower Columbia River. Progress Report. Contract E96910017, U.S. Army Corps of Engineers and National Marine Fisheries. 10 pp.

KEYWORDS: Task 1; Task 6; methods; benthic invertebrates; fish

DOCUMENT NO.: MCCA005FF LOCATION: BCRC

McCabe, Jr., G.T., and R.J. McConnell. 1989. Abundance and size-class structures of Dungeness Crabs in or near frequently-dredged areas in the Columbia River Estuary. U.S. Army Corps of Engineers (Contract DACW57-88-F-0461). 22 pp.

KEYWORDS: RM 0.7-12.5; Dungeness Crab; benthos; dredging; nonpoint source; estuary; conventionals; Task 1; Task 2; Task 4; Task 5; Task 6

DOCUMENT NO.: MCCA001FS LOCATION: BCRC

McCallum, M. 1986. Water quality study of Baker Bay. Office of Environmental Health Programs, WA. 12 pp.

KEYWORDS: Task 1; Task 6; Task 2; Baker Bay; water quality; bacteria; point source; bioaccumulation; benthos

DOCUMENT NO.: MCC0001FF LOCATION: BCRP

McConnell, R.J., G.R. Snyder, J.T. Durkin, and T.H. Blahm. 1979. Concentration, extent, and duration of salinity intrusion into the Columbia River estuary September-October, 1977-1978, Final Report. DACW57-79-F-0715, DACW57-78-F-0778, U.S. Army COE and Nat. Mar. Fish. Serv., Seattle, WA.

KEYWORDS: Task 3; salinity; Columbia River Estuary

DOCUMENT NO.: MCIN001FJ LOCATION: BCRC

McIntire, C.D., and M.C. Amspoker. 1986. Effects of sediment properties on benthic primary production in the Columbia River estuary. Aquatic Botany, 24:249-267.

KEYWORDS: Task 1; Task 4; Task 6; vascular plants; sediment grain size; Clatsop Spit; Baker Bay; Youngs Bay; Grays Bay; Quinns Island; salinity; benthos; algae; organic carbon

DOCUMENT NO.: MCKE001FF LOCATION: BCRC

McKern, J.L. 1976. Inventory of riparian habitats and associated wildlife along Columbia and Snake Rivers: Volume I summary, Vol. IIA, Vol. IIB. U.S. Army Corps of Engineers, North Pacific Div. 100 pp.

KEYWORDS: Task 1; Task 4; riparian; mammals; marine mammals; birds; reptiles; amphibians; plants; RM 145; RM 192; RM 215; RM 292; RM 0; RM 12; RM-79; Bonneville Dam; Dalles Dam; John Day Dam

DOCUMENT NO.: MISI001FF LOCATION: BCDC

Misitano, D.A. 1974. Zooplankton, water temperature, and salinities in the Columbia River Estuary, December 1971 through December 1972. NMFS-DR-92, National Marine Fisheries Service, National Oceanic and Atmospheric Administration.

KEYWORDS: Task 1; Task 4; Task 6; salinity; bathymetry;
zooplankton; RM 2.8; RM 24; Columbia River Estuary;

DOCUMENT NO.: MONA001FF LOCATION: BCDC

Monaco, M.E., D.M. Nelson, R.L. Emmett, and S.A. Hinton.
1990. Distribution and abundance of fishes and invertebrates
in westcoast estuaries, Volume I: data summaries. Strategic
Assessment Branch, National Ocean Service; NOAA. 240 pp.

KEYWORDS: Task 1; Task 4; benthos; fish; abundance;
distribution

DOCUMENT NO.: NCPI001 LOCATION: BCRC

National Council of the Paper Industry for Air and Stream
Improvement. 1989. Effects of biologically treated bleached
Kraft Mill effluent on cold water stream productivity in
experimental stream channels-fifth progress report. NSCI
Tech. Bull. No. 566. 127 pp. + app.

KEYWORDS: Task 1; Task 4; Task 2; fish; benthos; toxicity;
point source; histopathology; nutrients; water quality;
chlorinated organics; conventionals; periphyton

DOCUMENT NO.: NIGR001FS LOCATION: BCRC

Nigro, A. (ed). 1990. Status and habitat requirements of
white sturgeon populations in the Columbia River downstream
from McNary Dam. U.S. Dept. of Energy, Bonneville Power
Administration. 191 pp.

KEYWORDS: Task 1; Task 4; Task 5; Task 6; fish; population
dynamics; RM 292; RM 131; RM 95; John Day Reservoir; Dalles
Reservoir; Bonneville Reservoir

DOCUMENT NO.: ODEQ001FS LOCATION: BCRC

Oregon Department of Environmental Quality. 1990. Nonpoint
source control action plan between the Oregon Department of
Environmental Quality and the United States Department of
Interior Bureau of Land Management. PM/WC6174, Oregon Dept.
of Env. Quality, Portland, OR. 23 pp.

KEYWORDS: Task 2; Task 6; water quality; wetlands; nonpoint
source; point source; Oregon; rivers; objectives; ecosystem

DOCUMENT NO.: ODEQ002DS LOCATION: BCRC

Oregon Department of Environmental Quality. 1990. 1990 Work plan for Investigation of toxins in the Columbia River Basin. Oregon Dept. of Env. Quality, Portland, OR. 20 pp + app.

KEYWORDS: Task 1; Task 4; Task 2; bioaccumulation; toxicity; organochlorines; metals; sediment; dioxins; furans; PCBs; pesticides; point source; benthos; fish; birds; mammals; methods; organic carbon; RM 4-118

DOCUMENT NO.: ODEQ003FS LOCATION: BCRC

Oregon Department of Environmental Quality. 1990. 1990 water quality status assessment report: 305b report. Oregon Depart. of Env. Quality, Portland, OR. 135 pp + app.

KEYWORDS: Task 1; Task 2; Task 6; beneficial uses; priority pollutants; wetlands; NPDES permits; toxicity; point source; nonpoint sources; water quality; bacteria; conventionals; bioassay; N. Coast Basin; Willamette Basin; Sandy Basin; John Day

DOCUMENT NO.: ODEQ004FS LOCATION: BCRP

Oregon Department of Environmental Quality. 1988. 1988 Oregon statewide assessment of nonpoint sources of water pollution. Planning & Monitoring Section, Water Quality Div., Oregon Dept. of Env. Quality, Portland, OR.

KEYWORDS: Task 5; Task 2; North Coast Basin; North Willamette Basin; Sandy Basin; Hood Basin; North John Day Basin; Umatilla Basin; nonpoint sources; beneficial uses; water quality

DOCUMENT NO.: PALM001FJ LOCATION: BCRC

Palmer, R.N., and J.L. Cohan. 1986. Complexity in Columbia River systems modeling. J. Water Resources Planning and Management 112(4):453-468.

KEYWORDS: Task 5; beneficial uses; modeling methods

DOCUMENT NO.: COEP01OFF LOCATION: BCDP

Portland District Corps of Engineers. 1990. Appendix D: Environmental and cultural resources. Portland District Corps of Engineers, Portland, OR. 9 pp.

KEYWORDS: Task 1; Task 2; Task 6; dioxins; furans; sediment grain size; Willamette River; Columbia River; RM 38; RM 39; RM 43; RM 65; RM 85; RM 115

DOCUMENT NO.: POGEO01FS LOCATION: BCRC

Portland General Electric Co. 1990. Trojan Nuclear Plant, Operational Environmental Radiological Surveillance Program. Portland General Electric Co., Portland, OR.

KEYWORDS: Task 1; Task 2; Task 6; Task 5; point source; Rainier; St. Helens; radionuclides; air; fish; invertebrates; bioaccumulation; drinking water; milk; food

DOCUMENT NO.: RICK001FF LOCATION: BCRC

Rickert, D.A., V.C. Kennedy, S.W. McKenzie, and W.G. Hines. 1977. A synoptic survey of trace metals in bottom sediments of the Willamette River, Oregon. Cir. 715-F, U.S. Geological Survey, Portland, OR. 27 pp.

KEYWORDS: Task 1; Willamette River; metals; sediments; sediment grain size

DOCUMENT NO.: ROBE001F LOCATION: BCRC

Robertson, D.E., and J.J. Fix. 1977. Association of Hanford origina radionuclides with Columbia River sediment. BNWL-2305, UC-41, Battelle Pacific Northwest Labs, Richland, WA. 36 pp +app.

KEYWORDS: Task 1; Task 2; Task 6; sediment; radionuclides; McNary Dam; Dalles Dam; Bonneville Dam; Hood river; methods

DOCUMENT NO.: SCHM001FF LOCATION: BCRC

Schmitt, C., M. Ribick, J. Ludke, and T. May. 1983. National Pesticide Monitoring Program: Organochlorine residues in freshwater fish, 1976-79. Resource Publication 152, U.S. Fish and Wildlife Service, Washington, D.C. 64 pp.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks;
Oregon City; organochlorines; pesticides; fish;
bioaccumulation.

DOCUMENT NO.: SCHM002FJ LOCATION: BCRC

Schmitt, C., J. Zajicek, and P. Peterman. 1990. National
Contaminant Biomonitoring Program: Residues of
organochlorine chemicals in U.S. freshwater fish, 1976-1984.
Arch. Environ. Contam. Toxicol. 19:748-781.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks;
Oregon City; organochlorines; pesticides; fish;
bioaccumulation

DOCUMENT NO.: SCHM003FJ LOCATION: BCRC

Schmitt, C., L. Ludke, and D. Walsh. 1981. Organochlorine
residues in fish: National Pesticide Monitoring Program,
1970-74. Pesticides Monitoring Journal. 14(4):136-206.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks;
fish; organochlorines; pesticides; bioaccumulation

DOCUMENT NO.: SCHM004FJ LOCATION: BCRC

Schmitt, C., and W. Brumbaugh. 1990. National
Contaminant Biomonitoring Program: Concentrations of
arsenic, cadmium, copper, lead, mercury, selenium, and zinc
in U.S. freshwater fish, 1976-1984. Arch. Environ. Contam.
Toxicol. 14:731-747.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks;
bioaccumulation; metals; fish

DOCUMENT NO.: SCHM005FJ LOCATION: BCRC

Schmitt, C., J. Zajicek, and M. Ribick. 1985. National
Pesticide Monitoring Program: Residues of organochlorine
chemicals in freshwater fish, 1989-81. Arch. Environ.
Contam. Toxicol. 14:225-260.

KEYWORDS: Task 1; Task 4; organochlorines; pesticides; fish;
Willamette River; Cascade Locks; bioaccumulation

DOCUMENT NO.: SHER001FJ LOCATION: BCRC

Sherlock, L. 1990. Fighting for a cleaner Columbia River. Journal of Pesticides Reform. 10(2):28-30.

KEYWORDS: Task 1; Task 2; organochlorines; pulp mills; dioxins; fish; bioaccumulation

DOCUMENT NO.: SHER001FS LOCATION: BCRC

Sherwood, C.R., J.S. Creager, E.H. Roy, G. Gelfenbaum, and T. Dempsey. 1984. Sedimentary processes and environments in the Columbia River estuary: Final Report on the sedimentation and shoaling work unit of the Columbia River Estuary Data Development Program. Columbia River Estuary Study Taskforce, Astoria, Oregon. 318 pp.

KEYWORDS: Task 1; Task 3; Task 6; sediment grain size; bathymetry; Col. Estuary; Baker Bay; Trestle Bay; N. Channel; South Channel; Youngs Bay; Desdemona Sands; Mid-Estuary Shoals; Grays Bay; Brix Bay; Cathlamet Bay; Lower and Upper River Channel

DOCUMENT NO.: SIIP001FF LOCATION: BCDP

Siipola, M.D. 1989. Results of 1989 Willamette River-Burlington/Northern R.R. bridge sediment quality evaluation. Portland District Corps of Engineers, Portland, OR. 21 pp.

KEYWORDS: Task 1; Task 2; Task 6; dredging; sediment grain size; Willamette River; metals; organics; pesticides; PCBs

DOCUMENT NO.: SIME001FS LOCATION: BCRC

Simenstad, C., D. Jay, C.D. McIntire, W. Nehlsen, C. Sherwood, and L. Small. 1984. The dynamics of the Columbia River estuarine ecosystem, Volume I. Columbia River Estuary Study Taskforce, Astoria, Oregon. 340 pp.

KEYWORDS: Task 3; Task 1; Task 6; RM 0; RM 100; RM 30; RM 47; RM 3; RM 8.3; RM 18; RM 24; RM 42; RM 53; RM 83; Sediment; River Flow; Salinity; Tidal Range; Circulation; Columbia River Estuary; Cathlamet Bay

DOCUMENT NO.: SIME002FS LOCATION: BCRC

Simenstad, C., D. Jay, C.D. McIntire, W. Nehlsen, C. Sherwood, and L. Small. 1984. The dynamics of the Columbia River estuarine ecosystem, Volume II. Columbia River Estuary Taskforce, Astoria, Oregon. 354 pp.

KEYWORDS: Task 1; Task 4; Task 6; mammals; birds; marine mammals; fish; plankton; benthos; wetlands; vascular plants; Columbia Estuary; Baker Bay; Trestle Bay; Youngs Bay; Grays Bay; Cathlamet Bay; Youngs River; Lewis and Clark River; Deep River

DOCUMENT NO.: SIME003FF LOCATION: BCRC

Simenstad, C.A. 1984. Epibenthic organisms of the Columbia River Estuary. Doc. No. PB85-102127, Prepared for National Oceanic and Atmospheric Admin.. 55 pp +app.

KEYWORDS: Task 4; Task 1; Task 6; benthic epifauna; Columbia River Estuary; methods

DOCUMENT NO.: SMAL001FJ LOCATION: BCRC

Small, L.F. (ed). 1990. Columbia River: Estuarine system. Progress in Oceanography 25(1-4). 358 pp.

KEYWORDS: Task 1; Task 3; Task 4; Task 6; sediment; bathymetry; salinity; circulation; tidal flow; phytoplankton; vascular plants; benthos; fish; trophic structure; birds; mammals; wetlands

DOCUMENT NO.: SNYD001FJ LOCATION: BCRC

Snyder, G.R., and R.J. McConnell. 1973. Frequency and duration of flow reversal in the lower Columbia River, April 1968-March 1970. Fishery Bulletin, National Marine Fisheries Service, National Oceanographic and Atmospheric Administration 71(1): 312-314.

KEYWORDS: Task 3; tidal range; river flow; RM 73; Prescott

DOCUMENT NO.: SNYD002DF LOCATION: BCDC

Snyder, G.R., and R.J. McConnell. 1970. Subsurface water temperature of the Columbia River at Prescott, Oregon (River Mile 72), 1968-69: Technical advisory committee Columbia River thermal effects study. Bureau of Commercial Fisheries, Seattle, WA. 8 pp.

KEYWORDS: Task 1; temperature; RM 72; Prescott

DOCUMENT NO.: SCSP001FF LOCATION: BCRC

Soil Conservation Service 1979. County resources inventory summary tables and narrative. Soil Conservation Service, St. Helens, OR. 3 pp.

KEYWORDS: Task 2; agricultural nonpoint source

DOCUMENT NO.: SOLO001FJ LOCATION: BCPC

Solomon, F.P., W.T. Trial, T. Kakida and A. Bailey. 1988. Polychlorinated biphenyl contamination of crayfish and finfish in Lake Union. In: Proceedings - First Annual Meeting on Puget Sound Research, Vol. 2. Puget Sound Water Quality Authority. pp. 608-617.

KEYWORDS: Task 5; PCBs; metals; organics; Lake Union; fish; bioaccumulation

DOCUMENT NO.: SOME001FC LOCATION: BCRC

Somers, S.G. 1988. Ditch 5/10 report. Cowlitz County Soil and Water Cons. Dist., Kelso, WA. 50 pp + app.

KEYWORDS: Task 2; Longview; metals; organics; river flow; priority pollutants; bacteria; water quality; nonpoint sources; methods

DOCUMENT NO.: SOME002FC LOCATION: BCRC

Somers, S.G. 1988. Coweeman watershed. Cowlitz County Soil and Water Cons. Dist., Kelso, WA. 37 pp.

KEYWORDS: Task 2; Kelso; bacteria; dissolved gas; water quality; nonpoint sources; river flow; methods

DOCUMENT NO.: SOME003FC LOCATION: BCRC

Somers, S.G. 1989. Horseshoe Lake water quality study 1988-1989. Cowlitz County Soil and Water Cons. Dist., Kelso, WA.

KEYWORDS: Task 2; Horseshoe Lake; bacteria; phytoplankton; water quality; nonpoint sources; methods

DOCUMENT NO.: SOME004FC LOCATION: BCRC

Somers, S.G. 1988. Final report: Arkansas watershed evaluations 1987-1988. Cowlitz County Soil and Water Cons. Dist., Kelso, WA. 37 pp.

KEYWORDS: Task 2; dissolved gas; bacteria; river flow; temperature; turbidity; water quality; methods; nonpoint sources

DOCUMENT NO.: SPEI001FJ LOCATION: BCRP

Speich, S.M., J. Calambokidis, R.J. Peard, D.M. Fry and M. Witter. 1988. Puget Sound glaucous-winged gulls: biology and contaminants. In: Proceedings - First Annual Meeting on Puget Sound Research, Vol. 2. Puget Sound Water Quality Authority. pp. 598-607.

KEYWORDS: Task 1; birds; Puget Sound; organics; bioaccumulation

DOCUMENT NO.: STEV001AJ LOCATION: BCRC

Stevenson, L.H. (ed). 1981. Columbia River estuary data development program. In: Estuaries 4(3). Estuarine Research Federation:274-276.

KEYWORDS: Task 1; Task 4; vascular plant; wetlands; benthos; phytoplankton; sediment; marine mammals; fish; fisheries; birds

DOCUMENT NO.: STEV002AJ LOCATION: BCRC

Stevenson, L.H. (ed). 1981. Columbia River and status of national estuaries. In: Estuaries 4(3). Estuarine Research Federation. pp 272-273.

KEYWORDS: Task 1; Task 3; Task 4; Task 6; sediment

transport; benthic infauna; tidal range; circulation;
Columbia River Estuary

DOCUMENT NO.: TERN001FF LOCATION: BCRC

Ternyik, W.E. 1978. Habitat development field investigations, Miller Sands, marsh and upland habitat development site, Columbia River, OR. Tech. Report D-77-38, Prepared for Chief of Engineers Office, U.S. Army, Washington, DC. 43 pp.

KEYWORDS: Task 4; Miller Sands; RM 22-25; habitat establishment; dredged material; plants

DOCUMENT NO.: TTP001FF LOCATION: BCRC

Tetra Tech, Inc. 1976. Water quality analysis - Columbia River. Report No. NCWQ75/59 Prepared for National Commission on Water Quality. 123 pp.

KEYWORDS: Task 1; Task 2; water quality; conventionals; bacteria; dissolved gas; temperature; nutrients; McNary Dam; Bonneville Dam; RM 292; RM 146; RM 54; industrial; domestic; point source

DOCUMENT NO.: THUT001F LOCATION: BCDC

Thut, R.N., N. Fisher, and S.M. Anderson. 1984. Field survey of the effects of the Weyerhaeuser Longview discharge on TSS and turbidity levels. Project No. 047-4604, Weyerhaeuser, Tacoma, WA. 24 pp.

KEYWORDS: Task 1; Task 2; RM 63; point source; NPDES permit; pulp mill; Longview

DOCUMENT NO.: TOOM001FS LOCATION: BCRC

Toombs, G.L., S.L. Martin, P.B. Culter, and M.G. Dibblee. 1984. Environmental radiological surveillance report on Oregon surface waters, Volume I, 1961-1983. Oregon State Health Division, Radiation Control Section, Portland. 40 pp. + app.

KEYWORDS: Task 1; radionuclides; Goble; Dalles Dam; bioaccumulation; sediment quality; water quality; phytoplankton; transport

DOCUMENT NO.: TRAV001FJ LOCATION: BCAP

Travis, C.C., H.A. Hattemer-Frey and A.D. Arms. 1988. Relationship between dietary intake of organic chemicals and their concentrations in human adipose tissue and breast milk. Arch. Environ. Contam. Toxicol. 17:473-478.

KEYWORDS: Task 5; bioaccumulation; organics; humans

DOCUMENT NO.: COEP006FF LOCATION: BCRC

U.S. Army Corps of Engineers. 1985. Columbia-Cowlitz-Toutle Rivers, Washington, restoration subsequent to Mt. St. Helens eruption. Technical Report No. 13, Committee on Channel Stabilization U.S. COE. 14 pp.

KEYWORDS: Task 2; Task 6; Cowlitz River; volcanic ash; methods

DOCUMENT NO.: COEP007FF LOCATION: BCOC

U.S. Army Corps of Engineers. 1991. Channel Status Columbia River. U.S. Army Corps of Engineers, Portland District, Portland, OR.

KEYWORDS: RM 0-RM 120; bathymetry; Task 2; Task 6

DOCUMENT NO.: COEP001FF LOCATION: BCDC

U.S. Army Corps of Engineers, Portland. 1980. Columbia River sediment database estuarine and riverine. Portland District Corps of Engineers, Portland, OR.

KEYWORDS: Task 1; Task 6; sediment grain size; conventionals; metals; organics; Astoria; Baker Bay; Cathlamet Bay; Chetco; Chinook; RM .5; RM 5.5; RM 7; RM 11; RM 13; RM 33

DOCUMENT NO.: COEN001FF LOCATION: BCRC

U.S. Army Corps of Engineers. 1989. 1989 dissolved gas monitoring for the Columbia and Snake Rivers: Summary report and data analysis. North Pacific Div. Water Management Branch, Portland, OR.

KEYWORDS: Task 1; Task 6; RM 140-175; Snake River; RM 108; dissolved gas; temperature

DOCUMENT NO.: COEP002FF LOCATION: BCDC

U.S. Army Corps of Engineers. 1988. Columbia River: Sediment gradation analysis results - 1980-1988. U.S. Army Corps of Engineers, Portland, OR.

KEYWORDS: Task 1; Task 6; sediment grain size

DOCUMENT NO.: COEP003 LOCATION: BCDC

U.S. Army Corps of Engineers. 1990. Dissolved gas data in Columbia River Basin since 1966. U.S. Army Corps of Engineers, Portland District, Portland, OR.

KEYWORDS: Task 1; nitrogen; data

DOCUMENT NO.: COEP004FF LOCATION: BCRC

U.S. Army Corps of Engineers. 1979. Portland Harbor dredging and Columbia River in-water disposal water quality investigations. Navigation Division Research & Evaluation Report No. 1-79, Portland District, Portland, OR. 61 pp.

KEYWORDS: Task 1; Task 4; Task 2; RM 99; RM 102; Willamette River; dredging; bioassay; fish; benthos; metals; organics; turbidity; sediment grain size; conventionals; pesticides; PCBs; water quality

DOCUMENT NO.: COEP005FF LOCATION: BCRC

U.S. Army Corps of Engineers. 1990. Public notice for dredging permit application by Port of Vancouver. No. 071-0YA-1-008964. U.S. Army COE, Portland District, OR. 4 pp.

KEYWORDS: Task 2; dredging; Vancouver; sediment; metals

DOCUMENT NO.: COEP008FF LOCATION: BCDC

U.S. Army Corps of Engineers. 1990. Riverine sediment quality report. Portland District, Corps of Engineers, Portland, OR.

KEYWORDS: Task 1; Task 2; Task 6; metals; sediment grain size; organics; PCBs; pesticides; organic carbon; Willamette

River; Tongue Point; Oregon Slough; Skipanon; St. Helens;
Ilwaco; Yaquina Bay; Winchester Bay; Baker Bay; Astoria;
Cathlamet Bay

DOCUMENT NO.: COEP009FF

LOCATION: BCRC

U.S. Army Corps of Engineers. 1990. Project and index maps:
rivers and harbors. Portland District Corps of Engineers,
Portland, OR. 46 pp.

KEYWORDS: Task 2; Task 3; Task 6; tidal range; bathymetry;
construction projects

DOCUMENT NO.: AEC001FF

LOCATION: BCRP

U.S. Atomic Energy Commission. 1970. Summaries of USAEC
environmental research and development. TID-4065, AEC,
Division of Tech. Information. 166 pp.

KEYWORDS: Task 1; Task 4; fish; insects; benthos; bioassay;
plants; river flow; transport; radionuclides; conventional

DOCUMENT NO.: EPAX003FF

LOCATION: BCRC

U.S. Environmental Protection Agency. 1991. Dioxin loading
to water in the Columbia River basin: Region 10 Fact Sheet.
U.S. EPA Region 10, Seattle, WA. 4 pp.

KEYWORDS: Task 2; dioxin; pulp mills; Columbia River Basin;
TMDL

DOCUMENT NO.: EPAX004FF

LOCATION: BCRC

U.S. Environmental Protection Agency. 1991. Total maximum
daily load (TMDL) for 2,3,7,8-TCDD in the Columbia River
basin. Decision Document, U.S. EPA Region 10, Seattle, WA.

KEYWORDS: Task 1; Task 2; Task 6; dioxin, pulp mills; water
quality; TMDL; Willamette Basin; Longview; Wauna; Camas; St.
Helens

DOCUMENT NO.: EPAX005FF LOCATION: BCOP

U.S. Environmental Protection Agency. 1991. Columbia River water quality data from STORET data system. U.S. EPA Region 10, Seattle, WA.

KEYWORDS: Task 1; Task 2; Task 3; Task 6; conventionals, water quality; metals; organics; PCB; turbidity; stream flow; bacteria; Willamette; Multnomah; Cowlitz; Sandy River

DOCUMENT NO.: FWOR001FF LOCATION: BCRC

U.S. Fish and Wildlife Service. 1990. Reconnaissance survey of dioxins and furans in fish and wildlife from the Columbia River. U.S. Fish and Wildlife Service, Portland Field Station, Portland, OR. 7 pp.

KEYWORDS: Task 6; McNary Dam; Cathlamet Bay; sampling methods; dioxins; furans; fish; wildlife; bioaccumulation

DOCUMENT NO.: FWOR002FF LOCATION: BCRC

U.S. Fish and Wildlife Service. 1991. Environmental contaminants in aquatic resources of the Columbia River estuary. U.S. Fish and Wildlife Service, Portland Field Station, Portland, OR. 8 pp.

KEYWORDS: Task 6; PCBs; dioxins; furans; pesticides; birds; benthos; fish; sediment; sampling methods; bioaccumulation; Youngs Bay; Baker Bay; Lewis Clark; Cathlamet Bay; Longview; Ridgefield; Camas; Umatilla; Julia Butler

DOCUMENT NO.: FWSO001FF LOCATION: BCDC

U.S. Fish and Wildlife Service. 1991. Waterbird distribution data for lower Columbia River area. Available from Julia Butler Hansen Refuge for the Columbian White-Tailed Deer, Cathlamet, WA.

KEYWORDS: Task 1; Task 4; birds

DOCUMENT NO.: GSPO001 LOCATION: BCDC

U.S. Geological Survey. 1990. Water quality data, Columbia River at Warrendale, OR (RM 141). No. 14128910, unpublished.

KEYWORDS: water quality; metals; conventionals; Task 1; RM 141, Warrendale; phytoplankton

DOCUMENT NO.: GSPO002 **LOCATION:** BCDC

U.S. Geological Survey. 1990. Water quality data, Columbia River at Bradwood, OR (RM 39). No. 14247400, unpublished.

KEYWORDS: water quality; phytoplankton; metals; conventionals; Task 1; RM 39; Bradwood

DOCUMENT NO.: USGS001FF **LOCATION:** BCDC

United States Geological Survey. 1991. Water quality data. United States Department of Interior. 48 pp.

KEYWORDS: Task 1; Task 6; conventionals; metals; water quality; Warrendale; Beaver Army Terminal; Columbia Slough

DOCUMENT NO.: VARA001FF **LOCATION:** BCRP

Varanasi, U., S.L. Chan, B.B. McCain, J.T. Landahl, M.H. Schiewe, R.C. Clark, D.W. Brown, M. Myers, M.M. Krahn, W.D. Gronlund, and W.D. Macleod, Jr. 1988. National benthic surveillance project: Pacific Coast: Part II technical presentation of the results for Cycles I to III (1984-86). NOAA Tech Memo NMFS F/NWC-170. 158 pp + app.

KEYWORDS: Task 1; Task 4; RM 7; Youngs Bay; fish; organochlorines; PCBs; metals; sediments; histopathology; bioaccumulation

DOCUMENT NO.: WDOE001FS **LOCATION:** BCRC

Washington State Department of Ecology. 1989. Nonpoint source pollution assessment and management program. Washington Dept. of Ecology, Water Quality Program, Olympia, WA.

KEYWORDS: Task 2; Task 5; conventionals; water quality; beneficial uses; Pacific County; Wahkiakum County; Cowlitz County; Clark County; Klickitat County; Skamania County; priority pollutants; nonpoint sources; Washington

DOCUMENT NO.: WDOE002FS LOCATION: BCRC

Washington State Department of Ecology. 1990. Fact Sheet:
Port of Vancouver. Washington Dept. of Ecology, Olympia, WA.
2 pp.

KEYWORDS: Task 2; dredging; sediments; metals

DOCUMENT NO.: WDOE003FS LOCATION: BCDF

Washington State Department of Ecology. 1987. NDS Phase II:
Bioaccumulative pollutant study: Sample tracking system.
WDOE, Olympia, WA. 2 pp.

KEYWORDS: Task 1; Task 6; Longview; organics

DOCUMENT NO.: WDOE001FS LOCATION: BCRC

Washington State Department of Fisheries, and Oregon
Department of Fish and Wildlife. 1990. Status Report:
Columbia River fish runs and fisheries 1960-89. Washington
Department of Fisheries and Oregon Department of Fish and
Wildlife. 142 pp.

KEYWORDS: Task 1; Task 5; Task 4; fish; fisheries;
turbidity; river flow

DOCUMENT NO.: WSDH001DS LOCATION: BCRC

Washington State Department of Health. 1991. Bathing beach
program and issues associated with water quality indicator
organisms. Office of Community Environmental Health
Programs. 27 pp.

KEYWORDS: Task 5; swimming; bacteria; water quality;
indicators; surface water standards

DOCUMENT NO.: WEYL001F LOCATION: BCDF

Weyerhaeuser Paper Company. 1990. Chemical characterization
and bioassay information on Columbia River sediment samples,
NPDES Class II inspection, April 1990. Unpublished.

KEYWORDS: Task 1; Task 2; RM 63.5; metals; organics;
dioxins; furans; PCBs; pesticides; sediment grain size;
organic carbon; point source; NPDES permit; bioassays

DOCUMENT NO.: YOUN003FF LOCATION: BCRC

Young, J.S., J.Q. Word, C.W. Apts, M.E. Barrows, V.I. Cullinan, and N.P. Kohn. 1988. Confirmatory chemical analyses and solid-phase bioassays on sediment from the Columbia River Estuary at Tongue Point, Oregon. PNL-6792/UC-11, Prepared for the U.S. Army Corps of Engineers, Portland District.

KEYWORDS: Task 1; Task 6; Task 4; Tongue Point; dredging; methods; bioassays; bioaccumulation; sediment; benthos; metals; organic carbon; organics; sediment grain size

DOCUMENT NO.: YOUN001D LOCATION: BCDP

Young, S.R. 1988. Columbia River sediment. Unpublished. File II.F.5, Env. Department, James River Corp., Vancouver, WA.

KEYWORDS: Task 1; RM 107-121; sediments; Camas; NPDES permit; point source; pulp mill; metals; organics; PCBs; pesticides

DOCUMENT NO.: YOUN002D LOCATION: BCDP

Young, S.R. 1987. Columbia River survey. Unpublished. File II.F.5, Technical Dept., James River Corp., Vancouver, WA.

KEYWORDS: Task 1; Task 2; RM 107-121; river flow; conventionals; metals; point source; Camas; pulp mill

ATTACHMENT 2:

TASK 1 REFERENCE LIST

DOCUMENT NO.: AALA001PS LOCATION: BCRC

Aaland, Neil. 1991. Additional reference lists for Columbia River. N/A.

KEYWORDS: Task 1; Task 2; Task 3; Task 4; Task 5

DOCUMENT NO.: AMSP001FJ LOCATION: BCRC

Amspoker, M.C., and C.D. McIntire. 1986. Effects of sedimentary processes and salinity on the diatom flora of the Columbia River estuary. *Botanica Marina*, Vol. 29:391-399.

KEYWORDS: Task 1; Task 4; Task 6; phytoplankton; salinity; sediment grain size; Columbia River Estuary; Baker Bay; Youngs Bay; Grays Bay; Quinns Island; methods; benthos

DOCUMENT NO.: BEAC001F LOCATION: BCRC

Beach, R.J., A.C. Gelger, S.J. Jeffries, S.D. Treacy, and B.L. Troutman. 1982. Marine mammals and their interactions with fisheries of the Columbia River and adjacent waters, 1980-1982. National Marine Fish Service, Seattle, WA. 316 pp.

KEYWORDS: Task 1; Task 4; Task 5; marine mammals; fish; fisheries; beneficial uses; RM 20; RM 30; RM 40; RM 115; RM 125; RM 150; Bonneville Dam

DOCUMENT NO.: BEAK001F LOCATION: BCRP

Beak Consultants Incorporated. 1978. Operational ecological monitoring program for the Trojan Nuclear Plant: Annual Report. Portland General Electric Company, Portland, OR.

KEYWORDS: Task 1; Task 4; Task 6; fish; plankton; water quality; metals; RM 72; RM 72.4; RM 73.7

DOCUMENT NO.: BEAK004D LOCATION: BCRC

Beak Consultants Incorporated. 1989. Columbia River fish study: fish collection, fish tissue sampling and age of fish sampled. Prepared for Northwest Pulp & Paper Assoc., Bellevue, WA. 30 pp.

KEYWORDS: Task 1; Task 4; Task 5; RM 2-45; RM 125-140; RM 146-153; RM 280-298; RM 326-332; dioxins, furans,

bioaccumulation; fish; beneficial uses; risk; Bonneville Dam; Columbia Estuary; Kennewick; McNary Dam

DOCUMENT NO.: BLAH002FF LOCATION: BCRC

Blahm, T.H., J.T. Durkin, G.R. Snyder, T.C. Coley, and R.L. Emmett. 1990. Columbia River oil spill study June-July 1978. EPA-78-D-X-0390, National Marine Fisheries Center, Seattle, WA. 41 pp.

KEYWORDS: Task 1; Task 4; Task 6; RM 4.5; RM 105; RM 6.5; RM 10; RM 18; RM 28; oil spill; fish; benthos; sediment grain size

DOCUMENT NO.: BLAH001FF LOCATION: BCRC

Blahm, T.H., and R.J. McConnell. 1979. Impact of flow-lane disposal at Dobelbower Bar. Contract No. DACW57-76-F-0918, U.S. Army Corps of Engineers and National Marine Fish Serv. 25 pp.

KEYWORDS: Task 1; Task 4; Task 6; water quality; conventionals; zooplankton; turbidity; RM 72; Dobelbower Bay; benthos

DOCUMENT NO.: BOLT001FF LOCATION: BCRC

Bolton, H., R. Breteler, B. Vigon, J. Scanlon, and S. Clark. 1985. National perspective on sediment quality. U.S. EPA, Office of Water Criteria and Standards Division, Washington, D.C.

KEYWORDS: Task 1; Task 2; Task 6; metals; organochlorines; pesticides; PCBs; sediment quality; organics

DOCUMENT NO.: BRIT002FF LOCATION: BCDP

Britton, J. 1989. Results of 1989 U.S. moorings sediment quality evaluation. Portland District Corps of Engineers, Portland, OR. 20 pp.

KEYWORDS: Task 1; Task 2; Task 6; Willamette River; sediment grain size; dredging; metals; pesticides; organics; PCBs

DOCUMENT NO.: BRIT001FF

LOCATION: BCDP

Britton, J. 1989. Elochoman Slough sediment evaluation. Portland District Corps of Engineers, Portland, OR. 31 pp.

KEYWORDS: Task 1; Task 2; Task 6; Elochoman Slough; sediment grain size; dredging test

DOCUMENT NO.: BUCH001FF

LOCATION: BCRC

Buchman, M.F. 1987. A review and summary of trace contaminant data for coastal and estuarine Oregon. National Oceanographic and Atmospheric Administration, Coastal and Estuarine Assessment Branch, Seattle, WA. 115 pp.

KEYWORDS: Task 1; Task 2; Task 4; pesticides; PCBs; organochlorines; metals; bioassays; sediment; industrial; point sources; NPDES permits; birds; water quality; fish; benthos; plankton; Columbia Estuary; histopathology; marine mammals; mammals

DOCUMENT NO.: CLAR001FF

LOCATION: BCRC

Clark, M., and G.R. Snyder. 1970. Limnological study of the lower Columbia River, 1967-68. XFWS-A6101-14, U.S. Fish and Wildlife Service, Bureau of Comm. Fisheries, Scientific Report--Fisheries No. 610. 14 pp.

KEYWORDS: Task 1; zooplankton; conventionals; salinity; RM 104; RM 87; RM 84; RM 74; RM 66; RM 49; RM 34; Willamette River; Lewis River; Kalama River; Cowlitz River

DOCUMENT NO.: CRED001AF

LOCATION: BCRC

Columbia River Estuary Data Development Program. 1984. Abstracts of major C.R.E.D.D.P. publications. Columbia River Estuary Study Taskforce, Astoria, Oregon. 47 pp. + app.

KEYWORDS: Task 1; Task 2; Task 3; Task 4; Task 6; phytoplankton; vascular plants; wetlands; Columbia River Estuary; benthic infauna; zooplankton; fish; benthic epifauna; birds; mammals; marine mammals; circulation; tidal flow; salinity; bathymetry

DOCUMENT NO.: CZUC001FJ LOCATION: BCAP

Czuczwa, J.M., and R.A. Hites. 1986. Sources and fate of PCDD and PCDE. Chemosphere. 15(9-12):1417-1420.

KEYWORDS: Task 1; fate; organochlorines; dioxin; sediments; air

DOCUMENT NO.: DAWL001FF LOCATION: BCRP

Dawley, E.M., R.D. Ledgerwood, T.H. Blahm, C.W. Sims, J.T. Durkin, R.A. Kirn, A.E. Rankis, G.E. Monan, and F.J. Ossiander. 1986. Migrational characteristics, biological observations, and relative survival of juvenile salmonids entering the Columbia River estuary, 1966-1983. Final Report. Contract DE-A179-84BD39652, Project No. 81-102, Bonneville Power Administration, Div. of Fish and Wildlife, Portland, OR, and National Marine Fisheries Service, Seattle, WA. 256 pp.

KEYWORDS: Task 1; Task 4; Task 6; RM 46.6; fish; salinity; Jones Beach

DOCUMENT NO.: DURK001FF LOCATION: BCRP

Durkin, J.T., and R.L. Emmett. 1980. Benthic invertebrates, water quality, and substrate texture in Baker Bay, Youngs Bay, and adjacent areas of the Columbia River estuary. Final Report. Contract No. 14-16-009-77-939, U.S. Fish and Wildlife Service, Ecological Services Division, Portland, OR, and National Marine Fisheries Service, Seattle, WA. 44 pp.

KEYWORDS: Task 1; Task 4; Task 6; Baker Bay; Tongue Point; salinity; sediment grain size; benthos; conventionals

DOCUMENT NO.: DURK002FF LOCATION: BCRP

Durkin, J.T., T.C. Coley, K. Verner, and R.L. Emmett. 1981. An aquatic species evaluation at four self scouring sites in the Columbia River estuary. Final Report. Contract No. DACW57-79-F-0145, U.S. Army Corps of Engineers, and National Marine Fisheries Service, Seattle, WA. 46 pp.

KEYWORDS: Task 1; Task 4; Task 6; RM 3, RM 10, RM 13, RM 18, fish, benthos, sediment grain size, salinity

DOCUMENT NO.: ENVI001FS

LOCATION: BCDC

Envirosphere Company. 1980. Columbia River estuary data development program, Task B 3.1-2, characterization of water quality, Vol. II Appendices. Envirosphere Company, Bellevue, WA.

KEYWORDS: Task 1; Task 3; Task 6; salinity; temperature; metals; radioactivity; conventional; river flow; Bonneville Dam; RM 5; RM 8.5; RM 14; RM 18; RM 23; RM 27; RM 31; RM 38; RM 42; RM 47; RM 50; Estuary; Wauna; Eagle Cliff; Cathamet; Astoria

DOCUMENT NO.: FISH001F

LOCATION: BCRC

Fisher, J.N. 1985. Effect on Columbia River quality from raw water sedimentation basin wash-out at the Longview Weyerhaeuser pulp mill. Project No. 141-1834, Weyerhaeuser Research Report, Tacoma, WA. 12 pp + app.

KEYWORDS: RM 63; turbidity; WA; Longview; Cowlitz River; pulp mills; Task 1; Task 2; Task 6; Task 3

DOCUMENT NO.: FITZ001FJ

LOCATION: BCRC

Fitzner, R.E., L.J. Blus, C.J. Henny, and D.W. Carlile. 1988. Organochlorine residues in great blue herons from the northwestern United States. Colonial Water Birds 2:293-300.

KEYWORDS: Task 1; Task 4; Task 6; birds, organochlorines; Foundation Island; Umatilla NWR; Hanford Reservation

DOCUMENT NO.: FOST001F

LOCATION: BCRC

Foster, R.F., and L.A. Carter. No Date. A compilation of basic data related to the Columbia River. H6U-69368, Hanford Atomic Products Operations, Richland, WA.

KEYWORDS: Task 1; Task 3; Task 4; Task 5; beneficial uses; bibliography; plankton; fish; river flow; radionuclides; methods; water quality

DOCUMENT NO.: FOX 001DF LOCATION: BCRC

Fox, D.S. 1981. A review of recent scientific literature on the Columbia River estuary, emphasizing aspects important to resource managers. Draft report. Columbia River Estuary Study Taskforce, Astoria, Oregon. 146 pp.

KEYWORDS: Task 1; Task 3; Task 4; Task 6; circulation; salinity; river flow; sediment; wetlands; benthos; plankton; fish; birds; Col. Estuary; mammals; marine mammals; Baker Bay; Grays Bay; Youngs Bay; Cathlamet Bay; Trestle Bay; nutrients

DOCUMENT NO.: FOX 002FF LOCATION: BCOC

Fox, D.S., and P. Benoit. No Date. The physical and biological characteristics of the Columbia River estuary - summarized by sub-region. Columbia River Estuary Study Taskforce, Astoria, Oregon. 247 pp. + app.

KEYWORDS: RM 0; RM 46; Task 1; Task 3; Task 4; Task 6; Baker Bay; Trestle Bay; North Channel; South Channel; Tongue Point; Youngs Bay; Lewis and Clark River; Youngs River; Central Estuary Shoals; Upper Estuary Shoals; Grays Bay; East Tongue Point;

DOCUMENT NO.: FOX003FS LOCATION: BCOC

Fox, D.S., S. Bell, W. Nehlsen, and J. Damron. 1984. The Columbia River Estuary Atlas of physical and biological characteristics. Columbia River Estuary Data Development Program. 87 pp.

KEYWORDS: Task 1; Task 3; Task 4; circulation; salinity; plankton; benthos; wetland; fish; birds; marine mammals; mammals

DOCUMENT NO.: FRIE001E LOCATION: BCDP

Friedman and Bruya, Inc. 1991. Results of analyses of the soil samples for polynuclear aromatic hydrocarbons (PNAs) by GC-FID. Friedman & Bruya, Inc. 7 pp.

KEYWORDS: Task 1; Task 6; sediment; organics; Astoria

DOCUMENT NO.: FROS001FJ LOCATION: BCRC

Frost, P. 1990. Bald eagles on the Columbia River: Threats from persistent organochlorines. Journal of Pesticide Reform. 10(2):5-9.

KEYWORDS: Task 1; Task 4; birds; organochlorines; lower Columbia; mercury; bioaccumulation; toxicity; dioxins; furans; PCBs; DDT

DOCUMENT NO.: FUHR002FF LOCATION: BCRC

Fuhrer, G.J. 1984. Chemical analyses of elutriates, native water, and bottom material from the Chetco, Rogue, and Columbia Rivers in western Oregon. Open File Report 84-133, U.S. Geological Survey, U.S. Army Corps. 57 pp.

KEYWORDS: Task 1; Task 6; RM 0; RM 18; Cathlamet Bay; metals; pesticides; sediment grain size; conventional; water quality; sediment; salinity; methods

DOCUMENT NO.: FUHR003FF LOCATION: BCRC

Fuhrer, G.J. 1986. Extractable cadmium, mercury, copper, lead, and zinc in the lower Columbia River estuary, Oregon and Washington. Water-Resources Investigations Report 86-4088, U.S. Geological Survey. 61 pp.

KEYWORDS: Task 1; Task 6; Baker Bay; Astoria; sediment grain size; metals; methods

DOCUMENT NO.: FUHR006FF LOCATION: BCRC

Fuhrer, G.J. 1989. Quality of bottom material and elutriates in the lower Willamette River, Portland Harbor, Oregon. Water Resources Investigations Report 89-4005, U.S. Geological Survey. 30 pp.

KEYWORDS: Task 1; Task 6; metals; organochlorines; PCBs; pesticides; RM 101; RM 102; RM 103; RM 104; RM 105; RM 106; RM 107; sediment grain size; nutrients; methods

DOCUMENT NO.: FUHR004FF LOCATION: BCRC

Fuhrer, G.J., and A.J. Horowitz. 1989. The vertical distribution of selected trace metals and organic compounds in bottom materials of the proposed lower Columbia River export channel, Oreg. Water-Resources Investigations Report 88-4099, U.S. Geological Survey. 40 pp.

KEYWORDS: Task 1; Task 6; metals; organic carbon; organochlorine; sediment grain size; methods; Youngs Bay; Skipanon River; Tongue Point; RM 7.5; RM 11; RM 12; RM 18

DOCUMENT NO.: FUHR001FF LOCATION: BCRC

Fuhrer, G.J., and D. Evans. 1990. Use of elutriate tests and bottom-material analyses in simulating dredging effects on water quality of selected rivers and estuaries in OR and WA. Water Resources Investigation Report 89-4051, U.S. Geological Survey. 54 pp.

KEYWORDS: Task 1; Task 2; water quality; priority pollutants; sediment; point source; RM 70; Astoria, Baker Bay; conventionals; Chinook Channel; RM 33; PCBs; pesticides

DOCUMENT NO.: FUHR005FF LOCATION: BCRC

Fuhrer, G.J., and F.A. Rinella. 1983. Analysis of elutriates, native water, and bottom material in selected rivers and estuaries in western Oregon and Washington. Open File Report 82-922, U.S. Geological Survey, U.S. Army Corps. 147 pp.

KEYWORDS: Task 1; Task 6; organic carbon; Baker Bay; Bonneville Dam; Astoria; Youngs Bay; methods; metals; herbicides; pesticides; PCBs; priority pollutants

DOCUMENT NO.: FUHR007FF LOCATION: BCDP

Fuhrer, G.J., and F.A. Rinella. 1983. Analyses of elutriates, native water, and bottom material in selected rivers and estuaries in western Oregon and Washington. U.S. Army Corps of Engineers. pp. 59-66.

KEYWORDS: Task 1; Task 6; Astoria; Youngs Bay; metals; organic carbon

DOCUMENT NO.: GARR001FF LOCATION: BCRP

Garrett, M., R.G. Anthony, J.W. Watson, and K. McGarigal.
1988. Ecology of bald eagles on the lower Columbia River:
Final Report to U.S. Army Corps of Engineers, Contract No.
DACW57-83-C-0100. Oregon State University, Dept. of
Fisheries and Wildlife, Corvallis, OR. 189 pp.

KEYWORDS: Task 1; Task 4; RM 0; RM 65; organochlorines;
metals; birds

DOCUMENT NO.: HAER001FJ LOCATION: BCRC

Haertel, L., and C. Osterberg. 1967. Ecology of
zooplankton, benthos and fishes in the Columbia River
Estuary. Ecology 48(3): 459-472.

KEYWORDS: Task 1; Task 4; plankton; fish; benthos; salinity;
RM 2; RM 8; RM 15; RM 23; methods; Astoria

DOCUMENT NO.: HAUS001FF LOCATION: BCRC

Haushild, H.H., H.H. Stevens, Jr., J.L. Nelson, and G.R.
Dempster, Jr. 1973. Radionuclides in transport in the
Columbia River from Pasco to Vancouver, Washington.
Geological Survey Professional paper 433-N, U.S. Government
Printing Office, Washington, DC. 43 pp.

KEYWORDS: Task 1; Task 2; Pasco; Umatilla; Vancouver; point
source; radionuclides

DOCUMENT NO.: HAUS002FF LOCATION: BCRC

Haushild, W.L., G.R. Dempster, Jr., and H.H. Stevens, Jr.
1975. Distribution of radionuclides in the Columbia River
streambed, Hanford Reservation to Longview, Washington. U.S.
Geological Survey Professional Paper 433-0, U.S. Government
Printing Office, Washington, DC. 35 pp.

KEYWORDS: RM 106; RM 289; RM 330; radionuclides; Vancouver;
Umatilla; Pasco; Hanford; sediment; Task 1; Task 2; Task 3;
Task 6

DOCUMENT NO.: HEDG001FJ LOCATION: BCRC

Hedges, J.I., J.H. Turin, and J.R. Ertel. 1984. Sources and distributions of sedimentary organic matter in the Columbia River drainage basin, Washington and Oregon. *Limnol. Oceanogr.* 29(1):35-46.

KEYWORDS: Task 1; vascular plant debris; sediments; organic carbon; methods; Grand Coulee Dam; Wells Dam; Rock Island Dam; Priest Rapids; McNary Dam; John Day Dam; Bonneville Dam; Astoria

DOCUMENT NO.: HENN002FJ LOCATION: BCRC

Henny, C.J., L.J. Blus, A.J. Krynitsky, and C.M. Bunck. 1984. Current impact of DDE on Black-Crowned Night-Herons in the intermountain west. *J. Wildl. Manage.* 48(1):1-13.

KEYWORDS: Task 1; Task 4; Task 6; organochlorines; birds; Three-Mile Island; Moses Lake; Foundation Island

DOCUMENT NO.: HENN001FJ LOCATION: BCRC

Henny, C.J., and R.G. Anthony. 1989. Bald eagle and osprey. *National Wildlife Federation Scientific and Technical Series* (12):66-82.

KEYWORDS: Task 1; Task 4; Task 6; bird; organochlorine; Wenatchee; Memaloose Island; Multnomah Falls; Washougal

DOCUMENT NO.: HIGL001FS LOCATION: BCRC

Higley, D.L., S.L. Wilson, K.K. Jones, and R.L. Holton. 1983. Distributor and community structure of benthic infauna in channel and protected flat habitats of the Columbia River Estuary. Report to U.S. Army Corps of Engineers. School of Oceanography, Oregon State University, Corvallis, OR. 81 pp.

KEYWORDS: Task 1; Task 4; Columbia River Estuary; RM 0; RM 46; benthos; salinity; sediment grain size

DOCUMENT NO.: HILE001DF LOCATION: BCRP

Hileman, J., R. Cunningham, and V. Kollias. 1975. Columbia River nutrient study: In cooperation with the Washington State Department of Ecology and the Oregon State Department of Environmental Quality. EPA 910-9-75-011, Surveillance and Analysis Div., Seattle, WA Region X. 81 pp.

KEYWORDS: Task 1; Task 2; Task 6; RM 39; RM 734; nutrients; bacteria; conventionals; river flow; Snake River; Willamette River; point source

DOCUMENT NO.: HINE001D LOCATION: BCRP

Hines, W.G., P. Sturtevant, G.T. Bailey, and D.E. Anderson. 1978. River quality conditions of the lower Columbia River: A preliminary assessment. Lower Columbia River Study Group (LCRSG), An Ad Hoc Tech Comm. 81 pp + app.

KEYWORDS: RM 35-121; metals; bacteria; pulp mills; fish; river flow; zooplankton; phytoplankton; water quality; turbidity; nutrients; modeling; conventionals; Task 1; Task 2; Task 3; Task 4; Task 6

DOCUMENT NO.: HINT001FE LOCATION: BCRC

Hinton, Susan A., G.T. McCabe, Jr., and R.L. Emmett. 1990. Fishes, benthic invertebrates, and sediment characteristics in intertidal and subtidal habitats at five areas in the Columbia River estuary. Final Rep. U.S. Army Corps of Engineers, Portland, OR., and Natl. Marine Fisheries. 92 pp. + app.

KEYWORDS: Task 1; Task 4; Task 6; benthic invertebrate; fish; sediment; RM 9; RM 14; RM 16; RM 19; RM 21; RM 23; RM 25; RM 27; RM 28; Desdemona Sands; Taylor Sands; Rice Island; Miller Sands; Jim Crow Sands; sediment grain size

DOCUMENT NO.: HOLT001FS LOCATION: BCRC

Holton, R.L. 1984. Final report on the benthic infauna work unit of the Columbia River. College of Oceanography, Oregon State University, Corvallis, OR. 179 pp. + app.

KEYWORDS: Task 1; Task 4; Task 6; benthic infauna; Columbia River Estuary; Baker Bay; Grays Bay; Desdemona Sands

DOCUMENT NO.: HUBB001FF LOCATION: BCDC

Hubbard, L.E., T.A. Herrett, R.L. Kraus, and R.L. Maffatt. 1989. Water resources data, Oregon, Water year 1989, Vol. 2, Western Oregon. U.S. Geological Survey, Water Resources Division. 314 pp.

KEYWORDS: Task 1; Task 3; Task 6; water quality; discharge; metals; organics; conventional

DOCUMENT NO.: HUBB002FF LOCATION: BCRC

Hubbell, D.W., and J.L. Glenn. 1973. Distribution of radionuclides in bottom sediments of the Columbia River. Prof. Paper 443-L, U.S. Geological Survey.

KEYWORDS: Task 1; radionuclides; sediment; RM 0; RM 64; sediment grain size; transport

DOCUMENT NO.: JOHN001FS LOCATION: BCRC

Johnson, A., and D. Norton. 1988. Screening survey for chemical contaminants and toxicity in sediments at five lower Columbia River ports - September 22-24, 1987. Washington State Department of Ecology, Olympia, WA. 20 pp.

KEYWORDS: Task 1; Task 6; Task 2; priority pollutants; sediment quality; Camas; Vancouver; Kalama; Longview; Ilwaco; Reed Island; RM 124; 118, RM 105, RM 75, RM 67, RM 3, bioassay; point source; toxicity

DOCUMENT NO.: KCRM001F LOCATION: BCRC

Kcrma, K. 1986. Water quality information for lower Columbia River: Corps of Engineers turning basin project. #NPPPL-NR-85-010. Port of Kalama, Kalama, WA. 4 pp.

KEYWORDS: Task 1; Task 2; Task 6; conventional; water quality; dredging

DOCUMENT NO.: KEEN001 LOCATION: BCRC

Keenan, R.E., A. Parsons, E. Ebert, P. Boardman, S. Huntley, and M. Sauer. 1990. Assessment of the human health risks related to the presence of dioxins in Columbia River fish. Chem Risk, Portland, ME. 100 pp. + app.

KEYWORDS: Task 4; Task 5; Task 1; dioxins, beneficial uses; fish; fisheries; pulp mills; point source; risk; furans; toxicity; PCBs; Puget Island; Cathlamet Bay; Astoria; Marsh Island; Westport Slough; histopathology

DOCUMENT NO.: KRAH001FJ

LOCATION: BCRC

Krahn, M.M., L.J. Kittle, Jr., and W.D. MacLeod, Jr. 1986. Evidence for exposure of fish to oil spilled into the Columbia River. Marine Environmental Research 20:291-298.

KEYWORDS: RM 30; RM 87; RM 100; RM 125; fish; oil spill; St. Helens; WA; organics; Task 1; Task 2; Task 6; Task 4

DOCUMENT NO.: LARA001FJ

LOCATION: BCRC

Lara-Lara, J.R., B.E. Frey, and L.F. Small. 1990. Primary production in the Columbia River estuary II. Grazing losses, transport, and a phytoplankton carbon budget. Pacific Science 44(1):38-50.

KEYWORDS: Task 1; Task 4; phytoplankton; zooplankton

DOCUMENT NO.: LEE001FJ

LOCATION: BCRP

Lee II, H., and R. Randall. No Date. Cancer risk associated with sediment quality. U.S. EPA, Hatfield Marine Science Center. p. 676.

KEYWORDS: Task 1; Task 6; sediment quality; benthos; bioaccumulation

DOCUMENT NO.: LEE001FJ

LOCATION: BCAP

Lee, C.O., J.A. Strand and A.E. Neuissl. 1988. Modes of toluene uptake in adult chinook salmon. In: Proceedings - First Annual Meeting on Puget Sound Research, Vol. 2. Puget Sound Water Quality Authority. p. 619.

KEYWORDS: Task 1; fish; bioaccumulation; Washington Coast; organics

DOCUMENT NO.: LOWE001FJ LOCATION: BCRC

Lowe, T., T. May, W. Brumbaugh, and D. Kane. 1985. National Contaminant Biomonitoring Program: Concentrations of seven elements in freshwater fish, 1978-1981. Arch. Environ. Contam. Toxicol. 14:363-388.

KEYWORDS: Task 1; Task 4; metals; fish; bioaccumulation; Cascade Locks; Willamette River

DOCUMENT NO.: MAY001FS LOCATION: BCRC

May, T., and G. McKinney. 1981. National Pesticide Monitoring Program: cadmium, lead, mercury, arsenic, and selenium concentrations in freshwater fish, 1976-77. Pesticides Monitoring Journal. 15(1):14-38.

KEYWORDS: Task 1; Task 4; Willamette River; Bonneville Dam; metals; fish; bioaccumulation

DOCUMENT NO.: MCCA004DF LOCATION: BCRC

McCabe, Jr., G.T. 1991. Biological sampling at a proposed new site for area D, an in-water dredged-material disposal site in the lower Columbia River. Progress Report. Contract E96910017, U.S. Army Corps of Engineers and National Marine Fisheries. 10 pp.

KEYWORDS: Task 1; Task 6; methods; benthic invertebrates; fish

DOCUMENT NO.: MCCA005FF LOCATION: BCRC

McCabe, Jr., G.T., and R.J. McConnell. 1989. Abundance and size-class structures of Dungeness Crabs in or near frequently-dredged areas in the Columbia River Estuary. U.S. Army Corps of Engineers (Contract DACW57-88-F-0461). 22 pp.

KEYWORDS: RM 0.7-12.5; Dungeness Crab; benthos; dredging; nonpoint source; estuary; conventionals; Task 1; Task 2; Task 4; Task 5; Task 6

DOCUMENT NO.: MCCA002FF LOCATION: BCRC

McCabe, Jr., G.T., S.A. Hinton, R.L. Emmett, and R.J. McConnell. 1990. Benthic invertebrates, sediment characteristics, and demersal fishes off Cottonwood Island, Columbia River, before and after rock groin construction, 1987-1988. Final Report. U.S. Army Corps of Engineers, Portland, OR, and National Marine Fisheries Service, Seattle, WA. 17 + app.

KEYWORDS: Task 1; Task 4; Cottonwood island; RM 68; RM 71; benthic invertebrate; fish, sediment

DOCUMENT NO.: MCCA001FF LOCATION: BCRC

McCabe, Jr., G.T., and Susan A. Hinton. 1990. Benthic infauna and sediment characteristics in the Columbia River near Westport, Oregon, August 1989. Final Report. U.S. Army Corps of Eng., Portland, OR, and Natl. Marine Fisheries. 14 pp.

KEYWORDS: Task 1; Task 4; Task 6; Puget Island; Westport; RM 43; benthic invertebrates; sediment

DOCUMENT NO.: MCCA001FS LOCATION: BCRC

McCallum, M. 1986. Water quality study of Baker Bay. Office of Environmental Health Programs, WA. 12 pp.

KEYWORDS: Task 1; Task 6; Task 2; Baker Bay; water quality; bacteria; point source; bioaccumulation; benthos

DOCUMENT NO.: MCIN001FJ LOCATION: BCRC

McIntire, C.D., and M.C. Amspoker. 1986. Effects of sediment properties on benthic primary production in the Columbia River estuary. Aquatic Botany, 24:249-267.

KEYWORDS: Task 1; Task 4; Task 6; vascular plants; sediment grain size; Clatsop Spit; Baker Bay; Youngs Bay; Grays Bay; Quinns Island; salinity; benthos; algae; organic carbon

DOCUMENT NO.: MCKE001FF LOCATION: BCRC

McKern, J.L. 1976. Inventory of riparian habitats and associated wildlife along Columbia and Snake Rivers: Volume I summary, Vol. IIA, Vol. IIB. U.S. Army Corps of Engineers, North Pacific Div. 100 pp.

KEYWORDS: Task 1; Task 4; riparian; mammals; marine mammals; birds; reptiles; amphibians; plants; RM 145; RM 192; RM 215; RM 292; RM 0; RM 12; RM 79; Bonneville Dam; Dalles Dam; John Day Dam

DOCUMENT NO.: MISI001FF LOCATION: BCDC

Misitano, D.A. 1974. Zooplankton, water temperature, and salinities in the Columbia River Estuary, December 1971 through December 1972. NMFS-DR-92, National Marine Fisheries Service, National Oceanic and Atmospheric Administration.

KEYWORDS: Task 1; Task 4; Task 6; salinity; bathymetry; zooplankton; RM 2.8; RM 24; Columbia River Estuary;

DOCUMENT NO.: MONA001FF LOCATION: BCDC

Monaco, M.E., D.M. Nelson, R.L. Emmett, and S.A. Hinton. 1990. Distribution and abundance of fishes and invertebrates in westcoast estuaries, Volume I: data summaries. Strategic Assessment Branch, National Ocean Service; NOAA. 240 pp.

KEYWORDS: Task 1; Task 4; benthos; fish; abundance; distribution

DOCUMENT NO.: NCPI001 LOCATION: BCRC

National Council of the Paper Industry for Air and Stream Improvement. 1989. Effects of biologically treated bleached Kraft Mill effluent on cold water stream productivity in experimental stream channels-fifth progress report. NSCI Tech. Bull. No. 566. 127 pp. + app.

KEYWORDS: Task 1; Task 4; Task 2; fish; benthos; toxicity; point source; histopathology; nutrients; water quality; chlorinated organics; conventionals; periphyton

DOCUMENT NO.: NIGR001FS

LOCATION: BCRC

Nigro, A. (ed). 1990. Status and habitat requirements of white sturgeon populations in the Columbia River downstream from McNary Dam. U.S. Dept. of Energy, Bonneville Power Administration. 191 pp.

KEYWORDS: Task 1; Task 4; Task 5; Task 6; fish; population dynamics; RM 292; RM 131; RM 95; John Day Reservoir; Dalles Reservoir; Bonneville Reservoir

DOCUMENT NO.: ODEQ002DS

LOCATION: BCRC

Oregon Department of Environmental Quality. 1990. 1990 Work plan for investigation of toxins in the Columbia River Basin. Oregon Dept. of Env. Quality, Portland, OR. 20 pp + app.

KEYWORDS: Task 1; Task 4; Task 2; bioaccumulation; toxicity; organochlorines; metals; sediment; dioxins; furans; PCBs; pesticides; point source; benthos; fish; birds; mammals; methods; organic carbon; RM 4-118

DOCUMENT NO.: ODEQ003FS

LOCATION: BCRC

Oregon Department of Environmental Quality. 1990. 1990 water quality status assessment report: 305b report. Oregon Dept. of Env. Quality, Portland, OR. 135 pp + app.

KEYWORDS: Task 1; Task 2; Task 6; beneficial uses; priority pollutants; wetlands; NPDES permits; toxicity; point source; nonpoint sources; water quality; bacteria; conventionals; bioassay; N. Coast Basin; Willamette Basin; Sandy Basin; John Day

DOCUMENT NO.: COEP01OFF

LOCATION: BCDP

Portland District Corps of Engineers. 1990. Appendix D: Environmental and cultural resources. Portland District Corps of Engineers, Portland, OR. 9 pp.

KEYWORDS: Task 1; Task 2; Task 6; dioxins; furans; sediment grain size; Willamette River; Columbia River; RM 38; RM 39; RM 43; RM 65; RM 85; RM 115

DOCUMENT NO. POGEO01FS LOCATION: BCRC

Portland General Electric Co. 1990. Trojan Nuclear Plant, Operational Environmental Radiological Surveillance Program. Portland General Electric Co., Portland, OR.

KEYWORDS: Task 1; Task 2; Task 6; Task 5; point source; Rainier; St. Helens; radionuclides; air; fish; invertebrates; bioaccumulation; drinking water; milk; food

DOCUMENT NO.: RICK001FF LOCATION: BCRC

Rickert, D.A., V.C. Kennedy, S.W. McKenzie, and W.G. Hines. 1977. A synoptic survey of trace metals in bottom sediments of the Willamette River, Oregon. Cir. 715-F, U.S. Geological Survey, Portland, OR. 27 pp.

KEYWORDS: Task 1; Willamette River; metals; sediments; sediment grain size

DOCUMENT NO.: ROBE001F LOCATION: BCRC

Robertson, D.E., and J.J. Fix. 1977. Association of Hanford original radionuclides with Columbia River sediment. BNWL-2305, UC-41, Battelle Pacific Northwest Labs, Richland, WA. 36 pp +app.

KEYWORDS: Task 1; Task 2; Task 6; sediment; radionuclides; McNary Dam; Dalles Dam; Bonneville Dam; Hood river; methods

DOCUMENT NO.: SCHM005FJ LOCATION: BCRC

Schmitt, C., J. Zajicek, and M. Ribick. 1985. National Pesticide Monitoring Program: Residues of organochlorine chemicals in freshwater fish, 1989-81. Arch. Environ. Contam. Toxicol. 14:225-260.

KEYWORDS: Task 1; Task 4; organochlorines; pesticides; fish; Willamette River; Cascade Locks; bioaccumulation

DOCUMENT NO.: SCHM002FJ LOCATION: BCRC

Schmitt, C., J. Zajicek, and P. Peterman. 1990. National Contaminant Biomonitoring Program: Residues of organochlorine chemicals in U.S. freshwater fish, 1976-1984. Arch. Environ. Contam. Toxicol. 19:748-781.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks; Oregon City; organochlorines; pesticides; fish; bioaccumulation

DOCUMENT NO.: SCHM003FJ LOCATION: BCRC

Schmitt, C., L. Ludke, and D. Walsh. 1981. Organochlorine residues in fish: National Pesticide Monitoring Program, 1970-74. Pesticides Monitoring Journal. 14(4):136-206.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks; fish; organochlorines; pesticides; bioaccumulation

DOCUMENT NO.: SCHM001FF LOCATION: BCRC

Schmitt, C., M. Ribick, J. Ludke, and T. May. 1983. National Pesticide Monitoring Program: Organochlorine residues in freshwater fish, 1976-79. Resource Publication 152, U.S. Fish and Wildlife Service, Washington, D.C. 64 pp.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks; Oregon City; organochlorines; pesticides; fish; bioaccumulation

DOCUMENT NO.: SCHM004FJ LOCATION: BCRC

Schmitt, C., and W. Brumbaugh. 1990. National Contaminant Biomonitoring Program: Concentrations of arsenic, cadmium, copper, lead, mercury, selenium, and zinc in U.S. freshwater fish, 1976-1984. Arch. Environ. Contam. Toxicol. 14:731-747.

KEYWORDS: Task 1; Task 4; Willamette River; Cascade Locks; bioaccumulation; metals; fish

DOCUMENT NO.: SHER001FJ LOCATION: BCRC

Sherlock, L. 1990. Fighting for a cleaner Columbia River. Journal of Pesticides Reform. 10(2):28-30.

KEYWORDS: Task 1; Task 2; organochlorines; pulp mills; dioxins; fish; bioaccumulation

DOCUMENT NO.: SHER001FS LOCATION: BCRC

Sherwood, C.R., J.S. Creager, E.H. Roy, G. Gelfenbaum, and T. Dempsey. 1984. Sedimentary processes and environments in the Columbia River estuary: Final Report on the sedimentation and shoaling work unit of the Columbia River Estuary Data Development Program. Columbia River Estuary Study Taskforce, Astoria, Oregon. 318 pp.

KEYWORDS: Task 1; Task 3; Task 6; sediment grain size; bathymetry; Col. Estuary; Baker Bay; Trestle Bay; N. Channel; South Channel; Youngs Bay; Desdemona Sands; Mid-Estuary Shoals; Grays Bay; Brix Bay; Cathlamet Bay; Lower and Upper River Channel

DOCUMENT NO.: SIIP001FF LOCATION: BCDP

Siipola, M.D. 1989. Results of 1989 Willamette River-Burlington/Northern R.R. bridge sediment quality evaluation. Portland District Corps of Engineers, Portland, OR. 21 pp.

KEYWORDS: Task 1; Task 2; Task 6; dredging; sediment grain size; Willamette River; metals; organics; pesticides; PCBs

DOCUMENT NO.: SIME001FS LOCATION: BCRC

Simenstad, C., D. Jay, C.D. McIntire, W. Nehlsen, C. Sherwood, and L. Small. 1984. The dynamics of the Columbia River estuarine ecosystem, volume I. Columbia River Estuary Study Taskforce, Astoria, Oregon. 340 pp.

KEYWORDS: Task 3; Task 1; Task 6; RM 0; RM 100; RM 30; RM 47; RM 3; RM 8.3; RM 18; RM 24; RM 42; RM 53; RM 83; Sediment; River Flow; Salinity; Tidal Range; Circulation; Columbia River Estuary; Cathlamet Bay

DOCUMENT NO.: SIME002FS LOCATION: BCRC

Simenstad, C., D. Jay, C.D. McIntire, W. Nehlsen, C. Sherwood, and L. Small. 1984. The dynamics of the Columbia River estuarine ecosystem, Volume II. Columbia River Estuary Taskforce, Astoria, Oregon. 354 pp.

KEYWORDS: Task 1; Task 4; Task 6; mammals; birds, marine mammals; fish; plankton; benthos; wetlands; vascular plants; Columbia Estuary; Baker Bay; Trestle Bay; Youngs Bay; Grays Bay; Cathlamet Bay; Youngs River; Lewis and Clark River; Deep River

DOCUMENT NO.: SIME003FF LOCATION: BCRC

Simenstad, C.A. 1984. Epibenthic organisms of the Columbia River Estuary. Doc. No. PB85-102127, Prepared for National Oceanic and Atmospheric Admin.. 55 pp +app.

KEYWORDS: Task 4; Task 1; Task 6; benthic epifauna; Columbia River Estuary; methods

DOCUMENT NO.: SMAL001FJ LOCATION: BCRC

Small, L.F. (ed). 1990. Columbia River: Estuarine system. Progress in Oceanography 25(1-4). 358 pp.

KEYWORDS: Task 1; Task 3; Task 4; Task 6; sediment; bathymetry; salinity; circulation; tidal flow; phytoplankton; vascular plants; benthos; fish; trophic structure; birds; mammals; wetlands

DOCUMENT NO.: SNYD002DF LOCATION: BCDC

Snyder, G.R., and R.J. McConnell. 1970. Subsurface water temperature of the Columbia River at Prescott, Oregon (River Mile 72), 1968-69: Technical advisory committee Columbia River thermal effects study. Bureau of Commercial Fisheries, Seattle, WA. 8 pp.

KEYWORDS: Task 1; temperature; RM 72; Prescott

DOCUMENT NO.: SPEI001FJ LOCATION: BCRP

Speich, S.M., J. Calambokidis, R.J. Peard, D.M. Fry and M. Witter. 1988. Puget Sound glaucous - winged gulls: biology and contaminants. In: Proceedings - First Annual Meeting on Puget Sound Research, Vol. 2. Puget Sound Water Quality Authority. pp. 598-607.

KEYWORDS: Task 1; birds; Puget Sound; organics; bioaccumulation

DOCUMENT NO.: STEV002AJ LOCATION: BCRC

Stevenson, L.H. (ed). 1981. Columbia River and status of national estuaries. In: Estuaries 4(3). Estuarine Research Federation. pp 272-273.

KEYWORDS: Task 1; Task 3; Task 4; Task 6; sediment transport; benthic infauna; tidal range; circulation; Columbia River Estuary

DOCUMENT NO.: STEV001AJ LOCATION: BCRC

Stevenson, L.H. (ed). 1981. Columbia River estuary data development program. In: Estuaries 4(3). Estuarine Research Federation:274-276.

KEYWORDS: Task 1; Task 4; vascular plant; wetlands; benthos; phytoplankton; sediment; marine mammals; fish; fisheries; birds

DOCUMENT NO.: TTP001FF LOCATION: BCRC

Tetra Tech, Inc. 1976. Water quality analysis - Columbia River. Report No. NCWQ75/59 Prepared for National Commission on Water Quality. 123 pp.

KEYWORDS: Task 1; Task 2; water quality; conventionals; bacteria; dissolved gas; temperature; nutrients; McNary Dam; Bonneville Dam; RM 292; RM 146; RM 54; industrial; domestic; point source

DOCUMENT NO.: THUT001F LOCATION: BCDC

Thut, R.N., N. Fisher, and S.M. Anderson. 1984. Field survey of the effects of the Weyerhaeuser Longview discharge on TSS and turbidity levels. Project No. 047-4604, Weyerhaeuser, Tacoma, WA. 24 pp.

KEYWORDS: Task 1; Task 2; RM 63; point source; NPDES permit; pulp mill; Longview

DOCUMENT NO.: TOOM001FS LOCATION: BCRC

Toombs, G.L., S.L. Martin, P.B. Culter, and M.G. Dibblee. 1984. Environmental radiological surveillance report on Oregon surface waters, Volume I, 1961-1983. Oregon State Health Division, Radiation Control Section, Portland. 40 pp.

+ app.

KEYWORDS: Task 1; radionuclides; Goble; Dalles Dam; bioaccumulation; sediment quality; water quality; phytoplankton; transport

DOCUMENT NO.: COEP001FF

LOCATION: BCDC

U.S. Army Corps of Engineers, Portland. 1980. Columbia River sediment database estuarine and riverine. Portland District Corps of Engineers, Portland, OR.

KEYWORDS: Task 1; Task 6; sediment grain size; conventionals; metals; organics; Astoria; Baker Bay; Cathlamet Bay; Chetco; Chinook; RM .5; RM 5.5; RM 7; RM 11; RM 13; RM 33

DOCUMENT NO.: COEP004FF

LOCATION: BCRC

U.S. Army Corps of Engineers. 1979. Portland Harbor dredging and Columbia River in-water disposal water quality investigations. Navigation Division Research & Evaluation Report No. 1-79, Portland District, Portland, OR. 61 pp.

KEYWORDS: Task 1; Task 4; Task 2; RM 99; RM 102; Willamette River; dredging; bioassay; fish; benthos; metals; organics; turbidity; sediment grain size; conventionals; pesticides; PCBs; water quality

DOCUMENT NO.: COEP002FF

LOCATION: BCDC

U.S. Army Corps of Engineers. 1988. Columbia River: Sediment gradation analysis results - 1980-1988. U.S. Army Corps of Engineers, Portland, OR.

KEYWORDS: Task 1; Task 6; sediment grain size

DOCUMENT NO.: COEN001FF

LOCATION: BCRC

U.S. Army Corps of Engineers. 1989. 1989 dissolved gas monitoring for the Columbia and Snake Rivers: Summary report and data analysis. North-Pacific Div. Water Management Branch, Portland, OR.

KEYWORDS: Task 1; Task 6; RM 140-175; Snake River; RM 108; dissolved gas; temperature

DOCUMENT NO.: COEP003 LOCATION: BCDC

U.S. Army Corps of Engineers. 1990. Dissolved gas data in Columbia River Basin since 1966. U.S. Army Corps of Engineers, Portland District, Portland, OR.

KEYWORDS: Task 1; nitrogen; data

DOCUMENT NO.: COEP008FF LOCATION: BCDC

U.S. Army Corps of Engineers. 1990. Riverine sediment quality report. Portland District, Corps of Engineers, Portland, OR.

KEYWORDS: Task 1; Task 2; Task 6; metals; sediment grain size; organics; PCBs; pesticides; organic carbon; Willamette River; Tongue Point; Oregon Slough; Skipanon; St. Helens; Ilwaco; Yaquina Bay; Winchester Bay; Baker Bay; Astoria; Cathlamet Bay

DOCUMENT NO.: AEC001FF LOCATION: BCRP

U.S. Atomic Energy Commission. 1970. Summaries of USAEC environmental research and development. TID-4065, AEC, Division of Tech. Information. 166 pp.

KEYWORDS: Task 1; Task 4; fish; insects; benthos; bioassay; plants; river flow; transport; radionuclides; conventionals

DOCUMENT NO.: EPAX005FF LOCATION: BCOP

U.S. Environmental Protection Agency. 1991. Columbia River water quality data from STORET data system. U.S. EPA Region 10, Seattle, WA.

KEYWORDS: Task 1; Task 2; Task 3; Task 6; conventionals, water quality; metals; organics; PCB; turbidity; stream flow; bacteria; Willamette; Multnomah; Cowlitz; Sandy River

DOCUMENT NO.: EPAX004FF LOCATION: BCRC

U.S. Environmental Protection Agency. 1991. Total maximum daily load (TMDL) for 2,3,7,8-TCDD in the Columbia River basin. Decision Document, U.S. EPA Region 10, Seattle, WA.

KEYWORDS: Task 1; Task 2; Task 6; dioxin, pulp mills; water

quality; TMDL; Willamette Basin; Longview; Wauna; Camas; St. Helens

DOCUMENT NO.: FWS0001FF LOCATION: BCDC

U.S. Fish and Wildlife Service. 1991. Waterbird distribution data for lower Columbia River area. Available from Julia Butler Hansen Refuge for the Columbian White-Tailed Deer, Cathlamet, WA.

KEYWORDS: Task 1; Task 4; birds

DOCUMENT NO.: GSPO002 LOCATION: BCDC

U.S. Geological Survey. 1990. Water quality data, Columbia River at Bradwood, OR (RM 39). No. 14247400, unpublished.

KEYWORDS: water quality; phytoplankton; metals; conventionals; Task 1; RM 39, Bradwood

DOCUMENT NO.: GSPO001 LOCATION: BCDC

U.S. Geological Survey. 1990. Water quality data, Columbia River at Warrendale, OR (RM 141). No. 14128910, unpublished.

KEYWORDS: water quality; metals; conventionals; Task 1; RM 141, Warrendale; phytoplankton

DOCUMENT NO.: USGS001FF LOCATION: BCDC

United States Geological Survey. 1991. Water quality data. United States Department of Interior. 48 pp.

KEYWORDS: Task 1; Task 6; conventionals; metals; water quality; Warrendale; Beaver Army Terminal; Columbia Slough

DOCUMENT NO.: VARA001FF LOCATION: BCRP

Varanasi, U., S.L. Chan, B.B. McCain, J.T. Landahl, M.H. Schiewe, R.C. Clark, D.W. Brown, M. Myers, M.M. Krahn, W.D. Gronlund, and W.D. Macleod, Jr. 1988. National benthic surveillance project: Pacific Coast: Part II technical presentation of the results for Cycles I to III (1984-86). NOAA Tech Memo NMFS F/NWC-170. 158 pp + app.

KEYWORDS: Task 1; Task 4; RM 7; Youngs Bay; fish;
organochlorines; PCBs; metals; sediments; histopathology;
bioaccumulation

DOCUMENT NO.: WDOE003FS **LOCATION:** BCDP

Washington State Department of Ecology. 1987. NDS Phase II:
Bioaccumulative pollutant study: Sample tracking system.
WDOE, Olympia, WA. 2 pp.

KEYWORDS: Task 1; Task 6; Longview; organics

DOCUMENT NO.: WDOE001FS **LOCATION:** BCRC

Washington State Department of Fisheries, and Oregon
Department of Fish and Wildlife. 1990. Status Report:
Columbia River fish runs and fisheries 1960-89. Washington
Department of Fisheries and Oregon Department of Fish and
Wildlife. 142 pp.

KEYWORDS: Task 1; Task 5; Task 4; fish; fisheries;
turbidity; river flow

DOCUMENT NO.: WEYL001F **LOCATION:** BCDP

Weyerhaeuser Paper Company. 1990. Chemical characterization
and bioassay information on Columbia River sediment samples,
NPDES Class II inspection, April 1990. Unpublished.

KEYWORDS: Task 1; Task 2; RM 63.5; metals; organics;
dioxins; furans; PCBs; pesticides; sediment grain size;
organic carbon; point source; NPDES permit; bioassays

DOCUMENT NO.: YOUN003FF **LOCATION:** BCRC

Young, J.S., J.Q. Word, C.W. Apts, M.E. Barrows, V.I.
Cullinan, and N.P. Kohn. 1988. Confirmatory chemical
analyses and solid-phase bioassays on sediment from the
Columbia River Estuary at Tongue Point, Oregon.
PNL-6792/UC-11, Prepared for the U.S. Army Corps of
Engineers, Portland District.

KEYWORDS: Task 1; Task 6; Task 4; Tongue Point; dredging;
methods; bioassays; bioaccumulation; sediment; benthos;
metals; organic carbon; organics; sediment grain size

DOCUMENT NO.: YOUN002D LOCATION: BCDP

Young, S.R. 1987. Columbia River survey. Unpublished. File II.F.5, Technical Dept., James River Corp., Vancouver, WA.

KEYWORDS: Task 1; Task 2; RM 107-121; river flow; conventionals; metals; point source; Camas; pulp mill

DOCUMENT NO.: YOUN001D LOCATION: BCDP

Young, S.R. 1988. Columbia River sediment. Unpublished. File II.F.5, Env. Department, James River Corp., Vancouver, WA.

KEYWORDS: Task 1; RM 107-121; sediments; Camas; NPDES permit; point source; pulp mill; metals; organics; PCBs; pesticides

**ATTACHMENT 3:
OTHER SOURCES OF INFORMATION.**

OTHER SOURCES OF INFORMATION

1.0 STEERING COMMITTEE MEMBERS

a. Local Government

Nelson Graham
Mayor Nan Henrikson
Commissioner Earl Blumenauer
Jeff Bauman

City of Longview
City of Camas
City of Portland
City of Portland

b. Pulp and Paper Industry

Herman Amberg
Dick Nachbar
Llewelyn Matthews
Carol Whitaker

Boise Cascade
NW Pulp & Paper Assoc
James River Corp.

c. Native American Tribes

Michael Farrow
John Platt

Confederated Tribes of the Umatilla
Indian Reservation
Columbia River Intertribal Fish
Commission

d. Public Ports

Rollie Montagne
Bob Friedenwald
Jerry Heller

Port of Portland
Port of Portland
Port of Kalama

e. Environmental Organizations

Cyndy deBruler
Linda Sacamano
Nina Bell
Eugene Rosolie

Columbia River United
NW Environmental Advocates
NW Environmental Advocates

f. Citizen-at-Large

June Spence
Dr. David Krueger
Dan Chandler

Hammond, OR
Astoria, OR
Vancouver, OR

g. Fishing-Recreational

Steve Wille
Dr. Curtis McFarlane

SW Washington Anglers
Vancouver, WA

h. Fishing-Commercial

Bob Eaton
Thane Tienson

Salmon For All
Copeland, Landye, Bennett & Wolf

i. US EPA

Jack Gakstatter
John Gabrielson

Region X, Seattle, WA
Region X, Seattle, WA

j. WA DOE

Neil Aaland

k. OR DEQ

Cordelia Shea

2.0 SCIENTIFIC RESOURCE PANEL

a. Fisheries

Mike Schiewe
Emery Wagner

NMFS
ODFW

b. Aquatic Invertebrates

Dr. Charles Simenstad
Dr. Norman Anderson

UW
OSU

c. Water Quality

Stuart McKenzie
Dr. Lolita Carter

USGS
PG&E

d. Sediment Quality

Marvin Fretwell
Richard Swartz

USGS
EPA, ORD

e. Wetlands

Ken Bierly
Loverna Wilson

OR Div. State Lands
Environmental Consultant

f. Hydrology

Stuart McKenzie
Dr. Roy Koch

USGS
PSU

g. Environmental Toxicology

Dr. David Monroe
Dana Divoli

Monroe Toxicology Professionals
US EPA, Region X

h. Wildlife Toxicology

Dr. Robert Anthony
Dr. Charles Henny

OSU
USFWS

i. **Radiation Health Monitoring**

Ray Paris

Oregon Health Division

j. **Public Health**

Debbie Canon
Gary Fraser

Oregon Health Division
Washington

3.0 COLUMBIA RIVER ESTUARINE STUDY TASK FORCE (CREST)

Mark Barnes

Director

4.0 US-ACOE

a. **Planning & Engineering Division**

1 **Planning and Formulation Branch**

Chuck Mason
Karl Grikson

Planning Section
Hydrologic, Coastal, & River
Engineering Section
Economics Section
Regulation & Water Quality Section
Resource Protection & Fish &
Wildlife Section

Pat Oloradovitch
Mark Supola
Jeff Dorsey

2 **Geotechnical Engineering Branch**

Bob Peak

Cartographic & Remote Sensing
Section

b. **Operations Division**

Ken Patterson
Steve Chesser

Chief
Navigation Branch, Waterways
Projects

c. **Real Estate Division**

Lien Hoekstra

Planning & Control Branch

d. **Water Management Division**

Rudd Turner

Reservoir Control Center

e. **Library, Portland District**

5.0 USGS

Matt Johnson
Louis Fuste
Greg Furer
Al Omons
Dave Hubbel
Ed Hubbard

Water Resources Division
Water Quality Database
Sediment Transports Model
(Vancouver, WA)
Sediment Transport Model
(Vancouver, WA)
River Discharge Information

6.0 USFWS

a. Accumulation of Dioxins & Pesticides in Birds, Fish, and Benthic Invertebrates

Carol Schular

b. Refuges

Al Clark
Bruce Weisman
Jim Heide

Lewis and Clark NWR
Richfield NWR
Lewis and Clark NWR

7.0 DEQ-WATER QUALITY DIVISION

Gene Foster
Dan Kraus
Bruce Sutherland

Dioxin, pesticides, Hg in whole carp
& squaw fish
"Superfund" inventory
Oil spill contingencies

8.0 OR DIVISION OF STATE LANDS, SALEM

Earl Johnson

9.0 USDA - SOIL CONSERVATION SERVICE

Peggy Olds
Bob App
Bill Eagle
Ken Hyde
Dave Gunther
Carl Boyd

Multnomah Co. Dist. Conservationist
Washington Co. Dist. Conservationist
Columbia Co. Dist. Conservationist
Clatsop Co. Dist. Conservationist
Wakiakum & Cowlitz Co. Dist.
Conservationist
Pacific Co. Dist. Conservationist

10.0 MARINE MAMMALS

a. NMFS/ODFW

Robin Brown

Hatfield Marine Sci. Ctr., Newport,
OR

b. WDWL

Steve Jeffries

Olympia, WA

11.0 OSU

Benno Warkentin
David McIntire
Larry Curtis
Larry Small

Water Resources Inst
Botany
Fisheries
Oceanography

12.0 US FOREST SERVICE

Chris Fayad
Dale Cummings
Art Carroll

Columbia River Scenic Gorge
ARC/INFO GIS

13.0 NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STEAM IMPROVEMENTS

Andy Caron

Corvallis, OR

14.0 PGE TROJAN

R.J. Hess
Norman Dyer

Environmental Services Manager
Radiological Studies

15.0 PORTS

16.0 CITY SANITATION DISTRICTS

17.0 NMFS

Bob Emmett

Hammond, OR

18. MICROBIAL QUALITY OF L.C.R.

John Loudesback
Bill Liechty
Gary Fraser

S.W. Washington Health District
(Vancouver) - (206) 696-8428
WA Dept. of Health
(206) 753-5953
WA Dept. of Health
(206) 464-5401