17. SUGGESTED READING AND REFERENCES

- Abernathy, C.S., D.A. Neitzel, and E.W. Lusty. 1989. Velocity Measurements at Six Fish Screening Facilities in the Yakima Basin, Washington, Summer 1988. Annual report to the Bonneville Power Administration.
- Abernathy, C.S., D.D. Neitzel, and E.W. Lusty. 1990. Velocity Measurements at Three Fish Screening Facilities in the Yakima River Basin, Summer 1989. U.S. Department of Energy Bonneville Power Administration Division of Fish and Wildlife.
- Aisenbrey, A.J., R.B. Hayes, H.J. Warren, D.L. Winsett and R.B. Young, 1974. Design of Small Canal Structures. U.S. Department of Interior Bureau of Reclamation. U.S. Government Printing Office, Denver, CO.
- Baker, C.O. and F.E. Votapka. 1990. Fish Passage Through Culverts. Federal Highways Administration & USDA Forest Service. FHWA-FL-90-006. 67 pages. (Available from USDA Forest Service publications, San Dimas Laboratory, CA).
- Bates, D.W. and S.G. Jewett, Jr. 1961. Louver Efficiency in Deflecting Downstream Migrant Steelhead Transaction of the American Fisheries Society, Vol. 90., No. 3, p. 336-337.
- Bates, K.M. 1988. Screen Criteria for Juvenile Salmon, Washington Department of Fisheries. Olympia, WA.
- Bates, K.M. 1992. *Fishway* Design Guidelines for Pacific Salmon. Working paper 1.6. (Available from WDFW. 600 Capitol Way North, Olympia, WA, 98501-1091.)
- Bates, K.M and R. Fuller. 1992. Salmon *Fry* Mesh Study. State of Washington Department of Fisheries. Olympia, WA.
- Bates, K.M. 1993. Fish passage Policy and Technology Proceedings of a Symposium Sponsored by the Bioengineering Section of the American Fisheries Society, Portland, OR.
- Bell. M. C. 1991. Fisheries handbook of engineering requirements and biological criteria. Fish Passage and Development Evaluation Program, U.S. Army Corps of Engineers, Portland, OR.
- Beechie, T., E. Beamer, and L. Wasserman. 1994. Estimating Coho Salmon Rearing Habitat and *Smolt* Production Losses in a Large River Basin, and Implications for Habitat Restoration. North Am. J. Fish. Mgt. 14:797 811.

- Behlke, C.E., D.L. Kane, R.F. McLean, and M.D. Travis. 1991. Fundamentals of Culvert Design for Passage of Weak-Swimming Fish, Final Report. Alaska DOT&PF and USDT, Federal Highway Administration, FHWA-AK-RD-90-10. 177 pages.
- Bell, Milo C., 1991. "Revised Compendium on the Success of Passage of Small Fish Through Turbines." Report for U.S. Army Corps of Engineers, North Pacific Division, Contract No. DACW-57-88-C-0070. Portland, OR. North Pacific Division Army Corps of Engineers (COE). May 1976. Fourth Progress Report on Fisheries Engineering Research Program 1966-1972, Report #32. Portland, Oregon.
- Bigelow, J.P. and R.R. Johnson. 1996. Estimates of Survival and Condition of Juvenile Salmonids passing Through the Downstream Migrant Fish Protection Facilities at Red Bluff Diversion Dam on the Sacramento River, Spring and Summer 1994. U.S. Fish and Wildlife Service Annual Report. North Central Valley Fish and Wildlife Office, Red Bluff, California.
- Brett, J.R., Hollands, M., and Alderdice, D.F. 1958. "The effect of temperature on the cruising speed of young sockeye and coho salmon" Fisheries Research Board of Canada, Journal 15(4): pp 587-605.
- Cada, G. F. 1998. Fish passage mitigation at hydroelectric power projects in the United States, pp. 208–219. In: Fish Migration and Fish Bypasses: Proceedings of the Symposium. (Jungwirth, M., S. Schmutz, and S. Weiss, Eds.). Vienna, Austria: Fishing News Books.
- California Department of Fish and Game. 1998. California Salmonid Stream Habitat Restoration Manual, 3rd Edition, Part X Fish Passage Evaluation At Road Crossings (Part X is in preparation, expected fall 2001).
- California Department of Fish and Game. 2001. Culvert Criteria for Fish Passage.
- Clay, C. H. 1995. Design of *Fishways* and Other Fish Facilities. Boca Raton, Florida: CRC Press.
- Coutant, C. C. (Ed.). 2001. Behavioral technologies for fish guidance. American Fisheries Society, Symposium 26, Bethesda, MD.
- Cramer, D.P. 1982. Evaluation of Downstream Migrant *Bypass system* T.W. Sullivan Plant, Willamette Falls (Progress Report for Fall 1981 and Spring 1982 dtd October 11, 1982) PGE.
- Chow, V.T. 1959. Open-channel Hydraulics. McGraw-hill Book Company.

- Davis, G.E., J. Foster, C.E. Ward and P. Doudoroff. 1968. The Influence of Oxygen on the Swimming Performance of Juvenile Pacific Salmon at Various Temperatures. Technical Paper No. 1475, Oregon Agricultural Experiment Station, Corvallis, OR.
- Darling, D.D. 1991. Evaluation of an Eicher Screen at Elwha Dam. Proceedings of the International Conference on Hydropower, July 1991. Denver, CO.
- Electric Power Research Institute. 1988. Proceedings: Fish Protection at Steam and Hydroelectric Power Plants, EPRI CS/EA/AP-5663-SR, Electric Power Research Institute, Palo Alto, CA.
- Electric Power Research Institute. 1990. Fish Protection Systems for Hydro Plants, EPRI GS-6712, Electric Power Research Institute, Palo Alto, CA.
- Electric Power Research Institute, prepared by Stone & Webster Engineering Corporation. 1994. Biological Evaluation of the Modular Inclined Screen for Protecting Fish at Water Intakes, EPRI TR-104121, Electric Power Research Institute, Palo Alto, CA.
- Electric Power Research Institute. 1996. Evaluation of the Modular Inclined Screen (MIS) at the Green Island Hydroelectric Project: 1995 Test Results, EPRI TR-106498, Electric Power Research Institute, Palo Alto, CA.
- Electric Power Research Institute, prepared by Stone & Webster Engineering Corporation. 1986.

 Assessment of downstream migrant fish protection technologies for hydroelectric application. EPRI AP-4711, Electric Power Research Institute, Palo Alto, CA.
- Electric Power Research Institute. 1991. Evaluation of an Eicher Screen at Elwah Dam: Spring 1990 test results, EPRI GS/EN-7036, Palo Alto, CA.
- Easterbrooks, J.A. 1984. Juvenile Fish Screen Design Criteria: A review of the Objectives and Scientific Data Base. State of Washington Department of Fisheries. Yakima, WA.
- EPRI (Electric Power Research Institute). 1986. Assessment of Downstream Migrant Fish Protection technologies for hydroelectric application. EPRI, Palo Alto, CA.
- Evans, W.A. and B. Johnston. 1980. Fish Migration and Fish Passage: a Practical Guide to Solving Fish Passage Problems. U.S. Forest Service, EM 7100 2, Washington, D.C.

- Federal Energy Regulatory Commission. 2004. Evaluation of mitigation effectiveness at hydropower projects: fish passage. Draft report 2004 1008-0140, Office of Energy Projects, Division of Hydropower Administration and Compliance, Washington D.C.
- Fisher, F.W. 1981. Long Term Swimming Performance of American Shad and Chinook Salmon. State of California Department of Fish and Game, Administrative Report No. 81-2, Bay-Delta Fisheries Project, Sacramento, CA.
- Francfort, J.E., G.F. Cada, D.D. Dauble, R.T. Hunt, D.W. Jones, B.N. Rinehart, G.L. Summers, and R.J. Costello. 1994. Environmental Mitigation at Hydroelectric Projects. Volume II. Benefits and Costs of Fish Passage and Protection. Idaho National Engineering Laboratory, Idaho Falls, ID.
- Furniss, M.J., T.D. Roelofs, and C.S. Yee. 1991. Road Construction and Maintenance. American Fisheries Society Special Publication 19:297-323.
- Gebhards, S., and J. Fisher. 1972. Fish Passage and Culvert Installations. Idaho Fish and Game Rep. 12 pages.
- Glova, G.J. and F.E. McInerney. 1972. Critical Swimming Speeds of Coho Salmon *Fry* to *Smolt* Stages in Relation to Salinity and Temperature. Journal of the Fisheries Board of Canadian Journal 34:151-154.
- Greenland, D.C. and A.E. Thomas. 1972. Swimming Speed of Fall Chinook Salmon *Fry*. Transactions of the American Fisheries Society, 101(4):696-700.
- Groot, C., and L. Margolis, editors. 1991. Pacific Salmon Life Histories. Univ. British Columbia Press, Vancouver. 564 pages.
- Haro, A., M. Odeh, J. Noreika, and T. Castro-Santos. 1998. Effect of water acceleration on downstream migratory behavior and passage of Atlantic salmon juvenile salmonids and juvenile American shad at surface bypasses. Trans. Am. Fish. Soc., 127: 118–127.
- Hallock, R.J., and W.F. Van Woert. October 1959. A Survey of Anadromous Fish Losses in Irrigation Diversions from the Sacramento and San Joaquin Rivers. California Fish and Game. Vol. 45, No. 4, pp. 227-266.
- Hallock, R.J. 1977. A Description of the California Department of Fish and Game Management Program and Goals for the Sacramento River System Salmon Resource. California Fish and Game, Anadromous Fisheries Branch Administrative Report. 16 pp.

- Hallock, R.J. 1977. A Description of the California Department of Fish and Game Management Program and Goals for the Sacramento River System Salmon Resource. California Fish and Game, Anadromous Fisheries Branch Administrative Report. 16 pp.
- Hanson C.H. and H.W. Li, 1983. Behavioral Response of Juvenile Chinook Salmon to *Trash rack* Bar Spacing. California Fish and Game 69(1) 18-22.
- Hassler, T.J. 1987. Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Southwest) Coho Salmon. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.70). U.S. Army Corps of Engineers, TR EL-82-4. 19 pages.
- Hatton, S. 1940. Progress Report on Central Valley Fish, 1939. California Fish and Game, 26(3) pp. 334-373.
- Hosey and Associates and Fish Management Consultants. 1990. Easton Facility Evaluation. Prepared for U.S. Bureau of Reclamation, Contract No. 7-CS-10-07720, Boise, Idaho.
- Hosey and Associates and Fish Management Consultants. 1990. Evaluation of the Chandler, Columbia, Roza and Easton Screening Facilities, Completion Report. Prepared for U.S. Bureau of Reclamation, Contract No. 7-CS-10-07720, Boise, Idaho.
- Hosey and Associates and Fish Management Consultants. 1988. Chandler Facility Evaluation. Prepared for U.S. Bureau of Reclamation, Contract No. 7-CS-10-07720, Boise, Idaho.
- Hosey and Associates and Fish Management Consultants. 1988. Columbia Facility Evaluation. Prepared for U.S. Bureau of Reclamation, Contract No. 7-CS-10-07720, Boise, Idaho.
- Johnson, A. and J.F. Orsborn. Undated, circa 1990. Welcome to Culvert College. Washington Trout, Duvall, WA. 67 pages.
- Johnson, G. E., B. D. Ebberts, D. D. Dauble, A. E. Giorgi, P. G. Heisey, R. P. Mueller, and D. A. Neitzel. 2003. Effects of jet entry at high flow outfalls on juvenile Pacific salmon. North Am. J. Fish Manage., 23: 441–449.
- Johnson, R.C. 1995. Fish Passage Evaluation Tests in the North Shore *Fishway* Hydroelectric Project at The Dalles Dam. Prepared for North Wasco County People=s Utility District, The Dalles, Oregon.

- Jones, S.T., G.M. Starke and R.J. Stansell. 1998. Predation by Gulls and Effectiveness of Predation Control Measures at Bonneville, The Dalles and John Day Dams in 1997. U.S. Army Corps of Engineers CENWP-CO-SRF, Cascade Locks, OR.
- Johnson, P.L. 1988. Hydraulic Design of Angled Drum Fish Screens. In: Proceedings of the Electric Power Research Institute Conference on Fish Protection at Steam and Hydro Plants, San Francisco, CA., Oct. 28-30, 1987. EPRI CS/EA/AP-5663-SR.
- Jungwirth, M. S., Schmutz, and S. Weiss (Eds.). 1998. Fish Migration and Fish Bypasses. Proceedings of a symposium. London: Fishing News Books (1998).
- Kano, R.M. 1982. Responses of Juvenile Salmon and American Shad to Long Term Exposure to Two-Vector Velocity Flows. Interagency Ecological Study Program for the Sacramento-San Joaquin Estuary, Technical Report No. 4., Stockton, CA.
- Kay, AR., and R.B. Lewis. 1970. Passage of Anadromous Fish Through Highway Drainage Structures. California Division of Highways, Dist. 01 Res. Rep. 629110. 28 pages.
- Knapp, S.M.(editor). 1992. Evaluation of the Juvenile Bypass and Adult Fish Passage Facilities at Water Diversions on the Umatilla River, Annual and Interim Progress Reports October 1990-September 1991. Project No. 89-024-01. Prepared for Bonneville Power Administration, Portland, Oregon.
- Knapp, S.M.(editor). 1994. Evaluation of the Juvenile Bypass and Adult Fish Passage Facilities at Water Diversions on the Umatilla River, Annual Report 1993. Project No. 89-024-01. Prepared for Bonneville Power Administration, Portland, Oregon.
- Katopodis, C. 1992. Introduction to *fishway* Design. Working Document from Fish Passageways and Diversion Structures Course presented by National Education and Training Center, USFWS.
- Lauman, J.E. 1976. Salmonid Passage at Stream-Road Crossings. Oregon Dept. of Fish and Wildlife.
- Marquette, M. W. and C. W. Long. 1971. Laboratory studies of screens for diverting juvenile salmon and trout from turbine intakes. Trans. Am. Fish. Soc., 3: 439–447.
- McClellan, T.J. 1970. Fish Passage Through Highway Culverts. U.S. Dept. Trans., Federal Highway Administration and Oregon State Game Comm., Portland OR. 16 pages.

- McElhany, P., M.H. Ruckelshaus, M.J. Ford, T.C. Wainwright, and E.P. Bjorkstedt. 2000. Viable salmonid populations and the recovery of evolutionarily significant units. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-42,156 p.
- Mueller, R.P., C.S. Abernathy, and D.A. Neitzel. 1995. A Fisheries Evaluation of the Dryden Fish Screening Facility Annual Report 1994. Project No. 85-062. Prepared for Bonneville Power Administration, Portland, Oregon.
- Meehan, W.R., editor. 1991. Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication 19.
- Nigro, A.A.(editor). 1990. Evaluation of the Juvenile Bypass and Adult Fish Passage Facilities at Three Mile Dam, Umatilla River, Annual Progress Report October 1989. Project No. 89-024-01. Prepared for Bonneville Power Administration, Portland, Oregon.
- Nietzel, D.A. and C.S. Abernathy. 1995. Movement and Injury Rates for three Life Stages of spring Chinook Salmon: A comparison of Submerged Orifices and an Overflow *Weir* for Fish Bypass in a Modular Rotary Drum Fish Screen. Prepared for Bonneville Power Administration, Portland, Oregon.
- Nietzel, D.A., C.S. Abernathy, E.W. Lusty and L.A. Prohammer. 1985. A Fisheries Evaluation of the Sunnyside Canal Fish Screening Facilities Spring 1985 Annual Report. Contract No. DE-AC06-RLO. Prepared for Bonneville Power Administration, Portland, Oregon.
- Neitzel, D.A., C.S. Abernathy, and W.W. Lusty. 1986. A Fisheries Evaluation of the Richland and Toppenish/Satus Canal Fish Screening Facilities, Spring 1986. Annual Report to the Bonneville Power Administration.
- Neitzel, D.A., C.S. Abernathy, and E.W. Lusty. 1990. A Fisheries Evaluation of the Wapato, Sunnyside and Toppenish Creek Canal Fish Screening Facilities, Spring 1988.
- Nietzel, D.A., C.S. Abernathy and E.W. Lusty. 1990. A Fisheries Evaluation of the Westside Ditch and Wapato Canal Fish Screening Facilities Spring 1989 Annual Report. Project No. 85-62. Prepared for Bonneville Power Administration, Portland, Oregon.
- Nietzel, D.A. and C.S. Abernathy. 1995. Movement and Injury Rates for three Life Stages of spring Chinook Salmon: A comparison of Submerged Orifices and an Overflow *Weir* for Fish Bypass in a Modular Rotary Drum Fish Screen. Prepared for Bonneville Power Administration, Portland, Oregon.

- Neitzel, D.A., C.S. Abernathy, and E.W. Lusty. 1991. Evaluating of Rotating Drum Screen Facilities in the Yakima River Basin, South-Central Washington State. In: Fisheries Bioengineering Symposium. American Fisheries Society Symposium 10. Bethesda, MD.
- Neitzel, D.A., C.S. Abernathy, and G.A. Martenson. 1990d. A Fisheries Evaluation of the Westside Ditch and Town Canal Fish Screening Facilities, Spring 1990. Annual Report to the Bonneville Power Administration.
- Nietzel, D.A., S.L. Blanton, C.S. Abernathy and D.S. Daly. 1996. Movement of fall Chinook *fry*: A comparison of Approach Angles in a Modular Rotary Drum Fish Screen. Project No. 86-118. Prepared for Bonneville Power Administration, Portland, Oregon.
- Neitzel, D.A., T.J. Clune, and C.S. Abernathy. 1990a. Evaluation of Rotary Drum Screens Used to Project Juvenile Salmonids in the Yakima River Basin. In: Proceedings of the International Symposium on *fishways* '90. Gifu, Japan.
- Nordlund, B.D. 1997. Designing Fish Screens for Fish Protection at Water Diversions, in Fish Passageways and Bypass Facilities West, U.S. Fish and Wildlife Service National Conservation Training Center, Shepardstown, WV.
- Normandeau Associates, Inc., Parametrix, Inc., and J. R. Skalski. 1996. Behavior of juvenile salmonids relative to the prototype surface bypass collection channel at Wanapum Dam, Columbia River, Washington. Drumore, PA: Normandeau Associates, Inc.
- NRC (National Research Council). 1996. Upstream: salmon and society in the Pacific Northwest. National Academy Press, Washington D.C.
- Odeh, M. (Ed.). 1999. Innovations in fish passage technology. Bethesda, MD: American Fisheries Society (1999).
- Odeh. M. (Ed.). 2000. Advances in fish passage technology. Bethesda, MD: American Fisheries Society.
- ODFW, 1997. Oregon Department of Fish and Wildlife Guidelines and Criteria for Stream-RoadCrossings. 7 pages.
- Office of Technology Assessment. Fish passage technologies: protection at hydropower facilities. OTA-ENV-641. Washington, DC: U.S. Government Printing Office.

- Ott, R.F. and D.P. Jarrett. Air-Burst Fish Screen Cleaning System for the Twin Falls Hydroelectric Project (unpublished). HDR Engineering, Inc. Bellevue, WA.
- Pearce, R.O., J. Ferguson, M. Lindgren and J. Nestler. 1995. Fish Passage and Protection, Chapter 7 in Guidelines for Design of Intakes for Hydroelectric Plants, pp 215-283. American Society of Civil Engineers, New York, NY.
- Pearce, R.O., and R.T. Lee. 1991. Some Design Considerations for Approach Velocities at Juvenile Salmonid Screening Facilities. In:Fisheries Bioengineering Symposium. American Fisheries Society Symposium 10. Bethesda, MD.
- Poe, T. P., M. G. Mesa, R. S. Shively, and R. D. Peters. 1993. Development of biological criteria for siting and operation of juvenile *bypass systems*: implications for protecting juvenile salmonids from predation, pp. 169–178. In: Fish Passage Policy and Technology (Bates, K., Ed.). Bethesda, MD: American Fisheries Society.
- Pearsons, T.N., G.A. McMichael, S.W. Martin, E.L. Bartrand, A. Long, and S.A. Leider. 1996. Yakima Species Interactions Studies Annual Report 1994. U.S. Department of Energy, Bonneville Power Administration Annual Report 1994. No. DOE/BPB99852-3.
- Poulin, V.A., and H.W. Argent. 1997. Stream Crossing Guidebook for Fish Streams, a Working Draft. Prepared for British Columbia Ministry of Forests. 80 pages.
- Powers, Pat. 1993. Structures for Passing Juvenile Salmon Into Off-Channel Habitat American Fisheries Society Annual Meeting in Portland in 1993
- Rainey, W.S. 1990. Cylindrical Drum Screen Designs for Juvenile Fish Protection at Two Large Diversions. In: Proceedings of the International Symposium on *fishways* '90 in Gifu. Gifu, Japan.
- Rainey, W.S. 1985. Considerations in the Design of Juvenile *Bypass systems*. Paper presented at the Symposium on Small Hydropower and Fisheries. Denver, CO.
- Reading, H.H. 1982. Passage of Juvenile Chinook Salmon and American Shad through Various Trashrack Bar Spacings. State of California Department of Fish and Game technical Report 5, Interagency Ecological Study Program for the Sacramento-San Juaquin Estuary. Red Bluff, CA.
- Reiser, D. W. and K.T. Oliver. 2002. Review of Projects Employing Conventional Fish Screens Existing Information Analysis. Prepared for Portland General Electric Company, Portland, OR.

- Ruehle, T.E. and C.S. McCutcheon. 1994. PIT-Tag Studies with Juvenile Salmonids at the Chandler Fish Collection Facility, Yakima River, 1990. Project No.90-65. Prepared for Bonneville Power Administration, Portland, Oregon.
- Salmonid Restoration Federation Conference. 1996. Culvert Fish Passage Design and Retrofitting Workshop. Fortuna, CA. 30 pages.
- Sandercock, F.K. 1991. Life History of Coho Salmon. Pages 397-445 in C. Groot and L. Margolis (eds.), Pacific salmon life histories. Univ. British Columbia Press, Vancouver. 564 pages.
- Senn, H., Mack, J. and L. Rothfus. 1984. Compendium of Low-cost Pacific Salmon and Steelhead Trout Production Facilities and Practices in the Pacific Northwest. Project No. 83-353. Prepared for Bonneville Power Administration, Portland, Oregon.
- Shirvell, C.S. 1994. Effect of changes in streamflow on the microhabitat use and movement of sympatric juvenile coho salmon (Oncorhynchus kisutch) and chinook salmon (O.tshawytscha) in a natural stream. Can. J. Fish. Aquat. Sci. 51:1644-1652.
- Simmons, W.P. 1964. Hydraulic Design of Transitions for Small Canals. U.S. Bureau of Reclamation, Engineering Monograph No. 33, U.S. Government Printing Office, Washington D.C.
- Skinner, J.E. 1974. A Functional Evaluation of a Large Louver Screen Installation and Fish Facilities Research on California Water Diversion Projects. In: Proceedings of the Second Workshop on Entrainment and Intake Screening. Johns Hopkins University, Baltimore, MD., February 5-9, 1973.
- Smith, L.W. 1982. Clogging, Cleaning, and Corrosion Study of Possible Fish Screens for the Proposed Peripheral Canal. Interagency Ecological Study Program for the Sacramento-San Juaquin Estuary, Sacramento, CA.
- Smith, L.S. and L.T. Carpenter. 1987. Salmonid *Fry* Swimming Stamina Data for Diversion Screen Criteria. Final Report. Fisheries Research Institute, University of Washington, Seattle, WA (1987).
- Spencer, John. 1928. Fish Screens in California Irrigation Ditches. California Fish and Game, Vol. 14, No. 3, p. 208-210.
- Stefan, H. and A. Fu. 1978. Headloss Characteristics of Six Profile-wire Screen Panels Project Report No. 175. St. Anthony Falls Hydraulic Laboratory, Minneapolis, MN.

- Stone, J. M. and T. R. Mosey. 2005. Biological evaluation of the Rocky Reach juvenile fish *bypass system* 2004. Chelan County Public Utility District, Wenatchee, WA.
- Taft, N. 1994. Fish Passage at Hydroelectric Projects, presented at Hydro's Leading Edge Technology: A Symposium Celebrating ARL's Centennial, Phoenix, AZ.
- Taylor, E.B. and J.D. McPhail. 1985. Variation in Burst and Prolonged Swimming Performance Among British Columbia Populations of Coho Salmon. Canadian Journal of Fisheries and Aquatic Sciences, Volume 42.
- Thomas, A.E., J.L. Banks and D.C. Greenland. 1969. Effect of Yolk Sac Absorption on the Swimming Ability of Fall Chinook Salmon. Transactions of the American Fisheries Society 98(3):406-410
- Tomljanovich, D.A., and J.H. Heuer. 1979. Protection of Fish Larvae using Fine-Mesh Screening. Presented at American Society of Engineers Convention, Atlanta, GA.
- Turnpenny, A.W. 1981. An Analysis of Mesh Sizes Required for Screening Fishes at Water Intakes. Estuaries, Volume 4, No. 4
- Turnpenny, A.W., H.G. Struthers, and K.P. Hanson. 1998. A UK guide to intake fish-screening regulations, policy and best practice. ETSU H/06/0052/00/00. Report to the Department of Trade and Industry, Energy Technology Support Unit, Harwell, United Kingdom.
- U.S. Army Corps of Engineers (COE). 1956. North Pacific Division Corps Of Engineers, Progress Report On Fisheries Engineering Research Program, November 1956. Portland, Oregon.

- 1. A Review of Studies in Guiding Downstream Migrating Salmon with Light. U.S. fish and Wildlife Service.
- 2. Determination of the Normal Stream Distribution, Size, Time and current Preference of Downstream Migrating Salmon and Steelhead Trout in the Columbia and Snake Rivers. State of Washington Dept. of Fisheries.
- 3. The Effect of Sound Waves on Young Salmon. U.S. Fish and Wildlife Service.
- 4. Powerhouse Collection System and Transportation Flows, Bonneville Dam. Portland District, Corps of Engineers.
- 5. The Status of Field Scale Electrical Fish Guiding Experiments. U.S. Fish and Wildlife Service.
- 6. Effect of Structures at Main Columbia River Dams on Downstream Migration of Fingerlings. Portland District, Corps of Engineers.
- 7. Bouyant Submerged Orifice Research. Portland District, Corps of Engineers.
- 8. Study of the Effect of Magnetic Fields on Salmon. U.S. Fish and Wildlife Service.
- 9. Fishway Attraction Water Supply Study. Walla Walla District, Corps of Engineers.
- 10. Submerged Orifice Research Powerhouse Fish Collection System, Bonneville Dam. Portland District, Corps of Engineers.

- 11. The Control of Downstream Migrants by Means of Mechanical Screens. Oregon Game Commission.
- 12. Research Relating to Mortality of Downstream Migrant Salmon Passing McNary Dam. State of Washington Department of Fisheries.
- 13. Research Relating to Study of Spawning Grounds in Natural Areas. State of Washington Department of Fisheries.
- 14. Investigation of the Rate of Passage of Salmon and Steelhead Trout through Bonneville Dam and The Dalles Dam Site as Compared to Unobstructed Sections of the Columbia River. Oregon Fish Commission.
- 15. Investigations and Field Studies Relating to Numbers and Seasonal Occurrence of Migratory Fish Entering the Columbia River above Bonneville and the Snake River and Their Final Distribution among Principal Tributaries Thereto. Oregon Fish Commission.
- 16. Enumeration Study Upper Columbia and Snake Rivers. Idaho Department of Fish and Game.
- 17. Research on Fishway Problems. U.S. Fish and Wildlife Service.
- 18. A Study to Investigate the Effects of Fatigue and Current Velocities on Adult Salmon and Steelhead Trout. School of Fisheries, University of Washington.
- 19. A Study to determine the Effects of Electricity on Salmon and Steelhead Trout. School of Fisheries, University of Washington.
- 20. Determination of the Vertical and Horizontal Distribution of Seaward Migrants, Baker Dam. State of Washington, Department of Fisheries.
- 21. Guiding Downstream Migrant Salmon and Steelhead Trout. A Research Summary. School of Fisheries, University of Washington.
- U.S. Army Corps of Engineers (COE). 1960. North Pacific Division Corps Of Engineers, Progress Report On Fisheries Engineering Research Program, July, 1960. Portland, Oregon.

- 1. Guiding Downstream Migrant Salmon and Steelhead Trout College of Fisheries. University of Washington.
- 2. Results of a Tagging Program to Enumerate the Numbers and to Determine the Seasonal Occurrence of Anadromous Fish in the Snake River and its Tributaries Fish Commission of the State of Oregon.
- 3. Enumeration Study Upper Columbia and Snake Rivers. Idaho Department of Fish and Game.
- 4. Evaluation of the Ability of an Artificial Outlet to Attract Downstream Migrant Salmonids from the Reservoir of Lookout Point Dam. Fish Commission of the State of Oregon.
- 5. The Control of Downstream Migrants by Means of Mechanical Screens. Oregon State Game Commission.
- 6. Fishway Attraction Water Supply Study. Walla Walla District, Corps of Engineers.
- 7. Effect of Structures at Main Columbia River Dams on Downstream Migration of Fingerlings. Portland District, Corps of Engineers.
- 8. The Status of Electrical Fish Guiding Experiments. U.S. Fish and Wildlife Service.
- 9. Research Relating to McNary Supplemental Spawning Channel. State of Washington, Department of Fisheries.

- 10. Research on *Fishway* Problems. Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service.
- 11. A Study to Determine the Effects of Electricity on Salmon and Steelhead Trout. College of Fisheries, University of Washington.
- 12. A Study to Investigate the Effects of Fatigue and Current Velocities on Adult Salmon and Steelhead Trout. College of Fisheries, University of Washington.
- 13. Research Relating to Mortality of Downstream Migrant Salmon Passing McNary and Big Cliffs Dams. State of Washington, Department of Fisheries.
- 14. Powerhouse Fish Collection System and Transportation Flow, Bonneville Dam. Portland District, Corps of Engineers.
- 15. Submerged Orifice Research Powerhouse Fish Collection System, Bonneville Dam. Portland District, Corps of Engineers.
- 16. Buoyant Submerged Orifice Research. Portland District, Corps of Engineers.
- 17. An Investigation of the Effect of The Dalles Dam upon Migration Rates of Adult Salmonids, 1956 and 1957. Fish Commission of the State of Oregon.
- 18. Experimental Studies on the survival of the Early Stages of Chinook Salmon after varying Exposures to Upper Lethal Temperatures. State of Washington, Department of Fisheries.
- 19. Fish Passage through Turbines. Walla Walla District, Corps of Engineers.
- U.S. Army Corps of Engineers (COE). 1966. North Pacific Division Corps Of Engineers, Progress Report On Fisheries Engineering Research Program, November 1966. Portland, Oregon.

- 1. Migrant Salmon Light-Guiding Studies at Columbia River Dams. Paul E. Fields.
- 2. Juvenile Fish Passage Through Turbines. Raymond C. Oligher.
- 3. Research on *Fishway* Problems, May 1960 to April 1965. Joseph R. Gauley, Charles R. Weaver, and Clark S. Thompson.
- 4. Fallback of Adult Chinook Salmon at Ice Harbor Dam Spillway, May 1964. James H. Johnson.
- 5. Review and Analysis of Fish Counts, Counting Technique and Related Data at Corps of Engineers Dams on the Columbia and Snake Rivers. Louis C. Fredd.
- 6. Research Relating to McNary Supplemental Spawning Channel, Five-Year Summary, 1960 through 1964. State of Washington Department of Fisheries.
- 7. The Accelerated Fish Passage Research Program of the U.S. Bureau of Commercial Fisheries Summary of Progress through 1964. Gerald B. Collins and Carl H. Elling.
- U.S. Army Corps of Engineers (COE). 1972. North Pacific Division Corps Of Engineers, Fourth Progress Report On Fisheries Engineering Research Program, 1966-1972. Portland, Oregon.

- Standardization of Spill Patterns at Ice Harbor Dam
- General Guidelines for Adjusting Spill Distributions to Improve Fish Passage with Tentative Spilling Schedule for Bonneville and John Day Dams
- Operational Studies at Dams on the Lower Columbia and Snake Rivers
- I. Operational Studies at Dams on the Lower Columbia River with a Brief Analysis of Adequacy of New Spilling Techniques at Ice Harbor Dam
- II. Fish Passage Problems at Lower Columbia River Dams in 1968
 Effects of Peaking Operations on Passage of Adult Salmonids Over Columbia River Dams
- Evaluation of Upstream Passage of Adult Salmonids through the Navigation Lock at Bonneville Dam during the Summer of 1969
- A Tagging Study to Investigate the Unexplained Loss of Spring and Summer Chinook Salmon Migrating Past Bonneville and The Dalles Dam
- Indications of Loss and Delay to Adult Salmonids below Ice Harbor Dam (1962-66)
- Radio Tracking of Adult Spring Chinook Salmon below Bonneville Dam, 1971
- Sonic Tracking of Adult Steelhead in Ice Harbor Reservoir, 1969
- Sonic Tracking of Steelhead in the Ice Harbor Reservoir, 1967
- Sonic Tracking of Steelhead in the Rocky Reach Reservoir, 1967
- Evaluation of Fish Passage in the Vertical Slot Regulating Section of the South Shore Ladder at John Day Dam
- Propagation of Fall Chinook Salmon in McNary Dam Experimental Spawning Channel, 1957 through 1963
- Effect of Gas Supersaturated Columbia River Water on the Survival of Juvenile Salmonids, April-June 1972, Final Report Part 1
- A Nitrogen (N2) Model for the Lower Columbia River
- Test of Fingerling Passage at Bonneville Dam, Report No. 1
- A Study to Determine the Value of Using the Ice-Trash Sluiceway for Passing Downstream Migrant Salmonids at Bonneville Dam
- Bonneville and The Dalles Dams Ice-Trash Sluiceway Studies, 1971
- Research on Gatewell-Sluice Method of Bypassing Downstream Migrant Fish Around Low-head Dams
- Fingerling Fish Mortalities at 57.5 fps, Report No. 1
- Fingerling Fish Research Effect of Mortality of 67-fps Velocity, Report No. 2
- Fingerling Fish Research, High-Velocity Flow through Four-Inch Nozzle, Report No. 3
- Fingerling Shad Studies at Bonneville Dam, November and December 1966
- Progress Report on Fish Protective Facilities at Little Goose Dam and Summaries of Other Studies Relating to the Various Measures Taken by the Corps of Engineers to Reduce Losses of Salmon and Steelhead in the Columbia and Snake Rivers
- A Compendium on the Survival of Fish Passing Through Spillways and Conduits
- Special Section on Stilling Basin Hydraulics and Downstream Fish Migration
- A Compendium on the Success of Passage of Small Fish Through Turbines
- Fisheries Handbook of Engineering Requirements and Biological Criteria
- Steelhead Fishing Method Study, Lake Sacajawea, Washington, Ice Harbor Reservoir
- Steelhead Fishing Project, Ice Harbor Reservoir, 1969
- Fish Passage Research at the Fisheries Engineering Research Laboratory, May 1965 to September 1970
 Studies:

- 1. Behavior of Juvenile Salmonids in a Simulated Turbine-Intake
- 2. Passage of Adult Salmonids through Pipes
- 3. Factors Influencing the Passage of Adult Salmonids Through Channels
- 4. Factors Influencing the Passage of Fish through Submerged Orifices
- 5. Tests of Velocity Barriers
- 6. Tests of a Model "A" Alaska Steeppass Fish ladder
- 7. Research on Shad Passage Problems
- 8. Response of Migrating Adult Salmon and Trout to Heated and Cooled Effluents and their Effect on Upstream Passage
- Survival of Fingerlings Passing through a Perforated Bulkhead and Modified Spillway at Lower Monumental Dam, April-May 1972
- Evaluation of Fish Facilities and Passage at Foster and Green Peter Dams on the South Santiam River Drainage in Oregon
- Final Report, Evaluation of Fish Passage Facilities at Cougar Dam on the South Fork McKenzie River in Oregon
- Final Report, Evaluation of Fish Facilities and Passage at Fall Creek Dam on Big Fall Creek in Oregon
- Evaluation of Fish Passage Facilities at the North Fork Project on the Clackamas River in Oregon
- Summary Report on Juvenile Downstream Migrant Fish Passage and Protection Studies at Willamette Falls, Oregon
- Hydraulic Model Studies on a Fish Guidance Screen
- Effects on Hydraulic Shearing Action on Juvenile Salmon (Summary Report)
- The Effect of Small Impoundments on the Behavior of Juvenile Anadromous Salmonids
- The Feasibility of Rearing Sockeye Salmon in Reservoirs, Final Report
- Use of a Hydroelectric Reservoir for the Rearing of Coho Salmon (Oncorhynchus kisutch)
- Effects on Low Flows Below Big Cliff Reservoir, North Santiam River, on Fish and Other Aquatic Organisms
- A Study to Identify the Race of Fall Chinook Whose Spawning Grounds will be Inundated by the John Day Impoundment on the Columbia River
- An Evaluation of the Rocky Reach Chinook Salmon Spawning Channel, 1961-1968
- Fecundity of Fall Chinook Salmon from the Upper Columbia River
- Summary Report, The Operation and Evaluation of the Carmen-Smith Spawning Channel, 1966-67
- Effect of Brownlee Reservoir on Migrations of Anadromous Salmonids

U.S. Army Corps of Engineers (COE). 1978. North Pacific Division Corps Of Engineers, Fifth Progress Report On Fisheries Engineering Research Program1973-1978. Portland, Oregon.

- Radio Tracking Studies of Chinook Salmon and Steelhead to Determine Specific Areas of Loss between Dams
- Studies of the Relationships between Adult Fish Passage and Powerhouse Operations
- Radio-Tracking Studies to Determine the Effects of Peaking on Adult Chinook Salmon and Steelhead
- Radio-Tracking Studies Relating to Fallback at Hydroelectric Dams on the Columbia and Snake Rivers
- Passage Problems of Adult Columbia River Chinook Salmon and Steelhead
- Adult Fish Exposed to a High Velocity Jet
- Radio-Tracking Studies to Determine the Effects of Spillway Deflectors on Adult Salmonids
- The Effects of Altered Flow Regimes, Temperatures, and River Impoundment on Adult Steelhead Trout and Chinook Salmon
- Effects of Reduced Nighttime Flows on Upstream Migration of Adult Chinook Salmon and Steelhead Trout in the Lower Snake River
- Effects of Power Peaking on the Indian Fishery
- Adjusting Spill Distributions to Improve Fish Passage at Corps Dams
- John Day Powerhouse Adult Fish Collection System Studies
- The Dalles Dam Powerhouse Adult Fish Collection System Studies
- Vertical Slot Fishway Evaluation at Bonneville Dam
- Evaluation of the Adult Salmonid Trap Installed in the Bradford Island "A" Branch *Fish ladder*, Bonneville Dam
- Studies on Adult Fish Passage over "A" Branch of Bradford Island Fishery at Bonneville Dam
- Bonneville 1st Powerhouse Adult Fish Collection System Studies
- Side Entrance *Fishway* Studies
- Evaluation of Methods for Handling and Artificially Propagating Summer Chinook Salmon
- Ice Harbor Fall Chinook Trapping, 1978
- Effects of Power Peaking on Survival of Juvenile Fish at Lower Columbia and Snake River Dams
- Study of Turbine Operations under Peaking and High River Flow Conditions to Obtain Maximum Fish Passage Survival and Updated 1967 May Compendium
- Fish Passage through Turbines: Tests at Big Cliff Dam
- Effects of Dam Operations and Flow Regulation on Juvenile Salmon and Steelhead Migrations in the Snake and Columbia Rivers
- Effects of Peaking (Stranding) of Columbia River Dams on Juvenile Anadromous Fishes below The Dalles Dam
- Improving the Fingerling Protection System for Low-Head Dams

- Evaluation and Development of the Ice-Trash Sluiceway at The Dalles Dam as a Downstream Migrant Bypass
- Fingerling Passage at Bonneville Powerhouse
- Ejection of Fingerling in High-Velocity Jet
- Fingerling Passage through John Day Spillway
- Effect of Spillway Bucket Roughness on Fingerling
- Transportation of *Smolts* and Related Studies in the Snake and Columbia Rivers
- Evaluation of the Fingerling *Bypass system* Outfalls at McNary and John Day Dams
- Effects of Atmospheric Gas Supersaturation on Survival of Fish and Evaluation of Proposed Solutions
- Nitrogen Reduction, Fish Barge Water Supply
- Slotted Bulkheads for Skeleton Power Units
- Spillway Deflectors to Reduce Buildup of Nitrogen Saturation
- Equilibrium with Packed Column Degassor
- Feasibility of Using Siphons for Degassing Water
- Special Drought Year Operation for Downstream Fish Migrants

U.S. Army Corps of Engineers (COE). 1984. North Pacific Division Corps Of Engineers. Sixth Progress Report, Fish Passage Development and Evaluation Program. Portland, Oregon. Contents:

Adult Anadromous Salmonid Passage Effectiveness Research

- 1. The John Day Powerhouse Adult Fish Collection System
- Evaluations 1979-1980
- 2. Evaluation of Adult Fish Passage At Little Goose and Lower Granite Dams 1981.
- 3. Evaluations of Adult Fish Passage At Ice Harbor and Lower Monumental Dams 1982.
- 4. Evaluation of Adult Fish Passage At Bonneville Dam 1982.
- 5. Adult Salmonid Delay at John Day Dam 1982-1983.

Effects of River Flow and Spill On Juvenile Anadromous Salmonid Migrations.

- 1. Migrational Characteristics of Juvenile Salmon and Steelhead in the Columbia River System 1979-1983.
- 2. Migration Patterns of Salmonid *Smolts* in the John Day Dam *Forebay*.
- 3. Hydroacoustic Monitoring of Downstream Migrant Juvenile Salmonids at John Day Dam 1981.
- 4. Hydroacoustic Monitoring of Downstream Migrant Juvenile Salmonids at John Day and The Dalles Dam 1982.
- 5. Updated Compendium on the Success of Passage of Small Fish Through Turbines

Juvenile Salmonid Transportation

- 1. Evaluation of Juvenile Fish Transportation and Related Research 1979-1983.
- 2. Evaluating the Effects of Stress on the Viability of Chinook Salmon *Smolts* Transported from the Snake River to the Columbia River Estuary 1983.
- 3. Juvenile Salmonid Transport Operations 1981-1983.

Juvenile Salmonid Bypass Efficiency

- 1. Research to Develop Passive Bar Screens for Guiding Juvenile Salmonids out of Turbine Intakes at Lower Head Dams on the Columbia and Snake River 1979.
- 2. Evaluation of Submersible Traveling Screens, Cycling of Gatewells Orifice Operations, and the Ice-Trash Sluiceway System for Juvenile Fish Protection at the Bonneville First Powerhouse 1981.
- 3. Research to Develop an Improved Fingerling Protection System for John Day Dam 1981-1982.
- 4. Research to Develop an Improved Fingerling Protection System for Lower Granite Dam 1981-1983.
- 5. Effects of the Intermittent Operation of Submersible Traveling Screens on Juvenile Salmonids 1982.
- 6. Evaluation of the Juvenile Collection and *Bypass system* at Bonneville Dam 1983.
- 7. Research to Develop The Dalles Dam Ice and Trash Sluiceway as a Juvenile Fish *Bypass system* 1979-1981.
- 8. Operating Criteria for the Bonneville Dam Ice and Trash Sluiceway when Operated as a *Smolt* Bypass 1979-1981.
- 9. A Hydroacoustic Evaluation of Downstream Migrating Salmonids at Ice Harbor Dam 1982-1983.
- U.S. Army Corps of Engineers (COE). 1983. North Pacific Division Corps Of Engineers, Sixth Progress Report On Fisheries Engineering Research Program, 1979-1983. Portland, Oregon.

- 1. Evaluations of Adult Fish Passage at Bonneville Lock and Dam and John Day Dam. D.M. Shew, Corps of Engineers, Portland District.
- 2. Adult Salmonid Delay at John Day Dam (1984). D.M. Damkaer and D.B. Dey.
- 3. Evaluation of Transportation of Juvenile Salmonids and Related Research on the Columbia and Snake, 1984. G.M. Mathews and D.L. Park, National Marine Fisheries Service.
- 4. Survival of Chinook Salmon *Smolts* Passing Dams and Entering Seawater as Related to Stress Level and *Smolt* Quality. T.C. Bjornn et al, Idaho Cooperative Fishery Research Unit.
- 5. Columbia River Salmonid Outmigration: McNary Dam Passage and Enhanced *Smolt* Quality. C.B. Schreck and H.W. Li, Oregon Cooperative Fish Research Unit.
- 6. Evaluation of the Juvenile Collection and *Bypass systems* at Bonneville Dam, 1984. Krcma et al, National Marine Fisheries Service.
- 7. Fish Guiding and Orifice Passage Efficiency Tests with Subyearling Chinook Salmon, McNary Dam, 1984. G.A. Swan and R.F. Krcma, National Marine Fisheries Service.

- 8. Development of an Improved Fingerling Protection System for Lower Granite Dam, 1984. G.A. Swan and R.F. Krcma.
- U.S. Army Corps of Engineers (COE). 1993. North Pacific Division Corps Of Engineers.

 Seventh Progress Report, Fish Passage Development and Evaluation Program 1984-1990.

 Portland, Oregon.

Annual Progress Report 1985

- 1. Evaluation of The Juvenile Collection and *Bypass systems* at Bonneville Dam 1985. M. Gessel et al.
- 2. Studies to Evaluate Alternative Methods of Bypassing Juvenile Fish at The Dalles Dam 1985. B. Monk et al.
- 3. Evaluation of The Rehabilitated Juvenile Fish Collection and Passage System at John Day Dam 1985. R. Krcma et al.
- 4. Evaluation of Transportation of Juvenile Salmonids 1985. D. Park and G. Matthews.
- 5. Continuing Studies to Improve and Evaluate Juvenile Fish Collection at Lower Granite Dam 1985. G. Swan and R Krcma.
- 6. Hydroacoustic Evaluation of Fish Collection Efficiency at Lower Granite Dam in Spring 1985. S. Kuehl and L. Johnson.
- 7. Survival of Chinook Salmon *Smolts* Passing Dams and Entering Seawater as Related to Stress Level and *Smolt* Quality. Idaho Cooperative Fish and Wildlife Research Unit.
- 8. Evaluation of Adult Fish Passage at McNary Dam and John Day Dam. R. Peters et al.
- 9. Response of Chinook Salmon and Steelhead Trout *Smolts* to Three Flumes Tested at Lower Granite Dam, 1985. J. Congleton and R. Ringe.

Annual Progress Report 1986

- 1. Evaluation of the juvenile collection and *bypass systems* at Bonneville Dam 1986. M Gessel et al.
- 2. Studies to evaluate alternative methods of bypassing juvenile salmonids at The Dalles Dam 1986. B. Monk et al.
- 3. Evaluation of the rehabilitated juvenile fish collection and passage system at John Day Dam 1986. D. Brege et al.
- 4. Research to improve subyearling chinook salmon fish guiding efficiency at McNary Dam 1986. G. Swan and W. Norman.
- 5. Determine fish guiding efficiency of submersible traveling screens at Lower Monumental Dam 1986. R. Ledgerwood.
- 6. Initial study to evaluate existing juvenile fish collection at Little Goose Dam 1986 G. Swan et al.
- 7. Hydroacoustic evaluation of fish guiding efficiency at Little Goose Dam 1986. Parametrix, Inc. and Associated Fisheries Biologists, Inc.

- 8. Evaluation of juvenile salmonid passage through the *bypass system*, turbine, and spillway at Lower Granite Dam 1986. D. Park and S. Achord.
- 9. Evaluation of transportation of juvenile salmonids 1986. G. Matthews and D. Park.
- 10. Survival of chinook salmon *smolts* with stress levels similar to those encountered at dams 1986. T. Bjornn, and J. Congleton.

Annual Progress Report 1987

- 1. Evaluation of juvenile salmonid survival through the second powerhouse turbines and downstream migrant *bypass system* at Bonneville Dam. E. Dawley et al.
- 2. Continuing studies to improve the *bypass system* at Bonneville Dam. M. Gessel et al.
- 3. Bonneville Dam Second Powerhouse fish guidance research; velocity mapping studies. A. Jensen.
- 4. Hydroacoustic monitoring at Bonneville Second sluice chute and powerhouse. R. Magne.
- 5. Research at McNary Dam to improve fish guiding efficiency of yearling and subyearling chinook salmon. D. Brege et al.
- 6. Evaluate the prototype juvenile bypass system at Ice Harbor Dam. D. Brege et al.
- 7. Hydroacoustic assessment of sluiceway effectiveness at Ice Harbor Dam. Biosonics, Inc.
- 8. Fish guiding efficiency of submersible traveling screens at Lower Granite and Little Goose Dams. R. Ledgerwood et al.
- 9. Behavior and physiology studies in relation to yearling chinook salmon guidance at Lower Granite and Little Dams. W. Muir et al.
- 10. Evaluate improved collection, handling, and transport techniques designed to increase survival of juvenile salmon and steelhead. G. Matthews.
- 11. Survival of chinook salmon *smolts* with stress levels encountered at dams. T. Bjornn.

Annual Research Report 1988

- 1. Update on A Compendium of the Success of Passage of Small Fish Through Turbines. M. Bell.
- 2. Update on Fisheries Handbook of Engineering Requirements and Biological Criteria. M. Bell.
- 3. Continuing studies to improve the juvenile *bypass system* at Bonneville Dam. M. Gessel et al.
- 4. Hydroacoustic development at Bonneville First Powerhouse. Biosonics, Inc.
- 5. Evaluation of juvenile salmonid survival through downstream migrant *bypass systems*, spillways, and turbines at Bonneville Dam. E. Dawley.
- 6. Survival of chinook salmon *smolts* with stress levels encountered at dams. T. Bjornn.
- 7. Evaluate improved collection, handling, and transport techniques designed to increase survival of juvenile salmon and steelhead. J. Harmon et al.
- 8. Evaluate causes for decreased survival of transported spring chinook salmon from Lower Granite Dam. R. Pascho and D. Elliott.
- 9. Hydroacoustic monitoring at Bonneville Second Powerhouse. R. Magne.
- 10. Measurement of low frequency sound at Bonneville, McNary, and Lower Granite Dams. J. Anderson et al.
- 11. An assessment of the relationship between *smolt* development and FGE at Bonneville Dam. A. Giorgi et al.

Annual Research Report 1989

- 1. Continuing studies to improve and evaluate the juvenile *bypass systems* at Bonneville Dam. M. Gessel.
- 2. Evaluation of juvenile salmonid survival through downstream migrant *bypass systems*, spillways, and turbines at Bonneville Dam. E. Dawley.
- 3. Hydroacoustics and video monitoring at the Bonneville Dam Second Powerhouse. R. Magne.
- 4. Continuing studies to improve and evaluate juvenile fish collection at Lower Granite Dam. J. Williams et al.
- 5. Survival of chinook salmon *smolts* with stress levels encountered at Dams. T. Bjornn.
- 6. Evaluate improved collection, handling, and transport techniques designed to increase survival of juvenile salmon and steelhead. G. Matthews.
- 7. Impact of bacterial kidney disease on survival of spring/summer chinook salmon stocks. R. Pascho and D. Elliott.
- 8. Hydroacoustic evaluation of fish behavioral response to fixed bar screens at Lower Granite Dam. Biosonics, Inc.
- 9. Literature review and design criteria of behavioral fish guidance systems. J. Anderson and B. Feist.
- U.S.D.A., Forest Service, 1999. Water Road Interaction Series.
- U.S. Fish and Wildlife Service. 1983-19__. Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates. U.S. Fish Wildlife Service, Biol. Rep.82(11). U.S. Army Corps of Engineers, TR EL-82-4.
- Vinsonhaler R. and D. Sutherland. 1964. Exploratory Tests of Velocity Selection as a Means of Guiding Juvenile Fish. Fish Passage Research Program, U.S. Bureau of Commercial Fisheries, Seattle, WA.

- Vogel, D.A., K.R. Marine and J.G. Smith. 1990 or 1988. A Summary of Upstream and Downstream Anadromous Salmonid Passage at Red Bluff Diversion Dam on the Sacramento River, California, U.S.A.. In: Proceedings of the International Symposium on *fishways* '90 in Gifu. Gifu, Japan.
- Waples, R.S. 1991. Definition of "Species" under the ESA: Application to Pacific Salmon. U.S. Dep. Commer., NOAA Tech. Memo., NMFS, F/NWC-194, 29 pages.
- Washington Department of Fish and Wildlife, 2000a. *Fishway* Guidelines for Washington State Draft Report, K. Bates. Olympia, WA. 57 pp.
- Washington Department of Fish and Wildlife, 2000b. Fish Protection Screen Guidelines for Washington State Draft Report. B. Nordlund, K. Bates. Olympia, WA 53 pp.
- Washington Department of Fish and Wildlife, 2003. Design of Road Culverts for Fish Passage, K. Bates, B. Barnard, B. Heiner, J.P. Klavas, P.Powers and P. Smith, Olympia, WA 110 pp.
- Washington State Department of Transportation. 1998. Juvenile and Resident Salmonid Movement and Passage Through Culverts. Final Report. Rept. No. WA-RD 457.1. (Available through the National Technical Information Service, Springfield, VA 22616).
- Washington State Department of Transportation. 1997. Fish Passage Program Department of Transportation Inventory Final Report. G. Johnson (Project Leader) and nine others. 58 pages.
- Washington State Department of Transportation. 1996. Investigation of Culvert Hydraulics Related to Juvenile Fish Passage. Final Report. Rept. No. WA-RD 388.1. (Available through the National Technical Information Service, Springfield, VA 22616)
- Weaver, W.E., and D.K. Hagans. 1994. Handbook for Forest and Ranch Roads. Mendocino County Resource Conservation District. 161 pages.
- Webb, P.W. 1978. Fast Start Performance and Body Form in Seven Species of Teleost Fish. Journal of Experimental Biology 74:211-226, Ann Arbor, MI.

- Weitkamp, D.E. 1997. Designing a Fish Bypass to Minimize Predation Downstream of Dams. In Hydro Review, Volume XVI, No. 4, pp. 120-127August 1997
- Wietkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S.
- Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California.
- U.S. Dep. Commer., NOAA Tech. Memo., NMFS-NWFSC-24, Northwest Fisheries Science Center, Seattle, Washington. 258 pages.
- Whitney, R., L. Calvin, M. Erho, and C. Coutant. 1997. Downstream passage for salmon at hydroelectric projects in the Columbia River basin: development, installation, and evaluation. ISAB 97-15. Northwest Power Planning Council, Portland, OR.
- Ziemer, G.L. 1961. Fish Transport in Waterways. Alaska Dept. of Fish and Game. 2 pages.