

Chapter 7—References

AASHTO (American Association of State Highway and Transportation Officials). 2000. Highway drainage guidelines, 3rd edition. Washington, DC: American Association of State Highway and Transportation Officials. 800 p.

AASHTO. 2001a. Guidelines for geometric design of very low-volume local roads (ADT<400). Washington, DC: American Association of State Highway and Transportation Officials. 96 p.

AASHTO. 2001b. Policy on geometric design of highways and streets. 5th edition. Washington, DC: American Association of State Highway and Transportation Officials. 872 p.

AASHTO. 2002. Standard Specifications for Highway Bridges, 17th edition. Washington DC: American Association of State Highway and Transportation Officials. 1,028 p.

ABAG (Association of Bay Area Governments). 1995. Manual of standards for erosion and sediment control measures. Oakland, CA: Association of Bay Area Governments.

AISI (American Iron and Steel Institute). 1994. Handbook of steel drainage and highway construction products, Fifth edition. Washington, DC: American Iron and Steel Institute. 518 p.

Askin, R. W. 1992. Armoured fords: an alternative drainage crossing system for debris torrent prone mountain channels. In: Proceedings of international mountain logging and 8th Pacific Northwest Skyline symposium. Bellevue, WA.

Askin, R. W. 2002. Personal communication. Principal engineer, Integrated Watersheds Ltd., Ladysmith, British Columbia, Canada.

Beamish, F. W. H. 1978. Swimming capacity. In: Hoar, W. S.; Randall, D. J., eds. Fish Physiology. New York: Academic Press: 101-187. Vol. VII.

Bilby, R. E.; Sullivan, K.; Duncan, S. H. 1989. The generation and fate of road-surface sediment in forested watersheds in southwestern Washington. Forest Science. 35(2): 453-468.

Brink, S. A. 1974. Use of cattleguard superstructures for low-water crossings on secondary forest roads. Engineering Field Notes. Washington, DC: U.S. Department of Agriculture, Forest Service, Engineering.

Brink, S. A. 2000. Jones Wreckum Road low-water crossing revisited. Engineering Field Notes. Washington, DC: U.S. Department of Agriculture, Forest Service, Engineering.

Brown, S.; Clyde, E. 1989. Design of riprap revetment. Hydraulic Engineering Circular 11 (HEC-11). FHWA IP-89-016. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 156 p. (original version of HEC-11 *Use of Riprap for Bank Protection* published in 1967).

Low-Water Crossings

Calamusso, Robert. 2005. Personal communication. USDA Forest Service, Tonto National Forest, Phoenix, AZ.

Carstens, R. L.; Woo, R. Y. 1981 Liability and traffic control considerations for low water stream crossings. Engineering Research Institute Project 1470 Final Report. Ames, IA: Iowa State University.

Castro, J. 2003. Geomorphic impacts of culvert replacement and removal: avoiding channel incision. Portland, OR: U.S. Department of the Interior, Fish and Wildlife Service. <http://www.library.fws.gov/Pubs1/culvert-guidelines03.pdf>.

Chen, Y.; Cotton, G. 1988. Design of roadside channels with flexible linings. Hydraulic Engineering Circular 15 (HEC 15), FHWA IP-87-7. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 124 p.

Chow, V. T. 1959. Open channel hydraulics. New York: McGraw-Hill Book Company. 680 p.

Deiter, D. 2006. OHV stream crossing monitoring. Presentation. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Region, Integrated Resource Workshop.

Doyle, Jim. 2002. Personal communication. Fisheries biologist, Mt. Baker Snoqualmie National Forest, Mountlake, WA.

Eubanks, C.; Meadows, D. 2002. A soil bioengineering guide for streambank and lakeshore stabilization. FS683. San Dimas, CA: U.S. Department of Agriculture, Forest Service, San Dimas Technology and Development Center. 187 p.

Fausch, K.D.; Rieman, B.E.; Young, M.K.; Dunham, J.B. 2006. Strategies for conserving native salmonid population at risk: tradeoffs in using barriers to upstream movement. Gen. Tech. Rep. RMR-GTR-174. Ft. Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 44 p.

Fischenich, C. 2001. Stability thresholds for stream restoration material. EDRC TN-EMRRP-SR-29. Vicksburg, MS: U.S. Army Corp of Engineers Research and Development Center, Environmental Laboratory. 10p.

Flanagan, S. A.; Furniss, M. J. 1997. Field indicators of inlet-controlled road-stream-crossing capacity. Gen. Tech. Rep. 9777 1807—SDTDC. San Dimas, CA: U.S. Department of Agriculture, Forest Service, San Dimas Technology and Development Center.

French, J.; Ing, R.; Von Allmen, S.; Wood, R. 1983. Mortality from flash floods: a review of National Weather Service reports, 1969-1981. Public Health Reports 98(6):584-588.

Chapter 7—References

Furniss, M. J.; Roelofs, T. D.; Yee, C. S. 1991. Road construction and maintenance. In: Meehan, W. R. ed. Influences of forest and rangeland management on salmonid fishes and their habitat. Bethesda, MD: American Fish Society: 297-324. Special Publication 19, Chapter 8.

Gagen, C. J.; Rajput, S. 2002. The effects of road crossings on fish community structure and abundance in streams of the Ouachita Mountains. Report to the Ouachita National Forest. Hot Springs, AR: Arkansas Technical University, Russellville, AR.

Garcia, A.; Marr, C.; Rogacs, A.; Robinson, M.A. 2005. Drowning machines: low-head dam hydraulics and hazard remediation options. Rose-Hulman Institute of Technology, Engineering Forensics Research Institute. EFRI 05/A02 July 2005. Prepared for Indiana Department of Natural Resources Engineering and Dam Safety Group. http://www.rose-hulman.edu/~sutterer/EFRI/Low_Head_Dams_Report.pdf. Accessed 1/12/2007.

Gibson, Bill. 2005. Personal communication. U.S. Department of the Interior, Bureau of Land Management, Arizona State Office, Phoenix, AZ.

Golden, H. 2002. Personal communication. Fisheries biologist, USDA Forest Service, Bighorn National Forest, Sheridan, WY.

Gray, D.; Sotir, R. 1996. Biotechnical and soil bioengineering slope stabilization—a practical guide for erosion control. New York: John Wiley and Sons, Inc. 378 p.

Groenier, Scott. 2005. Personal communication. Engineer, USDA Forest Service, Missoula Technology and Development Center, Missoula, MT.

Gu, R. R.; Bousselot, A. J.; Waugh, R. A. [and others]. 2003. Low-water crossing study: Volume 1. Literature review. DTFH68-02-C-00024. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 124 p.

Gu, R. R.; Waugh, J.; Lohnes, R. A.; Klaiber, F.W. 2005. Low-water crossing study: design approach. FHWA-CFL/TD-05-013. Lakewood, CO: U.S. Department of Transportation, Central Federal Lands Highway Division. 136 p. Vol. II.

Gubernick, B.; Bates, K. 2003. Design and construction of aquatic organism passage at road-stream crossings: stream simulation. In: 2003 Proceedings of the International Conference on Ecology and Transportation. Edited by C. Leroy Irwin, P. Garrett, and K. P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina University. 10 p.

Hardy, T.; Panja, P.; Mathias, D. 2005. WinXSPRO, a channel cross section analyzer. User's manual, version 3.0. Gen. Tech. Rep. RM-147. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 94 p.

Low-Water Crossings

Harrelson, C. C.; Rawlins, C. L.; Potyondy, J. P. 1994. Stream channel reference sites: an illustrated guide to field technique. Gen. Tech. Rep. RM-245. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 61 p.

Harris, G. 2001. Personal communication. North zone hydrotechnician, Idaho Panhandle National Forest, Sandpoint, ID.

Hyman, W. A. and Vary, D. 1999. Best management practices for environmental issues related to highway and street maintenance. National Cooperative Highway Research Program Synthesis of Highway Practice 272. National Academy Press. Washington, DC: Transportation Research Board, National Research Council.

Jackson, S. 2003. Design and construction of aquatic organism passage at road-stream crossings: ecological considerations in the design of river and stream crossings. In: 2003 Proceedings of the International Conference on Ecology and Transportation, Irwin, C. L.; Garrett, P.; McDermott, K. P. eds. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University.

Jacobson, R. B.; Primm, A. T. 1997. Historical land-use changes and potential effects on stream disturbance in the Ozark Plateaus, Missouri. U.S. Geological Survey Water-Supply Paper 2484. 95 p.

Jennings, M. E.; Thomas, W. O.; Riggs, H. C. 1994. Nationwide summary of U.S. Geological Survey regional regression equations for estimating magnitude and frequency of floods for ungauged sites, 1993. Water Resources Investigation Report 94-4002. Reston, VA: U.S. Geologic Survey. 38 p. Prepared in cooperation with FHWA and Federal Emergency Management Agency.

Johnson ,P.; Gleason, G.L.; Hey, R.D. 1999. Rapid assessment of channel stability in vicinity of road crossing. *J Hydraulic Engineering* 125(6):645-651.

Kattell, J.; Eriksson, M. 1998. Bridge scour evaluation: screening, analysis, and countermeasures. Gen. Tech. Rep. 9877 1207–SDTDC. San Dimas, CA: U.S. Department of Agriculture, Forest Service, San Dimas Technology and Development Center.

Lagasse, P. F.; Byars, M. S.; Zevenbergen, L. W.; [and others]. 1997. Bridge scour and stream instability countermeasures. *Hydraulic Engineering Circular 23 (HEC-23)*. FHWA HI-97-030. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

Lagasse, P. F.; Schall, J. D.; Johnson, F.; [and others]. 1995. Stream stability at highway structures. *Hydraulic Engineering Circular 20 (HEC-20)*. FHWA HI-96-032. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 144 p.

Chapter 7—References

Lane, J. 2002. Personal communication. U.S. Department of Agriculture, Custer National Forest, Billings, MT.

Leopold, L. B.; Wolman, M. G.; Miller, J. P. 1964. Fluvial processes in geomorphology. San Francisco, CA: W. H. Freeman & Co. 522 p.

Leopold, L. B. 1994. A view of the river. Cambridge, MA: Harvard University Press. 298 p.

Lohnes, R. A.; Gu, R. R.; McDonald, T.; [and others]. 2001. Low-water stream crossings: design and construction recommendations. CTRE Project 01-78. Ames, IA: Center for Transportation Research and Education, Iowa State University.

Loomis, Grant. 2002. Personal communication. U.S. Department of Agriculture, Forest Service, Tonto National Forest, Phoenix, AZ.

Lydecker, Allen. 1973. Use of gabions for low water crossings on primitive or secondary forest roads. Engineering Technical Information Series, Field Notes, Volume 5, No 5 and 6, May-June 1973. Washington, DC: U.S. Department of Agriculture, Forest Service. pp. 13-16.

McCuen, R. H.; Johnson, P. A.; Ragan, R. M. 2002. Highway hydrology. Hydraulic design series No. 2. Pub. No. FHWA-NHI-02-001. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 424 p.

McCullah, J; Gray, D. 2005. Environmentally sensitive channel and bank protection measures. National Cooperative Highway Research Program Report 544. Washington, DC: Transportation Research Board, National Research Council. 50 p. plus CD.

McDougal, L. A.; Russell, K. M.; Leftwich, K. N. (eds) 2001. A conservation assessment of freshwater fauna and habitat in the southern National Forests. R8-TP 35. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region. 141 p.

McNemar, R. 1983. Use of pre-cast concrete ramp planks for low-water crossings. Engineering Field Notes vol 15, April-June. Washington DC: U.S. Department of Agriculture, Forest Service.

Motayed, A. K.; Chang, F. M.; Mukherjee, D. K. 1982. Design and construction of low-water stream crossings. Report No. FHWA/RD-82/163. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

Neiman, J. 2005. Personal communication. Engineer, U.S. Department of Agriculture, Forest Service, Idaho Panhandle National Forest, Sandpoint Biotechnical Zone, Sandpoint ID.

Normann, J. M.; Houghtalen, R. J.; Johnson, W. J. 1985. Hydraulic design of highway culverts. Reprinted. Hydraulic Design Series 5. FHWA-NHI-01-020. Washington DC: U.S. Department of Transportation, Federal Highway Administration. 376 p.

Low-Water Crossings

Panter, J. 2006. Personal communication. Lead Project Engineer, U.S. Department of Agriculture, Forest Service, Fremont-Winema National Forests, Lakeview, OR.

Pence, L. M. 1987. A plastic ford—you've got to be kidding. *Engineering Field Notes*. Washington, DC: U.S. Department of Agriculture, Forest Service.

Plocher, K. 2001. *Skull Creek GEOWEB Crossing-Duck Valley Reservation*. Humboldt-Toiyabe National Forest Construction Report. Reno, NV: U.S. Department of Agriculture, Forest Service Toiyabe National Forest.

Racin, J. A.; Hoover, T.; Avila, C. 1996. California bank and shore rock slope protection design—practitioner's guide and field evaluations of riprap methods. FHWA-CA-TL-95-10. Sacramento, CA: State of California, Department of Transportation.

Reid L. M.; Dunne, T. 1984. Sediment production from forest road surfaces. *Water Resources Research*. 20(11) 1753-1761.

Richardson, E. V.; Davis, S. R. 1995. Evaluating scour at bridges. *Hydraulic Engineering Circular No. 18*. Pub. No. FHWA-HI-96-031. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 204 p.

Ries III, K. G.; Crouse, M. Y. 2002. The National Flood Frequency Program, version 3: a computer program for estimating magnitude and frequency of floods for ungaged sites. *Water-Resources Investigations Report 02-4168*. <http://pubs.usgs.gov/wri/wri024168/#pdf> (9/12/06).

Robertson, J. 2006. e-mail to Martha Willbee. December 14. Washington DC: U.S. Bureau of Land Management, Wild and Scenic Rivers.

Rosgen, D. L. 1994. A classification of natural rivers. *Catena*. 22: 169-199.

Rosgen, D. L. 1996. *Applied River Morphology*. Pagosa Springs, CO: Wildland Hydrology. 354 p.

Sampson, H. 2002. Personal communication. Engineer. U.S. Department of Agriculture, Forest Service, Klamath National Forest, Yreka, CA.

Schall, J. D.; Richardson, E. V.; Morris, J. L. 2001. *Introduction to highway hydraulics*. *Hydraulic Design Series No. 4*. Pub. No. FHWA-NHI-01-019. Washington, DC: U.S. Department of Transportation, Federal Highway Administration. 214 p.

Skordinsky, Mary. 2005. Personal communication. U.S. Department of the Interior, National Park Service, Agua Fria National Monument, Phoenix, AZ.

Taylor, S. E.; Rummer, R. B.; Yoo, K. H.; [and others]. 1999. What we know and don't know about water quality at stream crossings. *Journal of Forestry* 97(8):12-17.

Chapter 7—References

Theisen, M. 1997. The expanding role of geosynthetics in erosion and sediment control. GPD-SM-200. Chattanooga, TN: SI GeoSolutions.

U.S. Army Corps of Engineers. 1991a. Hydraulic design of flood control channels. EM 1110-2-1601. Reston, VA: U.S. Army Corps of Engineers. ASCE Press. 120 p.

U.S. Army Corps of Engineers. 1991b. HEC-RAS U.S. Army Corps of Engineers. <http://www.hec.usace.army.mil/software/hec-ras/> (9/6/06).

U.S. Department of Agriculture, Forest Service. 1987. Forest Service Handbook 7709.56: Road Preconstruction Handbook. Washington, DC: U.S. Department of Agriculture, Forest Service.

U.S. Department of Agriculture, Forest Service. 1995. A guide for field identification of bankfull stage in the western United States. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Stream Systems Technology Center. 31-minute video.

U.S. Department of Agriculture, Forest Service. 1999. Road analysis: Informing decisions about managing the national forest transportation system. FS-643. Washington, DC: U.S. Department of Agriculture, Forest Service. 222 p.

U.S. Department of Agriculture, Forest Service. 2000. Water quality management for national forest system lands in California - best management practices. Vallejo, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Region. 186 p.

U.S. Department of Agriculture, Forest Service. 2001. Forest Service Handbook 7709.56b: Transportation Structures Handbook. Washington, DC: U.S. Department of Agriculture, Forest Service.

U.S. Department of Agriculture, Forest Service. 2003. Identifying bankfull stage in the forested streams in the eastern United States. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Stream Systems Technology Center. 46-minute DVD.

U.S. Department of Agriculture, Forest Service. 2005. Best management practices: water quality management for nonpoint source pollution. Draft. On file with: S. Hazelhurst, USDA Forest Service Water Quality Program Leader, Washington DC.

U.S. Department of Agriculture, Forest Service. 2005. Forest Service Manual 7720: Transportation System Development. Washington, DC: U.S. Department of Agriculture, Forest Service.

U.S. Department of Agriculture, Forest Service. 2005. Sign and poster guidelines for the Forest Service. EM 7100-15. Washington, DC: U.S. Department of Agriculture, Forest Service, Engineering.

Low-Water Crossings

U.S. Department of Agriculture, Natural Resources Conservation Service. 1996. Chapter 16, streambank and shoreline protection. Engineering field handbook. Washington, DC: U.S. Department of Agriculture, Natural Resources Conservation Service.

U.S. Department of Agriculture, Soil Conservation Service. 1992. Chapter 18, soil bioengineering for upland slope protection and erosion reduction. Engineering field handbook. Washington, DC: U.S. Department of Agriculture, Soil Conservation Service [Natural Resources Conservation Service]. 62 p.

U.S. Department of Transportation, Federal Highway Administration. 1961. Design charts for open channel flow. Hydraulic Design Series 3 (HDS 3). Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

U.S. Department of Transportation, Federal Highway Administration. 1983. Hydraulic design of energy dissipators for culverts and channels. Hydraulic Engineering Circular 14 (HEC 14). FHWA EPD-86-110. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

U.S. Department of Transportation, Federal Highway Administration. 2003. Standard Specifications for construction of roads and bridges on Federal Highway projects (FP 03-US Customary Units). FHWA-FLH-03-002. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

Warhol, T. 1994. An evaluation of stream crossing culverts and low-water fords in the western Cascades of Oregon. Corvallis, OR: Oregon State University. Department of Civil Engineering. 64 p. Thesis.

Warhol, T.; Pyles, M. 1989. Low-water fords: an alternative to culverts on forest roads. Proceedings of 12th Annual Council on Forest Engineering Meeting at Coeur d'Alene, ID. Corvallis, OR: Council on Forest Engineering. Pages unknown.

Webb, B. 1994. Deep Creek low-water crossing, Osceola National Forest. Engineering Field Notes Vol. 26:3-6. Washington, DC: U.S. Department of Agriculture, Forest Service, Engineering.

Wilson, C. 2006. Personal communication. Director, Fisheries Experiment Station, Utah Division of Wildlife Resources. Logan UT.

Wilson, W. E.; Moore, J. E. eds. 1998. Glossary of hydrology. Alexandria, VA: American Geological Institute. 248 p.

Zeedyk, W. D. 1996. Managing roads for wet meadow ecosystem recovery. Gen. Tech Rep. FHWA-FLP-96-016. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region. 76 p.