

Bo Shelby, Ph. D. • Confluence Research and Consulting

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Professional Experience

2016 to pres. Emeritus Professor, Forest Ecosystems and Society, Oregon State University
1989 to pres. President and senior researcher for Confluence Research and Consulting
1992-2016 Professor of Forest Resources and director of Natural Resources program, OSU
1990 Visiting professor, Natural Resource Recreation and Tourism, CSU (sabbatical leave).
1989-90 Senior research fellow, University of Canberra, Australia (sabbatical leave)
1986 Department head (acting), Forest Recreation Resources, Oregon State University
1982-92 Associate professor, Oregon State University, Corvallis
1982-83 Senior research fellow, Lincoln University, New Zealand (sabbatical leave)
1976-82 Assistant professor, Oregon State University, Corvallis
1974-76 Research associate (field director), Human Ecology Research, Boulder, Colorado

Education

B.A.	University of Colorado; Sociology, Psychology, Literature	1970
M.S.	University of Wisconsin; Sociology	1973
Ph.D.	University of Colorado; Sociology	1976

RESEARCH PROJECTS

Flows and recreation on the Upper Klamath River post-dam removal. KRRC. 2019 to present.
Managing changing use on Partnership Wild and Scenic Rivers. NPS. 2020 to present.
The benefits of river recreation management and planning. NPS. 2020 to present.
Managing river recreation use in the time of COVID. CRC. 2020.
Assessing stakeholder opinions toward Orca management in the San Juan Islands. 2019 to present.
The good, bad, and unusual: What makes a boating access work (or not)? NPS 2018-2020.
San Juan Islands visitor management assessment. San Juan County WA. 2016-2019.
Red Rock National Conservation Area visitor capacity assessment. BLM. 2015-16.
Backcountry survey in Wrangell-St. Elias National Park and Preserve, Alaska. NPS. 2016-19.
Arkansas Headwater Recreation Area River Management Plan. Colorado State Parks. 2015-17.
Capacity issues in shoreland areas of the Tongass National Forest. The Boat Company. 2015.
Flows and recreation on the Middle Spokane River. Center for Law and Policy. 2015-17.
Flows and aesthetics: A guide to studies. NPS. 2014-16.
Puente Hills Preserve – Guidelines for visitor management. Puente Hills Preserve. 2014-16.
Snake River through Jackson Hole, Wyoming planning and research. Teton County WY. 2013-16.
Enloe Dam and aesthetics on the Similkameen River, WA. Center for Policy and Law. 2012-14.
Black Canyon on North Fork Snoqualmie River. Black Canyon Hydro. 2013-2014.
Impacts of habitat restoration and flood management projects, Yakama Nation, WA, 2011-present.
Review Klamath River Dam Removal EIS, Pacific Gas and Electric, 2011
Impacts of habitat restoration and flood management projects, King County (Seattle) WA, 2011-present.
Bull trout restoration and irrigation systems in Pine Creek Basin, OR, Idaho Power, 2011-2012.
Southern Appalachian Farm environmental assessment, US Forest Service, 2011-2012.
Methods for collecting and using recreation data, Alaska State Parks, 2011.
Navigability assessment for Mosquito Fork of the Fortymile River, Alaska Attorney General, 2012-present.
Riparian re-vegetation in the John Day basin, Bureau of Land Management, 2009 – present.
Wildfire and recreation sites on the Green River, Bureau of Land Management, 2009 – present.
Trail assessment, Poe Reach of the North Fork Feather River, Pacific Gas and Electric, 2009.
North Umpqua River navigability trial, Oregon Attorney General and Dept. of State Lands, 2010- 2011.
Hydrokinetic energy and recreation, NPS, Dept. Energy, Hydropower Reform, 2008 – present.
Kenai River capacity assessment, Alaska Dept. of Natural Resources, 2008 – 2011.
New River flows and recreation, Appalachian Power, 2008 – 2009.
Sultan River flow-recreation study, Snohomish PUD, 2007-2008.
Spokane River waterfall aesthetics, Center for Justice, 2007 – 2011.

McCloud River streamflow assessment for recreation, Pacific Gas & Electric, 2007 – 2009.
 Yosemite carrying capacities and river management plan, National Park Service, 2006 – present.
 Allocating river use. River Management Society, 2006-08.
 Water rights and recreation flows on the Niobrara River, Nebraska Game & Parks, 2006-2008.
 Visitor experience monitoring plan for Grand Canyon, National Park Service, 2006-2008.
 Hells Canyon navigation appeal, Idaho Power, 2006-2007.
 Chattooga River capacity/conflict analysis, USDA Forest Service, 2005-present.
 Klamath River license appeal, Pacificorp, 2005-2007.
 Flows and recreation for river professionals, Hydropower Reform Coalition, NPS 2005-2006.
 Carmen – Smith whitewater boating study, Eugene Water & Electric Board, 2004-06.
 Delta Wild & Scenic River visitor assessment, Bureau of Land Mgmt., 2004-2006.
 Lower Kern River whitewater boating assessment, Southern California Edison, 2003-06.
 Colorado River/Grand Canyon EIS/RMP, Dept. of the Interior, 2002-2007.
 Stream flow assessment for Upper Klamath River Projects, Pacificorp, 2001-present.
 John Day River navigability trial, Oregon Attorney General and Department of State Lands, 2001-2002.
 DeSabra – Centerville recreation flow evaluation, Pacific Gas & Electric 2000-2007.
 North Fork Feather River whitewater/fishing streamflow evaluation, Pacific Gas & Electric, 2000-2004.
 North Fork Feather River whitewater/fishing streamflow evaluation, Pacific Gas & Electric, 2000-2004.
 Stream flows and recreation for Pit 3, 4, 5 projects, Pacific Gas & Electric, 1999-2004.
 Recreational Placer Mining on Oregon Scenic Waterways, Oregon State Parks, 2001-03.
 Review of Oregon Scenic Waterways Program, Oregon State Parks, 2001-03.
 Use and Resource Conflicts on Oregon Coastal Beaches, Oregon State Parks, 2001-02.
 Recreation resources for Westside projects, Portland General Electric, 1999-2005.
 Recreation resources for the Hell's Canyon complex, Idacorp, 1998-2004.
 Water rights adjudication in the Snake River Basin. US Dept. of Justice and USFS, 1996-2004.
 Hamilton Branch streamflow assessment, Pacific Gas & Electric, 2002-2004.
 Recreation resources for Westside projects, Portland General Electric, 1999-2006.
 Streamflows and recreation on the Shepaug River, Shepaug R. Assoc., 1999-2000.
 User evaluations of backcountry permit systems, National Park Service, 1999-2000.
 Chelan River whitewater feasibility and streamflow evaluation, Chelan PUD, 1999-2001.
 Indicators and Standards of River Trip Quality in the Grand Canyon, National Park Service, 1998-99.
 Recreational use of the Mohawk Valley, Bureau of Land Management, 1997-98.
 Scientific and Technical Advisory Committee, American Rivers, 1995-2001.
 Visitor evaluations of water levels at Crater Lake National Park, NPS, 1996-97.
 Stream flows and resource values for Hat Creek, Pacific Gas & Electric, 1995-96.
 Recreation and aesthetic resources for the Pelton Round Butte, Portland General Electric, 1995-1999.
 Klamath River site assessment, Pacificorp, 1995.
 Recreational Use and Boater Attitudes on the McKenzie River, US Forest Service, 1995-97.
 Facilities and Services at Oregon Caves National Monument, National Park Service, 1995-96.
 Stream flows and recreation values on the Pit River, Pacific Gas & Electric, 1995-96.
 Reservation system for lower Deschutes River, Oregon State Parks and Recreation Division, 1995-96.
 Stream flows and whitewater boating on the Cispus River, Washington Department of Ecology, 1994-95.
 Stream flows and resource values for the Arkansas River, BLM, USFS, Colorado State Parks, 1994-95.
 Social and Ecological Impacts of Recreation on the Clackamas River, U.S. Forest Service, 1993-95.
 Chetco River navigability trial, Oregon Attorney General and Dept. of State Lands, 1993-94.
 Zion National Park water rights adjudication, US Department of Justice and National Park Serv. 1993-94.
 Evaluations of Silvicultural Treatments for Recreation and Scenic Values 1992-present.
 Moose Creek navigability assessment, National Park Service, Alaska Region. 1992-94.
 Tallulah Gorge whitewater streamflow assessment, Georgia Power, 1992-93.
 White Salmon River/Condit Project stream flow assessment, Pacific Power, 1992-93.
 Bear River/Cutler Project stream flow assessment, Utah Power, 1992-93
 Water rights assessment, Delta River, BLM, 1988-93.
 Relicensing studies for the North Umpqua project, Oregon, Pacificorp, 1991-95.
 Social and Biological Impacts in Oregon Wilderness Areas, U.S. Forest Service, 1991-95.
 Technical advisory committee, Idaho Forest, Wildlife, and Range Policy Analysis Group. 1991-93.
 Virgin River instream flow assessment, BLM-Utah/Nevada/Arizona, 1991-94.
 Cost Effective Methods for Monitoring Visitor Encounters, U.S. Forest Service, 1990-92.
 Clark Fork River natural resource damage assessment, 1990-91.

Kenai River carrying capacity study, State of Alaska, 1991-94.

Aircraft overflight management study, NPS, 1990-93.

Instream flow assessment for Birch Creek, BLM, 1990-93.

Guidelines for Instream Flow Studies in Re-licensing Process, National Park Service, 1991-94.

Developing Standards for Wilderness Management, U.S. Forest Service, 1990-91.

Limits of Acceptable Change for the White Salmon River, U.S. Forest Service, 1991-92.

Pinto Creek instream flow assessment, USFS, 1990-91.

Instream Flows for Recreation, U.S. Forest Service and Fish & Wildlife Service, 1990-1991.

USFS wilderness aircraft overflight study, 1990.

State of the Water Reporting Procedures, New South Wales, Australia, 1990-92.

Rogue River Planning Study, Phases I-III, U.S. Forest Service and Bureau of Land Mgmt., 1990-95.

Design study of jet boat use on the Deschutes River for State Parks Division, Oregon, 1989.

Interest group standards for ecological impacts at wilderness campsites, internal funding, 1989-91.

Water resources assessment, Bill Williams Unit, Havasu National Wildlife Refuge, USFWS, 1989-90.

Delores River instream flow assessment, BLM, 1989-90.

Valuation of whitewater boating on the upper Klamath River, 1989-90.

Review and provide technical information for alternatives, Deschutes River Management Plan. 1988-93.

Resource values and instream flow recommendations for Gulkana National Wild River, BLM, 1988-89.

Recreation Impacts and Use Conflicts on the Chetco River, U.S. Forest Service, 1988-89.

Evaluation of Wilderness Permits, U.S. Forest Service, 1987-88.

Whitewater Recreation Opportunities and Benefits of the Rogue, Deschutes, and Clackamas Rivers, Water Resources Research Institute, 1987-88.

Water conditions and management opportunities in support of riparian values on the San Pedro River, BLM, 1986-87.

Social and Ecological Impacts of Recreation on the Deschutes River, Oregon State Parks, 1986-87.

Consult on lawsuit involving development standards for parks, Attorney General's office, Hawaii, 1985.

Water rights and instream flow assessment for Beaver Creek National Wild River, BLM, 1986-87.

Recreational impacts of water releases and valuation of recreation below Glen Canyon Dam, Bureau of Reclamation, 1984-88.

Recreation and river planning and management, Skagit Wild and Scenic River System, Baker-Snoqualmie NF, Washington, 1984.

Consult for Attorney General's Office regarding lawsuit involving recreation use on NaPali Coast, Hawaii, 1984.

Evaluation of Visitor Centers in Oregon, U.S. Army Corps of Engineers, 1984-85.

Valuation of the Rogue River for Whitewater Recreation, Water Resources Research Institute, 1984-85.

Recreation Patterns at Whiskeytown, National Park Service, 1984-86.

Recreational Uses and Values of the Rakaia River, Water and Soil Conservation Organization, New Zealand, 1982-83.

Issue analysis, reviewing national use allocation policies, USDA Forest Service, 1982.

Measurement Techniques for User Perceptions of Ecological Impact, U.S. Forest Service, 1981-82.

Recreation Use and Capacity Estimation on the Klamath River, U.S. Forest Service, 1981-82.

Monitoring Social Impacts of River Management Plan, Grand Canyon National Park, 1980-84.

Measurement of Recreation Opportunity Characteristics, U.S. Forest Service, 1979-80.

Drifting Use Levels on the Illinois River, U.S. Forest Service, 1979-81.

Design public participation, analyze data, and write report regarding crowding norms, National Park Service, 1978.

Case history on Grand Canyon research for the RESOLVE Center for Conflict resolution, 1978.

Design data collection effort, Oregon State Scenic Waterways program, 1978.

Provide information regarding use conflicts to State Parks Office, Kauai, Hawaii, 1978.

Use Levels and Crowding on the Rogue River, U.S. Forest Service and Bureau of Land Management, 1977-79.

Social Impacts of Design Alternatives, Crater Lake National Park, 1977-79.

Private and Commercial Use Allocations in Hells Canyon, U.S. Forest Service, 1977-79.

Report to U.S. Forest Service (Hells Canyon NRA) regarding use conflicts, 1976.

Social Impacts of River Trips in Grand Canyon, National Park Service, 1974-76.

PUBLICATIONS

Journal Publications

- Shelby, D., B. Shelby, and D. Whittaker. 2020. River management during the COVID pandemic: A survey of river professionals. *River Management Society Journal*, 33(2).
- Shelby, B., D. Whittaker, and D. Shelby. 2018. Feeling crowded on the Merced River in Yosemite Valley. *River Management Society Journal* 31(2).
- Shelby, B. and Whittaker, D. 2016. Capacities for Wild and Scenic Rivers: What Happened at Yosemite? *River Management Society Journal* 29(4):20-23.
- Kim, S., B. Shelby, and M. Needham. 2014. Effects of facility developments and encounter levels on perceptions of settings, crowding, and norms in a Korean park. *Environmental Management*, 53(2), 441-453.
- Whittaker, D., B. Shelby, B. Meldrum, H. DeGroot, and J. Bacon. 2012. Transportation, recreation, and capacities in Yosemite National Park. Invited paper for special issue on transportation and capacities in Yosemite National Park. *George Wright Society Forum* 29 (3): 338–350.
- Whittaker, D. and B. Shelby. 2012. Overlapping jurisdictions: state versus federal river management. *River Management Society Journal* 25(1):12-16.
- Kim, S. and B. Shelby. 2011. Effects of soundscapes on perceived crowding and encounter norms. *Environmental Management* 48:89-97.
- Kim, S. and B. Shelby. 2011. Effects of information on perceived crowding and encounter norms. *Environmental Management* 47:876-884.
- Whittaker, D. and Shelby, B. 2011. Signing river hazards: When and where? *River Management Society Journal*. 24(4):14-29.
- Shelby, B., D. Whittaker, and M. Donohue. 2011. "Navigable in fact, navigable in law." How does a judge decide? *River Management Society Journal* 24(1): 10-20.
- Whittaker, D., B. Shelby, R. Manning, D. Cole, G. Haas. 2011. Capacity reconsidered: finding consensus and clarifying differences. *Journal of Park and Recreation Administration* 29(1): 1-20.
- Kim, S. and B. Shelby. 2009. Effects of movement when using visual media to determine encounter standards. *Korean Journal of Environmental Ecology* 23(4): 309-136.
- Shelby, B. And D. Whittaker. 2009. How deep and how fast? Depth, velocity, and safe wading in streams. *River Management Society Journal* 22(2).
- Shelby, B. and D. Whittaker. 2009. Restoring flows for multiple resource values on Connecticut's Shepaug River. *River Management Society Journal* 22(4).
- Kim, S. and B. Shelby. 2008. Norm stability in Jirisan National Park: Effects of time, existing conditions, and background characteristics. *Environmental Management*, in press.
- Shelby, B. and D. Whittaker. 2007. Camp competition: Understanding demand, supply, and campsite occupancy. *River Management Society* 20 (3).
- Whittaker, D. and B. Shelby. 2007. Trips, people, or user days: What managers should know about river use data. *River Management Society* 20 (3).
- Shelby, B. and D. Whittaker. 2007. "Shortening" the Grand Canyon: What difference does access make? *River Management Society* 20 (3).
- Kim, S. and B. Shelby. 2006. Developing standards for trail condition using image capture technology. *Leisure Sciences* 27:279-295.
- Kim, S. and B. Shelby. 2006. Comparing onsite and offsite methods for measuring norms for trail impacts. *Environmental Management* 37(4):567-578.
- Whittaker, D., B. Shelby and J. Abrams. 2006. Instream flows and "angler habitat": flow effects on fishability on eight Pacific Northwest rivers. *Human Dimensions of Wildlife* 11(5):343-357.
- Shelby, B., J. Thompson, M. Brunson, and R. Johnson. 2005. A decade of recreation ratings for six silviculture treatments in Western Oregon. *Journal of Environmental Management* 75:239-246.
- Shelby, B., J. Tokarczyk, and R. Johnson. 2004. Timber harvests and forest neighbors. *Journal of Forestry* 102(1):8-13.
- Shelby, B., D. Whittaker, and R. Mazza. 2004. Assessing controlled whitewater flows. *Hydro Review* 23(2):36-45.
- Kim, S., C. Lee, and B. Shelby. 2003. Utilization of photographs for determining impact indicators for trail management. *Environmental Management* 32(2):282-289.
- Shelby, B., J. Thompson, M. Brunson, and R. Johnson. 2003. Changes in scenic quality after harvest: a decade of ratings for six silvicultural treatments. *Journal of Forestry* 101(2):30-35.
- Whittaker, D. and B. Shelby. 2002. Evaluating instream flows for recreation: applying the structural norms

- approach to biophysical conditions. *Leisure Sciences* 24(3-4):363-373.
- Kim, S. and B. Shelby. 2002. Effects of information on normative standards. *Korean Journal of Forestry* 91(2): 171-181.
- Donnelly, M.P., J. Vaske, D. Whittaker, and B. Shelby. 2000. Toward an understanding of norm prevalence: comparative analysis of 20 years of research. *Environmental Management* 5(4):403-14.
- Wing, M. and B. Shelby. 1999. Using GIS to integrate information on forest recreation. *J. Forestry* 7(1):12-16.
- Hall, T. and B. Shelby. 1999. Changes in use of three Oregon wildernesses, 1976-1993. *Environmental Management* 22(1):89-98.
- Shelby, B., D. Whittaker, and J. Roppe. 1998. Controlled flow studies for recreation: A case study of Oregon's North Umpqua River. *Rivers* 6(4):259-268.
- Jensen, E., P. Doescher and B. Shelby. 1998. A new natural resource degree for a new century. *J. of Forestry* 96(2):15-17.
- Kim, S-O. and B. Shelby. 1998. Norms for behavior and conditions in two national park campgrounds in Korea. *Environmental Management* 22(2):277-285.
- Shelby, B. D. Whittaker, and W. Hansen. 1997. Streamflow effects on hiking in Zion National Park, Utah. *Rivers* 6(2):80-93.
- Kim, S-O. and B. Shelby. 1996. Influence of expectations, norms and motives on perceived conflict. *J. Korean Forestry Society* 85(4):647-655.
- Kim, S-O. and B. Shelby. 1996. Effects of information on user's personal norm and rule-violating behavior in a recreation setting. *J. Korean Forestry Society* 85(2):251-259.
- Hall, T., B. Shelby, and D. Rolloff. 1996. Effect of varied question format on boater norms. *Leisure Sciences* 18:193-204.
- Shelby, B., J. Vaske, and M. Donnelly. 1996. Norms, standards, and natural resources. *Leisure Sciences* 18:103-123.
- Hall, T. and B. Shelby. 1996. Who cares about encounters? Differences between those with and without norms. *Leisure Sciences* 18:7-22.
- Shindler, B. and B. Shelby. 1995. Product shift in recreation settings: findings and implications from panel research. *Leisure Sciences* 17(2):91-107.
- Shelby, B. and D. Whittaker. 1995. Streamflows and recreation quality on the Dolores River: Integrating overall and specific evaluations. *Rivers* 5(2):121-132.
- Shelby, B., T. Brown, and R. Baumgartner. 1994. Using surveys to document effects of streamflows on white water rafting. *Hydro-Review* 13(5):86-93.
- Brunson, M. and B. Shelby. 1993. Recreation Substitutability: a research agenda. *Leisure Sciences* 15(1):67-74.
- Shindler, B. and B. Shelby. 1993. Regulating wilderness use: an investigation of user group support. *J. Forestry* 91(2):41-44.
- Martinson, K. and B. Shelby. 1993. Encounter and proximity norms for salmon anglers in California and New Zealand. *N. Am. J. Fish. Mgmt.* 12(3):559-567.
- Vaske, J., M. Donnelly, and B. Shelby. 1993. Establishing management standards: selected examples of the normative approach. *Environmental Management* 17(5):629-643.
- Martinson, K. and B. Shelby. 1992. Encounter and proximity norms for salmon anglers in California and New Zealand. *N. Am. J. Fish. Mgmt.* 12(3):559-567.
- Shelby, B., T. Brown, and R. Baumgartner. 1992. Effects of stream flows on river trips on the Colorado River in Grand Canyon, Arizona. *Rivers* 3(3):191-201.
- Shelby, B. and B. Shindler. 1992. Interest group standards for ecological impacts at wilderness campsites. *Leisure Sci.* 14(1):17-27.
- Brunson, M. and B. Shelby. 1992. Assessing recreational and scenic quality. *J. Forestry* 90(7):37-41.
- Brown, T., J. Taylor, and B. Shelby. 1991. Assessing the effects of streamflow on recreation: a literature review. *Water Resources Bulletin* 27(6):979-989.
- Shelby, B. and J. Vaske. 1991. Using normative data to develop evaluative standards for resource management. *J. Leisure Res.* 23(2):173-187.
- Brunson, M. and B. Shelby. 1991. Activity-related differences in campsite preference: potential causes and implications for management. *West. J. Appl. For.* 6(3):78-81.
- Shelby, B. and J. Vaske. 1991. Resource and activity substitutes for recreational salmon fishing in New Zealand. *Leisure Sci.* 13(1):21-32.
- Vaske, J., M. Donnelly, and B. Shelby. 1990. Comparing two approaches for identifying recreation activity substitutes. *Leisure Sci.*, 12(3):289-302.

- Shelby B. 1991. Allocation of public access rights on western rivers. *Western Wildlands* 16(4): 8-12.
- Shelby, B. and W.L. Jackson. 1991. Determining minimum boating flows from hydrologic data. *Rivers* 2(2):161-167.
- Brunson, M. and B. Shelby. 1990. A hierarchy of campsite attributes in dispersed recreation settings. *Leisure Sci.* 12(2):197-209.
- Jackson, W.L., B. Shelby, A. Martinez and B. P. Van Haveren. 1989. A value-based interdisciplinary process for determining and protecting instream flows. *J. Soil and Water Conservation*, March-April:121-126.
- Shelby, B., D. Whittaker and M. Danley. 1989. Idealism versus pragmatism in user evaluations of allocation systems. *Leisure Sci.* 11(1):61-70.
- Shelby, B., D. Whittaker, and M. Danley. 1989. Allocation currencies and perceived ability to obtain permits. *Leisure Sci.* 11(2):137-144.
- Shelby, B., J. Vaske, and T. Heberlein. 1989. Comparative analysis of crowding in multiple locations: Results from fifteen years of research. *Leisure Sci.* 11:269-291.
- Manfredo, M. and B. Shelby. 1988. The effect of using self-report measures in tests of attitude-behavior relationships. *J. of Social Psychology* 128(6):731-744.
- Shelby, B., J. Vaske, and R. Harris. 1988. User standards for ecological impacts at wilderness campsites. *J. Leis. Res.* 20(3):245-256.
- Whittaker, D. and B. Shelby. 1988. Types of norms for recreation impacts: Extending the social norms concept. *J. Leis. Res.* 20(4):261-273.
- Shelby, B., N. Bregenzer, and R. Johnson. 1988. Displacement and product shift: Empirical evidence from Oregon rivers. *J. Leis. Res.* 20(4):274-288.
- Vaske, J., B. Shelby, A. Graefe and T. Heberlein. 1986. Backcountry encounter norms: Theory, method, and empirical evidence. *J. Leis. Res.* 18(3):137-153.
- Shelby, B. and T. Heberlein. 1985. A conceptual framework for carrying capacity determination. *Leisure Sci.* 6(4):433-451.
- Shelby, B. and R. Harris. 1985. Comparing methods for determining visitor evaluations of ecological impacts. *J. Leis. Res.* 17(1):57-67.
- Jope, K. and B. Shelby. 1984. Hiker behavior and the outcome of interactions with grizzly bears. *Leisure Sci.* 6(3):257-270.
- Shelby, B., T. Heberlein, J. Vaske, and G. Alfano. 1984. Expectations, preferences, and feeling crowded in recreation activities. *Leisure Sci.* 6(2):1-14.
- Shelby, B. 1984. Estimating monetary values for use permits on western rivers. *J. For.* 82(2):107-109, 1984. Reprinted in *Wildwater* 7(1):7-8, 1986.
- Shelby, B. and R. Colvin. 1982. Encounter measures in carrying capacity research. *J. Leis. Res.*, 14(4):350-360.
- Vaske, J., M. Donnelley, T. Heberlein, and B. Shelby. 1982. Differences in satisfaction ratings by consumptive and nonconsumptive recreationists. *J. Leis. Res.* 14(3):195-206.
- Shelby, B., M. Danley, K. Gibbs, and M. Petersen. 1982. Preferences of backpackers and river runners for allocation techniques. *J. For.* 80(7):416-419.
- Shelby, B. 1981. Research, politics, and resource management decisions. *Leisure Sci.*, 4(3):281-296.
- Shelby, B. 1981. Encounter norms in backcountry settings: Studies of three rivers. *J. Leis. Res.* 13(2):129-138.
- Shelby, B. 1980. Crowding models for backcountry recreation. *Land Econ.* 56(1):43-55.
- Shelby, B. 1980. Contrasting recreation experiences: Motors and oars in the Grand Canyon. *J. Soil Water Cons.* 35(3):129-130.
- Heberlein, T. and B. Shelby. 1977. Carrying capacity, values, and the satisfaction model. *J. Leisure Res.* 9(2):142-148.
- Nielsen, J., B. Shelby and E. Haas. 1977. Sociological carrying capacity and the last settler syndrome. *Pacific Sociological Review* 29(4):568-581.

Technically Refereed Publications

- Shelby, B., and D. Whittaker. 2020. *Recreation habitat vs. ecological habitat in riparian areas: Can we manage for both?* Invited chapter, USFS GTR: The International riparian project -- Challenges and solutions for the future of riparian ecosystems. Johnson, R., Carothers, S., Finch, D. and Kingsley, K. (editors).

- Shelby, B., and D. Whittaker. 2020. *Creating recreation habitat during large scale ecological restoration*. Invited chapter, USFS GTR: The International riparian project -- Challenges and solutions for the future of riparian ecosystems. Johnson, R., Carothers, S., Finch, D. and Kingsley, K. (editors).
- Shelby D, Whittaker D, and Shelby B (2020) *The good, the bad, and the unusual: What makes a boating access work or not?* National Park Service, River Management Society, and American Whitewater.
- Whittaker, D. and B. Shelby. 2017. *Flows and aesthetics: A guide to concepts and methods*. National Park Service and Hydropower Reform Coalition.
- Whittaker, D., and B. Shelby. 2016. *Committing to capacities: Planning for quality*. Invited submission for "Emerging issues" section in Best Practices in Recreation Resource Planning. Baas, J. and Burns, R. (editors). Sagamore Publishing.
- Whittaker, D. and B. Shelby. 2013. *Boats, Beaches, and River Banks: Visitor evaluations of recreation on the Merced River in Yosemite Valley*. Revised Final Report prepared for Yosemite National Park.
- Whittaker, D., B. Shelby, R. Manning, D. Cole, G. Haas. 2010. Capacity reconsidered: finding consensus and clarifying differences. National Association of Recreation Resource Planners.
- Whittaker, D. and B. Shelby (eds.). 2010. Hydrokinetic energy projects and recreation: a guide to assessing impacts. NPS Hydropower assistance program, Dept. of Energy, and Hydropower Reform Coalition.
- Whittaker, D. and B. Shelby. 2010. Potential Impacts of Hydrokinetic energy projects. In: Whittaker, D. and B. Shelby (eds.). 2010. Hydrokinetic energy projects and recreation: a guide to assessing impacts. NPS Hydropower assistance program, Dept. of Energy, and Hydropower Reform Coalition.
- Whittaker, D. and B. Shelby. 2010. Potential Impacts of hydrokinetic projects on recreation opportunities. In: Whittaker, D. and B. Shelby (eds.). 2010. Hydrokinetic energy projects and recreation: a guide to assessing impacts. NPS Hydropower assistance program, Dept. of Energy, and Hydropower Reform Coalition.
- Whittaker, D. and B. Shelby. 2010. Types of studies for recreation impacts of hydrokinetic projects. In: Whittaker, D. and B. Shelby (eds.). 2010. Hydrokinetic energy projects and recreation: a guide to assessing impacts. NPS Hydropower assistance program, Dept. of Energy, and Hydropower Reform Coalition.
- Whittaker, D. and B. Shelby. 2010. Applying Recreation Concepts to hydrokinetic energy projects. In: Whittaker, D. and B. Shelby (eds.). 2010. Hydrokinetic energy projects and recreation: a guide to assessing impacts. NPS Hydropower assistance program, Dept. of Energy, and Hydropower Reform Coalition.
- Whittaker, D. and B. Shelby. 2010. Kenai River Recreation Study. Alaska Dept. of Natural Resources.
- Whittaker, D. and B. Shelby. 2008. Allocating river use: a review of approaches and existing systems for river professionals. River Management Society.
- Shelby, B. and D. Whittaker. 2007. Colorado River in Grand Canyon, visitor experience monitoring plan. National Park Service, GCNP and Colorado Plateau CESU.
- Whittaker, D. and B. Shelby. 2007. Effects of hydroelectric projects on recreation. In Stillwater Sciences, Confluence Research, and Heritage Research, Scientific approaches for evaluating hydroelectric project effects. Hydropower Reform Coalition, Washington, DC.
- Whittaker, D., B. Shelby, and J. Gangemi. 2005, to be reprinted 2009. *Flows and Recreation: A guide for river professionals*. Washington DC: Hydropower Reform Coalition.
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- Groznik, F. and B. Shelby. 1996. Recreation and instream flow on the North Umpqua River. American River Management Society, Columbus, OH.
- DiGennaro, B. And B. Shelby. 1996. Streamflow and recreation-common results. American River Management Society, Columbus, OH.
- Shelby, B. and D. Whittaker. 1996. Experiments to develop norms for stream flows. Symposium on Society and Resource Management, State College, PA.
- Shelby, B. and D. Whittaker. 1996. Streamflow evaluations for slot canyon hiking in Zion National Park. Symposium on Society and Resource Management, State College, PA.
- Donnelly, M., J. Vaske, D. Whittaker, and B. Shelby. 1996. Toward an understanding of norm salience: a meta-analysis of one measure. Symposium on Society and Resource Management, State College, PA.
- Whittaker, D. and B. Shelby. 1996. Social norms in high density settings: results from five Alaskan rivers. Symposium on Society and Resource Management, State College, PA.
- *Shelby, B. And J. Roppe. 1996. Instream flows and recreation. Edison Electric Institute National Workshop, Bellevue, WA.
- *Shelby, B. 1995. Taking a new look at permit reservation systems. Northwest River Runners Conference, Portland, OR.
- Hall, T. And B. Shelby. 1994. Who cares about encounters? Differences between those with and without standards. International Symposium on Society and Resource Management, Ft. Collins, CO.
- Shelby, B. 1994. Norms, standards, and natural resources: What have we learned? International Symposium on Society and Resource Management, Ft. Collins, CO.
- *Shelby, B. 1993. Stream flows and resource values: where does recreation fit in the big picture? Recreation and Instream Flow Workshop, San Francisco, California.
- *Shelby, B. 1993. Stream flows and resource values. Conference on the Future of America's Rivers. Washington, DC.
- *Shelby, B. 1993. Stream flows and recreation resources in Zion National Park. Presentation to Utah State Engineer and Department of Natural Resources. Salt Lake City, Utah.
- *Shelby, B. 1993. Recreation and water rights in Zion National Park. National Park Service, Ft. Collins, Colorado.
- *Shelby, B. 1993. Slot Canyon hiking in Zion National Park. Recreation and Instream Flow Workshop, San Francisco, California.
- *Shelby, B. 1993. Navigability assessment for the Chetco River. Oregon Department of State Lands, Salem, Oregon.
- *Shelby, B. 1992. River planning and stream flows: the key to integrated protection of river resource values. Conference on watershed resources: balancing environmental, social, political, and economic factors in large basins, Portland, Oregon.
- *Shelby, B. 1992. Carrying capacities and the Kenai River. Kenai River Advisory Committee, Soldotna, Alaska.
- Shelby, B. and D. Whittaker. 1992. Which impacts matter more? Selecting indicators for resource management. Conference on Social Science and Natural Resources, Madison, Wisconsin.
- Brunson, M. and B. Shelby. 1992. Evaluations of managed and unmanaged forests. Conference of Social Science and Natural Resources, Madison, Wisconsin.
- Shindler, B. and B. Shelby. 1992. Displacement and product shift: evidence from a panel study of Rogue River visitors. Conference on social science and natural resources, Madison, Wisconsin.
- *Shelby, B. 1992. Instream flows and river values. Conference on rivers for tomorrow: strategies for planning and management, Portland, Oregon.
- *Shelby, B. 1992. Stream flows and recreation. Eastern instream flow workshop, Richmond, Virginia.
- *Shelby, B. 1992. Social and political aspects of fire. Conference on fire in Pacific Northwest ecosystems, Portland, Oregon.

- Brunson, M. and B. Shelby. 1991. Recreational commitment and seasonal change among whitewater boaters. National Parks and Recreation Association Research Symposium, Baltimore, Maryland.
- *Shelby, B. 1991. Instream flows and resource values. Northwest Rivers Council Conference on river conservation and management, Seattle, Washington.
- *Shelby, B. 1991. Instream flows and river systems. Confluence '91 conference on river use and management, Orlando, Florida.
- Brunson, M. and B. Shelby. 1991. Effects of alternative silvicultural methods on recreational and scenic quality. Northeastern Recreation Research Symposium, Saratoga Springs, New York.
- *Shelby, B. 1991. Monitoring social impacts in wilderness. USFS Recreation University, Portland, Oregon.
- *Shelby, B. 1991. Carrying capacity for wildlife areas. Annual meeting of the Oregon Wildlife Society, Newport, Oregon.
- *Shelby, B. 1991. Instream flows for recreation. River Protection and Water Use: National Policy Conference. Denver, Colorado.
- *Shelby, B. 1990. Interdisciplinary studies of river corridors. Forest Research Laboratory advisory board, Corvallis, Oregon.
- Shelby, B. and D. Whittaker. 1990. Recreation values and instream flow needs on the Dolores River. Conference on Social Science and Natural Resources, College Station, Texas.
- *Shelby, B. 1990. Using normative data to develop wilderness standards. Wilderness Standards Workshop, Ft. Collins, Colorado.
- *Shelby, B. 1990. Instream flows for recreation: legal authority, agency mandates, and research findings. Director's seminar series, National Ecology Research Center, US Fish and Wildlife Serv., Ft. Collins, Colorado.
- Brunson, M. and B. Shelby. 1990. Willingness of wilderness visitors to substitute alternative activities. Conference on Social Science and Natural Resources, College Station, Texas.
- Shelby, B. and B. Shindler. 1990. Evaluating group norms for ecological impacts at wilderness campsites. Conference on Social Science and Natural Resources, College Station, Texas.
- *Shelby, B. 1990. Social science inputs to resource management. Seventeenth Annual Public Lecture, University of Canberra, Australia.
- *Shelby, B. 1990. River Management in the United States. Department of Resource Science, University of Canberra, Australia.
- *Shelby, B. 1990. Determining instream flow needs. Seminar for Dept. of Recreation Resources, Rocky Mountain Experiment Station, U.S. Fish & Wildlife Service, Fort Collins, Colorado.
- *Shelby, B. 1989. Allocating recreation resources in Alaska. Alaska Interagency Wildland Management Workshop, Fairbanks, Alaska.
- *Shelby, B. 1989. Carrying capacity applications in Alaska. Alaska Interagency Wildland Management Workshop, Fairbanks, Alaska.
- *Shelby, B. 1989. Deschutes River planning: issues and opportunities. Governor's Technical Planning Group for the Deschutes River.
- Brunson, M. and B. Shelby. 1989. A hierarchical model for campsite choice. Northeast Recreation Researchers Conference, Saratoga Springs, New York.
- *Shelby, B. 1989. Interdisciplinary approaches to determining stream flow needs. Seminar for Oregon Dept. of Water Resources, Salem, Oregon.
- *Shelby, B. 1989. Instream flows and Oregon's river resources. Presentation to Oregon State Board of Water Resources, Salem, Oregon.
- *Shelby, B. 1989. Instream flows and river management. Seminar for Department of Water Resources, New South Wales, Australia.
- *Shelby, B. 1988. Oregon river issues. Annual meeting of the Oregon Wildlife Federation, Corvallis.
- Whittaker, D. and B. Shelby. 1988. Types of norms for recreation impacts: Extending the social norms concept. Symposium on Social Science in Resource Management, Urbana-Champaign, Illinois.
- *Shelby, B. 1988. Social and ecological impacts of recreation use: Problems and management solutions. Midwest River Management Symposium, Sigurd Olson Institute, Ashland, Wisconsin.
- *Shelby, B. 1988. Future issues for river management. Western River Management Symposium, Eugene, Oregon.
- *Shelby, B. 1988. Allocation issues in river management. Western River Management Symposium, Eugene, Oregon.
- Vaske, J. and B. Shelby. 1986. An applied theory of recreation substitutability. National Symposium on Social Science in Resource Management, Corvallis, Oregon.

- Martinson, K. and B. Shelby. 1986. Encounter norms in more developed settings: Similarities to backcountry. National Symposium on Social Science in Resource Management, Corvallis, Oregon.
- Shelby, B., N. Bregenzer, and R. Johnson. 1986. Product shift on the Rogue River between 1977 and 1984. National Symposium on Social Science in Resource Management, Corvallis, Oregon.
- Johnson, R., B. Shelby and N. Bregenzer. 1986. Comparison of contingent valuation method results: Dichotomous choice vs. open-ended responses. National Symposium on Social Science in Resource Management, Corvallis, Oregon.
- Johnson, R.L. and B. Shelby. 1985. Monetary values of whitewater recreation on the Rogue River. National Wilderness Research Conference, Ft. Collins, Colorado.
- Shelby, B. 1985. How many is too many? Determining social carrying capacity. National Wilderness Research Conference, Ft. Collins, Colorado.
- *Shelby, B. 1985. A history of river management. Annual Meeting of Oregon River Managers, Eugene, Oregon.
- *Shelby, B. 1985. Historical perspective on river access and allocation. Meeting of the North West Rafters Association, Portland, Oregon.
- Shelby, B. 1984. Resource and activity substitutes for salmon fishing in New Zealand. Annual meeting of the Western Area Recreation Professionals, Missoula, Montana.
- Allen, D.J. and B. Shelby. 1984. Visitor behavior at Columbia Gorge Visitor Centers. National River Research Symposium, Baton Rouge, Louisiana.
- Shelby, B. 1981. Estimating monetary values for use permits on western rivers. Annual meeting of the Rural Sociological Society, Guelph, Ontario, Canada.

OUTREACH AND EXTENSION

Workshops and Short Courses

- 2013 Instream flows and recreation. Three-day workshop for FERC staff with fieldwork. Washington, D.C. October.
- 2012 Capacity strategies in the Draft Merced River Plan, Workshop to comply with 9th Circuit Court settlement agreement, National Park Service, Yosemite.
- 2011 Assessing recreation impacts from hydrokinetic energy projects. Workshop and field work, Portland.
- 2011 Assessing recreation impacts from hydrokinetic energy projects. Workshop and field work, Memphis.
- 2011 Capacities and Wild and Scenic River values. Workshop for Merced River Plan, National Park Service, Yosemite.
- 2010 Hydrokinetic energy projects and recreation. Webinar for NPS Hydropower assistance program, Dept. of Energy, and Hydropower Reform Coalition.
- 2010 Identifying Wild and Scenic River resource values. Workshop for Lake Clark National Park, Anchorage.
- 2008 Hydrokinetics and recreation workshop for Hydropower Reform Coalition, Seattle.
- 2008 River Management Society, program co-organizer. Portland, Maine.
- 2005 Instream flows for recreation. Workshop for Federal Energy Regulatory Commission staff, Washington DC.
- 2004 Cultural resources and recreation use. Northwest Utilities Cultural Resources Conference, Timothy Lake, Oregon.
- 2004 Visitor impact management in wilderness. Carhart National Wilderness Training Center. Colorado Springs (co-organizer).
- 2002 Instream flows for recreation. National Park Service hydro-relicensing program. Portland (co-organizer).
- 2002 Visitor impact management in wilderness. Carhart National Wilderness Training Center, Portland (co-organizer).
- 1999 Instream flows for recreation workshop, USFS (organizer).
- 1993 The imperfect science of instream flows. Conference on the future of America's rivers, Washington, DC. Session organizer and moderator.

- 1993 Recreation and Instream Flow Workshop. San Francisco, CA (co-organizer).
- 1993 River Permits and Allocation, NW River Runners Conference, Portland (session organizer and moderator).
- 1992 Instream flows and recreation/aesthetic values. Workshop for Federal Energy Regulatory Commission, Washington, DC. (co-organizer).
- 1992 Eastern instream flow workshop. State of Virginia, Richmond, VA (co-organizer).
- 1992 Rivers for tomorrow: Strategies for planning and management. American River Management Society workshop and symposium, Portland, OR (co-organizer).
- 1991 Workshop on instream flow for recreation, Corvallis, OR (co-organizer).
- 1991 Carrying capacity and resource allocation. Workshop on recreation, wilderness, and cultural resources. Bureau of Land Management, Canon City, CO.
- 1990 Standards for wilderness management. Workshop for wilderness researchers and managers, Ft. Collins, CO (co-organizer).
- 1990 Workshop on standards and performance indicators for resource management. Canberra, ACT, Australia (organizer).
- 1990 Summer School of Resource Management, Canberra, ACT, Australia (co-organizer).
- 1988 Limits of Acceptable Change and Carrying Capacity. Workshop for Midwest river managers, Sigurd Olson Institute, Ashland, WI (co-organizer).
- 1986 National Park Management: The Sociological Component. Workshop at National Park Service Albright Training Center, Grand Canyon, AZ, 1985. Done twice, for resource Management specialists and park superintendents (organizer).
- 1985 Carrying Capacity Strategies. Short Course on People in Parks and Forests, College of Forestry, Oregon State University.
- 1985 National Park Management. The Sociological Component. Workshop at National Park Service Albright Training Center, Grand Canyon, AZ. Done twice, for resource management specialists and park superintendents (organizer).
- 1984 Social Issues in Park Management. Workshop at National Park Service intake training course, Albright Training Center, Grand Canyon, AZ (organizer).
- 1980 Carrying Capacities. Presentation at U.S.F.S. Recreation Training Workshop, Portland, OR.
- 1980 Lecturer and resource person, International Union of Forestry Research Organization Recreation Management Tour.
- 1978 Northwest Crowding Symposium. Workshop for researchers and managers, Grants Pass, OR (organizer).
- 1976 Sociological Research on the Colorado River in Grand Canyon. Presentation at National Park Service intake training course, Albright Training Center, Grand Canyon, AZ.

OTHER PROFESSIONAL SERVICE

Editorial Boards

Rivers, 1990-2000

Leisure Sciences, 1990-96

Special Associate Editor August 1989

Backpacker, 1982-84

Journal of Leisure Research, 1981-84

Research Proposals Reviewed For

Social Sciences and Humanities Research Council of Canada

National Park Service

National Oceanic and Atmospheric Administration

Institute of Marine Science and Ocean Engineering

USDA Forest Service Experiment Stations

Manuscripts Reviewed For

Environmental Management

Rivers

Hydro Review
Journal of Environmental Management (Cambridge)
Regulated Rivers
Environment and Planning (London)
North American Journal of Fisheries Management
Forest Service
Human Dimensions of Wildlife
Leisure Sciences
Environmental Management
North American Journal of Fisheries Management
Transactions of the North American Wildlife Society
Rural Sociology
Land Economics
Journal of Leisure Research
Forest Science
Journal of Forestry
Management Science
Coastal Zone Management Journal
Ohio Journal of Science
Water Resources Research
Adventure Travel
Backpacker
USFS Experiment Stations
McGraw-Hill publishers
William C. Brown publishers

Study Teams/Task Forces/Advisory Committees

National Hydrokinetics and Recreation Study Team, 2008 – present.
Carrying Capacity Work Group, 2008 – present.
National Streamflow Expert Team, USFS, 2000-present.
Research Program Evaluation Panel, Colorado River GCMRC, 2005-06.
Scientific and Technical Advisory Committee, American Rivers, 1992-2001.
OSU Research Forests interdisciplinary planning team, 1992-93.
Tillamook Forest advisory committee/planning team, 1992-93.
Review team, OSU Water Resources Research Institute, 1992.
Wilderness management working group, 1992.
Technical advisory committee, Idaho Forest, Wildlife, and Range Policy Analysis Group, 1991-present.
Feasibility study for Alaska instream flow projects, Bureau of Land Management, 1988-1989.
Study Team Member, Alaska Rivers Study, National Park Service Cooperative Park Studies Unit, Seattle, 1983-1987.
Gypsy Moth Task Force. "The Gypsy Moth in Oregon: Potential Effects and Management Options." OSU Extension Service, #EM 8315, 1986.
Use allocation study team, Bureau of Land Management, 1980.
Study team, National Dispersed Recreation Survey, USFS, 1978-1979.
Study team, Snake Wild and Scenic River, Bureau of Outdoor Recreation, 1977-78.

INTERNATIONAL EXPERIENCE

Spent sabbatical (1982-83) in New Zealand working on a project to assess social and economic impacts of water development for irrigation versus instream uses for recreation. Spent sabbatical (1989-90) in Australia giving workshops and working on a project to assess needs and develop better analysis and reporting methods for water quality data. Have traveled throughout North America, Mexico, and parts of Central America and South America. Have traveled in parts of Europe, Asia, and India, including a National Geographic/American Alpine Club sponsored expedition in the Himalayas of Pakistan. Traveled to India and worked with Ministry of Tourism regarding information and promotion for tourism.
LANGUAGES: Spanish (conversational) and French (conversational).

AWARDS/HONORS

Outstanding contribution to river management, River Management Society, 2009.
Coach of the Year, North Willamette Lacrosse Conference, 2008.
Deans' Development Award, Natural Resources Program, 1993-2006.
Service Award, Clackamas River Relicensing Settlement Working Group, 2006.
Author's Award, for peer reviewed paper for Hydro-Review selected as the "most useful article," 2004.
Service Award, Snake River Basin Adjudication Instream Flow Project, 1993-2004.
Dean's Leadership Award, Starker Lectures, 2002.
Service Award, Snake River Basin Adjudication Instream Flow Project, 1993-2004.
Achievement Award, Scientific and Technical Advisory Committee, American Rivers, 2002.
Oregon State University, Forestry Outstanding Achievement Award, Research Forest Plan, 1993.
Oregon State Forester's Stewardship Award, Tillamook Forest Advisory Board/Planning Team 1993.
U.S. Secretary of the Interior's Unit Citation for Excellence of Service, interdisciplinary San Pedro water resources project, 1988.
Carrying Capacity book selected as "Outstanding Academic Book" by *Choice* magazine, 1988. Review described the book as a "fine work ... very readable and well organized ... insightful."