

APPENDIX 1 WATER RELATED STUDIES

Reference	Instrument	L/s stimuli	Water Aspects	Findings	Quantitative
Anderson <i>et al</i> , 1976	Q sort of photos	Connecticut River valley	Water edge density & water area density	Scenic value increased by amount of water edge and water area	n = 217, Pearson's r: water edge 0.359, water area 0.259. p < 0.001. Regression - water edge 3.1% var.
Brown & Daniel, 1991	Video clips	Wild river, Colorado	Stream flow volume	Scenic beauty increases with stream flow to a point & then decreases with high streamflow	See text
Brush & Shafer, 1975	Multiple regression	Adirondack Mountains	Formula includes water	Areas of water increase scenic quality	Example scenes - water increased score by 23 - 34%
Calvin <i>et al</i> , 1972	Semantic differential	Rural & natural Eastern US	Streams, falls, algae, frozen stream	Water contributed to major factor - natural scenic beauty. Three of the top 4 scoring scenes contained water	Factor scores included: falls 1.17, rapids 1.04, stream & trees 0.70 See Figure 8.22 for full range
Carls, 1974	Photo rating & Shafer	Illinois landscapes	Stream, falls and lake	Factor analysis found elements of people, vegetation, development, lake, falls, non-veg, & stream emerged clearly.	Regression equation includes areas of fall, stream and lake & with 2 other factors, R ² = .481.
Cherem & Driver, 1983	Visitor employed photographs	Michigan trails	Streams, marsh, ponds	Consensus photos [>10%] incl. many water scenes with high CP strength [i.e. % of participants who took photo]	Number and strength of water scenes: X ² = 62, df =5, p< 0.001 [my calculation]
Choker & Mene, 1992	Photo rating questionnaire	Nigerian city & environs	Urban, rural & natural scenes	Water in scene had positive effect except where polluted or waterlogged.	Trees 17% positive mentions, flowers 7%, water 6%
Civco, 1979	Photo rating, Q sort, q'naire	Mtns, hills, rural, urban	Lakes, streams, wetlands	Of 22 natural/rural l/s features, lakes & streams were #1 and wetlands #11	Lakes & streams rated 6.2, wetlands 5.2. Positive is ≥4
Craik, 1972	Adjective checklist	Diverse scenes	Adjective checklist	Attributes of aesthetically appealing scenes include: watery, wet, rushing, clean, flowing	-
Dearden, 1980	C-S-W, field ass.	Hilly, rural, coast	Lakes, coast, rivers, streams	Rivers/streams 4th most positive influence, lakes 10th. Water not strong factor	Reg coeffs: River B=-.482, F=2.44; artificial lake B =-1.610, F =2.257; natural lake B =-2.407, F =1.969
Dearinger, 1979	Semantic differential	Forests, mountains	Rivers, falls, lakes	Moving water is preferred over still water or no water	Reg coeffs, and factor scores given
DeLucio & Mugica, 1994	Photo pairs questionnaire	Spanish national pks	1 park comprise wetlands	Water was foremost factor in preference in association with relief & vegetation	Scores for 4 parks range from .53 to .8
Gobster & Chenoweth, 1989	Photo rating, SBE method	Rural, river, forest & agriculture	River - calm/rough, narrow/wide etc	Factor 1 artistic, 2: affective-information, 3: spatial structure, 4: river sinuosity see text	4 factors a/c 90% of variance
Gregory & Davis, 1993	Photo rating, Shafer	English rural scenes	Rivers in woodlands	Influence of 22 factors on river scenic quality. Most imp. are water colour [-ve], channel stability [+ve] & depth [+ve].	Scenic pref = 6.5 -0.98 COL + 0.32 STAB + 1.86 DEP; r ² =88.6, p<.02

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Hammitt, 1979	Photo rating, Shafer, visitor photos	Bog environments	Familiarity with bog environment	Familiarity can link with high preference but also with low preference. No indication of significant factors in each	Relationship between preference & familiarity graphed. n=274, rho = .53
Hammitt <i>et al</i> , 1994	SBE method, Shafer	Appalachian forest	Streams, rivers, lakes, ponds	Area of moving water - forested rivers & streams is foremost predictor of pref.	Visual prefs: streams 213, lake 152, ridge 124, rolling hills 110
Hendrix & Fabos, 1975	Photo rating	Compatibility of land uses	Open water & wetlands	Visual compatibility of water: <u>high</u> - forests, agric, rec; <u>low</u> - house, transport; <u>no</u> - industry, commercial	Compatibility rated -3 to +3; high 4.5-6.8; low 1.5 - 3
Herzog, 1985	Photo rating	Waterscapes across US	Mountain w/scapes, lakes, rivers, swamps	Preferences: 1. mountain waterscapes, 2. large water bodies, 3. rivers, lakes & ponds, 4. swampy areas	6 predictor variables a/c for 71% preference in mtn waterscapes; see text. Table 8.15, Figure 8.6
Herzog & Bosley, 1992	Photo rating	Field, forest, water & mtn. scenes	Mountain w/scapes, lakes, rivers, swamps	Water bodies rank highest in preference & tranquillity Table 6.2, Fig 6.3	Preference means [5 pt]: large water bodies 3.9, rushing water 4., mountains 3.84, field-forest 3.15.
Hodgson & Thayer, 1980	Photo rating	Mountains, lakes, streams, forest	Lake/reservoir, stream bank/ road cut	Scenes labelled 'human influence' scored less than 'natural' labels	Means [lower the better]: artificial 24.2, natural 31.1
Hull & Stewart, 1995	Visitor photos questionnaire	Mountains, rivers, forests	Lakes & rivers	Lakes & rivers comprise 12% of view encountered along trail	Beauty rated 5.5 for water cf 3.9 trees, 5 for mountains. Figure 8.24
Jones <i>et al</i> , 1976	Questionnaire	Mountains, rivers, lakes, forests	Rivers & lakes	Preference: forest, high mountains, waterfalls & rapids, wildlife, oceans	High mountains 80.5%, forest 87%, falls & rapids 73%, ocean 66%
Kaplan, R., 1977	Photo rating	Urban and rural areas	5 mile long creek	Preference for natural-like creek and impoundments, dislike drain appearance	-
Knopp <i>et al</i> , 1979	Questionnaire	Kettle River Minnesota	River recreation users	River landscape elements rated high cf with recreational elements	Ratings [5 pt]: clean water 4.57; vegetation 4.57, rock 4.31,
Mosley, 1989	Photo rating	NZ riverscapes	Riverscapes	The environment of the river is more important than river itself in preferences	Scenic value factors[%]: forest 41, view angle 12, relative relief 6, % alpine 6,% water 5
Nieman, 1978	Questionnaire	New York coastal zone	Coast & lake environment	Factors degrading coastal visual quality - litter, erosion, water quality, structures	Litter 36% of users, beach erosion 33%, water 20%, structures 18%
Orland, 1988	SBE	Rural scenes US & Europe	Not described	Water scenes more attractive than woodlands	-
Palmer & Zube, 1976	Q sort	Connecticut R. valley	Open water, wetlands, stream	Water is second of three dimensions from factor analysis	Landform 18% of total variance, water 14.3%, human influence 13.5%
Palmer, 1978	Photo rating, Q sort	Connecticut R. valley	Open water, wetlands, stream	Scenic value increases with naturalism, landform variation, water/land edges and length of views.	Scenic value inc. with naturalism [reg coeff 0.59], landform variation [0.58], water/land edges [0.42], length of views [0.33]

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Pitt, 1976	Q sort	Mass. rural streams	Small rural streams	Scenic qual of stream related to stream debris, streambed particles, streambank vegetation, stream wall height & width	Debris 17% of score, particles 31% veg height 6% & distance 5%, wall width 13% & height 2%
Pomeroy <i>et al</i> , 1983	Repertory grid	Canadian prairies	Urban riverscapes	3 dimensions: natural/man-made, blighted/enhanced, barren & brown/lush & green	Centroid values given for dimensions
Schroeder, 1991	Photo rating, Shafer, q'nnaire	Arboretum Chicago	Lake, pond, stream, river	Water contributes sense of serenity and tranquillity in association with trees etc in the Arboretum	Water features mentioned by 79% or participants, = highest.
Shafer <i>et al</i> , 1969	Photo rating, Shafer method	US landscapes	Streams, falls, lakes	Water features found to be important factor and figure prominently in Shafer's regression equation.	Factor loadings: area stream 0.904, area falls 0.920, area lake 0.945
Ulrich, 1981	Semantic diff. physiological	Sweden landscapes	Water in natural & urban settings	Brain alpha amplitude which correlates with alertness higher when viewing water than urban scenes.	Alpha amplitude: vegetation 193 - 204, water 184 - 182, urban 170 - 175
Vining, <i>et al</i> , 1984	SBE	Forested subdivisions	Water bodies in near distance	Water & background were stronger positive predictors of scenic quality	Mean scores: water in foreground 1.33, background 0.35
Whitmore <i>et al</i> , 1995	LCJ, community valuation	Verde River corridor, Arizona	River	Free-flowing river and riparian edge are highly valued resources	Natural scenes most preferred [28 pt] - bluffs & water 24, emergent marsh 23, riffle bar 23.
Zube, 1973	Paired photos semantic diff.	Connecticut	Lakes, river	Water - generally a positive influence on scenic values - an overriding factor	not stated
Zube, Pitt & Evans, 1983	Q sort	Connecticut R. valley	river, lakes, wetlands	Strong pref among 6 - 8 age for water, minor importance to adults	Corr coeffs water: 6-8 age - 0.45, adults - between 0.10 & 0.22