The supply of outdoor recreation:
A component of the 2005-2010 Wisconsin SCORP

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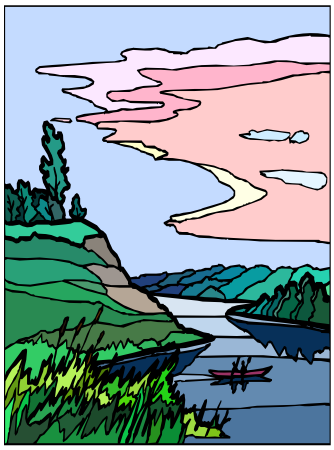

UPDATE #3 – October 18, 2005

Outline:

- Analysis that allows integration of supply data with demand
  - recreation location quotients (RLQ)
  - recreation typologies
  - modeling of recreation supply
- Results and further research needs

Recreation Supply Data & its Analysis

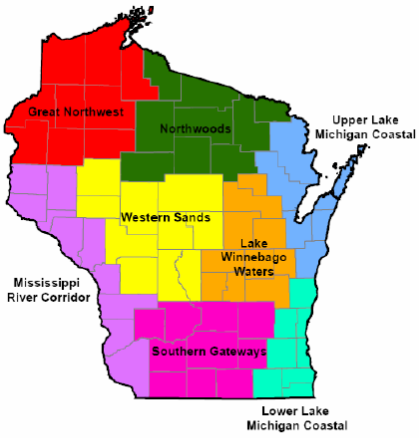

Figure 1. Recreation Planning Regions in Wisconsin

Supply data elements (335 unique elements):

- Developed land (110 elements)
- Nature-based land (22 elements)
- Water-based (31 elements)
- Snow and Ice (24 elements)
- Viewing and Learning (35 elements)
- Sports – Individual (15 elements)
- Sports – Team (24 elements)
- Private Clubs (10 elements)
- Private Retail & Service (35 elements)
- Sports Instruction (29 elements)

Designed to match with demand elements

Alternative aggregations:

- Chubb & Chubb (ownership-based)
- Natural Amenity (natural resource-based)

Recreation location quotients

$$RLQ = \frac{\%\ resource\ in\ a\ given\ locale}{\%\ resource\ in\ a\ reference\ region}$$

Translates into: $RLQ_s^i = \left(\frac{r_s^i}{pop_s^i}\right) \Big/ \left(\frac{r_n^i}{pop_n^i}\right)$

RLQ = 1 → region has same proportion of recreation type *i* as reference region
RLQ < 1 → region is producing less of recreation type *i* than reference region – key indicator for recreation development strategies (if appropriate)
RLQ > 1 → region has an excess proportion of recreation type *i* as compared to reference region (infers amount of non-local, or tourist, use)
RLQ = 4 → region has four times the level of recreation type *i* compared to the reference region

- Descriptive results by region provide relative spatial abundance or scarcity.

Results

Table 2. Recreation Location Quotients by supply type for Wisconsin recreation planning regions.

	Recreation Typology	Great Northwest	North-woods	Upper L. Michigan Coastal	Lower L. Michigan Coastal	Southern Gateways	Miss. R. Corridor	Western Sands	Lake Winnebago
POPULATION-Based RLQ	Developed Land	2.89	3.00	1.23	0.49	0.89	1.22	1.17	1.16
	Nature Based Land	3.94	7.36	0.68	0.16	0.91	1.31	1.25	0.97
	Water-Based	4.12	5.33	2.03	0.32	0.60	1.12	0.97	0.81
	Snow and Ice	4.18	3.86	0.70	0.50	0.76	0.86	1.61	0.85
	Viewing and Learning	1.39	2.56	1.96	0.50	1.44	2.00	0.46	0.57
	Sports – Individual	1.65	1.99	0.70	0.61	0.86	1.68	1.60	1.23
	Sports – Team	1.01	1.70	1.62	0.77	1.01	1.01	0.99	1.12
	Private Clubs	2.47	3.11	1.36	0.63	0.81	1.05	1.24	0.93
	Private Retail	1.66	3.43	1.69	0.61	1.10	0.86	0.72	1.11
	Sports – Instruction	1.49	1.29	0.82	0.65	0.94	1.73	1.80	0.95
	OVERALL	**2.52**	**3.22**	**1.33**	**0.52**	**0.94**	**1.29**	**1.14**	**1.00**
AREAL-based RLQ	Developed Land	0.70	0.60	1.25	3.24	1.13	0.72	0.70	1.29
	Nature Based Land	0.95	1.48	0.70	1.02	1.16	0.77	0.75	1.08
	Water-Based	1.00	1.07	2.06	2.07	0.77	0.66	0.58	0.90
	Snow and Ice	1.01	0.78	0.72	3.29	0.97	0.51	0.96	0.95
	Viewing and Learning	0.34	0.51	1.99	3.30	1.84	1.18	0.27	0.63
	Sports – Individual	0.40	0.40	0.71	4.03	1.10	0.99	0.96	1.37
	Sports – Team	0.24	0.34	1.64	5.03	1.30	0.60	0.60	1.25
	Private Clubs	0.60	0.62	1.38	4.12	1.03	0.62	0.74	1.03
	Private Retail	0.40	0.69	1.72	3.97	1.41	0.51	0.43	1.24
	Sports – Instruction	0.36	0.26	0.83	4.23	1.20	1.02	1.08	1.06
	OVERALL	**0.61**	**0.65**	**1.35**	**3.39**	**1.21**	**0.76**	**0.68**	**1.11**

A supply model of tourism

$$T_{dependency} = f(\text{recreation sites, natural amenities, control})$$

- Tourism dependency = tourism share of total regional characteristic
- Recreation sites defined using areal and population-based LQ's
- Amenities defined using areal and population-based LQ's

$$Tourism_i = \beta_0 + \beta_1 RS_i^k + \beta_2 NA_i^m + \beta_3 E_i^n + \varepsilon_i$$

Results

- Modest results with general limitations … best viewed as exploratory
- Results suggest significant positive relationships between sites, amenities, and tourism dependence
- Helps us understand a broader set of recreation and tourism supply components.

Table 1. OLS regression estimates for alternative tourism dependence models.

	Dependent Variables					
	Tourism Payroll (% total payroll)		Tourism Employment (% total employment)		Tourism Payroll (% total payroll)	
Independent Variables	b	t-ratio	b	t-ratio	b	t-ratio
Constant	0.007		0.082**		0.023**	
Recreation Sites:						
LQ campsites per sq. mile	0.016 (0.419)	3.816**				
LQ campsites per capita			0.018 (0.413)	3.735**	0.014 (0.455)	3.972**
State park acres per sq. mile					0.001 (0.085)	0.774
LQ state park acres per capita	0.001 (0.029)	0.276	0.002 (0.088)	0.827		
Amusement parks per sq. mile	0.298 (0.076)	0.750				
LQ ski hill per capita	-0.001 (-0.044)	-0.397	0.005 (0.270)	2.554*	0.001 (0.087)	0.782
Amenities:						
Water acreage per sq. mile	0.000 (0.036)	0.343	0.000 (0.116)	1.097	0.000 (0.079)	0.723
Public land per sq. mile	0.131 (0.580)	4.968**				
Control:						
Population density					0 (0.046)	0.414
Highway miles per sq. mile			-0.006 (-0.020)	-0.186		
R^2	0.372		0.336		0.248	
Adjusted R^2	0.313		0.285		0.19	
Model F	6.319**		6.590**		4.289**	

* p<.05, ** p<.01; standardized beta coefficient in parentheses