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Tourism-Decision
Systems Research

DECISION SYSTEMS RESEARCH FOR THE TOURISM/RECREATION INDUSTRY

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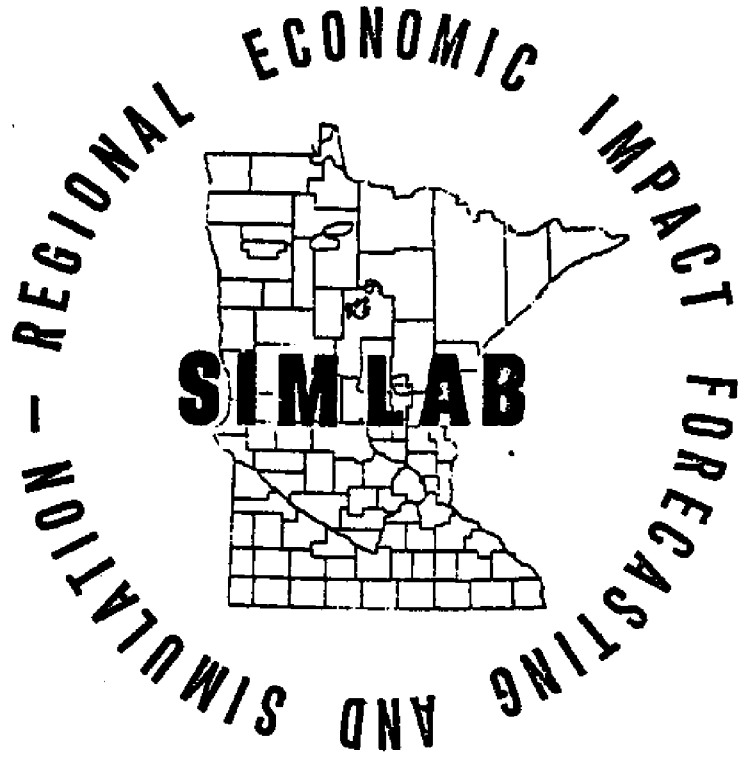

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DECISION SYSTEMS RESEARCH FOR THE TOURISM/RECREATION INDUSTRY*

Uel Blank, Wilbur R. Maki, and Kathleen M. Novak**

Abstract

Research on tourism and recreation has expanded rapidly in the past decade in both content and coverage. Yet its major thrust remains descriptive with an emphasis on impact and market studies. This paper proposes a shift in this research to an emphasis on decision information and the means for improving its quality, accessibility, and application. A prototype information system is presented which is built on existing tourism/recreation data and within the context of an existing impact assessment system. Critical decision information needs of the tourism/recreation industry are addressed with the prototype system.

I. Introduction - The State of Tourism/Recreation Research

"Tourism/recreation research at present is fragmented and unfocused".

"Tourism/recreation research has never been better".

Both of the statements are true. A careful search of the literature is likely to yield very few conclusive findings. However, much more and

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better designed research is underway each year, especially since organization of the Travel and Tourism Research Association in 1969 and the publication of The Journal of Travel Research, The Journal of Leisure Research, and Leisure Sciences.

This lack of research focus and failure to develop as yet a coherent body of theory can be attributed to the fact that:

- The tourism/recreation field is bewilderingly complex and wide in scope cutting across several disciplines, including economics, sociology, political science, management, marketing, and a wide range of natural sciences.
- Recognition for scholarly research in tourism and recreation has been achieved only recently [8,9,17].
- Tourism/recreation activities have yet only limited recognition as a part of the rapidly growing service sector of local economies which create jobs and incomes like other economic activities , and account for more than 20 percent of total personal consumption expenditures.

Review of tourism/recreation research shows that:

- Much of the work is descriptive, primarily counting and classifying facilities, services, activities, and users.
- A large effort is devoted to impact studies with most being economic in orientation but with physical and social impacts being studied [10].
- Most of these impact studies reveal the value of tourism and recreation activities to a local economy [15]. They help convince skeptics of the economic importance of these activities to a community and its region or state [12].
- Market studies represent another major thrust often undertaken to

determine user characteristics and activities associated with a given facility or recreation use area [11,16].

- Most studies are narrowly oriented towards a given client or activity, like: guests at a motel or campground; users of a given park; deep sea fishermen; hunters and fishermen; airline passengers; and outdoor recreators using public facilities. The results cannot be generalized and little if any, theoretical contributions are derived from them.
- In the face of the dynamic development of tourism/recreation activities in the past two decades, the corresponding research effort is failing to maintain a comparable pace in building the conceptual frameworks and data for keeping abreast of evolving markets, investment, and use patterns.

II. A Proposed Comprehensive Regional Approach to Tourism/Recreation Research

A first requisite to building an appropriate conceptual and factual basis for research that can contribute usefully to decision making is a holistic approach to tourism/recreation systems. Such approaches are now being made toward gathering fully comprehensive data sets for selected areas in Minnesota including the Minnesota-St. Paul Metropolitan Area, the Boundary Waters Canoe Area, the Crow Wing River, and the Lake Superior North Shore [2,3, 4,5,6,7]. The greatly expanded insights available from comprehensive descriptions alone are easily worth the added effort. For example, using a holistic approach, it was found that private commercial facilities housed more visitors overnite in the area outside the million acre Boundary Waters Canoe Area (BWCA) in northeastern Minnesota than used the public area each day. Among the many conclusions that could be drawn from this finding are that:

- Private operations outside the dedicated area contribute more to access to the north woods and waters recreational experiences of

the region than pubically-managed facilities. While strong citizen interests speak for the publically-dedicated area, no citizen group speaks for the private operations.

- The BWCA, a separately managed component of the Superior National Forest, offers a unique experience. But if the Forest Service and other public resource managing agencies operating in the region wish to enlarge public recreational experiences, they might give as much attention to design and management of experiences available outside the dedicated area as they do to the BWCA itself.
- Within this overall system the dedicated BWCA has the special function of preserving wilderness values.

Because of the heterogenous nature of tourism/recreation-related decision systems and of tourism/recreation activities and clients, an information system can quickly reach the limits of manageability. National level data about a given activity reveal trends, but provide only nominal help in management of a specific facility which is differentially, if at all, impacted by national trends. At the state level, a given activity is manageable only as an abstraction. Further, the attractors inducing travel and the related management activities may include different sets of decision systems and different private/governmental mixes from one place to another.

Proposed in this paper is a decision system that can be best developed at a geographical scale which reduces the heterogeneity and complexity of the groups of recreational users and their activity patterns, the attraction feature, and the governmental and private decision making. Such a geographic area may consist of only a few counties or, even a single urban community and its hinterland. By first focusing on such pilot areas, methodology can be developed which can be applied to progressively larger systems.

III. A Simple Tourism/Recreation Model

A simple model of a tourism/recreation activity system is presented in Figure 1. At its simplest level it has only three components, namely:

- the recreational users
- the recreational destination area
- the linkages between the two

Recreational users affect the destination area, its resources, facilities and economy differently according to (1) their lodging means, whether in second houses, wilderness camping, group camps, resorts, motels or with friends , and (2) their activity patterns, which may emphasize fishing, power boating, wilderness experiences, relaxing in isolation from their work place, or nature observation.

The recreational destination area consists of two major features: attractions, i.e., reason for travel to the area; and services, i.e., facilities and activities for visitors which allow them to stay in the area and readily access its attractions. The promotion/information/direction/interpretation system is the entire range of means whereby users give information on (1) access to the attractions and (2) services of the destination area. This system is as essential to visitors as the recreation facilities and services simply because recreators do not go places to do things that they do not know about. The destination area viewed from the perspective of a resident consists of:

- the basic industry sustaining the resident population, part of which is the tourism/recreation industry,
- the infrastructure and residentary industry, which supports and complements the basic industries,

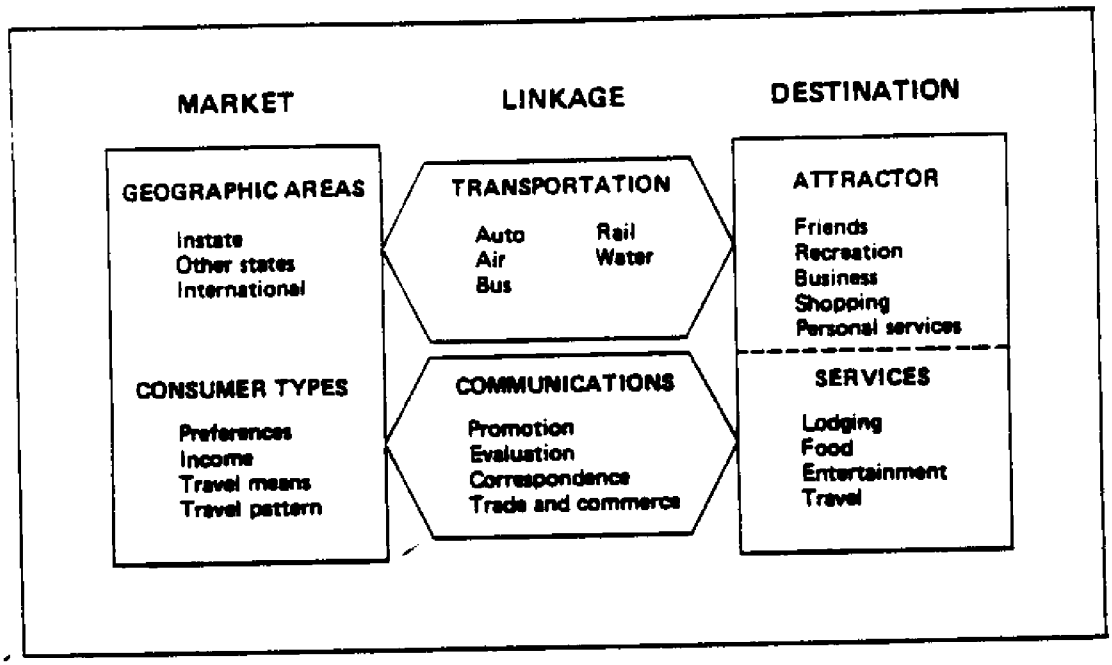


Figure 1: Overall Tourism System

- the natural and man made resources, which usually are important determinants of the basic industry, including the tourism/recreation activities,
- the community decision system, which consists of the means whereby management decisions are made about resources, public and private investment development, and area management.

Linkages between users and the recreation destination area include all transportation and communication activities. Because these are among the most dynamic elements in a local economy, their changes can profoundly influence a region's tourism/recreation industry. The far-reaching consequences of transportation-communications advances in the last 50, and especially in the last 25, years have made all tourism/recreation destination areas directly competitive with one and another. Communications activities, while a smaller economic factor than transportation, are much more complex. They consist primarily of a two-way flow of information between recreational users and suppliers of facilities and services. Some of this flow is direct, as in the case of lodging reservations, some is thru public media, and some thru intermediaries, such as a travel agent. Some takes place while the user is at home, and some takes place with the user in the area. Examples of the latter are community information stations, the distribution of local literature by lodging facilities, and interpretation of the community at points of interest.

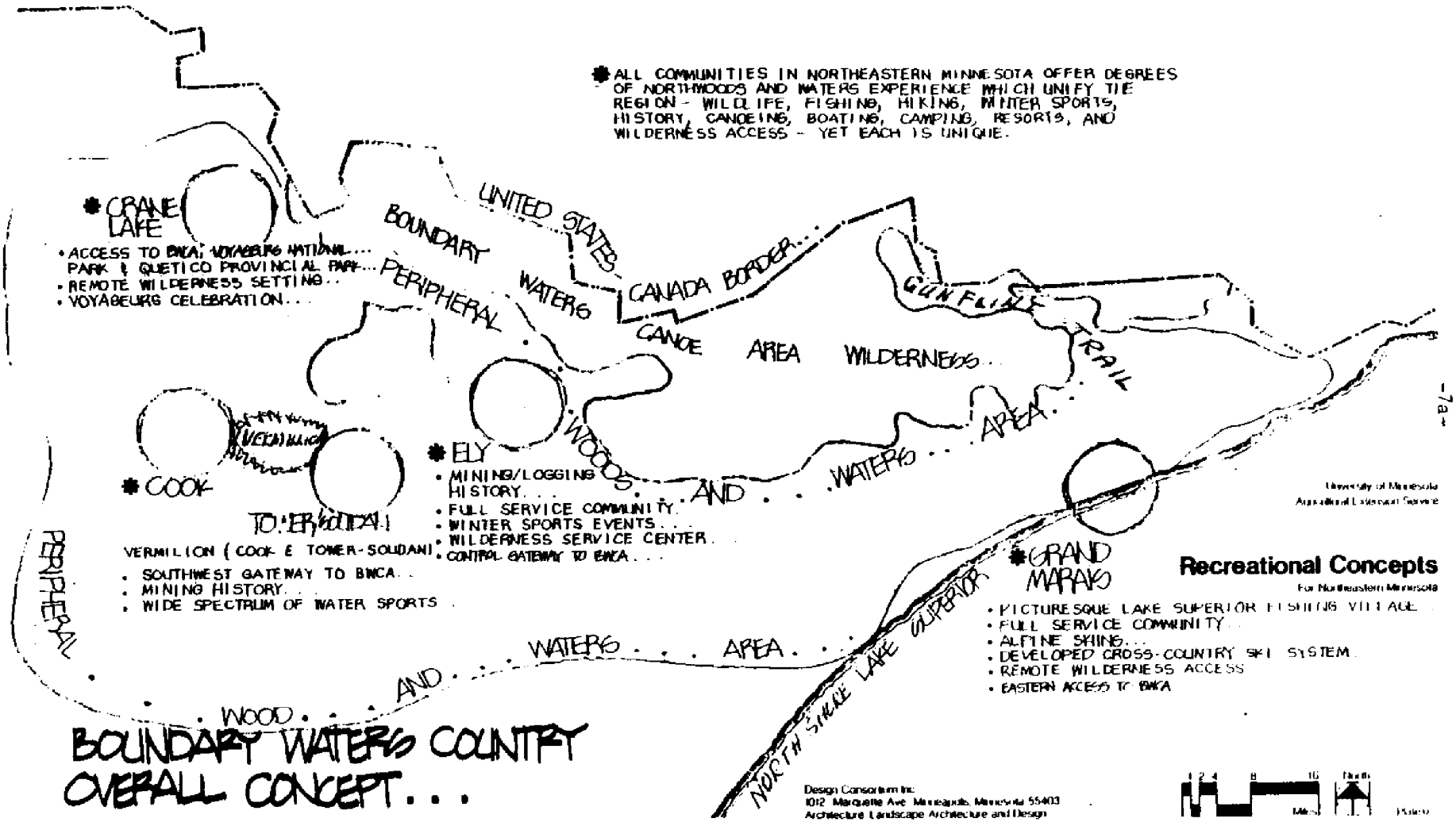
The appropriate study area that can serve as the building block for tourism industry management and decision theory development is one large enough to include the fall range of interacting tourism/recreation interests: governmental (federal, state, local), private, and individual; and also one that is a recognized destination of tourists [1].

A tourism destination area is readily identified by name and by characteristic recreational use patterns. These patterns are "activities attractions" meaning that along with the place name image there is an image of things to do.

Some necessary attributes of a destination area are:

- Well-differentiated dominant physical feature, like an entire city, a historical feature, or a park, or a natural feature like a lake, a mountain, ocean, or forest. The area is identifyible on maps, on roadsigns and at its site.
- Readily comprehendable by visitors in terms of their recreational interests.
- Availability of, and access to, specific activities which usually are related to the physical resource, natural or man made, and an adequate service delivery system adapted from tourists and recreationists.
- A general community infrastructure, including recreational features and services for residents that may be further expanded to also serve visitors and that would be available in addition to the dominant activity attraction.
- Scale, in the northeast Minnesota setting, would be represented by an area of 25 to 50 miles in diameter, although some destination areas may extend 150 miles from one side to the other.

A conceptual framework for a compromise study approach is presented in Figure 2. Illustrated is the approximately one million acre Boundary Waters Canoe Area Wilderness (BWCAW) in northeastern Minnesota and its hinterland communities. While the BWCAW is one area, its sub-areas are distinctly different tourist destination areas. Thus it is suggested that an appropriate approach includes the entire area, but with separate sub-areas for management


ALL COMMUNITIES IN NORTHEASTERN MINNESOTA OFFER DEGREES OF NORTHWOODS AND WATERS EXPERIENCE WHICH UNIFY THE REGION - WILDLIFE, FISHING, HIKING, WINTER SPORTS, HISTORY, CANOEING, BOATING, CAMPING, RESORTS, AND WILDERNESS ACCESS - YET EACH IS UNIQUE.
CRANE LAKE
• ACCESS TO BWCA, VOYAGEURS NATIONAL PARK & QUETICO PROVINCIAL PARK
• REMOTE WILDERNESS SETTING
• VOYAGEURS CELEBRATION
BOUNDARY PERIPHERAL WATERS CANOE AREA WILDERNESS
UNITED STATES CANADA BORDER
GUN FLINT TRAIL
ELY
• MINING/LOGGING HISTORY
• FULL SERVICE COMMUNITY
• WINTER SPORTS EVENTS
• WILDERNESS SERVICE CENTER
• CENTRAL GATEWAY TO BWCA
COOK
TO EVELETH
VERMILION (COOK & TOWER-SOUDAN)
• SOUTHWEST GATEWAY TO BWCA
• MINING HISTORY
• WIDE SPECTRUM OF WATER SPORTS
PERIPHERAL WOODS AND WATERS AREA
GRAND MARAIS
• PICTURESQUE LAKE SUPERIOR FISHING VILLAGE
• FULL SERVICE COMMUNITY
• ALPINE SKIING
• DEVELOPED CROSS-COUNTRY SKI SYSTEM
• REMOTE WILDERNESS ACCESS
• EASTERN ACCESS TO BWCA
NORTH SHORE LAKE SUPERIOR
BOUNDARY WATERS COUNTRY OVERALL CONCEPT...
Recreational Concepts
For Northeastern Minnesota
University of Minnesota
Agricultural Extension Service
Design Consortium Inc
1012 Marquette Ave Minneapolis, Minnesota 55403
Architecture Landscape Architecture and Design
1 2 4 8 16
Miles
North

of each of the distinctive tourist destination areas about its periphery. These consist of:

- Gunflint Trail
- Ely area
- Lake Vermilion, including the cities of Cook, Tower and Soudan
- Crane Lake

Each of these has sub-area distinctive decision systems, tourism images, and tourism markets.

By the same reasoning a decision area might include Yellowstone Park with entrances on its east, north, west and south sides as separate destination areas.

The coastal area of Oregon might be treated as one linear destination area with separately-delineated sub-areas throughout its length or in its near vicinity. This is analagous to the 150 mile long Lake Superior North Shore study area, which is presented next.

IV. Facility Base Recreation Activities

Facilities form the basis on which a tourism industry is developed. The particular form that facilities take will vary between and even within recreation focal areas. Factors influencing type of facility are the needs of various groups of visitors, the degree of their personal involvement with and commitment to nature, local economic development and statutory limitations. Even the wilderness experience requires a supporting base of facilities. Facility, in the sense that it is being used here, relates to any publicly or privately supplied or maintained area or structure that is utilized in the context of a recreational experience.

So far it has been established that areas of natural beauty draw the tourist and that facilities are required for their translation into a

recreation experience. Parenthetically, we recognize that metropolitan areas are also major providers of recreational experiences, but we are not including a direct consideration of them in this paper [3,6]. Activities are an additional ingredient in outdoor recreation. While tourists are attracted to an area by its geophysical features, these features are essentially used as a back drop for numerous vacation/recreation activities. Facilities on the other hand support activities and allow for the enjoyment of the setting. All three, setting, facilities, and activities, are essential for recreation. Together they form what can be called the recreation mix. The relationship between the three components of the recrational mix can be visualized as a nesting arrangement. Setting is the outer ring encompassing the other two, while facilities are in an intermediary position and activities form the center or the heart of the recreation mix.

Much of the existing work in the field of outdoor recreation has examined the participation of individuals in recreation activities [5,18]. The body of literature has contributed greatly to the understanding of what visitors do while in a tourism setting. However, to fully utilize a systematic decision making approach in the field of recreation, from both the supply and the demand side, all of the components of the recreation mix must be considered.

Recognizing that activities form the heart of the recreation mix, the challenge is to develop a comprehensive list of activities that form the basis of a recreation information system. One criterion for classifying activities is geographical transferability. That is, a classification that is developed for Minnesota should also make sense and be applicable to other areas of the U.S. and other countries. Referring to the model of recreation mix, and realizing the intercessionary role of facilities between activities and natural setting, a classification scheme was developed that groups particular

activities according to the facility type necessary for the performance of the activity.

An example of a classification system utilizing the concept of the recreation mix is presented for northeast Minnesota. The natural setting is the North Shore of Lake Superior, which stretches 150 miles from Duluth, Minnesota to Canada and has been called one of the two most beautiful drives in the nation [4]. The description of facility is based on the Minnesota State Comprehensive Outdoor Recreation Plan and is compatible with facility types in the Nationwide Outdoor Recreation Plan. A set of ten recreation activities has been defined as follows:

1. Trail activities utilize public or privately maintained trails for access to forest or wilderness areas.
2. Water activities require access to lakes or rivers, docks and/or rental provisions as well as boat launching ramps.
3. Licensed activities require the participant to obtain a permit prior to engaging in the activity.
4. Driving activities require publicly maintained streets and highways.
5. Resort activities can occur on community owned recreation facilities or on privately owned facilities associated with a particular resort.
6. Park activities take place on public lands such as state parks, wayside rests, state and federal forests or at private campgrounds.
7. Urban activities are associated with commercial development and urban areas.
8. Educational activities provide the visitor an opportunity to learn more about the natural, historic, economic or industrial aspects of the area.
9. Personal activities can be done in conjunction with any or all of the other activities cited previously and several personal activities can be done simultaneously.

10. Enroute activities require lodging provisions, either wilderness or developed, public or private.

The ten activity classes meet the criterion of being geographically transferable. The advantage of using a recreation mix concept is that it allows the development of an analytical framework that is not parochial in nature. Recreation studies thus can be compared from one area to the next.

To apply the general framework to a particular locale, the broad facility based activity definitions are subdivided to include activities occurring at a specific location, in a specific time frame. To return to the example of the North Shore of Lake Superior, a survey was conducted to determine visitor participation in individual activities [6]. These activities were entered into the general classification scheme, again on a facility utilization basis. How an area specific list of visitor activities can readily be adapted to the recreation mix concept is illustrated below:

1. Trail activities: bicycling, hiking, backpacking, horseback riding, driving off-road vehicles, picking berries, ski touring, snowmobiling.
2. Water activities: canoeing, motor boating, waterskiing, sailing, swimming.
3. Licensed activities: fishing, hunting.
4. Driving activities: driving for pleasure, sightseeing.
5. Resort activities: golf, tennis, swimming pool, sauna, downhill ski, lodging.
6. Park activities: developed camping, wilderness camping, picnicking, cooking.
7. Urban activities: movies, live entertainment, community events, dining for pleasure, shopping.
8. Educational activities: visit historic sites, visit interpretive centers, going on industry tours.
9. Personal activities: sunbathing, reading, jogging, observing nature, socializing with people, taking pictures, watching Lake Superior.

10. Enroute activities: residing at intermediate destinations.

While type of tourism/recreation activity is facility-based, tourism/recreation expenditures are appropriately related to activity. Expenditures are induced by, and are of function of, specific activities. The Lake Superior North Shore study thus focuses on the identification and delineation of activities as a first step in the re-measurement of tourism/recreation expenditures and their full economic impact on the region and the state.

V. Activity-Related Tourism/Recreation Expenditures

Tourism/recreation expenditures are final purchases attributed to visitors and, in this study, to local residents, local businesses, and federal, state, and local government agencies. All tourism/recreation expenditures are incurred initially because of individual and group participation in particular tourism/recreation activities. Subsequently, business investment expenditures and tourism/recreation-related government expenditures are incurred in the construction and maintenance of tourism/recreation facilities and the delivery of essential services. Unfortunately the activity-related expenditure data are not available from existing surveys, nor are they readily derived from published reports and statistical series.

An illustrative set of activity-related tourism/recreation expenditures is presented in Table 1 for the seven-county northeast Minnesota region, which includes both the BWCA and the North Shore Study Area. Total visitor expenditures in 1977 are distributed among the 10 types of tourism/recreation activities on the basis of visitor participation rates for each activity. Business investment and government expenditures also are distri-

Table 1. Visitor Expenditures for Specified Consumer Items per $1 Total Expenditures by Type of Tourism/Recreation Activity, Northeast Minnesota, 1977.[1/]

Expenditure Class No.	Title	Destination Activities: Trail 1	Water 2	Licensed 3	Driving 4	Resort 5	Park 6	Urban 7	Educational 8	Personal 9	En-route Activities 10	TOTAL[2/]
						(dollars)						
1.	Food and bev. off prem. cons.	.116	.153	.036	.019	.070	.819	.021	0	.096	.031	.091
2.	Purch. meals and beverages	0	0	0	.287	.425	.098	.308	0	.145	.188	.272
3.	Lodging	0	0	.345	.185	.481	0	.397	0	0	.365	.351
4.	Repair, grease, rental	0	0	0	.114	0	0	0	0	0	.089	.036
5.	Gasoline and oil	0	0	0	.338	0	0	0	0	0	.259	.107
6.	Taxicab	0	0	0	0	0	0	.025	0	0	0	.002
7.	Bus	0	0	0	0	0	0	0	0	0	.005	.001
8.	Airline	0	0	0	0	0	0	0	0	0	.041	.012
9.	Books, magazines	0	0	0	.002	.001	.002	.017	.702	.239	.003	.015
10.	Nondurable sporting goods	.114	.150	.381	.019	.009	.032	.020	0	.094	.006	.035
11.	Durable sporting goods	.765	.689	.235	.022	.003	.009	.011	0	.109	.007	.041
12.	Admiss. spect. amuse.	0	0	0	.002	.004	.013	.104	.132	.015	.002	.014
13.	Commercial part. amuse.	0	0	0	.007	.004	.023	.036	.095	.272	.001	.013
14.	Other	.005	.008	.003	.005	.003	.004	.061	.071	.030	.003	.010
	TOTAL[3/]	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

[1/] Based on Lake Superior North Shore 1981 total visitor expenditures, by item, as follows:

Item	Exp. Class	Total Exp.
Food and beverage	1,2	$11,421,000
Lodging	3	11,046,000
Transportation	4-8	4,996,000
Recreation	9-13	3,706,000
Other	14	305,000
TOTAL		$31,474,000

[2/] Visitor expenditure classes conform with listing in Table 4, The National Income and Product Accounts; U.S. data were used to allocate survey expenditure totals, by item, to expenditure classes.

[3/] Northeast Minnesota tourism/recreation activity participation rates were used to allocate total expenditures, by expenditure class, to individual activities which, in 1981, were as follows (in $1000):

Trail, 470; Water, 353; Licensed, 1581; Driving, 2985; Resort, 11463; Park, 1740; Urban, 2774; Educational, 336; Personal, 589; Enroute, 9087.

buted among the 10 activities, but on the basis of reported new facility construction and pro-rata allocation of total government expenditures to publically-supported tourism/recreation facilities and services.

Total visitor expenditures are derived from a random sample of visitors to the BWCA and the North Shore Study Area. The survey results were used as control totals for the distribution of these total expenditures to the individual expenditure and activity categories specified in Table 1. Both visitor consumption and visitor-related investment expenditures, which are not included in Table 1, however, conform with the standard expenditure classification scheme for the U.S. product and income in [13].

Several additional steps are required in the use of the expenditure activity table in impact assessment for the tourism/recreation industry, namely, derivation of a corresponding output expenditure table and the use of a computational procedure for demonstrating the local impacts of given changes in tourism-recreation expenditures. The first of these steps is illustrated in Table 2 with the distribution of total visitor expenditures among producing industries.

The distribution of visitor expenditures essentially accounts for the individual contribution of local industry and imports to the tourism/recreation industry as a whole. Again, the distribution of expenditures remains stable from one period to the next, although the actual expenditure levels will vary within a 12-month period and from one 12-month period to the next. Further refinement of the 12-month expenditure profiles would show these expenditure distributions by three-month periods to account for occasional variability in activity mix. However, this refinement would occur, not with Table 2, but with Table 1.

Table 2. Visitor Expenditures for Specified Consumer Items per $1 Total Expenditures by Type of Tourism/Recreation Activity, Northeast Minnesota, 1977.[1/]

Industry No.	Title	Food and Bev. Off Prem. Cons.	Food and Bev. Purch. Meals & Bev.	Lodging	Transportation Repr., Grease, Rental	Transportation Gasoline & Oil	Transportation Taxicab	Transportation Bus	Transportation Airline	Recreation Books, mags.	Recreation Sprtg. Gds. Nondur.	Recreation Sprtg. Gds. Dur.	Recreation Adm., Spect. Amuse.	Recreation Commer. Part. Amuse.	Other
		(dollars)													
1.	Dairy and Poultry Prod.	.023	0	0	0	0	0	0	0	0	0	0	0	0	.034
2.	Meat An. and Prod:	.001	0	0	0	0	0	0	0	0	0	0	0	0	0
3.	Food, Feed Gr.	.001	0	0	0	0	0	0	0	0	0	0	0	0	0
4.	Other Crops	.016	0	0	0	0	0	0	0	0	0	0	0	0	0
5.	Forest., Fish. Prod.	.006	0	0	0	0	0	0	0	0	.024	0	0	0	.011
6.	Agr., For., Fish. Serv.	0	0	0	0	0	0	0	0	0	0	0	0	0	.023
15.	Ordn. & Rel.	0	0	0	0	0	0	0	0	0	.024	.040	0	0	0
16.	Meat Products	.235	0	0	0	0	0	0	0	0	0	0	0	0	0
17.	Dairy Products	.119	0	0	0	0	0	0	0	0	0	0	0	0	0
18.	Canned, Froz. Pres.	.053	0	0	0	0	0	0	0	0	0	0	0	0	0
19.	Grain Mill. Prod.	.003	0	0	0	0	0	0	0	0	0	0	0	0	0
20.	Bakery Prod.	.078	0	0	0	0	0	0	0	0	0	0	0	0	0
21.	Alch. Bev., Soft Dr.	.077	0	0	0	0	0	0	0	0	0	0	0	0	0
22.	Misc. Food Tob.	.056	0	0	0	0	0	0	0	0	0	0	0	0	0
24.	Apparel, Fab. Tex.	0	0	0	0	0	0	0	0	0	0	.020	0	0	0
31.	Printing and Publ.	0	0	0	0	0	0	0	0	.615	.013	0	0	0	0
33.	Petr. Ref. & Prod.	0	0	0	0	.448	0	0	0	0	0	0	0	0	0
44.	Other Non. Electr.	0	0	0	0	0	0	0	0	0	0	.020	0	0	0
47.	Electrical Mach.	0	0	0	0	0	0	0	0	0	.024	0	0	0	0
49.	Other Trans. Equip.	0	0	0	0	0	0	0	0	0	0	.384	0	0	0
51.	Optical, Ophth., Phot.	0	0	0	0	0	0	0	0	0	.096	.071	0	0	0
52.	Misc. Mfg.	0	0	0	0	0	0	0	0	0	.386	.081	0	0	0
53.	Railroad Trans.	.009	0	0	0	.013	.278	.333	.255	.011	0	0	0	.081	0
54.	Local Transit	.006	0	0	0	.008	.167	.167	.157	0	0	0	0	.054	0
55.	Truck Trans.	.010	0	0	0	.013	.278	.334	.275	0	0	0	0	.081	0
56.	Air Trans.	.008	0	0	0	.010	.222	.166	.235	0	0	0	0	.054	0
57.	Other Trans.	.003	0	0	0	.005	.055	0	.078	0	0	0	0	0	0
58.	Communications	0	0	0	0	0	0	0	0	0	0	0	0	0	.080
62.	Wholesale Trade	.064	0	0	0	.110	0	0	0	.077	.096	.081	0	0	.014
63.	Retail Trade	.232	0	0	0	.393	0	0	0	.297	.337	.293	0	0	.023
66.	Hotels, Pers., Rep.	0	0	1.000	0	0	0	0	0	0	0	0	0	0	.241
67.	Business Serv.	0	0	0	0	0	0	0	0	0	0	.010	0	0	.161
68.	East. and Drink. Places	0	1.000	0	0	0	0	0	0	0	0	0	0	0	0
69.	Automobile Repair	0	0	0	1.000	0	0	0	0	0	0	0	0	0	0
70.	Motion Pic. & Recr.	0	0	0	0	0	0	0	0	0	0	0	1.000	.730	.253
71.	Health Services	0	0	0	0	0	0	0	0	0	0	0	0	0	.080
72.	Educ., Nonpr.	0	0	0	0	0	0	0	0	0	0	0	0	0	.034
74.	State and Local Enter.	0	0	0	0	0	0	0	0	0	0	0	0	0	.046
	TOTAL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

[1/] Based on allocation of specified industry inputs to expenditure class in: Ritz, Philip M., Eugene P. Roberts, and Paula G. Young, Dollar-Value Tables for the 1972 Input-Output Study, Survey of Current Business, 59(4):51-72, 1979.

A quarterly distribution of expenditure mix of each activity is partially, if not largely, accounted for in the definition of individual activities, as illustrated by the seasonality of the individual activities listed earlier. The individual activities are distributed roughly by season as follows:

Activity Type	June-August	Sept.-Nov.	Dec.-Feb.	Mar.-May	Total
		(number)			
Trail	6	0	2	0	8
Water	5	0	0	0	5
Licensed	0	1	0	1	2
Driving	1.3	.3	.2	.2	2
Resort	2	1	1.8	.2	5
Park	4	0	0	0	4
Urban	1	1	2	1	5
Educational	2	.3	.4	.3	3
Personal	.3	.7	.3	.7	2
Enroute	1.3	.3	.2	.2	2
TOTAL	23.9	4.6	6.9	2.6	38

Thus, over 60 percent of the tourism/recreation activities would occur in the June-August period while less than 10 percent would occur in the March-May period. Related industry employment patterns would vary sharply between the short summer season and other seasons.

Total final purchases due to tourism/recreation activities are derived from the multiplication of the expenditure-activity coefficients in Table 1 by the total expenditures in each activity class. Thus, a new table of total visitor expenditures would show final purchases by expenditure

class and activity class. Finally, the new table of final purchases is pre-multiplied by the industry-expenditure coefficients in Table 1 to obtain a distribution of total visitor purchases by industry and expenditure class. Thus, industry-specific final purchases are represented as a measure of the direct impact of tourism/recreation activities on the regional, that is, northeast Minnesota, economy.

A comparable set of tables of final purchases for tourism/recreation facilities, public and private, and related public services has been prepared to show the total direct impact of tourism/recreation activities on the regional economy. The additional columns of final purchases are additive, specifically in the context of the regional input-output tables, of which Tables 1 and 2, and the related tables, are an integral part. The expanded regional input-output system is used, finally, to derive the total direct and indirect regional impact of tourism/recreation activities. Operating procedures for interfacing activity-related tourism/recreation expenditure data, as illustrated in Tables 1 and 2, with a dynamic regional simulation model are described elsewhere [12,14]. Also, additional procedures are available to disaggregate the dynamic regional simulations to individual tourism/recreation focal areas [13].

VI. Providing Decision Information for Educators and Managers in Tourism/Recreation Industry

Educators and managers, both public and private, are the target information users for the regional tourism/recreation decision information system described earlier. Much of the decision information is macro-economic in content: it pertains to the external economic environment for public and private decision making. It is supplemented, however, by micro-economic decision information for educators and managers in their respective activities.

The decision systems research outlined earlier is designed to address the educational challenge in the tourism/recreation industry. This challenge is at least two-fold: it concerns information needs of both the users and the providers of tourism/recreation services. For the users of tourism/recreation services, the information needs pertain to: (1) the making of preferred choices on recreation destination areas and (2) the deriving of maximum personal value from the living experiences in the chosen destination areas. For the providers of tourism/recreation services, the information needs pertain to: (1) the delivery of preferred mixes of tourism/recreation services in each focal area and in the regional system of focal areas, and (2) the selection of most profitable combinations of production inputs for the desired levels of service delivery.

Macro-economic outputs of the dynamic regional computer model fill a critical information gap for educators and managers who must address the implications of existing and projected economic conditions for the individual decision maker. The macro-economic information must make sense, however, to the individual decision maker, which it does only to the extent that its implications can be related to the individual decision maker. The educational challenge, thus, is a continuing task of: (1) identifying the casual links between the macro-economic decisions environment and the micro-economic decision variables and (2) demonstrating the immediate economic effects of alternative decision rules and strategies.

Decision systems research also addresses the management challenge in the tourism/recreation industry, that is, simple economic survival, which is, indeed, most difficult in periods of deep recession, as is the case now for many tourism/recreation-dependent regions. Economic survival in a dynamic, growing economy depends on investment in essential public and private

facilities. It depends also, on the effectiveness of day-to-day facility maintenance and operation and season-to-season market assessments. The macro-economic outputs cited earlier, when competently interpreted, provide for the critical investment and market-related business management decisions. The management challenge, is in part, the reconcilation of the management objectives and strategies with existing and projected macro-economic conditions. It is also a matter of risk taking and related capacity-building. The task of management capacity-building for risk-taking includes reduction of excessive seasonality in tourism/recreation activities through introduction of new activities in the low activity periods. For this purpose, the seasonal distribution of tourism/recreation expenditures is an essential part of the decision information package for the tourism/recreation industry.

VII. Summary and Conclusions

Lack of a decision focus in much tourism/recreation research accounts, in part, for its apparant ineffectiveness in addressing information needs in the tourism/recreation industry. A redirection in this research is proposed which addresses the information needs of both educators and managers. This redirection requires a conceptual framework for: (1) delineating tourism/recreational decision areas, (2) identifying facility-based tourism/recreation activity areas, (3) measuring activity-related visitor purchases (and, also, final purchases of businesses and government agencies), (4) deriving total direct and indirect effects of tourism/recreation activities, and (5) organizing educational programs for users and providers of tourism/recreation services. Important in this proposal is the building of the new tourism/recreation decision information system from existing data and impact assessment systems. Tourism/recreation research

has expanded rapidly in the past decade in content and coverage, and its potential development is, indeed, highly promising.

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