

A PILOT STUDY OF MODELING THE SNAKE RIVER FLOAT TRIP, GRAND TETON NATIONAL PARK

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Introduction

Description of Area

The Snake River corridor is located in the eastern portion of Grand Teton National Park. The primary use occurs between Pacific Creek and Moose (park headquarters); however, most of the concessioner trips (approximately 75%) are operated from Deadman's Bar to Moose (Fig. 1).

From Pacific Creek to Deadman's Bar is approximately 10 1/2 miles, with an elevation decrease of about 100 feet. The second major leg of the river (to Moose from Deadman's Bar) is about 10 miles long with a relief of approximately 180 feet.

The flow of the water will vary considerably from the early season runoff to the late season dry spells, also, the flow is determined by the flow outlet at the Jackson Dam. Even with the seasonal variation, the trip is a scenic float with very little to no whitewater conditions.

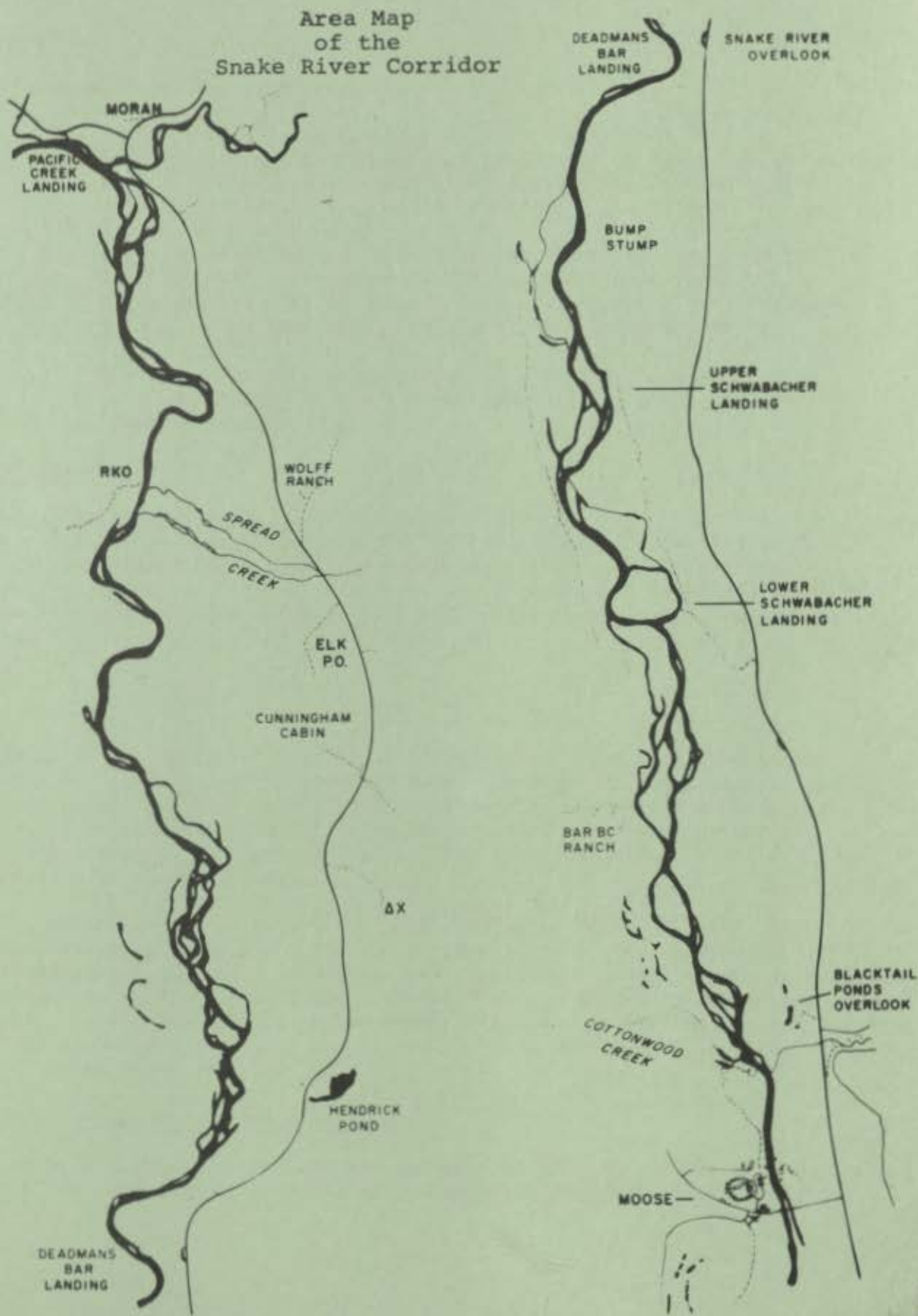
Present management is concentrated on regulation of the concession floater with little emphasis on controlling the private floater. For the concessioner, he must put in and take out as designated on a scheduled basis. He cannot stop and allow the visitor to go ashore except at a few designated points (primarily for a noon meal). Each concessioner is required by contract to present an interpretive program.

Objectives

The objective of this pilot project was to develop a paradigm within which socioeconomic, landscape and service variables interact to produce the "floating experience". The specific objectives were:

1. Identify the desirable landscape elements of the Snake River Corridor.
2. Develop time-distance floating model.
3. Identify components of the service and their possible effects on the floating experience.

Figure 1.



4. Identify social factors and activity participation.

Methodology

The methodologies employed were:

1. Unstructured, or nonstructured, interviewing was used to identify the social and service components of the paradigm. This is the proper approach when identifying components of problem, particularly in pilot studies.
2. Field observation, using observation schedules, was used to identify desirable elements of landscape (measurement of attention spans at designated points along the river) and to determine the degree of socialization among participants.
3. Direct measurement was employed in plotting the visual corridors and developing the time-distance relationships of the floating trips.

Limitation of Study

Several variables in the conceptual model (Fig. 2) were studied as to their appropriateness to the model. The results should give indications of the importance of each variable; however, since in each case the sample size was small the results must be viewed as giving potential direction to management and research--and not as all-encompassing, conclusive data.

Results

A total of 38 days were spent in data collection. The first two weeks were spent in plotting the visual corridor, and interviewing concessioners and National Park Service management personnel. The last five weeks were spent in interviewing and observing the visitor, observing the basic service elements, and summarizing past use from the private floater (using Park Service registrations).

Fifty before and after interviews were considered sufficient for the pilot study, assuming a maximum variation in population (Barnes and Noble, 1963). Only 43 before and after interviews were obtained because of some technical problems in meeting the visitor. The visitor was bussed to the access point and left immediately on the float trip. He was then met by the outfitter at Moose and bussed to Jackson. Thus, it was difficult to spend any time with the visitor.

Perception and Motivation of Visitor

In terms of perception and motivation, sequential analysis (in a deductive sense not inferential) is important in understanding the visitor--his

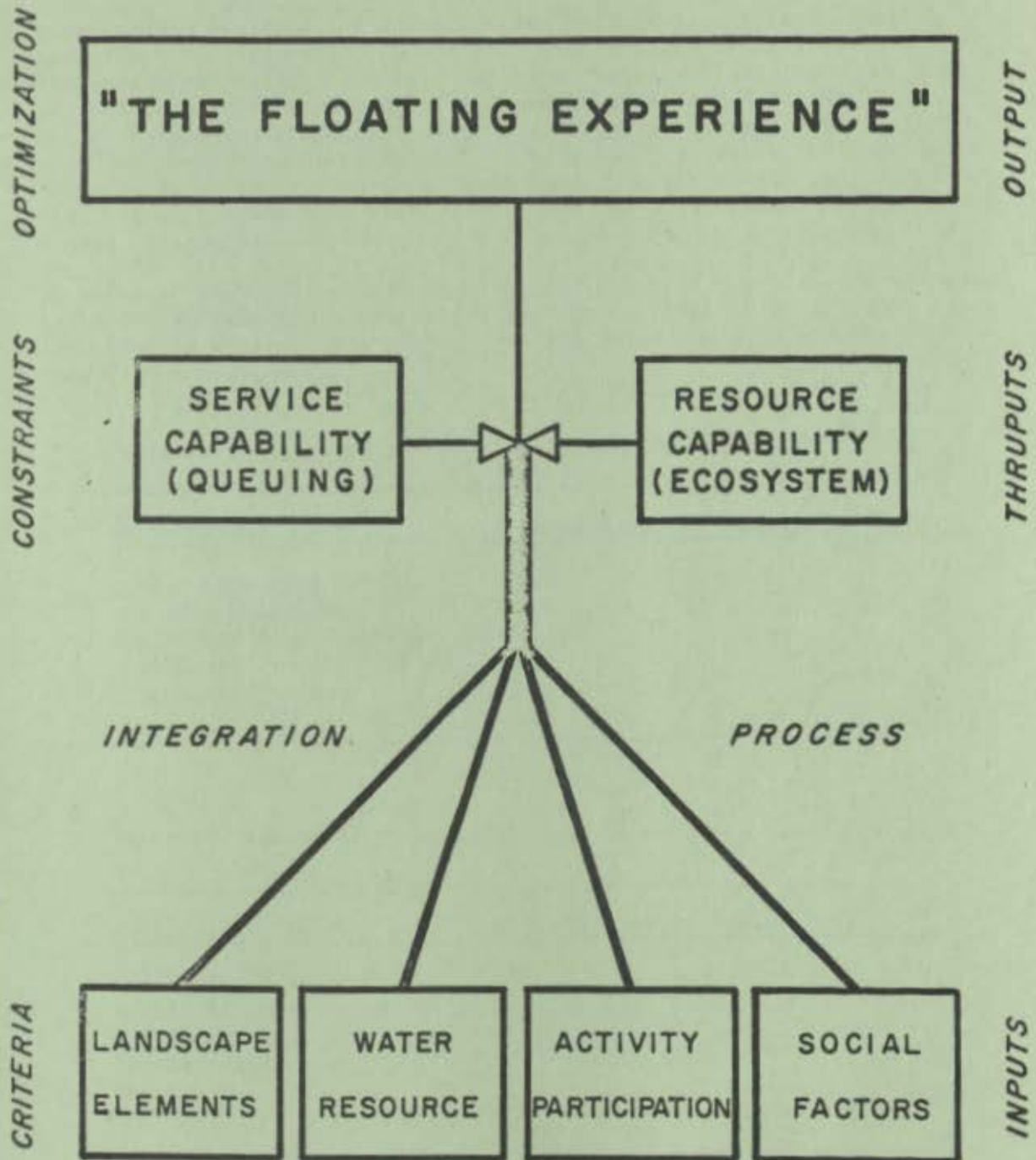


Figure 2. Conceptual Systems Model Describing the Floating Experience

expectation, style of participation and his reaction to the floating experience. Using ratios, 4 out of 5 visitors had never visited Grand Teton National Park; 5 out of 6 had never taken a float trip; and 9 out of 10 had never floated the Snake River in the Grand Teton National Park. This means that the visitor has no personal experience factors on which to base his expectations or to judge the quality of experience since he is doing this for the first time. He has little concept of the role of the National Park Service and the unique types of experience a natural area can provide.

In terms of personal decision-making only 1 out of every 6 visitors came primarily to take the scenic float trip on the Snake River. Thus, it is important to understand why they took the trip (Table 1) and where did they find out about it (Table 2).

Table 1. Summary of reasons for taking the float trip.

Basic Reason	Percentage of Respondents
Needed something to do	68%
Previous Experience	12%
Desire for floating experience (Scenic viewing, photo- graphs, etc.)	20%
N = 43	

Table 2. Source of information used in personal decision-making

Information Source	Percentage of Respondents
Concessioner Brochures	40%
A.A.A. Advertising	24%
N.P.S. Information	10%
Previous Experience	5%
Other	3%
N = 43	

Since people were inexperienced in river floating and did not come to the park to float the Snake River, their perceptions and motivations of the floating experience come primarily from advertising--the concessioner brochure, A.A.A. advertising, National Park information, and the interpretive programs during the float. There is a direct relationship of

what was pointed out in the brochure and what people expected to see (Table 3).

Table 3. Relationship of primary visitor expectations and concessions advertising.

	Primary Value of Trip		
	Viewing Scenery ^a	Viewing Wildlife ^b	Other
Visitor Expectation	53%	47%	0
Pointed out in Advertising	52%	48%	0
Actually Experienced	30%	63%	7% ^b

^aThese are summary categories

^bThe 7% refers to seeing man or man-made objects

Seeing man or man-made objects represented a negative element of the experience to few people (7%). Interestingly almost 90% of the respondents saw other floating groups on the river but did not consider them to be incongruent to the floating experience.

Table 3 also brings out another important factor in visitor perception--visitor expectation and actual experience may vary considerably yet the visitor has a very satisfying experience. In probing responses most visitors felt that aesthetics of viewing wildlife (beaver, moose, eagle, etc.) in their native habitats was the highlight of the trip, over-riding such elements of the scenic grandeur of the Tetons. Everyone had seen the Tetons at various angles and environmental conditions along the road system within the Park prior to the float trip; yet, they had seen very little wildlife. Thus, the actual experience of viewing unique wildlife in a semi-wilderness state became the dominant value of the float trip. However, further probing indicated that the lack of scenic grandeur would have greatly diminished the satisfaction of the visitor.

Attitude scaling was done on the basic elements of the floating trip; these are presented in Table 4. These responses indicate that people felt the trip was satisfying the way it is presently operated. Again the perception of the individual appears to be molded by advertising since he is inexperienced in the area and in the activity of floating and is rarely sufficiently motivated to return for a second trip.

Table 4. Attitudes on the floating experience.

(Question: In terms of your own personal enjoyment would you prefer to have _____?)

Element of Floating Experience	Response
1. Size of Raft	Smaller (20%); Larger (5%); about the same (75%)
2. Spacing between rafts	Closer (10%); Further (20%); about the same (70%)
3. Viewing wildlife	More (55%); Same (45%)
4. Scenic viewing	More (15%); Same (85%)
5. Length of trip	Longer (5%); Shorter (25%); Same (70%)
6. Information during trip	More (20%); Less (10%); Same (70%)
7. Speed of the water	Faster (20%); Same (80%)
8. Level of development	More (45%); Same (50%)
9. Amount of visitor stops	More (30%); Less (20%); Same (50%)
10. Socialization among visitors	More (10%); Less (5%); Same (85%)

Ten checkpoints were selected and attention spans measured for the value of the elements of the landscape--an indicator of the intensity of the interest of the viewer. Also, attention spans for unscheduled observations (usually viewing wildlife) were measured. The following is a summary of these observations:

Table 5. Measurement of Visitor Attention Spans.

Element	No. of Two-minute ^a Observation Periods	Average Length ^b of Attention Span
Wildlife	11	1:49
Distance Viewing ^c Actions	36	0:51
Near Viewing ^d	12	0:29
Visitor Interaction	9	0:41

^aThe number of times the observer measured the attention span of the visitor for the various elements of the floating experience.

^bAttention span is the continuous attention given to an object, scene, or species of wildlife during the observation period.

^cDistant viewing primarily includes the panoramic view of the Teton Range.

^dNear viewing is where the viewing is confined to the Snake River corridor because of steep canyon walls.

Visitor Socialization and Activity Participation

Visitor Socialization

This does not appear to be important in terms of amount of time spent in group interaction (Table 5) and in terms of perceived emphasis (Table 4). However, it is an important aspect of the experience through the group educative process--a person who knew something about a particular object, scene, species of wildlife, etc. informed the others in his "group" (as defined in the discussion of Table 8). Of the 9 observations on visitor interaction, only one of these was with a person other than the group of people the individual came with.

Activity Participation

The activity participation was limited to passive forms of recreation (Table 6).

Table 6. Activity Participation.

Activity	Percent Response
Scenic Viewing	60%
Photography	15%
Visitor Interaction	10%
Lunch Stops	5%
Relaxation	5%
Fishing	5% N = 43

Background of Visitor

Characteristic of Individual

The individual floater is described below:

Table 7. The Characteristics of the Individual Floater (Respondents)

Characteristic	Description
Sex	Males (65%); Females (35%)
Age	14-21 (16%); 22-34 (52%); 35-54 (29%); 55+ (3%)
Residence	Urban (20%); Suburban (60%); Rural (20%)
Childhood Residence	Urban (20%); Suburban (40%); Rural (40%)
Income ^a	Above average (35%); average (65%)

^aSelf-perception of their personal economic status.

Even with these limited data, the background of the floater does not appear to differ from the other park visitors. His concerns appear to focus on the developed program rather than self-initiated activity.

Group Characteristics

The characteristics of the group are as follows:

Table 8. Group Characteristics of Snake River Floaters.

Characteristic	Description
Party Size	1-3 people (27%); 4-10 people (40%); 11-15 people (5%); more than 15 (28%)
Party Composition	Single (2%); Family (72%); Friends (26%)
State of Residence	Calif. (22%); Colo. (12%); Wyo. (11%); Michigan (7%); Ill. (6%); Others (42%)

The respondents indicated their party size based on the number of personal companions, rather than the number of people on the raft. This indicates a degree of territorialism even on the raft itself. (See section on social interaction.)

Summary of Interviews and Observations on Service Components

Concessioners

The concessioners primary concerns were the quality of the floating trip, the inherent problems that affect the business (gas shortage, weather, etc.), the keen competition between concessioners, and the National Park Service restrictions in managing the floating experience.

Every concessioner was interested in providing a quality floating experience. However, there was considerable variation in what each perceived as a quality experience. Each strived to balance the business and the recreational aspects of the floating trip; this is sometimes very difficult to do.

In terms of service components that affect the concessioner operation, two areas of interests were discussed by a number of concessioners:

a. Restriction of use. Some felt that the National Park Service was too restrictive in not allowing frequent stops, more scheduled trips, increase in number of rafts, use of the Moose parking lot, and several lesser problems. However, a few felt that some of these restrictions helped to maintain a quality trip while maintaining a given volume of business. In sum, there was no consensus.

b. Limitation of the system. Most concessioners were aware of the inherent queuing problems during peak visitor loads and were willing to adjust. The queuing took place at the launch sites; and all concessioners preferred that such congestion take place on the land rather than on water.

The launch sites have only single launch slips which means only one large raft (12-man raft or larger) can be launched at a time. This minimizes queuing on the water, except for the private floater who does not have to use the launch slip.

Some recognized that they were reaching an upper limit in the numbers of people to be serviced because of the limited access. They felt that prices had to be increased and business management practices updated in order to survive.

National Park Service

The Park Service personnel are in the incipient stages of the Master Plan for the Snake River Corridor. They emphasized concepts such as a quality floating experience and social carrying capacity (number of other visitors a person can encounter or share the experience with without a reduction in the perceived quality of the trip. Hopefully, a number of visits (or visitors) could be ascertained as the maximum level of use that would hold the quality of experience somewhat constant.

Also, personnel recognized many uncontrolled variables associated with the service component--advertising, travel accommodations, interpretive programs, visitor information, etc. All of which could potentially alter the perceived recreation experience. The dilemma seems to be which ones should be controlled and how to accomplish this.

Environmental Problems

Based on observation, the Snake River Float trips would cause very little environmental problems because of the policy that the visitor is not to get out of the raft except at the designated entrance/exit points. Exceptions to this are possible intrusion on normal wildlife behavior by the presence of man, the heavy human impact at the entrance points, and the uncontrolled stopping along the route by the private floater.

Queuing

Follow-up observation at entrance points indicated that the queuing problems do exist at peak visitor loads. Because of the limited launching facilities, the congestion is primarily limited to the land at the launch point. Generally, a raft is out of sight by the time the next one is launched and underway. Observation showed that the potential problem is the private floater with a small raft who does not need the developed launched facility. Twice the private floater was observed launching in between concessioner rafts--one of these was a group of three small rafts.

Plotting of Visual Corridor

The visual access to the floater on the Snake River is shown in Fig. 3. The viewing was categorized as distant, intermittent-distant, and near. There is almost no intermediate viewing zone; one either views the near scenery within the immediate surrounding or distant scenery of the Teton Mountains. Almost no intermediate foothill-type of terrain is visually accessible from the river.

The topography that can be seen from the river is shown in Appendix A (River Corridor Panorama).

Time/Distance Relationships

The time distance relationship is extremely variable, depending on the velocity of the water, type of float craft, number of people, velocity and direction of wind, the manner in which the boat is operated, and many other factors. The average trip is as follows:

<u>Portion of River</u>	<u>Time</u>	<u>Range</u>
Pacific Creek to Deadman's Bar	2:45 $\pm$	0:30
Deadman's Bar to Moose	2:00 $\pm$	0:25

Probably more significant than the total time/distance relationships is the timing of departures and arrivals. During high periods of use, the mean time between departures at all access points was 6.6 minutes, with a range of 4 to 11 minutes. However, once they were underway the craft tended to become concentrated as they neared the Moose.

During slow morning periods, rafts arrived at Moose sporadically. Then from mid-afternoon to evening, the number of arrivals increased rapidly, reducing the mean time between arrivals to 5.4 minutes for the late afternoon and evening periods. Several times rafts arrived at the same time or within a minute of one another.

Profile of Private Floater

The profile of the private floater was developed from the floater registration (Figs. 4, 5, & 6). Use is concentrated at certain access/exit points, and generally is limited to small groups. Thus, while total amount of use appears small, it can contribute significantly to the total carrying capacity when you look at the number of craft involved. The total number of watercraft for the 683 registered parties was 1,219 or 1.8 craft per party. Perhaps then the unit to be used in the determination of carrying capacity is number of craft--not number of people since the social impact is from the encountering of the craft regardless if it has 1 or 20 people in it.

Figure 3

The Visual Corridor of the Snake River,
Grand Teton National Park



Figure 4
Distribution of Summer Visitation of the Private Floater, 1973

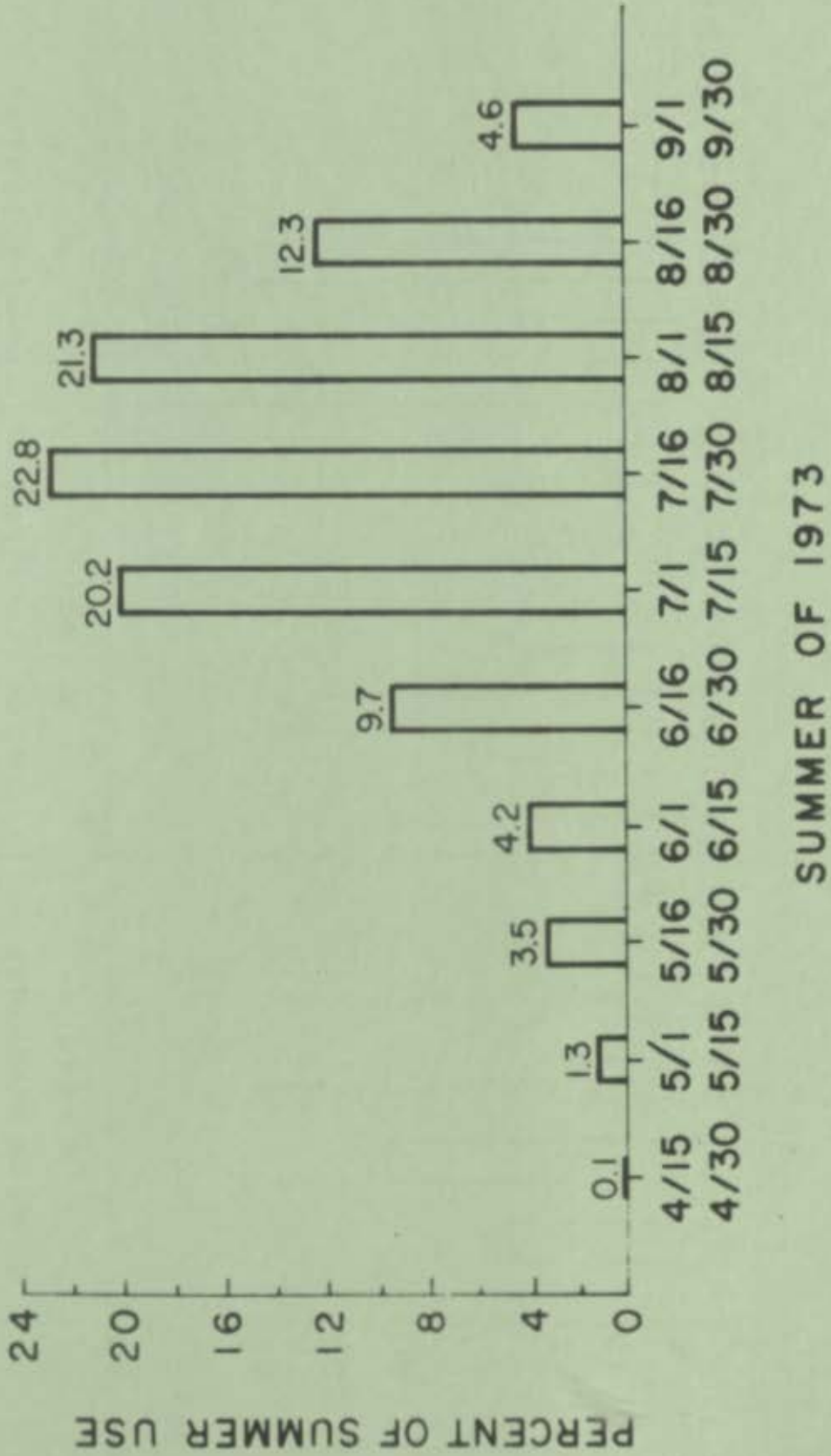


Figure 5
Departure and Arrival of the Private Floater, 1973

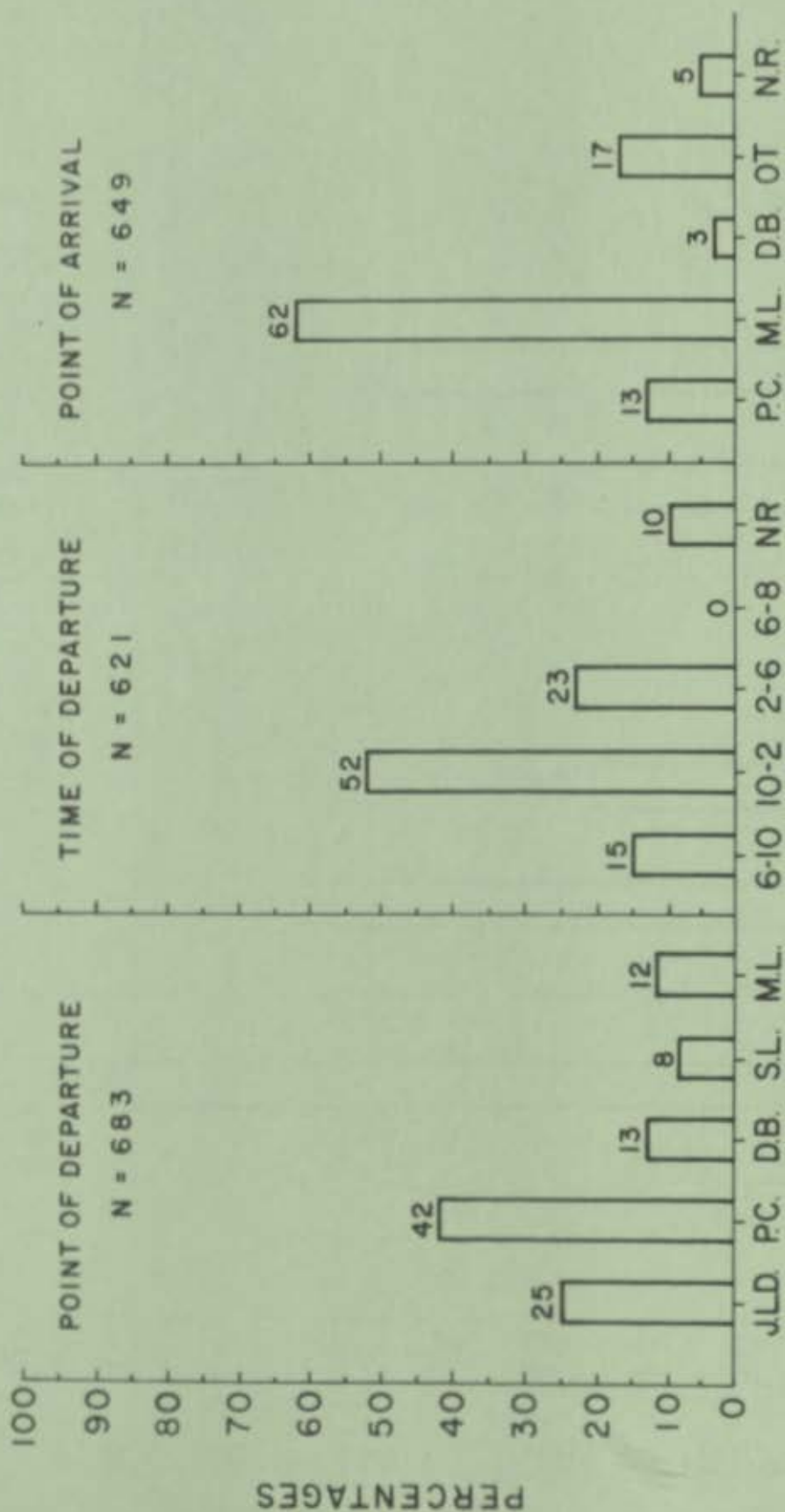
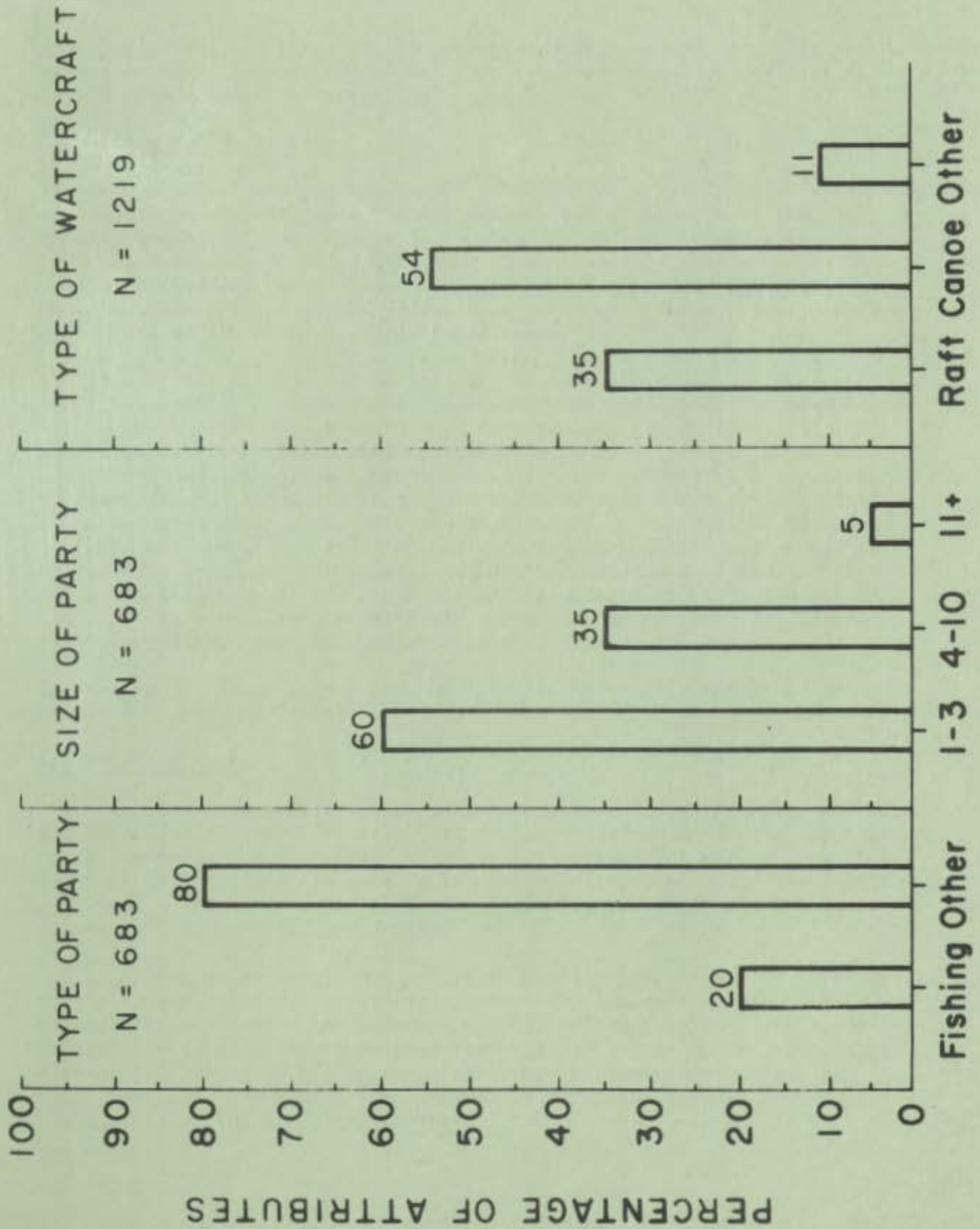


Figure 6
Description of Private Floater Party



Conclusions

The conclusions are based on the presented data; however, they must be viewed as tentative because of the limited sample size. Priorities for future research will be suggested.

Perception and Motivation

The perception of the guided floater is molded by advertising. People's anticipations are developed through advertising since most of them are totally unaware of the trip prior to arriving in the Jackson area and have no experience in river floating. Thus, realistically much of the demand is created, rather than servicing an existing demand. Wildlife viewing, scenic viewing, and undeveloped landscape (not a pristine environment) rank as the highest recreational needs.

In terms of motivation, the participant is from the urban environs and seeks out such trips because he feels a need to constructively occupy his time--he needs something to do. Furthermore, the guided trips are chosen because they are program-oriented in terms of time to be spent, costs involved, landscape elements to be enjoyed, and elimination of uncertainties and insecurity in a self-conducted trip. The typical visitor can then maintain a scheduled travelogue and enjoy more of the parkscape, but with minimum effort and inconvenience and maximum personal security. In sum, the urban visitor appears to want to enjoy more of the parkscape but is reluctant unless he can minimize the uncertainties of time (scheduling) and the potentially hostile environment in which the travel would take place (away from the developed roads.)

Interestingly, few visitors are sufficiently personally motivated to return for a second visit.

The Planning Model

1. Resource aspects. The landscape elements and the water resource are important to the visitor in that they provide the aesthetic and transportation media for the floating. However, neither are manipulable in terms of altering the resource to change the visual corridor, the length of time for the float trip, etc. Consequently, these elements would be viewed as "uncontrolled" variables.

2. Social aspects. Socialization and territorialism are important to the guided visitor. He is willing to share the watercraft while maintaining his family (or personal group) territory. Thus, the social aspects (in terms of management of the visitor) appear to be manipulable without infringing on the personal space or territory of the family. In other words, within some limits, one can alter party size without lowering the quality of the social experience.

3. Service components. There are inherent limitations at access points that naturally separate the craft as they are launched. The queuing problems on the water are created by craft floating at differential speeds and private floaters who can launch at any place--plus, the compulsive desire to exit at Moose regardless of entrance point.

A mass transit system in the Park (which would also handle deflated crafts) could eliminate some of the problem by handling the service load on a scheduled basis.

4. Resource limitations. Because of existing policy which limits egress from floats, environmental degradation appears to be minimal, except for possible intrusion on the normal behavior of wildlife. Some hardening of the launch sites may be necessary to minimize further degradation and erosion--without modernizing the launch site itself.

Again, the potential problem exists with the private floater because he is allowed to stop any place along the route--without any control on behavior or waste disposal.

Future Research

There are three research efforts that must be developed:

1. Baseline data on perception and motivation. If these type of data had been developed 10 years ago, the Park Service would have a basis for decision-making on carrying capacity. People may have enjoyed themselves 10 years ago but since then have sought other floating experiences because of crowding, etc. on the Snake River. The manager must recognize that carrying capacity is a dynamic situation in which recreation use comes into equilibrium with existing conditions. In other words at any level of use, there will be visitor satisfaction (even with crowding, resource deterioration, etc.). The manager must decide what type of experience should be provided; this establishes the upper limit of carrying capacity (number of people per unit area or unit of time).

2. Calibration of registration stations. Since the baseline data in No. 1 will be developed using a mail questionnaire and the sample will come from registrations, it is imperative that the registration system be improved and properly calibrated. Benefits to proper management will be shown also.

3. Standardized interpretive program. This will be the emphasis of the third year of research since much of the visitor perception is molded by the boat operator and the type of program presented.