

**APPROPRIATE RIVER RECREATION USE
STUDY
MAR-41**

**UPPER DELAWARE SCENIC AND RECREATIONAL
RIVER**

**Exploring the Potential Partnership
Role of River Outfitters in Managing
Public Rivers**

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EXECUTIVE SUMMARY

The overall goal of this study was to explore potential partnership roles between the National Park Service and river outfitters in meeting management mandates for the Upper Delaware Scenic and Recreational River. More specifically, we looked for areas of similarities and differences in managers' and outfitters' perceptions of river management problems, the outfitters' potential solutions to problems, and their views on potential partnership ventures to solve problems. Twenty-six outfitters and six managers participated in personal interviews and completed questionnaires in 1987 about river problems and solutions.

National Park Service managers believed the situation on the river generally was worse than the outfitters did. Twenty-one of 61 problems studied were rated by the managers as a moderate or serious problem. Of these 21, only three were rated as serious:

- . Availability of toilet facilities between put-in and take-out points
- . People drinking alcoholic beverages on the river
- . River safety

Outfitters, on the other hand, rated only one problem as serious-- low water levels. Only five other problems were rated as a moderate problem. Of these, the top two were water pollution and lack of clear jurisdiction by Park Service versus state and local government. The next three were (1) people drinking alcoholic beverages on the river, (2) availability of drinking water on the river, and (3) existence of clear management direction from the Park Service.

There was a general lack of agreement among the managers and outfitters on specific issues that have gotten better over the last five years, but there was agreement that river safety had improved.

The two groups agreed on three problems that had gotten worse over the last five years:

- . Low water levels
- . Distribution of use among outfitters
- . Distribution of visitors at popular rapids

Of the 61 problems listed in the questionnaire, managers' and outfitters' mean scores differed by at least one point on a 1-5 rating scale on 14 of them. On all but one of these, low water level, the managers thought the problem was more serious than the outfitters did.

The five problems the managers felt were most serious included:

- . Campers trespassing onto private land
- . Availability of toilets between access points
- . River safety
- . Boating skills of people using river
- . Quality of communication between outfitters and their guests

In addition to the problem of low water levels, the top problems the outfitters rated as more serious than the managers were:

- . Water pollution
- . Availability of telephones at access points
- . People being rowdy on the river
- . Quality of communications between NPS and boaters using their own equipment

The water level situation is a major concern among outfitters. This problem also was voiced by outfitters during that part of the interview when they offered free-response comments about problems in the river corridor. Water releases was the problem most often mentioned, followed by alcohol related problems, litter, water pollution, and trash disposal.

A lack of river patrols and the uncertain role of the National Park Service also were mentioned in the free-response questioning.

Respondents reacted to 49 possible solutions under the following categories: (1) safety, (2) education and resources protection, (3) litter, (4) alcoholism and rowdyism, (5) water level and quality, (6) recreational facilities, (7) resource impacts and human waste problems (8) trespassing on private land, and (9) informing visitors of National Park Service. Overall, outfitters and managers had quite similar opinions about many actions to help solve management problems on the Upper Delaware. Some of the most important findings are:

Safety

- . Both opposed requiring guests to wear helmets in major rapids.
- . Both favored banning glass containers
- . Both favored the National Park Service and outfitters cooperating to provide safety patrols at major rapids

Education and Resource Protection

- . Both favored locating informative bulletin boards at river access points
- . Both favored the National Park Service providing programs on management, water safety, and litter programs to area schools and communities

Litter

- . Both favored an annual cooperative river clean up day
- . Both had mixed reactions to outfitters giving out litter bags provided by the National Park Service
- . Both had mixed reactions to prohibiting cans, bottles, and other nonburnable disposable containers on the river (both favored banning glass containers on the river)

Alcoholism and Rowdyism

- . Both favored cooperation to develop literature on etiquette to distribute to guests
- . Both favored clarification of who has law enforcement authority to deal with alcohol problems in the river corridor
- . Both had mixed opinions for imposing an "open bottle" regulation, i.e., drinking of alcohol permitted on land but not on the water

Water Level and Quality

- . Both favored that the National Park Service, Delaware River Basin Commission, and state agencies work cooperatively to provide more ideal water flows for recreation and to protect the river's water

Recreation Facilities

- . Both favored providing more, drinking water sources and public telephones at accesses
- . Both favored shore markers indicating distance to and location of major take-out points
- . Both had mixed response to more campgrounds within park boundaries as well as more hiking trails within the river corridor
- . On livery operators cooperating among themselves to open their landings to guests of other liveries, managers strongly in favor, outfitters were neutral but displayed considerable variation in opinion among individual outfitters

Resource Impacts and Human Waste Problems

- . Both somewhat supported the construction of primitive toilets at designated lunch spots and campsites

Trespass

- . Both favored National Park Service and landowners cooperating to provide signing on public and private lands along the river

Informing Visitors of National Park Service

- . Both favored increased training of Park Service seasonals on river resources, facilities, safety, and the role and services of outfitters
- . Both favored having uniformed National Park Service personnel at major accesses to greet users and floating the river during high use times to assist users and enforce regulations

On only two potential solutions did outfitters and managers have significantly opposing views about problem solutions--and even for these, the degree of disagreement was not particularly great. Managers strongly favored livery operators cooperating among themselves to open their landings to guests of other livery operators; outfitters were neutral about the activity. Managers strongly favored the Park Service and outfitters cooperating to develop a mandatory guest-education program on respecting property rights along the river; outfitters again were

neutral. On both issues, however, there was considerable disagreement among the outfitters regarding whether they favored or opposed this potential problem solution.

Most of the possible solutions which require cooperation between the National Park Service and river outfitters were supported by both managers and outfitters. Some of the cooperative efforts that were favored the most both by managers and outfitters included:

- . Park Service and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests
- . Outfitters give litter bags provided by Park Service to each river group
- . Park Service and outfitters cooperate to provide safety patrols at major rapids
- . Annual river clean up day sponsored by outfitters and the Park Service
- . NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety
- . Park Service and outfitters cooperate to implement a mutually agreeable mandatory safety instruction program for river guests
- . Park Service and outfitters cooperate to develop literature/maps on river attractions, history, facilities and the presence of the Park Service in the river corridor

Some of the cooperative efforts which were not favored by both managers and outfitters were:

- . Park Service and outfitters cooperate to place emergency shuttling services at appropriate access points along the river during the high use season
- . Park Service and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York

Last, managers and outfitters both strongly supported the National Park Service, Delaware River Basin Commission (DRBC) and state agencies to work cooperatively to provide more ideal water flow for river recreation and to protect the river's water quality.

Cooperative ventures most likely to succeed are those for which both the managers and the outfitters currently agree on the severity of a problem, see the problem as getting worse, and support a proposed cooperative solution. Another situation is where both parties perceive a problem, but they do not agree on a solution. Here a successful cooperative venture is still probable, because both groups are working from a common base of concern for a resource they both cherish. What is needed is increased discussion and brainstorming among the two groups to identify mutually agreeable solutions. A third and very common situation occurs when the two parties do not agree on the existence, nature or severity of the problem. For these issues, education is needed to accomplish shared understanding of the issue or question. This will likely require greater understanding on the part of each group of the other's organizational objectives and selling, its values assigned to the river resource, and personal goals for river protection and use. It will also require sharing of specific information about the issue.

A model research and monitoring program is recommended to develop methods, facilitate the implementation, and evaluate the effectiveness of National Park Service-outfitter ventures to address problems of each of the three types described above. Such a research program might evaluate visitor response, cost effectiveness, attainment of management objectives, and causes of any program success.

INTRODUCTION

Recreational use of the Upper Delaware Scenic and Recreational River, the Delaware Water Gap National Recreation Area, and the New River Gorge National River has increased dramatically in the last decade. These increases in use have brought social and economic benefits as well as costs to these river environments, the primary managing agency (National Park Service), area residents, commercial entrepreneurs, and local governments. Benefits include increased opportunities for the public in the heavily populated East to float relatively natural rivers in a scenic setting, increased businesses and jobs that provide services for river users, and increased dollars coming from outside the region to spur local economies.

Potential costs of this growth include negative impacts on river ecology and user experiences, trespass and vandalism of riparian landowners' property, changes in community social structure as businesses and government respond to the demands of outsiders, and conflicts among and between area landowners, river users, and commercial entrepreneurs who seek to provide more services and make profits.

The National Park Service has been legally mandated to protect the recreational, natural, and cultural values of these rivers for the use and enjoyment of current and future generations. While this mandate is common to National Park Service areas and the agency has a long history of effective park management, resources for meeting this mandate through traditional management practices are somewhat limited for the three study rivers. Without complete ownership of the land surrounding the river, the National Park Service has less direct control over outside influences upon the rivers, access to the rivers, services provided on the river,

and impacts of river users on neighboring lands and enterprises than it has for most of its parklands. In addition, the challenge of management is increased by ceilings on agency staffing and in some cases by the failure of agency budgets to keep pace with inflation.

Management realities on the three rivers suggest a shift from the traditional management role for the National Park Service--a shift away from direct control and management to a broker or facilitator role in which the National Park Service works closely with all the interest groups to define resource values to be protected; to identify institutions, mechanisms, and procedures to protect values; and, to guide, encourage, and coordinate the actions of a host of individuals and organizations to achieve public goals on the rivers. This facilitator role requires that the National Park Service form partnerships with other institutions and organizations, many of them in the private sector, to accomplish park objectives.

PROBLEM STATEMENT

The National Park Service's goal of facilitating the protection of river values in partnership with other public institutions and the private sector, would likely be more easily achieved through greater knowledge of who are the important partners; what are their goals, objectives, and management practices; and, as importantly, what are their attitudes about forming partnerships in protecting the river and providing services.

One important partner is the commercial river outfitter. These private entrepreneurs provide quality river experiences for many of the

public who would not otherwise be able to gain them. Largely because of outfitters' efforts, interest in and use of these and other rivers have been able to grow. Interest in river protection likely grew, in part, because of the urging of the outfitters themselves and their guests. The National Park Service has worked closely with outfitters, but this relationship has not always been viewed as a partnership seeking mutual public goals. In addition, the National Park Service may not always view the outfitters as partners in river management--that is, the Service sometimes may not look to and encourage the outfitters to work with their guests in achieving its management objectives on the river.

There is a lack of information on whether the outfitters perceive themselves as currently or potentially acting in a river management role. For example, it may be that the agency and the outfitters do not agree on the public values to be provided on the rivers. It may be that the outfitters perceive a management role as conflicting with their primary objective of providing high quality services to people in such a manner that they receive adequate financial return. It may be that on philosophical grounds many outfitters view such a role is inappropriate for them. In their view, some other organization or institution might better assist in management. It also may be that outfitters fear failure in an attempt to help the National Park Service achieve public goals. Finally, individual outfitters might feel that the energies and resources they allocate to help achieve public goals would put them at a competitive disadvantage with those outfitters who choose not to work as closely with the National Park Service.

The primary problem this research addressed is the lack of information about the view of commercial river outfitters concerning their role as partners with managers in river management. A second problem addressed is the lack of information on whether the nature of the commercial enterprise (e.g., its size) might influence perceived ability to facilitate achievement of management objectives. Finally, further definition is needed of the river manager's views of the feasibility and effectiveness of forming increased partnerships with river outfitters in achieving public values on the river.

This research is part of a broader, comprehensive research project to investigate river recreation use and carrying capacity on these three eastern rivers administered by the National Park Service (Interagency Agreement no. IA-4000-4-0002). In 1984, the Mid-Atlantic Region of the National Park Service initiated a cooperative research effort with the U.S. Forest Service to conduct a series of studies to help determine appropriate recreation use within the corridors of the study rivers. This study is part of a socio-economic component of this larger research program and is intended to shed further light on outfitters, those entrepreneurs in the regional economy having a direct and critical interest in decisions concerning recreational use of these rivers.

RESEARCH OBJECTIVES

The overall goal of this research was to explore the feasibility of forming increased partnerships between resource management agencies and commercial river outfitters to accomplish management objectives on national rivers. The goal was to determine whether outfitters on the New

River Gorge, Delaware Water Gap, and Upper Delaware River view a larger role in management as appropriate for them and whether river management agencies are prepared to facilitate such a role. Specific objectives are:

1. to identify outfitters' preferences for resource and experience values to be provided on the river, their perceptions on the adequacy of current river management and their desires for future management directions, and to compare and contrast these views with those of river managers.
2. to compare and contrast the outfitters' and managers' perceptions of problems on the river, potential solutions to the problems, and views on how outfitters and managers might increasingly cooperate to implement solutions.
3. to characterize the operations of river outfitters on the study rivers (e.g., the nature and extent of their activities, type of trips provided, type of market area served, marketing strategies used, primary clientele groups served) and explore relationships between type of river outfitter and views on appropriate roles for river management.

PROCEDURES

Study objectives were accomplished through a four-step procedure:

(1) identify appropriate river outfitters and managers to include in the study; (2) develop and pilot test an interview instrument; (3) conduct interviews with outfitters and managers; and (4) summarize and compare the views of outfitters and managers on river user clientele, management problems, potential solutions, and feasibility of various National Park Service-river outfitter cooperative ventures.

1. Identification of appropriate river outfitters and managers

It was our intent to seek the cooperation of and interview all river outfitters on the three study rivers. While such a census is typically not necessary in survey research, the relatively small number of

outfitters, the nature of this study, and the political climate on the rivers all suggested a census. With only 20 to 30 outfitters per river, we believed all outfitters could be visited at their base camps and interviewed in about a two-month period. With a sample of outfitters, we might miss the one or two key ideas or innovations that would prove most effective. Finally, given the importance of the outfitter-National Park Service relationship to the operation and growth of the outfitter business, we believed those outfitters who would not have the opportunity to be interviewed in a survey sample might, with some justification, believe they were discriminated against.

At the time the study plan was prepared (September 1986), it became clear the Upper Delaware could not be included in the data collection planned for fall, 1986. Review and adoption of the final management plan for the Upper Delaware was expected in late 1986; and, National Park Service managers believed that data collection would be inappropriate at that time. Actually, the management plan was not completed and approved until spring, 1987, and data collection was initiated in summer, 1987.

Managers on all three study rivers and outfitters were fully advised of and participated in the development of the study planning and the interview instrument. Questionnaires used on the three study rivers differed somewhat, reflecting their different resource and management settings. The Upper Delaware in particular differed to reflect new management direction and needs outlined in the management plan.

Outfitters included in this study were under license to operate on the river as of May 1, 1986, on the New River Gorge and Delaware Water Gap and as of May 1, 1987, on the Upper Delaware River. On the New River

20 outfitters were interviewed; 19 on the Delaware Water Gap; and 26 on the Upper Delaware. Outfitters interviewed on the Upper Delaware Scenic and Recreational River are identified in Appendix A.

We sought the advice of the resource management specialists at the three study rivers to identify the appropriate managers to interview. Because our study objectives called for a comprehensive comparison of managers' and outfitters' views, and because managers at various administrative levels and performing various functions likely have differing views, we anticipated interviewing the following park staff at each river: (1) superintendent, (2) assistant superintendent, (3) chief ranger, (4) river ranger, (5) resource management specialist, (6) chief interpreter, and (7) perhaps permanent field interpreters. Interviews of these personnel would likely identify concerns and innovative solutions that might not be shared by the entire staff, and articulation of these ideas has the potential for more effective river management and cooperation with outfitters.

Interviews with resource administrators on the three rivers differed significantly. On the New River, seven managers were interviewed in the fall, 1986; on the Upper Delaware, six managers were interviewed in summer, 1987 (see Appendix B). These managers completed the entire study questionnaire. On the Delaware Water Gap, however, a consolidated response by the management team was prepared on one questionnaire and only for questions dealing with problems existing in the river corridor. As a result comparisons of responses among managers is not possible there, and comparisons between the managers and outfitters are very limited.

2. Development and pilot testing of an interview instrument

The questionnaire used in interviewing outfitters on the Upper Delaware Scenic and Recreational River is included in Appendix B. The format of the interview instrument was a combination of qualitative, open-ended questions, and items to which the respondent checked prepared response categories. This combination sought to reap the benefits of both approaches. By opening the interview with open-ended questions, the respondent was free to identify and describe issues, problems, opportunities, and solutions in his or her own words. This avoids the potential problem of "putting words and categories in the respondent's mouth"; in our case it prevented the researcher from subtly or overtly placing her definition and organization of reality within the minds of respondents. The disadvantage of this approach is that the very free-flowing nature of this input makes summaries of views of outfitters more difficult (e.g., outfitters may use very different criteria to categorize their clientele or to describe the nature of their business), and outfitters may not provide their views on specific issues of concern to managers. To mitigate these problems, later portions of the interview sought more "quantitative" data. A list of items of concern to us and managers allowed respondents to check the appropriate response category that most closely reflected their view.

Study objectives guided the development of content for the interview instrument. Input from appropriate river management specialists, a sample of outfitters, and river recreationists was sought to insure the interview addressed salient issues. Past studies of recreationists' perceptions and opinions about river management on the three rivers were

reviewed, and open-ended, free-flowing discussions were conducted with a sample of managers and outfitters. The instrument was then pilot tested on at least three outfitters for each of the three rivers in summer, 1986. On the basis of these pilot tests and reviews by managers and peer researchers, the final research instrument was established.

Questionnaires developed for the three rivers were somewhat different and reflected local conditions and concerns. For example, in the Delaware Water Gap questionnaire there is more detail regarding what types of recreation experience the visitors are seeking (question 2). Also in the Delaware Water Gap and Upper Delaware River questionnaire, new information was requested about successes in National Park Service management that was not asked in the New River instrument.

3. Conducting interviews with outfitters and managers

Research staff (Ms. Joyce Berger) conducted in-person interviews with outfitters and managers at their work places, or in a very few cases by telephone on the Upper Delaware (responses to the structured questions about problems and solutions were obtained later by mail). An attempt was made to interview the owner of the outfitting company rather than his or her designate. However, at some outfitters a manager, partner, or other knowledgeable employee answered the questions. Interviews took from one to two hours. Responses were held in strict confidence by the interviewer, and answers are not identified by individual outfitters or managers in this project report.

4. Summaries and comparisons of the views of outfitters and managers

Descriptive statistics on the views of outfitters and river managers are provided. For the river outfitters emphasis is placed on a thorough

description of their perceptions of river management problems, their views on alternative solutions, and their recommendations on how the National Park Service and outfitters might cooperate further to enhance river values. The same plan of analysis was used for the managers on the New and Upper Delaware Rivers. For the Delaware Water Gap, managers only responded to questions about river management problems. The next step was to search for areas of agreement or disagreement within the outfitter population, and between outfitters and managers.

In reporting the implications of study results, we emphasize the issues of greatest concern, the areas of agreement and disagreement between outfitters and managers (where possible), and most of all, the recommendations--especially those recommendations for which there is some coalescence of views--of managers and outfitters about improved river management through cooperative National Park Service-outfitter ventures.

SURVEY FINDINGS

Personal interviews were conducted with 26 licensed commercial outfitters/livery operators and six National Park Service managers on the Upper Delaware Scenic and Recreational River during the summer 1987 (see Appendix A and B). Information obtained from the interviews included visitor characteristics, trip patterns, services offered by outfitters, problems and concerns facing outfitters and managers, possible solutions to these problems, and how outfitters and the National Park Service can work together to implement solutions (see questionnaire in Appendix C).

This report will focus on four main points:

1. Problems identified by outfitters and managers, and how they have changed over the last five years.

2. Potential solutions/recommendations to river management problems.
3. Opportunities for cooperation between outfitters and National Park Service managers.
4. Management implications from the research findings.

Data utilized for this analysis were collected from open discussion with outfitters and managers and detailed closed-ended questions. However, some questions were not answered by all of the outfitters and managers. As a result, the number of respondents addressing a problem or solution will vary from question to question.

Outfitters were asked additional questions regarding their clientele's characteristics (e.g., group type, percent of total business by group type, and experiences sought) and business characteristics (e.g., number of years in business, advertising success, number of craft owned or available for rent, and where guests come from). However, due to the qualitative differences in categories used by outfitters to report these data, interpretation of responses was difficult. As a result, this report will focus just on management problems identified by outfitters and potential solutions to solve these problems.

PROBLEMS ON THE RIVER

Upper Delaware outfitters and National Park Service managers were asked their opinion on the extent to which current users, uses, policies, and practices cause problems for their organizations or guests. This was accomplished by rating the severity of issues and problems on the Upper Delaware River on a five point scale (1=Not a problem, 2=Slight problem, 3=Moderate problem, 4=Serious problem, 5=Very serious problem). The

respondents then were asked how the issue/concern had changed over the last five years utilizing a five point scale (1=Much worse, 2=Somewhat worse, 3=About the same, 4=Somewhat better, 5=Much better).

Problems Identified by Outfitters

Problems identified by Upper Delaware outfitters, ranked by mean score or "average," are found in Table 1 (for a complete breakdown of how outfitters responded, please see Appendix D). No problems were rated as serious problems (a mean of 4.0 or higher). Low water level, with a mean score 3.88, was the leading problem identified by the outfitters (Table 1). It was the only problem with a mean above a 3.00 (moderate problem), and was reported as serious or very serious problem by 60 percent of the respondents (see Table 2). Seven additional problems rated as slight to moderate problems with a mean score between 2.5 and 3.0: water pollution, lack of clear jurisdiction by NPS versus state and local government, people drinking alcoholic beverages on the river, availability of drinking water sources at access points, lack of clear management direction from the Park Service, litter from river users, and availability of telephones at access points.

Table 1. Problems identified by outfitters (ranked by mean scores).

Problem	Respondents (N)	Mean ¹	Standard Deviation
Low water level	25	3.88	1.01
Water pollution	24	2.92	1.25
Existence of clear jurisdiction by National Park Service versus state and local government	24	2.83	1.40
People drinking alcoholic beverages on the river	23	2.78	1.48

Table 1. (continued)

Problem	Respondents (N)	Mean ¹	Standard Deviation
Availability of drinking water sources at access points	20	2.65	1.31
Existence of clear management direction from National Park Service	23	2.57	1.50
Litter from river users	23	2.52	1.24
Availability of telephones at access points	22	2.50	1.57
People rowdy on river	23	2.48	1.20
Litter from riverbank users	21	2.43	1.16
Campers trespassing onto private lands	24	2.29	1.00
Erosion on river banks	22	2.18	1.26
Availability of toilet facilities between put-in and take-out points	24	2.12	1.23
Number of hiking trails in river corridor	24	2.12	1.33
Vandalism	21	2.10	1.09
Day users trespassing onto private lands	24	2.08	1.02
River safety	23	2.04	1.22
Knowledge of rules and regulations on the river	24	2.04	1.00
Quality of communications between NPS and boaters using their own equipment	18	2.00	1.37
Number of camping spots on the river	25	2.00	1.22
Disposal of human body wastes	23	2.00	1.31
National Park Service concerned about preservation and not concerned enough about recreation	24	1.96	1.16
High water level	23	1.96	1.30
Availability of information services (e.g., signs, displays) at put-in points	25	1.92	1.12
Availability of toilet facilities at access points	24	1.92	1.18
Number of public river access points	24	1.92	1.32
Boating skills of people using river	24	1.92	1.02
Distribution of visitors at popular rapids	23	1.87	1.06
Quality of communication between NPS and commercial river users	23	1.87	1.01
Availability of brochures showing map of river, attractions, hazards, access points, etc.	25	1.84	0.94
Too little enforcement of rules and regulations	24	1.75	0.99
Protection of historic structures	20	1.70	1.03
Wildlife harassment	22	1.64	0.85
Amount of recreational opportunities in area	24	1.62	1.01

Table 1. (continued)

Problem	Respondents (N)	Mean ¹	Standard Deviation
Lack of availability of high quality guides	12	1.58	1.16
Protection of vegetation at access points or lunch stops	14	1.57	0.76
Bothersome insects	23	1.57	1.08
Condition of access points	23	1.57	0.99
Quality of campsites along river	23	1.57	1.08
Little NPS presence on the river	24	1.54	0.93
Number of campgrounds in river corridor	24	1.54	1.14
Litter from riparian landowners	22	1.50	0.67
Quality of communication between outfitters and their guests	25	1.48	0.82
Distribution of use throughout days of week	23	1.48	0.85
Amount of information about things to do and see in the area	23	1.48	0.85
Distribution of use along various segments of the river	23	1.43	0.73
Education of river guests about river history	22	1.41	0.67
Education of river guests about nature on the river	22	1.41	0.73
Informing visitors that river use is managed by National Park Service	25	1.40	0.65
Number of campgrounds in area	21	1.38	0.97
Familiarity of NPS employees with river and area	24	1.33	0.76
Too much enforcement of rules and regulations	24	1.33	0.64
Off river vehicles along riverbank	22	1.32	0.57
Number of people on the river	23	1.30	0.63
Friendliness of NPS river rangers	24	1.29	0.62
Roads within sight of the river	23	1.26	0.86
Distribution of use across seasons of the year	23	1.26	0.62
Nudity	23	1.26	0.54
Distribution of use among outfitters	23	1.22	0.42
Motorized boats on the river	22	1.14	0.64
People fishing	24	1.12	0.34

¹ Based on a scale of one to five: 1 = Not a problem
2 = Slight problem
3 = Moderate problem
4 = Serious problem
5 = Very serious problem

People fishing (a mean of 1.12), motorized boats on the river (1.14), and distribution of use among outfitters (1.22) were issues that the outfitters did not rate as even slight problems.

Table 1 also lists the "standard deviation" of responses or their extent of agreement on the degree of the problem. The standard deviation is a measure of variability on the rating of an issue. The availability of telephones at access points was the problem with the greatest diversity among the outfitters (1.57). The existence of clear management direction from the National Park Service (1.50), people drinking alcoholic beverages on the river (1.48), and the existence of clear jurisdiction by National Park Service versus state and local government (1.40), also had standard deviations which reflected a wide range of opinions among the outfitters.

Additional problems, identified by at least one-third of the respondents reporting the issue as a serious or very serious problem, included people drinking alcoholic beverages on the river (34.8%), water pollution (33.3%), and the lack of clear jurisdiction between the National Park Service and local governing bodies (33.3%) (Table 2).

Table 2. The ten problems most frequently identified by outfitters as serious or very serious.

Problem	Respondents ¹ (N)	Percent ²
Low water level	15	60.00
People drinking alcoholic beverages on the river	8	34.78
Water pollution	8	33.33
Existence of clear jurisdiction by National Park Service versus state and local government	8	33.33
Availability of telephone at major access points	7	31.82
Availability of drinking water sources at access points	6	30.00

Table 2. continued

Problem	Respondents ¹ (N)	Percent ²
Existence of clear management direction from National Park Service	6	26.09
Litter from river users	5	21.74
People rowdy on river	4	17.39
Disposal of human body waste	4	17.39

¹Number and ²percent of outfitters answering the question and reporting the issue as a serious or very serious problem.

The outfitters' rating of issue/problem change over the last five years is found in Table 3 (for a complete breakdown, see Appendix E). The education of river guests about nature on the river (a mean of 4.43) and about river history (4.33) were identified by outfitters as the problems that have improved the most over the last five years. These problems were believed to have gotten from somewhat to much better over this time. Eight additional problems that had gotten somewhat better over the last five years (mean of 3.5 to 3.79) were: litter both from riverbank and river users, river safety, protection of historic structures, nudity, rowdy people on the river, the availability of brochures showing map of river, etc., and a lack of National Park Service presence on the river.

Low water level (a mean of 2.46), distribution of use across seasons of the year (2.50), number of people on the river (2.50), and motorized boats on the river (2.50) were the problems ranked by the outfitters that have gotten somewhat or slightly worse over the last five years (Table 3).

Table 3. Outfitters' rating of the change in severity of problems over the last five years (ranked by mean scores).

Problem	Respondents (N)	Mean ¹	Standard Deviation
Education of river guests about nature on the river	7	4.43	0.53
Education of river guests about river history	6	4.33	0.52
Litter from riverbank users	14	3.79	0.80
Litter from river users	18	3.67	1.33
River safety	12	3.67	0.78
Protection of historic structures	8	3.62	1.06
Nudity	5	3.60	0.89
People rowdy on river	17	3.59	0.94
Availability of brochures showing map of river, attractions, hazards, access points, etc.	14	3.57	0.76
Little National Park Service presence on the river	8	3.50	0.76
Availability of information services (e.g., signs, displays) at put-in points	13	3.38	1.12
Amount of information about things to do and see in the area	8	3.37	0.92
Knowledge of rules and regulations on the river	14	3.36	0.63
Protection of vegetation at access points or lunch stops	6	3.33	0.52
Litter from riparian landowners	10	3.30	0.95
Wildlife harassment	10	3.30	1.06
People drinking alcoholic beverages on the river	19	3.26	0.93
Quality of communication between outfitters and their guests	4	3.25	0.50
Friendliness of NPS river rangers	6	3.17	0.98
Number of public river access points	6	3.17	0.41
Boating skills of people using river	13	3.15	0.55
Day users trespassing on private land	15	3.13	0.92
Informing river users that river use is managed by the National Park Service	8	3.12	0.64
Amount of recreational opportunities in area	9	3.11	0.33
Condition of access points	9	3.11	0.60
Number of campgrounds in river corridor	9	3.11	1.05
Number of camping spots on the river	11	3.09	0.54
Availability of toilet facilities at access points	12	3.08	0.51
Disposal of human body wastes	13	3.08	0.95
Availability of drinking water sources at access points	17	3.06	0.24

Table 3. (continued)

Problem	Respondents (N)	Mean ¹	Standard Deviation
Campers trespassing onto private lands	17	3.06	0.83
Roads within sight of the river	3	3.00	0.00
Off river vehicles along riverbank	6	3.00	0.63
Lack of availability of high quality guides	4	3.00	0.00
Quality of communication between NPS and boaters using their own equipment	11	3.00	0.63
Distribution of use throughout days of the week	6	3.00	0.00
Number of campgrounds in the area	5	3.00	1.41
People fishing	3	3.00	0.00
National Park Service concerned about preservation and not concerned enough about recreation	12	2.92	0.51
Vandalism	13	2.92	1.19
Quality of communication between NPS and commercial river users	10	2.90	0.88
Too little enforcement of rules and regulations	10	2.90	0.32
Quality of campsites along river	8	2.87	1.13
Availability of toilet facilities along river between put-in and take-out point	14	2.86	0.53
Number of hiking trails in river corridor	13	2.85	0.90
Familiarity of NPS employees with river and area	6	2.83	0.41
Distribution of visitors at popular rapids	10	2.80	0.79
Distribution of use along various segments of the river	7	2.71	0.49
Existence of clear jurisdiction by National Park Service versus state and local government	14	2.71	0.61
Too much enforcement of rules and regulations	7	2.71	0.49
Erosion of riverbanks	14	2.71	0.83
High water level	10	2.70	0.67
Bothersome insects	6	2.67	0.82
Distribution of use among outfitters	6	2.67	0.52
Existence of clear management direction from National Park Service	12	2.67	0.78
Water pollution	20	2.65	0.93
Availability of telephones at major access points	10	2.60	0.84
Motorized boats on the river	2	2.50	0.71

Table 3. (continued)

Problem	Respondents (N)	Mean ¹	Standard Deviation
Number of people on the river	6	2.50	1.38
Distribution of use across seasons of year	4	2.50	1.00
Low water level	24	2.46	0.98

¹Based on a scale of one to five: 1 = Much worse
2 = Somewhat worse
3 = About the same
4 = Somewhat better
5 = Much better

The greatest diversity of opinion among the outfitters regarding problem change over the last five years was the number of campgrounds in the area (a standard deviation 1.41), the number of people on the river (1.38), litter from river users (1.33), vandalism (1.19), quality of campsites along the river (1.13), and the availability of information services at put-in points (1.12) (Table 3).

Fifty percent or more of the outfitters, those who responded to the question, believed the following seven problems had become somewhat or much better over the last five years: educating river guests about nature on the river and river history, river safety, litter both from riverbank and river users, people rowdy on the river, and protection of historic structures (Table 4).

Table 4. Problems most frequently mentioned by outfitters as having gotten better over the last five years.

Problem	Respondents (N)	Percent ¹
Education of river guests about nature on the river	7	100.00
Education of river guests about river history	6	100.00
River safety	8	66.67
Litter from river users	11	61.11
Litter from riverbank users	8	57.14

Table 4. (continued)

Problem	Respondents (N)	Percent ¹
People rowdy on river	9	52.94
Protection of historic structures	4	50.00
Availability of brochures showing map of river, attractions, hazards, access points, etc.	6	42.86
Knowledge of rules and regulations on the river	6	42.86
People drinking alcoholic beverages on the river	8	42.11

¹Responses are ordered by percent of outfitters answering the question and reporting the issue as somewhat or much better. (Only those outfitters who rated the issue as a problem were asked to respond).

Problems that 50 percent or more of the outfitters who responded to the question felt had gotten somewhat or much worse over the last five years were: (1) the number of people on the river and (2) motorized boats on the river (Table 5). More than a third felt the following problems had gotten worse: (1) distribution of the visitors at popular rapids, (2) the low water level, (3) the existence of clear jurisdiction by National Park Service versus state and local governments, (4) water pollution, (5) existence of clear management direction from National Park Service, and (6) distribution of use among outfitters (Table 5).

Table 5. Problems most frequently mentioned by outfitters as having gotten worse over the last five years.

Problem	Respondents (N)	Percent ¹
Number of people on the river	4	66.67
Motorized boats on the river	1	50.00
Distribution of visitors at popular rapids	4	40.00
Low water level	9	37.50
Existence of clear jurisdiction by National Park Service versus state and local government	5	35.70
Water pollution	7	35.00
Existence of clear management direction from National Park Service	4	33.33

Table 5. (continued)

<u>Problem</u>	<u>Respondents (N)</u>	<u>Percent¹</u>
Distribution of use among outfitters	2	33.33
Vandalism	4	30.77
Distribution of use along various segments on the river	2	28.57

¹Responses are ordered by percent of outfitters answering the question and reporting the issue as somewhat or much worse. (Only those outfitters who rated the issue as a problem were asked to respond).

Problems Identified by Managers

All six river managers on the Upper Delaware River identified the availability of toilet facilities between put-in and take-out points as a serious and the worst problem on the Upper Delaware River (Table 6). People drinking alcoholic beverages on the river (a mean of 3.50), river safety (3.50), existence of clear jurisdiction by National Park Service versus state and local government (3.33), boating skills of people using the river (3.33), and campers trespassing onto private lands (3.33) were also ranked as moderate to serious problems. Interestingly, none of the managers believed the following issues were problems: (1) the National Park Service being too concerned about preservation and not concerned enough about recreation (1.00), (2) off road vehicles along the riverbank (1.0), (3) bothersome insects (1.0), (4) high water level (1.17), and (5) lack of availability of high quality guides (1.17) (see Appendix F, for a full breakdown of responses).

Table 6. Problems identified by managers (ranked by mean scores)¹

Problem	Mean ²	Standard Deviation
Availability of toilet facilities between put-in and take-out points	4.00	0.63
People drinking alcoholic beverages on the river	3.50	0.84
River safety	3.50	0.55
Existence of clear jurisdiction by National Park Service versus state and local government	3.33	0.82
Boating skills of people using river	3.33	0.52
Campers trespassing onto private lands	3.33	1.21
Number of public river access points	3.20	0.45
Quality of communication between outfitters and their guests	3.17	0.41
Knowledge of rules and regulations on the river	3.17	0.75
Availability of drinking water sources at access points	3.17	0.75
Litter from riverbank users	3.17	0.75
Litter from river users	3.17	0.41
Condition of access points	3.00	0.89
Quality campsites along river	3.00	0.00
Number of camping spots on the river	3.00	0.63
Vandalism	2.83	0.41
Availability of information services (e.g., signs, displays) at put-in points	2.67	1.03
Informing visitors that river use is managed by National Park Service	2.67	0.52
Disposal of human body wastes	2.67	0.82
Litter from riparian landowners	2.67	1.03
Education of river guests about nature on the river	2.67	1.03
Existence of clear management direction from National Park Service	2.50	1.22
Availability of brochures showing map of river, attractions, hazards, access points, etc.	2.50	1.05
Day users trespassing onto private lands	2.50	0.55
Quality of communication between NPS and commercial river users	2.33	0.82
Distribution of visitors at popular rapids	2.33	1.03
Distribution of use throughout days of week	2.33	1.21
Distribution of use along various segments of the river	2.33	0.52
Number of hiking trails in river corridor	2.33	0.82
People rowdy on river	2.33	0.52
Erosion on river banks	2.33	0.52
Protection of vegetation at access points or lunch stops	2.33	0.52
Low water level	2.20	0.84
Roads within sight of the river	2.17	1.47
Availability of toilet facilities at access points	2.17	0.41
Availability of telephones at access points	2.17	0.75

Table 6. (continued)

Problem	Mean ²	Standard Deviation
Water pollution	2.17	0.75
Distribution of use among outfitters	2.00	0.89
Number of campgrounds in river corridor	2.00	0.89
Amount of information about things to do and see in the area	2.00	0.89
Protection of historic structures	2.00	0.89
Little NPS presence on the river	1.83	0.98
Too little enforcement of rules and regulations	1.83	0.75
Amount of recreational opportunities in area	1.83	0.75
Number of campgrounds in area	1.83	0.98
Quality of communications between NPS and boaters using their own equipment	1.67	0.52
Number of people on the river	1.67	0.82
Distribution of use across seasons of the year	1.67	0.82
Wildlife harassment	1.67	0.52
Education of river guests about river history	1.67	0.82
Friendliness of NPS river rangers	1.50	0.55
Familiarity of NPS employees with river and area	1.33	0.55
Too much enforcement of rules and regulations	1.33	0.82
People fishing	1.33	0.52
Nudity	1.33	0.52
Motorized boats on the river	1.17	0.41
Lack of availability of high quality guides	1.17	0.41
High water level	1.17	0.41
Bothersome insects	1.00	0.00
Off road vehicles along riverbank	1.00	0.00
National Park Service concerned about preservation and not concerned enough about recreation	1.00	0.00

¹All six managers responded to every potential problem but two. Only five managers rated potential problems: number of public river access points and low water level.

²Based on a scale of one to five: 1 = Not a problem
2 = Slight problem
3 = Moderate problem
4 = Serious problem
5 = Very serious problems

Problems identified as a serious or very serious problem by at least 50 percent of the managers included availability of toilets along river between put-in and take-out points, river safety, existence of clear jurisdiction by National Park Service versus state or local government, and campers trespassing onto private lands (Table 7).

Table 7. The ten problems identified most frequently by managers.

Problem	Respondents (N)	Percent ¹
Availability of toilets along river between put-in and take-out points	5	83.33
River safety	3	50.00
Existence of clear jurisdiction by National Park Service versus state local government	3	50.00
Campers trespassing onto private lands	3	50.00
People drinking alcoholic beverages on the river	2	33.33
Boating skills of people using river	2	33.33
Knowledge of rules and regulations on the river	2	33.33
Availability of drinking water sources at access points	2	33.33
Litter from riverbank users	2	33.33
Condition of access points	2	33.33

¹Responses are ordered by percent of managers answering the question and reporting the issue as a serious or very serious problem.

Table 8 presents the managers' ranking of how problems/issues have changed over the last five years (see Appendix G for a full breakdown of responses). Litter from riparian landowners (a mean of 2.50), low water level (2.67), and the number of camping spots on the river (2.83) were identified by managers as the only problems that have gotten worse on the Upper Delaware River (Table 8).

Only one problem, river safety, was identified by managers as having gotten "much better" (a mean of 4.5 or above) over the last five years (Table 8). Those receiving a "somewhat better" rating of 4.0 included: quality of communication between NPS and commercial river users, friendliness of NPS river rangers, too little enforcement of rules and regulations, knowledge of rules and regulations on the river, and availability of information at access points.

Table 8. Managers' ratings of problems becoming better or worse over the last five years (ranked by mean scores).

Problem	Respondents (N)	Mean ¹	Standard Deviation
River safety	6	4.67	0.52
Quality of communication between NPS and commercial river users	5	4.00	0.71
Friendliness of NPS river rangers	4	4.00	0.82
Too little enforcement of rules and regulations	5	4.00	0.71
Knowledge of rules and regulations on the river	6	4.00	0.00
Availability of information services (signs, displays) at put-in points	5	4.00	0.00
Availability of toilet facilities at access points	6	3.83	0.75
Availability of brochures showing map of river, attractions, hazards, access points, etc.	6	3.83	1.17
Amount of information about things to do and see in the area	6	3.83	0.75
People rowdy on river	6	3.83	0.75
Education of river guests about river history	5	3.80	0.84
Number of people on the river	4	3.75	0.50
Little National Park Service presence on the river	4	3.75	0.96
Motorized boats on the river	3	3.67	1.15
Off river vehicles along riverbank	3	3.67	1.15
Bothersome insects	3	3.67	1.15
Lack of availability of quality guides	3	3.67	1.15
Quality of communication between NPS and boaters using their own equipment	6	3.67	0.82
National Park Service concerned about preservation and not concerned enough about recreation	3	3.67	1.15
Availability of telephones at major access points	6	3.67	1.37
Informing visitors that river use is managed by the National Park Service	6	3.67	0.52
Campers trespassing onto private lands	6	3.67	0.52
Day users trespassing onto private lands	6	3.67	0.52
Nudity	5	3.60	0.89
Protection of historic structures	5	3.60	0.89
Quality of communication between outfitters and their guests	6	3.50	0.55
Familiarity of NPS employees with river and area	4	3.50	1.00
Too much enforcement of rules and regulations	2	3.50	2.12

Table 8. (continued)

Problem	Respondents (N)	Mean ¹	Standard Deviation
Amount of recreation opportunities in area	6	3.50	0.84
People drinking alcoholic beverages on the river	6	3.50	0.84
Litter from river users	6	3.50	0.84
Existence of clear management direction from National Park Service	5	3.40	0.55
Number of campgrounds in area	5	3.40	0.55
Number of campgrounds in river corridor	5	3.40	0.55
Wildlife harassment	5	3.40	0.55
Distribution of use along various segments of the river	6	3.33	0.52
Existence of clear jurisdiction by National Park Service versus state and local government	6	3.33	0.82
Number of public river access points	6	3.33	0.82
Boating skills of people using river	6	3.33	0.52
Water pollution	6	3.33	0.52
Disposal of human body wastes	6	3.33	0.52
Litter from riverbank users	6	3.33	0.52
Roads within sight of the river	5	3.20	1.10
Distribution of visitors at popular rapids	5	3.20	0.84
Distribution of use throughout days of the week	5	3.20	0.45
Availability of toilet facilities along river between put-in and take-out points	6	3.17	0.41
Quality of campsites along river	6	3.17	0.41
Erosion of riverbanks	6	3.17	0.75
Distribution of use across seasons of year	3	3.00	0.00
Distribution of use among outfitters	5	3.00	0.71
Availability of drinking water sources at access points	6	3.00	0.00
Condition of access points	6	3.00	1.41
Number of hiking trails in river corridor	6	3.00	0.00
People fishing	4	3.00	0.82
High water level	5	3.00	0.00
Protection of vegetation at access points or lunch stops	6	3.00	0.00
Vandalism	6	3.00	0.63
Education of river guests about river history	4	3.00	0.00
Number of camping spots on the river	6	2.83	0.41

Table 8. (continued)

Problem	Respondents (N)	Mean ¹	Standard Deviation
Low water level	6	2.67	0.52
Litter from riparian landowners	6	2.50	1.22

¹Only managers who rated the issue as a problem were asked to respond to this question.

Based on a scale of one to five: 1 = Much worse
 2 = Somewhat worse
 3 = About same
 4 = Somewhat better
 5 = Much better

The greatest amount of diversity of opinion among the managers regarding a change in problems over the last five years (Table 8) was too much enforcement of rules and regulations (2.12). The condition of access points (1.41), availability of telephones at major access points (1.37), and litter from riparian owners (1.22) also were problems that managers differed in their perception of amount of change over the last five years.

Table 9 presents the top ten problems that managers ranked as having gotten somewhat or much better over the last five years. They identified river safety, knowledge of rules and regulations on the river, and availability of information service at put-in points as the issues that have improved most. More than two-thirds of the managers, those who responded to the question, identified seven other problems that had gotten better over the last five years.

Table 9. The ten problems most frequently rated by managers as having gotten better over the last five years.

Problem	Respondents (N)	Percent ¹
River safety	6	100.00
Knowledge of rules and regulations on the river	6	100.00
Availability of information services (e.g., signs, displays) at put-in points	5	100.00
Quality of communication between NPS and commercial river users	4	80.00
Too little enforcement of rules and regulations	4	80.00
Friendliness of NPS river rangers	3	75.00
Availability of toilet facilities at access points	4	66.67
Availability of brochures showing map of river, attractions, hazards, access points, etc.	4	66.67
Amount of information about things to do and see in the area	4	66.67
People rowdy on river	4	66.67

¹Responses are ordered by percent of managers answering questions and reporting the issues as gotten somewhat or much better. Only managers who rated the issue as a problem were asked to respond.

While there appears to be general agreement among managers about the improvement in many problems over the last five years, no more than two managers felt any issues had gotten worse over the last five years (Table 10). Two managers did express concern over recent changes in (1) litter from riparian landowners, (2) low water levels, (3) conditions of access points, and (4) availability of telephones at major access points.

Table 10. The ten issues most frequently rated by managers as having gotten worse over the last five years.

Problem	Respondents (N)	Percent ¹
Too much enforcement of rules and regulations	1	50.00
Litter from riparian landowners	2	33.33
Low water level	2	33.33
Condition of access points	2	33.33
Availability of telephones at major access points	2	33.33
People fishing	1	25.00
Distribution of use among outfitters	1	20.00
Distribution of visitors at popular rapids	1	20.00

Table 10. (continued)

Problem	Respondents (N)	Percent ¹
Roads within sight of the river	1	20.00
Number of camping spots on the river	1	20.00

¹Responses are ordered by percent of managers answering the question and reporting the issue as gotten somewhat or much worse. Only managers who rated the issue as a problem were asked to respond.

Comparison Between Outfitters and Managers

Three of the top ten problems rated by outfitters and managers as serious or very serious were the same: (1) people drinking alcoholic beverages on the river, (2) existence of clear jurisdiction by National Park Service versus state and local government, and (3) availability of drinking water sources at access points (Table 11).

Managers' somewhat independent concerns focused on user-related problems such as campers trespassing onto private lands, boating skills of people using the river, visitor knowledge of rules and regulations, litter from riverbank users, river safety and the condition and availability of facilities on the river (Table 11).

Table 11. A comparison of the problems identified by managers and outfitters.¹

Managers	Outfitters
Availability of toilets along river between put-in and take-out points	Low water level
River safety	*People drinking alcoholic beverages on the river
*Existence of clear jurisdiction by National Park Service versus state and local government	Water pollution
	*Existence of clear jurisdiction by National Park Service versus state and local government

Table 11. (continued)

Managers	Outfitters
Campers trespassing onto private lands	Availability of telephones at major access points
*People drinking alcoholic beverages on the river	*Availability of drinking water sources at access points
Boating skills of people using river	Existence of clear management or direction from National Park Service
Knowledge of rules and regulations	Litter from river users
*Availability of drinking water sources at access points	People rowdy on river
Litter from riverbank users	Disposal of human body waste
Condition of access points	

[†]Responses are ordered by percent of managers and outfitters answering the question and reporting the issues as a serious or very serious problem.

*Issues that are similar between managers and outfitters.

Outfitters, on the other hand, focused their independent concerns on river/facility-related problems such as low water level, water pollution, and availability of telephones (Table 11). They also expressed concern about user problems such as the disposal of human body wastes, litter from river users, and people being rowdy.

Of the top ten issues that have gotten better over the last five years, managers and outfitters agreed on four of them: (1) river safety, (2) knowledge of rules and regulations on the river, (3) people being rowdy on the river, (4) availability of brochures showing map of river, attractions, hazards, access points, etc. (Table 12).

Of the ten areas of improvement, it is worthy to note the improved communication between visitors and those serving them (both managers and

outfitters). As the managers and outfitters view the situation, visitors generally are better informed about available opportunities and regulations/rules on the river, are better behaved, and are more aware of the Park Service presence in the river corridor.

Table 12. A comparison of the top issues identified by managers and outfitters as having gotten better over the last five years.¹

Managers	Outfitters
*River safety	Education of river guests about nature on the river
*Knowledge of rules and regulations on the river	Education of river guests about river history
Availability of information services (signs, displays) at put-in points	*River safety
Quality of communication between NPS and commercial river users	Litter from river users
Too little enforcement of rules and regulations	Litter from riverbank users
Friendliness of NPS river rangers	*People rowdy on river
Availability of toilet facilities at access points	Protection of historic structures
*Availability of brochures showing map of river, attractions, hazards, access points, etc.	*Availability of brochures showing map of river, attractions, hazards, access points, etc.
Amount of information about things to do and see in the area	*Knowledge of rules and regulations on the river
*People rowdy on river.	People drinking alcoholic beverages on the river

¹Responses are ordered by percent of managers and outfitters answering the question and reporting the issue somewhat or much better.

*Issues that are similar between managers and outfitters.

Managers and outfitters only agreed on three issues that have gotten worse over the last five years: (1) low water level, (2) distribution of use among outfitters, and (3) distribution of visitors at popular rapids (Table 13).

Table 13. A comparison of the ten issues identified by managers and outfitters as having gotten worse over the last five years.¹

Managers	Outfitters
Too much enforcement of rules and regulations	Number of people on the river
Litter from riparian landowners	Motorized boats on the river
*Low water level	*Distribution of visitors at popular rapids
Condition of access points	*Low water level
Availability of telephones at major access points	Existence of clear jurisdiction National Park Service versus state and local government
People fishing	Water pollution
*Distribution of use among outfitters	Existence of clear management direction from National Park Service
*Distribution of visitors at popular rapids	Vandalism
Roads within sight of the river	Distribution of use along various segments on the river
Number of camping spots on the river	

¹Responses are ordered by percent of managers and outfitters answering the question and reporting the issue somewhat or much worse.

*Issues that are similar between managers and outfitters.

In comparison to the outfitters, managers identified five general problem areas that have gotten worse over the past five years: (1) too much enforcement of rules and regulations, (2) litter from riparian landowners, (3) facilities/services on the river (condition of access

points, availability of telephones, number of camping spots), (4) people fishing, and (5) roads within sight of the river. Outfitters, on the other hand, saw four problem areas worsening: (1) numbers of people, motorized boats, and the distribution of use among river segments on the river, (2) water pollution, (3) vandalism, and (4) clear jurisdiction of management responsibility.

Differences Between Outfitters and Managers

In our comparison thus far, we have emphasized areas of similarities. Equally important to understanding potential cooperative efforts between outfitters and managers is to understand areas of differences in perceptions of problems. Table 14 lists those problems for which the managers' and outfitters' mean opinions differ by at least 1.0 (on the 1 (not a problem) to 5 (very serious problem) scale) or for which the problems differ by at least 20 ranks (on the scale of 1 to 61 items listed in the questionnaire). The differences in mean scores versus ranking have slightly different implications. The mean ratings are better measures of absolute evaluations of the seriousness of problems. The rankings are relative measures of the importance of one problem versus another, and might better suggest where managers or outfitters place limited resources to solve river problems. Those problems for which outfitters and managers differ on both measures are likely issues where cooperative ventures would be most difficult to obtain.

Of the 61 problems presented for evaluation, managers and outfitters differed (in an amount equal to or greater than the above criteria) in

their mean ratings and/or rankings on 24 of them (Table 14). Of these 24, the two groups differed on both the mean ratings and ranking on five of them: (1) lower water level, (2) boating skills of people using the river, (3) condition of access points, (4) quality of campsites along the river, and (5) quality of communication between outfitters and their guests. Park managers rated all these problems as more serious than did outfitters except for low water levels.

Among the six problems where the two groups differed only in mean ratings, the managers rated all six as more serious problems than did the outfitters: (1) campers trespassing onto private lands, (2) availability of toilets between access points, (3) river safety, (4) visitor knowledge of rules and regulations, (5) number of campsites on the river, and (6) number of public river access points.

The remaining 13 problems (Table 14) had differences only in rank of problem importance of 20 or more positions across the managers and/or outfitters. Eight of these the outfitters ranked as relatively more serious than did the managers: (1) water pollution, (2) availability of telephones at access points, (3) rowdy people on the river, (4) quality of communication between NPS and boaters using their own equipment, (5) the Park Service concerned about preservation and not enough about recreation, (6) high water levels, (7) lack of availability of high quality guides, and (8) bothersome insects.

On the other hand, managers ranked five of the 13 top-rated problems (Table 14) as more serious relative to other problems than did outfitters: (1) litter from riparian landowners, (2) education of river guests about nature on the river, (3) informing visitors that river use

is managed by the National Park Service, (4) roads within sight of the river, and (5) the distribution of use among outfitters.

Table 14. Differences in perceptions of problems between managers and outfitters.

Problem	Mean ¹		Rank ²	
	Managers	Outfitters	Managers	Outfitters
Low water level	2.20	3.88	33	1
Water pollution	2.17	2.92	37	2
Availability of telephones at access points	2.17	2.50	36	8
People rowdy on river	2.33	2.48	30	9
Campers trespassing onto private lands	3.33	2.29	6	11
Availability of toilet facilities between put-in and take-out points	4.00	2.12	1	13
River safety	3.50	2.04	3	17
Knowledge of rules and regulations on the river	3.17	2.04	9	18
Quality of communications between NPS and boaters using their own equipment	1.67	2.00	46	19
Number of camping spots on the river	3.00	2.00	15	20
National Park Service concerned about preservation and not enough about recreation	1.00	1.96	61	22
High water level	1.17	1.96	58	23
Number of public river access points	3.20	1.92	7	26
Boating skills of people using river	3.33	1.92	5	27
Lack of availability of high quality guides	1.17	1.58	57	35
Bothersome insects	1.00	1.57	59	37
Condition of access points	3.00	1.57	13	38
Quality of campsites along river	3.00	1.57	14	39
Litter from riparian landowners	2.67	1.50	20	42
Quality of communication between outfitters and their guests	3.17	1.48	8	43
Education of river guests about nature on the river	2.67	1.41	21	48

Table 14. (continued)

Problem	Mean ¹		Rank ²	
	Managers	Outfitters	Managers	Outfitters
Informing visitors that river use is managed by National Park Service	2.67	1.40	18	49
Roads within sight of the river	2.17	1.26	34	56
Distribution of use among outfitters	2.00	1.22	38	59

¹Mean is based on a scale of one to five: 1=Not a problem, 2=Slight problem, 3=Moderate problem, 4=Serious problem, 5=Very serious problem.

²Rank is position of seriousness of problem across 61 problem items in the questionnaire where 1=most serious problem and 61=least serious problem. Rankings are from Tables 1 and 6.

POTENTIAL SOLUTIONS TO RIVER MANAGEMENT PROBLEMS

Outfitters and the manager group were asked to rate 49 potential solutions to problems within nine management areas on a five point scale (1=Strongly oppose, 2=Somewhat oppose, 3=Neutral, 4=Somewhat favor, 5=Strongly favor). The management categories of concern were:

- . Safety
- . Education and Resource Protection
- . Litter
- . Rowdyism and Alcoholism
- . Water Level and Quality
- . Recreational Facilities
- . Resource Impacts and Human Waste Problem
- . Trespass
- . Informing Visitors of National Park Service

Solutions Identified by Outfitters

Outfitters' potential solutions, ranked by mean score, are presented by management problem areas in Table 15 (see Appendix H for a complete breakdown of responses). On the area of safety, requiring guests to wear

life jackets in major rapids (a mean score of 4.48) and banning glass containers on the river (4.46) were the highest ranked solutions.

Placing informational bulletin boards at access points (4.69), cooperation between the NPS and outfitters to develop a river map which lists river attractions and facilities to distribute to river guests (4.27) were the most popular education and resource protection management solutions.

National Park Service boat patrols giving litter bags and litter messages to riverbank users (4.08) and an annual river clean up day sponsored by outfitters and the National Park Service (4.04) were the two most popular solutions to litter problems.

Table 15. Potential solutions identified by outfitters (ranked by mean scores)

Issue	Respondents (N)	Mean ¹	Standard Deviation
<u>Safety</u>			
Require guests to wear life jackets in major rapids	23	4.48	1.04
Ban glass containers on river	26	4.46	1.24
NPS and outfitters cooperate to provide safety patrols at major rapids	26	3.89	1.28
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety instruction program for river guests	24	3.87	1.23
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety	26	3.85	1.38
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	26	3.23	1.37
Require outfitters to provide each boat with rope or towline for safety purposes	26	2.42	1.47
Require guests to wear helmets in major rapids	25	2.00	1.22

Table 15. (continued)

<u>Issue</u>	<u>Respondents (N)</u>	<u>Mean¹</u>	<u>Standard Deviation</u>
<u>Education and Resource Protection</u>			
Place informational bulletin boards at access points	26	4.69	0.55
NPS and outfitters cooperate to develop a river map which lists river attractions and facilities to distribute to river guests	26	4.27	1.12
NPS provide programs on park management, resource protection, water safety, and litter to area schools and communities	26	4.08	1.16
NPS accomplish resource protection and rule enforcement more through friendly persuasion than through arrests and enforcement tactics	25	4.04	1.24
NPS develop literature on nature and history of river for outfitters to send to guests before arrival	26	3.96	1.34
<u>Litter</u>			
NPS boat patrol give litter bags and anti-litter messages to riverbank users	25	4.08	1.08
Annual river clean up day sponsored by outfitters and NPS	25	4.04	1.17
Outfitters give litter bags provided by NPS to each river trip	25	3.80	1.53
NPS and outfitters cooperate to develop a procedure to equitably and efficiently collect and remove litter at river access points, lunch stops, and campsites	25	3.76	1.23
Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river	24	2.71	1.43
<u>Rowdyism and Alcoholism</u>			
Clarify who has law enforcement authority to deal with alcohol related problems in river corridor	25	4.08	1.08
NPS and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests	23	3.91	1.31
NPS should assume a greater and more consistent role in reducing alcohol related problems and rowdyism in the river corridor	25	3.84	1.21

Table 15. (continued)

Issue	Respondents (N)	Mean ¹	Standard Deviation
NPS and outfitters cooperate to develop a mandatory guest education program on proper river etiquette	25	3.36	1.41
Ban glass containers and cans on the river	25	3.28	1.57
Impose an "open bottle" regulation on the river, i.e., drinking of alcohol permitted on land but not while on the water	25	2.72	1.54
Prohibit drinking of alcoholic beverages within park boundaries	26	2.27	1.51
<u>Water Level and Quality</u>			
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	25	5.00	0.00
NPS, DRBC and states cooperate to protect the river's water quality	25	4.84	0.55
<u>Recreational Facilities</u>			
Provide toilets at river access points	25	4.52	0.82
Install shoreline markers that indicate distance to and location of major take-out points	26	4.33	0.88
Provide more drinking water sources at river access points	26	4.31	1.01
Cooperate with state agencies to improve existing roads to put-in and take-out points	26	4.12	0.86
Provide telephones at public river access points	18	3.94	1.06
Provide more public parking spaces at existing access points on the river	26	3.92	0.98
Build more hiking trails on public land within corridor	26	3.37	1.55
Construct more river access points	16	3.25	1.29
Build more river access campsites along the river	26	3.12	1.61
Livery operators cooperate among themselves to open their landings to guests of other livery operators	26	3.08	1.62
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	26	3.04	1.37
Facilitate the development of horseback riding stables and trails on public land	24	2.71	1.46
Build more car campgrounds in park	26	2.46	1.42

Table 15. (continued)

Issue	Respondents (N)	Mean ¹	Standard Deviation
<u>Resources Impacts and Human Waste Problems</u>			
NPS construct primitive toilets at designated lunch spots and campsites	25	4.20	1.12
<u>Trespass</u>			
NPS and landowners cooperate to provide signing of public and private land along the river	25	4.08	1.19
NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	24	3.33	1.37
<u>Informing Visitors of National Park Service</u>			
NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	25	4.36	0.76
Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	26	4.27	0.83
Assign uniformed NPS personnel to popular stopping points and gathering places along the river	26	3.85	1.08
NPS and outfitters cooperate to develop literature on national park status and river recreation opportunities for outfitters to send their quests	25	3.84	1.14
Place uniformed NPS personnel at major access points to greet river guests, indicate NPS presence, and assist in safety emergencies	26	3.81	1.17
Place NPS entrance signs along public roads for access to the river	25	3.72	1.24

¹Based on a scale of one to five: 1 = Strongly oppose
2 = Somewhat oppose
3 = Neutral
4 = Somewhat favor
5 = Strongly favor

In an effort to control rowdiness and alcoholism, clarifying who has law enforcement authority to deal with alcohol-related problems in the river corridor (4.08) and cooperation between outfitters and managers to

develop literature on proper river etiquette for outfitters to send to their guests (3.91) were the two highest ranked solutions (see Appendix H for a complete breakdown of responses).

Outfitters unanimously felt the solution to problems of water level and quality was for the National Park Service and the Delaware River Basin Commission (DRBC) to work cooperatively to provide more ideal water flow for the river recreation (5.00).

Providing toilets at river access points (4.52) was the recreational facility that was most favored (Table 15). There also was strong support for shoreline markers to indicate distance to and location of major take-out points (4.33), more drinking water sources at river access points (4.31), and cooperation with state agencies to improve existing roads to put-in and take-out points (4.12).

Outfitters also felt the National Park Service should construct primitive toilets at designated lunch spots and campsites (4.20) as a method to solve the human waste problem.

Outfitters believed that solving trespassing problems was best accomplished by the National Park Service and landowners cooperating to provide signing of public and private lands along the river (4.08).

Last, as a means to inform visitors about the park unit and the Park Service, outfitters felt the National Park Service should provide their seasonal employees with a training course on river resources, facilities, visitor safety, and role and services of river outfitters (4.36) and have National Park Service patrols floating the river throughout the high use season to assist river users and enforce regulations (4.27).

In addition to the ranked mean score, the standard deviation also is presented in Table 15. This statistic provides information on the diversity or variability among outfitters' opinions on a potential solution. The two potential solutions with the greatest diversity among the outfitters' ratings were livery operators cooperating among themselves to open their landings to guests of other livery operators (1.62) and building more river access campsites along the river (1.61). There also was lack of agreement among outfitters regarding the banning of glass containers and cans on the river (1.57), building more hiking trails on public land within the river corridor (1.55), an "open bottle" regulation on the river (1.54), outfitters giving litter bags provided by the Park Service to each river trip (1.53), and prohibiting drinking of alcoholic beverages within park boundaries (1.51) (Table 15).

Almost all of the outfitters (25 of 26) somewhat or strongly favored that the NPS, DRBC, and state agencies work cooperatively to provide more ideal water flow for river recreation (Table 16). Placing informational bulletin boards at access points; requiring guests to wear life jackets in major rapids; having the NPS, DRBC, and states cooperate to protect the river's water quality; installing shoreline markers; providing toilets at access points; the banning of glass containers on the river; NPS providing their seasonal employees with training on river resources, facilities, visitor safety, etc.; providing more drinking water sources at river access points; and having NPS patrols floating the river throughout the high use season also were highly rated potential solutions favored by the outfitters.

Table 16. The ten potential solutions favored most frequently by outfitters.

Solution	Respondents (N)	Percent ¹
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	25	100.00
Place informational bulletin boards at access points	25	96.15
Require guests to wear life jackets in major rapids	21	91.30
NPS, DRBC and states cooperate to protect the river's water quality	23	92.00
Install shoreline markers that indicate distance to and location of major take-out points	24	88.89
Provide toilets at river access points	22	88.00
Ban glass containers on river	22	84.62
NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	21	84.00
Provide more drinking water sources at river access points	21	80.77
Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	20	76.93

¹Responses are ordered by percent of outfitters answering the question and reporting the potential solution as somewhat or strongly favored.

The top ten potential solutions which were somewhat or strongly opposed by the outfitters are presented in Table 17. The potential solution to require guests to wear helmets in major rapids was somewhat or strongly opposed by 64 percent of the outfitters. Prohibiting the drinking of alcoholic beverages within peak boundaries, building more campgrounds in the park, requiring outfitters to provide each boat with a rope or towline for safety purposes, and prohibiting the use of cans, bottles, and other nonburnable disposable containers on the river also were opposed by at least 50 percent of the outfitters (Table 17). Opposition to livery operators cooperating among themselves to open their

landings to guests of other liveries also was among the top ten solutions opposed (34.6%).

Table 17. The ten potential solutions most frequently opposed by outfitters.

Solution	Respondents (N)	Percent ¹
Require guests to wear helmets in major rapids	16	64.00
Prohibit drinking of alcoholic beverages within park boundaries	16	61.54
Build more car campgrounds in park	15	57.69
Require outfitters to provide each boat with a rope or towline for safety purposes	14	53.85
Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river	12	50.00
Facilitate the development of horseback riding stables and trails on public lands	11	45.83
Impose an "open bottle" regulation on the river, i.e., drinking of alcohol permitted on land but not while on the water	11	44.00
Build more river access campsites along the river	11	42.31
Livery operators cooperate among themselves to open their landings to guests of other liveries	9	34.62
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	7	26.92

¹Responses are ordered by percent of outfitters answering the question and reporting the potential solution as somewhat or strongly opposed.

Solutions Identified by Managers

Ratings of potential solutions by river managers for the nine management areas are found in Table 18 (see Appendix I for the complete breakdown of responses). The solutions are ranked by means, with standard deviations to compare diversity among managers' attitudes.

On the issue of safety, all of the managers believed outfitters and the National Park Service should cooperate to provide safety patrols at major rapids and that the National Park Service and outfitters should cooperate to develop and implement a mutually agreeable mandatory safety

instruction program for river guests. They also strongly supported cooperative efforts by the NPS and outfitters to provide a guest education program on effects of drinking alcohol on boating safety (a mean of 4.83) and banning glass containers on the river (4.67).

Table 18. Potential solutions most frequently favored by managers (ranked by mean scores).¹

<u>Solution</u>	<u>Mean²</u>	<u>Standard Deviation</u>
<u>Safety</u>		
NPS and outfitters cooperate to provide safety patrols at major rapids	5.00	0.00
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety instruction program for river guests	5.00	0.00
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety	4.83	0.41
Ban glass containers on river	4.67	0.82
Require guests to wear life jackets in major rapids	3.83	1.60
Require outfitters to provide each boat with rope or towline for safety purposes	3.67	1.03
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	3.17	1.60
Require guests to wear helmets in major rapids	2.17	1.33
<u>Education and Resource Protection</u>		
NPS provide programs on park management, resource protection, water safety and litter to area schools and communities	5.00	0.00
NPS accomplish resource protection and rule enforcement more through friendly persuasion than through arrests and enforcement tactics	4.67	0.82
NPS develop literature on nature and history of river for outfitters to send guests before their arrival	4.50	0.84
Place informational bulletin boards at access points	4.50	0.84
NPS and outfitters cooperate to develop a river map which lists river attractions and facilities to distribute to river guests	4.17	1.33

Table 18. (continued)

<u>Solution</u>	<u>Mean²</u>	<u>Standard Deviation</u>
<u>Litter</u>		
Annual river clean up day sponsored by outfitters and NPS	4.83	0.41
NPS and outfitters cooperate to develop a procedure to equitably and efficiently collect and remove litter at river access points, lunch stops, and campsites	4.33	1.03
NPS boat patrol give litter bags and anti-litter messages to riverbank users	3.50	1.38
Outfitters give litter bags provided by NPS to each river trip	3.33	1.37
Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river	2.67	0.82
<u>Rowdyism and Alcoholism</u>		
NPS and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests	4.67	0.52
Clarify who has law enforcement authority to deal with alcohol related problems in river corridor	4.50	0.84
NPS and outfitters cooperate to develop a mandatory guest education program on proper river etiquette	4.00	1.10
NPS should assume a greater and more consistent role in reducing alcohol related problems and rowdyism in the river corridor	3.33	1.51
Impose an "open bottle" regulation on the river, i.e., drinking of alcohol permitted on land but not while on the water	3.33	1.37
Prohibit drinking of alcoholic beverages within park boundaries	3.00	1.22
Ban glass containers and cans on the river	2.67	0.52
<u>Water Level and Quality</u>		
NPS, DRBC and states cooperate to protect the river's water quality	5.00	0.00
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	4.83	0.41
<u>Recreational Facilities</u>		
Install shoreline markers that indicate distance to and location of major take-out points	4.83	0.41
Livery operators cooperate among themselves to open their landings to guests of other livery operators	4.67	0.82
Provide toilets at river access points	4.50	0.84

Table 18. (continued)

Solution	Mean ²	Standard Deviation
Provide more drinking water sources at river access points	4.33	0.82
Provide telephones at public river access points	4.17	0.75
Build more river access campsites along the river	4.00	1.26
Cooperate with state agencies to improve existing roads to put-in and take-out points	3.83	1.33
Build more hiking trails on public land within corridor	3.83	0.75
Construct more river access points	3.67	1.75
Provide more public parking spaces at existing access points on the river	3.33	1.21
Facilitate the development of horseback riding stables and trails on public land	3.00	0.00
Build more car campgrounds in park	2.67	0.82
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	2.00	1.55
<u>Resources Impacts and Human Waste Problems</u>		
NPS construct primitive toilets at designated lunch spots and campsites	3.67	1.51
<u>Trespass</u>		
NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	4.67	0.52
NPS and landowners cooperate to provide signing of public and private land along the river	4.50	0.84
<u>Informing Visitors of National Park Service</u>		
Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	5.00	0.00
NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	4.83	0.41
NPS and outfitters cooperate to develop literature on national park status and river recreation opportunities for outfitters to send their guests	4.67	0.82
Place uniformed NPS personnel at major access points to greet river guests, indicate NPS presence, and assist in safety emergencies	4.50	0.84
Place NPS entrance signs along public roads for access to the river	4.33	0.82

Table 18. (continued)

Solution	Mean ²	Standard Deviation
Assign uniformed NPS personnel to popular stopping points and gathering places along the river	3.67	1.51

¹All six managers responded to every potential solution but one. Only five managers rated potential solution--provide telephones at public river access points.

²Based on a scale of one to five: 1 = Strongly oppose
2 = Somewhat oppose
3 = Neutral
4 = Somewhat favor
5 = Strongly favor

Managers also were unanimous in their support for the National Park Service providing programs on park management, resource protection, water safety, and litter to area schools and communities. They strongly supported the four other education and resource protection activities as well: (1) NPS accomplish resource protection and rule enforcement more through friendly persuasion than through arrests and enforcement (4.67), (2) NPS develop literature on nature and history for outfitters to distribute to their guests (4.50), (3) place information bulletin boards at access points (4.50), and (4) NPS and outfitters cooperate to develop a river map identifying attractions and facilities (4.17).

An annual river clean up day sponsored by outfitters and the National Park Service was the most popular solution to litter problems on the river (4.83). There also was good support for cooperation by the NPS and outfitters to develop a procedure to collect and remove litter at access points and other river sites (4.33). The National Park Service cooperating with outfitters to develop literature on proper river etiquette for outfitters to send to their guests (4.67), clarifying who

has the law enforcement authority to deal with alcohol-related problems in the river corridor (4.50), and NPS outfitter cooperation to develop a mandatory guest education program on river etiquette were the three highest ranked methods to combat rowdy behavior and alcohol abuse on the river.

All of the managers believed the National Park Service, the Delaware River Basin Commission and the several states should cooperate to protect the river's water quality, and nearly all supported efforts to provide more ideal water flow for recreation (4.83).

The installation of shoreline markers that indicate distance to and location of major take-out points (4.83) and livery operators cooperating among themselves to open their landings to guests of other livery operators (4.67) were the managers' two most popular recreation facility solutions. Other facilities most supported by managers included providing toilets at river accesses (4.50), more drinking water sources (4.33), telephones at access points (4.17), and more river access campsites along the river. The construction of primitive toilets at designated lunch spots and campsites to help solve human waste problems received a lukewarm endorsement (3.67) from the managers.

Outfitters cooperating with the National Park Service to develop a mandatory guest education program on respecting property rights along the river (4.67) and Park Service and landowners cooperating to sign public and private land along the river (4.50) were considered by the managers as highly preferred methods to reduce trespassing problems.

All the managers strongly favored the National Park Service having patrols floating the river throughout the high use season to assist river

users and enforce regulations as the best method to inform visitors of the National Park Service presence (Table 18). They also favored information efforts to (1) train seasonal employees about river recreation issues (4.83), (2) cooperate with outfitters to develop literature on national park status and river opportunities for outfitters to send their guests (4.67), (3) locate uniformed NPS personnel at major accesses and assist in safety emergencies (4.50), and (4) place NPS entrance signs along public roads for access to the river.

The greatest variability among river managers' opinions on potential solutions was for the construction of more river access points (1.75) (Table 18). Other high variability solutions included requiring guests to wear life jackets in major rapids (1.60), NPS and outfitters cooperating to place emergency shuttle services at appropriate access points along the river during the high use season (1.60), and the outfitters and NPS cooperating to facilitate increased boating use on the river upstream of Callicoon, New York (1.55).

Table 19 presents ten potential solutions that all six of the managers rated as somewhat or strongly favored. Managers favored solutions which emphasized public visibility, cooperation among government agencies, joint ventures with outfitters on litter control, and increased programming on river safety, resource protection and alcohol abuse.

Table 19. The ten potential solutions most frequently favored by managers.

Solution	Respondents (N)	Percent ¹
Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	6	100.00
NPS, DRBC and states cooperate to protect the river's water quality	6	100.00
NPS provide programs on park management, resource protection, water safety and litter to area schools and communities	6	100.00
NPS and outfitters cooperate to provide safety patrols at major rapids	6	100.00
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety program	6	100.00
Install shoreline markers that indicate distance to and location of major take-out points	6	100.00
NPS provide their seasonal employees with training course on river resources, facilities, visitor safety and role and services of river outfitters	6	100.00
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	6	100.00
Annual river clean up day sponsored by outfitters and NPS	6	100.00
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol and boating safety	6	100.00

¹Responses are ordered by percent of managers answering the question and reporting the potential solution as somewhat or strongly favored.

Over three-fourths (83.33%) of the managers opposed the National Park Service and outfitters cooperating to facilitate increased boating use of river upstream of Callicoon, New York (Table 20). Fifty percent of the managers opposed requiring guests to wear helmets in major rapids and prohibiting nonburnable disposable containers on the river.

Table 20. The ten potential solutions opposed by the managers.

<u>Solution</u>	<u>Respondents</u>	<u>Percent¹</u>
	(N)	
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	5	83.33
Require guests to wear helmets in major rapids	3	50.00
Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river	3	50.00
Ban glass containers and cans on the river	3	33.33
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	2	33.33
Outfitters give litter bags provided by NPS to each river trip	2	33.33
Provide more public parking spaces at existing access points on the river	2	33.33
NPS boat patrol give litter bags and anti-litter messages to riverbank users	2	33.33
Construct more river access points	2	33.33
Prohibit drinking of alcoholic beverages within the park boundaries	1	20.00

¹Responses are ordered by percent of managers answering the question and reporting the potential solution as somewhat or strongly favored.

Comparison Between Outfitters and Managers

Table 21 presents a comparison of the potential solutions favored somewhat or strongly by managers and outfitters. The two groups agreed on half of the favored potential solutions: (1) have Park Service patrols floating the river throughout the high use season, (2) NPS, DRBC and states cooperate to protect water quality as well as provide more ideal water flow for recreation, (3) install shoreline markers that indicate distances and locations, and (4) NPS provide their seasonal employees with training on river resources, facilities, visitor safety, and role and service of outfitters.

Managers more strongly favored solutions with required direct cooperation between the National Park Service and outfitters (safety patrols at major rapids, mandatory safety programs, annual river clean up day, and guest education programs) and NPS sponsored community and school resource protection and park management programs.

Table 21. A comparison of the ten potential solutions most frequently favored by managers and outfitters.¹

Managers	Outfitters
*Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	*NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation
*NPS, DRBC and states cooperate protect the river's water quality	Place informational bulletin boards at access points
NPS provide programs on park management, resource protection, water safety and litter to area schools and communities	Require guests to wear life jackets in major rapids
NPS and outfitters cooperate to provide safety patrols at major rapids	*NPS, DRBC and states cooperate to protect the river's water quality
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety program	*Install shoreline markers that indicate distance to and location of major take-out points
*Install shoreline markers that indicate distance to and location of major take-out points	Provide toilets at river access points
*NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	Ban glass containers on river
*NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	*NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters
*NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	Provide more drinking water sources at river access points
	*Have NPS patrols floating river throughout high use season to assist river users and enforce regulations

Table 21. (continued)

Managers	Outfitters
Annual river clean up day sponsored by outfitters and NPS	
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol and boating safety	

¹Responses are ordered by percent of managers and outfitters answering the questions and reporting the potential solution as somewhat or strongly favored.

*Potential solutions included in both the manager and outfitter lists.

Outfitters on the other hand preferred more recreation facilities (informational bulletin boards, toilets at access points, and more drinking water sources at river access points), and increased regulations (life jackets in major rapids and banning glass containers).

A comparison of the top ten solutions which were opposed by managers and outfitters is presented in Table 22.

Four solutions that both managers and outfitters somewhat or strongly opposed were: (1) Park Service and managers cooperate to facilitate increased boating use upstream of Callicoon, New York, (2) require guests to wear helmets in major rapids, (3) prohibit the use of cans, bottles and other nonburnable disposal containers on the river, and (4) prohibit drinking of alcoholic beverages within park boundaries.

Solutions that managers opposed, but differed from outfitters, included banning glass containers and cans on the river, development of new facilities and services (more access points, more parking spaces, and providing emergency shuttling service), and providing and distributing litter bags.

Solutions that were opposed by outfitters that differed from managers included building more river campsites and car campgrounds (in the park and along the river), requiring outfitters to provide a towline for each boat, facilitating the development of horseback riding stables and trails, imposing an "open bottle" regulation, and livery operators cooperating to open their landings to guests of other liveries (Table 22).

Table 22. A comparison of the ten potential solutions most frequently opposed by managers and outfitters.¹

Managers	Outfitters
*NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	*Require guests to wear helmets in major rapids
*Require guests to wear helmets in major rapids	*Prohibit drinking of alcoholic beverages within park boundaries
*Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river	Build more car campgrounds in park
Ban glass containers and cans on the river	Require outfitters to provide each boat with a rope or towline for safety purposes
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	*Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river
Outfitters give litter bags provided by NPS to each river trip	Facilitate the development of horseback riding stables and trails on public lands
Provide more public parking spaces at existing access points on the river	Impose an "open bottle" regulation on the river, i.e., drinking of alcohol permitted on land but not while on the water
NPS boat patrol give litter bags and anti-litter messages to riverbank users	Build more river access campsites along the river
	Livery operators cooperate among themselves to open their landings to guests of other liveries

Table 22. (continued)

Managers	Outfitters
Construct more river access points	*NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York
*Prohibit drinking of alcoholic beverages within the park boundaries	

¹Responses are ordered by percent of managers and outfitters answering the questions and reporting the potential solution as somewhat or strongly opposed.

*Potential solutions included in both the manager and outfitter lists.

Differences Between Outfitters and Managers

As was the case for our analysis of problems, our final comparison of managers' and outfitters' opinions about problem solutions focused on differences. Table 23 lists all those problem solutions on which the mean response differed by at least 1.0 (on the 1 (strongly oppose) to 5 (strongly favor) scale).

We found more agreement in opinions about solutions than on the severity of problems. Only seven differences in mean response of at least 1.0 were found among the 49 possible solutions presented to respondents for evaluation. On none of these, however, did the managers and outfitters have strongly opposing views. But, for six of the seven solutions, the opinions of managers produced a somewhat higher mean score. The largest differences, although not significantly large, were seen with respect to: (1) managers strongly favored livery operators cooperating among themselves to open their landings to guests of other livery operators (a mean of 4.67); outfitters were neutral (3.08); (2) managers strongly favored NPS and outfitters cooperating to develop a

mandatory guest education program on respecting property rights along the river (a mean of 4.67).

Table 23. Differences in perceptions of potential solutions to problems between managers and outfitters.

Solution	Mean ¹	
	Managers	Outfitters
NPS and outfitters cooperate to provide safety patrols at major rapids	5.00	3.89
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety instruction program for river guests	5.00	3.87
NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	4.67	3.33
Livery operators cooperate among themselves to guests of other livery operators	4.67	3.08
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	2.00	3.04
Facilitate the development of horseback riding stables and trails on public land	3.00	2.71
Require outfitters to provide each boat with rope or towline for safety purposes	3.67	2.42

¹Based on a scale of one to five: 1 = Strongly oppose
2 = Somewhat oppose
3 = Neutral
4 = Somewhat favor
5 = Strongly favor

PROBLEM-SOLVING THROUGH COOPERATION

The management of the Upper Delaware Scenic and Recreational River depends on cooperation between the National Park Service, commercial livery operators, outside state and local government agencies, and local riparian landowners. Resource protection, controlling water levels, visitor safety, and law enforcement are examples of management issues that require cooperation among all the parties involved on the river.

Cooperation Between Outfitters and National Park Service

One of the main objectives of this research project is to suggest how National Park Service managers and river outfitters can work together in providing high quality services and river conditions on the Upper Delaware Scenic and Recreational River. Table 24 presents the level of approval by managers and outfitters for 14 potential actions that require cooperation between the National Park Service and river outfitters.

Overall, managers were much more supportive towards cooperation between the National Park Service and river outfitters than were the outfitters. At least two-thirds of the responding managers somewhat or strongly favored 12 of the 14 potential cooperative solutions. All six managers somewhat or strongly favored six of them. Only on the actions of cooperating with outfitters to develop shuttle services and increase boating use upstream from Callicoon did less than 67 percent of the responding managers somewhat or strongly support them.

On the other hand, only six issues were favored by more than two-thirds of the outfitters who responded: (1) cooperate to develop literature on proper river etiquette for outfitters to send to their guests, (2) have outfitters give litter bags provided by NPS to each river trip, (3) conduct a jointly sponsored annual river clean up day, (4) cooperate to provide safety patrols at major rapids, (5) NPS develop literature on the nature and history of the river for outfitters to send to their guests, and (6) cooperate to develop literature on national park status and river attractions and facilities to distribute to river guests.

Table 24. Support for potential solutions which require cooperation between outfitters and the National Park Service.¹

Solution	Managers		Outfitters	
	Percentage Favor	Percentage Oppose	Percentage Favor	Percentage Oppose
NPS and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests	100.00	0.00	78.26	13.00
Annual river clean up day sponsored by outfitters and NPS	100.00	0.00	72.00	12.00
NPS and outfitters cooperate to provide safety patrols at major rapids	100.00	0.00	70.37	11.11
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety	100.00	0.00	65.38	15.38
NPS and outfitters cooperate to implement a mutually agreeable mandatory safety instruction program for river guests	100.00	0.00	62.96	12.50
NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	100.00	0.00	54.17	25.00
Outfitters give litter bags provided by NPS to each river trip	83.33	16.67	76.00	8.00
NPS develop literature on nature and history of river for outfitters to send to guests before their arrival	83.33	0.00	69.23	11.53
NPS and outfitters cooperate to develop a mandatory guest education program on proper river etiquette	83.33	16.67	48.00	24.00
NPS and outfitters cooperate to develop literature on national park status and river recreation opportunities for outfitters to send their guests	83.33	0.00	68.00	8.00
NPS and outfitters cooperate to develop a river map which lists river attractions and facilities to distribute to river guests	66.67	16.67	88.46	7.69

Table 24. (continued)

Solution	Managers		Outfitters	
	Percentage		Percentage	
	<u>Favor</u>	<u>Oppose</u>	<u>Favor</u>	<u>Oppose</u>
NPS and outfitters cooperate to develop a procedure to equitably and efficiently collect and remove litter at river access points, lunch stops, and campsites	66.67	0.00	60.00	12.00
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	33.33	33.33	42.31	26.92
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York	16.67	83.33	26.92	26.92

¹Responses are ordered by percent of managers answering the questions and reporting the potential solution as somewhat or strongly favored and somewhat or strongly opposed.

Cooperation Between the National Park Service and Other Agencies and Landowners

In addition to exploring cooperation between themselves, managers and river outfitters were asked to evaluate cooperation between the National Park Service and other state agencies and private landowners. Table 25 presents these findings.

Both managers and outfitters were unanimous in their support for the National Park Service and the Delaware River Basin Commission (DRBC) and state agencies working cooperatively to provide more ideal water flow for river recreation. Cooperation to protect the river's water quality also was favored by all managers (100%) and nearly all outfitters (92%). There also was strong support for improved signing of public and private land within the river corridor. Only 50 percent of the managers favored

National Park Service cooperation with state agencies to improve roads to put-in and take-out points. However, over two-thirds of the outfitters favored this cooperative venture.

Table 25. Outfitters' and managers' support for and opposition to potential solutions which require cooperation between the National Park Service and other agencies and landowners.¹

Solution	Managers		Outfitters	
	Percentage Favor	Percentage Oppose	Percentage Favor	Percentage Oppose
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	100.00	0.00	100.00	0.00
NPS, DRBC and states cooperate to protect the river's water quality	100.00	0.00	92.00	0.00
NPS and landowners cooperate to provide signing of public and private land along the river	88.33	0.00	76.00	8.00
Cooperate with state agencies to improve existing roads to put-in and take-out points	50.00	16.67	69.23	0.00

¹Responses are ordered by percent of outfitters answering the questions and reporting the potential solution as somewhat or strongly favored.

Previous Successes

The previous findings suggest a relatively high degree of similarity in outfitters' and managers' opinions about problems and possible solutions on the Upper Delaware River. This further suggests there may be good opportunities for these two groups to work cooperatively in addressing problems and in developing strategies to manage the river. Additional evidence that such partnerships are possible was uncovered when study participants were asked a free-response question (Question 4)

about actions the Park Service had taken over the last five years that had improved the quality of the river and river trips. The answers reflect that cooperation and communication has improved among interested river groups and suggest that through increased collaboration even more might be possible. Some of the recent successes identified by outfitters and managers are:

- . Safety Improvements
 - Implementation of safety programs and safety patrols
 - More visible safety patrols
 - Prompt emergency situation assistance
 - Decrease in drownings
- . Communications
 - Implementation of safety and interpretive programs
 - Development of river maps
 - Helpful rangers
 - Helpful information for river guests
- . Cooperation
 - NPS working with outfitters
 - NPS working with state agencies
 - NPS cooperating with local governments
 - NPS working with trade associations
 - NPS working with local police/rescue forces
- . Visibility
 - More contacts with the public
 - Greater and more effective law enforcement
 - Reduction in canoe thefts
 - Less rowdiness on the river
- . Water quality
 - Cleaner river
 - Improved trash collection

SUMMARY OF FINDINGS

This section of the report presents a summary of the major findings of the study. Specifically, problems identified by managers and outfitters, potential solutions to river problems, and possible cooperation between managers and outfitters are highlighted.

Problems on the River

National Park Service managers felt the situation on the river generally was worse than the outfitters did. Twenty-one problems were rated by the managers as a moderate or serious problem (a mean score of over 2.60) (Table 6). Of these, only three were identified as serious (3.50 or above):

- . Availability of toilet facilities between put-in and take-out points
- . People drinking alcoholic beverages on the river
- . River safety

Outfitters, on the other hand, rated only one problem as serious-- low water levels (Table 1). Only five other problems were rated as a moderate problem (2.50 and above). Of these, the top two were water pollution and lack of clear jurisdiction by Park Service versus state and local government. The next three were (1) people drinking alcoholic beverages on the river, (2) availability of drinking water on the river, and (3) existence of clear management direction from the Park Service.

There was a general lack of agreement among the managers and outfitters on specific issues that have gotten better over the last five years, but there was agreement that river safety had improved (Table 12).

The two groups agreed on three problems that had gotten worse over the last five years (Table 13):

- . Low water level
- . Distribution of use among outfitters
- . Distribution of visitors at popular rapids

Of the 61 problems listed in the questionnaire, managers' and outfitters' mean responses differed by at least one point on a 1-5 rating scale on 14 of them (Table 14). On all but one of these, low water

level, the managers thought the problem was more serious than the outfitters did. Of those 14, the five problems the managers believed were most serious included:

- . Campers trespassing onto private lands
- . Availability of toilets between access points
- . River safety
- . Boating skills of people using river
- . Quality of communication between outfitters and their guests

In addition to the problem of low water levels, the top problems the outfitters rated as more serious than the managers were:

- . Water pollution
- . Availability of telephones at access points
- . People being rowdy on the river
- . Quality of communications between NPS and boaters using their own equipment

The water level situation is a major concern among outfitters. This problem also was voiced by outfitters during that part of the interview when they offered free-response comments about problems in the river corridor (Questions 3 and 6 in the questionnaire). Water releases was the problem most often mentioned, followed by alcohol related problems, litter, water pollution, and trash disposal. A lack of river patrols and the uncertain role of the National Park Service also were mentioned in the free-response questioning.

Potential Solutions to River Problems

Respondents reacted to 49 possible solutions under the following categories: (1) safety, (2) education and resources protection, (3) litter, (4) alcoholism and rowdyism, (5) water level and quality, (6) recreational facilities, (7) resource impacts and human waste problems (8) trespassing on private land, and (9) informing visitors of National

Park Service. Overall, outfitters and managers had quite similar opinions about many actions to help solve management problems on the Upper Delaware. Some of the most important findings are:

Safety

- . Both opposed requiring guests to wear helmets in major rapids.
- . Both favored banning glass containers
- . Both favored the National Park Service and outfitters cooperating to provide safety patrols at major rapids

Education and Resource Protection

- . Both favored locating informative bulletin boards at river access points
- . Both favored the National Park Service providing programs on management, water safety, and litter programs to area schools and communities

Litter

- . Both favored an annual cooperative river clean up day
- . Both had mixed reactions to outfitters giving out litter bags provided by the National Park Service
- . Both had mixed reactions to prohibiting can, bottles, and other nonburnable disposable containers on the river (both favored banning glass containers on the river)

Alcoholism and Rowdyism

- . Both favored cooperation to develop literature on etiquette to distribute to guests
- . Both favored clarification of who has law enforcement authority to deal with alcohol problems in the river corridor
- . Both had mixed opinions for imposing an "open bottle" regulation, i.e., drinking of alcohol permitted on land but not on the water

Water Level and Quality

- . Both favored that the National Park Service, Delaware River Basin Commission, and state agencies work cooperatively to provide more ideal water flows for recreation and to protect the river's water

Recreation Facilities

- . Both favored providing more, drinking water sources and public telephones at accesses
- . Both favored shore markers indicating distance to and location of major take-out points
- . Both had mixed response to more campgrounds within park boundaries as well as more hiking trails within the river corridor
- . On livery operators cooperating among themselves to open their landings to guests of other liveries, managers strongly in favor, outfitters were neutral but displayed considerable variation in opinion among individual outfitters

Resource Impacts and Human Waste Problems

- . Both somewhat supported the construction of primitive toilets at designated lunch spots and campsites

Trespass

- . Both favored National Park Service and landowners cooperating to provide signing on public and private lands along the river

Informing Visitors of National Park Service

- . Both favored increased training of Park Service seasonals on river resources, facilities, safety, and the role and services of outfitters
- . Both favored having uniformed National Park Service personnel at major accesses to greet users and floating the river during high use times to assist users and enforce regulations

Cooperation Between Managers and Outfitters

Most of the possible solutions which require cooperation between the National Park Service and river outfitters were supported by both managers and outfitters. Some of the cooperative efforts that were favored the most both by managers and outfitters included:

- . Park Service and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests
- . Outfitters give litter bags provided by Park Service to each river group
- . Park Service and outfitters cooperate to provide safety patrols at major rapids
- . Annual river clean up day sponsored by outfitters and the Park Service
- . NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety
- . Park Service and outfitters cooperate to implement a mutually agreeable mandatory safety instruction program for river guests
- . Park Service and outfitters cooperate to develop literature/maps on river attractions, history, facilities and the presence of the Park Service in the river corridor

Some of the cooperative efforts which were not favored by both managers and outfitters were:

- . Park Service and outfitters cooperate to place emergency shuttling services at appropriate access points along the river during the high use season

- . Park Service and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, New York

Last, managers and outfitters both strongly supported the National Park Service, Delaware River Basin Commission (DRBC) and state agencies to work cooperatively to provide more ideal water flow for river recreation and to protect the river's water quality.

MANAGEMENT IMPLICATIONS

The goal of this study was to examine the potential for a partnership or cooperation between the National Park Service and commercial river outfitters in the planning and management of the Upper Delaware Scenic and Recreational River. Benefits of cooperation between outfitters and managers include:

- . Improved communication between managers and outfitters
- . Participation by outfitters in the planning and management of the river
- . Joint goal setting
- . Prioritizing problems in need of solution
- . Better understanding of each party's objectives, needs, management styles, and limitations
- . Reduce the duplication of services
- . Reducing costs of river management
- . Reacting to problems more quickly
- . Improved outdoor experiences for visitors
- . A resource that meets the public and private sectors' goals
- . Improved cooperation with outside agencies

Through lengthy personal interviews with 26 and six Park Service managers, we found that cooperation between the two groups has occurred and there is excellent potential for additional activities.

Nevertheless, managers and outfitters had some differences in opinion on the types and nature of problems, how problems had changed over the last

five years, and potential solutions. The two parties did, however, identify many problems of similar importance and were in favor of working together cooperatively on numerous potential solutions. We believe that efforts at cooperation will in large part succeed or fail on the extent to which there is shared agreement on problems and solutions.

Perhaps the cooperative ventures most likely to succeed are those for which both managers and outfitters currently agree on the severity of a problem, see that the problem is getting worse, and support a proposed cooperative solution. While we found considerable agreement among the opinions of managers and outfitters, we found relatively few problems for which agreement on all three parameters existed. Both do agree on the seriousness of the problem of alcohol consumption on the river, and they support cooperative ventures to correct this problem. It seems likely that the two groups could fairly easily agree on a proposed solution and initiate a cooperative program to implement it.

A more common situation is where both parties perceive a problem, but they do not agree on a solution. In this case, a successful cooperative venture is still probable because both groups are working from a common base of concern for a resource they both cherish. What is needed is increased discussion and brainstorming among the two groups to identify mutually agreeable solutions. Such discussion might be structured and/or unstructured, but would focus on the relevant problem(s), involve face-to-face interaction of the two groups, provide a priority list of favored solutions, and achieve commitment of both the outfitters and managers to a preferred solution. Of course, both parties must have the capability and the good faith to carry out preferred

solutions. And they must have achieved the trust of the other party during the discussion process.

A third and very common situation occurs when the two parties do not agree on the existence, nature, or severity of the problem. When this happens, then talk of a cooperative solution is premature. What must first be done is an educational process to accomplish shared understanding of the issues or questions. This will likely require greater understanding on the part of each group of the other's organizational objectives and setting, its values assigned to the river resource, and personal goals for river protection and use. It also will require sharing of specific information about the issue. Through these means agreement might be attained on the problem, and then, if necessary, the process described above to identify a mutually agreeable solution can begin.

In this study the following represent some of the problems perceived by managers but less so by outfitters: availability of toilet facilities between put-in and take-out points, river safety, boating skills of people using the river, number of public river access points, quality of communication between outfitters and their guests. Low water levels, water pollution, availability of telephones at access points, people being rowdy on the river, quality of communication between NPS and boaters using their own equipment, and the Park Service concerned about preservation and not enough about recreation are all viewed as much more serious problems by outfitters than by managers.

The study also provides information helpful to managers on which solutions outfitters believe are most likely to succeed. A priority list

of solutions acceptable to both groups can then be developed for any problem. Such an analysis suggests solutions that can be done independently by managers, independently by outfitters, outfitters working together, or managers and outfitters working cooperatively. It also helps to identify other federal, state, or local agencies who provide a crucial link to the solving of a problem. Finally, managers and outfitters can develop solutions that best utilize the skills and capabilities of each group. This results in increased efficiency and reducing the duplication of services.

RESEARCH IMPLICATIONS

Three research needs are suggested from this study. The first is a survey of visitors on the Upper Delaware River which is, in part, in progress as part of the overall research program associated with the Upper Delaware River. This research could focus on the satisfaction level of current river users with the management practices of the National Park Service and the services provided by commercial river outfitters. Similar research could explore the views of riparian landowners. Specific research objectives would be to focus on visitors' perceived problems and problem solutions, and to compare these with those reported by managers and outfitters in this study.

The second research effort would consist of facilitating and monitoring the success of "model" cooperative efforts between the National Park Service and the commercial river outfitters. The research might focus on three different problem types: (1) a problem on which both parties agree--such as determining clear jurisdiction by the Park

Service versus state and local government or people drinking alcoholic beverages, (2) an outfitter problem but not perceived so by the Park Service--such a low water levels and availability of telephones at access points, and (3) a manager problem that outfitters do not currently recognize--such as river safety and boating skills of people using the river. The model project(s) would be evaluated on the basis of factors such as: (a) desired reduction in problem occurs, (b) problem reduction is due to cooperative venture, (c) cost of the project, and (d) impact on the visitors' experience.

The third research- information-related effort would have park managers and river outfitters temporarily switch jobs. River managers would work at a river outfitter operation for several days; river outfitters would work with the National Park Service for several days. The goal would be to improve the two parties' understanding of the other organization. This would include gaining knowledge of the business or organizational goals, short-term and long-term objectives, business and agency operating procedures, management style, and limitations.

These three projects would provide valuable information for managers and outfitters and would help directly in building an important and hopefully long-term partnership. Such a research program would assist the two groups to provide a recreational experience that meets desires and expectations of river visitors and nearby landowners. Second, such a program would increase the long-term protection of the river resource. Third, it would permit the two groups to better understand each other. Finally, it provides a base for working cooperatively to meet mutually developed goals and objectives.

APPENDIX A

Upper Delaware Scenic and Recreational River
Outfitters and Canoe Companies
Included in 1987 Outfitter Study

APPENDIX AUpper Delaware Scenic and Recreational River
Outfitter and Canoe Companies
Included in 1987 Outfitter Study

Outfitters/Companies

Adventure Tours, Inc., Marshalls Creek, PA
Al's Sport Store, Shinhopple, NY
Barryville Kayak, Barryville, NY
Cushetunk Canoe Rentals, Milanville, PA
Indian Head Canoes, Matamoras, PA
Kittatinny Canoes, Inc., Dingman's Ferry, PA
Lou's Tubes, Milanville, PA
Pack, Paddle & Ski Corp., South Lima, NY
Pocono Canoe Rental, Matamoras, PA
Pocono Riversport, Hawley, PA
Point Pleasant Canoes, Point Pleasant, PA
River Valley Campground, Equinunk, PA
River's Edge Resort, Starlight, PA
Scott Allen Canoes, Hankins, NY
Shohola Campground, Shohola, PA
Silver Canoe Rental, Port Jervis, NY
Tappcos Hankins House, Inc., Hankins, NY
Ten Mile River Enterprises, Inc., Narrowsburg, NY
Three River Canoe Corp., Pond Eddy, NY
Tri-State Canoes, Matamoras, PA
Upper Delaware Campgrounds, Inc., Callicoon, NY
Upper Delaware Outfitters, Hankins, NY

Outfitters/Companies

White Water Canoe & Raft Rentals, Barryville, NY

Whitewater Willie, Port Jervis, NY

Wild and Scenic River Tours, Barryville, NY

Wild Rivers, Inc., White Plains, NY

APPENDIX B

Upper Delaware Scenic and Recreational River Managers
Included in 1987 Outfitter Study

APPENDIX BUpper Delaware Scenic and Recreational River Managers
Included in 1987 Outfitter Study

<u>Name</u>	<u>Position</u>
John Hutzky	Superintendent
Angus Ross	Resource Management Specialist
Glenn Voss	Chief Ranger
Ted Waddell	District Ranger
Mike Reuber	District Ranger
Calvin Hite	Interpretation Specialist

APPENDIX C

1987 Interview Instrument:

Upper Delaware Scenic and Recreational River

River Outfitter Interview Schedule

Upper Delaware River

June 1987

Introductory Statement

Introduce yourself. The purpose of this interview is to get information that will help the National Park Service and river outfitters work more closely to protect the river corridor, provide a safe, clean river environment, distribute adequate information for self guided river trips, respond effectively to emergency situations, and generally to provide high quality visitor services. The Park Service recognizes that river outfitters play a very important role in providing services to the majority of recreationists on the river. The Park Service sincerely appreciates your efforts and believes continued cooperation with individuals and businesses such as yours is necessary to meet management objectives.

In this interview we hope to obtain your views on the things which concern you and things you and the National Park Service might do in the future to protect the river and provide quality visitor services - how you might help the National Park Service and how they might help you. Because of your knowledge and interest in the river and its users, you are an excellent person to tell us what specific things you and the National Park Service might do to improve river management, and how such cooperative management might help or hurt your business.

Answers from the outfitters we interview, and we plan to interview view all of them, will be combined into an overview before the Park Service managers see what the outfitters collectively said. Nothing you say will ever be identified with you personally or with your firm. As we go through the interview, if you have any questions about why I'm asking particular things, please feel free to ask. Or, if there is anything you don't want to answer, just say so. The purpose of this interview is to get more insight on how you currently use and enjoy the river, how you might work cooperatively with the National Park Service, and what specifically concerns you about the river. Any questions about this before we begin?

OK. The interview has three parts. First, I'd like to talk to you about your river guests, your trips and the services you currently provide on the river. This will help me become more familiar with your business, and will help me ask the right questions later on in the interview. Second, I'd like to know any concerns you currently have in providing the kinds of river trips you want. I'm also interested in your feelings about possible solutions to existing problems. I'm especially interested in problems which result from river conditions, from the way the river is or isn't managed, and problems the National Park Service and river outfitters might be able to solve if they were to work more closely together. Finally, I will ask you a few general questions about your business. This is done to find out if different kinds of river companies view these issues differently.

Part I. Describing the River and the River Experience You Provide

First, let's talk about your guests and the kinds of services and river experiences they receive.

1. I'm interested in the kind of experiences your guests seek on their river trip. Are there distinct groups among your guests that seek different experiences?

_____ Yes; Go to #2

_____ No; (have respondent describe the experience his clientele seeks in #2)

2. Please name each of the group types. (Let respondent list the distinct groups). Then describe the characteristics of each group and the kind of experience each is seeking. Then give a rough estimate of your yearly guests that belong to each group.

<u>Group Name</u> &	<u>Characteristics</u>	<u>Experience Sought</u>
a. _____ ()	Age: _____	_____
	Gender: _____	_____
	Party Size: _____	_____
	Length of Stay: _____	_____
	Time of Arrival: _____	_____
b. _____ ()	Age: _____	_____
	Gender: _____	_____
	Party Size: _____	_____
	Length of Stay: _____	_____
	Time of Arrival: _____	_____
c. _____ ()	Age: _____	_____
	Gender: _____	_____
	Party Size: _____	_____
	Length of Stay: _____	_____
	Time of arrival: _____	_____

d. _____ () Age: _____
 Gender: _____
 Party Size: _____
 Length of Stay: _____
 Time of arrival: _____

e. _____ () Age: _____
 Gender: _____
 Party Size: _____
 Length of Stay: _____
 Time of arrival: _____

f. _____

Part II. Issues and Solutions in Providing High Quality River Services and River Protection

Now that I'm more familiar with your guests and the kinds of services you provide, I want to learn more about the concerns you currently have in providing the best possible river experience for your guests.

3. List any problems you have in providing a high quality river trip for your guests. (Let the respondent list the most serious problems. Seek to record at least three, but if respondent lists more, record them). Then tell me if each problem is getting much worse, somewhat worse, staying about the same, getting somewhat better, or getting much better over the last five years.

Problem	Much worse	Somewhat worse	About same	Somewhat better	Much better
a.	()	()	()	()	()
b.	()	()	()	()	()
c.	()	()	()	()	()
d.	()	()	()	()	()

4. Now that you have told us about issues that are problems for you, tell us about actions that the NPS has taken over the last five years that have improved the quality of the rivers and your river trips. What can they be complimented on?

<u>Successes</u>	Caused river trips to become:	
	<u>Somewhat better</u>	<u>Much better</u>
a.	()	()
b.	()	()
c.	()	()
d.	()	()

5. I have here a list of issues or concerns about river management that we have identified through earlier interviews with outfitters, National Park Service managers, and river recreationists. Some of these issues you might have already listed for me. Some might be viewed as problems; others might enhance the quality of river trips. I would like your opinion on the extent to which each of the issues currently causes you or your guests problems. Then I would like your opinion on whether each issue has been getting better or worse over the last five years (Hand the respondent the card which lists problems and assist and clarify as asked while respondent votes on card).

6. Now I'd like you to elaborate on those issues that you told me were problems, plus those which you said on the card were serious or very serious problems or as getting worse. I will help you do this. I will list each of your problems, and I would like you to describe the problem, tell me who is causing it, what you think a good solution would be, and how you think the National Park Service and river outfitters can cooperate to solve the problem.

Problem 1. _____

Description: _____

Who is causing the problem (e.g. recreationist or non recreationist; boater or non boater; commercial boater or private boater; distinct boater group?)

Solution: _____

How can NPS and outfitters cooperate? _____

Problem 2. _____

Description: _____

Who is causing the problem? _____

Solution: _____

How can NPS and outfitters cooperate? _____

Problem 3. _____

Description: _____

Who is causing the problem? _____

Solution: _____

How can NPS and outfitters cooperate? _____

Problem 4. _____

Description: _____

Who is causing the problem? _____

Solution: _____

How can NPS and outfitters cooperate? _____

Problem 5. _____

Description: _____

Who is causing the problem? _____

Solution: _____

How can NPS and outfitters cooperate? _____

Problem 6. _____

Description: _____

Who is causing the problem? _____

Solution: _____

How can NPS and outfitters cooperate? _____

7. I have here an additional list of recommendations suggested by river outfitters, managers and recreationists. The National Park Service has begun to implement some of these recommendations and is considering adopting others. Many recommendations require the cooperation of river outfitters, and the National Park Service wants to know whether you would support the various strategies. I will give you this list, and I would like you to check how much you support or oppose each action. (Hand the respondent the card which lists the recommendations, and assist and clarify as asked while respondent votes on card.

Part III - Some Questions About Your Business

We have now reached the final part of the interview. I will ask a few questions about your business. I'm doing this only to see if different kinds of companies view the river, the river experience, and river protection and use differently. Please remember that when we report the results, your answers will not be associated with you or your company.

8. What do you do to advertise your river trips?
9. Of all the advertising you do, which approach do you feel is most effective in:
- a. reaching the greatest number of people?
 - b. convincing them to select you rather than some other outfitter?
10. What year did you first start renting the following kinds of boats on the Upper Delaware Scenic and Recreational River.
- | | | |
|--------|----|-----|
| Canoes | 19 | ___ |
| rafts | 19 | ___ |
| Kayaks | 19 | ___ |
| tubes | 19 | ___ |
11. Would you consider your canoe livery to be a Large or Small business? Base your answer on (1) the number of canoes placed on the river in 1986, and (2) the amount of equipment currently owned. (Check One)
- _____ Large
_____ Small

12. About what percent of the total number of people you served in 1985 rented:

	%	
canoes		_____
rafts		_____
Kayaks		_____
tubes		_____

13. About what percent of your clientele in 1985 made reservations in advance versus being "walk-ins"?

_____	reservations in advance
_____	walk ins

14. Where does most of your clientele come from? Tell me the state and the region in the state.

Ending the interview: Those are all the questions I have. We have talked a long time, and I really appreciate the time you have given me. Is there anything that we have covered that you would like to talk more about?

Are there any other issues about your involvement with the National Park Service and your opinions about the best ways to provide high quality visitor services and protect the river that you would like to talk about?

Name of River Outfitter: _____
 River: _____
 Date: _____
 Interviewer Comments: _____

Issue

Degree of Problem

Very
serious
problem

Much
worse

Over last 5 years
Somewhat
worse

About
same

Somewhat
better

Much
bet

Not a
problem

Slight
problem

Moderate
problem

Serious
problem

Boating skills of people using river

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People fishing

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Informing visitors that river use is managed by the National Park Service

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Amount of information about things to do and see in the area

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Availability of information services (signs, displays) at put-in points

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Availability of brochures showing map of river, attractions, hazards, access points, etc.

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No. of hiking trails in river corridor

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Number of camping spots on the river

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Quality of campsites along river

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Number of campgrounds in river corridor

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Number of campgrounds in area

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Number of public river access points

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Condition of access points

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Availability of drinking water sources at access points

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Availability of telephones at major access points

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Amount of recreational opportunities in area

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Availability of toilet facilities at access points

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Availability of toilet facilities along river between put-in and take-out points

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UPPER DELAWARE

<u>Potential Solution</u>	<u>Strongly</u> <u>oppose</u>	<u>Somewhat</u> <u>oppose</u>	<u>Neutral</u>	<u>Somewhat</u> <u>favor</u>	<u>Strongly</u> <u>favor</u>
Safety					
1. NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety instruction program for river guest	()	()	()	()	()
2. NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety	()	()	()	()	()
3. Require guests to wear life jackets in major rapids	()	()	()	()	()
4. Require guests to wear helmets in major rapids	()	()	()	()	()
5. Require outfitters to provide each boat with a rope or towline for safety purposes	()	()	()	()	()
6. Ban glass containers on river	()	()	()	()	()
7. NPS and outfitters cooperate to provide safety patrols at major rapids	()	()	()	()	()
8. NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along the river during the high use season	()	()	()	()	()
Education and Resource Protection					
1. NPS develop literature on nature and history of river for outfitters to send to guests before their arrival	()	()	()	()	()
2. NPS and outfitters cooperate to develop a river map which lists river attractions and facilities to distribute to river guests	()	()	()	()	()
3. Place informational bulletin boards at access points	()	()	()	()	()
4. NPS provide programs on park management, resource protection, water safety & litter to area schools and communities	()	()	()	()	()

<u>Potential Solution</u>	<u>Strongly oppose</u>	<u>Somewhat oppose</u>	<u>Neutral</u>	<u>Somewhat favor</u>	<u>Strongly favor</u>
5. NPS accomplish resource protection and rule enforcement more through friendly persuasion than through arrests and law enforcement tactics	()	()	()	()	()

Litter

1. Annual river clean up day sponsored by outfitters and NPS	()	()	()	()	()
2. Outfitters give litter bags provided by NPS to each river trip	()	()	()	()	()
3. NPS and outfitters cooperate to develop a procedure to equitably and efficiently collect and remove litter at river access points, lunch stops, and campsites	()	()	()	()	()
4. NPS boat patrol give litter bags and anti-litter messages to river bank users	()	()	()	()	()
5. Prohibit the use of cans, bottles, and other non-burnable disposable containers on the river	()	()	()	()	()

Resource impacts and human waste problems

1. NPS construct primitive toilets at designated lunch spots and campsites	()	()	()	()	()
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Water level and quality

1. NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	()	()	()	()	()
2. NPS, DRBC and states cooperate to protect the river's water quality	()	()	()	()	()

<u>Potential Solution</u>	<u>Strongly oppose</u>	<u>Somewhat oppose</u>	<u>Neutral</u>	<u>Somewhat favor</u>	<u>Strongly favor</u>
Trespass					
1. NPS and landowners cooperate to provide signing of public and private land along the river	()	()	()	()	()
2. NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	()	()	()	()	()
<hr/>					
Rowdyism and alcoholism					
1. NPS and outfitters cooperate to develop a mandatory guest education program on proper river etiquette	()	()	()	()	()
2. NPS and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests	()	()	()	()	()
3. Ban glass containers and cans on the river	()	()	()	()	()
4. Prohibit drinking of alcoholic beverages within park boundaries	()	()	()	()	()
5. Impose an "open bottle" regulation on the river - i.e. drinking of alcohol permitted on land but not while on the water	()	()	()	()	()
6. Clarify who has law enforcement authority to deal with alcohol-related problems in river corridor	()	()	()	()	()
7. NPS should assume a greater and more consistent role in reducing alcohol-related problems and rowdyism in the river corridor	()	()	()	()	()
<hr/>					
Informing visitors of National Park Service					
1. NPS and outfitters cooperate to develop literature on national park status and river recreation opportunities for outfitters to send their guests	()	()	()	()	()
2. Place NPS entrance signs along public roads used for access to the river	()	()	()	()	()

<u>Potential Solution</u>	<u>Strongly oppose</u>	<u>Somewhat oppose</u>	<u>Neutral</u>	<u>Somewhat favor</u>	<u>Strongly favor</u>
3. Place uniformed NPS personnel at major access points to greet river guests, indicate NPS presence, and assist in safety emergencies	()	()	()	()	()
4. Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	()	()	()	()	()
5. Assign uniformed NPS personnel to popular stopping points and gathering places along the river	()	()	()	()	()
6. NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	()	()	()	()	()

Recreational facilities					
1. Construct more river access points	()	()	()	()	()
2. Provide toilets at river access points	()	()	()	()	()
3. Provide more drinking water sources at river access points	()	()	()	()	()
4. Provide phones at public river access points	()	()	()	()	()
5. Provide more public parking spaces at existing access points on the river	()	()	()	()	()
6. Cooperate with state agencies to improve existing roads to put-in and take-out points	()	()	()	()	()
7. Build more hiking trails on public land within corridor	()	()	()	()	()
8. Build more car campgrounds in park	()	()	()	()	()
9. Build more river access campsites along the river	()	()	()	()	()
10. Install shoreline markers that indicate distance to and location of major take-out points	()	()	()	()	()

<u>Potential Solution</u>	<u>Strongly oppose</u>	<u>Somewhat oppose</u>	<u>Neutral</u>	<u>Somewhat favor</u>	<u>Strongly favor</u>
11. NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, N.Y.	()	()	()	()	()
12. Facilitate the development of horseback riding stables and trails on public land	()	()	()	()	()
13. Livery operators cooperate among themselves to open their landings to guests of other livery operators	()	()	()	()	()

Jurisdiction and management

- 1. Have NPS continue management of the outfitter permit system () () () () ()

* Explain your position on the above question:

* Comments on how the permit system can be improved.

APPENDIX D

Outfitter Ranking of Problem Issues:

Upper Delaware Scenic and Recreational River

Note: Problems are ordered by mean score,
from most serious to least serious
problem.

Outfitter Problems - 1

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Low water level	0	0.0	2	8.0	8	20.0	6	24.0	9	36.0	25	100.0
Water pollution	3	12.5	7	29.2	6	25.0	5	20.8	3	12.5	24	100.0
Existence of clear jurisdiction by National Park Service versus state local government	7	29.2	1	4.2	8	33.3	5	20.8	3	12.5	24	100.0
People drinking alcoholic beverages on the river	4	17.4	10	43.5	1	4.3	3	13.0	5	21.7	23	100.0
Availability of drinking water sources at access points	6	30.0	2	10.0	6	30.0	5	25.0	1	5.0	20	100.0
Existence of clear management direction from National Park Service	8	34.8	4	17.4	5	21.7	2	8.7	4	17.4	23	100.0
Litter from river users	5	21.7	8	34.8	5	21.7	3	13.0	2	8.7	23	100.0
Availability of telephones at major access points	10	45.5	1	4.5	4	18.2	4	18.2	3	13.6	22	100.0
People rowdy on river	5	21.7	8	34.8	6	26.1	2	8.7	2	8.7	23	100.0
Litter from riverbank users	6	28.6	4	19.0	8	38.1	2	9.5	1	4.8	21	100.0
Trespass onto private lands (camping)	5	20.8	10	41.7	7	29.2	1	4.2	1	4.2	24	100.0
Erosion of river banks	8	36.4	7	31.8	4	18.2	1	4.5	2	9.1	22	100.0
Availability of toilet facilities along river between put-in and take-out points	11	45.8	3	12.5	7	29.2	2	8.3	1	4.2	24	100.0

Outfitter Problems - 2

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Number of hiking trails in river corridor	12	50.0	2	8.3	7	29.2	1	4.2	2	8.3	24	100.0
Vandalism	8	38.1	6	28.6	4	19.0	3	14.3	0	0.0	21	100.0
Trespass onto private lands (day use)	9	37.5	6	25.0	7	29.2	2	8.3	0	0.0	24	100.0
River safety	11	47.8	4	17.4	5	21.7	2	8.7	1	4.3	23	100.0
Knowledge of rules and regulations on the river	9	37.5	7	29.2	6	25.0	2	8.3	0	0.0	24	100.0
Quality of communication between NPS and boaters using their own equipment	9	50.0	5	27.8	1	5.6	1	5.6	2	11.1	18	100.0
Number of camping spots on the river	14	56.0	1	4.0	6	24.0	4	16.0	0	0.0	25	100.0
Disposal of human body wastes	11	47.8	7	30.4	1	4.3	2	8.7	2	8.7	23	100.0
National Park Service concerned about preservation and not concerned enough about recreation	12	50.0	4	16.7	6	25.0	1	4.2	1	4.2	24	100.0
High water level	12	52.2	5	21.7	3	13.0	1	4.3	2	8.7	23	100.0
Availability of information services (signs, displays) at put-in points	12	48.0	6	24.0	5	20.0	1	4.0	1	4.0	25	100.0
Availability of toilet facilities at access points	13	54.2	3	12.5	6	25.0	1	4.2	1	4.2	24	100.0
Number of public river access points	15	62.5	1	4.2	4	16.7	3	12.5	1	4.2	24	100.0
Boating skills of people using river	11	45.8	6	25.0	5	20.8	2	8.3	0	0.0	24	100.0

Outfitter Problems - 3

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Distribution of visitors at popular rapids	12	52.2	4	17.4	5	21.7	2	8.7	0	0.0	23	100.0
Quality of communication between NPS and commercial river users	10	43.5	8	34.8	4	17.4	0	0.0	1	4.3	23	100.0
Availability of brochures showing map of river, attractions, hazards, access points, etc.	12	48.0	6	24.0	6	24.0	1	4.0	0	0.0	25	100.0
Too little enforcement of rules and regulations	13	54.2	6	25.0	3	12.5	2	8.3	0	0.0	24	100.0
Protection of historic structures	12	60.0	4	20.0	2	10.0	2	10.0	0	0.0	20	100.0
Wildlife harassment	13	59.1	4	18.2	5	22.7	0	0.0	0	0.0	22	100.0
Amount of recreational opportunities in area	16	66.7	3	12.5	3	12.5	2	8.3	0	0.0	24	100.0
Lack of availability of high quality guides	8	66.7	3	25.0	0	0.0	0	0.0	1	8.3	12	100.0
Protection of vegetation at access points or lunch stops	8	57.1	4	28.6	2	14.3	0	0.0	0	0.0	14	100.0
Bothersome insects	16	69.6	4	17.4	1	4.3	1	4.3	1	4.3	23	100.0
Condition of access points	15	65.2	5	21.7	2	8.7	0	0.0	1	4.3	23	100.0
Quality of campsites along river	17	73.9	2	8.7	1	4.3	3	13.0	1	0.0	23	100.0
Little National Park Service presence on the river	17	70.8	2	8.3	4	16.7	1	4.2	0	0.0	24	100.0

Outfitter Problems - 4

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Number of campgrounds in river corridor	19	79.2	1	4.2	0	0.0	4	16.7	0	0.0	24	100.0
Litter from riparian landowners	13	59.1	7	31.8	2	9.1	0	0.0	0	0.0	22	100.0
Quality of communication between outfitters and their guests	17	68.0	5	20.0	2	8.0	1	4.0	0	0.0	25	100.0
Distribution of use throughout days of the week	17	73.9	1	4.3	5	21.7	0	0.0	0	0.0	23	100.0
Amount of information about things to do and see in the area	16	69.6	4	17.4	2	8.7	1	4.3	0	0.0	23	100.0
Distribution of use along various segments of the river	16	69.6	4	17.4	3	13.0	0	0.0	0	0.0	23	100.0
Education of river guests about river history	15	68.2	5	22.7	2	9.1	0	0.0	0	0.0	22	100.0
Education of river guests about nature on the river	16	72.7	3	13.6	3	13.6	0	0.0	0	0.0	22	100.0
Informing visitors that river use is managed by the National Park Service	17	68.0	6	24.0	2	8.0	0	0.0	0	0.0	25	100.0
Number of campgrounds in area	17	81.0	2	9.5	1	4.8	0	0.0	1	4.8	21	100.0
Familiarity of NPS employees with river and area	19	79.2	3	12.5	1	4.2	1	4.2	0	0.0	24	100.0
Too much enforcement of rules and regulations	18	75.0	4	16.7	2	8.3	0	0.0	0	0.0	24	100.0
Off river vehicles along riverbank	16	72.7	5	22.7	1	4.5	0	0.0	0	0.0	22	100.0

Outfitter Problems - 5

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Number of people on the river	18	78.3	3	13.0	2	8.7	0	0.0	0	0.0	23	100.0
Friendliness of NPS river ranger	19	79.2	3	12.5	2	8.3	0	0.0	0	0.0	24	100.0
Roads within sight of the river	20	87.0	2	8.7	0	0.0	0	0.0	1	4.3	23	100.0
Distribution of use across seasons of year	19	82.6	2	8.7	2	8.7	0	0.0	0	0.0	23	100.0
Nudity	18	78.3	4	17.4	1	4.3	0	0.0	0	0.0	23	100.0
Distribution of use among outfitters	18	78.3	5	21.7	0	0.0	0	0.0	0	0.0	23	100.0
Motorized boats on the river	21	95.5	0	0.0	0	0.0	1	4.5	0	0.0	22	100.0
People fishing	21	87.5	3	12.5	0	0.0	0	0.0	0	0.0	24	100.0

APPENDIX E

Outfitter Ranking of Problem Change Over the Last Five Years:

Upper Delaware Scenic and Recreational River

Note: Problems are ordered by mean score,
from most improved problem to those
getting much worse.

Outfitter Change - 1

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Education of river guests about nature on the river	0	0.0	0	0.0	0	0.0	4	57.1	3	42.9	7	100.0
Education of river guests about river history	0	0.0	0	0.0	0	0.0	4	66.7	2	33.3	6	100.0
Litter from riverbank users	0	0.0	0	0.0	6	42.9	5	35.7	3	21.4	14	100.0
Litter from river users	2	11.1	1	5.6	4	22.2	5	27.8	6	33.3	18	100.0
River safety	0	0.0	1	8.3	3	25.0	7	58.3	1	8.3	12	100.0
Protection of historic structures	0	0.0	1	12.5	3	37.5	2	25.0	2	25.0	8	100.0
Nudity	0	0.0	0	0.0	3	60.0	1	20.0	1	20.0	5	100.0
People rowdy on river	0	0.0	2	11.8	6	35.3	6	35.3	3	17.6	17	100.0
Availability of brochures showing map of river, attractions, hazards, access points, etc.	0	0.0	0	0.0	8	57.1	4	28.6	2	14.3	14	100.0
Little National Park Service presence on the river	0	0.0	0	0.0	5	62.5	2	25.0	1	12.5	8	100.0
Availability of information services (signs, displays) at put-in points	1	7.7	0	0.0	8	61.5	1	7.7	3	23.1	13	100.0
Amount of information about things to do and see in the area	0	0.0	1	12.5	4	50.0	2	25.0	1	12.5	8	100.0
Knowledge of rules and regulations on the river	0	0.0	1	7.1	7	50.0	6	42.9	0	0.0	14	100.0

Outfitter Change - 2

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Protection of vegetation at access points or lunch stops	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Litter from riparian landowners	0	0.0	2	20.0	4	40.0	3	30.0	1	10.0	10	100.0
Wildlife harassment	1	10.0	0	0.0	5	50.0	3	30.0	1	10.0	10	100.0
People drinking alcoholic beverages on the river	1	5.3	2	10.5	8	42.1	7	36.8	1	5.3	19	100.0
Quality of communication between outfitters and their guests	0	0.0	0	0.0	3	75.0	1	25.0	0	0.0	4	100.0
Friendliness of NPS river rangers	0	0.0	1	16.7	4	66.7	0	0.0	1	16.7	6	100.0
Number of public river access points	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0	6	100.0
Boating skills of people using river	0	0.0	1	7.7	9	69.2	3	23.1	0	0.0	13	100.0
Trespass onto private lands (day use)	1	6.7	1	6.7	9	60.0	3	20.0	1	6.7	15	100.0
Informing visitors that river use is managed by the National Park Service	0	0.0	1	12.5	5	62.5	2	25.0	0	0.0	8	100.0
Amount of recreational opportunities in area	0	0.0	0	0.0	8	88.9	1	11.1	0	0.0	9	100.0
Condition of access points	0	0.0	1	11.1	6	66.7	2	22.2	0	0.0	9	100.0
Number of campgrounds in river corridor	1	11.1	0	0.0	6	66.7	1	11.1	1	11.1	9	100.0
Number of camping spots on the river	0	0.0	1	9.1	8	72.7	2	18.2	0	0.0	11	100.0

Outfitter Change - 3

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Availability of toilet facilities at access points	0	0.0	1	8.3	9	75.0	2	16.7	0	0.0	12	100.0
Disposal of human body wastes	1	7.7	2	15.4	5	38.5	5	38.5	0	0.0	13	100.0
Availability of drinking water sources at access points	0	0.0	0	0.0	16	94.1	1	5.9	0	0.0	17	100.0
Trespass onto private lands (camping)	1	5.9	1	5.9	12	70.6	2	11.8	1	5.9	17	100.0
Roads within sight of the river	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	3	100.0
Off river vehicles along riverbank	0	0.0	1	16.7	4	66.7	1	16.7	0	0.0	6	100.0
Lack of availability of high quality guides	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	4	100.0
Quality of communication between NPS and boaters using their own equipment	0	0.0	2	18.2	7	63.6	2	18.2	0	0.0	11	100.0
Distribution of use throughout days of the week	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	6	100.0
Number of campgrounds in area	1	20.0	0	0.0	3	60.0	0	0.0	1	20.0	5	100.0
People fishing	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	3	100.0
National Park Service concerned about preservation and not concerned enough about recreation	0	0.0	2	16.7	9	75.0	1	8.3	0	0.0	12	100.0
Vandalism	2	15.4	2	15.4	5	38.5	3	23.1	1	7.7	13	100.0

Outfitter Change - 4

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Quality of communication between NPS and commercial river users	1	10.0	1	10.0	6	60.0	2	20.0	0	0.0	10	100.0
Too little enforcement of rules and regulations	0	0.0	1	10.0	9	90.0	0	0.0	0	0.0	10	100.0
Quality of campsites along river	1	12.5	1	12.5	5	62.5	0	0.0	1	12.5	8	100.0
Availability of toilet facilities along river between put-in and take-out points	1	7.1	0	0.0	13	92.9	0	0.0	0	0.0	14	100.0
Number of hiking trails in river corridor	2	15.4	0	0.0	9	69.2	2	15.4	0	0.0	13	100.0
Familiarity of NPS employees with river and area	0	0.0	1	16.7	5	83.3	0	0.0	0	0.0	6	100.0
Distribution of visitors at popular rapids	0	0.0	4	40.0	4	40.0	2	20.0	0	0.0	10	100.0
Distribution of use along various segments of the river	0	0.0	2	28.6	5	71.4	0	0.0	0	0.0	7	100.0
Existence of clear jurisdiction by National Park Service versus state local government	0	0.0	5	35.7	8	57.1	1	7.1	0	0.0	14	100.0
Too much enforcement of rules and regulations	0	0.0	2	28.6	5	71.4	0	0.0	0	0.0	7	100.0
Erosion of river banks	2	14.3	1	7.1	10	71.4	1	7.1	0	0.0	14	100.0
High water level	1	10.0	1	10.0	8	80.0	0	0.0	0	0.0	10	100.0

Outfitter Change - 5

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Bothersome insects	1	16.7	0	0.0	5	83.3	0	0.0	0	0.0	6	100.0
Distribution of use among outfitters	0	0.0	2	33.3	4	66.7	0	0.0	0	0.0	6	100.0
Existence of clear management direction from National Park Service	1	8.3	3	25.0	7	58.3	1	8.3	0	0.0	12	100.0
Water pollution	3	15.0	4	20.0	10	50.0	3	15.0	0	0.0	20	100.0
Availability of telephones at major access points	2	20.0	0	0.0	8	80.0	0	0.0	0	0.0	10	100.0
Motorized boats on the river	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	2	100.0
Number of people on the river	1	16.7	3	50.0	1	16.7	0	0.0	1	16.7	6	100.0
Distribution of use across seasons of year	1	25.0	0	0.0	3	75.0	0	0.0	0	0.0	4	100.0
Low water level	6	25.0	3	12.5	13	54.2	2	8.3	0	0.0	24	100.0

APPENDIX F

Manager Ranking of Problem Issues:

Upper Delaware Scenic and Recreational River

Note: Problems are ordered by mean score,
from most serious to least serious
problem.

Manager Problems - 1

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Availability of toilet facilities along river between put-in and take-out points	0	0.0	0	0.0	1	16.7	4	66.7	1	16.7	6	100.0
People drinking alcoholic beverages on the river	0	0.0	0	0.0	4	66.7	1	16.7	1	16.7	6	100.0
River safety	0	0.0	0	0.0	3	50.0	3	50.0	0	0.0	6	100.0
Existence of clear jurisdiction by National Park Service versus state local government	0	0.0	1	16.7	2	33.3	3	50.0	0	0.0	6	100.0
Boating skills of people using river	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Trespass onto private lands (camping)	0	0.0	2	33.3	1	16.7	2	33.3	1	16.7	6	100.0
Number of public river access points	0	0.0	0	0.0	4	80.0	1	20.0	0	0.0	5	100.0
Quality of communication between outfitters and their guests	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0	6	100.0
Knowledge of rules and regulations on the river	0	0.0	1	16.7	3	50.0	2	33.3	0	0.0	6	100.0
Availability of drinking water sources at access points	0	0.0	1	16.7	3	50.0	2	33.3	0	0.0	6	100.0
Litter from riverbank users	0	0.0	1	16.7	3	50.0	2	33.3	0	0.0	6	100.0
Litter from river users	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0	6	100.0
Condition of access points	0	0.0	2	33.3	2	33.3	2	33.3	0	0.0	6	100.0

Manager Problems - 2

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Quality of campsites along river	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	6	100.0
Number of camping spots on the river	0	0.0	1	16.7	4	66.7	1	16.7	0	0.0	6	100.0
Vandalism	0	0.0	1	16.7	5	83.3	0	0.0	0	0.0	6	100.0
Availability of information services (signs, displays) at put-in points	1	16.7	1	16.7	3	50.0	1	16.7	0	0.0	6	100.0
Informing visitors that river use is managed by the National Park Service	0	0.0	2	33.3	4	66.7	0	0.0	0	0.0	6	100.0
Disposal of human body wastes	0	0.0	3	50.0	2	33.3	1	16.7	0	0.0	6	100.0
Litter from riparian landowners	0	0.0	4	66.7	0	0.0	2	33.3	0	0.0	6	100.0
Education of river guests about nature on the river	1	16.7	1	16.7	3	50.0	1	16.7	0	0.0	6	100.0
Existence of clear management direction from National Park Service	2	33.3	0	0.0	3	50.0	1	16.7	0	0.0	6	100.0
Availability of brochures showing map of river, attractions, hazards, access points, etc.	1	16.7	2	33.3	2	33.3	1	16.7	0	0.0	6	100.0
Trespass onto private lands (day use)	0	0.0	3	50.0	3	50.0	0	0.0	0	0.0	6	100.0
Quality of communication between NPS and commercial river users	1	16.7	2	33.3	3	50.0	0	0.0	0	0.0	6	100.0
Distribution of visitors at popular rapids	1	16.7	3	50.0	1	16.7	1	16.7	0	0.0	6	100.0

Manager Problems - 3

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Distribution of use throughout days of the week	2	33.3	1	16.7	2	33.3	1	16.7	0	0.0	6	100.0
Distribution of use along various segments of the river	0	0.0	4	66.7	2	33.3	0	0.0	0	0.0	6	100.0
Number of hiking trails in river corridor	1	16.7	2	33.3	3	50.0	0	0.0	0	0.0	6	100.0
People rowdy on river	0	0.0	4	66.7	2	33.3	0	0.0	0	0.0	6	100.0
Erosion of river banks	0	0.0	4	66.7	2	33.3	0	0.0	0	0.0	6	100.0
Protection of vegetation at access points or lunch stops	0	0.0	4	66.7	2	33.3	0	0.0	0	0.0	6	100.0
Low water level	1	20.0	2	40.0	2	40.0	0	0.0	0	0.0	5	100.0
Roads within sight of the river	3	50.0	1	16.7	0	0.0	2	33.3	0	0.0	6	100.0
Availability of toilet facilities at access points	0	0.0	5	83.3	1	16.7	0	0.0	0	0.0	6	100.0
Availability of telephones at major access points	1	16.7	3	50.0	2	33.3	0	0.0	0	0.0	6	100.0
Water pollution	1	16.7	3	50.0	2	33.3	0	0.0	0	0.0	6	100.0
Distribution of use among outfitters	2	33.3	2	33.3	2	33.3	0	0.0	0	0.0	6	100.0
Number of campgrounds in river corridor	2	33.3	2	33.3	2	33.3	0	0.0	0	0.0	6	100.0
Amount of information about things to do and see in the area	2	33.3	2	33.3	2	33.3	0	0.0	0	0.0	6	100.0

Manager Problems - 4

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Protection of historic structures	2	33.3	2	33.3	2	33.3	0	0.0	0	0.0	6	100.0
Little National Park Service presence on the river	3	50.0	1	16.7	2	33.3	0	0.0	0	0.0	6	100.0
Too little enforcement of rules and regulations	2	33.3	3	50.0	1	16.7	0	0.0	0	0.0	6	100.0
Amount of recreational opportunities in area	2	33.3	3	50.0	1	16.7	0	0.0	0	0.0	6	100.0
Number of campgrounds in area	3	50.0	1	16.7	2	33.3	0	0.0	0	0.0	6	100.0
Quality of communication between NPS and boaters using their own equipment	2	33.3	4	66.7	0	0.0	0	0.0	0	0.0	6	100.0
Number of people on the river	3	50.0	2	33.3	1	16.7	0	0.0	0	0.0	6	100.0
Distribution of use across seasons of year	3	50.0	2	33.3	1	16.7	0	0.0	0	0.0	6	100.0
Wildlife harassment	2	33.3	4	66.7	0	0.0	0	0.0	0	0.0	6	100.0
Education of river guests about river history	3	50.0	2	33.3	1	16.7	0	0.0	0	0.0	6	100.0
Friendliness of NPS river rangers	3	50.0	3	50.0	0	0.0	0	0.0	0	0.0	6	100.0
Familiarity of NPS employees with river and area	4	66.7	2	33.3	0	0.0	0	0.0	0	0.0	6	100.0
Too much enforcement of rules and regulations	5	83.3	0	0.0	1	16.7	0	0.0	0	0.0	6	100.0

Manager Problems - 5

Issue	Not a problem		Slight problem		Moderate problem		Serious problem		Very Serious problem		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
People fishing	4	66.7	2	33.3	0	0.0	0	0.0	0	0.0	6	100.0
Nudity	4	66.7	2	33.3	0	0.0	0	0.0	0	0.0	6	100.0
Motorized boats on the river	5	83.3	1	16.7	0	0.0	0	0.0	0	0.0	6	100.0
Lack of availability of high quality guides	5	83.3	1	16.7	0	0.0	0	0.0	0	0.0	6	100.0
High water level	5	83.3	1	16.7	0	0.0	0	0.0	0	0.0	6	100.0
Off river vehicles along riverbank	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0
Bothersome insects	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0
National Park Service concerned about preservation and not concerned enough about recreation	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0

APPENDIX G

Manager Ranking of Problem Change Over the Last Five Years:

Upper Delaware Scenic and Recreational River

Note: Problems are ordered by mean score,
from most improved problem to those
getting much worse.

Manager Changes - 1

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
River safety	0	0.0	0	0.0	0	0.0	2	33.3	4	66.7	6	100.0
Quality of communication between NPS and commercial river users	0	0.0	0	0.0	1	20.0	3	60.0	1	20.0	5	100.0
Friendliness of NPS river rangers	0	0.0	0	0.0	1	25.0	2	50.0	1	25.0	4	100.0
Too little enforcement of rules and regulations	0	0.0	0	0.0	1	20.0	3	60.0	1	20.0	5	100.0
Knowledge of rules and regulations on the river	0	0.0	0	0.0	0	0.0	6	100.0	0	0.0	6	100.0
Availability of information services (signs, displays) at put-in points	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	5	100.0
Availability of toilet facilities at access points	0	0.0	0	0.0	2	33.3	3	50.0	1	16.7	6	100.0
Availability of brochures showing map of river, attractions, hazards, access points, etc.	0	0.0	1	16.7	1	16.7	2	33.3	2	33.3	6	100.0
Amount of information about things to do and see in the area	0	0.0	0	0.0	2	33.3	3	50.0	1	16.7	6	100.0
People rowdy on river	0	0.0	0	0.0	2	33.3	3	50.0	1	16.7	6	100.0
Education of river guests about nature on the river	0	0.0	0	0.0	2	40.0	2	40.0	1	20.0	5	100.0
Number of people on the river	0	0.0	0	0.0	1	25.0	3	75.0	0	0.0	4	100.0

Manager Changes - 2

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Little National Park Service presence on the river	0	0.0	0	0.0	2	50.0	1	25.0	1	25.0	4	100.0
Roads within sight of the river	0	0.0	0	0.0	2	66.7	0	0.0	1	33.3	3	100.0
Off river vehicles along riverbank	0	0.0	0	0.0	2	66.7	0	0.0	1	33.3	3	100.0
Bothersome insects	0	0.0	0	0.0	2	66.7	0	0.0	1	33.3	3	100.0
Lack of availability of high quality guides	0	0.0	0	0.0	2	66.7	0	0.0	1	33.3	3	100.0
Quality of communication between NPS and boaters using their own equipment	0	0.0	0	0.0	3	50.0	2	33.3	1	16.7	6	100.0
National Park Service concerned about preservation and not concerned enough about recreation	0	0.0	0	0.0	2	66.7	0	0.0	1	33.3	3	100.0
Availability of telephones at major access points	0	0.0	2	33.3	0	0.0	2	33.3	2	33.3	6	100.0
Informing visitors that river use is managed by the National Park Service	0	0.0	0	0.0	2	33.3	4	66.7	0	0.0	6	100.0
Trespass onto private lands (camping)	0	0.0	0	0.0	2	33.3	4	66.7	0	0.0	6	100.0
Trespass onto private lands (day use)	0	0.0	0	0.0	2	33.3	4	66.7	0	0.0	6	100.0
Nudity	0	0.0	0	0.0	3	60.0	1	20.0	1	20.0	5	100.0
Protection of historic structures	0	0.0	0	0.0	3	60.0	1	20.0	1	20.0	5	100.0

Manager Changes - 3

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Quality of communication between outfitters and their guests	0	0.0	0	0.0	3	50.0	3	50.0	0	0.0	6	100.0
Familiarity of NPS employees with river and area	0	0.0	0	0.0	3	75.0	0	0.0	1	25.0	4	100.0
Too much enforcement of rules and regulations	0	0.0	1	50.0	0	0.0	0	0.0	1	50.0	2	100.0
Amount of recreational opportunities in area	0	0.0	0	0.0	4	66.7	1	16.7	1	16.7	6	100.0
People drinking alcoholic beverages on the river	0	0.0	1	16.7	1	16.7	4	66.7	0	0.0	6	100.0
Litter from river users	0	0.0	1	16.7	1	16.7	4	66.7	0	0.0	6	100.0
Existence of clear management direction from National Park Service	0	0.0	0	0.0	3	60.0	2	40.0	0	0.0	5	100.0
Number of campgrounds in area	0	0.0	0	0.0	3	60.0	2	40.0	0	0.0	5	100.0
Number of campgrounds in river corridor	0	0.0	0	0.0	3	60.0	2	40.0	0	0.0	5	100.0
Wildlife harassment	0	0.0	0	0.0	3	60.0	2	40.0	0	0.0	5	100.0
Distribution of use along various segments of the river	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Existence of clear jurisdiction by National Park Service versus state local government	0	0.0	1	16.7	2	33.3	3	50.0	0	0.0	6	100.0
Number of public river access points	0	0.0	0	0.0	5	83.3	0	0.0	1	16.7	6	100.0

Manager Changes - 4

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Boating skills of people using river	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Water pollution	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Disposal of human body wastes	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Litter from riverbank users	0	0.0	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0
Roads within sight of the river	0	0.0	1	20.0	3	60.0	0	0.0	1	20.0	5	100.0
Distribution of visitors at popular rapids	0	0.0	1	20.0	2	40.0	2	40.0	0	0.0	5	100.0
Distribution of use throughout days of the week	0	0.0	0	0.0	4	80.0	1	20.0	0	0.0	5	100.0
Availability of toilet facilities along river between put-in and take-out points	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0	6	100.0
Quality of campsites along river	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0	6	100.0
Erosion of river banks	0	0.0	1	16.7	3	50.0	2	33.3	0	0.0	6	100.0
Distribution of use across seasons of year	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	3	100.0
Distribution of use among outfitters	0	0.0	1	20.0	3	60.0	1	20.0	0	0.0	5	100.0
Availability of drinking water sources at access points	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	6	100.0
Condition of access points	1	16.7	1	16.7	2	33.3	1	16.7	1	16.7	6	100.0

Manager Changes - 5

Issue	Much worse		Somewhat worse		About same		Somewhat better		Much better		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Number of hiking trails in river corridor	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	6	100.0
People fishing	0	0.0	1	25.0	2	50.0	1	25.0	0	0.0	4	100.0
High water level	0	0.0	0	0.0	5	100.0	0	0.0	0	0.0	5	100.0
Protection of vegetation at access points or lunch stops	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	6	100.0
Vandalism	0	0.0	1	16.7	4	66.7	1	16.7	0	0.0	6	100.0
Education of river guests about river history	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	4	100.0
Number of camping spots on the river	0	0.0	1	16.7	5	83.3	0	0.0	0	0.0	6	100.0
Low water level	0	0.0	2	33.3	4	66.7	0	0.0	0	0.0	6	100.0
Litter from riparian landowners	2	33.3	0	0.0	3	50.0	1	16.7	0	0.0	6	100.0

APPENDIX H

Outfitter Ranking of Potential Solutions:
Upper Delaware Scenic and Recreational River

Note: Actions are ordered by mean score,
from most supported to least
supported solution.

Outfitter Solutions - 1

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	0	0.0	0	0.0	0	0.0	0	0.0	25	100.0	25	100.0
NPS, DRBC and states cooperate to protect the river's water quality	0	0.0	0	0.0	2	8.0	0	0.0	23	92.0	25	100.0
Place informational bulletin boards at access points	0	0.0	0	0.0	1	3.8	6	23.1	19	73.1	26	100.0
Provide toilets at river access points	0	0.0	1	4.0	2	8.0	5	20.0	17	68.0	25	100.0
Require guests to wear life jackets in major rapids	1	4.3	1	4.3	0	0.0	5	21.7	16	69.6	23	100.0
Ban glass containers on river	2	7.7	1	3.8	1	3.8	1	3.8	21	80.8	26	100.0
NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	0	0.0	0	0.0	4	16.0	8	32.0	13	52.0	25	100.0
Install shoreline markers that indicate distance to and location of major take-out points	0	0.0	2	7.7	1	3.8	10	38.5	13	50.0	26	100.0
Provide more drinking water sources at river access points	1	3.8	0	0.0	4	15.4	6	23.1	15	57.7	26	100.0

Outfitter Solutions - 2

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	0	0.0	0	0.0	6	23.1	7	26.9	13	50.0	26	100.0
NPS and outfitters cooperate to develop a river map which lists river attractions and facilities to distribute to river guests	2	7.7	0	0.0	1	3.8	9	34.6	14	53.8	26	100.0
NPS construct primitive toilets at designated lunch spots and campsites	1	4.0	1	4.0	4	16.0	5	20.0	14	56.0	25	100.0
Cooperate with state agencies to improve existing roads to put-in and take-out points	0	0.0	0	0.0	8	30.8	7	26.9	11	42.3	26	100.0
Clarify who has law enforcement authority to deal with alcohol-related problems in river corridor	1	4.0	0	0.0	7	28.0	5	20.0	12	48.0	25	100.0
NPS and landowners cooperate to provide signing of public and private land along the river	2	8.0	0	0.0	4	16.0	7	28.0	12	48.0	25	100.0
NPS boat patrol give litter bags and anti-litter messages to river bank users	1	4.0	1	4.0	4	16.0	8	32.0	11	44.0	25	100.0
NPS provide programs on park management, resource protection, water safety and litter to area schools and communities	2	7.7	0	0.0	4	15.4	8	30.8	12	46.2	26	100.0

Outfitter Solutions - 3

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Annual river clean up day sponsored by outfitters and NPS	1	4.0	2	8.0	4	16.0	6	24.0	12	48.0	25	100.0
NPS accomplish resource protection and rule enforcement more through friendly persuasion than through arrests and law enforcement tactics	1	4.0	3	12.0	3	12.0	5	20.0	13	52.0	25	100.0
NPS develop literature on nature and history of river for outfitters to send to guests before their arrival	3	11.5	0	0.0	5	19.2	5	19.2	13	50.0	26	100.0
Provide phones at public river access points	1	5.6	0	0.0	4	22.2	7	38.9	6	33.3	18	100.0
Provide more public parking spaces at existing access points on the river	0	0.0	1	3.8	10	38.5	5	19.2	10	38.5	26	100.0
NPS and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests	3	13.0	0	0.0	2	8.7	9	39.1	9	39.1	23	100.0
NPS and outfitters cooperate to provide safety patrols at major rapids	3	11.5	0	0.0	4	15.4	8	30.1	11	42.3	26	100.0
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety instruction program for river guests	2	8.3	1	4.2	4	16.7	8	33.3	9	37.5	24	100.0

Outfitter Solutions - 4

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Assign uniformed NPS personnel to popular stopping points and gathering places along the river	1	3.8	2	7.7	5	19.2	10	38.5	8	30.8	26	100.0
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety	3	11.5	1	3.8	5	19.2	5	19.2	12	46.2	26	100.0
NPS and outfitters cooperate to develop literature on national park status and river recreation opportunities for outfitters to send their guests	2	8.0	0	0.0	6	24.0	9	36.0	8	32.0	25	100.0
NPS should assume a greater and more consistent role in reducing alcohol related problems and rowdyism in the river corridor	1	4.0	2	8.0	8	32.0	3	12.0	11	44.0	25	100.0
Place uniformed NPS personnel at major access points to greet river guests, indicate NPS presence, and assist in safety emergencies	1	3.8	3	11.5	5	19.2	8	30.8	9	34.6	26	100.0
Outfitters give litter bags provided by NPS to each river trip	4	16.0	1	4.0	4	16.0	3	12.0	13	52.0	25	100.0
NPS and outfitters cooperate to develop a procedure to equitably and efficiently collect and remove litter at river access points, lunch stops, and campsites	2	8.0	1	4.0	7	28.0	6	24.0	9	36.0	25	100.0

Outfitter Solutions - 5

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Place NPS entrance signs along public roads used for access to the river	2	8.0	1	4.0	8	32.0	5	20.0	9	36.0	25	100.0
NPS and outfitters cooperate to develop a mandatory guest education program on proper river etiquette	4	16.0	2	8.0	7	28.0	5	20.0	7	28.0	25	100.0
Build more hiking trails on public land within corridor	6	23.1	1	3.8	5	19.2	6	23.1	8	30.8	26	100.0
NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	4	16.7	2	8.3	5	20.8	8	33.3	5	20.8	24	100.0
Ban glass containers and cans on the river	5	20.0	3	12.0	6	24.0	2	8.0	9	36.0	25	100.0
Construct more river access points	3	18.8	0	0.0	5	31.3	6	37.5	2	12.5	16	100.0
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	4	15.4	3	11.5	8	30.8	5	19.2	6	23.1	26	100.0
Build more river access campsites along the river	6	23.1	5	19.2	3	11.5	4	15.4	8	30.8	26	100.0
Livery operators cooperate among themselves to open their landings to guests of other livery operators	8	30.8	1	3.8	5	19.2	5	19.2	7	26.9	26	100.0

Outfitter Solutions - 6

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, NY	5	19.2	2	7.7	12	46.2	1	3.8	6	23.1	26	100.0
Impose an "open bottle" regulation on the river--i.e., drinking of alcohol permitted on land but not while on the water	9	36.0	2	8.0	5	20.0	5	20.0	4	16.0	25	100.0
Facilitate the development of horseback riding stables and trails on public land	7	29.2	4	16.7	6	25.0	3	12.5	4	16.7	24	100.0
Prohibit the use of cans, bottles, and other nonburnable disposal containers on the river	6	25.0	6	25.0	5	20.8	3	12.5	4	16.7	24	100.0
Build more car campgrounds in park	9	34.6	6	23.1	4	15.4	4	15.4	3	11.5	26	100.0
Require outfitters to provide each boat with a rope or towline for safety purposes	11	42.3	3	11.5	5	19.2	4	15.4	3	11.5	26	100.0
Prohibit drinking of alcoholic beverages within park boundaries	13	50.0	3	11.5	3	11.5	4	15.4	3	11.5	26	100.0
Require guests to wear helmets in major rapids	13	52.0	3	12.0	6	24.0	2	8.0	1	4.0	25	100.0

APPENDIX I

Manager Ranking of Potential Solutions:

Upper Delaware Scenic and Recreational River

Note: Actions are ordered by mean score,
from most supported to least
supported solution.

Manager Solutions - 1

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Have NPS patrols floating river throughout high use season to assist river users and enforce regulations	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	6	100.0
NPS, DRBC and states cooperate to protect the river's water quality	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	6	100.0
NPS provide programs on park management, resource protection, water safety and litter to area schools and communities	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	6	100.0
NPS and outfitters cooperate to provide safety patrols at major rapids	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	6	100.0
NPS and outfitters cooperate to develop and implement a mutually agreeable mandatory safety instruction program for river guests	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	6	100.0
Install shoreline markers that indicate distance to and location of major take-out points	0	0.0	0	0.0	0	0.0	1	16.7	5	83.3	6	100.0
NPS provide their seasonal employees with training course on river resources, facilities, visitor safety, and role and services of river outfitters	0	0.0	0	0.0	0	0.0	1	16.7	5	83.3	6	100.0

Manager Solutions - 2

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
NPS, DRBC and state agencies work cooperatively to provide more ideal water flow for river recreation	0	0.0	0	0.0	0	0.0	1	16.7	5	83.3	6	100.0
Annual river clean up day sponsored by outfitters and NPS	0	0.0	0	0.0	0	0.0	1	16.7	5	83.3	6	100.0
NPS and outfitters cooperate to provide a guest education program on effects of drinking alcohol on boating safety	0	0.0	0	0.0	0	0.0	1	16.7	5	83.3	6	100.0
Livery operators cooperate among themselves to open their landings to guests of other livery operators	0	0.0	0	0.0	1	16.7	0	0.0	5	83.3	6	100.0
NPS and outfitters cooperate to develop literature on national park status and river recreation opportunities for outfitters to send their guests	0	0.0	0	0.0	1	16.7	0	0.0	5	83.3	6	100.0
NPS and outfitters cooperate to develop literature on proper river etiquette for outfitters to send to their guests	0	0.0	0	0.0	0	0.0	2	33.3	4	66.7	6	100.0
NPS and outfitters cooperate to develop a mandatory guest education program on respecting property rights along river	0	0.0	0	0.0	0	0.0	2	33.3	4	66.7	6	100.0

Manager Solutions - 3

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
NPS accomplish resource protection and rule enforcement more through friendly persuasion than through arrests and law enforcement tactics	0	0.0	0	0.0	1	16.7	0	0.0	5	83.3	6	100.0
Ban glass containers on river	0	0.0	0	0.0	1	16.7	0	0.0	5	83.3	6	100.0
Provide toilets at river access points	0	0.0	0	0.0	1	16.7	1	16.7	4	66.7	6	100.0
Place uniformed NPS personnel at major access points to greet river guests, indicate NPS presence, and assist in safety emergencies	0	0.0	0	0.0	1	16.7	1	16.7	4	66.7	6	100.0
Clarify who has law enforcement authority to deal with alcohol-related problems in river corridor	0	0.0	0	0.0	1	16.7	1	16.7	4	66.7	6	100.0
NPS and landowners cooperate to provide signing of public and private land along the river	0	0.0	0	0.0	1	16.7	1	16.7	4	66.7	6	100.0
Place informational bulletin boards at access points	0	0.0	0	0.0	1	16.7	1	16.7	4	66.7	6	100.0
NPS develop literature on nature and history of river for outfitters to send to guests before their arrival	0	0.0	0	0.0	1	16.7	1	16.7	4	66.7	6	100.0
Provide more drinking water sources at river access points	0	0.0	0	0.0	1	16.7	2	33.3	3	50.0	6	100.0
Place NPS entrance signs along public roads used for access to the river	0	0.0	0	0.0	1	16.7	2	33.3	3	50.0	6	100.0

Manager Solutions - 4

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
NPS and outfitters cooperate to develop a procedure to equitably and efficiently collect and remove litter at river access points, lunch stops, and campsites	0	0.0	0	0.0	2	33.3	0	0.0	4	66.7	6	100.0
Provide phones at public river access points	0	0.0	0	0.0	1	16.7	3	50.0	2	33.3	6	100.0
NPS and outfitters cooperate to develop a river map which lists river attractions and facilities to distribute to river guests	0	0.0	1	16.7	1	16.7	0	0.0	4	66.7	6	100.0
Build more river access campsites along the river	0	0.0	1	16.7	1	16.7	1	16.7	3	50.0	6	100.0
NPS and outfitters cooperate to develop a mandatory guest education program on proper river etiquette	0	0.0	1	16.7	0	0.0	3	50.0	2	33.3	6	100.0
Build more hiking trails on public land within corridor	0	0.0	0	0.0	2	33.3	3	50.0	1	16.7	6	100.0
Cooperate with state agencies to improve existing roads to put-in and take-out points	0	0.0	1	16.7	2	33.3	0	0.0	3	50.0	6	100.0
Require guests to wear life jackets in major rapids	1	16.7	0	0.0	1	16.7	1	16.7	3	50.0	6	100.0
Construct more river access points	1	16.7	1	16.7	0	0.0	1	16.7	3	50.0	6	100.0

Manager Solutions - 5

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Assign uniformed NPS personnel to popular stopping points and gathering places along the river	1	16.7	0	0.0	1	16.7	2	33.3	2	33.3	6	100.0
NPS construct primitive toilets at designated lunch spots and campsites	1	16.7	0	0.0	1	16.7	2	33.3	2	33.3	6	100.0
Require outfitters to provide each boat with a rope or towline for safety purposes	0	0.0	0	0.0	4	66.7	0	0.0	2	33.3	6	100.0
NPS boat patrol give litter bags and anti-litter messages to river bank users	0	0.0	2	33.3	1	16.7	1	16.7	2	33.3	6	100.0
NPS should assume a greater and more consistent role in reducing alcohol related problems and rowdyism in the river corridor	1	16.7	0	0.0	3	50.0	0	0.0	2	33.3	6	100.0
Impose an "open bottle" regulation on the river--i.e., drinking of alcohol permitted on land but not while on the water	1	16.7	0	0.0	2	33.3	2	33.3	1	16.7	6	100.0
Provide more public parking spaces at existing access points on the river	0	0.0	2	33.3	1	16.7	2	33.3	1	16.7	6	100.0
Outfitters give litter bags provided by NPS to each river trip	1	16.7	0	0.0	2	33.3	2	33.3	1	16.7	6	100.0

Manager Solutions - 6

Issue	Strongly oppose		Somewhat oppose		Neutral		Somewhat favor		Strongly favor		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
NPS and outfitters cooperate to place emergency shuttling services at appropriate access points along river during the high use season	1	16.7	1	16.7	2	33.3	0	0.0	2	33.3	6	100.0
Facilitate the development of horseback riding stables and trails on public land	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	6	100.0
Provide phones at public river access points	1	20.0	0	0.0	2	40.0	2	40.0	0	0.0	5	100.0
Build more car campgrounds in park	1	16.7	0	0.0	5	83.3	0	0.0	0	0.0	6	100.0
Ban glass containers and cans on the river	0	0.0	2	33.3	4	66.7	0	0.0	0	0.0	6	100.0
Prohibit the use of cans, bottles, and other nonburnable disposable containers on the river	0	0.0	3	50.0	2	33.3	1	16.7	0	0.0	6	100.0
Require guests to wear helmets in major rapids	3	50.0	0	0.0	2	33.3	1	16.7	0	0.0	6	100.0
NPS and outfitters cooperate to facilitate increased boating use of river upstream of Callicoon, NY	3	50.0	2	33.3	0	0.0	0	0.0	1	16.7	6	100.0