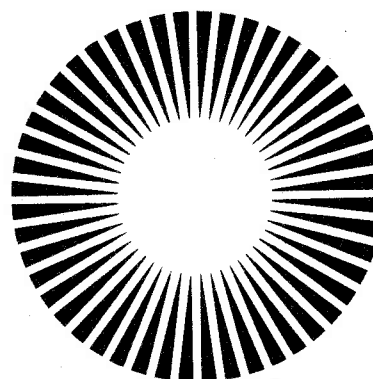


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ASSESSMENT OF VISITOR CHARACTERISTICS AND
PERCEPTIONS ASSOCIATED WITH VISITOR USE LEVELS
AT FORT SUMTER NATIONAL MONUMENT

Report Addendum #2



ASSESSMENT OF VISITOR CHARACTERISTICS AND
PERCEPTIONS ASSOCIATED WITH VISITOR USE LEVELS
AT FORT SUMTER NATIONAL MONUMENT

Report Addendum #2

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INITIAL COMMENTS

This document is a second addendum to the report entitled Assessment of Visitor Characteristics and Perceptions Associated with Visitor Use Levels at Fort Sumter National Monument that was submitted to the National Park Service late in 1988. The purpose of this addendum is to address comments on the report made by management at Fort Sumter Tours, Inc.

Several issues will be addressed in this addendum. Issues of concern involve discrepancies between conclusions for the 1987 report and previous studies, boat occupancy standards, appropriateness of variables used to determine carrying capacity, physical impacts at Fort Sumter, study recommendations, Park Service's duty to the public, and the rationality of limiting use.

RESPONSES TO FORT SUMTER TOURS, INC.

Discrepancies between studies

The first comment to be addressed involves discrepancies between the conclusions made in the 1985 and 1986 studies, and those made in the 1987 study. There are several reasons why the results of the studies are not comparable and which explain why the results of the 1985 and 1986 studies were not referred to in 1987.

First, the information gathered during 1985 and 1986 was not adequate to make conclusions regarding crowding and carrying capacity. As stated in the 1986 study (regarding the 1985 study) "It was necessary to conduct a follow-up study during the summer of 1986 to obtain further information to be used in determining the carrying capacity of Fort Sumter" (p. 1). The 1986 study also states that "A limitation of the study is that the maximum visitation levels that were desired were not reached during the six day experimental period" (p. 1). Visitation during 1986 was low due to very hot weather, seriously affecting results relating to crowding. Additionally, the study took place over a very short period of time, likewise affecting the range of responses. The study concludes that "1986 may have been an anomalous year for tourism in the Southeast, and therefore may not be a good indicator or predictor of visitation to Fort Sumter (p.4). Based on this information, it was determined that the conclusions from the 1985 and 1986 studies were drawn from data of questionable reliability. The results of the studies preceding the 1987 study

have not been considered because of the likelihood of limited data. This also precludes comparisons between the studies.

A second point that must be considered is that the variables related to crowding used in the 1987 study were not the same as those used in 1985 or 1986. This alone makes the conclusions incomparable. The variables chosen for the 1987 study were based on the precedent set by two decades of crowding research, and were deemed more appropriate than those used previously (the appropriateness of these variables will be discussed in more detail later). Even those variables that were used across all years are not comparable. Results from 1985 must be excluded from comparisons entirely because the variables were not measured the same way they were in 1986 and 1987. When examining variables that are comparable between 1986 and 1987, it is indeed true that results are quite similar for most variables. However, the results from the variables used to measure crowding at the Fort in the 1986 study do differ significantly from the 1987 study. More people (13.5% vs. 5.1%) report that there were too many people at the Fort in 1987. This factor in itself suggests that findings in 1987 may differ from those in previous studies.

Thirdly, the 1985 and 1986 studies are descriptive in nature, with no detailed statistical analyses regarding the relationship between use level and impact variables (see both report and first addendum for a discussion of impact variables). Conclusions based on descriptive data are rather broad generalizations based on overall visitor reactions. Determining a relationship between increasing use levels and salient variables, far from being irrevelatory, as suggested by the comments from Fort

Sumter Tours, is critical to the determination of carrying capacity, a fact that is clearly stated in the report (p. 67). Indeed, this is the entire basis of the conceptual formulation of carrying capacity. Intuition does not serve to discover relationships between salient variables as it is no substitute for scientific research, and has often proved false under scrutiny in past crowding and carrying capacity studies. Although descriptive data provide insights into phenomena, conclusions that can be drawn are quite limited. It is, indeed, possible to state that during the summer of 1987, about 13.5 percent of the visitors felt there were too many people at the Fort while the remaining visitors indicate that there were not too many people at the Fort. On initial inspection, this naturally suggests that crowding levels are, overall, low. It does not take into account, however, that as use levels continue to increase, more and more people indicate that they feel too many people are present. This additional information sheds a whole new light on the problem. The decision as to what levels of crowding are acceptable must then be made by park managers.

Additionally, the relationships between use level and relevant variables are only generally stated for the benefit of general readers who often are confused by advanced statistical explanations. The nature of these relationships are actually known very precisely. For example, the correlation of .35 between number of people on the boat and perceived crowding at the Fort indicates that there is a moderately strong relationship between these variables. The R squared of .12 indicates that 12

percent of the variance in perceived crowding can be explained by number of people on the boat. The F-value for this relationship is very high (224.15) telling us that the association is highly significant and if the study was repeated 10,000 times, we would get the same results 9,999 of those times.

The studies conducted prior to 1987 generally support the 1987 findings. Previous studies, however, used different measures of crowding not conducive to more powerful statistical analyses. Thus, the nature of the relationships between use level and crowding related variables could not be determined as precisely. The conclusion made in 1985, that perceptions of crowding were due to percent occupancy of the boat, was based on less powerful statistical analysis and anomalous data. The recommendation to limit boat capacity to 80 percent was speculative. The most recent study clearly shows that although occupancy is related to perceived crowding at the Fort, the absolute number of people on the boat has a much stronger relationship to Fort crowding. Capacity filled is a good predictor of crowding on the boat, but crowding on the boat is not the major issue.

It must be stressed that the report submitted to the National Park Service absolutely does not state that there is a crowding problem at Fort Sumter, as the comments from Fort Sumter Tours imply. The purpose of research is to gather and report information, and this objective has been achieved. Whether or not crowding levels are a problem or not is a value judgment to be made by managers based on the type of visitor experience they feel is appropriate and has no place in scientific research. The recommended carrying capacity thresholds were given in the

absence of adequate evaluative standards, and were based on standards often set for recreation areas. As indicated in both the report and the first addendum, managers must determine if these standards are appropriate for Fort Sumter, and if not carrying capacity thresholds will be different.

Boat occupancy standards

It is recognized that the physical capacity of the tour boat is set by the U.S. Coast Guard and is an industry-wide standard. The study never questions the adequacy of Coast Guard standards, which are based on safety considerations. What must be recognized is that there is more than one type of carrying capacity. One is physical capacity, and is concerned with space considerations. The standard enforced by the Coast Guard is a physical capacity. Another type of capacity is social carrying capacity and is concerned with the factors that impact a visitor's recreation experience. The study is concerned only with the social carrying capacity of Fort Sumter. Physical and social capacities can differ radically. For example, 50 people may be able to physically fit into a room of 10 square feet, but the fact that they can all fit does not mean that they are comfortable. The same is true of the tour boats. Although 310 people can safely ride the General Beauregard according to the Coast Guard physical standards does not imply that they are comfortable on their trip. This study does not presume to denigrate the physical capacities established by the Coast Guard or imply that such standards are deficient, it simply concludes that visitors have more positive experiences when boats are at less than capacity.

Results which indicate that as boat occupancy rises, perceived crowding rises does not, in itself, lead to any conclusion regarding the acceptability of crowding levels. That perceived crowding increases as occupancy levels rise can, indeed, be considered normal, but most certainly does not need to be considered acceptable. Whether or not particular levels of crowding are acceptable is not a decision to be made by researchers, but by park managers on the basis of experience objectives for visitors. If managers at Fort Sumter National Monument feel that certain levels of crowding are unacceptable based on the type of experience they would like visitors to have, they are completely justified in establishing a cap on use level regardless of Coast Guard standards. The environment visitors might experience on other tour boats is irrelevant; it is the type of experience to be provided at Fort Sumter that is the issue, and the boat ride to the Fort is most certainly a part of the overall recreation experience. Whether or not Fort Sumter visitors are "unjustified, unreasonable, or too sensitive" in thinking the boat or Fort are too crowded is, again, a value-based subjective judgment that could not be addressed in this research. The findings show that higher use levels negatively impact visitor experiences, including perceived crowding. The reasonableness of crowding perceptions is not an issue that can be resolved through research since "reasonable" is a subjective evaluation. Therefore, within the confines of the research process, whether or not the boat or Fort are crowded "beyond reason" cannot be determined. Crowding could, very possibly, be beyond what visitors perceive as reason-

able regardless of Coast Guard standards. Coast Guard standards can simply give a number beyond which the safety of passengers is in jeopardy.

Variables used in the study

Comments from Fort Sumter Tours indicate that they feel the variables used to determine carrying capacity are not appropriate. One discrepancy needs to be cleared up before this issue can be addressed: the variables listed in the comments from Fort Sumter Tours as those on which carrying capacity are based are partially incorrect. A number of variables were considered, but the final factors that were used in the determination of carrying capacity were (see p. 193-197 in report):

- number of people on the boat (as the use level variable)
- perceived crowding on the boat
- boat density expectations
- boat density preferences
- fort density expectations
- fort density preferences
- too many people on the boat
- too many people at the fort
- bothered by others on the boat
- able to find a place for thought
- avoided a place because of too many people

Many of these variables have not been used in carrying capacity studies before, but were of interest to the National Park Service, and so were included in the study. The variables with precedence in recreational crowding studies include density levels, perceived crowding, and expectations and preferences. Although these variables have been used to study backcountry recreation, they did not originate in this context. The study of crowding has its theoretical base in sociology and psychology, where the concept has been well developed and empirically tested

for over 20 years. It is from this research tradition that the study of crowding in recreational environments originated. Most of the psychological and sociological studies of crowding have taken place in urban settings, and have firmly established that the variables in question are salient and appropriate. These variables are appropriate in the study of crowding in a built urban setting. It might be said that they are more appropriate in the urban context than in backcountry considering that the study of crowding originated in urban research. (The Fort Sumter report does not go into the theoretical treatment of crowding due to the complex nature of a theoretical discussion. Recreational crowding studies are the focus of the literature review as they are of greater interest to recreation managers. A more complete discussion is offered by Andereck, 1989¹).

A second factor that indicates the variables used are valid is the very strong relationships between the variables in question and both perceived crowding and use levels. If these variables had been inappropriate, the strong relationships simply would not have shown up. Additionally, if the measures had been too sensitive, again, the relationships would not have been so stable.

As far as the individual variables go, it may be true that number of social contacts, and expectations and preferences for such contacts are inappropriate variables. This is suggested by the fact that these variables had no practically significant

¹ Andereck, Kathleen L. 1989. Perceived Crowding Among Visitors in a Built Recreation Environment. Unpublished Ph.D. Dissertation, Clemson University, Clemson South Carolina.

relationships with perceived crowding or density measures. Although several statistically significant relationships did surface, researcher deemed them too weak to be considered, indicating that researchers were sensitive to the validity of these variables. As a result, the social contact variables, along with several other non-significant or marginally significant variables, were eliminated from the analyses to determine carrying capacity. Thus, the argument presented by Fort Sumter Tours as to the applicability of social contact variables is irrelevant as these variables were not used in carrying capacity determination.

Expectations and preferences for density are very strong predictors of perceived crowding among visitors to Fort Sumter. Expectations and preferences are situation specific, and vary from setting to setting. These variables have been deemed to be appropriate for the study of crowding in all settings because of this specificity. Although expectations and preferences for numbers of people have been used to study crowding in backcountry settings, it is still appropriate to use them to explain perceived crowding in an urban, high use setting, based on the site specificity of expectations and preferences. Visitors to Fort Sumter certainly do not have the same expectations and preferences for density at the Fort as they have for a backcountry setting. If they did, everyone would feel crowded all the time since backcountry visitors generally indicate meeting one to three other parties is acceptable; meeting more is not. Visitors to Fort Sumter certainly have expectations and preferences consistent with the urban setting; it is only when the number of people gets quite high that they indicate density levels violate

their expectations and preferences. That visitors expecting or preferring fewer people are "hypersensitive" is a subjective statement in light of the number of visitors indicating density violates their expectations and preferences when reaching high levels. For example, nearly 70 percent of visitors report many more people than expected when more than 290 people are on the boat. Reasonable women and men realize they must take a typical urban environment, such as Times Square, as it is, but Fort Sumter is not a typical urban environment in that access can be limited. Whether or not visitors are "reasonably justified" to expect or prefer density levels lower than full boat capacity is a decision for National Park Service managers based on visitor experience objectives.

Another variable that is very specifically questioned by Fort Sumter Tours is the ability of visitors to find a place to think and be alone with their thoughts. It must be pointed out that this is not a variable that has been used to study back-country recreation experiences, but rather a variable that managers at Fort Sumter National Monument wished to have included in the survey. Park managers feel that visitors to the Fort should have the opportunity for quiet reflection during their visit. If the Park Service feels that this is an important aspect of a visit to Fort Sumter, the variable is justified and completely appropriate. The fact that it is not necessarily an unreasonable measure is suggested by the high percentage of people that indicate they were able to find such a place (56.7%). There is a very definite association between use level and positive reports on this variables. Thus, if the Park Service con-

tinues to feel that this is an important aspect of a visit to Fort Sumter, consideration of this variable is appropriate.

Another comment regarding the variables used in the study indicates that the study "should have measured whether the fort was more crowded than the reasonable person should be willing to tolerate in the urban setting" (p. 8). Again, it must be pointed out that there is no objective definition of "reasonable"; the definition of reasonable differs among individuals. Researchers should not make a value judgment of this nature. All researchers can do is collect and report information. The study makes a suggestion regarding carrying capacity thresholds based on commonly employed evaluation standards, but it clearly states that the thresholds quoted are suggestions (p. 193), and that the decision as to what thresholds are appropriate, or reasonable, must be made by managers (p. 193 & 174). The study fails to measure whether the Fort was more crowded than the reasonable person should tolerate because there is no single standard of "reasonable." The study reports levels of crowding and what causes them, the decision as to reasonableness of these levels is up to decision makers.

One final comment regarding the appropriateness of variables needs to be made. Before the 1987 study at Fort Sumter was implemented, management at Fort Sumter Tours, Inc. were given the opportunity to review and comment on the questionnaire. At no time during the review process did they question the appropriateness of the variables to be used in the study. It was before the data collection process began that questions regarding the appropriateness of variables should have been raised.

Physical impacts at Fort Sumter

Because the Fort Sumter report gives no indication of physical impacts to the resource does, in no way, imply that there were no adverse impacts. Physical impacts were not the subject of the study, and the Fort was not examined to determine the existence of physical impacts. No adverse impacts were exposed by time-lapse photography or observers because this was not the objective of either method. Both were employed to study visitor flow patterns only. The objective of this study was to investigate social factors impacting visitor experiences, and nothing regarding physical impacts, either negative or positive, can be inferred. The decision to study social impacts was made by the National Park Service in an attempt to provide a positive experience for visitors. In this context, the study of perceived crowding is most appropriate. The study of physical impacts to the resource would, perhaps, be a worthy endeavor but was not the objective of this study.

Recommendations of the study

The study presented to the Park Service provided a carrying capacity threshold recommendation because that was the major objective of the research. It is true, as pointed out by management at Fort Sumter Tours and clearly stated in the report and first addendum, that the study and subsequent carrying capacity thresholds must be viewed within the context of a trip to the Fort as it was during the study period. This is a fundamental fact of carrying capacity studies. Certainly management changes would affect the carrying capacity of the Fort. The study

alluded to several factors that might improve visitor experiences, and these are discussed in more detail in the first addendum to the report. Unfortunately, it is impossible to determine the extent to which various factors, such as the gift shop or boat unloading procedures, contribute to crowding and the specific effects eliminating these difficulties would have, but it is probable that they would affect visitor experiences positively. There is agreement among all concerned that the purpose of the study is to maximize visitor use and enjoyment of the resource. The manner in which the Park Service decides to do this, be it use limitation or other management changes, is a matter of agency policy.

Park Service's duty to the public

Whether or not the Park Service has a duty to accommodate as many people as possible is really a philosophical argument that cannot be answered through the research process. National Park Service managers are well aware of the agency's mission, objectives and obligations. If park managers feel that they are justified in limiting use within the context of the agency's mission, that is their decision. In fact, visitation is already limited because of the fee for the tour boat which certainly excludes some segments of society. Following the argument presented by Fort Sumter Tours, that "Fort Sumter belongs to the people of America, and they have the right to visit it" implies unlimited access, something that can only be accomplished by providing free transportation to the Fort. The claim that limiting use for resource protection and visitor experience en-

hancement is unreasonable is paradoxical when Fort Sumter Tours, themselves, are effectively limiting use to those persons able to afford the trip.

Rationality of limiting use

As with the issue of the Park Service's duty to the public, the equity of concession expenditures versus use level limits, and if use limitation is counterproductive or unreasonable is, again, a philosophical debate. Perhaps some of these questions are better answered using objective measures, such as:

- Is demand now beyond what can be serviced? Are a number of visitors being turned away, and cannot go to the Fort, or are they simply required to wait for another boat? How often are all of the boat completely full every trip during the day? If this is a rare occurrence, demand does not yet exceed supply.

- Similarly, with use limits in place, would some visitors actually be excluded from a trip to the Fort, or merely inconvenienced by having to wait for a later boat? Does total visitation for any one day exceed the overall number of visitors that could potentially see the Fort based on use limits for each boat? Using the recommended maximum threshold of 285 people on a boat, 1,710 visitors could visit the Fort in one day assuming six boats run the route. How often does visitation exceed this figure? Park Service attendance figures indicate that this is a rare occurrence. In fact, during the survey period visitation exceeded this capacity on only 0 days. Some visitors may be required to ride a later boat, but will several visitors often be unable to go at all? This seems unlikely. Visitors forced to

wait for another boat could be allowed to purchase an advance ticket for the alternate time of their choice, thereby mitigating some of the negative reactions to being required to wait. If visitation on some days, such as Saturdays, often exceeds the total number of visitors allowed to visit, another boat, perhaps in the evening, could make the trip.

It is not unusual for people to have to wait for participation in activities. An analogous situation is a movie theatre. If two people go to the 7:00 show only to find that the theatre is full, they must wait for the 9:30 show or come back another day. Often, they are able to purchase tickets for an alternative time.

Redistribution of use would help solve this difficulty. Effective management of the tour operation should be able to accomplish this. For example, large groups, which get a discount, should be required to visit at times other than peak periods. Analysis shows that the earliest boats tend to be more heavily used than boats at other times, with the last boat of the day having the least usage (Table 1). Discount fares could easily be set contingent upon a specific time for the visit. To use the theater analogy again, theatres often have discount prices for matinee showings to attempt to redistribute use and reduce peak attendance. People get discount prices only at specified times.

These are the types of objective questions that may help solve the dilemma of carrying capacity.

Table 1

Average visitation by boat

Time of boat	Average number of people	n
1:00 ¹	191.33	24
9:30	165.39	38
10:45	153.56	9
2:30	151.25	24
1:30	144.24	17
12:00	132.60	15
4:00	128.54	24

¹ The 1:00 was the only boat leaving from Patriot's Point and, as a result, often had large numbers of visitors. More trips leaving from this place would alter these figures.

