Total recreational usage of an area can be defined as the product of the average number of days recreationists use a recreational site per visit and the number of visits to a recreational site.

The number of days per visit can be considered the quantity variable in a demand relationship and the daily on-site costs a price variable. Based on the demand relation for an average visit, the aggregate demand for recreation can be derived by expanding according to the number of visits. For purposes of this study, it was assumed that the impact of water level on recreational values is realized on the number of visits rather than the length of stay per visit. A value per visit was estimated and then the relationship between water level and visits was utilized to relate water level to recreational value.

The average demand function for recreation per visit was estimated. This relationship is based on 1970 and was estimated such that the separate relationship for each of four time periods throughout the year could be evaluated. Based on the concept of consumer surplus, a value per visit was estimated to be $59.91.

The relationship between total recreational visits and water level was also formulated. By combining days per visit with visits, the aggregate value is obtained as a function of water level:

$$\text{Annual Economic Value} = (\$59.91)\ (-3{,}962{,}699.23 + 81{,}219.81\ W_L)$$

As water level increases so does economic value. For example, at a level of 61.57 feet (the maximum observed during 1970) the annual economic value is estimated at $62.2 million.

The average annual economic value to visiting recreationists in 1970 was estimated at $28.7 million. This estimate is a measure of consumer surplus enjoyed by recreationists visiting the area. This figure does not measure the gross expenditures or income to the area. It is merely a measure of the "surplus satisfaction" accruing to the recreationist using the site over and above their actual expenditures.

Information of this nature is valuable for use by decision makers in allocating water among alternative uses. Recreation is one of the prominent uses of water in many areas, as it is in the Kissimmee River Basin. By lowering the water level to provide for say, flood control, potential benefits to recreationists are foregone. For every foot the water level is lowered, recreationists lose an average annual benefit of $4.9 million ($59.91 × 81,219.81). This highly sensitive relationship is related to