

recreational values is realized on the number of visits rather than the length of stay per visit. Thus, a value per visit was estimated and then the relationship between water level and visits was utilized to relate water level to recreational value.

### Theoretical Model

The theoretical model for the length of visit relationship is based on traditional concepts of consumer behavior theory. In order to participate in an outdoor recreational experience, the recreationist<sup>4</sup> incurs two types of costs. It is assumed that it is necessary to pay a certain charge,  $T$ , before consumption of recreation,  $Y$ , is possible. The charge,  $T$ , is not dependent on the quantity of  $Y$  purchased. It can be considered a payment for the privilege of purchasing  $Y$ . That is, a recreationist will pay a certain cost per day,  $C$ , while consuming recreation (on-site costs) and he will incur travel costs, (fixed cost),  $T$ , in order to get to the recreation site.

Travel cost includes transportation costs, cost of food and lodging and other costs enroute to the recreation site. The cost of travel to the recreation site,  $T$ , competes with the cost of other commodities consumed. Thus, the budget constraint faced by the recreationist is:

$$m = CY + T + Pq \quad m, C, q \geq 0 \quad Y, T > 0 \quad (10)$$

Where  $m$  is income of the recreationist,  $C$  is daily on-site costs,  $Y$  is number of days per visit at the site,  $T$  is travel cost,  $q$  is all other goods consumed and  $P$  is price of all other goods.

The maximization of a recreationist's constrained utility is determined by the same technique employed in traditional consumer behavior theory except that travel cost enters into the equation. The budget constraint:

$$m - T = CY + Pq \quad (11)$$

shows how the travel cost,  $T$ , affects the available income. By consuming  $Y$ , the recreationist will have less income available than if he only consumed  $q$ . The travel cost,  $T$ , can only be zero if no recreation is consumed since any amount of recreation will generate some travel cost.<sup>5</sup>

<sup>4</sup>The "recreationist" can be defined as a recreation group or an individual. For purposes of this bulletin, the recreation group is considered the decision making unit. In a subsequent section the individual recreationist is referred to in order to isolate the influence of group size.

<sup>5</sup>This is true even if an individual walks to a recreation site. His travel cost, in this case, is very small but is still positive.