

Tohopekaliga has no dummy variable since its value of "one" or "zero" is implied in the regression equation. When estimating recreational usage of lakes, other than those sampled by the traffic survey, such characteristics as size of lake, distance from population centers, and depth of water should be considered in determining the proper value for L_i .

The estimated regression equation is:

$$\begin{aligned}
 V = & -766.2 + 22.07 W_L^{**} - 85.98 R_A - 1.80 T^* - 43.08 D_2^* \\
 & \quad (3.737) \quad (54.35) \quad (0.865) \quad (14.39) \\
 & - 82.80 L_1^{**} - 314.28 L_2^{**} \quad (20) \\
 & \quad (14.37) \quad (35.56)
 \end{aligned}$$

$$R^2 = .687 \quad \text{degrees of freedom} = 77 \quad F = 28.14$$

where the variables are as previously defined.

The strongest correlation among the independent variables occurred between the variables L_2 (dummy variable for Lake Gentry) and W_L (water level). This interdependence can be justified, since the water level did not vary a great deal within the lakes, with the exception of Lake Tohopekaliga, but rather varied between lakes. Wind velocity was not utilized due to its statistical insignificance.

The calculated R^2 was .687 and the calculated F-value was 28.14, which is significant at the one percent level. The statistical results support the original hypothesis that recreational use of the lake varies directly with the water level and inversely with the physical variables temperature and rainfall. As water level (W_L) increases by one foot, recreational use of the lake is estimated to increase by 22.07 visitors per day. Between season II and season III recreational usage of the lake will decrease by 43.08 visitors per day due to the seasonal trends. There was no evidence of a seasonal trend during the months of February through September; thus the variable D_1 was deleted from the final equation. This conclusion differs from the original hypothesis that the year be divided into three seasons rather than two. Also, the variables L_1 and L_2 behaved as predicted. That is, the total number of visitors recorded decreased from Lake Tohopekaliga to Lake Marian and from Lake Marian to Lake Gentry by 82.81 and 314.28 visitors per day, respectively.

If an estimate of recreational use was desired, and not its relationship to other variables, then this regression equation is not needed. Only the procedures to calculate V from the traffic counts is necessary. This study was especially interested in the relationship between water level and recreational use due to an interest in allocation.