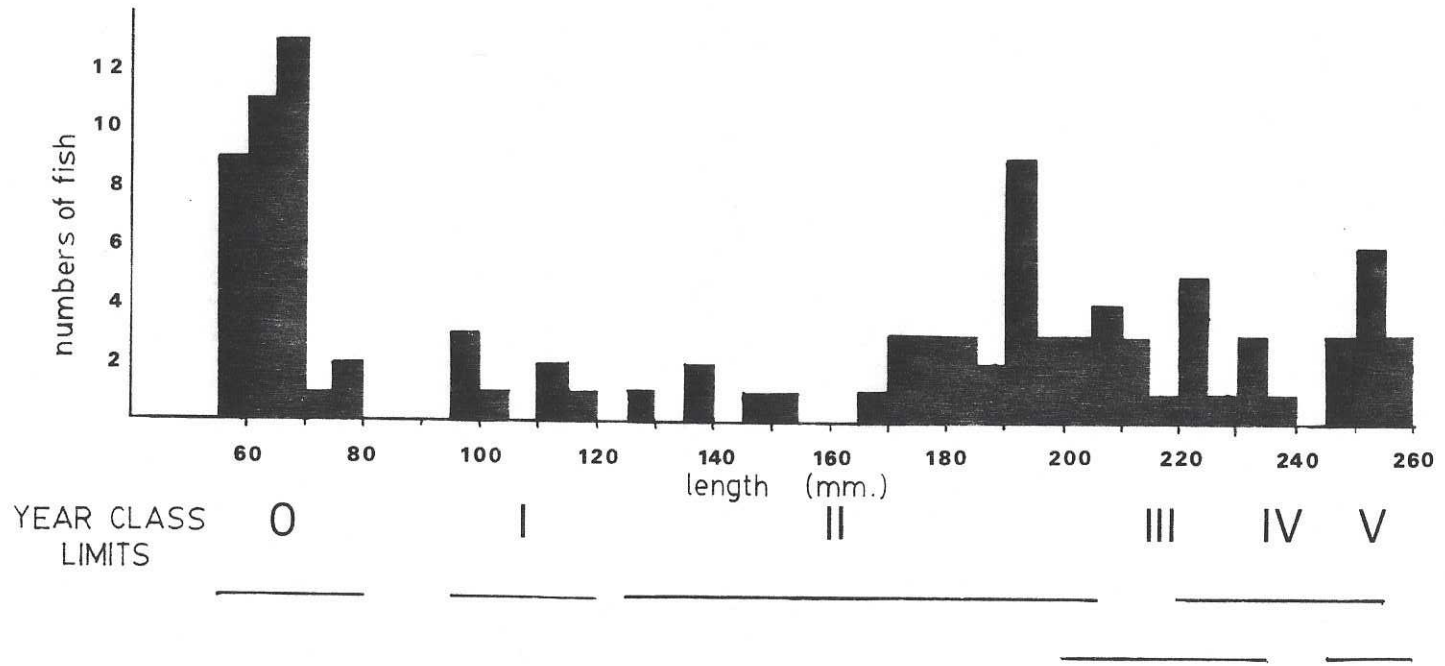
SUNFISH LAKE

yellow perch



A plot of average length vs. age (figure 11) demonstrates the pattern of growth shown during the life of the yellow perch. Increases in length were large between younger year classes and are followed by steady decreases in growth rate between progressively older year classes. This pattern of growth is perhaps better illustrated by plotting instantaneous growth rates (figure 12). These are calculated using the equation:

$$\frac{dG}{dt} = \log_e L_2 - \log_e L_1$$

where L represents the average length at age two and L represents the average length at age one (Brown 1977). This can be done for each growing season. Applying this to Sunfish Lake data, I found high growth rates during the first two growing seasons followed by a much reduced rate in subsequent years.

Growth relationship between length and weight is shown by a geometric mean fuctional regression of log weight on log length. Functional regressions are required whenever abscissal values are subject to natural variability (see Ricker 1975).

Figure 11. Length - age plot for Sunfish Lake yellow perch

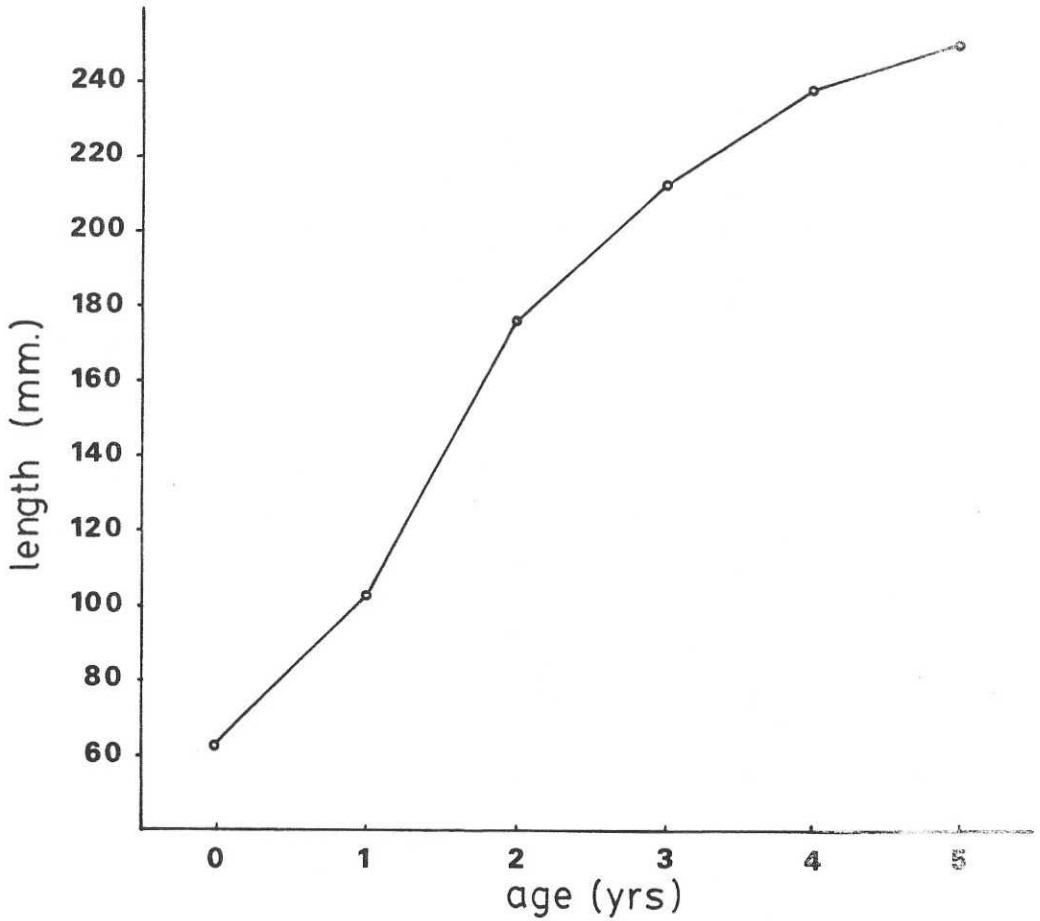

240
220
200
180
160
140
120
100
80
60
length (mm.)
0
1
2
3
4
age (yrs)

Figure 12. Instantaneous rate of growth for Sunfish Lake yellow perch

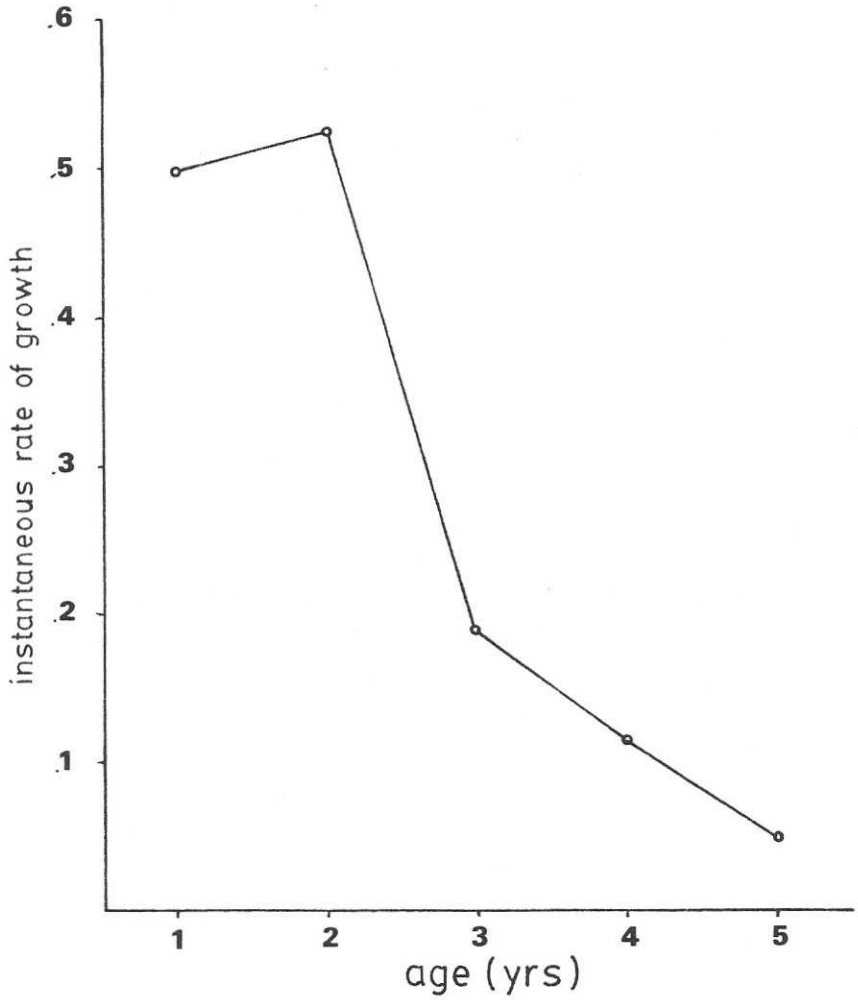
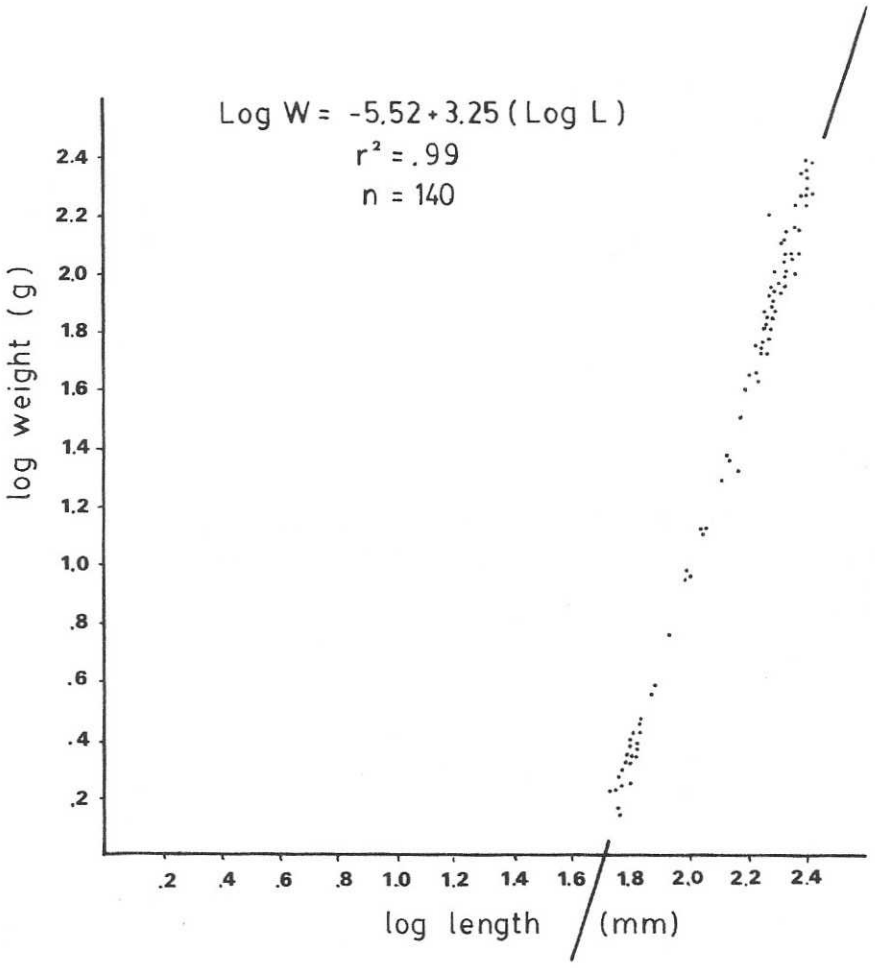

.6
.5
.4
.3
.2
.1
instantaneous rate of growth
1
2
3
4
5
age (yrs)

Figure 13. Regression of log weight on log length for yellow perch in Sunfish Lake.



95% confidence limits for b = 3.2547

3.2547 ± .2619