# Age and Growth of Channel Catfish in the

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are thought to be low, may be useful in the future when harvest rates can be expected to increase.

model $S = a_3 + a_4L + a_5L^2$, where $a_i$ are parameters. The quadratic model was used in back-calculation. Back-calculated lengths were obtained using

70-cm long fish 3.5 kg (Fig. 1). Weight of Yellowstone River fish for a given length was less than for a standard (benchmark) population (Anderson 1980); Yellowstone River fish 30 cm and 60 cm total length weighed 196 g and 2076 g respectively versus 242 g and 2293 g for fish in the standard

calculated lengths-at-age were expressed by the von Bertalanffy growth equation
$L = 1149.4004\ (1\text{-}e^{(-0.0573*(Age\ -0.3269))})$;
(Fig. 3). Length-at-age estimates were higher based on actual lengths and ages of fish caught than on back-calculated lengths; the expression developed from fish at time of capture was

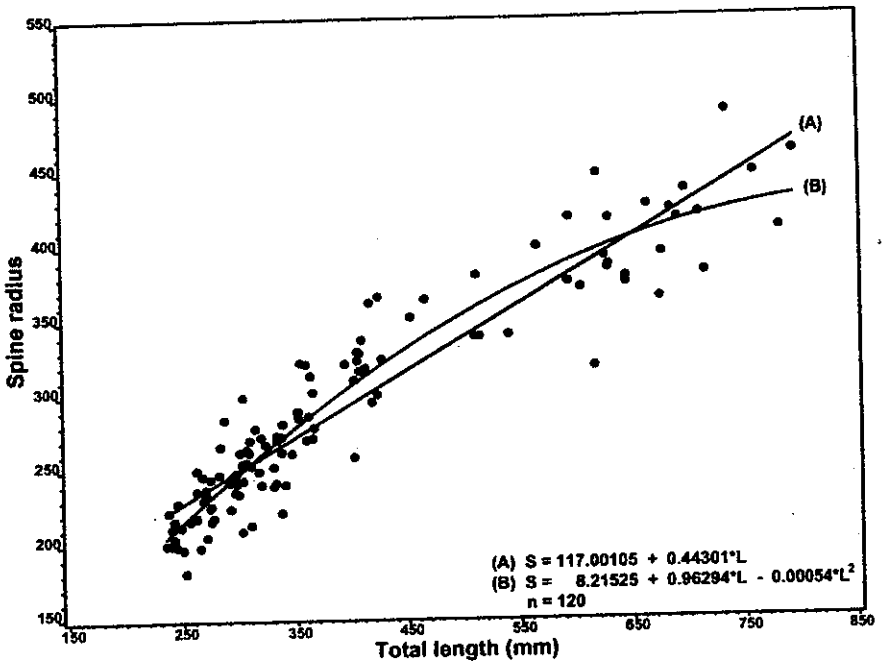
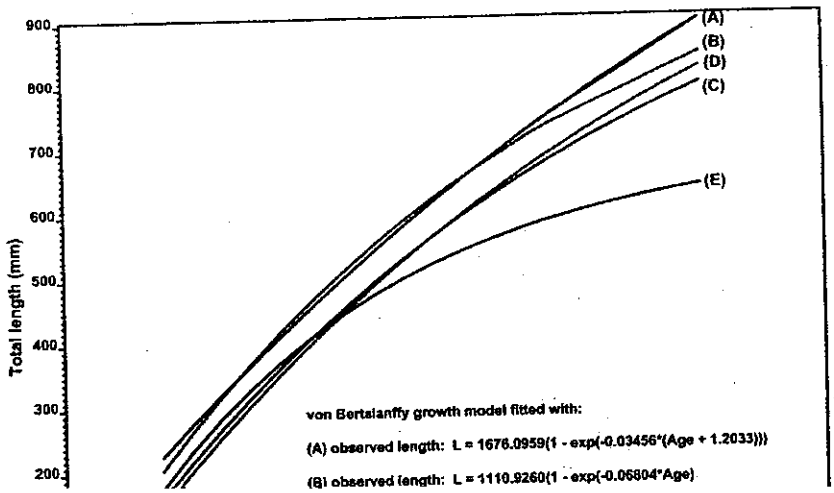



**Figure 2.** *Relations between spine radius and fish total length fitted with a) a linear model and b) a quadratic model.Spine radius is in Optical Pattern Recognition System standard units.*



Beyond age-6, there was considerable variation in weight with age.

## Discussion

The channel catfish in the

(1977) reported that 25 of 469 fish (5% of the sample) from the Tongue River, Montana, were age-15 or older.

The Yellowstone River stock was also among the slower- growing stocks. Length-at-age for the Yellowstone stock

longer than in more southerly localities. Anderson et al. (1983) considered a 41-cm long catfish to be of quality size; such a fish on the Yellowstone River would be age-7, in Nebraska waters age-6 and in Oklahoma waters age-2 or age-3 (Figure 4). At present, slow growth rates of channel catfish are not a problem in the Yellowstone River because harvest rates are sufficiently low that many large fish remain in the stock.

The differences in length-at-age between the von Bertalanffy growth curves based on length-at-capture and expected to be less than for fish in ponds, lakes and reservoirs, on which the standard length-weight relation is at least partially based.

As in other studies (e.g., Marzolf 1955), detection of the first annulus proved difficult in many of the older catfish. Often the edge of the lumen contained evidence of an annulus, or the first observable annulus was immediately adjacent to the lumen edge. Bone erosion from the lumen has been noted by others as responsible for loss of annuli near the lumen (Hesse et al. 1978). If erosion of the first annulus was

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