

## **Seasonal Movements and Length Composition of Northern Pike in Old Lost Creek, 2001-2003**

**Abstract:** Concern raised by Stevens Village over the increased use of the northern pike *Esox lucius* sport fishery at the Dall River since the construction of the Dalton Highway Bridge at the Yukon River led to a series of studies on the Dall River and nearby tributaries to better understand the size and age distribution and movement of northern pike in this portion of the Yukon Flats. In 2001, 365 northern pike  $\geq 450$  mm FL were captured and tagged in the Old Lost Creek drainage. In 2002, an additional 285 northern pike were captured, measured and tagged. Twenty-one percent of the fish captured in 2001 and 27% of the fish captured in 2002 were greater than 720 mm FL. The proportions were significantly different at the 95% confidence level. In 2001, 60 fish  $\geq 600$  mm FL were fitted with radio transmitters. During the open water seasons of 2001, 2002, and 2003 radio-tracking stations were placed at the mouths of the Old Lost Creek drainage and at the mouth of the Dall River to record the movement of radio-tagged pike in and out of these two drainages. Radio-tagged fish typically moved into the Old Lost Creek drainage after ice-out in May and remained within the drainage throughout the first two-thirds of June. More than 20% of the radio-tagged fish moved out of the drainage by the end of June in 2002 and 2003 but remained nearby in the Yukon River. Fish moved a maximum of 56.6 kilometers downriver and 38.1 kilometers upriver of the drainage. Average maximum distances moved from the Old Lost Creek drainage were much lower than the maximum; they were 5.6 kilometers (SE = 1.54) between the spawning season of 2001-2002, 6.3 kilometers (SE = 1.58) between spawning in 2002 and 2003, and 10.8 kilometers (SE = 3.26) after the 2003 spawning season. In 2001, 19% of still active Dall River tagged northern pike were detected at the Old Lost Creek drainage. However, no more than 5% of Old Lost Creek northern pike were detected at any one time near the Dall River or in the Yukon River within 5 km of the mouth of the Dall River. Logistic regression models demonstrated that the proportion of radio-tagged northern pike remaining in the Old Lost Creek drainage after the spawning period depended upon the flow rate in the Yukon River, the section of the river in which the northern pike was initially caught, the year of the observation, and on the day of the year. The proportion of northern pike in the drainage was positively correlated with the flow rate in the Yukon River. Additionally, the five fish captured and tagged at the mouth of Old Lost Creek spent significantly more time outside of the drainage. Comparisons are made with the Dall River northern pike stock and management implications are discussed.

**Citation:** Joy, P. and J. M. Burr. 2003. Seasonal Movements and Length Composition of Northern Pike in Old Lost Creek, 2001-2003. U. S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Final Report (Study No. 01-140). Alaska Department of Fish and Game, Division of Sport Fish, Fishery Data Series No. 04-17, Fairbanks, Alaska.