

Limnological and Fisheries Investigation at Virginia Lake, Southeast Alaska, 2002

Abstract: The Virginia Lake nutrient enrichment program was continued in 2002. Fertilizer was applied at 65% of the critical phosphorus load, using 20-5-0 liquid fertilizer that was applied twice weekly from mid-May to early September and a new prototype solid, controlled-release fertilizer (CRF) 16-30-0 with an estimated 100-day dissolution rate. Limnological sampling showed that total phosphorus and chlorophyll a concentrations were at elevated levels throughout the 2002 growing season. Zooplankton density and biomass were below the 16-year average, but above levels observed during the 1999–2001 period. The fall rearing sockeye salmon *Oncorhynchus nerka* fry population was estimated at 32,000 fish on 20 September 2002. The ZB-EZD model predicted the lake could support an estimated 115,000 – 192,000 smolt dependent on either optimum or maximum production values. The 2002 rearing fry were progeny of the adults that returned naturally in 2000 and 2001 from the initial colonization program (1989 to 1996). Based on 12% marine survival, the predicted total return for 2003 is estimated at 10,000 adult sockeye.

Citation: Howell, G. J and T. P. Zadina. 2003. Limnological and Fisheries Investigation at Virginia Lake, Southeast Alaska, 2002. U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Management Program, 2002 Annual Report (Study No. 01-179). Alaska Department of Fish and Game Division of Commercial Fisheries, Douglas, Alaska.