

ABSTRACT

CONTRIBUTION OF HATCHERY AND NATURAL CHINOOK SALMON TO THE EASTERN LAKE MICHIGAN FISHERY, 1992-1993

By

Jay A. Hesse

All hatchery produced chinook salmon (*Oncorhynchus tshawytscha*) stocked into the Lake Michigan Basin from 1990 to 1993 were marked with various fin clips and/or an internal mark with the antibiotic oxytetracycline (OTC). As a result, individual chinook salmon could be identified as being of either hatchery or natural origin.

The chinook salmon sport harvest was sampled at three locations to determine: 1) the validity of ageing chinook salmon using vertebrae, 2) the effectiveness of OTC marking, 3) the contribution of naturally reproduced chinook salmon to the sport harvest, and 4) the regional variation of that contribution. Additional gill net samples were used to compare various sampling techniques and to examine the occurrence of bacterial kidney disease (BKD) in hatchery and natural chinook salmon.

A total of 703 and 1,374 chinook salmon were sampled from the sport fishery during 1992 and 1993, respectively. Annular bands in vertebrae were used to age samples with 97 percent accuracy. Using chinook salmon marked with fin clips and OTC, an OTC mark failure of 5 percent was established. Regional differences existed in the percentage of naturally produced age 3 chinook salmon that contributed to the sport fishery. No regional difference existed at ages 1 and 2, with about 30 percent of the sport harvest consisting of naturally produced chinook salmon. Both gill net samples and sport fishery samples exhibited the same percentage of hatchery and natural chinook salmon. BKD affected hatchery and natural chinook salmon equally.