

ABSTRACT

Fish ladders were built on the Grand River to allow anadromous salmonids to migrate from Lake Michigan to the Lansing area (184 miles upstream). The first ladder was completed at Grand Rapids in 1975 and five other ladders were completed between there and Lansing in 1981. This study was started in the fall of 1982 to evaluate (1) the species composition of fish using the ladders, (2) the efficiencies of the ladders for passing fish, and (3) the fishing pressure and catch of anadromous fish.

Fish using the fish ladders were sampled initially with dip nets and trap nets, but these nets missed some species and some larger salmonids. A combination of drawdown and DC electrofishing gave better samples. Apparently, all species appeared to migrate up through the ladders without difficulty. Coho salmon (Oncorhynchus kisutch), chinook salmon (Oncorhynchus tshawytscha), suckers (Moxostoma spp. and Catostomus spp.), and steelhead (Salmo gairdneri), were the most frequent users. Fair numbers of channel catfish (Ictalurus punctatus), smallmouth bass (Micropterus dolomieu), carp (Cyprinus carpio), and walleye (Stizostedion vitreum) used the ladders also.

Visual counts were made at each fish ladder in spring and fall on a random around-the-clock basis to measure the number of salmonids moving upstream. The ladders above Grand Rapids were essentially 100% efficient in passing salmonids. Generally, the number of salmonids migrating past upstream points declined curvilinearly with distance. Many fish were removed by anglers, strayed into major tributaries, or stopped to spawn between Grand Rapids and Lyons. Spring floods appeared to aid steelhead migration but hindered fishing.

Creel census was used to measure fishing. In the fall, chinook salmon and coho salmon comprised 66.9% of the catch, on the average. Most were caught below the 6th Street Dam at Grand Rapids. Few salmon (9.5% m, less than 4,000 per year) were caught in the Lansing area. The spring salmonid catch, made up almost entirely of steelhead, occurred between Grand Rapids and Lyons.

Returns of stocked salmonids to the Grand River fishery were roughly estimated by comparing average number stocked to average number harvested. Returns were about 2.8% for coho, 3.4% for chinook, and 2.2% for steelhead.