Abstract

I examined the ages at migration and the timing of smolt migrations for both wild and hatchery-raised coho salmon, Oncorhynchus kisutch, and chinook salmon, Oncorhynchus tshawytscha, in a tributary of northern Lake Michigan. Smolt yield was measured for wild fish, and survival from planting to smolting was evaluated for hatchery-raised fish. Migrations were monitored using traps installed near the mouth of the river. The ages at migration and the timing of smolt migrations followed consistent patterns during the three study years. Most wild coho smolts migrated at age 1 in mid-May, although some age-0 smolts (age 8 months post-fertilization) were captured in June following one particularly mild winter. Wild chinook smolted primarily at age 0 in June, with a small proportion of the population holding over to smolt at age 1. Wild smolt yields were fairly low, averaging roughly 240 smolts per hectare for each of the two most common groups, age-1 coho and age-0 chinook. Hatchery-raised coho migrated at age 1 in a bimodal pattern, with one peak coming immediately after planting in late April, and the second coinciding with the movement of wild fish in mid-May. Hatchery-raised chinook migrated at age 0, immediately following planting in late May, and those grown at accelerated rates migrated immediately following planting in early April. Survival from planting to smolting ranged between 70–78%, and 68–100% for hatchery-raised coho and chinook, respectively. The timing of migration was most strongly influenced by photoperiod and fish size, however, the relationships between these factors and migration may differ with species.