

*Amigo*

FISH MANAGEMENT PLAN  
COTTAGE GROVE RESERVOIR

INTRODUCTION

Cottage Grove Reservoir is located at RM 29.5 on the Coast Fork Willamette River about 25 miles south of Eugene and six miles south of Cottage Grove in Lane County, Oregon (Figure 1). It is one of 13 Corps of Engineers multi-purpose water projects in the Willamette Valley. Water was first impounded there in 1942. There is no fish ladder in the dam.

Angling, swimming, water skiing, canoeing, and sailing are all popular water sports at the reservoir. There are three day-use areas and a large campground adjacent to the reservoir, with two developed boat ramps (Figure 2). All facilities are administered by the Corps of Engineers.

In October, 1986, the Oregon Fish and Wildlife Commission accepted the Department's recommendation to manage Cottage Grove Reservoir for wild warmwater game fish and hatchery trout.

HABITAT

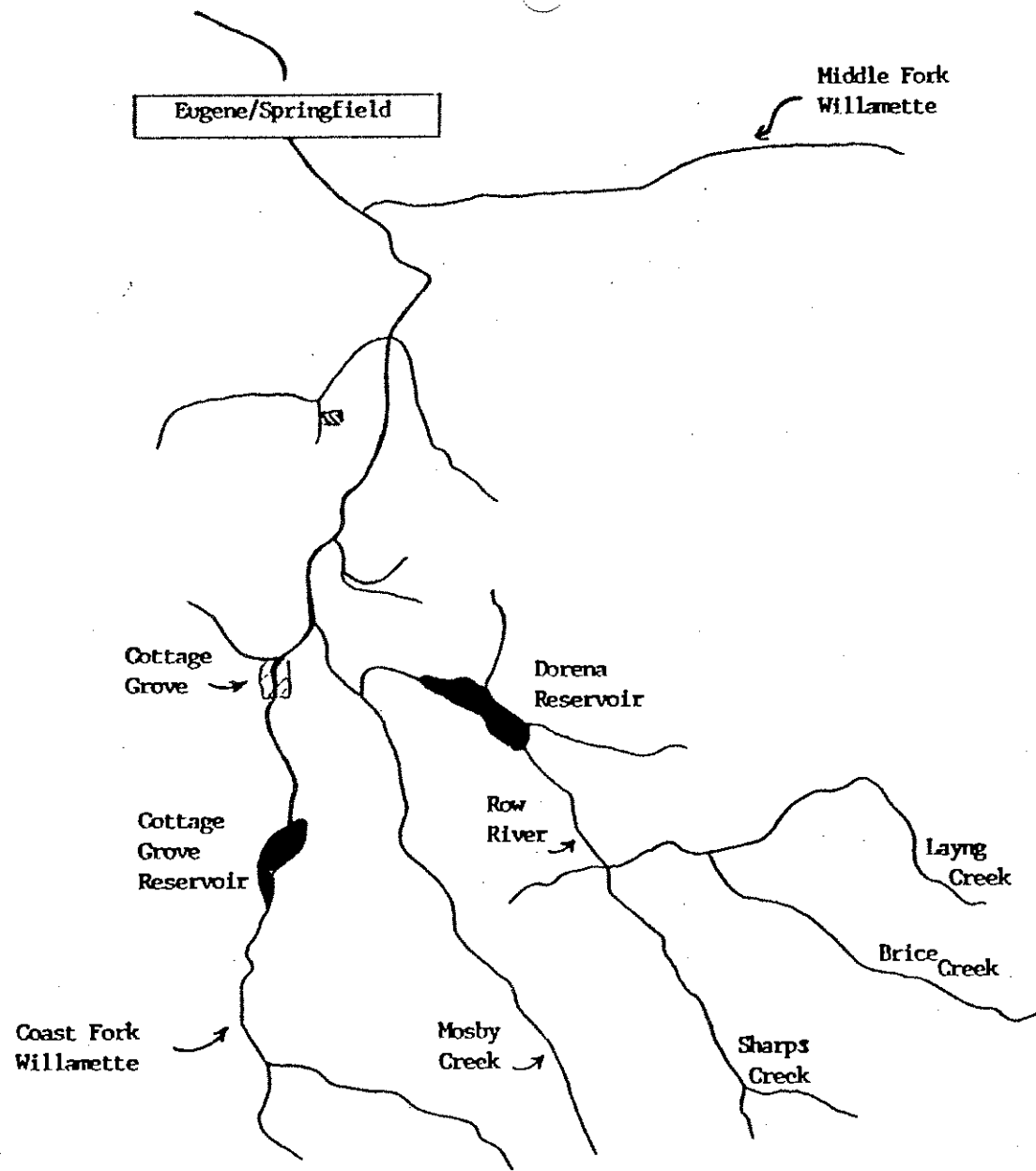
Description

Cottage Grove Dam is a 95 foot high and 1,750 foot long earth fill structure with a concrete spillway, which creates a reservoir about three miles long. Surface area of the reservoir fluctuates from 1,155 acres at full pool to 295 acres at minimum pool (41 foot drawdown). Maximum depth is 71 feet. From September to December the reservoir is rapidly drawn down to minimum pool for flood control and is refilled by the following mid-May. Storage at normal full pool is 33,000 acre-feet, and is 3,000 acre-feet at normal minimum pool. The reservoir can be drawn down to stream channel, but several large potholes in the reservoir basin retain water and fish at zero pool elevation.

Limitations

Cottage Grove Reservoir is frequently turbid during winter months from shoreline wave action and from suspended clay particles washed down the Coast Fork Willamette River. The annual drawdown severely curtails fish food and fish production. Aquatic vegetation generally is sparse except for dense reed canary grass cover in the upper drawdown zone (south end) of the reservoir. Zooplankton is not abundant; one year of sampling showed an average of 6,400 organisms per cubic meter. This figure is well below values determined for Detroit Reservoir (range 11,300 to 26,700) and Prineville Reservoir (average of 14,750).

Mercury-laden water enters the reservoir from the watershed. Levels of mercury found in the impoundment's fish have caused concern to the degree that health authorities suggest limited consumption of fish caught from the reservoir.



-2-

**Figure 1. Coast Fork Willamette River drainage.**  
 Oregon Department of Fish & Wildlife  
 Cottage Grove Reservoir Fish Management Plan 1986

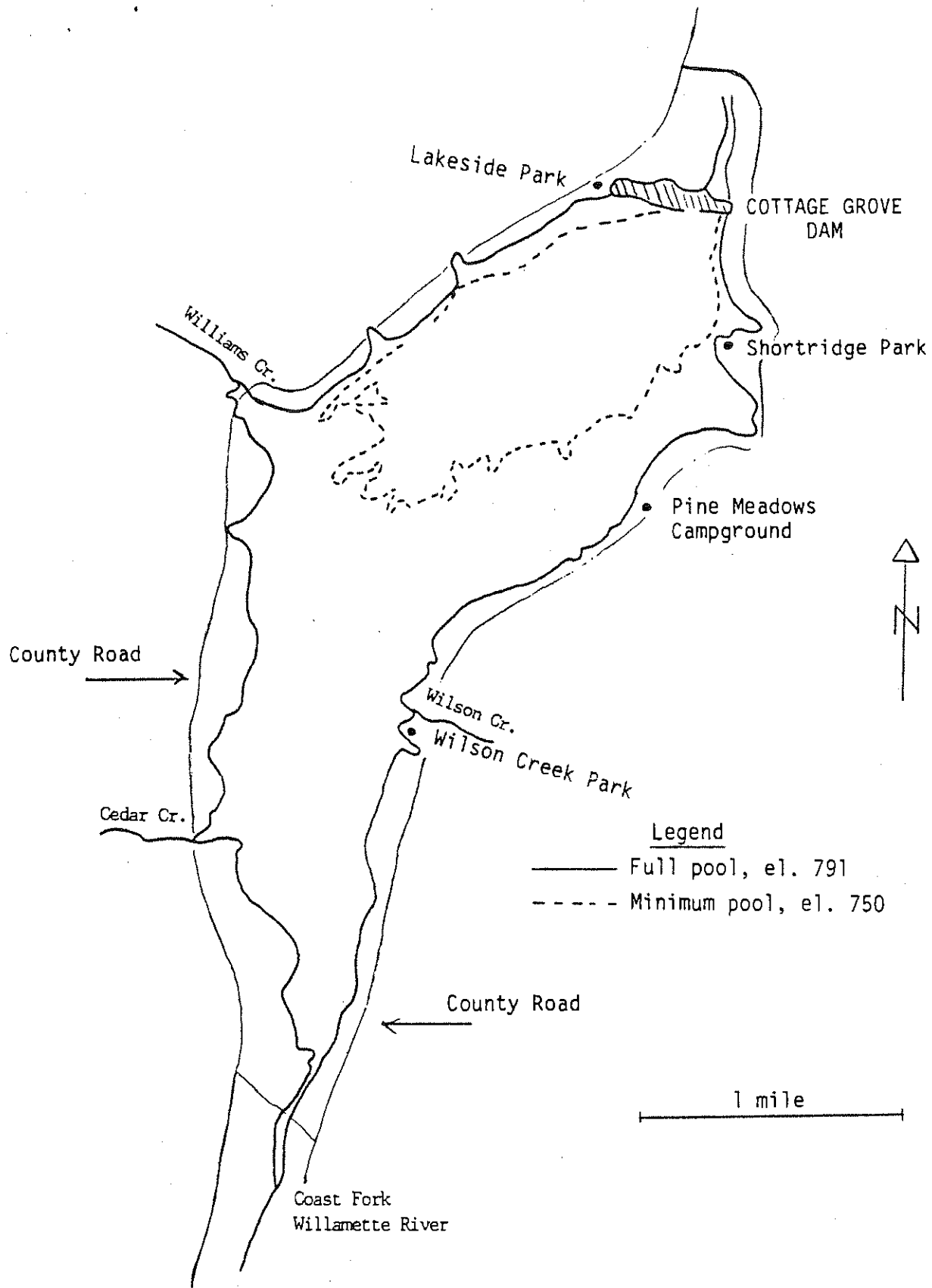


Figure 2. Cottage Grove Reservoir on the Coast Fork Willamette River.

## FISH POPULATIONS

The reservoir was originally stocked with fingerling and legal-sized rainbow and cutthroat trout during the 1940's. These trout did not survive well, apparently due to high surface water temperatures and oxygen deficiency in deeper waters. Sampling with nets in fall typically yielded only suckers and squawfish.

In 1950 the reservoir was chemically treated to remove all fish. Largemouth bass and bluegill were stocked. They survived and reproduced well. Bullhead catfish and crappies were illegally introduced soon afterward. Between 1954 and 1964 the lake was stocked annually with hatchery yearling rainbow trout. Brown bullheads quickly overpopulated and stunted. Native suckers and squawfish recolonized the reservoir. By 1965, nongame fish constituted 60 percent of the gill-net catches by number and over 90 percent by weight. The reservoir and tributaries were again chemically treated in 1966 to remove the suckers, squawfish and stunted bullheads.

In 1967, the reservoir was stocked with smallmouth bass and fingerling rainbow and cutthroat trout. In 1967, salmon rearing studies were begun with juvenile coho and fall chinook. By the end of 1968, study results indicated that Cottage Grove Reservoir was not suited for rearing coho and fall chinook salmon.

From 1969 through 1975, salmon rearing studies in the reservoir shifted to spring chinook. Juvenile chinook were stocked each spring, reared in the impoundment during summer, and were flushed from the reservoir in the fall.

In 1976 this program was discontinued. The primary reasons were (1) poor survival to smolt stage unless competing fish species were eliminated by frequent chemical treatments, (2) high mercury content in reservoir-reared salmon, which curtailed successful adaptation by smolts to saltwater, (3) concern over downstream water turbidity problems, caused by extreme annual reservoir drawdown, (4) evacuation of nontarget game fish from the reservoir (5) poor adult chinook returns, (6) snagging of adult chinook returning to the Coast Fork Willamette below Cottage Grove Dam and (7) low, warm flows unsuitable for successful salmon spawning and rearing.

Yearling hatchery rainbow trout ("legals") have been released into the reservoir annually since 1971; rainbow fingerling in several years and fingerling cutthroat in 1980. Fingerling trout have not been stocked since 1981 because of poor survival in past years and the potential for those fish to accumulate mercury before attaining catchable size. Most hatchery legal-sized rainbow are caught by anglers relatively soon after stocking. These fish do not have time to accumulate much mercury. Signs warning of a possible health hazard stemming from consumption of fish from the reservoir have been posted since 1980.

Largemouth bass recruitment in Cottage Grove Reservoir is very high due to flushing of much of each year's fish production from the pool and subsequent bass spawning and rearing in favorable habitat but little competition. Neither population sampling nor angler records indicate a strong population of adult fish, but annual growth is above average.

Bullhead catfish are abundant, but commonly achieve an undesirably small adult size. The bullheads attract little angler interest and are largely immune to predation by bass.

## FISHERY

Each spring as the reservoir fills, the fishery emphasizes catches of legal-sized rainbow, released during March and April. Warm surface waters preclude trout releases after mid-May in most years. As the reservoir warms, bullhead catfish and bass fishing increases in popularity. During the fall, legal rainbow and native cutthroat are again caught in good numbers, often near the head of the reservoir. At that time, the trout concentrate in the somewhat cooler inflow of the Coast Flow Willamette River.

Despite favorable catch rates in some years, Cottage Grove Reservoir consistently ranks low in angler use when compared to other Willamette Valley reservoirs.

## DISCUSSION

The primary fish management constraints at Cottage Grove Reservoir are (1) annual reservoir drawdown, (2) low dissolved oxygen levels and warm water during summer, and (3) presence of naturally-occurring mercury in reservoir fishes.

- 1) Annual reservoir drawdown severely curtails fish food and fish production. As the reservoir is evacuated each fall, much of the rearing area becomes exposed and many fish and nutrients are lost downstream. Previous spring releases of fingerling rainbow and cutthroat trout did not contribute well to the fishery the following year. Most of these fish either did not survive in the warm water or were flushed from the reservoir during winter evacuation. Legal-sized hatchery rainbow trout contribute well to the fishery, mainly in spring and fall, but must be reintroduced each spring. The annual reservoir drawdown cannot be changed because the project's primary authorization is for flood control.
- 2) Warm water temperatures and low dissolved oxygen during the summer limit salmonid production. Catches of native cutthroat and legal rainbow most frequently occur in spring and fall months. In summer trout seek deeper, cooler waters and are difficult for anglers to locate.

Periodic introductions of warmwater game fish (bass, bluegill, and catfish) have survived and contribute well to the fishery. Better adapted to the summer water temperature regime than trout, the warmwater species successfully reproduce. Annual production of fingerling bass is very successful. Many of these fish, however, are lost each year during reservoir evacuation. Growth of the remaining bass is better than average. Brown bullhead catfish are over-abundant and of small average size.

- 3) Undesirable levels of mercury were discovered in fish samples collected since 1975. Since 1980, fish management activities have attempted to avoid action which would encourage heavy consumption of resident fishes. Currently only legal-sized rainbow trout (over 6 inches) are released each year. These fish spend a relatively short period of time in the reservoir and usually do not accumulate objectionable levels of mercury prior to being caught.

Warmwater fish in the reservoir are potentially accumulating undesirable levels of mercury prior to being caught. There are no special angling regulations at Cottage Grove Reservoir.

#### RECOMMENDATION

Management Option: Manage for wild warmwater game fish and hatchery trout. Fish management emphasizing low consumptive harvest as a component of quality bass management at the reservoir will meet recommendations of public health agencies. The possibility of greatly restricting bass harvest without substantial short-term impact to an existing fishery is fortuitous in this case. Retaining existing trout management will complement the warm water program in providing diversity of opportunity.