



US Army Corps
of Engineers

Omaha District

Sedimentation in Fort Peck Reservoir 1937-1987

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October 1989

I. INTRODUCTION

This report presents an overview of Fort Peck Reservoir conditions and trends.

It consists of the project statistical data; profiles for the Fort Peck aggradation ranges; suspended sediment data; densities of deposits; capacity and sediment depletion by reservoir segments and elevation; pool elevation records; and bed sample data.

The purpose is to serve as a record of basic observations and tabulations of field data on Fort Peck Reservoir and to document pertinent geomorphic data and trends.

II. SYNOPSIS

The lake's original storage capacity, determined in 1937, was 19,557,492 acre-feet at maximum operating pool elevation 2250 feet msl. A resurvey in 1986 showed the new capacity to be 18,687,731 acre-feet. This loss of 869,761 acre-feet in capacity represents a 4.4 percent reduction in the original storage capacity and a sediment depletion rate of 17,933 acre-feet per year, averaged over the 49 years of operation. Incremental deposition rates between surveys varied from a maximum of 24,908 acre-feet per year between the first two surveys to a minimum of 475 acre-feet per year between the 1954 and 1958 surveys.

Sediment distribution occurs throughout most of the lake. The largest accumulations exist in the headwaters reach; the Musselshell River arm and immediately downstream; immediately upstream and downstream of the Hell Creek arm; and within the Big Dry Creek arm. Accumulations on the Musselshell River Arm and upstream areas, for example, reveal a depletion rate of 44.6 percent for areas having an original water depth of 50 feet or less.

The head of the delta on the mainstem is located near Range 1873.24 (1960 river mileage). It's average rate of movement since the project began in 1937 is 1000 feet per year. Big Dry Creek's delta, located about 38.5 miles above its mouth, moves at an average rate of 225 feet per year. Sediment distribution along the delta reaches of the Musselshell River and Hell Creek is fairly uniform making delta breakpoints difficult to define.