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Controlled Water Releases to Improve Sauger Spawning Below Fort Randall Dam

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CONTROLLED WATER RELEASES TO IMPROVE
SAUGER SPAWNING BELOW FORT RANDALL DAM

Purpose and background

Studies by the North Central Reservoir Investigations show that good reproduction by Lewis and Clark Lake sauger is dependent on minimum water level change on spawning grounds. Sauger spawn 7 miles below Fort Randall Dam over a 4-mile long gravel, rubble, boulder shoreline. Spawning begins when water temperatures at the dam reach 42 F. This usually occurs during the latter part of April or early May. Sauger spawn along the shoreline in 1 to 2 ft of water from about 8:00 PM to 12:00 Midnight. Fertilized eggs sink to the bottom and adhere to gravel, rubble, and boulders. Most spawning occurs over a period of 7 days and most eggs hatch in 21 days.

Fluctuating water levels over the spawning grounds from power peaking operations at Fort Randall Dam cause heavy losses of sauger eggs by exposing them to the air. Sudden and prolonged cold water temperatures also cause egg mortality. Water temperature at this site varies with air temperature and cannot be controlled, but we can control water level change. In 1967 and 1968 we requested the Reservoir Control Center, U.S. Army Corps of Engineers, Omaha District to maintain similar weekday and weekend water releases from Fort Randall Dam for a period of 4 weeks after initiation of sauger spawning to minimize water level fluctuation over the spawning grounds. Water level change was generally favorable in both years, but water temperatures during the egg incubation period were unfavorable. Poor reproduction occurred in 1967 and slightly above-average reproduction occurred in 1968. Sudden cold temperatures during sauger spawning have occurred in only 3 years (1963, 1967, 1968) since 1956.

Evaluation of 1968 water releases

In 1968, the spawning period extended from 22 April to 19 May. Maximum hourly releases during each day ranged from 28,680 to 41,700 cfs and minimum releases, except for 4 and 5 May, from 19,900 to 28,590. Water releases for sauger spawning were satisfactory except for those 12,300 cfs. These releases caused a water level drop on the sauger spawning grounds of 2.5 ft in contrast to the usual drop of only 1 ft during the remaining days of the period. Many sauger eggs and embryos were lost because of the low releases.

Suggested releases 1969

In 1969, we again request that the Reservoir Control Center maintain similar weekday and weekend water releases at Fort Randall Dam during the 4-week period following initiation of sauger spawning. In addition, we request that the minimum hourly release not be less than 20,000 cfs. This will ensure that daily water level fluctuation over the spawning grounds will not exceed approximately 1 ft. If water temperatures are favorable during this time we can expect good reproduction for the sauger population of Lewis and Clark Lake. We can advise your office when sauger spawning begins in 1969.

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27 December 1968