

CHLORINE RESIDUE STUDY

BARTON SPRINGS CREEK

AUSTIN, TEXAS

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INTRODUCTION

Barton Springs Creek is fed by a cold water spring with profuse vegetation in the creek bottom. The bottom consists of bedrock, sand and gravel with deeper areas covered with silt.

The Texas Parks and Wildlife Department has recently stocked the area below the dam of the Barton Springs Swimming Pool. Concern was expressed over the possible lethal levels of chlorine added to the creek every Monday and Thursday nights through the summer. Each Monday and Thursday night the pool is drained and the bottom washed off with a high pressure hose. Then the sides and bottom are sprayed with a mixture of HTH and water (approximately 5 - 7½ lbs. to 300 gals. water). During this spraying operation, the gates to the dam are left open. After completion of the spraying, the gates are closed and the pool allowed to refill about 1½ - 2 hours. This study was conducted to determine the concentration levels of chlorine reaching the creek during the chlorination process.

METHODS AND MATERIALS

Four stations were chosen on August 22, 1974 prior to chlorination to determine dissolved oxygen, pH, conductivity and chlorine. Station one was located immediately below the Barton Creek Pool Dam. Station two was located across from the canoe concession (approximately 300 yds. downstream). Station three was located beneath the Barton Springs Road Bridge. Station four was located approximately 400 - 500 yds. downstream from station three and just before Barton Springs Creek merges with Town Lake.

After the first sampling run, before chlorination, chlorine samples were taken at station one every fifteen minutes for two hours and then changed to every thirty minutes for another two hours. If chlorine concentrations reached lethal levels at station one, other chlorine tests would be run to determine the progress of chlorine residue traveling downstream.

Dissolved oxygen was measured with a Delta model 75X dissolved oxygen meter. The pH was measured with a Beckman Electromate Portable pH meter. Specific conductivity was measured with Beckman RA-2A portable conductivity meter. Chlorine samples were run by using a Delta Model 50 portable laboratory. Temperature was measured with a hand-held glass thermometer.

TABLE OF RESULTS

Station	Time	D.O.	Cl	pH	Specific Cond.	Temp.
1	1920	7.9	BDL	7.5	584	23°C
2	1955	6.0	BDL	7.2	584	23°C
3	2015	4.7	BDL	7.2	584	23°C
4	2025	5.3	BDL	7.2	584	23°C

Wind - Calm
BDL - below detectable limits
Pool being lowered

DISCUSSION

Chlorine levels were essentially negative (below detectable limits) throughout the duration of the study. One sample just prior to closing the gate had a reading of "one" on the meter. This was adjusted to a concentration level of 0.025 ppm chlorine from the standard curve supplied with this instrument.

The conclusion reached is that the chlorine residue levels in Barton Springs Creek below the swimming pool are not in high enough concentrations to be lethal to the exotic fishes stocked by the Department.