



JOHNSON LAKE

Community ...

Fremont's Johnson Lake began in 1983 as a dredged borrow pit for materials to build a Highway 275 railroad overpass. Eight years later the city acquired the 10-acre lake by trading land they owned to the state. The city later acquired additional properties to the south and west of the lake to build a multi-use park that will eventually include an aquatic pool, miniature golf, softball diamonds and playground. The plan is for Johnson Lake to become an anchor to the park complex, complete with paddleboats, fishing, ice-skating and walking paths. The lake will also be next to a new middle school, which will make it a focal point for educational use.

Challenges ...

The lake can support fishing, but there were a number of issues needing to be resolved for that to happen. Fed by groundwater, the lake has a mean depth of nearly 15 feet and is more than 24 feet deep in some spots. Steep grades above and below the lake's surface raised safety concerns. Water clarity was excellent, but the lake bottom was flat and featureless.

The lake had been stocked with fish on several occasions but the stockings had limited success, partly because of a distinct thermocline about four feet below the water's surface. Below that point it is assumed there is little or no dissolved oxygen in the water, contributing to partial fish kills.

Solutions ...

CLEAR designed a project to include a fishery and to

remove water quality issues. The project targeted lack of spawning areas, lack of adequate access, lack of water circulation and lack of fish diversity. Also targeted was increasing spawning habitat by building a southerly leg on the lake with depths of four to seven feet, construction of a boat ramp and dock, beach and fishing pads.

Impairments were eliminated through a combination of structural and fisheries management changes, with the plan allowing for parking lots shared between the middle school, aquatic park and lake. Pedestrian paths connect the sites. Improvements were made while focusing on the lake's impairments as a fishery. Engineering services were provided by Schemmer Consultants.

Spawning areas were improved by creating three sand points and sand bars by pushing some of the sandy material excavated from the shallow, south expansion into the main lake. Building a concrete boat ramp and dock increased access. To solve the lake's low dissolved oxygen conditions, a submerged compressed air circulation system was installed to mix deeper portions of the lake.

Results ...

The one-year project was completed at a cost of \$322,460. Of this amount, \$274,592 was provided through CLEAR, \$41,178 was provided by the City of Fremont, and \$6,690 was provided by the Nebraska Game and Parks Commission.

