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REPORT TO THE MINNESOTA HOUSE AND SENATE
COMMITTEES ON ENVIRONMENT AND NATURAL RESOURCES:

FEASIBILITY OF CREATING AN URBAN TROUT FISHERY
IN ST. PAUL

Background

In 1993, the Minnesota Legislature requested that the Department of Natural Resources establish a task force to examine the feasibility of creating an urban trout fishing site in St. Paul. The legislation suggested considering sites including Swede Hollow, the historic Trout Brook, and DNR's Metro Fish Hatchery. The legislation recommended that the task force include representatives from the City of St. Paul, the Minnesota Office of Tourism, the Minnesota Chapter of Trout Unlimited, and the University of Minnesota.

In response to the Legislature's request, the DNR's Metro Region Fisheries personnel completed field work to evaluate potential trout fishing sites in the summer and fall, 1993. A task force met in early 1994 to evaluate the results of field work and other information gathered about the potential sites.

The task force included Jim Franczyk, Minnesota Trout Unlimited; Susan Galatowitsch, University of Minnesota College of Architecture and Landscape Architecture; and Ed Olsen, City of Saint Paul Division of Parks and Recreation. DNR Fisheries staff contacted the Minnesota Office of Tourism, but that office determined that it did not need to be part of the task force, and requested instead to be kept informed of the study as it proceeds. Staff coordinating this study included Duane Shodeen, DNR Metro Fisheries Manager, Bruce Gilbertson, DNR East Metro Fisheries Supervisor, and Sherri Buss, Coordinator of the Phalen Chain of Lakes Watershed Project.

This report summarizes the information gathered on potential trout fishing sites to date, summarizes the discussion and recommendations of the task force, and outlines issues and next steps suggested by the work to date.

Summary Conclusions

- 1. Among the potential sites studied, only the Swede Hollow site and two State Fish Hatchery ponds offer the water temperatures needed to support a trout fishery.
- 2. Continued availability of ground water to maintain the creek in Swede Hollow at a level sufficient to sustain a trout fishery is unlikely. Water for the small creek in Swede Hollow park is drawn from ground water by the Stroh's Brewery and 3M Corporation, and recycled to the creek below the brewery.

The Minnesota Legislature has required that the withdrawal of ground water by 3M (and many similar ground water users in the State) for one-time cooling be phased out and converted to water-efficient alternatives. Conversion at 3M is scheduled for completion by 1996. After this conversion, a significantly smaller amount of water at a much higher temperature will be discharged by 3M to the creek in Swede Hollow.

- 3. Serious water quality problems were noted at the Swede Hollow site. Pollutant type and source are being investigated by the Minnesota Pollution Control Agency. The contamination results in a near-total absence of invertebrates in the creek, a key food source for trout, and would affect survival of fish in the creek.
- 4. The water control structure that controls flow into the Swede Hollow creek experiences significant sedimentation problems, allows contaminated stormwater to enter the creek, and is extremely difficult to maintain. This structure and much of the creek would require redesign and revegetation to support a trout fishery.
- 5. If water quantity and quality issues could be resolved to successfully support a trout fishery, expected use of such a fishery needs to be defined, so that requirements and costs for habitat development, stocking, maintenance and public access can be determined.

The sections that follow provide further information and discussion of each of these issues.

Site Evaluations

Sites in the St. Paul area were evaluated to determine their potential for providing suitable habitat for trout. Trout require cool, clean water, an adequate food supply, and vegetative or structural cover.

The Historic Trout Brook and Metro Fish Hatchery Areas

Only a few short sections of the historic Trout Brook in St. Paul remain--near McCarrons Lake, near Maryland and Jackson Streets, and below 4th Street in St. Paul. Water temperatures in these segments are too warm to sustain trout.

While Trout Brook may have once been fed by cooler ground water, urbanization and associated paving and sewer infrastructure have altered the hydrology of the area. Water temperatures suggest that ground water is no longer a major contributor to the remaining segments of Trout Brook.

Similarly, while springs from the bluff area below Mounds Park once fed creeks that drain toward the Hatchery, urbanization, road and rail construction, etc., have altered original flows. There are no longer creeks with a constant source of cool, clean water available to sustain trout in this area.

There are two existing ponds at the Metro Fish Hatchery. One is used to hold fish for the State Fair's DNR fish pond exhibit, and the other would not be acceptable due to its small size and steep banks.

Swede Hollow Park

A small creek was created in the Swede Hollow Park ravine as a part of the development of Swede Hollow Park. The creek is fed by recycled ground water from the Stroh's Brewery and 3M Corporation. The water discharges from a pipe into a stilling basin just south of the brewery, and then flows through a created "creek" in the Hollow to near Seventh Street, where it re-enters the storm sewer system.

3M and Stroh's withdraw ground water, use it in cooling and industrial processing, and discharge the water to the Swede Hollow creek.

The creek was evaluated for trout fishery potential on June 8, 1993 by DNR Fisheries staff, and visited several times later in 1993. Findings of the evaluation include the following:

- The level of water discharge into the creek varied significantly among the field visits. On June 8, the flow was about 2 cubic feet per second (it was higher on some other

visits). This is probably the minimum needed to support a trout fishery in the creek. Longer-term monitoring is needed to determine average and minimum flows, and their suitability for a trout fishery.

A large amount of sediment was noted in the stilling basin at the beginning of the creek. St. Paul Parks staff noted that sediment collection is a continuing maintenance problem in the water control structure for the creek, and causes diminished water flow.

- Water temperature in the creek was 62 degrees Fahrenheit on June 8, which is adequate for trout. The air temperature that day temperature was 74 degrees. No temperatures above 90 degrees were experienced during the summer of 1993. Monitoring on days with high air temperatures is needed to determine overall water temperature suitability for trout.
- The near-complete absence of invertebrate life in the creek suggests that it is regularly affected by a serious pollutant. An oil "sheen" and various solvent-type chemical odors were noted on each visit to the creek during 1993. Field investigations noted a near-complete absence of invertebrate life in the creek, even of species that are often found in degraded waters. Pollutants have thus eliminated the prime food source for trout, and would probably affect fish stocked in the creek as well.
- Additional vegetative cover is needed to support a trout population, particularly around the pond downstream from the stilling basin. Cover is probably adequate in the lower part of the creek.

Other Sites

No other cool, consistent source of water to support a public trout fishery was identified in the St. Paul area.

Additional Investigation of Water Quantity and Quality Concerns

- Stroh's Brewery and 3M Corporation have received permits from the DNR to withdraw ground water for industrial and cooling uses. This water is then discharged to the creek. However, the Minnesota Legislature has required that "once-through" uses like 3M's be converted to water efficient alternatives. DNR Division of Waters staff report that under existing ground water withdrawal permits, 3M's system will be converted by 1996, and this will significantly reduce the amount of water being discharged to Phalen Creek. Water discharged after conversion will probably also be at a significantly higher temperature than at present.

- Stroh's and 3M also have National Pollution Discharge Elimination System (NPDES) permits from the Minnesota Pollution Control Agency that allow discharge of used ground water to the creek in Swede Hollow. These permits govern the quality of water that may be discharged to the creek. MPCA staff are currently reviewing the Stroh's NPDES permit for renewal. They have received complaints about water quality problems in the creek, and are investigating these as part of the permit review.
- St. Paul Parks staff indicated that the water control structure that supplies the creek in Swede Hollow has a number of design flaws that contribute to water quantity and quality problems in the creek.

While the structure was designed to allow only water from Stroh's and 3M to enter the creek, the system is overloaded during storm events, and during these times, storm water from sewers serving a large surrounding urban area overwhelms the structure and flows into the creek. Therefore, the pollutants noted on field visits and by MPCA staff could be coming from a wide variety of businesses and residences in the East St. Paul area. Identification of the source of pollutants in this case could be very costly and difficult.

Sediment from storm sewer flows is also a serious problems in the water control structure. Large amounts of sediment accumulate in the structure regularly and limit water flows. While neighborhood residents have assisted city staff in trying to clean out the structure and stilling basin, the poor structure design makes it difficult to access and clean.

Task Force Discussion and Recommendations

A Trout Fishery Task Force including Jim Franczyk, Trout Unlimited, Susan Galatowitsch, University of Minnesota-Department of Landscape Architecture, and Ed Olsen, St. Paul Parks Department met on February 2, 1994. The Task Force reviewed the information provided above, discussed issues and potentials for trout fishery development, and suggested the following:

- **Resolution of the water quantity and quality issues in the Swede Hollow creek is critical to a determination of the creek's potential for trout habitat restoration, and will require significant resources.**

If development of the creek as a trout fishery is to be pursued, funding and staff are needed to monitor the quantity and temperature of water available to the creek on a long-term basis, particularly after the change in 3M discharge to the creek, and determine whether these are adequate to support

trout.

Resources would also be needed to determine the source of pollutants in the creek, if these are not determined in the current NPDES permit review.

- **Design and installation of a new water control structure that eliminates storm water mixing and sediment problems, and may be reasonably maintained by city staff will be needed to ensure adequate water quantity and quality to maintain a trout fishery.**

Design and construction of such a structure and other improvements in the "headwaters" area of the creek will require significant resources.

- **Improvements are needed at the headwaters area of the creek to replace the existing stilling basin with a larger "settling" area (like a small wetland) that could filter sediments and associated nutrients, and be easily cleaned. Current levels of sediments and pollutants in the discharge water would overwhelm such a basin, as they do the current structure.**
- **Additional structural and vegetation modifications are needed in the upper creek and pond area to provide adequate cover and habitat for trout.**
- **The park would need to be evaluated and perhaps modified for adequate public access and safety if a trout fishery is to be developed here.**
- **The Task Force concluded that a number of significant questions need to be answered before any additional planning for an urban trout fishery can be considered. These include the following:**

Will a reliable and sufficient source of water be available to support a trout fishery for the long-term?

Will water temperatures be suitable throughout the year for trout?

Can the source of current water quality problems be identified and water quality improved to support trout?

Can a suitable water control structure, vegetation, and habitat be designed, financed, built, and maintained to support a trout fishery?