naturally reproducing brown trout fishery. Its tributaries support a variety of trout, warmwater and forage fisheries.

Despite the existing good quality fisheries, Black Earth Creek and its tributaries are showing signs of stress and degradation. An intensive evaluation of the streams identified three problems:

1. degradation of fish habitat by sediment;

2. fish kills and annual violation of dissolved oxygen water quality standards during normal flow conditions; and

3. repeated violation of dissolved oxygen water quality standards during runoff events.

The following are examples of these problems.

- In Black Earth Creek 4-to-6 inches of sediment covering the gravel bed of the stream is common. The evaluation of the stream also found holes (deep spots) in the stream filled with sediment. More than 5 feet of sediment filled one hole.

- During many nights in June and July the use of dissolved oxygen by aquatic vegetation causes the level of dissolved oxygen to violate the water quality standard of 6 mg/l. In 1988, a fish kill occurred when the dissolved oxygen level dropped to 3 mg/l.

- During a major rainfall in July of 1985, the dissolved oxygen levels dropped to 3 mg/l for 36 hours. Very high pollutant loads where also measured during a February 1985 storm.

To alleviate these problems and maintain the good quality fisheries in Black Earth Creek and its tributaries, this plan calls for:

- a 50 percent reduction in the sediment from croplands, construction sites and other sources of sediment;

- a 50 percent reduction in the manure entering the stream; and

- habitat restoration in selected stream segments.

MANAGEMENT ACTIONS

Nonpoint Source Control Activities

Agricultural Lands Management Needs. Nonpoint source controls, referred to as best management practices, are needed on an estimated 11,528 critical cropland acres. These critical acres include 18 percent of the land in the watershed. Figure 18 shows soil loss information for the entire watershed. Figure 4 illustrates the same information for a single subwatershed. The best management practices identified by the Dane County Land Conservation Department emphasize both improving farm management and controlling pollutants. These practices include:

- changes in crop rotations;
- change to permanent cover;
- minimum (reduced) tillage;
- contour strip cropping; and
- grassed waterways.

The Dane County Land Conservation Department will assist the owners, managers and renters of the agricultural land in applying best management practices. Cost share funds will be available through the Wisconsin Nonpoint Source Water Pollution Abatement Program for certain best management practices. The cost share rates range from 50 to 70 percent. Participation in the program is voluntary. The Federal Conservation Reserve Program and other county and federal programs will also be used to assist owners, managers and renters of the agricultural land.

Animal Lot Management Needs. Manure from barnyards carried in runoff needs to be controlled at about 65 of the 135 livestock operations draining to the streams. Figure 4 shows the critical barnyards for a single subwatershed. The level of control ranges from only "clean water" diversions to systems of diversions, settling basins, filter walls and vegetated filter strips. The average cost of these controls range from about $4,000 to $15,000. Cost sharing at 70 percent will be available through the Wisconsin Nonpoint Source Water Pollution Abatement Program. In addition, about 4 or 5 animal lots need control in the floodplain. Relocation of the barnyards will be evaluated.