

## ***MANAGEMENT PROBLEMS AND OPPORTUNITIES***

The Missouri Department of Conservation (MDC) is charged with the ‘...control, management, restoration, conservation and regulation of the bird, fish, game, forestry and all wildlife resources of the state...’ As stated in MDC’s recent Regional Management Guideline documents, ‘The Conservation vision is to have healthy sustainable plant and animal communities throughout the state of Missouri for future generations to use and enjoy, and that fish, forest, and wildlife resources are in appreciably better condition tomorrow than they are today.’ In order to achieve this vision, efforts to better manage streams and their watersheds will be a continuing priority in the Grand River watershed.

This section includes strategic guidelines to provide MDC Fisheries Division staff working in the watershed with management direction to address the issues detailed in earlier sections. These issues include point and non-point source pollution, loss of riparian vegetation, the effects of large confined animal feeding operations, instream flow issues, and threats to aquatic life within the watershed. The guidelines will be used to address future stream management, public awareness, and public access issues and needs. Efforts specifically related to the management of impounded waters are addressed in detail elsewhere and are not included here.

### **GOAL I: IMPROVE WATER QUALITY AND MAINTAIN OR IMPROVE WATER QUANTITY IN THE GRAND RIVER BASIN SO ALL STREAMS ARE CAPABLE OF SUPPORTING HIGH QUALITY AQUATIC COMMUNITIES.**

**Status:** Many streams throughout the basin do not meet water quality standards. Excessive nutrients and sediment from agricultural runoff are the chief sources of pollution. Progress has been made in improving land use, but extensive areas are still without treatment. The Conservation Reserve Program (CRP) has reduced the amount of highly erodible land in rowcrop production. Some ground is returning to intensive production as CRP contracts expire. Unrestricted access to streams by livestock has created problems of degrading streambanks and increasing the direct input of nutrients. Additionally, a large sediment source is found in excessive streambank erosion. Streambank erosion is usually the byproduct of poor land use and stream practices (ie. channelization) Biotechnical solutions have little impact on streams with 15-20 foot vertical banks. Recently the move of large corporate farms into the watershed has provided threats to both water quality and quantity.

**Objective 1.1:** Basin streams meet state standards for water quality.

#### **Guidelines:**

- ! Review NPDES, 404 and other permits, cooperate with other state and federal agencies to investigate pollution and fish kill reports, assist with the enforcement of existing water quality laws and recommend measures to protect aquatic communities.
- ! Collect fish for contaminant analysis for the Missouri Department of Health and cooperate in advising the fishing public on the impacts of contaminant levels.

- ! Monitor water quality and insure compliance with discharge permits. Most of this work is under the jurisdiction of MDNR. With training, volunteer groups such as Stream Teams can assist with water quality improvement. These volunteer groups can be strong advocates for good water quality throughout the Grand River Basin. Encourage development of at least one Stream Team in each community (population >2,000) in the Missouri portion of the basin. These teams can monitor water quality using simple macro invertebrate and chemical techniques.
- ! Inform the public of water quality problems (i.e. excessive siltation, animal waste runoff, etc.) affecting the aquatic biota and solutions through media contacts, personal contacts and literature development.

**Objective 1.2:** Maintain base flows within the Grand River Basin at or above current levels within the constraints imposed by natural seasonal variations and precipitation.

**Guidelines:** The most efficient way to address these concerns is through existing agricultural agencies and the legislative process.

- ! Gather available flow information to create flow duration curves for streams within the basin.
- ! Support development of water laws and an interstate compact/agreement that will address the quantity of water in Missouri's streams.
- ! Inform the public of water quantity problems, the affected aquatic biota and potential solutions through media contacts, personal contacts and literature development.
- ! Train and involve local volunteer groups such as Stream Teams in water quality/quantity monitoring and advocacy in the Grand River Basin.
- ! Make presentations and provide technical assistance for Special Area Land Treatment (SALT) and EARTH projects, as requested, to SWCD boards which govern these projects.
- ! Review gaging station needs in the basin and recommend reactivation of needed gaging stations that are currently inactive or new locations for stations within the Grand River Basin.

**GOAL II: IMPROVE RIPARIAN AND AQUATIC HABITAT CONDITIONS OF THE GRAND RIVER BASIN TO MEET THE NEEDS OF NATIVE AQUATIC SPECIES WHILE ACCOMMODATING SOCIETY'S DEMANDS FOR WATER AND AGRICULTURAL PRODUCTION.**

**Status:** Streams in the Grand River Basin are generally characterized by a narrow riparian corridor of trees less than 20 feet wide that is rapidly being eroded. Large reaches of stream lack a wooded riparian corridor or have no corridor. In many locations where trees are present; the stream channels have downcut below the root systems. Thus these trees provide little if any streambank stabilization benefits. Landowners within the basin are very reluctant to restore a 100 foot wide corridor along streams on their property. They want to maintain agricultural production within the corridor zone and many view trees as a cause of stream problems rather than a solution. The Conservation Reserve Program and the Wetland Reserve Program provide the opportunity to make significant improvements in riparian habitat. Both programs have been well received by landowners.

**Objective 2.1:** All riparian landowners within the Grand River Basin exposed to the messages of the importance of good stream stewardship and where to go to get technical assistance for sound stream habitat improvement. Efforts to improve riparian conditions will be concentrated in the following sub-basins (sub-basins are listed in order of priority):

Sugar Creek  
Locust Creek  
Marrowbone Creek  
Upper Shoal Creek  
Grindstone Creek  
East Fork Grand River  
Big Creek - (Daviness and Harrison counties)  
Lower Yellow Creek  
Big Creek - (Carroll County)

**Guidelines:** Advertising and promoting stream programs, installing and maintaining demonstration projects, and providing educational opportunities to landowners will make them more aware of the reasons and techniques for protecting streams. Emphasizing economic aspects of stream improvement will encourage more landowners to participate. The quality and availability of stream management information for landowners will be improved.

- ! Provide technical recommendations to all landowners that request assistance and who are willing to reestablish and maintain an adequate riparian corridor.
- ! Cooperate with MDC Outreach and Education Division to develop materials and present stream conservation and related courses for elementary and secondary school teachers.

- ! Once every 5 years provide a stream management workshop for NRCS personnel with responsibility for programs in the Grand River Basin.
- ! Establish stream management demonstration sites in the listed watersheds.
- ! Participate in existing SALT and EARTH projects through SALT/EARTH Coordinator to incorporate fish and wildlife values and promote streambank stabilization practices. Cooperate with NRCS and SWCD boards to establish SALT and EARTH projects within the listed sub-basins, if none exist.
- ! Encourage incorporation of fish and wildlife values in design and construction of PL-566 structures through NRCS personnel and private landowners.
- ! Work with Farm Service Agency (FSA) to promote cost share programs that include streambank stabilization and stream stewardship practices.
- ! Promote good stream stewardship through landowner workshops and stream demonstration site tours targeting these sub-basins.
- ! Cooperate with MDC Outreach and Education Division in utilizing these streams for aquatic education programs.
- ! Prepare GIS layers of important habitat variables for each watershed listed.
- ! Continue promoting and assisting with the CRP and WRP programs.

**Objective 2.2:** Critical and unique Grand River Basin aquatic habitats identified and protected from degradation.

**Guidelines:** Identification, acquisition, targeting private landowner programs and cooperation with other agencies/organizations can provide greater control and better management of critical and unique aquatic areas.

- ! Coordinate fish population sampling in the Grand River Basin with MDC-Fisheries Research, MDC-Northwest Fisheries Management Region personnel and Iowa DNR personnel to further define and delineate unique and critical habitats.
- ! Continue to solicit information from the public and resource professionals on critical and unique aquatic habitats.
- ! As opportunities develop, make recommendations for proper management and/or acquisition of critical and unique aquatic habitats in the basin (identified in Unique Habitat portion of this plan).
- ! Promote continuous CRP signups in critical habitat areas.

### **GOAL III: MAINTAIN DIVERSE AND ABUNDANT POPULATIONS OF NATIVE AQUATIC ORGANISMS WHILE ACCOMMODATING ANGLER DEMANDS FOR QUALITY FISHING.**

**Status:** The Grand River Basin supports a fish assemblage that lacks diversity. Only 55 fish species have been collected throughout the Grand River Basin since 1963. An additional 6 species are known to exist in the basin, 5 of the 6 species can be directly attributed to artificial stockings. A comprehensive survey of the fishes of the Grand River Basin is needed to document current fish distribution from previously unsampled (or inadequately sampled) streams and document changes in fish distribution throughout the basin. Several fish species desirable to anglers are found in the basin. Catfish (blue, channel and flathead) are the most sought after fish species in the streams of the Grand River Basin. Other fish of interest to anglers in these rivers are: bluegill; buffalo; bullheads; carp; crappie and green sunfish. Sufficient samples to assess the status of these populations is lacking. The MDC walleye committee selected Grand River as a location to stock walleye fingerlings. Stocking is scheduled to begin in June of 2000. Several non-game fish species of concern occur in the basin. The Topeka Shiner, a federally listed endangered species is found within the basin. Some invertebrate sampling has been conducted in the basin, but a system-wide comprehensive invertebrate collection has not been made.

**Objective 3.1:** Evaluate and maintain sportfish populations, with emphasis on channel and flathead catfish, at sufficient quality and condition to satisfy the angling public.

**Guidelines:** Assess the populations of emphasis species and take steps to improve their populations through public education, regulation, harvest restrictions, habitat improvement, stocking or other methods. No information has been collected on angler use or desires since the mid-1970's. Gathering this information will be a major objective over the next several years. This information will be used to develop appropriate management strategies.

- ! Develop a standardized sampling procedure for target species and implement a monitoring program to obtain trend data on fish populations which will be used to determine population objectives for management of the Grand River and its tributaries. Encourage MDC Fisheries Research Section to undertake a project to establish quality catfish population criteria for north Missouri streams.
  
- ! Identify critical habitat areas for channel and flathead catfish throughout the basin and maintain or enhance these areas as needed to improve the habitat. Encourage MDC Fisheries Research Section to undertake a project to identify critical habitat parameters for channel and flathead catfish in north Missouri streams.

- ! Identify critical spawning and nursery areas for Missouri River fishes (especially blue, channel and flathead catfish) and acquire, maintain or enhance these areas as needed to improve the habitat. Encourage University of Missouri-Columbia (through MDC Fisheries Research Section) to undertake a project(s) to determine the contribution the fish utilizing the Grand River as a spawning and nursery area are making to the Missouri River system.
- ! Using regulations, habitat improvement and other methods, implement population improvement programs for target species once population objectives have been determined for these species.
- ! Conduct a creel survey of Grand River Basin anglers to document harvest, species preference and fishing pressure. Determine changes in these parameters that might have occurred since Fleener's (1977) recreational use survey of Grand River.
- ! Increase awareness of the recreational potential of fishes other than catfish such as buffalo, carp, drum and gar.

**Objective 3.2:** Populations of native non-game fishes and aquatic invertebrates assessed and maintained at or above present levels throughout the basin.

**Guidelines:** Assess the status of fish and invertebrate communities throughout the basin through a cooperative effort between MDC Fisheries Division and Iowa DNR. It is assumed that a decline in diversity, distribution and abundance of non-game fishes is largely related to land use changes over the last 100 years. Available fish distribution data is sufficient to document current levels of diversity and in certain streams and stream reaches relative abundance; but not basin wide. Techniques to maintain or improve non-game fishes will depend on the fish communities in decline and the causative agent. It is also assumed that improvements in other aquatic life will occur simultaneously to those occurring in fish communities.

- ! Develop standard sampling techniques for assessing fish and invertebrate communities, including the use of indicator species, and implement a monitoring program to track trends in species diversity and abundance.
- ! Design a comprehensive sampling regime for non-game fishes throughout the basin. Sampling in the Missouri portion of the basin will be conducted by MDC Fisheries Management and Research personnel. Sampling the Iowa portion of the basin will be conducted by Iowa DNR personnel.
- ! Using regulations, stocking, habitat improvement and other techniques, implement programs to protect or enhance fish species diversity and abundance.
- ! Coordinate invertebrate sampling with other groups collecting and identifying invertebrates within the basin (i.e. Stream Teams, University of Missouri, etc.). Based on these collections, determine information gaps within the basin to determine invertebrate sampling sites.

**Objective 3.3:** Populations of Topeka shiners assessed and maintained at or above current levels in the basin.

**Guidelines:** Assess the status of Topeka shiner populations throughout the basin. Assist in implementing the action plan for Topeka shiner (Notropis topeka) in Missouri (MDC 1999). "We learned of the presence of the Topeka shiner in Harrison County only because a student sampled many small streams of this county as part of a thesis project in 1963. There has never been a systematic survey of small streams in most other counties of the Grand River system, and such a survey might have the best potential for the discovery of additional Missouri populations of N. topeka" (Pflieger, MDC, personal communication). Known Topeka shiner populations have shown a significant decline since 1963, so restoration efforts will be aimed at maintaining or improving existing populations and enhancing habitat in streams where Topeka shiners have been most recently extirpated. We assume the decline in this species is land use related, so enhancement efforts need to be directed at land use improvement. Land use is a resource largely beyond our direct control. By keeping populations at current levels and monitoring their health, an adequate "seed source" will be available from which to assist with restoration efforts.

- ! Within the framework of a basin-wide comprehensive fish sampling regime, concentrate initial efforts in areas with historic Topeka shiner capture sites or areas where Topeka shiners are likely to occur.
- ! Examine possibilities of outside MDC funding (i.e. USFWS Section 6 grant) for Topeka shiner inventory work, initial public awareness efforts and administration of cost share incentives to protect and enhance Topeka shiner habitat.
- ! Encourage stream related cost share practices to be included on SWCD dockets that would benefit Topeka shiner streams (i.e. livestock fencing, alternative water sources, etc.).
- ! Assist with the implementation of the action plan for the Topeka shiner (Notropis topeka) in Missouri as it relates to the Grand River Basin.
- ! Participate in the development of the Federal recovery plan for the Topeka shiner.

#### **GOAL IV: INCREASE RECREATIONAL USE OF STREAMS IN THE GRAND RIVER BASIN.**

**Status:** Public use of Grand River Basin streams for recreational activities other than fishing is limited. Information on recreational use of the Grand River was conducted in the 1970's; a survey to determine current usage would be valuable. Turbid water and the intensively rowcropped landscape can be aesthetically unappealing and thus limit recreational floating on the streams in the Grand River Basin. However, some scenic stretches still exist. With increased public awareness and restoration of wooded corridors limited increases in recreational use is possible.

**Objective 4.1:** Access sites, bank fishing and trails developed in sufficient numbers to accommodate public use.

**Guidelines:** The MDC strategic plan anticipates an increase in stream use because of an overall increase in the levels of fishing. We must determine the level of public satisfaction with existing recreational opportunities and undertake acquisition and development projects to improve those opportunities.

- ! Continue acquisition and development of public access and frontage sites (for boating and bank fishing) at strategic points within the basin, based on the Stream Areas Program Strategic Plan.
- ! Improve bank fishing and other aquatic wildlife-based recreational opportunities on MDC lands in the basin through implementation of recommended strategies in area plans.
- ! Conduct a recreational use survey within the basin in conjunction with a creel survey to determine existing levels of use and satisfaction with recreational opportunities in the basin.

**Objective 4.2:** All anglers and floaters have access to information on the stream recreational opportunities within the Grand River Basin.

**Guidelines:** Make the public aware of various opportunities through media outlets, fair exhibits, and Missouri Conservationist articles. Increase recreational stream use within the basin.

- ! Maintain the stream emphasis at public events such as the Bethany and Trenton district fairs, St. Joseph Sportshow, National Hunting and Fishing Day, etc.
- ! Assist in the development of prairie stream articles in the Missouri Conservationist and make suggestions for a future MDC video ("Missouri Outdoors", etc.) to highlight north Missouri prairie stream recreational opportunities.
- ! Gather information during activities in Grand River Basin to contribute to a revised edition of An Introduction to Floatable Streams North of the Missouri River.

## **GOAL V: INCREASE PUBLIC APPRECIATION FOR STREAM RESOURCES THROUGHOUT THE GRAND RIVER BASIN.**

**Status:** Citizens throughout the basin have little appreciation for stream resources; there is a fundamental lack of understanding the importance of streams culturally, biologically and historically. As a result there is little concern for the well-being of the stream resource within the basin. Streams For The Future has received a "lukewarm" reception in the area. Certain practices which are detrimental to streams have become a part of the local culture.

Channelization riparian clearing and improper placement of levees are stream practices that are deeply rooted and considered good stream management practices by many landowners within the basin.

**Objective 5.1:** Increase current level of public awareness of local stream resources and good stream management practices.

**Guidelines:** Increased appreciation of the stream resource should follow increased public awareness and education of stream values. Heightened knowledge and use of the basin's streams should lead to appreciation of this resource and result in concerns about the quality and quantity of water within the basin's streams. Newspaper articles, talks and special events highlighting streams should help foster this awareness.

- ! Cooperate with MDC Outreach and Education Division in utilizing these streams for aquatic education programs. Identify stream locations appropriate for educational field trips near participating schools.
- ! Promote the formation of Stream Teams within the basin through talks with local civic organizations and contacts with local school districts.
- ! Maintain the stream emphasis at public events such as the Bethany and Trenton district fairs, St. Joseph Sportshow, etc.
- ! Assist in the development of prairie stream articles in the Missouri Conservationist and make suggestions for a future MDC video ("Missouri Outdoors", etc.) to highlight north Missouri prairie stream values.
- ! Track success through MDC's current Gallup polling efforts.