

MANAGEMENT PROBLEMS AND OPPORTUNITIES

The management goals, objectives, and strategies for the Jacks Fork Watershed were developed using information collected from the Jacks Fork Watershed Assessment and Inventory (WAI) and direction provided by the Ozark Regional Management Guidelines (1998), Missouri Department of Conservation (MDC) Strategic Plan, and the Fisheries Division Five Year Strategic Plan (1995-2000). Objectives and strategies were written for instream and riparian habitat, water quality, aquatic biota, recreational use, and hydrography. All goals are of equal importance, with objectives listed in prioritized order whenever possible. This plan includes only those activities and results that can reasonably be expected to be achieved or influenced during the next 25 years. Completion of these objectives will depend upon their status in overall regional and division priorities and the availability of human resources and funds.

GOAL I: IMPROVE RIPARIAN AND AQUATIC HABITATS IN THE JACKS FORK WATERSHED.

Status: Problems affecting riparian and aquatic habitats include insufficient wooded riparian corridors, stream bank erosion, gravel dredging, and other point and non-point sources of pollution. Protecting and enhancing the riparian corridor is essential to obtaining quality aquatic habitats. A timbered stream corridor significantly influences many components of the stream ecosystem including stream bank stability, water quality, ground water absorption and recharge to the stream, amount of physical instream habitat, spatial and structural complexity of physical instream habitat, and the food web.

Objective 1.1: With the assistance of willing landowners, over a 25-year period, increase by 25% the proportion of streams with a timbered corridor width >100 feet.

Strategy: Referencing the riparian corridor improvement benefit potential ranking for drainage units of the Jacks Fork Watershed presented in Figure Mp01 (developed through evaluations of riparian forest cover absence, losing streams, unit size, and presence of sensitive species), direct appropriate riparian corridor improvement efforts towards the following ranked drainage units: High= North Prong, Jacks Fork-Shawnee Creek, Jam Up Creek, and Jacks Fork-Barn Hollow; Medium= Mahans Creek, Upper South Prong; Low= Lower South Prong, Middle Jacks Fork, Pine Creek, Jacks Fork-Alley, Jacks Fork-Bay Creek, and Leatherwood.

1. Using videotapes, field investigations, aerial photography, and satellite imagery, document and update the current and future conditions of riparian corridors and stream banks once every 10 years. Future projects such as the Missouri Resource Assessment Partnership Land Cover Classification need to be encouraged in order to ensure that adequate data is available to will allow efficient analysis of riparian corridor conditions over time.

Ensure all MDC Areas represent examples of proper riparian corridor stewardship by following established best management practices for riparian restoration/protection.

In cooperation with regional Private Land Services Division personnel, provide appropriate agencies such as Natural Resources Conservation Service (NRCS) and Soil and Water Conservation Districts (SWCDs) as well as willing agricultural-oriented businesses such as farm centers, agricultural chemical dealers, etc. with free brochures dealing with riparian corridor issues in order to facilitate increased awareness and dissemination of this information to landowners.

Use available cost-share funding and/or provide technical assistance in order to facilitate riparian corridor restoration/protection by willing landowners in accordance with appropriate cost-share guidelines.

Objective 1.2: Limit the negative impacts of sand and gravel removal within the watershed.

Strategy: Education of gravel operators regarding limiting the effects of sand and gravel removal and the potential negative impacts associated with gravel removal, dynamic documentation of permitted sand and gravel removal sites, assisting with continued research regarding gravel removal, and encouragement of the efficient enforcement of violations associated with sand and gravel removal will be important in limiting the potential negative impacts of gravel removal.

1. Work with gravel removal operators as well as willing landowners in identifying appropriate gravel removal sites.

Work with appropriate agencies to develop a geographic information system (GIS)

database (to be updated annually) of permitted sand and gravel removal sites as well as a database of appropriate potential sand and gravel removal sites (updated every 10 years).

Continue to assist appropriate state and federal agencies in the enforcement of existing water quality laws in regards to sand and gravel removal.

4. Assist with additional research efforts regarding the effects of instream sand and gravel removal in order to develop measures that adequately protect aquatic resources.

GOAL II: IMPROVE SURFACE AND GROUND WATER QUALITY IN THE JACKS

FORK WATERSHED.

Status: Water quality within the watershed is relatively good. However, potential threats include Large numbers of livestock in riparian zones for extended periods of time, private septic system failure, increased nutrients from municipal sewage treatment facilities and poor land use practices such as indiscriminate land clearing, These can result in periodic high fecal coliform levels, nutrient loading, and sediment and gravel deposition.

Objective 1.1: Ensure that watershed streams meet or exceed state standards for water quality.

Strategy: Due to the connection between the surface water and ground water systems in the watershed, protection of surface waters, both permanent and intermittent, can also greatly contribute to the enhancement of ground water quality. Protecting riparian corridors will reduce surface runoff and provide stream bank and channel stability. Streams also need protection from other pollutants. Education of the citizenry and land owners on water quality issues and land stewardship is the best hope for improving water quality. Encouragement of appropriate agencies to enforce existing water quality laws is also required to obtain satisfactory water quality.

Through media contacts, personal contacts, literature development, and speaking engagements to groups such as area Stream Teams and land owners, inform the public of water quality issues and problems (e.g. karst topography, excessive siltation, animal waste runoff, gravel dredging, septic system failure etc.) and best management practices to address these problems.

2. Encourage structured water quality sampling by continuing to assist with training and involvement of Stream Teams in water quality monitoring and advocacy within the watershed.
3. Conduct a fish and mussel contaminant sample within the watershed by 2005.
4. Encourage and assist with additional dye tracing studies within the watershed in order to further determine intrawatershed and interwatershed ground water movement as well as recharge area of selected springs within the watershed with an emphasis on publicly owned spring outlets.
6. Encourage and assist with enforcement of existing water quality laws by reviewing 404 permits, cooperating with other state and federal agencies to investigate pollution and fish kill reports, collecting water quality related data, and recommending measures to protect aquatic communities.
7. Encourage the entry of water quality data into a GIS compatible format in order to facilitate effective data updating and analysis. This includes the creation of a 'Designated Use' data layer based on current Rule 10 CSR 20-7.031 of the Rules of Department of Natural Resources Division 20-Clean Water Commission Chapter 7-Water Quality, Tables G and H.
8. In cooperation with regional private lands services personnel, encourage limiting livestock access in riparian areas and through education and/or incentive programs for private landowners.

GOAL III: MAINTAIN THE ABUNDANCE, DIVERSITY, AND DISTRIBUTION OF AQUATIC BIOTA AT OR ABOVE CURRENT LEVELS WHILE IMPROVING THE QUALITY OF THE GAME FISHERY IN THE JACKS FORK WATERSHED.

Status: Since 1941, an assemblage of 67 fish species, 19 mussel species, 5 crayfish species, and 200 taxa of benthic macro-invertebrates have been identified throughout the Jacks Fork Watershed. A total of 51 "species of conservation concern" are known to occur in the watershed. This list includes 5 fish species, 4 species of mussels; 2 species of amphibian, and 1 species of crayfish . The most prominent game fish species within the watershed include the shadow bass, smallmouth bass, and largemouth bass. In addition, sucker species provide an alternative recreational opportunity. Exotic aquatic species within the watershed include the Asian clam, the common carp and goldfish.

Objective 1.1: Maintain the diversity, abundance, and distribution of native non-sport fish, and aquatic invertebrate communities at or above current levels.

Strategy: High priority should be placed on protecting "species of conservation concern" and unique community assemblages. Focusing enhancement and protective efforts on a few species can be effective in helping other species that share the same habitat. Detecting changes in faunal composition and abundance can be accomplished by conducting routine surveys of fish and invertebrate communities. Determining reasons for any changes will be more difficult since a variety of factors (e.g. interspecific and intraspecific competition, water quality, habitat condition, etc.) could be involved.

1. Assist with recovery efforts for "species of conservation concern" within the watershed.
2. Survey fish communities in the watershed every 10 years at historical sampling sites using standardized sampling techniques. Establish additional sampling sites as necessary with high priority given to MDC areas. Incorporate data into GIS in order to facilitate documentation of changes in species diversity, abundance, and/or distribution.

3. Using GIS, document locations and identify unique fish assemblages associated with natural features and special habitats such as spring branches for inclusion in the Natural Heritage Database.
4. Develop a prioritized list of streams and stream reaches needing habitat restoration using the following criteria: presence of listed species, extent of timbered stream corridor, size of stream, land use, soils, presence of permanent water, presence of sport fish, natural features, critical habitat, etc
5. If appropriate, recommend research projects in cooperation with MDC Research Staff to investigate reasons for significant changes in faunal abundance and distribution. Recommend management changes if needed.
6. Coordinate with MDC Research Staff and other groups (i.e. National Park Service, University of Missouri, etc.) to develop a routine mussel survey schedule for the watershed.
7. Coordinate with MDC Research Staff and other groups (i.e. National Park Service, Missouri Department of Natural Resources, University of Missouri, etc.) to conduct a survey of benthic invertebrates on all fifth order and larger streams.

Objective 1.2: Maintain or improve populations of sport fish while maintaining a stable and diverse fish community.

Strategy: Proper management of game fish populations will depend on obtaining adequate surveys to determine the status of the fishery and angler attitudes as well as implementing habitat improvement projects, regulation changes, and fish stocking where needed. The Jacks Fork River from Highway 17 to Highway 106 is currently (2000) managed under special smallmouth regulations as part of a smallmouth bass research project currently being conducted by the MDC. An angler survey has been ongoing since 1990 on the Jacks Fork River in order to determine the effect of the special smallmouth bass regulation on angling success, angler acceptance of the regulation, and economic value of the fishery. Once adequate information is obtained, future management efforts will be directed toward setting appropriate fishing regulations and protecting and improving fish habitat,.

1. Upon completion of the current smallmouth bass research project, implement appropriate management activities for the Jacks Fork River in cooperation with the National Park Service and other appropriate government as well as private entities.
2. With approval from appropriate agencies (i.e. National Park Service, United States Army Corps of Engineers, etc.), implement stream habitat improvement projects in stream segments of heavy angler pressure which otherwise lack sufficient stream habitat with priority given to public areas.

Objective 1.3: Prevent detrimental impacts on native fauna of the Jacks Fork Watershed by exotic aquatic species.

Strategy: Controlling the introduction of exotic species into the state is the easiest way to prevent detrimental impacts to native fauna. Once a detrimental exotic species becomes established, research will be needed to seek ways to contain or eliminate exotic species.

1. Continue division participation in the Missouri Aquaculture Advisory Council (MAAC) and other organizations and advocate controlling the introduction of exotic fauna into state waters.

2. Monitor for potentially harmful exotic species (i.e., zebra mussel, common carp, etc.). This can be performed during fish community surveys.

3. Educate anglers on the potential damaging effects of 'bait bucket' introductions to lake and stream communities by the use of flyers posted at accesses.

Participate in statewide efforts to control exotic species in the Jacks Fork Watershed.

GOAL IV: INCREASE PUBLIC AWARENESS AND PROMOTE WISE USE OF AQUATIC RESOURCES IN THE JACKS FORK WATERSHED.

Status: Angler survey information indicates that from 1992 to 1998 an average of 4,231 trips annually were spent angling on the Jacks Fork River and its tributaries. Floating is also a popular activity within the watershed. Heavy floater densities in the past years prompted the National Park Service to establish maximum canoe use levels as part of a river use management plan in 1985. This plan divided the Jacks Fork River into two zones: the confluence of the North and South Prongs to Alley Spring (24.5 miles) and Alley Spring to Two Rivers (14.9 miles). Both Zones were designated for medium canoe use (11-40 canoes per mile) during all time periods. A 1997 recreational use survey was conducted on the Jacks Fork River with a total of 3,734 watercraft including innertubes being counted. Canoes were the most prevalent watercraft, accounting for approximately 89% of the total watercraft.

Objective 4.1: Ensure that up to date aquatic oriented recreational data is available in order to assist in properly managing aquatic resources and their use.

Strategy: Encourage and assist appropriate agencies in the continued monitoring of aquatic oriented recreational activities within the watershed on a regular basis in order to provide data to be used for determining long term trends and problems which may need to be addressed through adjustments in management.

In cooperation with the MDC Biometrics Staff and the National Park Service, explore options to measure angler perceptions and satisfaction.

Encourage the continued monitoring of river use on a regular basis as set forth in the Ozark National Scenic Riverways River Use Management Plan.

In cooperation with MDC Fisheries Research and Biometrics Staff, develop a routine angler survey program for the Jacks Fork River to be conducted every 10 years.

Objective 4.2: Increase awareness of stream recreational opportunities and appreciation of stream ecology and advocacy to a level that will encourage a widespread and diversified public interest in the Jacks Fork Watershed.

Strategy: Careful publicity which focuses on species of conservation concern, unique aquatic-oriented communities, as well as abundant recreationally valuable fish stocks can maintain and promote a continued appreciation of these different types of resource elements. Providing opportunities for the public to learn about stream ecology will, hopefully, create stream advocates.

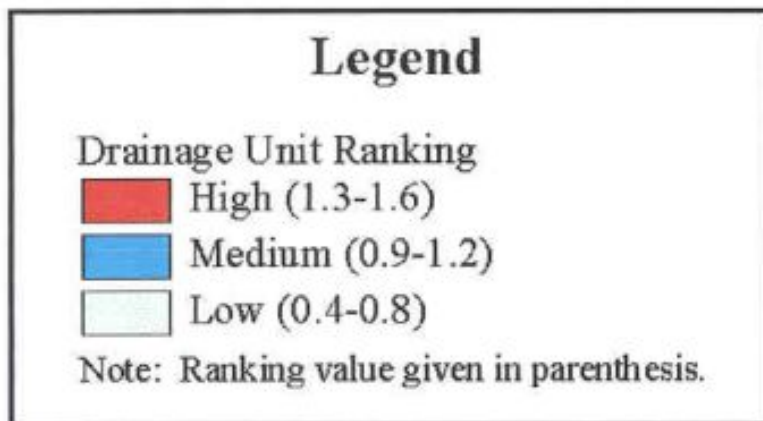
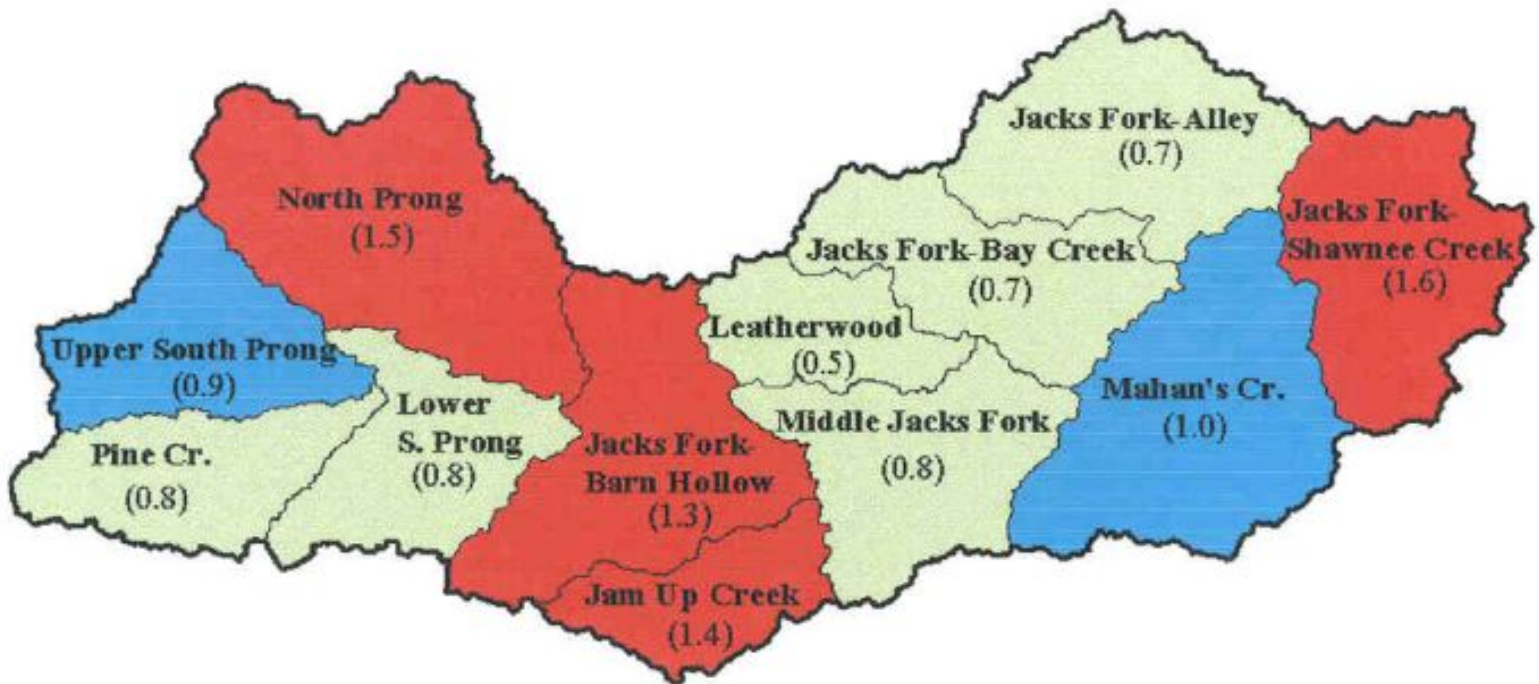
1. Continue to provide annual fishing prospectus for public release to local media, describing the specific fisheries and angling opportunities of selected waters.

2. In cooperation with MDC Outreach and Education Division, provide the local and statewide media with timely "How to", "When to" articles and interviews that focus attention on places as well as both consumptive (i.e. gigging, float/wade fishing) and non-consumptive activities (i.e. snorkeling, floating, underwater photography)
3. Publicize the acquisition, development and opening of new public access and/or stream frontage sites.
4. In cooperation with MDC Regional Private Land Services and Outreach and Education personnel, emphasize stream ecology and good stream stewardship (utilizing brochures, aquaria, and stream tables where applicable) during presentations to school groups, youth organizations, and private landowner contacts.
5. Conduct outdoor youth events, such as Ecology Days at stream sites with field activities that demonstrate stream ecology and good stream stewardship.
6. Facilitate the development and activity of Stream Teams and other groups interested in adopting or otherwise promoting good stewardship and enjoyment of watershed streams.
7. Make public presentations in cooperation with regional private land services personnel that focus on the best management practices for private landowners.
8. Provide promotional, educational, and technical stream materials to groups, fairs and other special events.
9. In cooperation with regional private land services personnel, develop brochure which describes the watershed and promotes best management practices within the watershed .

Figure Mp01.

Jacks Fork Watershed

Riparian Corridor Improvement Benefit Potential



Ranking factor based on the following formula: $((Rg+Rc+Ru+Sp+Sl)/3)(Au/Aw)+(S*0.1)$
where:

Rg=Percent grassland riparian land use.

Rc=Percent cropland riparian land use.

Ru=Percent urban riparian land use.

KU=Percent urban riparian land use.

Sp=Percent permanent stream.

Sl=Percent losing stream.

Au=Unit area.

Aw=Watershed area

S=Number of Aquatic Oriented Species of Conservation Concern observed.

(Only those records listed in MDC 1999c are included)