

Long Term Resource Monitoring Program Annual Basic Monitoring Tasks

Vegetation Component	<ul style="list-style-type: none"> • Determine the annual distribution and abundance of aquatic vegetation. • Collect an annual increment of submersed aquatic vegetation data in Pools 4, 8, 13, 26, and La Grange Pool (sampled during July - August) (Table 1). • Quality check data and enter into LTRMP monitoring database. • Develop summary statistics and graphics for web-based annual report. • Update the LTRMP database with an annual increment of water discharge and elevation data for the Upper Mississippi and Illinois Rivers.
Fisheries Component	<ul style="list-style-type: none"> • Determine the annual distribution and abundance of fish species and communities. • Collect an annual increment of fisheries data in Pools 4, 8, 13, 26, the Open River Reach and La Grange Pool, during 3 periods (June 15-July 31; August 1-September 15; September 16- October 31), using 6 sampling gears (day electrofishing, fyke net, mini fyke net, large & small hoop net, bottom trawl) (Table 1). • Quality check data and enter into LTRMP monitoring database. • Develop summary statistics and graphics for web-based annual update.
Macroinvertebrate Component	<ul style="list-style-type: none"> • Determine the annual distribution and abundance of select soft-benthic macroinvertebrates [mayflies (Ephemeroidea), fingernail clams (Sphaeriidae), Asiatic clams (<i>Corbicula</i> sp.), midges (Chironomidae), and zebra mussels (<i>Dreissena polymorpha</i>)]. • Collect an annual increment of benthic macroinvertebrate data in Pools 4, 8, 13, 26, and La Grange Pool during spring (Table 1). • Quality check data and enter into LTRMP monitoring database. • Develop summary statistics and graphics for web-based annual update.
Water Quality Component	<ul style="list-style-type: none"> • Obtain basic limnological information required to (1) increase understanding of the ecological functioning and relationships of the UMRS, (2) document the status and trends of ecological conditions in the UMRS, and (3) contribute to the evaluation of management alternatives and actions in the UMRS. • Collect and analyze an annual increment of data on limnological variables in Pools 4, 8, 13, 26, the Open River Reach and La Grange Pool, tributaries to these reaches, and reaches adjacent to these areas (Table 1). • Provide laboratory support to field stations and analyze about 60,000 water samples annually • Quality check field and laboratory data and enter into LTRMP monitoring database. • Develop summary statistics and graphics for web-based annual update.
Annual LTRMP Summary Report	<ul style="list-style-type: none"> • Complete and distribute an annual report summarizing LTRMP accomplishments in the UMRS during the year.

Statistical Evaluation of Monitoring Data	<ul style="list-style-type: none"> • Provide statistical support on both planned and on an as-requested basis for ongoing and developing studies. This support will include guidance on monitoring and study design, data synthesis, quantitative analysis and modeling.
Land Cover/Land Use	<ul style="list-style-type: none"> • Continue development and maintenance the Land Cover/Land Use (LCU) GIS database for the Upper Mississippi River System. • Analyze changes in vegetation and land cover patterns that have occurred between years. • Acquire and maintain aerial photography library for the UMRS, as funding is available.
Bathymetric Mapping of the UMRS	<ul style="list-style-type: none"> • Create and maintain standard set of products (i.e., data, images) available through the UMESC bathymetry web pages for completed pools.
Data Management and Delivery	<ul style="list-style-type: none"> • Administer and maintain LTRMP master database. • Develop and maintain data and information visualization tools. • Maintain computer applications for field data collection.

Table 1. LTRMP sampling protocols

Component	Study Area					
	4	8	13	26	La Grange	Open River
Vegetation	650 stratified random sample sites over growing season.	650 stratified random sample sites over growing season.	650 stratified random sample sites over growing season.	550 stratified random sample sites over growing season. ¹	550 stratified random sample sites over growing season. ¹	N/A
Fisheries ²	250 samples; 3 periods over summer, 6 sampling gears. Mix of stratified random and fixed sample sites.	270 samples; 3 periods over summer, 6 sampling gears. Mix of stratified random and fixed sample sites.	300 samples; 3 periods over summer, 6 sampling gears. Mix of stratified random and fixed sample sites.	275 samples; 3 periods over summer, 6 sampling gears. Mix of stratified random and fixed sample sites.	400 samples; 3 periods over summer, 6 sampling gears. Mix of stratified random and fixed sample sites.	220 samples; 3 periods over summer, 6 sampling gears. Mix of stratified random and fixed sample sites.
Macroinvertebrates	125 stratified random and fixed sample sites in spring.	125 stratified random and fixed sample sites in spring.	125 stratified random and fixed sample sites in spring.	125 stratified random and fixed sample sites in spring.	125 stratified random and fixed sample sites in spring.	Not sampled ³
Water Quality	150 stratified random sites done quarterly; ~24 fixed sites (mix of biweekly and monthly)	150 stratified random sites done quarterly; ~18 fixed sites (mix of biweekly and monthly)	150 stratified random sites done quarterly; ~26 fixed sites (mix of biweekly and monthly)	150 stratified random sites done quarterly; ~21 fixed sites (mix of biweekly and monthly)	150 stratified random sites done quarterly; ~13 fixed sites (mix of biweekly and monthly)	150 stratified random sites done quarterly; ~9 fixed sites (mix of biweekly and monthly)

1. Continued sampling of these two pools will be evaluated in 5-years (FY08) as per our discussion and pre-proposal by John Chick in FY2003 to assess the application of the existing protocol to these pools and the development of a modification to the approach if warranted. In FY2003, sampling did occur in these pools under drought conditions and was funded by the State of Illinois.
2. Protocol last modified in FY2002 with fishery design change (Ickes and Burhardt 2002).
3. Protocol revised in FY2001 terminating invertebrate collections. Missouri developing recommended protocol for more effective assessment of macroinvertebrates in the Open River Reach.

