Table of Contents, FY1988

Ecological Advisory Team (EAT) October 1987, First Meeting Ecological Advisory Team (EAT) February 1988 Ecological Advisory Team (EAT) June 1988 Computerized River Information Center (CRIC) August 1988

MINUTES FOR ECOLOGICAL ADVISORY TEAM MEETING Rock Island, Illinois October 29, 1987

The Ecological Advisory Team met for the first time in Rock Island, IL on October 29th. Attached is a list of attendees. Jerry Rasmussen began the discussion by giving his perspective on the group's function. It was stressed that the La Crosse staff could not feasibly touch all the bases in each state, therefore, a key function of the advisory team members is to assume responsibility for all in-state coordination. It is anticipated that the team will meet from two to four times a year and will serve primarily to provide advice to guide the direction taken by the LTRM Ecology Program.

The State of Minnesota was not represented, so a final decision regarding operation of the team was not made. However, it was generally felt by those in attendance that consensus could be reached and guidance provided without voting procedures and a detailed mode of operation.

Projected budget scenarios dominated the discussion. Establishing the CRIC facilities at La Crosse will be delayed because the post office will not be ready until September 1988. Given this development, it has been decided to accelerate monitoring in FY 88. Initially, it was suggested to start monitoring four components (vegetation, fish, water/sediment and bathymetry) on Pool 13. However as the team brainstormed this issue, it became apparent that there are distinct advantages to reducing the number of components to be monitored and establish field operations on three pools (i.e. pools 8, 13 and 26) as soon as possible. Establishing field operations with only one component as opposed to four will simplify development of procedures manuals. Additionally, initiating monitoring on three pools will provide the opportunity to get an earlier start on system-wide analyses.

Discussion continued on ranking of the eight components of the LTRM Ecology Program. The group reached consensus that water quality/sediment would be the most appropriate component to start with. If additional money becomes available (i.e. Senate's Budget) the fish, vegetation and bathymetry components will be added. Ken Lubinski will therefore prepare draft operational plans for field stations on pools 8, 13 and 26, keying on the following water quality/sediment related parameters: Temperature, D.O., Turbidity, Light Penetration, Depth, Water Level and Velocity. These parameters were in part selected because they support the other seven major LTRM components. Lubinski will also be completing a standard methods or procedures manual by the end of November which will be circulated for review within the states. The attached FY 88-89 Budget narrative reflects the recommended changes to be taken by the LTRM Ecology Program.

Jerry Rasmussen advised that high priority would be given to development of cooperative agreements with the states. These agreements will provide the foundation for the Fish and Wildlife Service to contract with the states for expected products of the Long-Term Resource Monitoring field stations. The States will be expected to estimate the costs of the work proposed in the Procedures Manuals and Pool Monitoring Plans. The present schedule anticipates funding authorization in January 1988 with field work beginning by April 1988.

Considerable time was also spent discussing the linkage between the Habitat Rehabilitation and Enhancement Projects (HREPs) and the Long-Term Resource Monitoring Program. Presently, it is understood that monitoring will focus on gathering baseline data. However, it is expected that much of this data will be gathered in areas of linkage HREP projects and perhaps PIA studies. Consequently, maximum use will be made of data collected for any EMP component.

To summarize, it was the consensus of the group that immediate LTRM attention should be focused on:

- (1) Cooperative Agreements.
- (2) Standard methods or procedures manual.
- (3) Three pool operating plans keying on one component.
- (4) Watching the budget.

The date for the next meeting was not set. It will likely be after completion and review of the draft Pool Operating Plans and Procedures Manual.

Respectfully submitted,

Norm Stucky Missouri Dept. of Conservation

ATTENDEES

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United States Department of the Interior

FISH AND WILDLIFE SERVICE ENVIRONMENTAL MANAGEMENT TECHNICAL CENTER P. 0. Box 818 LaCrosse Wisconsin, 54601

IN REPLY REFER TO:

November 3, 1987

EMTC/LTRMP

Ecological Advisory Team

RE: Procedure Manuals and Sampling Strategies

Dear Members:

In light of decisions made at the 29 October, Ecological Advisory Team Meeting, my immediate tasks are to put together a water/ sediment procedure manual and 1988 Pool Monitoring Strategies. I'll be doing most of the work on the p.m. but I'll need your help with the sampling strategies. I will soon get out a brief set of guidelines regarding what we want to include in the They will primarily be justifications for and strategies. descriptions of locations where and when water and sediment In the mean time you should be parameters will be measured. thinking about where you would recommend sampling D.O., temperature, turbidity, light penetration, depth, velocity based Consider the possibility of 12 water on the attached diagram. sediment (W/S) stations per pool.

Given the problems of sedimentation, altered water levels and increased navigation, and the primary target components of fish and vegetation, I have taken a stab at siting W/S stations for trend analysis on the generalized pool habitat matrix. I've done this to strongly encourage the same station distribution among all three pools. This will be necessary for a valid system-level It would not be possible, for example, to comparison of data. compare W/S data from an Upper Pool-Channel Border-Wingdam station in Pool 8 to data from an Upper Pool-Channel Border-Tributary Mouth station in Pool 26. For reasons of this kind, we can't emphasize enough the importance in station selection, and we need your cooperation in sticking to a uniform set of Your comments on the habitat matrix are selection rules. invited. If we're going to make changes in the station distribution shown here, we need to do it as soon as possible.

The stations selected for linkage project evaluation will largely be dependent on project design, but it should be possible to identify stations that can double for trend analysis and project evaluation.

Between one and three of the stations will probably be equipped with continuous monitors. At least one of the continuous stations will be used as a reference site in the pool and will be permanent. You may want to consider locating this site close to your field station.

Your comments and suggestions at the meeting were most appropriate. The exchange of ideas set an excellent precedent for future cooperative decision-making between state and federal agencies.

Sincerely CA CUMALE

Ken Lubinski Biometrician

CC: Jerry Rasmussem, Assistant Program Manager, Ecology

Attachments: Distribution List

ECOLOGICAL ADVISORY TEAM

MAILING LIST

NAME/AGENCY

4

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

ENVIRONMENTAL MANAGEMENT TECHNICAL CENTER P. O. Box 818 LaCrosse Wisconsin, 54601

IN REPLY REFER TO:

November 17, 1987

LTRMP/EMTC Nor P.O. Box 818 National Fish Research Lab La Crosse, WI 54601

Ecological Advisory Team Members (See Attached List for Distribution)

Dear Team Member:

The recommendations made by the Ecological Advisory Team at their October 29th meeting (and summarized in the minutes of that meeting) have been reviewed by the EMTC staff and are being adapted for implementation.

Dr. Lubinski is currently working on the draft Procedures Manual for water/sediment analyses. Our target date for completion of this draft is <u>November 30th</u>. In order to remain on schedule, and allow maximum time for development of estimates for state work budgets and recruiting, please be prepared to review the draft Procedures Manual as soon as it arrives. We would like to adhere to a <u>two week</u> review period (due <u>December 15th</u>). Comments should be restricted to technical matters related to specific water quality analyses procedures. We will be unable to address any comments related to desires to monitor any locations outside of pools 8, 13 and 26; or comments related to desires to monitor some other parameter. As far as we are concerned the decision has been made to place first priority on monitoring the water/sediment parameter in pools 8, 13 and 26 in FY 88.

Should FY 88 funding exceed the President's recommended budget, however, monitoring will be expanded in these three pools to include bathymetry, aquatic vegetation and fisheries. These budget scenarios are described in the summaries attached to the October 29th Team meeting minutes. At the present time, however, it appears that we will remain under continuing appropriations until December 16th, unless additional Congressional action occurs before that time.

Mary Mackrill and I are working on the Cooperative Agreements, and hope to have these in the state's hands by December 1. If all goes smoothly this will allow us to have signed Cooperative Agreements and an approved Procedures Manual completed by the first week in January. At that time the participating states should be prepared to complete their budget estimates for FY 88 monitoring (some of this work can perhaps be done in advance by coordinating closely with us here at the EMTC). When the budget estimates are completed, Grants will be signed with the participating states for implementation of monitoring. Right now, I am anticipating that participating states will be Illinois, Iowa and Wisconsin.

In the meantime, we will continue to develop procedures manuals for other LTRM parameters as well as overall pool plans.

An updated Ecological Advisory Team membership list is attached for your use. If anyone has any questions, please feel free to contact my office.

Sincerely,

BRom

Jerry L. Rasmussen Assist. Program Mgr., Ecology

Attachment

cc: File CRIC Advisory Team

ECOLOGICAL ADVISORY TEAM

MAILING LIST

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Ecological Advisory Team February 2-3, 1988 Meeting Minutes

- Discussion of an EAT Chairman resulted in a decision that the chairmanship should pass amongst the five states with a new chairman taking over at the start of each calendar year. Norm Stucky (Missouri) was elected chairman for 1988.
- Mary MacKrill will be the EMTC administrative officer in charge of fund transfers to the various states for LTRM field stations as well as expenditures of the EMTC.
- 3. Copies of the LTRMP Operating Plan were distributed.
- 4. Budget figures for FY88 and estimates for three FY89 scenarios were given in a handout. The basic changes from figures provided last November were the addition of "bathymetry" monitoring costs and Quality Assurance/Quality Control costs associated with higher levels of 2A/2C as requested by the COE. The FY89 figures are all for funding levels below the full funding expected by some EMP supporters.
- 5. Revisions to the LTRMP Procedures Manual were discussed and approved by EAT with the new revised Manual to be sent out in two-three weeks. Manual approval means the EMTC can start pursuing state agreements for FY88 LTRM.
- 6. IBM personal computers will be available for the field stations when data collection is initiated. A variety of software will also be provided, but basic training on use of these programs is not presently planned as a function of EMTC.
- 7. Review and discussion of the data set questionnaire led to suggested revisions to plans for its use. The results of the questionnaire will be distributed as an inventory of data available on a computer disk rather than in hard copy. "Agency" should be added to "Investigator" to provide a source when the Investigator is no longer around. Mike Davis and Dan Wilcox will work with Joe Wlosinski to expand the list of components. Responses will be due 60 days after the revised questionnaire is distributed.
- 8. Glen Radde provided several handouts on GIS and a discussion of GIS capabilities with examples. He explained that if resource agency personnel can devote time to preparation of data for computer entry and for ground truthing, then GIS costs can be cut considerably. Andy Bruzewicz showed some slides illustrating COE application of GIS.

9. A handout of IDMS' list of possible activities using GIS was reviewed to provide CRIC with priority indications. EAT discussion resulted in determination of following priorities:

First Priority - application of data from Brown's survey to the six study pools.

Second Priority - entry of bathymetric data collected under LTRM*.

Third Priority - landuse and land cover.

10. Prioritization of "Problem Solving" tasks was discussed but a decision made that Jerry Rasmussen should convene a group of resource people to spend a couple of days developing scopes of work for 3-4 tasks determined by that group to be top priority.

*Ken Lubinski will provide additional information on options for obtaining the data - contract or crew out of EMTC.

Outline for Discussion of LTRMP Procedures Manual

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Ecological Advisory Team Meeting February 2, 1988

		Hand-out Page
I.	Summary of Comments on Rev. 1.0	1
II.	Changes in Revision 1.1	Z
III.	New variables	3
IV.	Scientific Applications of Data	4-8
v.	Habitat Classification	9-10-11
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	A. Training	
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	C. Data Entry	
VIII.	FY1988 Field Station Products	13
	A. Data (hardcopy and files)	
	B. Annual Report	

Summary of Comments on First Draft of LTRMP Procedures Manual January 1988. Compiled by KSL Comment: Recommended Action: Background comments 1. Publish additional Will do with time. This year documents on QA/QC, Experiwe may only expand sections in mental Design, Data the procedures manual. Management Organizational Comments 1. Change substrate depth to Done. water depth and include with water quantity Optical quality is a factor 2. Include optical quality that illustrates the uniqueness. variables under water quality of LTRMP. Do not change. 3. Eliminate paragraphs on Done. accompanying data values. Include in data management section. 4. Eliminate right justif. Done. Content Comments Waiting for open discussion of 1. Change Slough category to habitat classification scheme. Backwater 2. Eliminate graphs of water Done. variables 3. Practicality of surveying It is necessary. Only a oneeach site and three time job. Do not change. reference points? 4. Specify conventional use Done. of Ascii data formats. 6. Define upper and lower Done. pool. Miscellaneous 1. Add ice and snow condition. Done. 2. Add bathymetry, Will do. topography, substrate composition.

1

PROCMAN REV. 1.1 ORGANIZATIONAL CHANGES IN FACTORS AND VARIABLES

i.

1

REVISION 1.0	REVISION 1.1		
A. Water and Sediment	A. Water		
a. Geomorphology 1. Substrate depth	a. Optical Quality 1. TRB 2. PAR		
b. Optical Quality1. Neph. Turbidity	3. SDT		
2. PAR 3. Secchi Disk Tr.	b. Chemical Quality 1. DO 2. SPCD		
c. Water Quality 1. DO	3. WTP		
2. SPCD 3. WTP	c. Water Quantity 1. VLC 2. WDP		
d. Water Quantity 1. Velocity	3. WEL		
2. Water Elevation	d. Ice Condition		

- Percent Ice Cover(PIC)
 Ice Depth (IDP)
- 3. Percent Snow Cover(PSC)
- 4. Snow Depth (SDP)

B. Geomorphology

- a. Bathymetry 1. SUBSTRATE EL.
- b. Topography 1. LAND EL.
- c. Substrate Quality 1. Substrate Hardness
 - 2. Substrate Composition

NEW VARIABLES IN REV. 1.1

* PERCENT ICE COVER (TRANSECT MEASUREMENT, WEEKLY)

* ICE DEPTH

(POINT MEASUREMENT, WEEKLY)

- * PERCENT SNOW COVER (TRANSECT MEASUREMENT, WEEKLY)
- * SNOW DEPTH

(POINT MEASUREMENT, WEEKLY)

* SUBSTRATE HARDNESS (POINT MEASUREMENT, SEASONAL)

*** SUBSTRATE COMPOSITION**

(POINT MEASUREMENT; PRESENCE OR ABSENCE OF BEDROCK, BOULDERS, COBBLES, GRAVEL, SAND, MUD, CLAY, DETRITUS; SEASONAL)

SCIENTIFIC APPLICATIONS OF LTRMP DATA

PROGRAM ELEMENT	DATA APPLICATION			
Habitat Rehabilitation and Enhancement Projects	- "Indications" of causes and effects			
	 Specific, localized relationships between mostly physical variables 			
	 Possible evaluation of importance of contribution of physical variables to "habitat quality" 			
Trend Analysis	- Evaluation of changes over time			
8. a	 Associations between physical and biological variables 			
	- UMRS spatial heterogeniety			
	- "Indications" of causes and effects			
Problem Identification and Analysis	 Quantitative analysis of simple or moderately complex causes and effects 			

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YEAR 2











B

LTRMP HABITAT CLASSIFICATION

- 1. Needs for a classification scheme:
 - a. to establish stratified random sampling design for the eight program components
 - b. to approximate surface areas for extrapolating point data
 - c. to organize a user-friendly data management system and facilitate data analysis
- 2. Potential classification systems:
 - a. Nord/Rasmussen (UMRS fish compendia)
 - b. Cowardin et al (national wetlands)
 - c. Hagen/Meyer habitat inventory
 - d. GIS generated scheme from the merging of several templates (depth, substrate composition, velocity profile)
- 3. Priority Criteria:
 - a. Appropriate for large, dammed floodplain rivers (at habitat and system levels of scale)
 - b. Appropriate to address sedimentation, future navigation, and water level fluctuations

c. Simple

d. Minimum (no?) overlap between categories

Habitat Classification Scheme Described in Procedures Manual Rev. 1.0 and 1.1

Revision 1.0

Changes in Rev. 1.1?

I. Aquatic Habitat

A. Channel

1. Tailwater

2. Channel trough

a. main b. side

3. Channel border

- a. non-structured
- b. wing-dam
- c. closing-dam
- d. tributary mouth

4. Pool

B. Slough

A. Contiguous

B. Isolated

II. Floodplain

A. Non-leveed

- 1. Marsh
- 2. Forest
- 3. Agricultural
- 4. Developed

Add "Tributary"

Change to "Impounded"

Change to "Backwater"

B. Leveed

- 1. Marsh
- 2. Forest
- 3. Agricultural
- 4. Developed
- 5. Open water

Change to "Standing Water"



EXP. DESIGN TYPE PURPOSE 1 CONT. LEVELS PERMANENT-OF DO, WITT, PAR, WEL HOGRLY × x SPATIAL (HABITIAT) ROTATING -DEFFERENCES IN HOURLY DO, WTP, PAR, WEL 0 TEMPORIL + SPATIAL PERIDDIC CHANGES IV TRB, SDT, DO, SPCD, WTP, VLC WDF, WEL 6 25.4 4.994

LTRMP-PROCMAN Rev. 1.1, Jan. 31, 1988

C) ontin-			Pool			LTRME	Water	Varia	ble C	odes		
P)eriodic	Number	Code	tion	TRB	PAR	SDT	DO	SPCD	WTP	VLC	WDP	WEL
cl	1	CB-U	Upper	2/W	н	2/W	н	2/W	н	2/W	S	2/W
c ² c ² c ²	2 3 4	SL-C SL-C PL	Upper Lower Lower	2/W 2/W 2/W	H H H	2/W 2/W 2/W	H H H	2/W 2/W 2/W	H H H	2/W 2/W 2/W	S S S	2/W 2/W 2/W
P P P P P P P P P	5 6 7 2,8 3,9 10 11 4	CB-U CB-W SL-C SL-C SL-I SL-I PL	Lower Upper Lower Lower Upper Lower Lower	พ พ พ พ พ พ		พ พ พ พ พ พ	W W W W W W	พ พ พ พ พ	W W W W W W	8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	S S S S S S S S	W W W
1 = Cont 2 = Cont Variable	inuous (inuous (Codes: 7 S Codes: 7 S Codes: 7 S	(hourly) (hourly) TRB = Nep SDT = Sec Conductan NEL = Wat	monitor: monitor: helomet: chi Disl ce; WTP er Eleva	ing dur: ing; sur ric Turl K Trans = Wate: ation.	ing all mmer an bidity parency r Tempo	l open nd wint ; PAR = y; DO = erature	water cer; we = Photo = Disso e; VLC	period ekly n osynthe olved (= Velo	ds. cotati etical Dxygen ocity;	on bet ly Act ; SPCD WDP =	ween s ive Ra = Spe Water	tations diation cific Depth;

Table A-2. Minimum required sampling frequencies, by habitat type and pool position, for water variables.

Sampling Frequency Abbreviations: 2/W = Twice per Week; H = Hourly; W = Weekly; S = Seasonally.

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FY1988 Field Station Responsibilities

A. Training

. . . .

- 1. Centralized training organized by EMTC
 - a. LTRMP program goals, river biology
 - b. Continuous monitoring equipment
 - c. Periodic monitoring equipment
 - d. Microcomputer use and data entry
- Local training at field stations (repeat a-d as needed)
- B. Sampling
 - 1. The experimental design is a goal to be obtained by the end of the summer
 - 2. Team leader will have some QA/QC duties
 - 2. Procedures will be spot checked

C. Data entry

- Applications programs will be written and distributed by May 1
- 2. Note goal of entering and field-level data verification within three weeks of data collection

FY 1988 Field Station Products

A. Data

- 1. Hardcopies of all data stored and available at site
- 2. Computer files available at site
- 3. Transfer of data to EMTC at 6 month intervals
- B. Annual Report
 - 1. Will include data from calendar year
 - 2. Due February 28, 1989
 - 3. Will include standardized tables and plots of data. EMTC will write applications to make sure all data is presented in same way.
 - 4. Concise but comprehensive interpretive section on seasonal and habitat differences within data set.
 - 5. Describes any abnormal changes regarding data collection that might bias future interpretations.
 - 6. Describes any major river observations that may not have been documented in the data.
 - 7. After first year, includes a comparison of the data to results from previous years.
 - 8. Anticipated length:

Text = 10-15 pages Tables and Figures = 20 pages

ENVIRONMENTAL MANAGEMENT PROGRAM Long Term Resource Monitoring Program

Map - Locations of Long Term Resource Monitoring Program Environmental Management Technical Center, Field Stations and Monitoring Locations.

* 100 C

Long term resource monitoring is a principal component of the Environmental Management Program. It consists of (1)collection of data over a long period of time to determine resource trends, (2) collection of data for short term problem analysis, (3) collection of data for evaluation of Habitat Rehabilitation and Enhancement Projects and (4)establishment of an Integrated Database Management System. Long term data collection on selected resource components is essential to determine the direction and rate of change (i.e. are resources improving or degrading and at what rate). These data are needed by resource managers to plan for the future and to develop long term management strategies. Short term problem solving is essential to address current resource management issues and develop management solutions. Evaluation of on-going habitat rehabilitation and enhancement projects is required to determine their effectiveness. The Long Term Resource Monitoring Program resource trend analysis and problem solving data collection activities will support Habitat Rehabilitation and Enhancement Project assessment where these projects occur at trend analysis and problem solving sites. The Integrated Database Management System is necessary to provide coordinated data management, statistical analysis, and modeling capabilities to support the other program components.



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Map of the Long Term Resource Monitoring Program Project Area.

ENVIRONMENTAL MANAGEMENT PROGRAM Long Term Resource Monitoring Program

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DESCRIPTION OF FY 1988 ACTIVITIES

- A. The ENVIRONMENTAL MANAGEMENT TECHNICAL CENTER (EMTC), currently located in La Crosse, WI, is the central management facility for the Long Term Resource Monitoring Program. The EMTC will continue to expand in FY 88 as needed to support the activities of the overall program. The EMTC is currently staffed by 6 persons. (Cost: \$318,000)
- в. The ECOLOGY Section is responsible for management of RESOURCE TREND ANALYSIS and PROBLEM IDENTIFICATION AND ANALYSIS activities. RESOURCE TREND ANALYSIS is designed to detect long term changes or trends in land use, water and sediment, vegetation, invertebrates, fish, birds, mammals and public use. In FY 88 water quality and bathymetric monitoring will be initiated on pools 8, 13 and 26. This activity will be conducted by personnel at three state operated field stations to be established at LaCrosse, WI; Bellevue, IA; and Havana, IL. PROBLEM IDENTIFICATION AND ANALYSIS will focus on the sedimentation, navigation effects and water level fluctuations problems. Scopes of work will be developed and funded in FY 88 as permitted by funds remaining after completion of funding transfer to the states for trend analysis activities. Baseline data for HABITAT REHABILITATION AND ENHANCEMENT PROJECT ASSESSMENT will be provided for some water quality parameters in pools 8, 13 and 26 through the resource trend analysis data collection efforts. A QUALITY ASSURANCE/QUALITY CONTROL plan will be developed and implemented in FY 88 for all future Long Term Resource Monitoring Program data collection activities. (Cost: \$810,000)
- C. INTEGRATED DATA MANAGEMENT entails the use of a mainframe computer to store, manipulate, and analyze the vast amounts of data necessary to manage the resources of the Upper Mississippi River System. A COMPUTERIZED RIVER INFORMATION CENTER will be established in FY 88 as part of the EMTC to house the computer and staff. (Cost: \$462,000)

LONG TERM RESOURCE MONITORING PROGRAM PROJECTED BUDGET SCENARIOS

FY 88-89 (ACTUAL AND PROJECTED)

NARRATIVE

(January 25, 1988)

I. BUDGET FY 88 (\$1.59 million)

EMTC

o Current operation of the Environmental Management Technical Center would be maintained.

ECOLOGY

- o Study Management would include the following elements:
 - Salary and benefits for Assistant Program Manager and 2 technical staff.
 - Preparation of detailed plans for Pools 8, 13 and 26 activities.
 - Completion of cooperative agreements with the states.
 - Establishment and implementation of standard operating and QA/QC procedures for three field stations.
 - Coordination with the Computerized River Information Center.
 - Biometric analysis of monitoring operations.
 - Coordination with other units of government.
 - Purchase of one set of bathymetric analysis gear.
- Establishment of field operations (including equipment and administrative costs) to conduct monitoring of selected water/sediment parameters (i.e. Temperature, Dissolved Oxygen, Turbidity, Light Penetration, Depth, Water Level and Velocity) in Pools 8,13 and 26. Data collection would target the needs of trend analysis and problem solving. HREP needs would be addressed only to the extent that they overlap with the needs of other LTRM problem solving activities.

COMPUTERIZED RIVER INFORMATION CENTER

- o Establishment of the CRIC facility
- o Initiate determination and resolution of EMP computerized needs.
- Initiate identification of existing data collection efforts.
- establishment of standards and conventions for data management.

- Acquisition of appropriate computers and software for field stations.
- o Acquisition of the mainframe computer.

- Salary and benefits for Assistant Program Manager and 1-2 technical staff.
- II. SENATE'S RECOMMENDED BUDGET FOR FY 88 (Approx. \$2.0 million)

Everything in the PRESIDENT'S BUDGET would be included, plus physical establishment of field stations in pools 8, 13 and 26. Data collected would address three additional parameters (i.e. bathymetry, fisheries, and vegetation). Again, HREP needs would be addressed only as they overlap the needs of other LTRM problem solving activities.

III. FY 89A BUDGET (Approx. \$2.8 million)

The assumption is made here that funding in FY 88 was at the SENATE BUDGET level. In this case, everything started in FY 88 would continue in FY 89. Data collection would be initiated on some specific tasks of the sedimentation, navigation effects, water level fluctuations, lack of aquatic vegetation and reduced fisheries populations prolblems. A contract would be let to digitize previously collected data. HREP sites would be monitored in each of the three pools only to the extent that they overlap other LTRM problem solving activities.

IV. FY 89B BUDGET (Approx. \$3.8 million)

The assumption is again made here that funding in FY 88 was at the SENATE BUDGET level. Again everything started in FY 88 would be continued in FY 89. Additionally, everything included in FY 89A would be included in FY 89B, monitoring activities (i.e. number of samples collected and sites evaluated) would be increased to bring the monitoring program to 66% of the target level for the four designated parameters on the three designated pools. HREP sites would again be monitored in each of the three pools only to the extent that they overlap other LTRM problem solving activities, but specific problem solving efforts for the five designated problems would increase.

V. FY 89C BUDGET (Approx. \$5.2 million)

The same assumptions are made here as under the other budget scenarios. Everything included in FY 89B would be included here, but at this funding level monitoring activities would reach 100% of the target level for the four designated parameters (i.e. water/sediment, bathymetry, vegetation and fisheries) in all three designated pools. Specific problem solving tasks would again be increased for all five designated problems, and HREP evaluation would only be conducted to extent that it overlaps other LTRM problem solving activities. TABLE 1. LONG TERM RESOURCE MONITORING PROGRAM BUDGET PACKAGES

FOR FY 88 AND FY 89 (\$000)

PROGRAM ELEMENT

BUDGET SCENARIO

	FY 88	FY 88S	FY 89A	FY 89B	FY 89C
EMTC	318	305	410	440	495
ECOLOGY					
STUDY MGMT	393	273	655	700	750
FIELD STA EST	120	300	300	600	600
POOL 8					
VEGETATION	0	19	69	88	107
FISH	0	102	40	52	64
WATER/SEDMNT	84	84	58	142	200
BATHYMETRY	12	40	0	0	77
POOL 13					
VEGETATION	0	19	69	88	107
FISH	0	102	40	52	64
WATER/SEDMNT	84	84	58	142	200
BATHYMETRY	12	40	0	0	77
POOL 26					
VEGETATION	0	19	69	88	107
FISH	0	102	40	52	64
WATER/SEDMNT	84	84	58	142	200
BATHYMETRY	12	40	0	0	77
SEDIMENTATION					
CLSFY BWTRS	0	0	11	11	11
DET LTG FCTRS	0	0	14	14	207
DET PROB CONC	0	0	14	14	207
REVIEW HREPS	0	0	14	14	14
NAV EFFECTS					
TRB/SHR PTRNS	9	0	0	124	124
ICHTHY DIST	0	0	28	83	166
VEL/SED DIST	0	0	0	0	207
BARGE FLTNG	0	0	0	55	110
WATR LEV FLUC					
DOC MGMT FLEX	0	0	8	8	8
EST WL RLTIONS	0	0	0	8	8
AQUATIC VEG					
DET REQUIRMNTS	0	0	35	35	35
REDUCED FISH					
DEV FISH LIST	0	0	7	7	7
SELECT RCHS	0	0	7	7	7
SUBTOTAL	810	1308	1580	2512	3791
CRIC	462	398	790	870	945
TOTAL	1590	2011	2780	3822	5231

KEY: FY 88 - ACTUAL BUDGET

FY 88S - SENATE'S RECOMMENDED BUDGET FY 89(A,B,C) - THREE POSSIBLE BUDGET OPTIONS FOR FY 89

LONG TERM RESOURCE MONITORING PROGRAM (LTRMP) FOR THE UPPER MISSISSIPPI RIVER SYSTEM

ECOLOGICAL ADVISORY TEAM MEETING MINUTES

June 22, 1988

Holiday Inn Davenport, Iowa

The meeting was called to order at 1:00 P.M. by Chairman Stucky (MO). An Attendance List is attached. Stucky reviewed the agenda and noted that the most pertinent item for discussion was review of the proposal prepared by the Illinois Water Survey for completion of navigation effects studies.

Rasmussen (FWS-LaCrosse) briefly reviewed the Long Term Resource Monitoring Program Status Report. No concerns or questions were raised by meeting participants.

Chairman Stucky requested that Corps of Engineers representatives begin discussions related to the Illinois State Water Survey proposal by summarizing their concerns.

Raoul (COE-Chicago) questioned whether the proposed study would reveal anything new or usable at this time. Feedback received from internal Corps of Engineers review had not revealed specific concerns, but he said reviewers had questioned whether it would be a wise expenditure of funds.

Barkau (COE-St. Louis) questioned the merits of data collection on navigation effects because of the difficulty of measuring velocity changes. He said there likely would be a 5-10% fluctuation in data collected, with 40% variability. It is his conviction that this one study will not change anything. He observed that the St. Louis District and their consultant had used many studies to get the statistical reliability they are currently using in their models to assess navigation effects. He said the impacts of tow traffic are very small once you move away from the "cone of influence" behind the towboat.

Raoul commented that the Corps of Engineers had held a meeting on June 21 and said his agency is not sure at what point to say, "I'm satisfied, I have enough data". Turbulence is a very difficult thing to measure. A lifetime could be spent measuring it and one may still not be satisfied with the data.

Barkau added that the data being used in Daryl Simons' most recent

report shows a 30-50% fluctuation around the mean.

Miller (COE-Vicksburg) observed that if we have a sensitive resource, we need to have biological data collected at significant resource sites.

After a general discussion related to these comments was completed Chairman Stucky summarized the Corps' concerns as follows:

- 1. Confidence level of any new data was questioned.
- 2. Concern was raised as to whether or not we are collecting data on the "right piece of the puzzle".
- 3. Concern was raised over duplication of effort between this study and what the Corps is doing elsewhere.
- 4. The statement was made that it is incumbent on science to verify results.
- 5. Concern was expressed that just because it can be shown that fish are killed doesn't mean that any impact occurs at the population level.

The accuracy of this summary was not questioned. Chairman Stucky then asked Bhowmik (IL) to respond to the Corps' concerns.

Bhowmik explained the role of the Illinois Water Survey as a state agency involved in the collection of unbiased scientific data. He explained that his agency has no regulatory responsibilities, but serves only in an advisory role as part of the larger state Department of Energy and Natural Resources. He also stated Illinois' interest in the welfare of <u>both</u> commercial navigation and environmental quality.

After his opening remarks Bhowmik presented a summary of his proposal. Bhowmik made the following points in his summarization:

- Limited data are available on physical effects of navigation.
- 2. Physical effects from navigation can be measured.
- 3. Available models predicting physical impacts need verification.
- 4. Biological impacts can be predicted from physical variability.

A break was taken before opening the floor for further discussion.

Barkhau commented that the proposed Plan of Study was impressive and the Brice McBirney meters will measure any velocity fluctuations. However, he doubts these fluctuation will be seen because existing models indicate they are very small. While agreeing that Bhowmik's data will address the issue of velocity fluctuations, he stated that sediment movement is more difficult to measure. Though Bhowmik is using state-of-the-art methodology, and the proposed plan is vastly superior to the 1981 study, it would still be best (if this study is completed) to complete the data collections at the severe impact sites identified by Simons' model. He suggested that Bhowmik's study be coordinated with the St. Louis District Plan of Study for Lock and Dam 26 mitigation evaluation.

Rasmussen responded that this was, in fact, the desire of the Long Term Resource Monitoring Program as verified in the advanced documentation provided for this meeting.

Huval (COE-Vicksburg) suggested that the study be conducted in the lab. He described the capability of the Waterways Experiment Station, including their work with scale model towboats. Steve Maynard is the researcher conducting that work. Huval stated that little is known about tow-induced flow. He did comment that throttle movements have a tremendous effect on flow around towboats.

Miller stated that the work being conducted by Terry Siemsen at the Corps' Louisville District is not a sanctioned towboat research program.

Harrison (MN/WI BAC) made the following points before leaving to attend another meeting:

- 1. The LTRMP should continue in the direction they are going.
- 2. The Corps would be missing a good opportunity for a second opinion if this study is not completed.
- 3. The Master Plan, which Congress accepted and used to justify authorization of the Environmental Management Program (EMP), painted a bleak picture of the River's future. This needs to be straightened out through data collection and projects completed by the EMP.
- 4. The River partnership is at stake here. The Corps is more than an equal partner because funding for the EMP is coming through them, so the burden is on the Corps all the way to ensure the success of the EMP.

DeMissie (IL) observed from the overall discussion that the Corps of Engineers doesn't seem to have a legitimate concern, apart from not wanting the Illinois Water Survey to conduct the study.

Leake (COE) stated that the St. Louis District's Lock and Dam 26 mitigation evaluations can be completed in cooperation with the LTRMP work.

Szcodronski (IA) recommended that the Advisory Team had enough information to make a decision on funding this proposal.

Raoul asked the question "What is it that you are going to learn from Dr. Bhowmik's work that you won't learn from the Waterways Experiment Station studies?

Stucky stated that he had come to the meeting with an open mind regarding the Corps' concerns, and he was concerned that the LTRMP not go off on a tangent from the work that is being done by the St. Louis District for the Lock and Dam 26 mitigation evaluations. After hearing all the discussion he said he felt more convinced than ever that the LTRMP should press on with completion of Dr. Bhowmik's study. Nelson (FWS) moved that the proposal be accepted and funded. Szcodronski seconded the motion.

Raoul wanted to go on record as asking the question again, "What is it that we can find from this work that the Corps' can't find on their own?"

Rasmussen stated that there is nothing in the LTRMP that the Corps couldn't do on there own if they wanted to.

DeMissie asked Corps participants if they would accept any scientific work conducted outside of the Corps. No one responded specifically to the question.

Schmitz (COE) requested a caucus before taking the vote so that he could adequately represent his agency participants' views. A break was taken.

When the meeting convened the motion was stated as follows: The Ecological Advisory Team recommends that the EMTC proceed with the Illinois Water Survey proposal, conditional upon further coordination with the Corps' St. Louis District.

Bhowmik stated that he would be ready to pick sites for his work within 2-3 weeks. He will be sampling at one or two sites this year, and the sites picked should demonstrate hydrological and biological conditions representative of other reaches on the Upper Mississippi River System. This sampling scheme is necessary so that models can be developed to project impacts within the System. Ultimately, he hopes to collect data on 6-10 sites.

Leake stated that their number of test sites has not been determined yet, but they could identify one test site by July 15th to meet Bhowmik's needs.

Stucky called for the vote and all members voted in favor of completing the proposed study. Two members, however, placed conditions on their affirmative vote.

Strauss (MN) wanted it to be clear that she was voting in favor of only this year's work, and that each future year's efforts be brought to a similar vote. She stated that her state was more interested in funding sedimentation studies than navigation effects studies, if given the choice. Members agreed that each year's proposal would be reviewed by the Team.

Schmitz stated that the Corps would also rather see the money used to fund sedimentation studies. He said his vote for funding this proposal was conditional on meeting the following points:

- 1. The Corps be allowed to provide detailed comments on the proposal and use of the biological data.
- 2. Any changes recommended by the Corps would be accepted.

3. The Corps be given a month to provide these comments.

Bhowmik stated that he had no problem with incorporating the Corps' comments into his proposal as long as they were scientifically sound. The Team agreed that we are only interested in scientifically sound, constructive comments.

Rasmussen stated that it would be impossible to complete the paper work necessary to approve Bhowmik's work if the Corps needs 30 days to provide their comments. He stated that he had already given the Corps 4-6 weeks to review the proposal, and that the purpose of this meeting was to present and discuss their comments and concerns related to the it. After considerable discussion it was agreed that the Corps would have their comments to Rasmussen and Bhowmik within a week (by July 1). This would allow for site selection and paper work to be completed before July 15th, when sampling is scheduled to begin.

The meeting was adjourned at 5:30 p.m.

ECOLOGICAL ADVISORY TEAM MEETING

JUNE 22,1988

ATTENDANCE LIST

NAME

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Butch Atwood	Il. Dept. of Conservation (618) 594-3627
Nani Bhowmik	Il. State Water Survey (217) 333-0238
Mike Demissie	Il. State Water Survey (217) 333-4753
Rodger Adams	Il. State Water Survey (217) 333-4728
Bernard Schonhoff	Ia. Dept. of Natural Resources (319) 263-5062
Kevin Szcodronski	Ia. Dept. of Natural Resources (515) 281-8674
John Pitlo	Ia. Dept. of Natural Resources (319) 872-4976
Ceil Strauss	Mn. Dept. of Natural Resources (612) 345-3331
Doug Norris	Mn. Dept. of Natural Resources (612) 296-0783
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Rick Nelson	U.S. Fish & Wildlife Service (309) 793-5800
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Gail Carmody	U.S. Fish & Wildlife Service (309) 793-5800
Tom MacLeod	Izaak Walton League of America (612) 941-6654
Jim Harrison	Mn/Wi Boundary Area Comm. (715) 386-9444

ECOLOGICAL ADVISORY TEAM MEETING

JUNE 22,1988

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MINUTES CRIC ADVISORY TEAM MEETING

August 30-31, 1988

Attendees: Joe Wlosinski, Sharon Michel, Gordon Farabee, Russ Gent, Jim Morris, Barry Drazkowski, Glenn Radde, Andy Bruzewicz

1. The meeting was convened by chairman Glenn Radde.

2. Joe Wlosinski reported on the following items from the last meeting:

a. All EMTC staff will be located at the new facility in Onalaska, WI.

b. Adopted software will include Lotus, Procom, EPPL, Rbase, SAS, ArcInfo, and Window DOS.

c. Coding forms have been prepared but not yet distributed.

d. Glenn Radde presented information on GIS at the EAT and UMRCC meetings.

o It is recommended that greater coordination be instituted between CRIC and other LTRM elements. The GIS is a tool the use of which is driven by needs of the resource managers.

e. No case studies have been instituted to date. CRIC capabilities must be demonstrated to potential users.

o It is recommended that a single area be chosen for a GIS case study.

3. CRIC update.

a. The IDMS plan is being followed, but at a slower rate than originally recommended. CRIC is getting a slightly larger portion of LTRM dollars than originally planned.

b. The CRIC operating plan and associated funding levels have been published.

c. Personnel. The initial attempt to hire a computer specialist resulted in no qualified applicants. The position is now being advertised as a permanent multidisciplinary one at the GS-12 level. Barry Drazkowski was hired as a biologist/computer specialist, and the computer equipment specialist position closed last week. There is currently no authorization for additional positions, but one technical and one or two nontechnical positions are anticipated in FY 89.

d. Building site. The new building will house both EMTC and the Wisconsin field station staff. Completion is scheduled for September 1988. Funding for construction will come from USFWS in Washington, not LTRM. Iowa and Illinois will bill LTRM for the cost of operating their field stations.

e. Training. Field staff from the three field stations received five

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days of training in July which included the collection of field data and use of the computer equipment. PC's have been supplied to the field stations and Minnesota and Missouri will get similar machines once the Prime arrives in Onalaska.

f. Suspended solids problem solving. A literature search was started by the USFWS Fish Lab and \$6,000 has been budgeted for the University of Minnesota Remote Sensing Laboratory to perform an extensive literature search and report how remote sensing might be used to determine areas and times of year when excessive suspended solids present problems.

4. Development of GIS data.

a. Two different kinds of data development are required for the UMRS GIS: systemic data and detailed data from a more limited number of areas.

o It is recommended that before any data is developed that standards and conventions be established so that all data is collected consistently.

b. The importance of the GIS being driven by resource manager needs was discussed in detail.

o It is recommended that a joint CRIC/interested biologists and resource managers meeting be held to determine:

- what decisions are to be made?

- what data assists the decsion making process?

- what priority order is associated with the necessary data?

c. Data collection will be driven by a combiniation of priorities and available funds.

o It is recommended that low cost systemic data be acquired as a first priority, particularly the USGS 1:100,000 digital data and Landsat imagery as well as any free or low cost data available from universitites and state agencies. Meetings should then be planned as noted above, and, as time allows, data such as the Brown's maps and Merle Meyer land cover classifications entered.

5. Education. Consideration was given to the different levels of information required for those aware of LTRM GIS activities. There appears to be a need for a general overview of what the technology can do and more detailed information aimed at users of the CRIC system.

o It is recommended that data sets of relevance to the Upper Mississippi River System (UMRS) target audience be developed. Professional staff using the system at Onalaska need intensive training. An EPPL course of approximately two days should be offered for one person from each field station and a traveling course should be prepared for presentation in the field.

6. Cooperative agreements. A discussion of how contracts are being awarded for LTRM work followed. Even with memoranda of agreement with the states,

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there may be more than one agency desiring to do specific LTRM work. There also may be qualified contractors available outside the cooperating state agencies. The group expressed concern that the most information be obtained with the available dollars.

o It is recommended that "fair" prices be determined for services to be provided by the state agencies. Cooperators can then decide whether it is in their interest to provide particular services.

o It is recommended that requests for proposals and scopes of work be required for any work items with values exceeding \$50,000, even in the event that states having memoranda of agreements with USFWS wish to do the work. Emphasis should be on using an open procurement process.

7. Computer accounts for UMRS agencies were discussed with regard to usage of time on the LTRM Prime computer. No decisions were made.

o It is recommended that contact be made with all UMRS state agencies and universities informing them about Environmental Management Program (EMP) activities.

8. Budget. The projected budget for CRIC in FY 89 is \$665,000. Additional money was obtained at the end of the year in FY 88 and if more can be obtained in FY 89, additional data would be purchased. A CRIC product such as a 1:500,000 UMRS map is considered desireable.

Hardware and peripherals to be purchased in FY 89 include color terminals, a digitizer, an electrostatic plotter, and a pen plotter. SAS has been purchased for the Prime and charges for outside users will have to be considered.

9. CRIC administration. Glenn Radde and Andy Bruzewicz will serve as the ad hoc chairman and secretary at the next meeting, 6-7 Dec in Onalaska, WI. The 1989 meetings will be 4-5 April and 1-2 August.

o It is recommended that a letter be written to Illinois Geological Survey requesting participation of their advisory board member.

10. E-Mail. Less than half the potential recipients have taken their first message off the system. It will be continued for now.

o It is recommended that E-Mail be put on the Prime using commercial telephone lines so that cost to LTRM is limited to administration.

11. GIS standards and conventions revisited. An LTRM staff member dealing with this issue will be hired in October. It was noted that development of standards for GIS and remote sensing are crucial to the success of CRIC. Minnesota has done some good work in this area, but it also was noted that the needs of the resource managers must be heard and considered.

o It is recommended that Barry Drazkowski and Joe Wlosinski attend the regional ESRI meetings to find out what is being done with ArcInfo.

o It is recommended that those with experience in classification for large spatial data bases (e.g., LMIC, Don McKay, Ben Neiman) be consulted and be developed or an existing standard used. It is essential that the GIS experts and the system users meet together to discuss the issues.

o It is recommended that a careful genealogy be kept for all data sets. Similarly, users need to be aware of the consequences when data layers are combined.

Respectfully submitted,

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Andrew J. Bruzewicz Secretary CRTC Advisory Team